ISLAMIAH COLLEGE [AUTONOMOUS]

Accredited by NAAC with "A" Grade in 3rd Cycle

[Affiliated to Thiruvalluvar University, Vellore] VANIYAMBADI – 635 752

(AIDED & SELF FINANCE)



SYLLABI BOOK XIV

15TH ACADEMIC COUNCIL MEETING

(For the UG & PG Candidates Admitted from 2020-2021)

28Th FEBRUARY 2022

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DEPARTMENT OF ENGLISH BOS APPROVED UG SYLLABI FOR

> V & VI SEMESTERS

		SEMESTER V				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UAEN5001	CORE 8	20 TH CENTURY LITERATURE I	5	5		
 Course Objectives 1. To achieve sense of the historical significance. 2. To instill critical analysis of the literature among students. 3. To develop logical writing skills to write essays on literary topics. 4. To acquaint them in literary debate. 5. To know why 20th Centruly is era of international peace 						
 Course Outcomes Recall the key ideas and texts and intellectual shifts in reading the culture, language and literature. Record ideas and concepts of 20th century criticism Quantify ideas associated with movements like structuralism, post structuralism and feminism. Deal with changing notions of the relationship between humans and nature 						
UNIT-I	POETRY			12 Hours		
1. W.B.Yeats: UNIT-II	Sailing to By PROSE	zantium		12 Hours		
		/		12 11		
	DRAMA	The Dlaybox of the Western Would		12 Hours		
1. John Minin	gton Synge: 1	he Playboy of the western world		1		
UNIT-IV	SHORT ST	TORY		12 Hours		
1. The Mark	on the wall-V	/irginia Woolf				
UNIT-V	FICTION			12 Hours		
1. Joseph Conrad: Lord Jim						
Books for Study/Online Materials:						
 <u>https://poets.org/poem/prayer-my-daughter</u> <u>http://btechenglish.blogspot.com/2014/01/the-scientific-point-of-view-j-b-s.html</u> <u>https://www.gradesaver.com/the-playboy-of-the-western-world/study-guide/summary</u> <u>https://www.enidblytonsociety.co.uk/book-details.php?id=411&title=Hello%2C+Mr.+Twiddle%21</u> <u>https://www.penguinrandomhouse.com/books/354746/the-heart-of-the-matter-by-graham-greene/9780142437995/readers-guide/</u> 						

Books for Reference:

- 1. World in the Twentieth Century, Geoffery Brun
- 2. Twentieth Century Poetry, Harold Monro
- 3. Twentieth Century British Leterature, Arvind M. Nawale & zinia Mitra
- 4. Twentieth Century Literary Criticism, Bijay Kumar Das
- 5. Poetic Artifice A Theory of Twentieth Century Poetry, Thomson.

SEMESTER V							
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT			
UAEN5002	CORE 9	ENGLISH PHONETICS	5	5			
Course Objectiv	Course Objectives						
1. To develo	op knowledge i	n any field of Media.					
2. To develo	op expertise in	the field of teaching.					
3. To unders	stand how sour	nds are produced and they	are transmitt	ed.			
4. To enhand	ce principle of	speech sounds required in	speech thera	iphy.			
5. To identif	fy different bra	nches of historical develop	pment of Lir	nguistics History			
Course Outcom	es						
1. Recogniz	e knowledge a	nd awareness of English P	honetics				
2. Summariz	ze technical ter	ms for describing the Eng	lish pronunci	ation.			
3. Compose	and produce p	honemic transcriptions and	d intonation	patterns.			
4. Acquire p	pronunciation s	kills					
5. Evaluate	expertise in En	glish Language teaching					
6. Calculate	the outcome o	f language speed in a cont	rolled enviro	nment			
7. Create a l	esson plan for	speaking activity					
UNIT-I	LANGUAGI COMMUNI	E, LINGUISTICS AND CATION		12 HOURS			
1. What	Is Language?						
2. What	Is Linguistics?)					
3. Comm	nunication Usi	ng Language- The Two M	ediums				
4. Comm	nunication with	nout Language.		1			
UNIT-II	THE ARTIC	CULATION OF SPEECH	I SOUNDS	12 HOURS			
1. The S	peech Mechan	ism					
2. The P	ure Vowels, C	onsonants and Diphthongs	5				
UNIT-III	SYLLABLE	S		12 HOURS			
1. Stress	– word stress	(Primary & Secondary) –	Sentence stre	ess.			
2. Accer	nt and rhythm i	n connected speech					
UNIT-IV TONE			12 HOURS				

1.	Strong and weak form						
2.	2. Tone group (Breath group)						
3.	3. Intonation						
UNIT-	V PHONEMIC TRANSCRIPTION	12 HOURS					
1.	Individual Words						
2.	Sentences						
3.	Paragraph						
Books for	Study						
1.	English Phonology: An Introdution. Heinz J. Gieg	gerich (Pub: Cambridge)					
2.	Elements of General Linguistics, Dr. Sharad Rajin	nwale (Pub:Rama Brothers)					
3.	Elements of Linguistics and Phonetics, Dr. Amres	sh Sharma (Pub: Ritu					
	Publication, Jaipur)						
4.	A text book of English Phonetics for Indian stude	nts, T.					
	Balasubramanian(Pub:Macmillan)						
5.	English Phonetics, Walter Ripman						
Books for	Reference:						
1.	English Phonetics and phonology: A Practical Co	urse. Peter Roach(Pub:					
	Cambridge University Press)	Cambridge University Press)					
2.	The Study of Language: George Yule. (Pub: Cambridge University Press)						
3.	Practical Phonetics and Phonology .Bererley Coll	ins and Inger M. Mees (Pub:					
4	Rout Ledge)						
4.	An outline of English Phonetics. Daniel Jones(Pu	b: Cambridge University Press)					

5. An Introduction to English Phonetics and Linguistics, Vikrant & Sehgal

SEMESTER V					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UAEN5003	CORE 10	ENGLISH LANGUAGE TEACHING	5	5	

Course Objectives

- 1. To develop speaking and writing skills.
- 2. To enhance fluency and comprehension of the language.
- 3. To familiarize with the 44 sounds in the language.
- 4. To reflect the individual's personality through language.
- 5. To develop the concepts through the help of technology.

Course Outcom	Course Outcomes						
1. Prom	1. Promotes linguistics competence of the learner.						
2. Develops production and receptive skills.							
3. Enhar	3. Enhances the language to suit in different context.						
4. Adapt	4. Adapts to the global economy and the current markets.						
5. Refle	cts the individual's personality through language.	1					
UNIT-I	INTERPERSONAL COMMUNICATION	12 HOURS					
1. Steps	For The Improvement Of Interpersonal Communication	ion					
UNIT-II	TEACHING ENGLISH	12 HOURS					
1. Aims	of Teaching English						
2. Objec	tives of Teaching English						
3. Why	it Is a World Language?	1					
UNIT-III	CREATIVE AND INNOVATIVE WAYS TO TEACH ENGLISH	12 HOURS					
1. Gener	rate Interest Among Students						
2. Bring	Fun into The Classroom						
3. Encou	urage Story Telling						
UNIT-IV	CURRICULUM DESIGN	12 HOURS					
Types of	Curriculum						
UNIT-V	ROLE OF ICT IN TEACHING LEARING PROCESS	12 HOURS					
1. Know	ledge of Information Technology						
2. Comr	nunication Technology in Learning Process						
3. Stimu	lated Visualization of Topic						
Books for Study	1						
1. Howa	ll A.P.R. A History of English Language Teaching, C	OUP, 1984					
2. Richa	rds, J and Rudgers, S. Approaches and Methods in La	inguage Teaching,					
Camb	oridgeUniversity Press, 2001						
3. David	l Nunan, Language Teaching Methodology, Prentice l	Hall, 1991					
4. Dr. S.	V. Shrangare, English Language Teaching, 2011						
5. https://	//www.fluentu.com/blog/theory-of-language-learning	/					
E-notes for Refe	erence/Links						
1. <u>https:</u>	//files.eric.ed.gov/fulltext/ED512896.pdf						
2. <u>http://</u>	/www.huntesl.com/a-brief-look-at-the-different-esl-te	aching-approaches-					
and-n	<u>nethods/</u>						
3. https://	//www.wellesley.edu/careereducation/resources/curric	culum-					
4. <u>https:</u>	//www.journals.elsevier.com/english-for-specific-pur	<u>poses</u>					
5. https://	//www.fluentu.com/blog/business-english/executive-e	5. https://www.fluentu.com/blog/business-english/executive-english-training/					

SEMESTER V					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UAEN5004	CORE 11	AFRICAN-AMERICAN LITERATURE	5	5	
Course Objectives					
1. To acqu	aint students v	with a scope of African Americ	an authors		
2. To recog	gnize poets and	d their contributions to the con	textual fabric of	America	
3. To explo	ore many histo	rical benchmarks within Afric	an American hist	ory such as	
slavery.					
4. To unde	erstand the reco	onstruction and the Civil Right	s movement.		
5. To read	it knows the p	ain, beauty and hope and whol	e range of emoti	ons.	
Course Outcomes					
1. Describe	e unique litera	ry voice of African American v	writers		
2. Underst	and spirit, spir	ituality and the oral tradition.			
3. Compar	e key African	American writers.			
4. Apply th	ne African cen	tered approach to studying lite	rature.		
5. Argue th	ne impact of ra	cism, sexism and economic ex	clusion of Africa	an American	
literatur	e.				
UNIT-I	INTRODUC	CTION TO AFRICAN AME	RICAN	12 HOURS	
	LITERATU	RE			
Short Biographies					
I. Alice W	alker (1944 –	Present)			
2. James V	Veldon Johnso	n (18/1 - 1938)			
3. Phillis V	v neatley (1/5:	3 - 1/84) 1021 - 2012)			
4. James A	<u>. Emmanuel (</u>	1921 - 2013)			
	PUEMS	1048)		12 HOURS	
1. Claude I "If Wo	Must Dio"	1948)			
	angston Hugh	$e_{0}(1002, 1067)$			
2. Janes L "The Ne	angston Hugh aro Speaks of	Rivers			
UNIT-III				12 HOURS	
Cono: I	aan Toomar (1	804 1067)		12 1100105	
		.894-1907)		12 HOUDS	
UNIT-IV	SHORT STO	JRI		12 HOURS	
New York I	Day Women: H	Edwidge Danticat			
UNIT-V	DRAMA			12 HOURS	
A Raisin in	the Sun: Lorr	aine Hansberry			
E-notes for study/	Links				
1. <u>https://w</u>	www.amazon.a	e/Study-Guide-Phyllis-Wheatl	eys-Evening/dp/	1375376063	
2. https://www.amazon.com/Collected-Poems-Robert-Hayden/dp/0871401592					
3. https://www.gradesaver.com/cane/study-guide/summary					
4. <u>https://w</u>	www.amazon.c	om/Sula-Toni-Morrison/dp/B)00HJI8QW		
5. <u>https://w</u>	www.amazon.c	om/Joe-Turners-Come-Gone-I	Magazine/dp/B00	OKD0S4SC	
6. <u>https://w</u>	www.coachdan	ner.net/uploads/4/8/7/7/487729	993/u6_new_yor	<u>k_day_wom</u>	
<u>en_se.pc</u>	<u>lf</u>				
Books for Referen	ce:				
1. <u>https://w</u>	ww.biography	y.com/writer/james-weldon-joł	nnson		

- 2. <u>http://www.shareyouressays.com/essays/short-summary-of-an-hymn-to-the-morning-by-phillis-wheatley/101049</u>
- 3. <u>https://www.gradesaver.com/native-son</u>
- 4. <u>https://www.gradesaver.com/sula/study-guide/summary</u>
- 5. <u>https://www.litcharts.com/lit/joe-turner-s-come-and-gone/summary</u>
- 1. <u>http://www.shareyouressays.com/essays/short-summary-of-an-hymn-to-the-morning- by-phillis-wheatley/101049</u>
- 2. <u>https://www.gradesaver.com/native-son</u>
- 3. <u>https://www.gradesaver.com/sula/study-guide/summary</u>
- 4. <u>https://www.litcharts.com/lit/joe-turner-s-come-and-gone/summary</u>

		SEMESTER V			
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UAEN5005	CORE 12	INTRODUCTION TO LITERARY CRITICISM	4	2	
Course Objecti	ves				
1. To introduce the learners to the literary aspects.					
2. To acquaint the learners with the Clasical background.					
3. To famil	1arize learner	s with dramatic traditions.	itarary work		
5. To help	students how	to analyze and judge the work of litera	ture		
Course Outcon	165	to analyze and judge are work of hera			
1. Recogniz	ze relevance a	and value of theoretical models in litera	ry study		
2. Classify	the importan	t theoretical methodologies	5 5		
3. Evaluate	a literary tex	t by close reading			
4. Catalogu	e the charact	er, voice, narrative and genre	1.		
5. Appraise	e the historica	I and cultural materialist approaches to	literary text.	10	
UNIT-I	CLASSICA	AL CRITICISM		12 HOURS	
5. Arist	totle(384-322	BC)		ΠΟΟΚΒ	
UNIT-II	MEDIEVA	L AND RENAISSANCE CRITICIS	М	12	
HOURS				HOURS	
1. Medieva 2. Literary	l Criticism Criticism in t	he Renaissance			
UNIT-III	UNIT-III NEO CLASSICAL CRITICISM 12 HOURS				
1. Samuel .	Johnson(1709	9-1784)			
UNIT-IV	ROMANT	IC AND VICTORIAN CRITICISM		12 HOURS	
 William Matthew 	Wordsworth Arnold(1822	(1770-1850) 2-1888)			
UNIT-V	TWENTIE	TH CENTURY CRITICISM		12 HOURS	
1. T.S. Elic	ot (1888-1965)			
Books for Stud 1. History o 2. Literary 3. Literary 4. Principe 5. <u>https://w</u>	y of Literary Cr Criticism in 7 Criticism,Bij ls of Literary ww.poetryfo	iticism, Kishan Das Theory and Practice, RN Sirivasthava ay Ketan Pattanaya Criticism, Dr. Ashque Mohammed undation.org/articles/69379/an-essay-or	n-criticism		
Books for Refe	rence:	f the Nineteenth Contemport of 1		h1; .h ;	
I. America House- M	n Literature o New Delhi'	of the Nineteenth Century – An antholog	gy, Eurasia Pu	iblishing	

- 2. American Literature 1890-1965, an Anthology, Eurasia Publishing House, New Delhi.
- 3. A Hand Book of Literary Criticism, Durai Swamy
- 4. Collected Essay in Literary Criticism, Harbert Read
- 5. https://www.slideshare.net/kriangkrai/essay-on-criticism

		SEMESTER V					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT			
UAENCE51	CORE BASED ELECTIVE 1	ENGLISH FOR COMMUNICATION	4	2			
Course Objective	S			·			
1. To impart	1. To impart the value of soft skills						
2. To develop	speaking skills thro	ugh story telling techniques					
3. To learn to	use resources availa	ble for specific purposes					
4. To expose	learners to research	article reading					
5. To acquain	t learners with writing	ng business letters					
Course Outcomes	5						
1. Promote lin	nguistics competence	e					
2. Practicing	production and recept	otive skills					
3. Make learn	hers learn how to de	eal with the people in polite	manner by	listening and			
comprehen	ding speeches of nat	ional and business leaders					
4. Gain pre-re	eading and scanning	the meaning in academic mate	erials				
5. Synthesize	s the ideas in compre	ehension					
UNIT-I	LANGUAGE AC	QUISITION		10 HOURS			
1. Four langu	age skills						
2. Phonetic A	lphabet			Ι			
UNIT-II	CONTEXTUAL I	ENGLISH		10 HOURS			
1. At the Coll	ege office Counter						
2. At the Libr	ary						
5. At the Call				10			
UNIT-III	GROUP DISCUS	SION/INTERVIEW		HOURS			
1. Oral Preser	ntation(PPT)						
2. Personal In	nterview						
3. Dialogue b	etween two or more	people					
UNIT-IV	WRITING			9 HOURS			
1. Dialogue V	Vriting						
2. Paragraph	Writing			1			
UNIT-V	REPORT WRITI	NG		9 HOURS			
1. General, Jo	ournalistic and Techr	nical Functional					
Books for Study/	Online Materials:						
1. Penny Ur,	Discussions and Mo	re: Oral Fluency Practice in th	e Classroom	, Cambridge			
University	Press	o contration/oc/records fil /0	7 45 0 1	c			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	americanenglish.stat	e.gov/files/ae/resource_files/0	<u>1-45-2-g.pd</u> 7_45_2_h ndt	<u>l</u> f			
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	en.wikibooks.org/wi	ki/Literary_Criticism/Reading	_as_a_Liter	ary_Critic			

5. <u>https://medium.com/@kwharrison13/ted-talks-book-review-quotes-3b1cc19344ae</u>

Books for Reference/Online Materials:

- 1. <u>https://www.youtube.com/watch?v=9S7DY2lgJlU</u>
- 2. <u>https://www.youtube.com/watch?v=Vu6UVwkUgzc</u>
- 3. <u>https://www.youtube.com/watch?v=kBsUwIfL8kU</u>
- 4. https://www.youtube.com/watch?v=HukPQ7fOaKg
- $5. \ \underline{https://www.youtube.com/watch?v=7E-cwdnsiow}$

SEMESTER V							
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT			
UAENCE52	CORE BASED ELECTIVE 1	ASED AMERICAN LITERARY 4 2 IVE 1 HISTORY 4					
Course Objective	S			·			
 To introduce To know de To acquain To underst To underst 	ce the learners to the ifferent periods and it the learners with th and how literature cr and political and soc	e early American History. thoughts. ne colonial impact on the Ame reated national identity. cial ideas.	rican Literar	y History			
Course Outcomes	5						
 Demonstra Perform th Write majo Review the Rate literat 	te a broad knowledg e skills in analysis, i or literature with clar e significance of liter ure's value as a crea	e of major and minor authors on nterpretation and research. ity, creativity and persuasiven- cature and literary form. tive endeavor.	of America ess				
UNIT-I	LATE ROMANT	ICISM (1855-1870)		9 HOURS			
"Oh Capt	ain! My Captain!"	:Walt Whitman		I			
UNIT-II	REALISM(1865-1	1890)		9 HOURS			
"Editha" :William Dean Howells (1837-1920)							
UNIT-III	NATURALISM(1	890-1914)		10 HOURS			
"The Open	n Boat" –Stephen Cr	ane					

UNIT-IV	MODERNISM(1914-1945)	10 HOURS
"Mending	g Wall"-Robert Frost	
UNIT-V	AMERICAN LITERATURE SINCE 1945	10 HOURS
"This is	Water"-David Foster Wallace	
E-notes for Study 1. <u>https://ww</u> 2. <u>https://ww</u> 3. <u>https://ww</u> 4. <u>http://wwy</u> 5. The Oxford	y/Links w.biography.com/writer/washington-irving w.biography.com/writer/edgar-allan-poe w.britannica.com/biography/Mark-Twain v.supersummary.com/the-power-of-sympathy/summary/	
 E-notes & Books 1. American House- Ne 2. American Delhi. 3. <u>https://ww</u> 4. Studies in 5. Modern A 	for Reference: Literature of the Nineteenth Century –An anthology, Eurasia Pew Delhi' Literature 1890-1965, an Anthology, Eurasia Publishing House w.biography.com/writer/emily-dickinson Classical American Literature, Lawerence H.D. merican Literature, Rajeswar Mittapalli.	ublishing e, New

	SEMESTER V				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UAENSE51	SKILL BASED ELECTIVE 1	ENGLISH FOR COMPETITIVE EXAMINATIONS-I	2	1	
Course Objectives 1. To make student proficient in writing letters					
2. To acc admin	quaint student with	n professional drafting in the field	of management	and	
3. To inc	culcate the values a	and ethics of e-mail.			
5. To en	hance the skill of u	inderstanding the application of la	nguage concept	s.	
 Course Outcomes Read and comprehend English language Identify the errors in writing Construct grammatically correct sentences. Differentiate the spoken and written context Implement the nuances of official writing creatively 					
UNIT-I	BASICS GRAM	MAR	5 HO	OURS	
1. Units 2. Senter 3. Clause 4. Phrase	of Grammar nce Pattern e Types e Types				
UNIT-II	SPOTTING ER	RORS	5 H	OURS	
 List of common Errors Use of Articles Typical mistakes in comparison Use of past perfect Wrong use of Prepositions 					
UNIT-III	TRANSFORMA	TION OF SENTENCES	4 HO	DURS	
Active a	nd Passive Voice				
UNIT-IV	COMMONLY N	AISSPELLED WORDS	5 HC	DURS	
Words o	ften misspelled un	intentionally			
UNIT-V	CLOZE TESTS		5 HC	DURS	
Figuring	out appropriate w	ords to be filled			

Books for Study:

- 1. Read and comprehend English language
- 2. Identify the errors in writing
- 3. Construct grammatically correct sentences.
- 4. Differentiate the spoken and written context
- 5. Implement the nuances of official writing creatively

6.

Books for Reference/Links

- 1. English for Competitive Examination, Dr. Ayothi
- 2. English for Competitive Examination, Gopalan R. Hadhavan PK. & Rajagopalan V.
- 3. English for Competitive Examination, second Edition, R. Gopalan&V. Rajagopalan
- 4. English for Comepetitive Exam, Third Edition, RP. Bhatnagar
- 5. <u>https://easyengineering.net/objective-general-english-for-competitive-exams-by-disha-experts/</u>

	SEMESTER V				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UAENSE52	SKILL BASED ELECTIVE 1	BUSINESS WRITING IN ENGLISH	2	1	
Course Obje	ctives				
1. To pro	ovide exposure to bu	siness writing skills.			
2. To int	roduce them to etiqu	ettes of business communication	ation.		
3. To cla	rify the details.				
4. To but	ild relationship and	networking.			
5. To kee	ep business with con	nmunication letters			
Course Outc	omes				
1. Comp	rehending the langu	age between the lines			
2. Expre	ssing the views prec	isely			
3. Skill o	of making grammation	cally correct sentences.			
4. Drafti	ng the business ema	ils.			
5. Publis	hing the academic p	apers of their specialization			
UNIT-I	FUNCTIONAL E	NGLISH FOR BUSINESS		5 HOURS	
1. Vocab Work	oulary To Describe E place	Events, Outcomes, Tasks, En	tities And	Processes In The	

UNIT-II	BUSINESS COMMUNICATION	4 HOURS
1. What	is Business Writing?	
UNIT-III	WRITING PROPOSAL	5 HOURS
1. Writi 2. Guid 3. Com	ng Strategies elines Before Writing ponents of Proposal Writing	
UNIT-IV	STEPS TO PREPARATION OF REPLIES	5 HOURS
1. Steps 2. Draft	to Prepare An Appropriate Rep ing Letters	
UNIT-V	WRITING PROCESS	5 HOURS
1. Mech	nanics of Writing	
2. Fram	ing a reply	
3. Chec	king Reply.	
Books for S	tudy/ Online Materials:	
1. Dr. K	.M. Prabu-"Advanced Business Writing"	
2. <u>https</u>	//articles.bplans.com/how-to-write-a-business-plan/	
3. <u>https</u>	//www.entrepreneur.com/article/281416	2040042
4. <u>https</u>	//www.thebalancesmb.com/executive-summary-of-the-business-pla	<u>an-2948012</u>
5. $\frac{\text{nttps}}{4210}$	//smallbusiness.cnron.com/write-executive-summary-marketing-pi	<u>an-</u>
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DOOKS IOF K	elerence:	
$\begin{array}{c} 1. \underline{\text{nups}} \\ 2 \\ \text{https} \end{array}$	//www.entrepreneur.com/article/247574	
$\begin{array}{c} 2. \ \underline{\text{nups}} \\ 3 \ \text{https} \end{array}$	//www.thebalancesmb.com/business-plan-executive-summary-exa	mple-2948007
$\begin{array}{c} 3. \ \underline{\text{nttps}} \\ 4 \ \text{https} \end{array}$	//bizfluent com/how-6534008-write-executive-summary-marketing	npic <u>2)+0007</u>
5 https	//www.fels.upenn.edu/sites/default/files/5_executive_summary_ex	amples pdf

SEMESTER VI					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UAEN6001	CORE 13	20 TH CENTURY LITERATURE - II	5	5	
Course Obje	c tives nieve sense of tl	he historical significance.			

- To develop critical analysis- develop logical writing skills
 To write essays on literary topics.
 To know why 20th Century is an era of international peace.
 To acquaint them in literary debate.

Course Outcomes

- 1. Recall the key ideas, texts and intellectual shifts in knowing the culture, language and literature.
- 2. Explain the ideas and concepts of 20th Century Criticism
- 3. Sketch the ideas associated with movements like structuralism, post structuralism and feminism.
- Deal with changing notions of the relationship between humans and nature
 Report on holistic understanding of 20th Century Literature

UNIT-I	POETRY	12 HOURS
1. W.H. 2. T.S. I	Auden :Song Elliot: Marina	
UNIT-II	PROSE	12 HOURS
A.G. Gar	diner :George Bernard Shaw	
UNIT-III	DRAMA	12 HOURS
Galswort	hy: Silverbox	
UNIT-IV	SHORT STORY	12 HOURS
O. Henry	: The Gift of Magi	
UNIT-V	FICTION	12 HOURS
Joseph C	onrad: Heart of Darkness	
Books for St	tudy/ Online Materials:	
1. <u>https:</u>	//www.gradesaver.com/w-h-auden-poems/study-guide/summary-th	ne-unknown-
2. <u>https:</u> <u>the-m</u>	<u>n</u> //www.gradesaver.com/journey-of-the-magi/study-guide/summary nagi	-journey-of-
3. <u>http://</u> <u>pdf</u>	/citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.392.6483&rep	p=rep1&type=
4. <u>https:</u> <u>chara</u> 5. https:	//study.com/academy/lesson/heart-and-hands-by-o-henry-summary cters.html //englicist.com/notes/hearts-and-hands-o-henry	7-
Books for R	eference:	
1. Nine 2. <u>https:</u> <u>the-m</u> 3. <u>https:</u>	Modern Poets, Ed. Black. Macmillan //interestingliterature.com/2016/12/15/a-short-analysis-of-t-s-eliots nagi/ //owlcation.com/academia/Very-Short-Stories-For-High-School	s-journey-of-
4. <u>http:/</u>	/notesforba.blogspot.com/2019/01/selected-snobberies-by-aldous-	

huxley_92.html

5. <u>https://subjectnotess.blogspot.com/2013/08/act-iii-of-silver-box-summary.html</u>

		SEMESTER VI			
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UAEN6002	CORE 14	JOURNALISM AND MASS COMMUNICATION	5	5	
Course Obje	ectives		I		
1. To tea	ach the learners ho	w to expose serious misdemeanor			
2. To pr	event learners fron	n being misled by statement or act	ion.		
3. To stu	idy the practical sk	tills of Journalism.			
4. To rel	late to enhance the	process of education.			
5. To co	rrelate the cultural	and entertainment			
Course Outo	comes		• • • ••		
I. Descr	ibe effective oral	presentations on a variety of topic	s in public setting	gs	
2. Apply	basic and advance	ed numan communication theories	s and models to a	cademic	
anu p. 3 Maka	offective business	and professional presentations to	internal and exte	rnal	
J. Make	nces	and professional presentations to	internal and exte	inai	
4 Prena	re a media report c	of official events			
5. Meas	ure the information	related to an event			
UNIT-I	INTRODUCTIO	N TO JOURNALISM	1	2 HOURS	
1. Defin	ition of Journalism				
2. Impor	rtance of Photogram	ohs			
3. Mass	Media				
4. Printi	ng Media				
UNIT-II	COMMUNICAT	TION AND THEIR TYPES	1	2 HOURS	
1. Trans	actional Model of	Communication			
2. Proce	ss of Information-	Syntactic, Pragmatic and Semanti	c		
3. Types	s of Communicatio	ns Channels			
UNIT-III	REPORTING &	WRITING FEATURES	1	2 HOURS	
1. News	value, human inte	rest and story angle			
2. Opinion- Editorials, Personal Columns, Reviews etc.,					
UNIT-IV	EDITORIAL W	RITING	1	2 HOURS	
1. Letter	s to the Editor				
2. Art of	f interviewing, Sp	orts reporting	ı		
UNIT-V	ART OF EDITI	NG	1	2 HOURS	
1. Techr	nical Editing				
2. Busin	ess Editing				

3. Proof Reading

Books for Study:

- 1. Mass Communication and Journalism in India, DS Metha
- 2. A Complete Guide to Jounalism for All, GK Gupta
- 3. Print and Broadcast Jounrnalism, J. David
- 4. Visual Journalism, Rajesh Pandey
- 5. Journalism Innovation and Research, Das Gupta

Books for Reference/Online Materials:

- 1. RangaswamiParthasarthy- Basic Journalism, Macmillan Publishers, Chennai.
- 2. B.N. Ahuja: Theory and practice of journalism, Surjeeth publishers
- 3. PathanjaliSethi- Professional Journalism, New Orient Longman, Bombay.
- 4. Journalism and Mass Communication, Shekhar Verama, Sonali Publications, New Delhi.
- 5. http://www.preservearticles.com/importance-of/short-essay-on-the-importance-ofmass-communication/18792

	SEMESTER VI						
COURSE CODE	COURSE	COURSE TITLE	COURSE TITLE HRS/ WEEK CRED				
UAEN6003	CORE 15	COMMON WEALTH LITERATURE	5	5			
Course Obje	ctives						
1. To ext	end student's kno	wledge of literature from commor	n wealth countries	8			
2. to give	e training in resear	ch methods					
3. to dev	elop writing skills						
4. to prov	vide foundation ki	nowledge of those who intending t	to proceed to an				
M.A.E	English						
5. To fan	niliarize the stude	nts with democracy, human rights	and rule of law.				
Course Outco	omes						
1. Label	the geography of	commonwealth literature					
2. State t	he functions of co	mmonwealth literature					
3. Differ	entiate major cha	racteristics of Commonwealth lite	rature/issues com	mon to the			
writer	8						
4. Establ	ish Major themes	and literary trends in commonwea	alth literature				
5. Invest	5. Investigate the problem of language in creative writing in the Commonwealth						
literature							
UNIT-I	FOCUS ON EN	GLISH LITERATURE		12 HOURS			
1. Elizab	ethan Era:(1558-1	603)					

2. Jacobean Literture:(1603-1625)

3. Augu 4. Rom	ustan Literature:(1689-1750) anticism (1798-1837)	
UNIT-II	CANADIAN LITERATURE	12 HOURS
Notable	Writers: Susanna Moodie, Catherine Parr Traill and Margaret Atwood	
UNIT-III	SOUTH AFRICAN LITERATURE	12 HOURS
Notable	Writers: Athol Fugard ,Olive Schreiner,Tony and Ullyatt	
UNIT-IV	AUSTRALIAN LITERATURE	12 HOURS
Notable Wri	ters:Adam Lindsay Gordon,Steele Rudd and Leon Carmen	
UNIT-V	INDIAN DIASPORA	12 HOURS
Notable Wri	ter: Jhumpa Lahiri	
Books for S	tudy/Online Materials:	_
I. <u>https</u>	://owlcation.com/humanities/Analysis-of-Poem-Ruins-Of-A-Great-Hou	<u>use-by-</u>
$\frac{Dere}{2}$	<u>-//www.poeticous.com/margaret_atwood/journey_to_the_interior</u>	
3. https	://www.sparknotes.com/lit/handmaid/summary/	
4. https	://muse.jhu.edu/article/246008/summary	
5. <u>https</u>	://www.researchgate.net/publication/326610023_A_Study_of_Wole_S	oyinka's_
Play	The Lion and the Jewel in the Light of Cultures in Conflict	
Books for R	eference/Online Materials:	
1. 'An 2	Anthology of commonwealth poetry', edited by C.D. Narasimhaiah, M	acmillan
Publi	shers, Chennai.	
2. 'Rea	dings in commonwealth Literature', Edited by William Walsh, Oxford	University
Press	, London.	
4 http://	//moorthisukumarnatrhenalishliterature blogspot.com/2016/04/buman-	rights_in_
litera	ture-study-of.html	<u>1151113-111-</u>
5. <u>https</u>	://academicjournals.org/journal/IJEL/article-full-text-pdf/CA39133618	<u>61</u>

COURSE CODE COURSE COURSE TITLE HRS/ WEEK CRED	Т			
UAEN6004CORE 16GENDER STUDIES55				
Course Objectives				
1. To demonstrate an understanding of the social construction of gende.				
2. To acquaint knowledge about gender issues as they affect diverse populations.				
3. To get familiarize with women's studies, men's studies and queer studies				
 4. To acquire the connotation of cultural or attitutinal characteristics. 5. To understand the characteristics or traits that are associated with biological aspect 				
S. To understand the characteristics of traits that are associated with biological aspect.				
1 Utilize key concepts, terminology and theoretical frameworks central to the				
interdisciplinary field of Gender Studies				
2. Identify various spheres of human endeavor.				
3. Review about people, culture and society				
4. Sketch the psychological thought process of the society				
5. Discuss the societal awareness of a particular geographical region				
UNIT-I FEMINIST THEORIES 12 HOUR	5			
1. What is Feminism				
2. Liberal Feminism				
3.Radical Feminism				
UNIT-II FEMINIST MOVEMENTS 12 HOUR	5			
1. Feminist Movements in West				
2. United Nation Conference on Women				
UNIT-III PROSE 12 HOUR	6			
1. Virginia Woolf: A room of one's own	1			
UNIT-IV FICTION 12 HOUR)			
1.1 nomas Hardy: Less of the D Ubervilles	1			
1 Hanriak Ibson · A Dall's House)			
1. Hennek lösen . A Don's House				
books for Study/Online Materials:	-			
for death pdf	<u></u>			
2 https://www.pootrypook.com/poom/my.grandmathers.house				
2. https://www.poenynook.com/poen/my-grandmoulers-nouse				
3. <u>nttps://ebooks.adelaide.edu.au/w/woolt/virginia/w91r/contents.html</u>				
4. <u>nttps://www.cliffsnotes.com/literature/t/tess-of-the-durbervilles/book-summary</u>				
5.https://www.sparknotes.com/lit/dollhouse/summary/				
Books for Reference/Online Materials:				
1. Sandra M Gilbert and Susan Gubar, 1985, The Norton Anthology of literature by				
women, New York				
2. An Anthology of American women writing, Kajani P, V. Kajagopaian and NirmalSalvamani Dent of English Madres Christian College				
3 https://www.shmoon.com/because_i_could_not_ston_for_death/summary.html				
4. https://englishsummary.com/lesson/mvgrandmother-house-kamala-das/				
5. https://www.sparknotes.com/lit/roomofonesown/summarv/				

SEMESTER VI					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UAEN6005	CORE 17	CREATIVE WRITING	4	2	
Course Objectives					
1. To cre	eate writing as	an integral part of the	English Depa	rtment.	
2. It help	os students to a	chieve critical thinkin	g by reading b	between the lines.	
3. To ex	press their inn	er voices nationally an	d internationa	lly through structured	
writin	g.	•, •, • •	1.		
4. To he	Ip students to v	write thier creative tho	ughts.		
5. 10 Ma	aster the foreig	gn language			
Course Outcomes	the offective	use of the conventions	of the English	h languaga	
1. Kecal 2 Exam	ine the texts fr	use of the conventions	of genres con	text and cultures	
2. Exam 3. Repre	sent cultures a	nd encounters betweet	or genres, con a cultures	liext and cultures.	
4 Analy	ze the writing	reading and research	i cultures		
5. Evalu	ate a new lead	lership in writing			
	INTRODUC	τιον το σρελτι	VF		
UNIT-I	WRITING	CHON TO CREATIN	V L	12 HOURS	
1. Why	we write?				
2. Learn	ing to write A	Play of mind			
UNIT-II	UNIT-IICREATIVE WRITING THE WORLD10 HOURS				
1. Creati	ve Writing and	d Creative Criticism			
2. Readi	ng yourself as	a Writer			
3. Writin	ng as teaching				
4. Captu	ring ideas for	writing			
UNIT-III	PROCESSE	S OF CREATIVE V	VRITING	9 HOURS	
Seven Pr	ocesses of Wri	iting			
UNIT-IV	WRITING I	FICTION AND SHO	RT	10 HOURS	
Ficti	on and Non-fi	ction-Literary and pop	ular fiction-C	haracter. Plot. Point of	
View and Setting in a	short Story.	enon Enerary and pop		naraeter, 1 lot, 1 onit of	
UNIT-V	WRITING I	DRAMA		10 HOURS	
1. Co	oncepts and Ch	naracteristics of Drama	a- Plot, Structu	are and	
Characterization.					
2. Writing a Drama with some characters					
Books for Study/Links					
1. <u>https://grammar.yourdictionary.com/word-definitions/definition-of-</u>					
creative-writing.htm					
2. <u>https://www.proofreadnow.com/blog/7-benefits-of-creative-writing-</u>					
exercises					
3. <u>https://www.sarahseleckywritingschool.com/why-is-creative-writing-so-</u>					

<u>important/</u>

- 4. <u>https://study.com/academy/lesson/what-is-creative-writing-definition-</u> <u>types-examples.html</u>
- 5. https://www.uvm.edu/wid/writingcenter/tutortips/WritingCreativePage.pdf

Books for Reference/Links

- 1. Creative writing: Anjana Neira Dev, Anuradha Marwah, Swathi Pal. Pearson Longman Publication
- 2. <u>https://www.simplek12.com/reading-writing/4-benefits-to-creative-writing/</u>
- 3. <u>http://www.writerstreasure.com/creative-writing-101/</u>
- 4. https://self-publishingschool.com/creative-writing/
- 5. <u>https://twp.duke.edu/sites/twp.duke.edu/files/file-attachments/creative-writing-1.original.pdf</u>

SEMESTER VI						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UAENCE61	CORE BASED ELECTIVE 2	SOFT SKILLS	4	2		
Course Object	ives					
1. It helps st	udents to communic	ate short messages through gest	ures			
2. It helps st	udents to communic	eate the message clearly to an ind	dividual or t	o a group.		
3. To teach a	an appropriate and re	easonable decisions –				
4. To educat	e learners about unp	productive thinking and self-defe	eating behav	iors.		
5. It helps to	understand the sche	edule and time management whi	le communi	cating.		
Course Outcon	nes hand English in the	contant of convicition of coft of	:11.			
1. Compre	a ft alvilla in writin	context of acquisition of soft ski	1115			
2. Express	son skins in writing	g views.				
J. Inspect	grannialically, the I	received pronunciation				
5 Justify t	he day affairs well y	with the knowledge of soft skills				
	THE BASICS OF	COMMUNICATION SKILL	.S	10 HOURS		
1 What to	listen for and why					
2 When to 2 Storting	ord Sustaining a co	nucreation				
J. Starting						
UNIT-II INTERPERSONAL COMMUNICATION			10 HOURS			
1. Building	1. Building Relationships					
2. Understanding the Group Dynamics						
3. conflicts and their Resolution						
UNIT-III	SAFETY, REFEI	RENCES AND HISTORY		10 HOURS		
1. Safet	y Rules			•		
2. Good	2. Good References					
3. Good Work History						

U	NIT-IV	INTERVIEW SKILLS	9 HOURS			
	Types of interviews : Group Interview, Panel and Telephone Interviews					
τ	JNIT-V	LEADERSHIP QUALITY	9 HOURS			
	Traits of	Eleadership: Honesty, Integrity, Dedication, Responsibility, Goa	al setting and			
	Decision	n making.				
Boo	oks for Stud	y/Online Materials:				
1.	A Course in	Communication Skills, P. Kiranmai Dutt, Geetha Rajeevan, CLN	l Prakash			
2.	Communic	ation Skills,Rajendra Pal J.S, Korlahalli				
3.	Learning th	e Communication Skills,D Mittal				
4.	4. Soft Skills, S.Hriharan, N.Sundararajan					
5.	5. https://www.slideshare.net/SeyidKadher1/soft-skills-68073286					
Boo	oks for Refe	rence:/ Online Materials:				
1.	Soft skills a	nd Professional Communicaion, Francis Peter SJ.				
2.	2. Personality Development and Soft Skills, Barun K. Mitra					
3.	3. Soft Skills tools for Success, Rajat Gupta					
4.	4. Secret of Improving Soft Skills, Dilip Achrya					
5.	Soft Skills	for Success, Murty G.R.K.				

SEMESTER VI					
COURSE CODE COURSE COURSE TITLE HRS/ WEEK CRE					
UAENCE62	CORE BASED ELECTIVE 2	The Great Women Writers In World Literature	4	2	
Course Object	ives				
1. To expla	ain human righteous	sness and morality.			
2. To justi	fy how body and mi	nd can be changed if true guidar	ice given.		
3. To deve	lop the real concern	and care for the society.			
4. To recommend the learners the importance of good and evil					
5. To maximize the thought that every individual is a significant contributor of the					
society.					
Course Outcomes					
1. Gains knowledge of different historical events.					
2. Understands the history of English literature.					
3. Classifies the ideas of different authors.					
4. Comprehends literary terminologies.					
5. Creates awareness about critical approaches.					

UNIT-I	POET	9 HOURS			
George Eliot					
UNIT-II	SHORT STORY	9 HOURS			
Louis	a May Alcott				
UNIT-III	NOVEL	10 HOURS			
Toni M	orrison				
UNIT-IV	DRAMA	10 HOURS			
Marsha	Norman				
UNIT-V	LITERARY CRITIC	10 HOURS			
Elaine Showalter					
Books for Stud	ly/Online Materials:				
1. <u>https:</u> /	//www.westernreservepublicmedia.org/poetry/images/because-i-	-could-not-			
stop-for	- death.pdf				
2.https://www.poetrynook.com/poem/my-grandmothers-house					
3.https://ebooks.adelaide.edu.au/w/woolf/virginia/w91r/contents.html					
4.https://www.cliffsnotes.com/literature/t/tess-of-the-durbervilles/book-summary					
5. <u>https://www.sparknotes.com/lit/dollhouse/summary/</u>					
Books for Reference/Online Materials:					
1. Sandra M Gilbert and Susan Gubar, 1985, The Norton Anthology of literature by					
Women, New York					
2. An Anthology of American Women Writing, Rajani P, V. Rajagopalan and					
NIFINAISEIVAMANI, Dept. OF English, Madras Christian College 3 Sandra M Gilbertand Susan Gubar ed 1985 The Norton Anthology of					
4. Litera	4. LiteraturebyWomen, New York.				
5. <u>https://www.shmoop.com/because-i-could-not-stop-for-death/summary.html</u>					

SEMESTER V					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UAENSE61	SKILL BASED ELECTIVE 2	ENGLISH FOR COMPETITIVE EXAMINATIONS-II	2	1	
Course Object	ives				
1. To mak	ke student proficient	in writing letters			
2. To acqu	uaint student with pr	ofessional drafting in the field of	of managem	ent and	
adminis	tration,				
$\begin{array}{c} 3. Io incu$	licate the values and	ethics of e-mail.			
$\begin{array}{c} 4. 10 \text{ Bull} \\ 5 \text{To enha} \end{array}$	a a strong foundation	n in language.	allaga conce	nte	
J. To enna		instancing the application of rang	guage conce	pis.	
1 Compr	n es ehend the general wi	riting skills			
2 Get equ	ipped for competitiv	ve exams			
3. Constru	act correct sentences	and right vocabulary			
4. Establi	sh the importance fo	r the received pronunciation			
5. Integra	te the day affairs we	ll with knowledge of language s	kills.		
UNIT-I	READING COM	PREHENSION		5 HOURS	
1. Technic	al levels involved				
2. Wide ra	nge of skills and int	rests			
3. Multi-d	imensional affair				
4. Drawn i	inference from the co	ontext			
UNIT-II	UNIT-IIRECONSTRUCTING PASSAGES4 HOURS				
Jumbled Se	entences				
UNIT-III	SENTENCE			5 HOURS	
1. Sentenc	e Correction				
2. Sentence	e Improvement				
UNIT-IV	DEGREES OF C	OMPARISION		5 HOURS	
	І ЕТТЕР МІТТ	NC AND REDADT WDITIN	2	AHUIDE	
0111-1		ING AND REPORT WRITING	J	41100K5	
1. As an an	rt and Technique				
2. Formal or Informal Letters					
5. Invitations and Replies					
Rooks for Study					
1 To make student proficient in writing letters					
2. To acquaint student with professional drafting in the field of management and					
administration,					
3. To incu	lcate the values and	ethics of e-mail.			
4. To build	4. To build a strong foundation in language.				
5. To enhance the skill of understanding the application of language concepts.					

Books for Reference:

- 1. English for Competitive examination, Dr. Ayothi
- 2. English for Competitive examination, Gopalan R.Hadhavan PK. & Rajagopalan V.
- 3. English for Competitive examination, second Edition, R. Gopalan&V. Rajagopalan
- 4. English for Comepetitive Exam, Third Edition, RP. Bhatnagar
- 5. English for competitive Examinations by Rajul Bhargava, Macmillan publishers.

SEMESTER V						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UAENSE62	SKILL BASED ELECTIVE 2	Nature Environment and Literature	2	1		
Course Objecti	ves					
1. To enabl	e the learner to commun	icate effectively				
2. To introc	luce students to environ	mental literature				
3. To provi	de exposure to millennia	al thinking				
4. To devel	op appreciation and inte	rest in literature				
5. To integr	rate the four skills					
Course Outcom	nes	_				
1. Identify	various spheres of huma	n endeavor.				
2. Review a	about people, culture and	l society				
5. Sketch u	the societal awareness of	f a particular geographical re	ngion			
5 Analyze	forces shaping individua	als' experiences as well as so	cial structure	x		
5. military20	forees shaping marriad	als experiences us well us so		-		
UNIT-I	AN ENVIRONMENT	TAL APPROACH		5 HOURS		
Shrawan,	K. Sharma					
THE POETRY OF WILLAM WORDSWORTH- THE				5 HOURS		
0111-11	POET OF NATURE			3 HOUK5		
Amarnath Prasad						
UNIT-III	NATURE SMILES IN	N FLOWER		5 HOURS		
Anju Mukhopadhyay						
UNIT-IV ENVIRONMENTAL ISSUES IN THE SELECTED NOVELS				4 HOURS		
Toni Morrison						
UNIT-V	THE OMNISCIENC	E OF NATURE IN RUSKI	IN BOND	5 HOURS		

Bandana Burman

Books for Study

- 1. Blake William," The Lamb" in the book; Songs of innocence and songs of experience, edited by K. Dwarkanath, Delhi: The Macmillan Company of India Ltd. 1980, print.
- 2. Crompton –Ricket, Arthur, A History of English Literature.London: Thomson Nelson & Sons Ltd,1963,print.
- 3. Flowers and their Messages. The Mother. Auroville; Auro Press Trust. India.1973.Print.
- 4. Flowers.Rimbaud. Collected Poems.G.B; Penguin Books Ltd. 1966.Print.
- 5. Morrison, Tony. Beloved .London; Vintage, 1997.Print.

Books for Reference:

- 1. Moore, Caroline in A Mercy by Tony Morrison-review.14th NOV.2009.
- 2. Literature.New York; w.w. Norton& Company Inc, 1971.Print.
- 3. Emerson, Ralph Waldo.Essays and English Traits. Mumbai; Wilco Publishing House,2006.Print.
- 4. Arun, Neerja, Saraswat, Rakesh. Ed. Ecology and Literature Global Perspective, New Delhi; Creative Books, 2009. Print.
- 5. Beach, Joseph Warren. The Concept of Nature in 19th century English Poetry. New York; Doubleday and Company, 1966. Print.

SEMESTER IV						
COURSE CODE	COURSE CODE COURSE COURSE TITLE		HRS. / WEEK	CREDIT		
UAENPJ61	PROJECT	PROJECT	90 ^a	30		
Course Obje	ctives					
1. To dev	velop a research	proposal to resolve a problem.				
2. To col	lect data to find	l solution to a problem.				
3. To enl	nance physical	and manual skills.				
4. To dev	velop a scaffold	ing method to reach a conclusion.				
5. To tak	e students learn	ing levels to a new heights.				
Course Outc	omes					
1. Studer	1. Students can analyze, synthesize and communicate ideas.					
2. Demonstrates professional and personal responsibilities.						
3. Learns	s to solve the ch	allenging research problems.				
4. Applie	4. Applies analytical skills to another area of research.					
5. Comm	nunicates the re	search findings in scientific way.				
THE TI	TLE PAGE					
CERTIF	FICATE FROM	THE GUIDE				
DECLA	RATION OF 1	HE STUDENT				

ACKNOWLEDGEMENT

TABLE OF CONTETS

INTRODUCTION

CHAPTERS

CONLUSIONS

WORKS CITED

ANNEXURES (IF ANY)

Books for Study:

- 1. MLA Handbook for Writers of Research Papers, New Delhi;Affliated East-West Press Pvt. Ltd.,
- 2. JohnLangan, College Writing Skills, New York :McGraw Hill, 1985.(Covers UnitI)
- 3. JosephGibaldi, MLA Handbook for Writers of Research Papers, New Delhi:Affiliated East-West PressPvt.Ltd.,2003.(Covers Units II to V)
- 4. DonaldM.Murray, Write to Learn, New York:Holt,RinehartandWinston,Inc.,1987.

Books for Reference:

- 1. MarjorieBoulton, The Anatomy of Poetry, London: Routledge & Kegan Paul, 1982.
- 2. MarjorieBoulton, The Anatomy of Prose, London:Routledge&KeganPaul,1952.
- 3. CleanthBrooks, Fundamentals of Good Writing :A Handbook of Modern Rhetoric, New York:ReadBooks,2008.
- 4. R.A. Lanham, AHand list of RhetoricalTerms, California: University of California Press, 1991.
- 5. James McCrimmon, Writing with a Purpose, Boston: MifflinCompany, 1963.
SYLLABI FOR V & VI SEMESTERS

DEPARTMENT OF HISTORY 15TH BOS APPROVED UG SYLLABI FOR

		SEMESTER V		
COURSE CODE	COURSE	COURSE TITLE	HRS./ WEEK	CREDIT
		HISTORY OF INDIA		
UAHI5001	CORE 8	FROM 1857 A .D. TO	5	5
		1947 A.D.		

Course Objectives

1. To explain the nature and impact of transfer of Power from Company to British Government.

2. To elucidate on the contribution of Socio- Religious Reform Movements to India.

3.To enlighten the nature and character of Indian National Movement.

4.To illuminate on the role of Moderates & Extremists in the freedom struggle.

5.To learn the role of Mahatma Gandhi in the freedom struggle.

Course Outcomes

1.Students understand the implications of colonial rule in India.

2. Students appreciate the ideals and values inculcated by socio-religious reformers of India.

3. Students learn the diverse factors that promoted our National Movement.

4. Students recognise different leaders and articulate their principles.

5. Students identify the contribution of Mahatma Gandhiin Freedom Movement.

India under Direct British Rule: Government of India Act of

1858 - Queen's Proclamation –Introduction of Western

Unit–I Education–Role of Christian Missionaries–Press and 15 Hours Communication–Lord Canning – Lord Lytton – Lord Ripon and LocalSelf-Government– Impact of their policies

 Indian Renaissance: Socio-religious Reform Movements in India: Brahmo Samaj – Prarthana Samaj – Arya Samaj –
 Unit–II Ramakrishna Mission – Theosophical Society – Aligarh Movement – Satya Shodhak Samaj– SNDP– Young Bengal Movement – Parsi Reform Movement – Sikh Reform Movements

National Movement - Phase I: Causes for the National awakening – Formation of Indian National Congress –
 Unit–III Moderates: Gopala Krishna Gokhale, Dadabhai Naoroji, Pheroz 15 Hours Sha Mehta – Extremists: Bal Gangadhar Tilak, Bipin Chandra Pal, Lala Lajpat Rai – Swadeshi Movement – Muslim League –

 National Movement - Phase II: Home Rule Movement – Montague-Chelmsford Reforms – Jallianwala Bagh Massacre –
 Unit–IV Khilafat Movement – Non–Cooperation Movement – Swaraj 15 Hours Party – Simon Commission – Nehru Report–Civil Disobedience Movement

National Movement - Phase III: Round Table Conferences–
Gandhi Irwin PactCommunal Award– Poona Pact–Government
of India Actof 1935 –Provincial Governments – Individual
Satyagraha–Vinoba Bhave– Cripps Mission –Quit India
Movement – Cabinet Mission – Subash Chandra Bose & Indian
National Army –Indian Independence Act15 Hours

Books for Study

- 1. Bipin Chandra, et.al., India's Struggle for Independence, Penguin India, NewDelhi, 2000.
- 2. Mahajan V. D., Modern Indian History, S. Chand Publishers, New Delhi, 2010.
- 3. Mangala Murugesan N.K., *Indian History (1857–1947)*, Palaniappa Brothers, Chennai, 2008.
- 4. Sumit Sarkar, Modern India1885–1947, Macmillan Press, NewDelhi, 2002.
- 5. Thangavelu G., Indian History (1526-1947), Palaniappa Brothers, Chennai, 2007.

SEMESTER V

COURSE CODE	COURSE	COURSE TITLE	HRS./ WEEK	CREDIT
UAHI5002	CORE 9	HISTORY OF THE ARABS FROM 500A. D.TO 750 A.D.	5	5

Course Objectives

- 1. To know the condition of Arabia before Islam.
- 2. To study the rise of Islam and the Hijrat of Prophet Muhammad (PBUH).
- 3. To learn the activities of Prophet Muhammad (PBUH) at Madinah and his teachings.
- 4.To enable the students to know the Significance of Pious Caliphate.
- 5. To enlighten the administration of Umayyads.

Course Outcomes

- 1. Students understand the condition of Arabia before Islam.
- 2. Students appreciate the teachings of Prophet Muhammad (PBUH).
- 3. Students learn the values that helped Prophet Muhammad (PBUH) during Hijratand at Madinah.
- 4. Students evaluate and know the significance of administration of Pious Caliphate.
- 5. Students recognize the importance rule of Umayyad Dynasty.

Unit–I	Arabia Before Islam : Geographical features – Provinces – Makkah – Madinah – Taif – Inhabitants of Arabia – Jahiliya Period – Political, Social, Cultural and Religious condition of the Pre–Islamic Arabs	15 Hours
Unit–II	Prophet's Life at Makkah: Genealogical Table of the Prophet Muhammad (PBUH) – Birth – Early life – Marriage – Cave Hira and Revelation of the Holy Quran – Prophethood – Preaching of Islam – Hostility of Quraysh – Emigrations to Abyssinia – Pledges of Aqaba – Hijrat and Cave Thawr	15 Hours
Unit–III	Prophet's Life at Madinah: Establishment of Brotherhood – The Constitution of Madinah – Political, Religious and Social institutions – Five Pillars of Islam – Battle of Badr– Battle of Uhud – Battle of Ditch – Treaty of Hudaybiah– Conquest of Khaybar – Fulfilled Pilgrimage – Battle of Mutah– Conquest of Makkah – Battle of Hunayn– Campaign of Tabuk – The Farewell Pilgrimage – Administration under the Prophet – Quran and Hadith	15Hours
Unit–IV	Pious Caliphate: Hazrat Abu Bakr: Services to Islam – Nomination as Caliph – Condition of Arabia after the demise of the Prophet – False Prophets – Apostasy Movement – Administration Hazrat Umar: Services to Islam – Nomination as Caliph – Expansion of Islam and Conquests – Administration Hazrat Usman: Services to Islam – Nomination as Caliph –Administration Hazrat Ali: Services	15 Hours

to Islam – Nomination as Caliph – Battle of Camel – Battle of Siffin – Administration – End of Pious Caliphate

Umayyad Dynasty: Establishment – Special Features of
the Umayyads –Hazrat Amir Muawiyah– Yazid I –
Tragedy of Karbala – Abdul Malik and His Reforms – Al–
Walid I –Hajjaj bin Yusuf – Umar bin Abdul Aziz –
Administration under the Umayyad Dynasty – Downfall of
the Umayyad15 Hours

Books for Study

- 1. Abdur Rahim Khan, Muslim Contribution to Science and Culture, New Delhi, 1946.
- 2. Ali K, *A Study of Islamic History*: Mohammad Ahmad, Idara–e–Adabiat–I–Delhi, New Delhi, 2009.
- 3. Ameer Ali Syed, History of the Saracens, Kitab Bhawan, New Delhi, 1995.
- 4. Ameer Ali Syed, The Spirit of Islam, Idara-i-Adabiat-I-Delhi, New Delhi, 1997.
- 5. Syed Shahabuddeen Dr., *Arabia VaralarumPanpadum* (in Tamil), Ahmed Publications, Vaniyambadi,2001.

Books for Reference

- 1. Abbas Ali, Civilization in Islam, Reference Press, New Delhi, 2005.
- 2. Arnold Thomas, *The Legacy of Islam*, Oxford University Press, London, 1931.
- 3. Ehsan Masood, Science and Islam- A History, Icon Books, London, 2009.
- 4. Hitti Philip K, History of Arabs, MacMillan India, New Delhi, 1974.
- 5. ZaydanJuriji, History of Islamic Civilization, Kitab Bhawan, New Delhi, 1978.

		SEMESTER V		
COURSE CODE	COURSE	COURSE TITLE	HRS./ WEEK	CREDIT
U8HI5003	CORE 10	HISTORY OF THE USA FROM COLONIZATION TO 1865 A.D.	5	5
Course Ob	jectives			
 To impar To evalua To undersider To inculc To study Course Out 	t knowledge al ate the role of i stand the perio ate knowledge about the liber tcomes	bout the emergence of USA. mportant personalities in Nation Building. d of consolidation through redressal and reform about development of consciousnessof Individ- ation of Blacks	nation. dual Rights	5.
 Students Students Students Students Students 	understand abo comprehend th recognise the o appreciate the develop an ave	but the effects of the colonization of USA. The high ideals of American War of Independence democratic values imbibed in the American Co importance of various democratic practices. The system of slavery and racism	ce. nstitution.	
Unit–I	Discovery Settlement a War of In Confederatio	and Colonization:Voyages and Explorate nd Colonization – Colonial Culture – The Am dependence – Causes – Course – Rest on – The Constitution	ion – lerican ılts –	15 Hours
Unit–II	Federalism Policy – Ha Adams – X Republican I Marbury Vs	to Republicanism:George Washington – In milton's Financial Policy – Foreign Policy – YZ affairs – Midnight Judges – Election of 1 Revolution – Thomas Jefferson – Internal Refe Madison Case – James Madison	nternal - John 800 – orms –	15 Hours
Unit–III	Period of C Missions – MonroeDoct	onsolidation: Grievances of the Indians – Tec The War of 1812 – Treaty of Ghent 1 rine–Jackson and his Democracy	umseh 814 –	15 Hours
Unit–IV	Territorial LouisianaPut Colonization ManifestDes	Expansion: WestwardExparchase–AcquisitionofFlorida–ManifestDestiny- ofTexas andOregon–President Pottiny – TheMexican War	nsion– – olkand	15 Hours
Unit–V	The Civil W Causes of the Course of Civ	ar:Issues of Slavery and its Abolition Mover civil War – Secession – Abraham Lincoln il War – The Emancipation of the Slaves – Res	nent – – The sults	15 Hours

- 1. Majumdar R.C. and Srivastava. A.L., *History of United States of America*, 5th edition, Surjeet Publications, 2017.
- 2. *AnOutlineofAmericanHistory*,Officeof InternationalInformationPrograms,UnitedStatesDepartment of State.
- 3. Krishnamurthy, *HistoryoftheUnitedStatesofAmerica*, 1492–1965, MaduraiPrinters, Madurai, 1980.
- 4. NambiArooran A., *History of the USA* (Tamil), Tamil Nadu Text Book Society Publication, Chennai, 1980.
- 5. Rajayyan, K., A History of the United States, Madurai Publishing House, Madurai, 1978.

Books for Reference

- 1. Charles A. Beard and Mary A. Beard, *The Rise of American Civilization*, Macmillan, New York, USA, 1946.
- 2. CarlN.Degler, *OutofOurPast, theforcesthatshapedModernAmerica*, WileyEasternLimited, NewDelhi, 1986.
- 3. JamesMacgregor Burns, The Vineyard of Liberty, Universal BookStall, NewDelhi, 1986.
- 4. MarshallSmelser, American History-AtAGlance, BarnesandNoble, INC, NewYork, 1962.
- 5. RichardB.Morris(Ed.), *EncyclopediaofAmericanHistory*, HarperRowPublishers, New York, 1976.

			SEMESTER V		
C(OURSE CODE	COURSE	COURSE TITLE	HRS./ WEEK	CREDIT
UA	AHI5004	CORE 11	HISTORY OF EUROPE FROM 1453 A.D. TO 1789 A. D.	5	5
Co	urse Object	tives			
1.	Toimpartkn	nowledge about	hetransformationofEuropetowards progress		
2.	2. Tounderstand the process of development and progress of society towards secular attitude.				
3.	3. Toinculcatestudentsabout thespiritofnationalism leadingtodespotism.				
4.	4. Toanalysethe meritsanddemerits ofbenevolentdespotism.				
5.	. ToanalysethecircumstancesthatledtotheemergenceofEnlightenedDespotismandits results and				

5 g impact on European polity.

Course Outcomes

- 1. Students understand the factors that stimulated intellectual progress in Europe.
- 2. Students can explain about significance of Reformation and Counter Reformation in Europe.
- 3. Students recognize the factors that led emergence of Despotism through Nation states.
- 4. Students identify the different Benevolent Despots of Europe and their reign.
- 5. Students realize the value of Democracy by recognizing the painful efforts for its sustenance.

Unit-I	RenaissanceandGeographicalDiscoveries:Fundamentalism & Conservatism - RenaissanceinEurope-RenaissanceinArt,Architecture & Literature - Renaissancein Science - Humanism - Geographical Discoveries:Causes -Bartholomew Diaz - Vasco de Gama - ChristopherColumbus & Columbian Exchange - Ferdinand Magellan -Results - Colonialism	15 Hours
Unit-II	Reformationand CounterReformation : Divine Right Theory of Kingship - Reformation: Causes - Lutheranism in Germany - Reformation in Switzerland - Calvinism - Reformation in France: Huguenots - HenryVIII&ReformationinEngland-CounterReformation – Society of Jesus – Francis Xavier – Inquisition.	15 Hours
Unit-III	RiseofNation States: Rise of Nation States and Monarchs: Causes – England, France & Spain as a Nation State - Dutch War of Independence - Thirty Years War: Bohemian Revolt – Danish Intervention – Sweden Intervention – French Intervention - Treaty of Westphalia – Results	15 Hours
Unit-IV	Ageof Benevolent Despotism: Enlightened Despotism - France: Henry IV – Louis XIII: Cardinal Richelieu - Cardinal Mazarin - Louis XIV - Domestic & Foreign Policies - Sweden: Gustavus Adolphus- Prussia: Frederick, The Great - Austria: JosephII & His Reformation Measures – Russia: PetertheGreat & CatherineII	15 Hours

	Road to Revolution: Ancient Regime - Louis XV:	
	JohnLaw-CardinalFleury -MadamdePompadour - Madam	
Unit-V	du Barry - Louis XVI: Turgot and Necker - France on the	15 Hours
	eve of French Revolution – The idea of Democracy	

- 1. ArunBhattacharjee, *AHistoryofEurope*(1453-1789), SterlingPublishersPvtLtd, NewDelhi, 1981.
- 2. IshwariPrasad, *AHistoryofModernEurope(From1453To1789A.D.)*, SurjeetPublications, New Delhi, 2018.
- 3. KhuranaK.L., *ModernEurope1453–* 1789A.D., LakshmiNarainAgarwalPublications, NewDelhi, 2008.
- 4. MukherjeeL.,M.A.,*AStudyofEuropeanHistory*(1453-1815),SurjeetPublications,NewDelhi,2017.
- 5. RaoB.V., History of Europe 1450-1815, Sterling Publishers Pvt. Ltd., New Delhi, 2012

Books for Reference

- 1. ChaurasiaR.S., *HistoryofEurope1453–1648*, VolumeI, AtlanticPublishers&Distributors(P)Ltd NewDelhi, 2002.
- ChaurasiaR.S., *HistoryofEurope1649–* 1789, VolumeII, AtlanticPublishers&Distributors(P)Ltd NewDelhi, 2002.
- 3. FisherH.A.L., *History of Europe*, Volume I, CambridgePublications, U.K. 1935.
- 4. Nanda B. N., A History of Europe, Arise Publishers & Distributors, New Delhi, 2013.
- 5. Wiesner-HanksMerryE., *EarlyModernEurope*, 1450-1789, CambridgeUniversitypress, U.K., 2013.

		SEMESTER V			
COURSE CODE	COURSE	COURSE TITLE	HOH WE	IRS./ EK	CREDIT
UAHI5005	CORE 12	HISTORY OF JAPAN FROM 1853 A.D. TO 2000	A.D.	ŀ	2
Course Objec	ctives				
1. Toundersta	andthecircums	tancesthatledtotheopeningofJa	pantowestern Cou	ntries.	
2. Toundersta	and the growth	ofJapanasaworldpower.	1. 1. 0.11. 0.7		
3. To impart	the knowledge	about the Imperialism that le	d to downfall of Ja	ipan.	
4. To inculcat	te the knowled	Ige about the Japanese progres	s from Zero Degro	зе.	
5. 10 study u		Japan in the post war world.			
1 Students c:	an evaluate the	e influences for the opening of	Ianan to the West	and its i	mnact
2. Students u	nderstand the	role of Meiji Restoration in er	hancing the econo	mic stati	re of
Japan.		5	6		
3. Students ca	an assess the r	ole of imperialism in the fall of	f Japan.		
4. Students co	omprehend the	e factors that helped reconstru-	ction of Japan after	r Second	World
War.					
5. Students al	ble to analyze	the foreign policy of Japan an	d its role in econor	mic susta	ainability.
	Japan in the	e SecondHalfof 19 th Century	: Background: Jap	oan up	
Unit – I	to the 19 th ce	entury – Arrival of Europeans	– Missionaries A	ctivity	12 Hours
	–Policy of	solation – Opening of Japa	n to the West –	Perry	
	Missionand	Harris Treaty– Fall of Tokuga	wa Shoguns		
	MeijiFra _	lananRecomes a GreatPou	er• Meiji restorat	tion _	
	Accessionof	Mutsuhito – End of Feuc	alism – Beginni	ng of	
Unit – II	Constitution	al Movement- Modernization	of Japan – Consti	itution	12 Hours
	of 1889– Si	no–Japanese war – Russo –	Japanese war – '	Гreaty	
	ofPortsmout	1			
	JapaneseIm	perialismandWorldWars: (auses of Imperial	ism –	
Unit – III	Japan and	the First World War – Ty	venty-One Dema	$nds - \frac{1}{2}$	12 Hours
	Washington	Conference – Rise of Militaria	m– Manchurian C		
	Rome-Bernn	- Tokyo Axis– Second world v	ar and Japan		
	Post–War.Ia	nan: OccupationofIapan–I	ossofterritories-	New	
Unit – IV	Constitution-	- Reconstruction of	Japan–Po	litical,	12 Hours
	SocialandEc	onomic Reforms- Growth of	Science and Techn	ology	12 110415
	– Industrial	browth –Japanasan Economic	Super Power		
	PostWarPol	itics: Foreign policy of Ian	an – Signing of	Peace	
T T 1 / T T	Treaties – 1	apan's Relations with USA	, USSR, China.Ir	ndo –	10.11
Unit – V	China, Japan	, ASEANand the UNO-Great	Economicrecovery	/–Post	12 Hours
	WarPolitics				

- 1. AndrewGordon, A Modern Historyof Japan, Oxford UniversityPress, U.K., 2019.
- 2. BrettL.Walker, A Concise History of Japan, Cambridge University Press, U.K., 2015.
- 3. Clyde, P.H., & Beers B.F., *The FarEast*, Prentice HallofIndiaPvt. Ltd. New Delhi, 1976.
- 4. MasonR.H.P.,&CaigerJ.G., A History of Japan, Tutle Publishing, North Clarendon, U. K., 2011.
- 5. ThangaveluG., HistoryofJapan(Tamil&English), TamilNaduTextbookSociety, Chennai, 2017.

Books for Reference

- 1. GeorgeFeiffer, *BreakingOpenJapan:CommodorePerry,LordAbe,andAmericanImperialismin* 1853, Smithsonian Books, Washington, D. C, U.S. A., 2006.
- IanBuruma, *InventingJapan*: 1853– 1964(ModernLibraryChronicles), TheModernLibrary, TheRandom HousePublishingGroup, NewYork, 2004.
- 3. JohnW.Dower, *EmbracingDefeat: JapanintheWakeofWorldWarII*, W.W.Norton&Co., U.S.A, 1999.
- 4. PeterBoothWiley, *Yankeesinthe LandoftheGods: Commodore PerryandtheOpeningofJapan*, VikingPublishers, New York, U. S. A., 1990.
- 5. RhodaBlumberg, *CommodorePerryintheLandofShogun*, HarperCollinsPublishers, NewYork, 2003.

		SEMESTER V		
COURSE CODE	COURSE	COURSE TITLE	HRS./ WEEK	CREDIT
UAHICE5	1 CORE BASED ELECTIVE 1	SELECTCONSTITUTIONS (UK,USA, SWITZERLAND,CHINAAND JAPAN)	4	2
Course Ob 1. Tocomprese 2. Tounders 3. Toknowt 4. Tostudyt 5. Torecogre Course Ou 1. Student 2. Student 3. Student 4. Student 5. Student	jectives ehendthesalientfeature standtheworkingofGov he process of Legislati he judicial system in v sizethePartysystems in tcomes s evaluate the important s understand the feature s comprehend the feature s recognize the feature	esofdifferentconstitutions. vernmentsinvariouscountries. ions in different countries. arious nations. different countries. nce of convention–based constitution in res of the constitution of USA. sions of the constitution of Switzerland ures of the constitution of China. s of the constitution of Japan.	n UK. I.	
Unit–I	United Kingdom:D Features of the Const – The Cabinet – The PartySystem –Judicia	Development of the Constitution – citution – Conventions – Position of the eLegislature–CommitteeSystem– Legis ary– LocalGovernment	Salient Crown slation–	12 Hours
Unit–II	United StatesofAm features of the Con Procedure –The P Legislature –Legislat	erica:Making of the Constitution – nstitution – Federal System – Ame resident –Election–Powers–TheCabi ion –PartySystem–Judiciary	Salient endment net–The	12 Hours
Unit–III	Switzerland: Salient Local Government – FederalLegislature–F	t features of the Constitution – Canto Amendment Procedure – Federal Exec Federal Judiciary–Direct DemocraticDe	nal and cutive – vices	12 Hours
Unit–IV	People's Republico Features of the Cons Executive – Lo Electoralprocedure–H	fChina:History of the Constitution – stitution – Legislature – Committee S ocalGovernments–Judiciary–PartySyste FundamentalRights andDuties	Salient ystem – em –	12 Hours
Unit–V Books for S	Japan:Constitutional Constitution – Amer Duties –Powers and Function and Powers Parties	l development – Salient features ndment Procedure – Fundamental Rig Functions of the Executive – Comp s of the Legislature –JudicialSystem –	of the hts and position, Political	12 Hours
1. JohariJ.	C.,Modern Constitutio	n,S.Chand&Co.New Delhi,1990.		
		,		

2. KapurA.C.&MisraK.K., SelectConstitutions, S.Chand &Co, New Delhi, 2010.

- 3. MahajanV.D., SelectModern Governments, S.Chand & Co.New Delhi, 2008.
- 4. StrongC.F., Modern Political Constitutions, Sidgwick & Jackson Limited, London, 1973.
- 5. WheareK.C., Modern Constitutions, O.U.P. London, 1966.

Books for Reference

- 1. AmalRoyandMohitBhattacharya,*PoliticalTheory:IdeasandInstitutions*,TheWorldPress,Calcutta, 2002.
- 2. AppaduraiA., Substance of Politics, Oxford UniversityPress, NewDelhi, 1990.
- 3. DiceyA.B., *TheLaw of the Constitution*, Macmillan, London, 1959.
- 4. Johari.J. C, Principles of Modern Political Science, Sterling, New Delhi, 1999.
- 5. KapurA.C., Principles of Political Science, S.Chand & Co., New Delhi, 2000.

SEMESTER V

COURSE CODE	COURSE	COURSE TITLE	HRS./ WEEK	CREDIT
	CORE BASED	FUNDAMENTALS OF		
UAHICE52	ELECTIVE 2	DEFENCE AND	4	2
		STRATEGIC STUDIES		

Course Objectives

- 1. To Study the concepts of Defence and Strategic Studies.
- 2. To discuss the History of Warfare.
- 3. To study the importance of International Relations.
- 4. To analyze the approaches to peace.
- 5. To Study the functions of international Organisations for world peace.

Course Outcomes

- 1. Students Understand the war strategies and necessity to be prepared to face calamities.
- 2. Students comprehend the evolution of warfare.
- 3. Students can evaluate the importance of International Relations for Strategic Defence.
- 4. Students can assess the significance of peace in the world.
- 5. Students appreciate the functions of International Organisations for world peace.

IntroductionandConceptualFormulations

Unit–I	Introduction of the discipline of Defence andStrategic studies– its subject contents– contemporary relevance and significance – basic conceptsofwar,battle, campaignetc – DefinitionofSecurity, Defence,StrategyandPeace etc.	12 Hours
Unit–II	HistoryofWarfare: Historicalevolution ofwarfare– itsfeatures and significance –principles of war–causes of war– functions of war – Types of war and scope	12 Hours
Unit–III	BasicofInternationalRelations:Nature and Scope ofInternationalRelationsofInternationalPoliticalsystem–structureofInternationalpoliticalsystem(Uni,Bi&MultiPolar)–ActorsinInternationalpoliticalsystem–stateandnon–stateactors;worldgovernment(UNO) –Security features in International political system –collectivesecurity, balance of power –hegemony,regionalism,etc.	12 Hours
Unit–IV	IntroductiontoPeace:Meaning and definition of peace – typology of peace – approaches topeace – disarmament – international law – 1 peace movement – peace research – peace– making –peacebuilding– peacekeeping	2 Hours

Unit–V	MechanicsofPeace: Role and functions of	
	Nations. United Nations Organization –	
	Amicable means to settle inter–state conflicts –	12 Hours
	Diplomacy scopeandfunction – types of	
	diplomacy- its features	

- 1. Dr.J.A. Khan, Probing War and Warfare
- 2. SadanandR.Patra, Arms Appraisal
- 3. V.N.Khanna, International Relations, VolIII.
- 4. S.J.R, Bilgrami, International Organizations
- 5. Bernard, L.L, War and its Causes, New York, Holt, 1946.

Books for Reference

- 1. FieldMarshalMontgomery, Viscount., A History of Warfare, London: Collins, 1968.
- 2. Palmer, N.D. and H.C. Perkins, International Relations, Boston: Houghton Mifflin, 1953.
- 3. Margenthau, H.J., *PoliticsamongNations:TheStruggleforPowerandPeace*, Calcutta :ScientificBookAgency'1972.
- 4. Waltz, K., Man, *TheState, and War: ATheoreticalAnalysis*, NewYork: ColumbiaUniv ersityPress, 1959.
- 5. Johan, Galtung., The Struggle for Peace, Ahmedabad : Gujarat Vidhya Peeth, 1985.

		SEMESTER V		
COURSE	COURSE	COURSE TITLE	HRS./	CREDIT
		45		

CODE UAHISE51	SKBE 1	GENERALKNOWLEDGE	WEEK 2	1
Course Obje 1. Toempow 2. Todevelo 3. Tounders 4. Tounders 5. Todevelo Course Outo 1. Students 2. Students 4. Students 5. Students 5. Students	ectives verstudentstof pbasic unders tandtheIndiar tandtheIndiar pability for G comes learn basic in are able to ex can identify t can discuss th have working	faceCompetitive Examinations. standing ofIndianEconomy. nGovernmentandPolitics. n Geographicalconditions. General Aptitude & Mental Ability pr formation about our nation. splain the basis of Indian Economy. the salient features of Indian Constitu- he fundamentals of Indian Geograph g knowledge about General Aptitude	roblems. ution. y. & Mental Ability Pr	oblems.
Unit–I	GeneralInf Eminentpers Authors–Cu Educational zationsofRe	Formation: NationalSymb sonalitiesandplacesinnewsandSports urrent Socio-economicissues–S l,Scientific,Environmental,Economic spute	ols–ProfileofStates– –Booksand cientificInventions– candResearchorgani	6 Hours
Unit–II	Indian Eco Models–An Application Rural welfar – populatio Economic tr	nomy: Nature of Indian Economy– Assessment – Land reforms of Science in Agriculture–Indus re–Oriented Programmers – Social S on, Education, Health, Employme rends in Tamil Nadu	- FiveYear Plan & agriculture– strial growth - Sector Problems ent, Poverty –	6 Hours
Unit–III	Indian Po features – Fundamenta Fundamenta Executive– – Panchayat law–Electio Corruption Vigilance C Empowerme	blity:Constitution of India–Pream Union, State and Territory- al Rights–Directive Principle of S al Duties–Union Legislature – Par State Legislature – Assembly– Loo t Raj – Tamil Nadu– Judiciary in T ons– Official Language and Sc in public life– Anti–Corruption Me Commission , Lok-Adalats– Right ent of women - Consumer protection	ble – Salient - Citizenship– State Policy – rliament– State cal Government India – Rule of chedule-VIII – asures –Central to information– n forums	6 Hours
Unit–IV	Indian Geo Water reso Resources–I including Geography calamities –	ography: Monsoon, rainfall, weath urces –Rivers in India–Soil, Min Forest &Wildlife–Agricultural pa surface Transport &Commu – Population–Density and Distribu - Disaster Management	er & climate – erals &Natural attern–Transport anication–Social ation – Natural	6 Hours
Unit–V	Aptitude& to Data–Co Tables, Gra	Amental Ability Tests : Conversion ollection, Compilation And Presen aphs, Diagrams –Analytical Interpreter	n of Information tation of Data – etation Of Data –	6 Hours

Simplification–Percentage–Highest Common Factor (HCF)– Lowest Common Multiple (LCM)–Ratio And Proportion– Volume–Time And Work –Logical Reasoning–Puzzles–Dice – Visual Reasoning – Alpha Numeric Reasoning – Number Series

Books for Study

- 1. BasuD.D., An Introduction to Indian Constitution Lexis Nexis Publication, Haryana, 1960.
- 2. MajidHusain, IndianGeography, PenguinPublishers, New Delhi, 1981.
- 3. MishraS.K.&PurlV.K., IndianEconomy, HimalayasPublications, New Delhi, 1985.
- 4. Ravi Chopra, *Encyclopedia of General Knowledge & General Awareness*, Asian Books Pvt.Ltd.,2012.
- 5. R.S. Aggarwal, A Modern Approach to Verbal & Non-Verbal Reasoning, S. Chand & Co.

Books for Reference

- 1. CompetitionSuccessReview-YearBook, CompetitionSuccessReviewPublications, NewDelhi.
- 2. AzeemAhmedKhanet.al. *Student'sEncyclopediaofGeneralKnowledge*, GeneralPress, New Delhi.
- 3. ManoramaYearBook, MalayalaManoramaPublications, Kottayam, Kerala.
- 4. Upkar's YearBook, Upkar Prakashan, New Delhi.
- 5. Edgar Thorpe, *Mental Ability & Quantitative Aptitude for Competitive Examination*, McGraw Hill Education India.

DE			
COURSE COURSE COU	URSE TITLE	HRS./ WEEK	CREDIT

CODE				
UAHISE52	SKBE 2	FUNDAMENTALS OF NATIONAL SECURITY	2	1
 Course Objecti 1. To study the 2. To discuss k 3. To Know di 4. To highlight 5. To study the Course Outcom 1. Students Co 2. Students und Security. 3. Students car 4. Students hav 5. Students are Unit – I 	ives e significance of s tey features of Fo fferent approache on the significan India's various mes mprehend the im derstand role of F analyze the diff ve an evaluation able to analyze I Introduction: National Secur National Powo factors – Value	study of National Security. oreign and Defence Policy. es to National Security. nce of India's Defence Security. Strategic with our neighbors. oportance of National Power in de Foreign Policy and Defence Polic erent approaches to achieve National India's Strategic environment and India's relationship with neighbor Definition, Scope and features of ity – Concept of National Powe er (Tangible and Intangible) es – Goals and Policies that deter	etermining National y in influencing Na onal Security. d its relevance. ring countries. f the concept of r – Elements of – Fundamental ermine National	Security. tional 6 Hours
Unit – II	Foreign Policy Scope of foreig Foreign policy policy and Defe	y and Defence Policy: Definition gn policy and Defence policy – and Defence policy – Instrum ence policy – Diplomacy and Def	on – Meaning – Determinants of ents of Foreign fence	6 Hours
Unit – III	Approaches Coercive Appr Threats – Thre forces – Its org means – Peace	to National Security: Coerc oach – Meaning and Scope – Co eat perception and defence appa ganisations and functions (India) mechanism– Peace making; Peac	ive and Non– percive means – aratus – Armed – Non–coercive ce building	6 Hours
Unit – IV	Strategic En Environment – Environments – Indian Ocean preparedness Organisation	vironment of India: Feature Its scope in Policy making – I – Immediate Neighbours – Adja and Global Structure – In – Defence Budget – Force	e of Strategic India's Strategic cent Regions in ndia's Military Structure and	6 Hours
Unit – V	India's Strate Pakistan Politie Strategic Relati	egic Relationship (Salient Fea cs – Strategic Relations – Indi– ions – India and World Powers	tures): India – China Politics –	6 Hours
Rooks for Stud	X 7			

1. Gautam Banerjee, The 21st Century Army: Strategies for Future, 2012.

2. Anil Chauhan, Aftermath of A Nuclear Attack, 2010.

3. Ravi Ranjan, Armed Conflict and Security in South Asia, 2012.

4. Jayaramu, P.S., *India's National Security and Foreign Policy*, New Delhi: ABC Publishers, 1978.

5. Satish Kumar, (ed), Yearbook on India's Foreign Policy, New Delhi: Deep and Deep, 1993.

Books for Reference

1. Sushma Sood, Armed Forces and Nation Building, 1998.

2. Barun De Jomini, Art of War, 2012.

3. Rameshwar Prasad, The Army Logistics and War, 2011

4. Dixit, J.N., Across Borders: Fifty Years of India's Foreign Policy, New Delhi: Picus Books, 1998

5. Kaul, T.N., India and the New World Order, Vol. 1, New Delhi: Gyan, 2000

		SEMESTER VI		
COURSE	COURSE	COURSE TITLE	HRS./	CREDIT
		10		

CODE WEEK **HISTORY OF INDIA CORE 13** 5 5 **UAHI6001** FROM 1947 A.D. TO 2014 A.D. **Course Objectives** 1. To know the scenario of India under Nehru's Era. 2. To enlighten on the administrative policies from Lal Bahadur Sastry to Indira Gandhi. 3. To study about the Rajiv Gandhi and V.P. Singh Government's Policies. 4. To highlight on P. V. Narasimha Rao and Atal Bihari Vajpayee's Liberal Economic Policies. 5. To provide information about the UPA Government's Policies. **Course Outcomes** 1. Students have a good evaluation of Nehru's contribution for free India. 2. Students are competent to Analyze India's domestic policy. 3. Students are able to discuss the administrative policies of India under Rajiv Gandhi & V.P. Singh. 4. Students can understand the programmes introduced by P.V. Narasimha Rao & Atal Bihari Vajpayee. 5. Students make an assessment of the administration of UPA I & II. Nehru Era: Background - Accession of Princely states -Linguistic Reorganization of States - Regionalism - Five Year Unit–I Plans - Foreign Policy - Panchsheel and Non-Aligned **15 Hours** Movement - Development of Science and Technology-Education Policies-Agricultural Policies-Legacy of Nehru Lal Bahadur Shastrito Indira Gandhi: Lal Bahadur Shastri -Indo Pak War - Tashkent Agreement - Indira Gandhi -Jayaprakash Narayan and Total Revolution - Liberation of Bangladesh - Emergency & 20 Points Program - GaribiHatao -Unit–II **15 Hours** Green Revolution - Janata Government - Return of Indira Gandhi - Nationalization of Banks - Abolition of Privy Purse - Khalistan issue and Operation Blue Star Rajiv Gandhi and V.P. Singh: Rajiv Gandhi – Programmes and Policies - Anti-Defection Law - Shah Bano Case - Indian Unit–III Postal Act - Economic Policies - Insurgency in Punjab and **15 Hours** North East - Sir Lankan Issue - V.P. Singh and National Front Government – Mandal Commission P. V. Narasimha Rao to Atal Bihari Vajpayee: P.V. Narasimha Rao- Ram Mandir & Babri Masjid Controversy: Genesis, Demolition, Communal Riots in India -New Unit–IV **15 Hours** Economic Policy-Coalition Prime Ministers- Rao's Foreign -Vajpayee-KargilWar-The Millenniumpolicy New Vajpayee's Foreign Policy UPAI &II Administration: Manmohan Singh reforms as Prime Minister of UPA I & II: Common Minimum Unit–V **15 Hours** Programme-Right to Information Act-Insurgency in North East - Foreign Policy-Science and technology- Social Sector

Schemes-Performance of UPA Government

Books for Study

- 1. Christopher Jefferson, India Since1950, New Delhi, Yatra Books, 2012.
- 2. Mahajan, V.D., History of Modern India (1919-1982), New Delhi, S. Chand&Co., 2004.
- 3. Ramachandra Guha, India After Gandhi, Picador, Noida, 2008.

4. Venkatesan G., A History of Contemporary India, J.J. Publications, Madurai, 2001.

5. Venkatesan G., *History of Contemporary India*, V.C. Publications, Rajapalayam, 2014. **Books for Reference**

 Bipan Chandra, Mridula Mukherjee and Aditya Mukherjee, *India after Independence*, Penguin Books, New Delhi, 2000.
 Dutt V.P., *India's Foreign Policy*, Vikas Publications, New Delhi, 1993.

3. Grover, B.L., and Grover, S.A., *A New Look at Modern Indian History*, S. Chand& Co., New Delhi, 2004.

4. Majumdar R.C., Roychaudri H.C. & Datta K., *An Advanced History of India*, Macmillan India Ltd, New Delhi, 2004.

5. SathianathaierR., A History of India, Vol. III. S. Viswanathan & Co, Chennai, 1999.

SEMESTER VI					
COURSE	COURSE	COURSE TITLE	HRS./	CREDIT	

CODE			WEEI	K		
UAHI6002	CORE 14	HISTORY OF THE ARABS FROM 750 TO 1258 A.D.	5	5		
Course Obje 1. To know th 2. To enable a 3. To study th 4. To study al 5. To underst Course Oute 1. Students un 2. Students of Abbasids. 3. Students of 4. Students of 3. Students of 4. Students	 FROM 750 TO 1258 A.D. Course Objectives To know the history of the Abbasids. To enable students to know the administration of Abbasids. To study the Crusades and its impact. To study about the Moors of Spain. To understand the rise of Fatimids of Egypt. Course Outcomes Students understand the unique features of Abbasid Dynasty. Students can explain the reigns of Harun al–Rasheed, al–Mamun and the downfall of Abbasids. Students can evaluate the causes and impacts of Crusades on world affairs. 					
5 Students ca	an assess the contribution	of Fatimids of Fount		10.		
Unit–I	Abbasid Dynasty: Est Unique features of the Conquests – Contribution	cablishment – Abul Abbas as–Sa: e Abbasids – Abu Jafar al–Ma on – Al–Mahdi – Al–Hadi	ffah– nsur:	15 Hours		
Unit–II	Abbasid Dynasty: Ha Barmakids– Administra – Al–Mutawakkil– Cu Downfall of Abbasids	arun al–Rasheed – Rise and fa ation – Mamun al–Rasheed – Civit ltural Progress under the Abbasi	ll of war ds –	15 Hours		
Unit–III	Crusades : Causes ImaduddinZengi– Cong The Second Crusades Salahuddin Ayyubi– Re	and course of the Crusade quest of Edessa –Nuruddin Mahm s – Expedition of Egypt – S esults of the Crusades	s – ud – ultan	15 Hours		
Unit–IV	Moors in Spain : A Abdul Rahman II – A Administration – Cultur the Moors in Spain	bdul Rahman I: Administration Administration – Abdul Rahman ral Progress under the Moors – Fa	n — III — all of	15 Hours		
Unit–V	Fatimids of Egypt : –U Fatimid Dynasty – Co conquests – Al–Aziz: contribution of Fatimids	Jbaidullah al–Mahdi: Establishme onquests – Al–Muiz: Accession Accession and conquests – Cui s – Downfall of the Fatimids	nt of and ltural	15 Hours		

1. Abdur Rahim Khan, Muslim Contribution to Science and Culture, New Delhi, 1946.

2. Ameer Ali Syed, *The Spirit of Islam, Idara –I – Adabiat – I – Delhi*, New Delhi, 1997.

- 3. Ameer Ali Syed, History of the Saracens, Kitab Bhawan, New Delhi, 1995.
- 4. Syed Mahmudun, Islam its concept and History, Kitab Bhawan, New Delhi, 1981.

5. Syed Shahabuddeen Dr., *Islamia VaralarumPanpadum*, Ahmed Publications, Vaniyambadi, 2001.

Books for Reference

1. Abbas Ali, Civilization in Islam, Reference Press, New Delhi, 2005.

2. Arnold Thomas, *The Legacy of Islam*, Oxford University Press, London, 1980.

3. Hitti Philip. K., *History of Arabs*, Mac Millan India, New Delhi, 1974.

4. Khuda Baksh. S., *The Orient under the Caliphs*, Idara – I – Adabiat – I – Delhi, New Delhi, 1893.

5. Syed Shahabuddeen Dr., *Muslims contribution to Humanity*, Vijay Nicole Imprints Pvt. Ltd. Chennai, 2016.

		SEMESTER VI		
COURSE CODE	COURSE	COURSE TITLE	HRS./ WEEK	CREDIT

U8HI6003 CORE 15 HISTORY OF USA FROM 1865 A. D. TO 2014 A. D.

Course Objectives

- 1. TodevelopknowledgeabouttheeraofReconstruction
- 2. ToinculcateknowledgeaboutProgressivism
- 3. Tounderstandthejourneyfromisolationismtointernationalismininternationalpolitics
- 4. To study he role of U.S.A in Cold War
- 5. TocomprehendtherecentdevelopmentsinU.S.A.

Course Outcomes

- 1. Students comprehend the efforts of USA to reconstruct the nation.
- 2. Students understand the sufferings of Negroes and support against apartheid.
- 3. Students have a practical knowledge about the reforms of F.D. Roosevelt
- 4. Students acquire analytical knowledge on the merits and demerits of the foreign policy of the U.S.A.
- 5. Students can evaluate the role of U.S.A. in the Cold War.

Era of Reconstruction: Reconstruction – End of the Reconstruction

Unit–I – Rise of Big Business – Rail Roads – Growth ofIndustry –Labour 15 Movement – Granger and Populist Movements – Growth of Hours Imperialism –The Spanish–AmericanWar of 1898

> **Theodore Roosevelt to Woodrow Wilson (1901–1921):** Open Door Policy – Theodore Roosevelt – Progressive Reforms – Foreign Policy – W.H.Taft – Dollar Diplomacy – Woodrow Wilson – Progressive

Unit–II – W.H.Taft – Dollar Diplomacy – Woodrow Wilson – Progressive 15 Reforms – New Diplomacy and Foreign Policy – New Freedom – Hours USA and the First World War – Wilson's 14 Points – Treaty of Versailles

	Warren Harding to Franklin D. Roosevelt (1921–1945): Warren	
	Harding - Coolidge Prosperity - Hoover - Great Depression -	15
Unit–III	Franklin D. Roosevelt – New Deal – Good Neighbour Policy –	15
	Relation with Russia – Rise of Dictators –USA and the Second World	Hours
	War	

	Truman to John F. Kennedy (1945–1963): Domestic and Foreign	
	Policy of Harry S. Truman – Korean War –Cold War – D.	15
Unit–IV	Eisenhower and Containment Policy- John F.Kennedy-Internal	Hours
	Policy-ForeignPolicy-Vietnam War -CivilRights Movements -	110015
	MartinLutherKing	

	Lyndon B. Johnson to Barack Obama (1963–2014): Lyndon B.	
	Johnson – Domestic and Foreign Policy – Rise and fall of Richard	15
Unit–V	Nixon – Gerald Ford – Jimmy Carter – Ronald Reagan – George	15
	Bush – Gulf War and Saddam Hussain – End of the Cold War – Bill	nours
	Clinton – George Bush Jr. – Barack Hussain Obama	

5

5

- 1. Subramanian N., *History of the United States of America*, Ennes Publication, Madurai, 1990.
- 2. Majumdar and Srivatsava. A.L., *History of the United States of America*, SBD, Publications, 2001.
- 3. Hill.C.P., Historyofthe Unites States, Edward Arnold, London, 1974
- 4. NambiArooran,K.,*Historyofthe United* StatesofAmerica(Tamil),TamilNaduTextBookSociety,Government ofTamil Nadu, Chennai, 1975
- 5. Prof. Dharmaraj Historyofthe United StatesofAmericaTansy Publication Sivakasi 2020

Books for Reference

- 1. Rajayyan.K., A History of the United States, Madurai Publishing House, Madurai, 1978.
- 2. Charles A. Beard and Mary A. Beard, *The Rise of American Civilization*, Macmillan, New York, USA, 1946.
- 3. CarlN.Degler, *OutofOurPast, theforcesthatshapedModernAmerica*, WileyEasternLimited, NewDelhi, 1986.
- 4. MarshallSmelser, American History-AtAGlance, BarnesandNoble, INC, NewYork, 1962.
- 5. RichardB.Morris(Ed.), *EncyclopediaofAmericanHistory*, HarperRowPublishers, New York, 1976.

		SEMESTER VI		
COURSE CODE	COURSE	COURSE TITLE	HRS./ WEEK	CREDIT
UAHI6004	CORE 16	HISTORY OF EUROPE	5	5

FROM 1789A.D. TO 2000A. D.

Course Objectives

- 1. ToknowthenatureandimpactofFrenchrevolution
- 2. TounderstandtheachievementsofNapoleonBonaparte
- 3. Tounderstand the Reconstruction of Europe
- 4. To study the Unification of Italyand Germany
- 5. Todiscuss 20th centurydevelopments inEurope

Course Outcomes

- 1. Students understand the driving forces for Democracy.
- 2. Students can explain the circumstances for the rise and fall of Napoleon Bonaparte.
- 3. Students understand the era of Metternich.
- 4. Students understand the Nationalism as a force for Unification of Germany and Italy.
- 5. Students can assess the vulnerability of Imperialistic competition among the Nations.

FrenchRevolution:

FranceontheeveofRevolution:Political,Social,ReligiousandEco

Unit – I nomicconditions – Causes – Role of Philosophers: 15 Hours Montesquieu, Voltaire and Rousseau– Course of Revolution – ResultsofFrenchRevolution

Napoleonic Era: Napoleon Bonaparte's Early life	e –
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- Unit II Conquests Domestic and foreign policies AsanEmperor ContinentalSystem – Peninsular War – Hundred Days Rule – Causes for his downfall – Napoleon III – Third French Republic
- Unit IIIMetternich's Era:Metternich:CongressofVienna–Unit IIIHolyAlliance–ConcertofEurope–MetternichasaChancellorofAustria–Metternich System JulyRevolution of 1830 February Revolution of 1848

Unification of Germany & Italy: Unification of Germany: Bismarck: War with Denmark 1864 – Austro–Prussian War of

Unit – IV 1866 – Warof France and Prussia 1870 -71 – Unification of 15 Hours
 Italy: Carbonari – Joseph Mazzini – VictorEmmanuel II – Count Cavour – Joseph Garibaldi – Stages of Unification of Italy & Germany

 World Wars and Aftermath: First World War – Treaty of Versailles – League of Nations – Russian Revolution –
 Unit – V Nazism& Fascism–Second World War – UNO – Capitalism & 15 Hours Communism – Cold War – Disarmament – Commonwealth Nations – European Economic Community – Gulf War – European Union

Books for Study

- 1. DavidS.Mason, AConciseHistoryof ModernEurope, MittalBooksIndia, 2019.
- 2. MahajanV.D., Historyof Modern Europesince 1789, S. ChandPublications, NewDelhi, 2010.

- 3. RaoB.V., *Historyof Europe1789 –2010*, SterlingPublishersPvt.Ltd., New Delhi, 2012.
- 4. RaoB.V., *HistoryoftheModernworldfrom1500to2013*, SterlingPublishersPvt.Ltd., NewDelhi, 2012.
- 5. RogerPrice, AConciseHistoryof France, Cambridge UniversityPress,U. K., 2005

Books for Reference

- 1. BlanningT.C.W., *TheoxfordillustratedHistoryofModernEurope*, OxfordUniversitypress, Ne wYork, U. K., 1996.
- 2. FisherH.A.L.,*HistoryofEurope*,*VolumeII:Fromthebeginningofthe18thCenturyA.Dto1935 A.D*,CambridgePublications, U. K., 1936.
- 3. KettlebyC.D.M., A Historyof ModernTimes from 1789, OUP, New Delhi, 1973.
- 4. RobinOkey, *EasternEurope1740–* 1980, *Feudalismtocommunism*, Hutchinson&Co., Publishers, London, 1982.
- 5. StevenRosefielde, *Russiainthe21stCentury–TheProdigalSuperPower*, Cambridge UniversityPress, U. K., 2005.

		SEMESTER VI		
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT

UAHI6005 CORE 17 HISTORY OF CHINA FROM 1900 A. D. TO 2000 A. D.

Course Objectives

- 1. Tounderstandthecircumstancesleadingtothe Chineserevolution
- 2. To knowthe Peoples Republicof China
- 3. Tounderstandthe victoryofCommunism inChina
- 4. To knowtherole of Chinain World Wars
- 5. TounderstandtheemergenceofChina as aworldPower

Course Outcomes

- 1. Students understand the impact of West on China.
- 2. Students can discuss the role SunYat Sen in modernizing China.
- 3. Students can explain the role of Nationalist Governments in China.
- 4. Students understand the Cultural Revolution of China as a great power in global politics.
- 5. Students assess the foreign policy of China in World Affairs.

Impact of Weston China: Early history of China – Western impact

Unit – I on China – Open door policy – Hundred Days Reforms – Boxer Rebellion – Manchu Reforms – Dowagress Tsu Hsi – Revolution of 1911: Causes, Course & Results – Declineof Manchus

Beginningof theNewEra: Dr. Sun Yat-sen: Ideas of Sun Yat-sen

- Tung Ming Hui Contribution of Dr. Sun Yat–sen –YuanShih–
 Unit II kai– Twenty-One Demands of Japan–China and TheFirst 12 Hours WorldWar–War Lords – May4thMovement –Washington Conference
 - RiseoftheNationalist Governments: Rise of Kuomintang Party -
- Unit III Chiang Kai–shek– Birth of Communism in China– Strugglebetween Kuomintang and Communists – The Long March – Manchurian Crisis –Second Sino –JapaneseWar
- Unit IVEra ofMao TseTung:
GrowthofCommunism–Civilwar–MaoTse–tung–Establishmentof
PeoplesRepublic ofChina–Reforms –Cultural Revolution –
EstimateofMao12 Hours
- Unit VChinaandWorldAffairs: Foreign policy of ChinaSince 1949–
Deng Xiaoping Reorganization ofCommunism- 1982
Constitution-SocialistModernEconomy-Special Economic Zones-
China asaWorld Power12 Hours

Books for Study

1. Paul.H.Clyde&BurtonF,Beers:*TheFarEast– AHistoryofWesternImpactsandEasternResponses1830–1975*, Prentice–Hallof India

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4

(P)Ltd,New Delhi,1988.

- 2. DavidM.D., Riseand GrowthofModern China, Himalaya PublishingHouse, Bombay, 1993.
- 3. MajumdarandSrivastava, History of FarEast, SurjeetPublications, Delhi 1976.
- 4. ShivKumarandJain S., HistoryofFar Eastin ModernTimes, SurjeetPublications, Delhi.
- 5. GuptaM.L., A shortHistoryof China, Gopi NathSeth, NavinPress, Delhi, 1998.

Books for Reference

- 1. Ahamed,L.L.,*HistoryoftheFarEastinModernTimes*,S.Chand&Co.Ltd,RamNagar,NewDelh i-55,1981.
- 2. ShivKumar&Jain, History of Modern China, S. Chand&Co.Ltd, RamNagar, NewDelhi -55,1981.
- 3. HsuC. Y., *TheRise of Modern China*, Oxford UniversityPress,HongKong, 1983.
- 4. PrakashKumarDubey, History of China and Japan, DominantPublishers and Distributors, New Delhi, 2006.
- 5. MajumdarR.K., & SrivastavaA.N., History of China, SBDPublishers & Distributors Delhi, 1995.

	S	SEMESTER VI	
COURSE CODE	COURSE	COURSE TITLE	HRS./ WEEK CREDIT
		50	

UAHICE61	CBE 2	MUSLIMSCONTRIBUTION TOHUMANITY	N 4	2
Course Obje 1. To explain	ctives the importance of educ	cation in Islam and Abbasid con	tribution t	to culture and
2. To identify	the contribution of Mus	lims to Medical Sciences.		
3. To study th	e contribution of Muslin	ns to Physical Sciences.		
4. To know th 5. To study th	e progress of Mathemati e progress in Humanities	s and Astronomy.		
Course Outco	omes			
1. Students ca	n explain the importance	e of science as discussed in Quran	•	
2. Students as 3. Students ev	sess the contribution of I	n scientist in the field of Physical	sciences	
4. Students di	scuss the services of Mu	slim scientists to Astronomy and I	Mathemati	ics.
5. Students ca	n explain the influences	of Muslim social scientists on His	storiograpl	hy.
Unit–I	The Glorious period Education in Islam – Preservation of Anc Contribution of Ara Developments during 1	of Islamic Civilization: Introduce Branches of the studies in Quient Literature by the Abbase bs to the Cultural and Sci 2 th and 13 th Centuries	uran – uran – sids – tentific	12 Hours
Unit–II	Medicine and Hospita of the Prophet Muhan Abu Al–Jarrah – Al–R Al–Tabari – Abbas Ib Al–Walid – Bimaristan	als: Tibb–i–Nabawi (Medical Gu nmed PBUH) – Ibn Sina (Avice azi – Ali Ibn Al–Abbas – Al–Zal n Firnas – Ibn Al–Nafis – Al–K n (Hospital)	idance nna) – 1ravi – Cindi –	12 Hours
Unit–III	Physical Sciences : Che Jabir Ibn Hayyan – Za Abul Qasimi – Al–Ki Nahsiyah – Al Asmai –	emistry – Physics – Botany – Zoo kriya Al–Razi – Imam Jafar as S indi – Al–Hasan Ibn Al–Haytha - Al–Jahiz	ology – adiq – m Ibn	12 Hours
Unit–IV	Astronomy and M Farghani – Ibn Younus Haytham – Omar Khay	athematics : Al–Khawarizmi - s – Ibn Al–Shatir – Al–Biruni – I yyam	- Al– bn Al–	12 Hours
Unit–V	Social Science: Al–Ma Tamimi – Al–Masihi Idrisi – Ahmed Ibn Fac	asudi – Al–Kindi – Ibn Al–Jazzar – Ali Ibn Ridwan – Muhamma Ilan–Ibn Khaldun	- Al- nd Al-	12 Hours

1. Philip K. Hitti, History of the Arabs, MacMillan, 1984.

- 2. Abdur Rahim Khan, Muslim Contribution to Science and Culture, New Delhi, 1946.
- 3. Ehsan Masood, Science and Islam A History, London, 2009.
- 4. Dr. Major Syed Shahabuddeen, Muslims Contribution to Humanity, Chennai, 2016.
- 5. Arnold, Sir Thomas, The Legacy of Islam, London, 1913.

Books for Reference

- 1. Browne, E.G., *History of Arabian Medicine*, Cambridge, 1921.
- 2. Doughty, C.M., Travels in Arabian Desert, London, 1953.
- 3. Gibb, H.A.R., Islamic Society and the West, London, 1960.
- 4. Haskins, C. H., Arabic Science in Western Europe, 1925.
- 5. Syed Ameer Ali, The Spirit of Islam, New Delhi, 1922.

		SEMESTER V		
COURSE CODE UAHICE62	COURSE CBE 2	COURSE TITLE HISTORY OF SCIENCE AND	HRS./ WEEK 4	CREDIT

TECHNOLOGY IN INDIA FROM 1750 A. D. TO 1900 A. D.

Course Objectives.

- 1. To study the history of Science and Technology in British India
- 2. To study the History of Association of Sciences
- 3. To explain the modern techniques in Agriculture
- 4. To know the history of Growth in Science and Technology
- 5. To explain the Greatness of Scientists

Course Outcomes.

- 1. Students understand the importance of progress of Science and Technology
- 2. Students get an idea about Various Science associations
- 3. Students acquire knowledge about the Modern agriculture methods
- 4. Students understand the development of Science and Technology
- 5. Students understand the contribution of great scientists

Introduction: Development of Science and Technology in 18th Century India –Relation between Science and Society –

Unit–I Impact of Indian Science – Modern Sciences by the 12 Hours Europeans – Asiatic Society of Bengal – Medical Education and Research

> **Establishment of Different Associations of Science:** Debates on the Character of Science and Technological Moderation in Colonial India – Institutes for Development of

Unit–II Science: Indian Association for the Cultivation of Science – 12 Hours Indian Science Congress Association – Institution of Engineers – National Academy of Sciences – Indian National Science Academy

Introduction of Modern Techniques in Agriculture:
Modernisation of Agriculture under British rule – Agricultural
Education and Research – Veterinary Science – AgricultureUnit–IIIand Irrigation – Food Crops – Commercial Crops – Plantation
Crops – Introduction of New implements & seeds – Big Dam12 Hours

Crops – Introduction of New implements & seeds – Big Dam Technology – its impact on agrarian economy and Agro based industries

History of Growth of Science and Technology: History and growth of Science and Technical Education– Formation of Scientific Community – Growth of Scientific Research
 Unit–IV institutions –Transport and Communication: Roads – Railways and Bridges – Harbours – Ports, Post &Telegraph, Printing and Lighthouses – Waterways – Growth of Steel Mining –Chemical and Pharmaceutical Industries

Government Research Organisations and Great Scientists:

Zoological Survey – Botanical Survey – Geographical SurveyUnit–V– Trigonometrically Survey – Development of Meteorological
and Astronomical Sciences – Great Scientists: Sawai Jai
Singh – J.C. Bose — Role of Universities and Scientific12 Hours

12 Hours

Institutions

Books for Study

- 1. Vadivel Dagil, Science and Technology in India, Anns Publications, Uthamapalalayam, 2004.
- 2. Venkatraman, R., History of Science and Technology, Enns Publications, Madurai, 1988.
- 3. Gupta, S.P., Science, Technology and Society in Modern Age.
- 4. Gupta, S.P., Modern India and Progress in Science and Technology.
- 5. Kalpana Rajaram, *Science and Technology in India*. **Books for Reference**
- 1. Irfan Habib, Technology barriers to social change in Mughal India, Indian Historical review.
- 2. Depak Kumar, Science and Raj 1857–1905.
- 3. Depak Kumar(ed) Science and Empire: Essays in Indian Context.
- 4. G. S Aurora, Scientific Communities in India.
- 5. Dharmapal: Indian Science and Technology.

		Semester VI		
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UAHISE61	SKBE2	COMPETITIVE EXAMINATIONS	2	1

Course Objectives

- 1. To impart overall idea about Competitive Examinations
- 2. To create awareness about various Central Level Competitive Examinations
- 3. To educate the students about various State Government Services and Examinations
- 4. To create awareness about the opportunities in teaching positions both Central/State and School/Higher Education.
- 5. To motivate the students through preparation tips and suggestions.

Course Outcomes

- 1. Students can identify various competitive examinations.
- 2. Students can plan for various Central Government jobs and know.
- 3. Students learn about various State Government Job opportunities and their eligibility criteria.
- 4. Students Prepare for the various Job opportunities in the field of education.
- 5. Students identify the various preparation techniques for competitive examinations.

Unit – I	Introduction to Competitive Examinations: Competitive Examinations in India: Civil Services – Preliminary and Main Examinations –Government Employment in other services – Examination patterns and stages – Written Test –Oral Test – Negative Marks – Reservation policies of State / Central Governments in selectionprocess:Horizontal Reservations–Vertical Reservations	6 Hours
Unit – II	Central Level Competitive Examinations: CentralServices:UnionPublicServiceCommission(UPSC)– PatternandStages–Staff Selection Commission CGL / CHSL – Stages of Selection – Railway Recruitment Board(RRB): NTPC – ALP – Stages of Selection – Defence Examinations – LIC / GIC Examinations:AAO / Assistants – Stages of Selection – Institute of Banking Personnel Selection Examinations(IBPS)–P.O / Clerical– Stages of Selection	6 Hours
Unit – III	StateLevelCompetitiveExaminations:TNPSC:TamilNaduPublicServicesExaminations-OneTimeOnlineRegistration-CombinedCivilServiceExaminations,Group I & II - Stages of Selection -Madras HighCourtServiceExaminations:Typist/Assistants/XeroxMachineOperator/Reader-DistrictEducationalOfficersExaminations-OtherTechnicalExaminations	6 Hours

Unit – IVRecruitment for Educational Teaching Services:
UGC:JRF/NETExaminations-
CentralTeachersEligibilityTest(CTET)-UGC-NET-SET -
TeachersRecruitmentBoard:TNTET-PGTRB-6 Hours

Asst.ProfessorstoCollegiateEducation–Qualificationand Stagesof Recruitment

Competitive Examination Preparation Techniques: Reading Newspapers, Magazines, Reference Books for Subjects - Subjects of study: GeneralScience (Physics, Chemistry, Biology) - History, Economics, Geography, Indian Polity - Maths, Reasoning and General Awareness / Unit – V General English - General Tamil - Perusing Previous YearsQuestion Papers - Homework - Attending Oral Interviews: Mock Interview Tackling FAQ'sduringInterviews-ReviewofInterview

6 Hours

Books for Study

- 1. Aarif Qadir, How to Crack UPSC Civil Services Examination: An Ultimate Strategy Book toCrackCivil ServiceExaminations, AmazonDigital ServicesLLC,2014.
- 2. DasS.K., The Civil Services in India: Oxford India Short Introductions, SriPadmavathi Publica tions, Chennai, 2013.
- 3. UsmanganiAnsariMd.Dr., MissionIAS-Prelim/MainExam, Trends, Howtoprepare, Strategies, Tips & Detailed Syllabus, DishaPublishers, NewDelhi, 2016.
- 4. KhullarD.R.&RaoJACS, EnvironmentforCivilServicesPrelimsandMainsandOtherComp etitiveExaminations, Manav Books, Distributors, Agra, U.P, 2015.
- 5. NCERT&SCERTTextbooks Class VIto XII

Books for Reference

- 1. DivyaSIyerDr., PathFinder: CivilServicesMainExamination, DCBooksPvtLtd., NewDelhi
- 2. EdgarThorpe, The Pearson CSAT Manual 2013: Civil Services Aptitude Test for the UPSC Civi lServices PreliminaryExamination,NewDelhi.
- 3. MajidS.A., Special Current Affairs for Civil Services Examinations, Kalinjar Publications, NewDelhi.
- SanjivVerma, The Indian Economy: for UPSC & State Civil Services Preliminary & Main E 4. xaminations, UniquePublications, New Delhi.
- 5. VeeraSekaran, TNPSCGroupII, KizhakkuPublishers, Chennai

		Semester VI		
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UAHISE62	SKBE2	HISTORY OF SCIENCE ANDTECHNOLOGY IN INDIA FROM 1900 A. D. TO 2000 A. D.	2	1
Course Object	irvag			

Course Objectives

- 1. To educate the role of Government in the growth of Science & Technology.
- 2. To understand the agriculture and related livelihoods.
- 3. To study the various energy related developments and progress.
- 4. To educate the progress of India in Transport & Communication.
- 5. To impart the knowledge about the various types of Industries.

Course Outcomes

- 1. Students understand about the pros and cons of Government policies.
- 2. Students identify the modern developments in Agricultural related activities.
- 3. Students understand the implementation of various energies in a progressive way.
- 4. Students understand the hyper growth of Information Technology.
- 5. Students understand the progress in Industrial sectors.

Scientific Institutions & Scientists: Government policies after Independence – Establishment of Scientific Institution after Independence – Prominent Indian Scientists since Independence:

Unit – I Srinivasa Ramanujan-Sir C. V. Raman – Homi Jehangir Bhabha – Vikram Sarabhai – M. S. Swaminathan - Salim Ali – Kalpana Chawla — A.P.J. Abdul Kalam

Scientific Revolutions: Agriculture: Agricultural Education and
Research – Veterinary Science –Green Revolution – White
Revolution – Irrigation Projects and Water Management – Live
Stock and Fisheries – Blue Revolution – Promotion of Agriculture
since Independence – Problems faced by Farmers and Farming
Sector6 Hours

6 Hours

Energy Science: Energy: Various forms of Energy – Organisations
Monitoring and Distributing Power – Atomic Power Stations in
Independent India – Advantages and Disadvantages of Atomic 6 Hours
Power – Hydro Electric Projects in Independent India – Thermal
Power Stations – Alternative Power Resources and their Utilization
– Energy Sufficiency and Management – Magnetic Levitation

Unit – IVTransport & Communications: Transport and Communication:Unit – IVRailways, Roadways, Airways and Waterways – National and State6 HoursHighways – International and Domestic Transport – Harbours –
Aeronautical Industries – ISRO – Satellites: Fields of Application –6 Hours

INSAT &Launch Vehicles – Telecommunications – Info–Tech: Mobile, Internet, Intranet & Email – e–Banking – Nanotech – Hyperloop Technology

Unit - VIndustrial Technology: Industries - MSME - Macro Enterprises -
Small Scale and Cottage Industries - Handloom and Textile Industry
- Iron and Steel - Software and Information Technology -
Pharmaceutical Industries - Assessment of Industrial Growth - Brain
Train & Brain Drain - Effects of Science to Masses6
Hours

Books for Study

- 1. Varghese Jeyaraj, S, *History and Science and Technology*, Anns Publications, Uthamapalayam, 2004.
- 2. Sheelwant Singh, Kriti Rastogi, Sarik, *NCERT Science and Technology*, McGraw Hill Education (India) Private Limited, Chennai, 2018.
- 3. Dr. Stella, J, *ValimaiyanaIindiavinAriviyalTholinutpaValarchi (Tamil), Vol–I*, Mathi Publications, Chennai, 2018.
- 4. Dr. Stella, J, *ValimaiyanaIindiavinAriviyalTholinutpaValarchi (Tamil), Vol–II*, Mathi Publications, Chennai, 2018.
- 5. Kalpana Rajaram, Science and Technology in India

Books for Reference

- 1. KuppuramG., Kumudamani K., *History of Science and Technology in India*, South Asia Books, 1990.
- 2. History of Science in India (11 Volumes): NASI & The Ramakrishna Mission Institute of Culture, U.P, 2014.
- 3. Deepak Kumar, *Science and the Raj: A Study of British India*, Oxford University Press, New Delhi, 2006.
- 4. Om Prakash Jaggi, History of Science and Technology in India, Atma Ram, Delhi, 1973.
- 5. Kuppuram, G, *History of Science and Technology in India (12 Volumes)*, Sundeep Prakasam, New Delhi, 1990.

DEPARTMENT OF BBA 15th BOS APPROVED UG SYLLABI FOR

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		SEMESTER V						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT				
UABA5001	CORE 10	BUSINESS LAW	5	5				
Course Obje	ctives							
1. Highlight the students about the elements of general and special contracts.								
2. Enable	e the students	to understand and deal with various contra	acts in day to c	2. Enable the students to understand and deal with various contracts in day to day life, be it				

for his	business or profession.					
3. Familiarize the students with the principles of law that is essential to manage complex						
busine	business transactions.					
4. Instill	awareness of legal framework	in sales of goods.				
5. Expos	e the law pertaining to Intellec	tual Property Rights.				
Course Outc	omes					
1. Identit	fy various laws involved in bus	siness operations.				
2. Apply	basic principles of law pertain	ing to business.				
3. Under	stand the modes of discharge of	of contracts with remedies for breach.				
4. Under	stand the operations of Sale of	Goods Act.				
5. Comp	rehend Laws pertaining to Inte	llectual Property Rights.				
	Introduction					
Unit-I	Business Law-Introduction	and meaning-Nature of contract-	20 Hours			
	Classification of contract- off	er- acceptance- consideration.	L			
	Contractual capacity	~ ~				
Unit-II	Capacity to contract- Free	Consent-Coercion, Undue Influence,	15 Hours			
	Misrepresentation Fraud, and	Mistake.	L			
	Performance and Discharge	e of Contract				
Unit-III	Legality of Object- Void Agreements -Contingent Contracts -					
	Performance of Contract- D	ischarge and Breach of Contract- Quasi				
	Contract.		L			
	Sale of Goods Act	a distinguish hotuson sole and				
Unit-IV	Formation of a contract of sal	e- distinguish between sale and	10 Hours			
	agreement to sell- conditions and warranties - Transfer of Property-					
	rights and duties of buyer- of	ipaid Selier- Rights and duties.				
	Intellectual Drenauty Diabte	-				
	Provisional relating to Det	sonta Tradamarka and Convrighta				
Unit-V	Provisions relating to Par	to other Intellectual Property Dichta	10 Hours			
	Overview of Laws relating to other Intellectual Property Rights –					
Doolag for Sta		Toperty Rights.				
BOOKS IOF SU		· Ducinace Low				
1. 1. Kap	001 N D	· Business Law				
2. 2. V. Datachandran&S. I nothadiri : Business Law 2. 2 D S N Dilloi & Pogovethi : Dusiness Law						
J. J.K.S Pooles for De	formana:	. Dusiness Law				
$\frac{1}{1} MC$	Shukla	· Business Law				
$\begin{array}{c c} 1 & \text{WI.C.} \\ 2 & \text{D} C & \text{T}_{2} \end{array}$	aleian	· Business Law				
$\begin{array}{c} 2. & 1 \\ 3 & \text{Sreen} \end{array}$	vasan M R	· Business Law				
$\int J = J$	vasan wiri ək	· Lagal aspects of Rusiness				
4. 4.Paln	an	. Legal aspects of busiliess				

		SEMESTER V		
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT

UABA5002	CORE 11	C	OST ACCOUNTING	5	5	
Course Obje	ctives					
1. Provid	de students wi	ith an expos	sure to the basic concepts of cos	ting, costing sy	stem and	
cost accounting techniques.						
2. Provid	2. Provide an in-depth knowledge of elements of cost.					
3. Impar	t the knowled	ge of prepa	ring cost sheet.			
4. Expla	in the pricing	g method of	material issue			
5. Enable	e the students	to understa	and the method of wage paymen	it and incentive	plan.	
Course Outc	omes	1' ((1	••• • •			
1. Select	the costs acc	ording to the	heir impact on business.			
2. Differ	entiate metho	forent alor	ants of cost with prostical appro	Angel		
J. Able I	fy the best wa	icicili cicili	or incentive plan for effective d	acii.		
5 Devel	op restructure	e and apply	cost accounting approaches to	solve practical	nrohlems	
J. Devel	Introductio	c and appry	cost accounting approaches to	solve practical		
	Definition	of Cost	Costing and Cost Accounting	ng- Objective		
Unit-I	Advantages	and Limits	ations – Financial Vs Cost Acc	counting - Cost	10 Hours	
	Classificatio	on – Elemer	rates of cost - Methods of Costing	(only theory)		
	010001100010			<u>, (only eneory)</u>		
	Cost Sheet	and Ouota	tions			
	Cost Sheet	- Meaning	g – Objectives – Specimen of	f Cost Sheet -	-	
Unit-II	Preparation	of Cost Sh	eet, Raw-Materials Consumed	– Prime Cost –	20 Hours	
	Works Cost	t – Cost of	f Production - Cost of Sales -	- Treatment of		
	Stock or Inv	ventories –E	Estimates, Tenders and Quotatio	ns.		
	Materials					
Unit-III	Material Co	ontrol – N	Ieaning – Objectives – Adva	ntages - Store	15 Hours	
	Records-EO	Q - Metho	ods of Pricing of Material Issues	s - FIFO, LIFO	10 1100115	
	and Simple	Average Pr	ice.			
		<u> </u>				
	Labour & C	Overhead		· D'		
	Labour Cost	t - Meaning	g – Types - Methods of Wage P	ayment – Piece	2	
Unit-IV	Rate – Stra	aight Piece	Rate - Differential Piece	Rate -1 aylor s	20 Hours	
	Differential	Piece Kale	- Merrick's Multiple Piece Ra	ile – Time Rale		
	- Incentive	Plan Hais	ey plan, Rowan Plan. Overnea	id – Meaning -		
	Classificatio		lead costs - Machine nour rate.			
	Iob Costing	<u>π</u>				
	Job Costing	5 v – Definit	ion – Features – Limitation –	Essential nre-		
Unit-V	Unit-V requisites for introduction of job costing - Job costing procedure – 10 Hou				10 Hours	
	Job cost she	et	tion of job costing too costin	ng procedure		
Books for St	udy				1	
1. T.S. R	Reddy &HariP	Prasad Redd	ly : Cost Accounting			
2. Murth	y A &Gurusa	ımy	: Essentials of Cost Account	ing		
3. S.P. Ja	ain and Naran	lg	: Cost Accounting	2		
4. S.N. M	Maheswari	-	: Principles of Cost Account	ting		
Books for Re	eference:		•			
1. Murth	y A &Gurusa	umy S	:Cost Accounting			

2. Tulsian P.C.	: Cost Accounting	
3. S.P. Iyangar	: Cost Accounting	

SEMESTER V						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UABA5003	CORE 12	ENTREPRENEURIAL DEVELOPMENT	5	5		
Course Obje	ctives					
1. Provide knowledge of entrepreneurship						
2. Develo	op Entreprene	eurial Mind-set				
3. Make	students awa	re about various entrepreneurship schemes prov	ided by Gov	vernment.		
4. Create	a learning s	ystem through which students can acquaint th	emselves v	ith special		
5 Motiv	ate Ioh-Seeke	rs to become Job-Generators				
Course Outco	omes					
1. Under	stand the opp	ortunities for entrepreneurs				
2. familia	arize with the	different stages of and				
3. Entrep	reneurship de	evelopment activities				
4. Contri	bute to Natio	nal Development through Employment Generat	ion Progran	n.		
5. Be pre	pared for the	Future of Business.				
Unit-I	Entrepreneu of an Entre Entrepreneu Entrepreneu	r – Meaning – Qualities of Entrepreneur – Char epreneur – Types of Entrepreneur - Classif rs. rship – Meaning –Factors influencing Entrepre r vs Manager – Entrepreneur vs Intrapreneur.	racteristics fication of eneurship -	15 Hours		
Unit-II	RURAL & Rural Enter Forest – Min Small Ente Women – T	SMALL ENTERPRISES prises: Need – Problems – Opportunities– Typneral – Textile – Handicrafts - Engineering). rprises (Small Scale – Ancillary – Export of iny – Micro – Village - Cottage Industries).	oes(Agro – oriented –	15 Hours		
Unit-III	GOVT. & I Entrepreneu Banks – DI Institutions Institutions.	NON-GOVT. INSTITUTIONS rial growth – Role played by government - C C – NSIC – SIDO – SIDBI – SSI – All India - IDBI, IFCI, ICICI – Role of Non-g	ommercial Financial overnment	15 Hours		
Unit-IV	BUSINESS Business Id Opportunitio – Legal – Formulation	IDEA & PLAN ea generation Techniques – Identification of es –Feasibility Studies: Marketing – Financial – Managerial – Locational – Business Plan – Project Appraisal.	f Business Technical – Project	15 Hours		

Unit-V	ESTABLISHMENT OF MICRO ENTERPRISES Steps involved in establishing a Micro Enterprise -Managing a Micro Enterprise - Entrepreneurial competencies & Entrepreneurial behavior -External factors influencing the success or failure of the enterprise -Internal factors affecting success or failure of the enterprise.				
Books for St	udy				
1. Jaysh	ree Suresh : Entrepreneurial Development				
2. Raj S	hankar : Essentials of Entrepreneurship				
3. Khan	ka : Entrepreneurial Development				
4. Muni	sh Vohra : Entrepreneurial Development				
5. S. An	il Kumar : Entrepreneurship Development				
Books for R	eference:				
1. Gupta	a C B : Entrepreneurial Development				
2. Saini	: Entrepreneurship-Theory and Practice				
3. Sarav	anavelP : Entrepreneurial Development.				
4. S.K.N	Aohanty : Fundamental of Entrepreneurship				
5. Heidi &Mir	M. Neck, Christopher P. Neck, Emma L. Murray: Entrepreneurship – Thadset, SAGE Publications, 2016	he Practice			

SEMESTER V						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UABA5004	CORE 13	International Business & Exports Management	5	5		
Course Objectives						

1. Provide basic and broad knowledge in international business	z export management.				
2. Impart knowledge about business environment.					
3. Ability to apply FDI concepts.					
4. Impart the knowledge of export procedure.	a exports				
Course Outcomes	, exports.				
1 Understand the concepts in International business with respec	to foreign trade				
2. Apply the current business phenomenon					
3. Able to evaluate the global business environment in terms of	conomic, social and legal				
aspects.	_				
4. Learns the procedure for export formalities.					
Introduction to International Business					
International Business: An Overview – Evolution of I	ternational 20				
Unit-I Business - Stages of Internationalization - Differences	Hours				
Domestic and International Business – Types of Intern	tional Business –				
International Business Approaches – Advantages.	I				
International Business Environment					
Unit-II Suppliers – customers – competitors – Environment:	emographic – 10				
Economic – Technological - Political and Cultural.					
	I				
Foreign Direct Investment (FDI)					
Unit III Foreign Direct Investment – Factors Influencing FDI,	Reasons for FDI, 15				
Costs and Benefits of FDI, Trends in FDI, Foreign Di	ect Investment in Hours				
India.					
Introduction to Export Management					
Unit IV Decumentation Proforms invoice Commercial Inv	ties. CP 1 Form 15				
Umit-Iv Documentation - Proforma Invoice, Commercial Inv Shipping Bill Shipping Order Vehicle Ticket Bill	of Lading Mate Hours				
Receipt Airway Bill	or Lading, Wate				
Role of Government Institutions in promoting exp	rt				
Government Institutions assisting in promoting expor	-Ministry of				
Unit-V Commerce, Directorate General Of Foreign Trade- E ₂	port Promotion 15				
Council- Indian Institute of Foreign Trade –India Trad	e Promotion Hours				
Organization.					
Books for Study					
1. Bhattacharya, B., Going International: Response Strategies of	the Indian Sector, Wheeler				
Publishing, New Delhi.	10				
2. Paul, J., International Business, 5th Edition, PHI Learning, 20	10.				
3. Balagopal – Export Management.					
4. Kulliar and Williar – Export Management					
1 Griffin R International Rusiness 7th Edition Pearson Educ	tion 2012				
2. P.R.Khurana-Export Management –Galgotia Publishing Hou	e. Delhi				
3. D.C. Kapoor – Export Management-Vikas Publishing House	.,				

COURSE CODECOURSECOURSE TITLEHRS/ WEEKCREDITUABA5005CORE 14STRATEGIC MANAGEMENT42			SERVIL'S LEIX V			
UABA5005 CORE 14 STRATEGIC MANAGEMENT 4 2	COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
	UABA5005	CORE 14	STRATEGIC MANAGEMENT	4	2	
Course Objectives	Course Obje	ctives				
1. Impart knowledge about the importance of strategic management processes.	1. Impar	t knowledge a	bout the importance of strategic managen	nent processes.		
2. Provide knowledge about firms' formulation, implementation and evaluation of business	2. Provid	le knowledge	about firms' formulation, implementation	and evaluation	n of business	
strategies.	strateg	gies.				
3. Impart the concepts of generic and growth strategies.	3. Impar	t the concepts	of generic and growth strategies.			
4. Deliver the methodology of strategic implementations.	4. Deliv	er the method	ology of strategic implementations.			
1 Develops understanding of the concents, tools and techniques of strategic management	1 Doval	omes one understor	ding of the concents, tools and techniques	of stratagia m	nagamant	
 Develops understanding of the concepts, tools and techniques of strategic management Develops analytical and conceptual skills to look at the totality of situations 	1. Devel	ops understan	and conceptual skills to look at the totalit	v of situations	anagement	
3 Acquire knowledge on work environment and strategic leadership styles	3 Acqui	re knowledge	on work environment and strategic leader	s of situations.		
4. Able to design corporate, business and functional strategies according to external	4. Able t	o design corr	orate, business and functional strategies a	ccording to ext	ernal	
environment and internal capabilities.	enviro	nment and in	ernal capabilities.			
Introduction		Introductio	n			
The business system – objectives of the business – branches-		The busine	ss system – objectives of the busine	ss – branches	S-	
Strategic Management- mission – vision- goals – objectives –		Strategic N	lanagement- mission – vision- goals	 objectives 	-	
Unit-I advantages- elements - levels – processes - Strategic Business Unit 10 Hours	Unit-I advantages- elements - levels – processes - Strategic Business Unit					
(SBU)- strategic analysis of functional areas – production –		(SBU)- str	tegic analysis of functional areas -	- production	-	
marketing – human resources – finance – analyzing corporate		marketing	- human resources – finance – analy	yzing corporat	e	
capabilities – SWOT Analysis.		capabilities	– SWOT Analysis.			
Structure in Engineering						
Strategic Environment		Strategic E	ivironment			
Internal Environment – Factors influencing business decisions,		Internal E	nvironment – Factors influencing bus	iness decision	S,	
marketing resources, mission, vision and objectives.		marketing re	sources, mission, vision and objectives.			
Unit-II 15 Hours	Unit-II			1. (15 Hours	
External Environment – Micro Environment- supplier, customer,		External Environment – Micro Environment- supplier, customer,				
competitors- Macro Environment- economic, pontical, legal, socio-		cultural to	hadro Environment- economic, pointe	al, legal, socio)- 8-	
Industry Forecasting the Environment		Industry For	ecasting the Environment		x	
		industry i of				
Corporate strategy		Corporate	strategy			
Nature and scope – types of corporate strategy- strategic planning-		Nature and	scope – types of corporate strategy- stra	ategic planning	g_	
Unit-III process of strategic planning – formulation of strategy – process of 10 Hours	Unit-III	process of s	trategic planning - formulation of strate	gy – process of	of 10 Hours	
strategy formulation- project life cycle – portfolio analysis – BCG		strategy formulation- project life cycle – portfolio analysis – BCG			G	
matrix – GE matrix – strategic decision making.						
		a •				
Generic strategy and Growth strategy		Generic str	ategy and Growth strategy			
Unit IV diversification Integration types of integration 15 Harry	Unit IV	diversificati	legic alternatives – Diversification- horizo	mai, vertical	15 Hours	
Growth Strategy_ Internal Growth Strategy_ horizontal vertical		Growth Stre	n - incertation- types of incertation. tegy- Internal Growth Strategy- horizonta	l vertical		
concentric and conglomerate - External growth strategy – merger.		concentric a	nd conglomerate - External growth strateg	y – merger.		

	joint venture, acquisition, amalgamation-Strategic organizational	
	structure - evaluation of organizational structure - management of	
	change- Strategic evaluation and control.	
	Implementation of strategy	
	Elements of strategy implementation- process of strategy	
	implementation- steps involved in strategy implementation -	
Unit-V	Leadership- qualities of leadership- functions of strategic leader-	10 Hours
	leadership styles- Organizational Climate – types- advantages- impact	
	of good organizational climate- Strategic planning, control and	
	implementation- process.	
Books for S	Study	
1. D	r. C. B. Memoria & Dr. Satish Memoria - Business planning and policy.	, Himalaya
Publ	ishing House	
2. L	.M. Prasad- Strategic Management, Sultan Chand & Sons	
3. E	Pr. S. Sankaran, Strategic Management, Margham Publications.	
Books for I	Reference:	
1. 5	S.C. Bhattacharya - Strategic Management Concepts and Cases S. Chand &	z Co
2. 4	AzharKazmi - Strategic Management & Business Policy, Tata Mc Graw Hi	ill.
3. (Gupta, Gollakote and Srinivasan – Business Policy and Strategic Managem	ient,
]	Prentice Hall of India.	
4. 5	Saloner and Shepard – Strategic Managent, John Wiley	
5. 1	Fred R. David-Strategic Management and Cases –Prentice Hall of India	

SEMESTER V						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UABACE51	Core based Elective 1	RETAIL MANAGEMENT	4	2		
Course Objectives						

1.	Familiarize students with the decisions involved in running a retail firm and	l the		
	concepts and principles for making those decisions.			
2.	2. Focuses on the retail industry including retailers of consumer services.			
3.	3. Provide knowledge about working for companies that interface with retailers such as			
	manufacturers of consumer products			
4.	Impart the knowledge about the general management and entrepreneurial in	iterest.		
Course Ou	itcomes			
1.	Introduce the Scope and significance of Retail industry, Trends and Challe	nges.		
2.	Enlighten on Retail Strategies, Opportunities and Competitive advantage.	C		
3.	Comprehend knowledge on all areas of Retail business operations.			
4.	Understand the concepts of Retail Promotions.			
	INTRODUCTION TO RETAILING			
Unit-I	Definition of retailing- feature of retailing-importance of retailing-functions of retailing- types of retailers (traditional and modern)-Retail in India- challenges to retail development in India- Retailing from International perspectives.FDI in the Indian Retail sector: Organised retailing and Expansion	15 Hours		
	of retailers - FDI in retailing and its impact - FDI in Indian retailing			
	and its future.			
Unit-II	Retail shopper behavior–factor influencing the retail shopper- The customer decision making process- Online retailing–types of online retail-importance of online retailing-advantage of online retail-disadvantage of online retail.	10 Hours		
Unit-II	RETAIL LOCATIONSite selection –influencing factor in site selection –geographical location decision –types of geographical location zones (location area, market area and primary trading /concentric zones) - Location and types of retail development (solitary site ,unplanned shopping area site , planned shopping area site) – types of planned shopping area.	15 Hours		
		[
Unit-IV	MERCHANDISE, MANAGEMENTCATEGORY ANDANDSPACEMerchandise Management – phases in developing a merchandise plan- methods of calculating merchandise levels- functions of a merchandiser-visual merchandise management – objectives. Category Management – reasons- objectives- process of category management.Space Management- objectives- space planning- process	10 Hours		
	space management objectives space planning process.	I		
Unit-V	RETAIL PROMOTION Retail promotion– definition– promotional objectives–SMARRTT	10 Hours		

	objectives – promotional advertising –components of promotional
	advertising- advantages and disadvantages- sales promotion- kinds
	of sales promotion-
Books for S	tudy
1. Dr.L	Natarajan – Retail Management – Margham Publications.
2. Suja	Nair – Retail Management – HPM
3. Swap	ban Pradhan – Retailing Management
4. K.Ve	nkataraman – Retail Management –SHBP
5. Arifs	akh – Retail Management –HPH
Books for R	eference:
1. Bern	an Berry & Joel Evans – Retail Management
2. Pradl	nan – Retail Management
3. Levy	Michale& Barton – A weitz - Retail Management
4. Chet	an Bajaj Etal – Retail Management

SEMESTER V						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UABACE52	Core based Elective 1	TIME MANAGEMENT	4	2		
Course Objectiv	ves	· · · ·				
 Acquaint the students with concepts and techniques used in time management theory Enable the students to apply the knowledge in business decision making. Impart the knowledge of behavioral change Provide the concepts of strategic intervention. 						
Course Outcom	es					
 Determine Manage yo Use a varie Reduce the Increase ti crises occu 	what you want to our annual objecti ety of tools to red e need for fire-fig me spent on impo	o achieve in the long, medium ves on a daily basis uce wasted time every day hting ortant tasks that often get left l	and short terr	n lines approach and		
Unit-I	Introduction Time managem theory - basic pr	ent - definition - importanc	e - functions	- 10 Hours		
Unit-II ORGANIZATIONAL CHANGE Planner - benefits of using a planner - time budget - time monitor - making schedules - time management model - management vs. leadership. 15 Hours						
Unit-III	Unit-IIIINTERVENTION STRATEGIES Procrastination - definition - overcoming procrastination - creativity and its importance - job clarification - job purpose - identify key areas - identify targets.10 Hours					
Unit-IV	BEHAVIOURA First generation factors that defi effect diagram.	L CHANGE 1 time management - notes ne an activity - problem solv	- checklists ing - cause an	d 10 Hours		
Unit-V	INTERVENTIC Second genera appointment boo - third generatio	ON STRATEGY tion time management - oks - events schedule - activit n - idea of prioritization - sett	calendars an ies in the futur ing goals.	d e 15 Hours		
Books for Study 1. The Sev 1990. 2. Managir 3. Time ma by East- Books for Refer	nen of Habits effec ng Time for a Com anagement pocket West Books Mad rence:	ctive people - Stephen R. Coven npetitive Edge - Bhatia R.L - t book-Ian Fleming published ras, 1999	ey Simon & So S.Chand. by Research F	chuster Publisher, Press, distributed		
1.Make Tin	ne: How to Focus	on What Matters Every Day by	Jake Zeratsky	and John Knapp		

2. Time Management Ninja: 21 Tips for More Time and Less Stress in Your Life by Craig Jarrow

3.Getting Things Done: The Art of Stress-Free Productivity by David Allen

	SEMESTER V					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UABASE51	Skill based Elective 1	MSOFFICE – BASICS Lab	2	1		
Course Object	tives		·			
1. Impar 2. Provid 3. Provid 4. Educa 5. Instruc Course Outco 1. Recogn 2. Under	 Impart the knowledge of basics of computer. Provide the concepts of Windows Operating System. Provide the basic knowledge of MS Word. Educate the application of MS Excel Instruct the basic usages of Power Point Presentations. Course Outcomes Recognize the importance of computer in education and career. 					
2. Unders	stand the basic know v Software and Har	dware				
4. Unders	stand the basic know	vledge of MS-Office				
Unit-I	Introduction Basic Applications of Computer; Components of Computer System, Concepts of Hardware and Software, Central Processing Unit (CPU), Keyboard and Mouse, Other input/output Devices, Computer Memory					
Unit-II	Basic Operating Operating Compu Operating System Mouse and Movin Bar, Viewing of F of Files and Folde different Windows	procedure ter using GUI Based Operating Syste s; The User Interface, using right But g Icons on the screen, use of Commo ile, Folders and Directories, Creating rs, Opening and closing of s.	em, Popular tton of the on Icons, Statu g and Renamin	s g 10 Hours		
				<u> </u>		
Unit-III	MS Word > Creating, > Fontandp > Simplech > Inserting	editing,savingandprintingtextdocume aragraphformatting aracterformatting cables,smartart,pagebreaks	ents	5 Hours		

Unit-IV	MS Excel > Spreadsheetbasics > Creating,editing,savingandprintingspreadsheets > Modifyingworksheets withcolor&autoformats > Graphicallyrepresentingdata:Charts&Graphs	5 Hours
Unit-V	MS PowerPoint Opening, viewing, creating, and printing slides Applying autolayouts Adding customanimation 	5 Hours
Books for Stu	dy	
I. Micros	off Office 2010, Sathish Jain, M.Geetha, Kratica, SPB Publications, B14,	
2. Place	New Delhi- 1100001	
3. The Ba	usics of Computer Applications in Business, Taxmann Publications(P.) Lt	d. 59/32,
New R	ohtak Road, New Delhi-110005 India.Marg, Lucknow.	,
Books for Ref	ference:	
 Compute Taxma Diplon Publica 	tter Application in Business, Hem Chand Jain, H.N.Tiwari, 3 rd Edition Au nn Publications(P.) Ltd. 59/32, New Rohtak Road, New Delhi-110005 In na in Computer Application (D.C.A), Madhur Kumar Telang. SPB ations.Shivaji	1g2021 dia.

SEMESTER V					
COURSE CODE	COURSE	COURSE TITLE	HOURS WEEK	CREDIT	
UABASE52	SKILL BASED ELECTIVE1	SPSS-BASICS	2	1	
	COUR	SEOBJECTIVES			
 Impartthe variousProcessofdoingResearch TeachthevariousStatisticalModelsandTheories EducatetheCurrentThinkingandApproachesinStatistics InstructthebasicsofIBM-SPSSStatistics Traintheartofpresentingdataingraphsanddiagrams 					
	COUR	REOUTCOMES			
 Illustratethe Describethe ExplaintheC Startworking Presentthe data 	 Illustratethe variousProcessofdoingResearch Describethe variousStatisticalModelsandTheories ExplaintheCurrentThinkingandApproachesinStatistics StartworkingwiththeIBM-SPSSStatistics Presentthe datainthe formsofgraphsanddiagrams 				
UNITI	DOIN	GRESEARCH		6HOURS	
The research proce Generating andtestin data: research design	ss - Initial observating theories and hypon -Analyzingdata-Re	ion - finding som theses - Collecting porting data	ething that data: measu	needs explaining - arement - Collecting	
UNITII	STATIS	TICALTHEORY		6HOURS	
The SPINE of statis - E is forestimating for null hypothesissi	tics - Statistical mod parameters - S is for gnificancetesting(NI	els - Populations a standard error - I i HST)-Reportingsign	nd samples s for (confid nificancetest	- P is for parameters lence) interval - N is	
UNITIII	CURRENTTH	INKINGINSTATI	ISTICS	6HOURS	
Problems with NHST (null hypothesis significance testing) - NHST as part of wider problems withscience - A phoenix from the EMBERS (Effect sizes - Meta-analysis - Bayesian Estimation - Registration -Sense) - Sense, and how to use it - Pre-registering research and open science - Effect sizes - Bayesianapproaches-Reportingeffectsizesand Bayes factors					
UNITIV	IBM-SP	SS-STATISTICS		6HOURS	
Versions of IBM SPSS Statistics - Windows, Mac OS, and Linux - Getting started - The data editor -Entering data into IBM SPSS Statistics - Importing data - The SPSS viewer - Exporting SPSS output - Thesyntaxeditor -Savingfiles-Openingfiles- Extending IBMSPSSStatistics					

UNITV	GRAPHS	6HOURS
The art of presentin	g data - The SPSS Chart Builder - Histograms - B	oxplots (box–whisker
diagrams) -Graphin	g means: bar charts and error bars - Line charts - C	Braphing relationships
- the scatterplot -Ed	itinggraphs	
BOOKS FOR REF	FERENCE:	
1. Andy Field,	Discovering Statistics Using IBM SPSS, 5th Edition	on, SAGE edge
2. Walker Schr	nidt, IBM SPSS: Comprehensive Beginners Guide	to Learn
Statistics usi	ing IBM SPSS from A-Z	
3. Gregory J. P	Privitera, Student Study Guide With IBM® SPSS®	Workbook for
Statistics for	the Behavioral Sciences, Third Edition	
4. Darren Geor	ge and Paul Mallery, IBM SPSS Statistics 26 Step	by Step: A
Simple Guid	le and Reference, 16th Edition	
5. Brian C. Cro	onk, How to Use SPSS®: A Step-By-Step Guide to	Analysis and
Interpretatio	n, 11th Edition	
ONLINE RESOUI	RCES:	
https://edge.sagepu	ib.com/field5ewww.youtube.com/user/ProfAndy	yField

		SEMESTER VI		
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UABA6001	CORE 15	MARKETING RESEARCH	5	5
Course Obje	ctives			
1. Under	stand the vari	ious aspects of marketing research.		
2. Devel	op skills requ	ired by the researcher and understand diff	erent application	ns of
Marke	ting Research	n		
3. Under	stand the met	hods and types of data collection.		
4. Famili	iarize student	s in the area of sampling.		
5. Cultiv	ate the skill n	eeded to prepare and present research rep	ort.	
Course Outc	omes			
1. Under	stand the pro-	cess of marketing research and its differer	it processes.	
2. Under	stand differen	nt research methods		
3. Identit	fy sources of	information.		
4. Condu	ict and analys	se product research.		
5. Able t	o write report	t on marketing research.		
	Introductio		,	
T T •/ T	Marketing I	Research – Definition – Objectives –Gro	wing importance	
Unit-1	Jnit-I of Marketing Research – Main Divisions of Marketing Research – 1			
	Uses of Marketing Research – Limitations – Market research Vs			
	Marketing	esearch - Marketing Research Process.		
	Montroting	Dessent Mothedelegy		
	Approaches	to Marketing research Historical appr	oach Marita	
IInit_II	Limitation	Descriptive approach Merits	Limitations	- 10 Hours
0111-11	Exploratory	- Descriptive approach - Ments -	Study Research	
	– Merits – I	imitations	Study Research	I
	Sampling T	echniques & Data Collection		
	Samping 1	centiques a Data concetion		
	Sampling –	Meaning - Advantages and Limitations o	f Sampling –	
	Sampling T	echniques – Probability sampling Vs Non	-Probability	
	Sampling.			
Unit-III	Data Callaa	tion Matheda of Data Collection Saco	ndami Data	20 Hours
	Data Collec	LIOII – Methods of Data Conection – Seco	Data Va	
	Sources of a	Deta Collection of Drimery Data – Phillary	Data VS	
	Secondary I	jaia - Conection of Phinary Data –Questi imitationa, Types of Questionnaire, Inte	onnane –	
	Features - Limitations – Types of Questionnaire – Interview – Merits			
	– Dements -	– Types of Interview –		
	I			
	Product Re	search		
	Product – M	Ieaning – Classification – Product Life C	ycle – Marketing	5
IIm:4 IV	Strategies o	f Different stages of Product Life Cycle	– Application of	15 Houng
Unit-IV	Marketing r	research for New Product Development	- Application of	f 15 Hours
	Marketing r	esearch in Test Marketing.		

Unit-V	Report Writing Report – Content – Elements of marketing research report – Front Matter – Body – End Matter – Qualities of a good marketing research report – Model.		
Books for St	idy:		
1. Dr.P. Ravil	ochanan	:Marketing Research	
2. Sharma D		: Marketing Research	
3. S.L. Gupta	l	: Marketing Research	
4. G.C. Berry	1	: Marketing Research	
5. S. Sumath	i and P. Saranaval,	, :Marketing Research and Consumer Behaviour.	
Books for Re	ference:		
1. Tull and H	awkings	:Marketing Research	
2. Boyd and V	Vestfall	:Marketing Research	
3. Aaker		:Marketing Research	

		SEMESTER VI		
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UABA6002	CORE 16	ADVERTISING AND SALESMANSHIP	5	5
Course Obje	ctives			
1. Famili	iarize the stud	lents with the concepts of advertising and sales	manship.	
2. Devel	op the creativ	ity skill of the students in preparing advertisem	ent copy.	
3. Devel 4. Enligh	op the studen	ts skill in sales promotions.	ha calac for	200
4. Emigi		ins about selection, training and motivation of t		.68.
Course Outc	omes	the concept of advanticing and marketing above	atomistica	
1. Able t 2. Under	o understand	the concept of advertising and marketing chara	cteristics.	
3 Able t	o highlight th	e importance of Salesmanshin		
4. Recog	nize the vario	bus training methods of salesmanship and motiv	vation techn	iques.
	Introductio			
T T • / T	Advertising	- Meaning and Definition- Publicity Vs A	dvertising-	10.11
Unit-1	Objectives-	Benefits of Advertising to Manufacturers,	Customers,	10 Hours
	Middlemen	and Sales force-Arguments against Advertising	5.	
				1
	Advertisem	ient Copy		
Unit-II	Kinds of	Advertising - Advertisement Copy - Q	ualities of	15 Hours
	Advertisem	ent Copy - Advertisement Layout – Proc	of reading-	
1 ypograpny, Litnograpny - Advertising Budget.				
Advertisement Media				
	Advertisem	ent Media – Internet, Television,	Frequency	••• ••
Unit-III	Medium(FN	A), Newspaper, Magazine – Factors influence	cing in the	20 Hours
	selection of	Media -Measuring the advertisement effective	ness.	
				1
	Salesmansh	nip		
Unit-IV	Salesmansh	ip – Meaning and Definition –Salesma	anship Vs	15 Hours
	Advertising of Solling	- Importance of Salesman - Kinds of salesmen	n - Process	
	of Sennig.			
	Training &	Remuneration		
Unit-V	Training an	d supervising the salesman – Remunerating	salesman –	15 Hours
	Motivating	the salesman.		
Books for St	udy			
1. Dawar S.R	Salesmansh	ip and Advertisement		
2. P.K. Agarwal –Advertising Management				
3. C.N.Sontaki – Advertising – Kalyani Publishers.				
4. P.K. Sahu and K.C.Rout –Salesmanship and Sales management – Vikas				
J. S.L. Gupta	-sales and L	Isunouuon management		
1 Still Cundi	iff Govoni –	Sales Management		
2. U.C.Mathu	r – Advertisin	g Management		
3. Chunawala	& Sethia –F	oundation of Advertising Theory and Practice.		

COURSE CODECOURSE COURSE TITLEHRS/ WEEKCREDITUABA6003CORE 17COMPANY LAW55Course Objectives1.Understand the concept behind the formation of companies3.Make students understand the raising of capital4.Make students understand the various types of MeetingCourse Outcomes1.Gain basic knowledge of the provisions of the Companies Act, 2013 in relation to types of company Law <t< th=""><th></th><th></th><th>SEMESTER VI</th><th></th><th></th></t<>			SEMESTER VI		
UABA6003 CORE 17 COMPANY LAW 5 5 Course Objectives Understand the concept behind the formation of companies. Highlight the laws governing the functioning of the Company Make students understand the raising of capital Make students understand the various types of Meeting. Course Outcomes 1. Gain basic knowledge of the provisions of the Companies Act, 2013 in relation to types of companies, Memorandum of Association, Articles of Association, Administration of Company Law 2. Comprehend the classification of Directors, key managerial personnel, 3. Be familiarized with the concept of winding up of a company and the modes of winding up. 4. Know about Meetings of Companies and the Committees connected with the affairs of a Company – Definition - Characteristics of a Company – Types of Company – Definition - Characteristics of a Company – Types of Company – Definition - Characteristics of a Company – Types of Company – Distinction between private and public Limited Company – Types of Company – Government Company. 15 Hours Unit-II Memorandum and Articles of Association – Meaning and contents – Distinction between the two – Prospectus – meaning and contents – Statement in lieu of Prospectus. 15 Hours Unit-II Share Capital – Types of Shares – Equity Shares – Preference Shares – Types of Preference Shares – Debentures – Types of Debentures – Management of Company – Powers of Directors and Managing Director. 15 Hours	COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
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Unit-III Share Capital Share Capital – Types of Shares – Equity Shares – Preference Shares – Types of Preference Shares – Debentures – Types of Debentures – Management of Company – Powers of Directors and Managing Director. 15 Hours Company Meetings Company Meetings – Types of Meeting –Statutory, Annual General Body, Extraordinary General Body Meeting only) – Procedures for		contents – I	Distinction between the two – Prospectus	-meaning and	
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Company Meetings – Types of Meeting -Statutory, Annual General Body, Extraordinary General, Body Meeting only) – Procedures for		Company N	Vleetings		
Body Extraordinary General Body Meeting $only$ – Procedures for		Company N	Ieetings – Types of Meeting -Statutory,	Annual General	
Unit IV Douy, Extraordinary General Douy Meeting only) Trocedures for 15 Hours	Unit IV	Body, Extra	ordinary General Body Meeting only) -	Procedures for	15 Hours
conducting meetings – Requisites of a valid meeting – Quorum for	Unit-1 v	Unit-1V conducting meetings – Requisites of a valid meeting – Quorum for			15 Hours
meeting – chairman – minutes – proxies – voting and pole –	meeting – chairman – minutes – proxies – voting and pole –				
resolution : ordinary and special.		resolution :	ordinary and special.		
Winding up		Winding u) of commonics Manufacture Martin (M	Viadia C	
winding up of companies – Meaning – Modes of Winding up of a		winding up	o or companies – Meaning – Modes of V	vinding up of a	
Unit-V Company -Compulsory winding up Under order of Court – Grounds 15 Hours	Unit-V	for compute	Compulsory winding up under order of C	ouri – Grounds	15 Hours
Types of voluntary winding up : members voluntary winding up		Types of w	oly winding up – voluntary winding up	y winding up	
creditors voluntary winding up – Comparison between the two –		creditors vo	oluntary winding up – Comparison betw	y winning up – veen the two –	

Liquidators in voluntary winding up.				
Books for Study				
1. N D Kapoor	: Company Law			
2. R.R. Gupta and V.S.Gupt	a :Indian Company Law			
3. Avtar Singh	:Indian Company law			
4. M.P. Tandon	:Text Book of Company Law			
5. Shukla	:Company Law			
Books for Reference:				
1. Dr. M R Sreenivasan	:Company Law			
2. P C Tulsian	: Company Law			
3. RSN Pillai and Bagavath	i :Company Law			

		SEMESTER VI			
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UABA6004	CORE 18	INDUSTRIAL RELATIONS	4	2	
Course Objec	Course Objectives				
1. Enable	the students t	o understand the concept of industrial relation	ions.		
2. Facilita	te students to	understand the causes, types and machiner	ies available u	nder	
Industr	ial Disputes A	Act.			
3. Unders	tand the conc	ept of collective bargaining, its functions ar	nd have a know	vledge of	
Trade U	Jnion, its feat	ures and functions.			
4. Make t	he students ca	pable of maintain peace and harmony in th	e organisation	by the	
applica	tion of variou	s labour laws and ensuring maximum efficience	ency.		
Course Outco	mes				
1. Impart	basic knowle	dge of the Indian Industrial legislations.			
2. Unders	tand the mai	for achieving the appropriational cools	uring healthy	relationship	
annong 2 Esmilia	the worklord	different concerts and practices of the Publ	ia Dalationa in		
J. Fallina organiz	ations	unrerent concepts and practices of the Fuor			
organiz					
Unit-I	Introductio Industrial Ro Scope of relationship- approaches suggestions towards inc system.	n elations – Meaning – objectives- characteris Industrial Relations- Factors influence Importance of harmonious Industri of industrial relations- causes of poor indu- to improve industrial relations- Role of indu- lustrial expansion- components of ind	tics- Nature an cing industria rial Relations ustrial relations lustrial relations lustrial relation	d al s- s- n n 15 Hours	
	1			I	
Unit-II	Industrial I Industrial D industrial d Dispute Ac Employee I strike– lega lockout – Le	Disputes Act 1947 Pisputes – Definition – objectives of the ispute-Types – Machineries available us tt- Prevention and settlement of Indus Dissatisfaction – Disciplinary Action – S and illegal strikes- consequences of egal and illegal – Prevention of Strikes and	act- Causes of nder Industria strial disputes trikes- types of illegal strikes Lockouts.	of al - 15 Hours of S-	

Unit-III	Unit-III Trade Union Definition- features- objectives- Functions- Procedure for registration of trade union- Rights of registered trade union- measures to strengthen trade union in India, problems of Indian trade union		
	strengthen trade unic	n in India- problems of Indian trade union.	
	Collective Bargaini	ng and workers' Participation in Management	
Unit-IV	Meaning- Importance- types of collective bargaining- functions- process- advantages and disadvantages- Role of Government in Collective Bargaining.		10 Hours
	Workers' participati methods.	on in management- features- objectives- scope-	
	1		
	Indian Factories Ac	t 1948	
Unit-V	Indian Factories Act, 1948 – Objectives of the Act – Provisions of the		
	Act regarding Welfa	re, Health and Safety of workers.	
Books for Stu	dy		
1. Sreeniva	asan M R	Industrial Relations and Labor legislations	
2. Monopp	a	: Industrial Relations	
3. B.Nanda	a Kumar	Industrial Relations Labour Welfare and Labour Laws	
4. Subba K	lao p	:Human Resource Management and Industrial Rela	tions
5. N.D.Kaj	poor	:A nandbook of Industrial Laws	
BOOKS IOP K	elerence:	. In dustrial Delational Emonsing groundian	
1. BD Singn		Industrial Relations and Labour Laws	
2. Piyan Gnosh Sheran Nandan		· Dynamics of Industrial Palations	
5. CD IVIAIIIOFIA : Dynamics of Indu		· Dynamics of Industrial Ketations	
5 H Sam	mel	Industrial Law	
		IIIWUUUUU LUUI	İ

		SEMESTER VI				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UABA6005	CORE 19	DIGITAL MARKETING	4	2		
Course Obje	ctives					
1. Teach	1. Teach the Basics of Digital Marketing – Visibility, Traffic, Conversion					
2. Contra	ast Digital Mar	rketing and Traditional Marketing				
3. Expla	in Search Engi	ne Optimization, Google and Keywords	. 1 17 1 77	T 1		
4. Demo	nstrate Social	Media Marketing – Facebook, Twitter, L	inkedIn and Y	ouTube		
5. Descr	ibe Online Dis	play Advertisements –Pop ups, in text an	d In image ads	•		
1 Add E	omes Professional Cr	adaptial to the Joh Profile				
1. Auu P 2. Get Se	elf-employmer	at and Online freelancing Jobs				
3 Help 9	Student-start-u	ns get husiness leads through SEO				
4. Contri	ibute to Nation	al Development through Digital India Ca	mnaign			
5. Be pre	epared for the l	Future of Business.	puig			
1		CTION				
	Digital Mar	keting - Understanding Digital Marke	ting Process	_		
	Visibility -	Increasing Visibility - Types of visibility	y - Examples of	of		
Unit-I	visibility -	Visitors Engagement - Importance -	- Examples of	of 15 Hours		
	engagement	- Bringing Targeted Traffic - Inbound	l and outbour	d		
marketing - Converting Traffic into Leads - Types of Conversion -						
Understanding Conversion Process - Tools Needed.						
	DICITAL	ADVETING VC TRADITIONAL M	DVETING			
	DIGITAL N	ARKETING VS. IRADITIONAL MA	ARACIING	_		
	Benefits of	Traditional Marketing - The Downside	to Tradition	-		
Unit-II	Marketing -	Benefits of Digital Marketing - Digital	Marketing Wir	10 Hours		
	Over traditio	nal Marketing - Tools of Digital Marketin	ng – Using Bot	h		
	Digital & Tra	aditional Marketing.	0 0			
	• •			·		
	SEARCH E	NGINE OPTIMIZATION				
	Understandin	ng Search Engines & Google – SEO -	On-Page SEO	-		
	Off-Page SE	O - Introduction to SERP - search engin	nes–Working o	of		
Unit-III	search engin	es - Major functions of a search engin	e – keywords	- 15 Hours		
	Different ty	pes of keywords - Google Keyword	planner tool	-		
	Toil Kowwords re	ds Google Search Tips & Hacks	rus mix - Lon	g		
	Tall Keywold	us - Google Search Tips & Hacks.				
	SOCIAL M	EDIA MARKETING				
	Social Media	- Understanding the existing Social Med	lia paradigms d	&		
Unit-IV	psychology	- social media marketing Vs. other Fo	rms of Intern	et 10 Hours		
	marketing -	Facebook marketing - Linked In Mar	keting -Twitte	er		
	Marketing - `	YouTube/Video Marketing -Bid Strategy				
	ONLINE DI	SPLAY ADVERTISING				
Unit-V	Online Adv	ertising - Types of Online Advertis	sing - Displa	y 10 Hours		
	Advertising -	- Banner ads - Rich Media ads - Pop ups	s and Pop und	er		

	ads - Contextual advertising - In Text ads - In Image ads - In video
	ads - In page ads - Tracking& Measuring ROI of online ads - Online
	advertising platforms.
Books	for Study
1.	Dishek K Mankad, Understanding Digital Marketing: Strategies for Online Success, BPB Publications, 2019
2.	Seema Gupta, Digital Marketing, 2 nd Edition, McGrawHill, 2020
3.	Puneet Bhatia, Fundamentals of Digital Marketing, Pearson, 2019
4.	Swaminathan&Karthik Kumar, Digital Marketing, Cengage Learning India Pvt. Ltd.,
	2019
5.	GautamBapat, Digital Marketing, 2020
Books	for Reference
1.	Vandana Ahuja, Digital Marketing, Oxford University Press, 2015
2.	Ryan Deiss& Russ Hennebrry, Digital Marketing for Dummies, John Wiley & Sons, 2 nd
	Edition 2020
3.	Simon Kingsnorth, Digital Marketing Strategy - An integrated approach to online
	Marketing, Second Edition, KoganPage, 2019
4.	Dave Chaffey & Fiona Ellis - Chadwick, Digital Marketing, Seventh Edition, Pearson,
	2019
5.	AleksejHeinze, Gordon Fletcher & Tahir Rashid, Digital and Social Media Marketing: A
	Results-Driven Approach, Taylor & Francis, 2016
E-Con	itents for Reference:
1.	Digital Marketing Training Course, Be Beginner to Advance Marketer - Marketer.Asia
2.	Introduction to Digital Marketing – Tell.colvee.org
3.	12 Free Digital Marketing PDF Books to Download [Updated 2021] – Staenz.com
4.	Digital Marketing Notes – Collegetutor.net
5.	Ultimate Guide to Digital Marketing – Digitalmarketer.com

Guide to Digital Marketing Onmale larketer.com ιε

		SEMESTER VI		
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UABACE61	Core Based Elective 2	BUSINESS TAXATION	5	5
Course Objec	tives		<u> </u>	
1. Identify	the rules imposed	upon employers in relation to empl	oyee taxation	
2. Explain	and apply the syst	em of corporation tax self assessme	nt, capital gair	s and VAT
3. Identify	and evaluate the in	mpact of international aspects on a c	company's tax	ation
4. Identify	and evaluate the in	mpact of different tax planning scer	larios	
Course Outco	mes	mounting Toy Calf Assessment (CT		
1. Descrit	the key detes for s	rporation Tax Self Assessment (CT	5A)	
2. Identify 3. Descript	the Inland Reven	ues' nowers of enquiry		
4 Identify	v the various penalt	ies and interest charges in CTSA		
5. Identify	the minimum reco	ord-keeping requirements		
6. Identify	the compliance re	quirements imposed on employers i	n relation to er	nployee
taxation	1			
	Introduction			
Unit-I	Introduction- Obj	ectives of Taxation - Canons of	Taxation - Ta	X 10 Hours
	system in India -	Direct and Indirect Taxes - Meaning	ing and Types	-
	Powers of Union a	and States to levy taxes		
	T T A (
	The structure and	soona of Indian Income Tax Act. or	property and	
IInit-II	definitions under t	the Act Agricultural Income Asses	see Assessmen	t 15 Hours
01111-11	vear. Income. prev	vious vear, person, residential status	Tax liability	15 110015
	scope and total inc	come.	,,	
	•			
	Heads of Income			
Unit-III	Salaries, Income f	from House property, Profit, Gains f	from business	20 Hours
	and Profession, Capital gains and Income from other sources.			
	Commutation of			
Unit IV	Total income & T	av liability of an individual Deduct	tion from gross	10 Hours
Unit-1 v	total income	ax hability of an individual, Deduct	Join morni gross	10 110015
	total meonie.			
	Goods & Service	Tax		
	Introduction to Go	oods and Services Tax – GSTN – St	ructure,	
Unit V	features and funct	ions – HSN Code – SAC code – Ta	x Invoice –	20 Hours
Umt-v	Credit Notes – Ta	x Invoice – Debit Notes, Bill of Sup	oply –	20 Hours
	Electronic Cash L	edger – Electronic Credit Ledger –	Procedure for	
Registration.				
Books for Stu	dy	and Howingood Dadda		
1. Business Ta	xation: 1.5 Keddy a	and Hamprasad Keddy		
2. Dusiness Ta	xation:Whittenburg	Gerald F		
Books for Ref	erence:	" Gorana E.		

- 1. Taxation (Direct and Indirect): Monica Singhania and Vinod K Singhania
- 2. Business Taxation: Radhakrishnan P
- 3. Business Taxation: Akhileshwar Pathak and Savan Godiawala

SEMESTER VI					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UABACE62	Core based Elective 2	CHANGE MANAGEMENT	5	5	
Course Objec	tives				
1. Develo	ping a basic understa	nding and appreciation for the issu	ues and conditi	ons creating the	
need fo	r change in modern o	organizations.			
2. Develo	ping a basic understa	nding of how organizations behav	e and react to o	change, why	
change	efforts can fail, over	coming organizational resistance a	and making cha	inge possible.	
3. Identify	ying organizational si	tuations that would benefit from C	DD intervention	18	
Course Outco	mes				
1. Describ	e organizational char	nge and development concepts			
2. Implem	ent change concepts	to a real case example and transfe	r this knowled	ge to their own	
workin	g environment				
3. Discuss	s why people resist cl	hange and strategies to reduce resist	stance.		
Unit-I	 -I Nature and Types of Organizational Change - Causes and Rationale for Change - Environmental and Internal Organizational Determinants of Change - Planned and Emergent Change - Proactive and Reactive Emergent Change and Responses to These Changes - Incremental and Radical Change - The Links Between Nature / Types of Change and Nature / Type of Leadership Required - Transactional Vs Transformational. 20 Hours 				
Unit-II	ORGANIZATIONAL CHANGEPerspectives of Organizational Change - Models of Change - ProcessBased, Content Based - Integration of Change Models - Resistancefor Organization Change - Change and Its Impact.				
Unit-III	Unit-IIIINTERVENTION STRATEGIES Diagnostic Strategies and Skills - Intervention Strategies - Interpersonal, Team Development, Inter Group Development Interventions - Role of Power, Policies and Ethics in OD - Role of Change Agents and Leadership - Implementing Organization Change.15 Hours				
Unit-IV	BEHAVIOURAL Behavioural Implic	CHANGE cations of Change- The Manife	est, Latent an	d 15 Hours	

	Paradovical Consequences of Change - The Concept of Resigned			
	Behavioural Compliance. The Positive and Negative Functions of			
	Desigtance Intended and Unintended Dehavioural Desigtion to			
	Resistance - Intended and Unintended Benavioural Reaction to			
	Downsizing and Delaying - Understanding and Managing			
	Uncertainty and Ambiguity in the Change Process.			
	INTERVENTION STRATEGY			
TT . •4 T7	Intervention Strategy - Advantages and Limitations of Change	17		
Unit-V	Technologies and Leadership Models - Leadership and Emotional	15 Hours		
	Intelligence to Achieve Goals - Challenges of Leading Change.			
Books for Stu	dv			
1. Palmer	. I, Dunford. R, Akin. G.(2016), Managing organizational change: A mu	ltiple		
perspe	ctives approach, 3rd edition, McGraw-Hill Irwin	1		
2. Cumm	ings Worley, (2015), Organization Development, 10th Edition, Cengage	Learning.		
3. R. G. H	Priyadharshini, (2015), Organizational Change and Development, Cengag	ge Learning.		
Books for Re	ference:	<u> </u>		
1. John P	. Kotter, (2012), Leading Change, 1st edition, Harvard Business School	Press		
2. Kotter J. P, Rathgeber. H, (2006), Our Iceberg is Melting: Changing and Succeeding under				
any Co	onditions. New York, St. Martin's Press.	e		
3. Wende	IL L. French, Cecil H.Bell, Jr. (2002), Organisation Development: Behav	vioural science		
Interve	entions for Organisational Improvement 6th edition Pearson Education	Private Ltd		

	SEMESTER VI					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UABASE61	Skill based Elective 2	MS OFFICE ADVANCED Lab	2	1		
Course Objectives						
1. Impart th	1. Impart the knowledge of basics of computer.					
2. Trains th	2. Trains the students to use MS Word applications.					
3. Provide	3. Provide knowledge about spreadsheets using MS Excel.					
4. Instruct	the usage of Power	Point Presentations.				
5. Provide	the basic knowledg	e of Internet.				
Course Outc	omes					
1. On c 2. Unde 3. Reco 4. Perfo 5. Perfo	ompletion of the co erstand the usage o ognize the importan orm common funct orm common funct	burse the students will be able to: f Computer. ace of computer in education and care ional operations in windows. ional MS-Office packages.	eer.			
Unit-I	Unit-I Introduction Basic Applications of Computer- Components of Computer System-Concepts of Hardware and Software- Central Processing Unit (CPU)-Keyboard and Mouse- Other input/output Devices-Computer Memory.			10 Hours		
Unit-II	MS Word > Creating > Fontand > Simplect > Inserting > Usinglis > Working > UsingSp > Understa > Page setu	editing,savingandprintingtextdocum paragraphformatting naracterformatting tables,smartart,pagebreaks ts andstyles withimages ellingandGrammarcheck undingdocumentproperties	ents	5 Hours		
Unit-III	MS Excel > Spreadsl > Creating	neetbasics ,editing,savingandprintingspreadshee	ets	5 Hours		

	Modifyingworksheets withcolor&auto formats	
	Graphicallyrepresentingdata:Charts&Graphs	
	Speedingdataentry:UsingDataForms	
	Analyzingdata:Data Menu,Subtotal,FilteringData	
	> Formattingworksheets	
	Securing&Protectingspreadsheets	
	 MSPowerPoint > Opening, viewing, creating, and printing slides > Applying autolayouts 	- II.
Unit-1v	Addingcustomanimation	5 Hours
	Usingslidetransitions	
	➢ Graphicallyrepresentingdata:Charts&Graphs	
	 CreatingProfessional SlideforPresentation. 	
	Internet	
Unit-V	 Understandinghowtosearch/Google 	5 Hours
	bookmarkingandGoingtoaspecificwebsite	
	Copyandpaste Internetcontentintoyourword fileand emails	
	> UnderstandingsocialmediaplatformssuchasFacebooketc.	
Books for Stu	udy	
1. Micro Conna	soft Office 2010,Sathish Jain, M.Geetha, Kratica, SPB Publications, B14 hught Place, New Delhi- 1100001	1,
2. The B New F	asics of Computer Applications in Business, Taxmann Publications(P.) I Rohtak Road, New Delhi-110005 India.	Ltd. 59/32,
3. Comp Taxma	uter Application in Business, Hem Chand Jain, H.N.Tiwari, 3 rd Edition A ann Publications(P.) Ltd. 59/32, New Rohtak Road, New Delhi-110005	Aug2021, India.
Books for Do	foronco	
1. Diplor Public	ma in Computer Application (D.C.A), Madhur Kumar Tel ations.Shivaji Marg, Lucknow.	ang. SPB
2. The B	asics of Computer Applications in Business: Joseph Manzo	
3. The B	asics of Computer Applications in Business: Stephen Moffat	

	SEMESTERVI					
COURSEC ODE	COURSE	COURSETITLE	HOURS/ WEEK	CREDIT		
UABASE62	SKILL BASED ELECTIVE 2	SPSS- ADVANCED	2	1		
	C	OURSEOBJECTIV	ES			
 Educated Teachthe Explaint Explaint Trainhow 	 EducatethevariousAssumptions,likeBiasandOutliersinSPSS Teachthe variousNon-parametricModelsandTestsinSPSS Explainthe ModelingrelationshipsorCorrelationsinSPSS Explainthe LinearModel(Regression)inSPSS TrainhowtolookatdifferencesusingT-Testin SPSS 					
	С	COURSEOUTCOME	ES			
 Explainthe variousAssumptions,like BiasandOuthersusingSPSS Analyzethe variousNon-parametricModelsandTestsusingSPSS Explorethe ModelingrelationshipsorCorrelations usingSPSS Studythe LinearModel(Regression)usingSPSS Investigatethe differencesusingT-TestusingSPSS 						
UNITI		ASSUMPTIONS		6 HOURS		
Bias-Outliers-Overviewofassumptions-Additivityandlinearity- Normallydistributedsomethingorother–Homoscedasticity/homogeneityofvariance- Independence-Spottingoutliers - Spotting normality - Spotting linearity and heteroscedasticity / heterogeneity of variance -Reducingbias						
UNITII	NON-	PARAMETRICMO	DELS	6 HOURS		
Whentousenon-parametrictests-Generalprocedureofnon-parametrictestsusingSPSSStatistics - Comparing two independent conditions - The Wilcoxon rank-sum test and Mann–Whitney test -Comparing two related conditions: the Wilcoxon signed-rank test - Differences between severalindependentgroups:theKruskal–Wallistest- Differencesbetweenseveralrelatedgroups:Friedman'sANOVA						
UNITIII		CORRELATION		6 HOURS		
Modeling relationships - Data entry for correlation analysis - Bivariate correlation- Partial andsemi-partialcorrelation -Comparing correlations -Calculating the effect size- Howto reportcorrelationcoefficients						

UNITIV	THELINEARMODEL	6 HOURS			
An introduct model -Sam Using SPSSS one predictor SPSS Statisti	An introduction to the linear model (regression) - Bias in linear models - Generalizing the model -Sample size and the linear model - Fitting linear models - The general procedure - Using SPSSStatistics to fit a linear model with one predictor - Interpreting a linear model with one predictor -The linear model with two or more predictors (multiple regression) - Using SPSS Statistics to fit alinear model withseveral predictors				
UNITV	T-TEST	6 HOURS			
The t-test - A twoindepend Statistics -Re	The t-test - Assumptions of the t-test - Comparing two means: general procedure- Comparing two independent means using SPSS Statistics - Comparing two related means using SPSS Statistics - Reporting comparisons between two means - Between groups or repeated measures				
BOOKSFOI	BOOKSFORREFERENCE: 1. AndyField, DiscoveringStatisticsUsingIBMSPSS ,5 th Edition,SAGEedge				
2. Greg	2. GregoryJ.Privitera,StudentStudyGuideWithIBM®SPSS®WorkbookforStatisticsfo rtheBehavioral Sciences,Third Edition				
	3. Brian C.Cronk, HowtoUse SPSS®: A Step-By-				
	StepGuidetoAnalysisandInterpretation , 11thEdition 4. KennethStehlik-				
Barry	BarryandAnthonyJ.Babinec, DataAnalysiswithIBMSPSSStatistics:Implementingdat				
<u>amodeling,descriptive statistics andANOVA</u> 5. NancyL.Leech, IBMSPSSforIntermediateStatistics ,5th Edition					
ONLINERE	SOURCES:				
https://edge.sagepub.com/field5ewww.youtube.com/user/ProfAndy					

V & VI SEMESTERS

DEPARTMENT OF COMMERCE 15TH BOS APPROVED UG SYLLABI FOR
		SEMESTER V			
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UACO5001	CORE 10	COST ACCOUNTING - I	5	5	
Course Objectives					
1. To enable students to understand the concepts of Cost Accounting, Cost Sheet, Tenders.					
2. To enlight	en students ab	out the Material Costing.			
3. To impart	knowledge on	Labour Cost and Overheads.			
Course Outco	mes				
1. Understand	the nature and	scope of Cost Accounting.			
2. Differentiate	e Financial Ac	counting from Cost Accounting.			
5. Describe III	be pricing for	issue of Materials			
4. Determine t	e Remuneratio	an and Incentives for Labourers			
6 Calculate Pr	imary and Se	condary Distribution of Overheads			
7 Calculate M	achine Hour I	Rate and Labour Hour Rate			
	dennie 110di 1	Rate and Eabour Hour Rate.			
	Introductio	n			
	Cost Accou	nting - Definition and Features - Natu	re and Scope	_	
	Objectives -	- Advantages and Limitations – Cost	Accounting V	's	
Unit-I Financial Accounting – Cost Concepts and Classifications –				- 15 Hours	
	Requisites of a Good Costing System – Practical Difficulties in				
	Installation of Costing System - Cost Sheet, Tender and Quotation –				
	Target Costi	ng.			
	Materials				
	Material Co	ntrol – Inventory Control – Objectives	, Advantages a	&	
	Limitations	– Essentials of Material Control – Purch	ase Departmer	nt	
Unit-II	and its Obje	ctives – Qualification and Duties of Pure	chase Manager	- 15 Hours	
	Inventory C	ontrol and its Techniques – Inventory T	urnover Ratio	-	
	ABC Techn	ique – Levels of Stock and EOQ – Perj	petual Inventor	У	
	System.				
	Pricing & I	ssue of Materials			
	Pricing of N	Aaterial Issues – FIFO – I IFO – Simpl	e and Weighte	h	
	Average Me	thod – Market Price Method – Store ke	eping and Stoc	k	
Unit-III	Control – N	feaning and Importance- Duties and Re	sponsibilities of	of 15 Hours	
	Store Keep	er – Location and layout of stores-	Centralized an	d	
	Decentralize	ed stores – Accounting for material losses	5.		
	•	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			
	Labour				
	Labour Tur	mover - Idle and Over time - Ren	muneration an	d	
Unit-IV	Incentives -	- Time Rate System - Piece Rate Sys	tem – Taylor'	s, 15 Hours	
	Merrick's, C	Gantt's, Rowan's Plans – Premium and	l Bonus Plans	-	
	Calculation	of Earnings of Workers.			
Unit-V	Overheads			15 Hours	
	Overhead –	Meaning - Classification - Importance	e – Allocation	n,	

Absorption and Apportionment of Overhead Costs – Primary and Secondary Distribution of Overheads – Step method, Repeated Distribution, Simultaneous Equation, Trial and Error Method -Computation of Machine Hour Rate and Labour Hour Rate.

Note: Weightage of Marks – Theory 20 % and Problems 80% Books for Study

- 1. T.S. Reddy & Hari Prasad Reddy, Cost Accounting Margham Publication, Chennai.
- 2. Murthy A & Gurusamy S, Cost Accounting, Vijay Nicole Imprints Pvt. Ltd. Chennai
- 3. S.P Jain and Narang, Cost Accounting Kalyani Publishers, New Delhi.
- 4. S.N Maheswari, Principles of Cost Accounting Sultan Chand & Sons, New Delhi.
- 5. S.P Iyengar, Cost Accounting _ Sultan Chand & Sons, New Delhi.

Books for Reference:

- 1. P.C Tulsian, Cost Accounting Tata McGraw Hills, New Delhi.
- 2. 2. Jhamb, H. V. Fundamentals of Cost Accounting. Ane Books Pvt. Ltd, New Delhi.
- 3. Singh, Surender. Elements of Cost Accounting, Kitab Mahal, Allahabad/New Delhi.
- 4. Arora, M. N. Cost and Management Accounting-Principles and Practice, Vikas Publishing House, New Delhi.
- 5. Lal, Jawahar & Seema Srivastava. Cost Accounting. McGraw Hill Publishing Co., New Delhi.

		SEMESTER V			
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UACO5002	CORE 11	MANAGEMENT ACCOUNTING - I	5	5	
Course Objectives					
1. To enable the students to know the importance of Management accounting and its concepts.					
2. To familia	rize students a	bout Financial Statement Analysis.	-	-	
3. To enlighte	en students ab	out Management Accounting Tools.			
Course Outco	omes				
1. Comprehene	d the objective	es and benefits of Management Accounting	g in decision	Making.	
2. Understand	the roles and	functions of Management Accountants.			
3. Prepare com	parative and	common size Financial Statements.			
4. Calculate di	fferent Ratios				
5. Draft Fund	Flow Stateme	nt.			
6. Prepare Cas	h Flow Staten	nent.			
7. Understand	requisites of g	good Reporting System.			
	Introductio	n			
	Managemen	t Accounting - Meaning – Definition -	Objectives	-	
Unit-1	Scope – Ad	vantages & Limitations – Management A	ccounting V	s. 15 Hours	
	Financial Accounting, Management Accounting Vs Cost Accounting				
	- Role and I	Juties of Management Accountant.			
	F				
	Financial S	tatement Analysis	Mathada		
Unit-II	Comporative	Statementa Common Siza Einengial	- Methods	[–] 15 Hours	
	Trand Parco	e Statements – Common Size Financiar	Statements	-	
	Tienu Teice	mages.			
	Ratio Analy	zsis			
	Meaning - [Definition – Advantages & Limitations of I	Ratio Analys	is	
Unit-III	Classificatio	n of Ratios - Profitability Ratios - Turn	over Ratios	– 15 Hours	
	Solvency /	Financial Ratios – Preparation of Financ	ial Statemen	ts	
	with the help	o of accounting ratios- Construction of Bal	ance sheet.		
				•	
	Fund Flow	Analysis			
Unit IV	Meaning -	Definition - Need - Advantages &	Limitations	- 15 Hours	
Unit-1 v	Statement o	f Changes in Working Capital - Calcula	tion of Fund	ls 15 Hours	
	from Operat	ion – Preparation of Fund Flow Statement.			
	1				
	Cash Flow	Analysis and Management Reporting			
	Meaning –	Definition – Objectives and Scope - Ad	Jvantages an	ld	
	Limitations	- Fund Flow Statement Vs Cash Flow	Statement	-	
Unit-V	Calculation	of Cash from Operations - Preparation	of Cash Flo	w 15 Hours	
	Statement as	s per AS 3 – Methods of Accounting for Cl	nanging Price	es	
	(Theory on	(y) – Management reporting – Requisite	es of a Goo	ba	
No4c- 117-1-1-4	reporting sy	Steni- kinds of reports.	-		
note: weight	age of Marks	- Theory 20 % and Problems 80%			
Books for Stu	dy				
1. Manag	ement Accou	nting- R.S. N Pillai & V. Bhagavathi, C	Cost Account	ing, S.Chand	

Publishing, New Delhi, 2008.

- 2. Management Accounting Dr.Ramachandran and Dr.R.Srinivasan, Sri Ram Publication, Tiruchy.
- 3. T.S. Reddy & Y. Hari Prasad Reddy, Management Accounting, Margham Publications,
- 4. Sharma & Sasi K. Gupta, Management Accounting, Kalyani Publications, New Delhi.
- 5. Dr. A. Murthy & Dr. A. Guruswamy, Management Accounting, Vijay Nicole imprints Private Ltd., Chennai.

Books for Reference:

- 1. I M Pandey, Management Accounting, Vikas Publishing House, New Delhi.
- 2. S N. Maheswari, Management Accounting, Sultan Chand & Sons, New Delhi.
- 3. Khan and Jain, Management Accounting, Tata McGraw Hill, New Delhi.
- 4. Ravi M Kishore, Management accounting, Taxman Publications, New Delhi.
- 5. Robert S Kaplan and Anthony Atkinson, Advance Management Accounting, Prentice Hall, New Delhi.

SEMESTER V					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UACO5003	CORE 12	INCOME TAX LAW & PRACTICE - I	5	5	
Course Objec	tives				
1. To familiarize with Basic Concepts of Income Tax.					
2. To underst	and the Comp	outation of Income from Salaries and Ho	use Property.		
3. To comput	e tax on Busii	ness and Professional Income.			
Course Outco	mes				
1. Define the b	asic concepts	of Income Tax.			
2. Know incom	nes exempt fro	om tax under section 10.			
3. Compute the	e Income from	n Salaries.			
4. Know deduc	ctions from Sa	llary Income.			
5. Compute the	e Income from	n House Property.			
6. Compute the	e Income from	n Business.			
7. Compute the	e Income from	1 Profession.			
	History of Ir	epis, Residential Status & Exempted I	ncomes Dorsen		
	Provious	Voor Assessment Voor Assessed	Gross Tot		
Unit-I	- Flevious	real – Assessment real – Assessee	= 01088 100	^{a1} 15 Hours	
	Income – Iotal Income – Old Tax Regime vs. New Tax Regime – Determination of Residential Status – Scope of Total Income and				
Incidence of Tax Incomes Example from Tax w/s 10					
	incluence of	Tax – meomes Exempt from Tax u/s re			
	Income from	n Salaries			
	Salary – Det	finition – Characteristics of Salary Incor	ne – Allowanco	es a	
Unit-II	– Perquisite	s – Profits in Lieu of Salary – Deducti	ons from Sala	Ty 15 Hours	
	Income – Pr	ovident Fund – Computation of Income	from Salary.	5	
	·		-	·	
	Income from	n House Property			
	Income from	n House Property - Basis of Charge	-Exemptions	-	
Unit-III	Annual Value – Self-Occupied, Let-out and Deemed to be Let-Out				
	Properties -	- Deductions u/s 24 – Computation of	of Income from	m	
	House Prope	erty.			
	D. 64. 1				
	Profits and	Gains of Business or Profession	aia Drinainlas		
IIm:4 IV	Income Iron	II Business – Basis of Charge – Basis	sic Principles		
Unit-1v	Specific De	auction under the Act – General Deduc	ctions – Specifi of Income from	IC 15 Hours	
	Disanowand Business	Semputation of Income from Profession	of income fro	m	
Business – Computation of Income from Profession.					
	Depreciatio	n			
	Depreciation	- Allowance – Section 32 – Condition	ns for Claimir	ng	
	Depreciation	n – Block of Assets – Computati	on of Norm	al	
Unit-V	Depreciation	Allowance – Additional Depreciation -	- Conditions ar	d 15 Hours	
	Rates of D	epreciation – Meaning of Actual Cos	t – Unabsorbe	ed	
	Depreciation	– Terminal Depreciation.			
Note: Weight	age of Marks	- Theory 20 % and Problems 80%		•	

Books for Study

- 1. Gaur & Narang, Income Tax Law and Practice, Kalyani Publishers, New Delhi.
- 2. Murthy A, Income Tax, Vijay Nicole Imprints Private Ltd., Chennai.
- 3. Girish Ahuja & Ravi Gupta, Practical Approach to Income Tax, Wolters Kluwer India Pvt. Ltd., Mohali, Chandigarh.
- 4. Vinod K Singhania & Monica Singhania, Students' Guide to Income Tax, Taxmann, New Delhi.

5. Anita Raman, Income Tax Theory, Law & Practice, Mc Graw Hill, New Delhi.

Books for Reference:

- 1. Mehrotra H C, Income Tax Law and Practice, Sahithya Bhavan, Agra.
- 2. Hariharan N, Income Tax Law & Practice, Vijay Nicole Imprints Pvt.Ltd., Chennai.
- 3. Vinod K Singhania & Kapil Singhania Direct Taxes Law & Practice -With special reference to Tax Planning, Taxmann, New Delhi.
- 4. Master Guide to Income Tax Rules, Taxmann, New Delhi.
- 5. Income Computation & Disclosure Standards, Taxmann, New Delhi.

		SEMESTER V				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UACO5004	CORE 13	PRACTICAL AUDITING	5	5		
Course Objec	tives					
1. To impart the knowledge on Practice of Auditing in modern era.						
2. To enlight	2. To enlighten the importance of Internal Control, Internal Check, Internal Audit and					
Vouching.	1 . 1		1 /1 1	1 .		
3. To acquai developme	nt the stude	nts with Computerized Audit and tea	ch them abo	ut the recent		
Course Outco	omes					
1. Discuss Aud	liting, Audit N	Note Books and Audit Working Papers.				
2. Understand	the fundamen	tals of Internal Control, Internal Check a	nd Internal Au	dit.		
3. Illustrate the	e Procedures r	elated to Vouching.				
4. Describe the	e valuation and	d verification process for Assets and Liab	oilities.			
5. Enumerate t	he functions of	of Comptroller and Auditor General of In	dia.			
6. Understand	the concept of	f Electronic Data Process Audit.				
7. Discuss the	Professional I	Ethics and Conduct of an Auditor.				
	Auditing, A	udit Note Book and Audit Working Pa	pers			
TT \$4 T	Auditing - D	Definition – Objectives – Merits and Dem	nerits - Types of	of 15 Harris		
Unit-1	Audit - Audit Note Book - Importance - Contents - Audit Working					
Papers - Contents – Characteristics.						
				•		
	Internal Co	ntrol, Internal Check and Internal Au	dit			
Unit II	Internal Co	ntrol - Definition – Objectives - Int	ternal Check	- 15 Hours		
0111-11	Definition -	Objectives - Principles - Internal Aud	dit - Purpose			
	Differences	between Internal Audit and Internal Chec	:k			
	Vouching, V	Verification and Valuation				
	Vouching -	- Definition – Objectives - Vouching	ng of Tradir	ıg		
	Transactions	s - Vouching of Cash Transactions -	- Verification	- 15 Harris		
01111-111	Verification	of Assets and Liabilities -Valuation	n - Distinctio	n 15 Hours		
	Between Ve	rification and Valuation – Simple Proble	ems on Audit of	of		
	Trial Balanc	e and Cash Book.				
	1					
	Company A	Audit, Audit Report				
	Company A	Audit – Auditor – Qualifications – Di	squalification	-		
Unit-IV	Appointmen	t - Rights and Duties - Removal -	Audit Report	- 15 Hours		
	Definition -	- Importance – Contents - Kinds of	Audit Report	-		
	Comptroller	& Auditor General (CAG) of India – Fu	nctions.			
	<u>. · · · · · · · · · · · · · · · · · · ·</u>			I		
	Professiona	l Ethics & Electronic Data Processing	Audit			
Unit-V	Professional	Conduct under Section 21(1), 22 of	The Chartere	d 15 Hours		
	Accountants	Act, 1949 - Professional Ethics of	an Auditor	-		

	Auditing in Electronic Data Processing Environment - Audit
	Approach in Computerized Environment – Significance –
	Challenges.
Books for Stu	dy
1. S.K. B	asu, Fundamentals of Auditing – Pearson Indian Publication, New Delhi
2. Jagadis	h Prakash, Auditing Principles, Practices and Problems - Kalyani Publishers,
Tamil	Nadu.
3. S. Ven	gadamani, Practical Auditing – Margham Publication, Chennai, Tamil Nadu.
4. B.N. T	andon, Practical Auditing –S Chand and Co., New Delhi.
5. Kamal	Gupta, Contemporary Auditing – Tata Mc Graw Hill. New Delhi.
Books for Ref	erence:
1. Dr. K.	Sundar, Auditing –Vijay Nicole Imprints Private Limited, Chennai.
2. V.H. K	ishadwala, Auditing Principles and Practices – Sultan Chand & Sons, New Delhi.
3. Dr. L.	Natarajan, Practical Auditing – Margham Publication, Chennai, India.
4. D P. Ja	in, Auditing –Konark Publishers Pvt. Limited.
5. Pankaj	Kumar Roy, Auditing – Oxford University Press, India.

SEMESTER V						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UACO5005	CORE 14	BANKING SYSTEM AND PRACTICES	4	2		
Course Objectives						
1. To enlighten the students about the Banking System in India.						
2. To impart k	nowledge on f	functions of various types of Banks.				
3. To create av	vareness abou	t various developments in Banking.				
Course Outco	mes					
1. Comprehene	d the Indian B	anking System.				
2. Discuss Dev	elopment Bar	nks and Agricultural Banks.				
3. Enumerate t	he functions of	of Central Bank.				
4. Describe the	e role of Bank	s as a Paying Banker and a Collecting Ba	anker.			
5. Highlight th	e recent trend	s in Banking.				
	Introductio	n to Banking				
	Banking – I	mportance – Banking System in India –	Types of Bank	KS 10 TT		
Unit-I	– Functions	of Commercial Banks - Role of Ban	ks in Econom	ic 12 Hours		
	Developmen	Development				
	1					
	Developmen	nt Banks and Agricultural Banks				
	Development Banks – Functions of Development Banks – IFCI –					
Unit-II	IDBI – ICICI – SIDBI. Agricultural Banks – NABARD – Functions					
	of NABARI	D – Cooperative Banks – Land Developm	ent Banks.			
		* *				
	Central Bar	nk				
	Meaning –	Functions of Central Bank – RBI – Fun	ctions of RBI	- 10 11		
Unit-III	Credit Control Techniques – Quantitative and Qualitative Credit					
	Control Tech	hniques.				
	l					
	Bankers an	d Customers				
	Bankers and Customers – Definitions – Relationship between					
Unit-IV	Bankers and	Customers – Obligations of a Banker -	- Paying Bank	er 12 Hours		
	– Collecting Banker – Negotiable Instruments – Types - Dishonour					
	of Cheque -	Banking Ombudsman.				
	E-Banking					
T T •4 T 7	Recent Tren	nds in Banking – Internet Banking – M	obile Banking	- 10 11		
Unit-V	Benefits and	Limitations –NEFT – RTGS – IMPS -	UPI – E-Chequ	ie 12 Hours		
	- Cheque Tr	uncation System- Other Payment Gatew	ays.			
Books for Stu	dy			1		
1. Santhanar	n, Banking an	d Financial Services, Margham Publicati	ons, Chennai.			
2. Natarajan	S & Dr. R. Pa	arameswaran, Indian Banking, S. Chand,	New Delhi.			
3. D. Murale	eedharan, Mo	dern Banking – Theory and Practice, I	Prentice Hall of	of India, New		

Delhi.

- 4. Gordon & Natarajan, Banking Theory, Law and Practice, Himalaya Publishing House, New Delhi.
- 5. S. Gurusamy, Banking Theory, Law & Practice, Vijay Nicole Imprints Private Limited, Chennai.

Books for Reference:

- 1. Sundharam & Varshney, Banking Theory Law & Practice, Sultan Chand & Sons, New Delhi.
- 2. R. Machiraju, Modern Commercial Banking, New Age International Publishers, Mumbai.
- 3. K.P.M. Sundaram, E.M. Sundram, Modern Banking, Sultan Chand & Sons Ltd., New Delhi.
- 4. Prof. D. Surya Chandra Rao, Banking Reforms in India, Regal Publications, New Delhi.
- 5. Dr.V.Balu, Banking and Financial System, Sri Venkateswara Publications, Chennai.

		SEMESTER V			
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UACOCE51	Course Based Elective 1	HUMAN RESOURCE MANAGEMENT	4	2	
Course Objectives					
1. To enlighten s	students abou	t meaning, objectives and functions of l	HRM.		
2. To impart kno	owledge on va	arious sources of Recruitment and proce	ess of Selection	l.	
3. To explain to	students the r	nethods of Training & Development an	d Performance	Appraisal.	
1 Comprehend	the functions	of HRM			
2. Analyse the S	ources of Red	cruitment and Selection Process.			
3. Distinguish b	etween Traini	ng and Executive Development.			
4. Evaluate vario	ous Methods	of Performance Appraisal.			
5. Know the rec	ent trends in I	HRM.			
	Introductio	n to HRM			
	Human Reso	ource Management – Definition – Scop	e – Objectives	-	
Unit-I	Characteristics – Importance – Functions – Differences between				
	Personnel M	Ianagement and Human Resource Mana	agement.		
			0		
	HR Plannin	g, Recruitment and Selection			
	HR Plannin	g – Definition – Need and Importance	e – Steps in H	R	
	Planning – Job Analysis – Differences between Job Description				
Unit-II	and Job Sr	pecification. Recruitment – Meaning	– Definition	- 12 Hours	
	Sources of	Recruitment – Factors influenci	ng sources	of	
	Recruitment	Selection – Meaning – Definition	on – Selectio	n	
	Process				
	11000000				
	Induction,	Fraining and Development			
	Induction -	– Meaning – Definition – Differ	ences betwee	en	
	Placement and Induction – Training – Meaning – Need and				
Unit-III	Importance	– Methods of Training – Executive	Development	12 Hours	
	Meaning – Methods of Executive Development – Differences				
	between Tra	ining and Executive Development			
	Compensat	ion & Benefits and Performance App	oraisal		
	Compensati	on & Benefits – Meaning – Mone	etary and Nor	1-	
	Monetary	Benefits - Performance Appraisal	– Meaning	_	
Unit-IV	Objectives	– Benefits – Methods of Performan	ce Appraisal	- 12 Hours	
	Traditional	Methods – Modern Methods - Perform	nance Apprais	al	
	Vs Potential	Appraisal.	11		
		**			
	l				

	Recent Trends in HRM	
Unit-V	Recent Trends in HRM - Workforce Diversity - Continuous	
	Improvement Programmes – Corporate Downsizing –	12 Hours
	Decentralized Worksites – Flexi Work - Flexible Work Schedules	12 110015
	– Work from Home.	

Books for Study

- 1. Tripathi, P.C., Human Resource Development, Sultan Chand & Sons, New Delhi.
- 2. Gupta, C.B., Essentials of Human Resource Management, Sultan Chand & Sons, New Delhi.
- 3. Aswathappa K., Human Resource and Personnel Management, McGraw-Hill, New Delhi.
- 4. Subba Rao, Human Resource Management, Himalaya Publishing House, New Delhi.
- 5. Jayasankar J, Human Resource Management, Margham Publications, Chennai.

Books for Reference:

- 1. Gary Dessler, Biju Varkkey, Human Resource Management, Pearson, New Delhi.
- 2. Shashi K Gupta, Rosy Joshi, Human Resource Management, Kalyani Publishers, Odisha.
- 3. Aswathappa, Sadhna Dash, Human Resource Management Text and Cases, McGraw Hill, New Delhi.
- 4. Raymond A Noe, John R Hollenbeck, Barry Gerhart, Patrick M Wright, Fundamentals of Human Resource Management, McGraw Hill Publications, New Delhi.
- 5. Dessler Gary, Human Resources Management, Prentice Hall, USA.

SEMESTER V						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UACOCE52	Course Based Elective 1	CORPORATE GOVERNANCE	4	2		
Course Objecti	ves					
1. To get the st	udents equipped wi	th the Concepts of Corporate Gov	vernance.			
2. To impart th	e knowledge about	Principles and Theories of Corpo	rate Governand	ce and		
divulge the i	nformation on Corp	porate Frauds.				
3. To sensitize the consequences of Poor Corporate Governance and suggest the ways for						
effective Co	rporate Governance	ð.				
Course Outcon	nes					
1. Discuss Obj	ectives, Need and I	mportance of Corporate Governar	ice.			
2. Elucidate the	e Principles and The	eories of Corporate Governance.				
3. Explore the	impact of Poor Cor	porate Governance and ways to in	nprove it.			
4. Describe Co	rporate Social Resp	oonsibilities, its Phases, Approach	es and understa	and		
Corporate S	ocial Reporting.	esta Franda and their sources				
5. Discuss vari	ous types of Corpor	rate Frauds and their causes.				
	Introduction					
IInit-I	Corporate Governance – Meaning – Objectives – Need –					
Cint-1	Importance – Corporate Governance and Organisation Success -					
	Corporate Governance in India					
	·					
	Principles and T	heories of Corporate Governan	ce			
	Principles of Corporate Governance – OECD Principles - Theories					
Unit-II	of Corporate Gove	ernance - Agency Theory – Stewa	urdship Theory	_ 12 Hours		
	Stakeholder Theor	ry – The Political Theory	1 5			
	Effective Corpor	ate Governance				
	Meaning – Conse	quences – Effects and Impact of	Poor Corporat	e		
Unit III	Governance – Ways to improve Corporate Governance – Corporate					
01111-111	Governance – Ways to improve Corporate Governance – Corporate 12					
	Frauds - Major Corporate Frauds – Whistle-blowing and Corporate					
	Governance.					
	Comonata Sacial	Desponsibilities				
	Corporate Social	Responsibilities				
	Corporate Social	Responsibility – Definition – Na	iture – Levels	-		
Unit-IV	Phases and Appro	baches, Principles, Indian Model	s - Dimension	s. 12 Hours		
	Corporate Social	Reporting - Objectives of C	orporate Socia	al		
	Reporting.					
	Recent Trends in	Corporate Governance				
Lin:4 V	E-Governance –	Advantages – Challenges -	- Sustainabilit			
Unit-V	Reporting – Na	ture – Need – Environment	al, Social an	d 12 Hours		
	Governance (ESG) reporting – Importance - Challe	nges			
Books for Stud	y					

- 1. Corporate Governance IICA Indian Taxmann
- 2. Asish K. Bhattacharyya, Corporate Governance in India: Change and Continuity, Oxford
- 3. Mathur, U.C., Corporate Governance and Business Ethics: Text AND Cases. New Delhi: Macmillan Publishers India Ltd.
- 4. Anil Kumar, Corporate Governance: Theory and Practice, Indian Book House.
- 5. Jayati Sarkar and Subrata Sarkar, Corporate Governance in India, SAGE Publications India Pvt. Ltd.

Books for Reference:

- 1. Cases in Corporate Governance by Robert Wearing, SAGE Publications.
- 2. Sharma, J.P., Corporate Governance, Business Ethics and CSR, Anne Books Pvt. Ltd, New Delhi.
- 3. Sharma, J.P Corporate Governance and Social Responsibility of Business, Anne Books Pvt. Ltd., NewDelhi.
- 4. Blowfield, Michael and Alam Morray, Corporate Responsibility, Oxford University Press, New Delhi.
- 5. 5. Francesco perrimi, Stefano, and Antonio Tencati, Developing Corporate Social Responsibility An European Perspective, Edward Elgar.

		SEMESTER V			
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UACOSE51	Skill Based Elective 1	EMPLOYABILITY SKILLS	2	1	
Course Objectives					
 To enable and Person To enable through W 	 To enable students to draft communication for seeking Job. To enable students to work efficiently through proper Self-Management, Time Management and Personality Development. To enable students to enhance their personal, social and professional dimensions of life through Workplace management and Career advancement. 				
Course Outco	mes				
 Develop Per Communica Draft Job A Successfully Plan and De 	sonality in tune te Effectively a pplication Lette pass the Selec velop Career w	e with Workplace Requirements. nd Efficiently. r, Curriculum Vitae and Résumé. tion procedure for Employment. hilst dealing with workplace challenges	;.		
Unit-I	Personality DevelopmentEmployment – Employability Skills – Significance – CareerPlanning - Personality Development for Workplace Success –Guidelines for Self Awareness, Self Introspection, Self-Management, Developing a Positive Attitude – SWOC Analysis.				
	Communicat	ion			
Unit-II	Communicati Communicati	on – Types – Barriers – Essentials on - Communication Skills needed for V	of an Effectiv Workplace.	7e 6 Hours	
Unit - III	Employment Avenues Recruitment Procedure – Sources of Recruitment (Employment it - III Avenues) - Job Search through Websites and Social Networking Sites – Drafting a Job Application Letter – Drafting a Curriculum Vitae – Drafting a Resume.				
Unit-IV	Pre-requisites of Job SearchSelection Methods – Behaviour and mannerisms for Job Candidatesin Selection tests - Group Discussion - Tips to score good in a GroupDiscussion – Role-Play Games – Guidelines – Interview – Tips tosurvive Job Interview – Answering the Frequently asked Questionsin Interview.				
Unit-V	Career Develor Career Develor Intelligence -	opment and Progress opment – Time Management - Team W - Emotional Intelligence – Work Stre	orking & Soci ess – Causes	al 6 Hours	

Coping up with Work stress – Eustress for Excellence - Maintaining Work-Life Balance - Workplace Ethics – Coping up with Diversity at Workplace – Coping up with Changing Work Shifts, Virtual Offices, Work from Home – Significance of Savings and Investments for prosperity.

Books for Study

- 1. Rajendra Pal & J.S. Korlahalli, Essentials of Business Communication, Sultan Chand & Sons.
- 2. D.P. Sabharwal, Personality Development Handbook, Finger Print Publishing.
- 3. Barun K. Mitra, Personality Development and Soft Skills, Oxford University Press.
- 4. Daniel Goleman, Emotional Intelligence: Why It Can Matter More Than IQ, Bantam Books.
- 5. Daniel Goleman, Social Intelligence: The New Science of Human Relationships, Bantam Books.

Books for Reference:

- 1. <u>Courtland L. Bovee & John V. Thill</u>, Business Communication Today, Pearson.
- 2. Elizabeth Hurlock , Personality Development, McGraw Hill Education.
- 3. Sean Winter, Job Interview Preparation and Conversation Skills 2-in-1 Book: Learn How to Crush Your Next Job Interview and Develop A Magnetic Charisma to Enhance Your Communication Skills, Native Publishers.
- 4. Benjamin Graham, Intelligent Investor.
- 5. Napoleon Hill, The Law of Success in Sixteen Lessons, Finger Print Publishing.
- 6. Napoleon Hill, Think and Grow, Srishti Publishers & Distributors.
- 7. Dale Carnegie, How to win friends and influence people, Srishti Publishers & Distributors.
- 8. Stephen R. Covey, The 7 Habits of Highly Effective People, Simon & Schuster Publishers India Pvt Ltd.

Online Resources

- 1. [Link] Business Communication for Success, Open Textbook Library
- [Link] Dr. Karam Pal, Business Communication, Study Material for MBA Students of Distance Education, Guru Jambeshwar University of Science & Technology, Hisar, Haryana
- 3. [Link]John Morris and Julie Zwart, Business Writing Style Guide, Oregon State University

Open Educational Resource

- 1. [Link] Daniel Goleman, Emotional Intelligence 10th Anniversary Edition, Bantam Books
- 2. [Link] Daniel Goleman, Social Intelligence The New Science of Human Relationships, Bantam Books
- 3. [Link] M Gopikrishnan, A Course in Personality Development, Bharath University
- 4. [Link] Benjamin Graham, The Intelligent Investor, Harper Business Essentials
- 5. [Link] Napoleon Hill, Law of Success, Highroads Media Inc.

- 6. [Link] Napoleon Hill, Think and Grow Rich
- 7. [Link] Dale Carnegie, How to Win Friends & Influence People
- 8. [Link]Stephen R. Covey, The 7 Habits of Highly Effective People

SEMESTER V						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UACOSE52	Skill Based Elective 2	CUSTOMER RELATIONSHIP MANAGEMENT	2	1		
Course Objec	tives					
1. To enable	the students to un	iderstand the concepts of CRM.				
2. To acquain	t the students wi	th the process of CRM strategy developmen	t.			
3. To enable	the students to	know CRM practices in different sectors	s like mar	nufacturing,		
Services, C	all Centers, etc.					
1 Define CRM	and Discuss its	emergence Factors Process Benefits and T	Types			
2. Understand	the various conc	ents of CRM.	ypes.			
3. Understand	the process of C	RM strategy development.				
4. Know CRM	practices in diff	erent sectors like manufacturing, Services, C	Call centers	s, etc.		
5. Understand	the issues and ch	allenges in CRM implementation, tools of C	CRM and C	CRM		
Metrics.	Γ					
Unit-I	IntroductionCRM-Definition - Emergence of CRM Practice - Factors responsiblefor CRM growth - CRM process - framework of CRM - Benefits ofCRM - Types of CRM and Scope of CRM.					
	1					
	CRM Concept	S e - Customer Expectation - Customer Sati	sfaction			
Unit-II	Customer Value - Customer Expectation - Customer Satisfaction - 6 Hours					
	Customer Lova	lty - Customer Lifetime Value (Concepts or	lv)			
	Customer Loyary - Customer Encline Value (Concepts omy).					
	Planning for C	CRM				
	Steps in Plann	ing - Building Customer Centricity - Sett	ing CRM			
Unit-III	Objectives -	Defining Data Requirements - Planning	Desired	6 Hours		
	Outputs - Rele	vant issues while planning the Outputs and	Elements			
	of CRM planni	ng.				

		CRM and Marketing Strategy					
		CRM Marketing Initiatives - Sales Force Automation - Campaign					
Unit-IV		Ianagement - Call Centers. Practice of CRM; CRM in Consumer 6 Hours					
		Markets, CRM in Services Sector, CRM in Mass Markets, CRM in					
		Manufacturing Sector.					
		CRM Implementation					
Un	it-V	Issues and Problems in implementing CRM, Information	6 Hours				
		Technology tools in CRM, Challenges of CRM Implementation.					
Books	for Stu	dy					
1.	Shanm	ughasundaram, S., Customer Relationship Management; Modern Trends	s and				
	Perspec	ctives, PHI Learning Pvt. Ltd., New Delhi.					
2.	Dr. S.	Sheela Rani-Customer Relationship Management -Margham Pu	ublications,				
	Chenna	и.					
3.	3. Jagdish N Sheth, Parvatiyar Atul, G Shainesh - Customer Relationship Management:						
	Emergi	ng Concepts, Tools and Applications, McGraw Hill Education (1 J	uly 2017),				
	India						
4.	Dr. K.	Govinda Bhat, Customer Relationship Management, Himalaya Publish	ing House,				
	New D	elhi.					
5.	S. Shaj	ahan – Relationship Marketing, McGraw Hill, 1997					
Books	for Ref	erence:					
1.	Anders	on, Kristin & Kerr, Carol. Customer Relationship Management. McGrav	w Hill.				
2.	Peelen, E., Customer Relationship Management, Pearson.						
3.	Kumar	, V. and Reinartz, W.J., Customer Relationship Management; A	Databased				
	Approa	ch, Wiley India Pvt. Ltd.					
4.	Buttle	Francis, Customer Relationship Management - Concepts and Tec	hnologies-				
	Second	Edition-Taylor & Francis Ltd, New Delhi.					
5.	T. Vetr	ivel-Customer Relationship Management- Discover Publishing, India					
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	SEMESTER VI							
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT				
UACO6001	CORE 15	COST ACCOUNTING - II	5	5				
Course Objectives								
1. To enlighten students about Job Costing, Contract Accounting and Service Costing.								
2. To impart k	nowledge on a	cost of output at each stage of production						
3. To familiar	3. To familiarize students about Operating Costing and Reconciliation of Cost and Financial							
Profits.								
Course Outco	omes							
1. Prepare Job	and Batch Co	osting						
2. Prepare Cor	ntract Account	t						
3. Gain knowl	edge on Joint	Product and By-Product.						
4. Prepare Acc	counts of Serv	ice Costing.						
5. Understand	various Opera	ating Costing Methods.						
6. Calculate T	ransport Cost.							
7. Prepare Stat	tement of Rec	onciliation of Cost and Financial Profits.						
	Job and Ba							
	Job Costing	– Definition and Features – Objectives	– Essential Pr	e-				
Unit-I	requisites for	d 15 Hours						
	Contract Costing- Merits and Limitations of Job Costing – Batch							
	Costing – Ec	conomic Batch Quantity (EBQ).						
				L				
	Contract Co	osting						
	Contract Co	sting – Definition – Features – Recordi	ng of costs of	a				
Unit-II	contract –	Recording of Value and Profit on Co	ntracts - Wo	k 15 Hours				
	Certified and	d Uncertified – Incomplete Contract – E	scalation Claus					
	-Cost Plus	Contracts						
	Cost I lus	contracts.						
	Process Cos	sting						
	Definition a	nd Features – Advantages and limitation	ns_ Iob Costir	σ				
	Definition and Features – Advantages and limitations– Job Costing							
Unit-III	vs Process Costing – Important Aspects of Process Costing - Normal							
	Loss and Abnormal Loss – Abnormal Gain – By Products Costing			ıg				
	and Joint Pro	oducts Costing – Process Accounts.						
	Operating	osting						
	Meaning an	d Definition - Operating Cost Units –	Advantages of	of				
Unit-IV	Operating O	Costing - Operating Costing in Servio	ce Industries	- 15 Hours				
	Transport C	osting- Costing Procedure in Transport	Organisation	-				
Hospital, Power House and Tourism.								
	Reconciliati	ion of Cost and Financial Profits						
	Reconciliation of Cost and Financial Profits – Need for							
Unit-V	Reconciliati	on – Objectives – Reasons for Differen	ces in Cost ar	d 15 Hours				
	Financial Pr	ofits – Prepare Statement of Reconciliat	ion of Cost ar	ıd				

Financial Profits.

Note: Weightage of Marks – Theory 20 % and Problems 80%

Books for Study

- 1. T.S. Reddy & Hari Prasad Reddy, Cost Accounting Margham Publication, Chennai.
- 2. Murthy A & Gurusamy S, Cost Accounting, Vijay Nicole Imprints Pvt. Ltd. Chennai.
- 3. S.P Jain and Narang, Cost Accounting Kalyani Publishers, New Delhi.
- 4. S.N Maheswari, Principles of Cost Accounting Sultan Chand & Sons, New Delhi.
- 5. S.P Iyengar, Cost Accounting _ Sultan Chand & Sons, New Delhi.

Books for Reference

- 1. P.C Tulsian, Cost Accounting Tata McGraw Hills, New Delhi.
- 2. Jhamb, H. V. Fundamentals of Cost Accounting. Ane Books Pvt. Ltd, New Delhi.
- 3. Singh, Surender. Elements of Cost Accounting, Kitab Mahal, Allahabad/New Delhi.
- 4. Arora, M. N. Cost and Management Accounting-Principles and Practice. Vikas Publishing House, New Delhi.
- 5. Lal, Jawahar & Seema Srivastava. Cost Accounting. McGraw Hill Publishing Co., New Delhi.

		SEMESTER VI						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT				
UACO6002	CORE 16	MANAGEMENT ACCOUNTING - II	5	5				
Course Objec	tives							
1. To impart	1. To impart knowledge on Marginal costing and Budget and Budgetary Control.							
2. To enable	2. To enable the students to understand the various methods of Capital Budgeting.							
3. To enlight	en students a	bout Working Capital, Responsibility Accou	inting and M	lanagement				
Audit.								
Course Outco	omes	f Dreak aven Daint and Manain of Cofety						
1. Understand	the concept o	making or buying						
2. Take decision	d the meaning	and concept of Budget and Budgetary Contr	റി					
4. Prepare diff	erent Budgets	, and concept of Dudget and Dudgetary Contr	01.					
5. Compute va	rious rates of	return in Capital Budgeting.						
6. Calculate ar	nount of Wor	king Capital.						
7. Understand	the concept of	f Standard Costing.						
	Marginal C	osting						
	Meaning –	Definition – Features – Advantages & Li	mitations –					
Unit-I	Cost-Volum	15 Hours						
	- Decision making - Pricing Decision - Make or Buy Decision -							
Product Mix – Key Factors								
	Budget and	Budgetary Control						
	Meaning-Definition- Objectives - Advantages - Limitations –							
Unit-II	Classification of Budgets – Zero Based Budgeting – Preparation of							
	Sales Budge	et –Material Budget- Production Budget – Ca	sh Budget –	10 Hours				
	Flexible Bu	lget – Master Budget.	200800					
Capital Budgeting								
	Meaning- I	Definition- Importance – Factors influence	ing Capital					
Unit-III	Investment decision - Pay Back Period (PBP) – Accounting Rate of 15 Hour							
	Return (ARR) – Discounted Cash Flows – Net Present Value (NPV)			10 1100115				
	– Internal R	ate of Return (IRR) – Profitability Index Met	hod (PIM)					
	Working C	apital Management						
	Working C	apital - Meaning – Need and Objectives	of Working					
IInit-IV	Capital – Ty	pres of Working Capital – Sources of Working	ng Capital –	15 Hours				
CIIIt-I V	Advantages	& Limitations - Determination of Work	ing Capital	15 110015				
Requirements								
	Kequirements.							
	Standard C	Costing						
	Standard Co	osting - Advantages and Limitations – Stand	ard Costing					
Unit-V	System – V	Variance Analysis – Computation of variance	es – Direct	15 Hours				
	Material V	ariance (DMV) – Direct Labour Variance	(DIV) =					

Overhead Variance (OV) – Sales Variance (SV).					
Note: Weightage of Marks – Theory 20 % and Problems 80%					
Books for Study					
1. R.S. N Pillai & V. Bhagavathi, Management Accounting, S.Chand Publishing, New					
Delhi, 2008.					
2. Dr. Ramachandran and Dr. R. Srinivasan, Management Accounting, Sri Ram					
Publication, Trichy.					
3. T.S. Reddy & Y. Hari Prasad Reddy, Management Accounting, Margham Publications.					
4. Sharma & Sasi K. Gupta, Management Accounting, Kalyani Publications, New Delhi.					
5. Dr.M. Krishnamoorthi & V.Sundhara Moorthy, Accounting for Management, Lakshmi					
Publications, Chennai.					
Books for Reference:					
1. S N. Maheswari, Management Accounting, Sultan Chand & Sons, New Delhi.					
2. Khan and Jain, Management Accounting, Tata McGraw Hill, New Delhi.					
3. I M Pandey, Management Accounting, Vikas Publishing House, New Delhi.					
Ravi M Kishore, Management accounting, Taxman Publications, New Delhi.					
5. Robert S Kaplan and Anthony Atkinson, Advance Management Accounting, Prentic					
Hall, New Delhi.					

COURSE CODE COURSE COURSE COURSE TITLE HRS/ WEEK CREDIT UACO6003 CORE 17 INCOME TAX LAW & PRACTICE - II 5 5 Course Objectives 5 5 5 1. To learn the computation of income from Capital Gains and Other Sources. 5 5 2. To know the Clubbing Provisions, Set-Off & Carry Forward Provisions. 5 5 1. Compute the income from Capital Gains. 6 6 5 1. Compute the income from Capital Gains. 6 6 6 5 1. Compute the income from Other Sources. 1 6<	COURSE CODE COURSE COURSE TITLE HRS/ WEEK CREDIT UAC06003 CORE 17 INCOME TAX LAW & PRACTICE - II 5 5 Course Objectives						
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Regular Assessment – Best Judgment Assessment and Income Escaping Assessment.	Unit-V Filing of Return – PAN – Types of Assessment– Self Assessment – 15 Hours						
Escaping Assessment.	Regular Assessment – Best Judgment Assessment and Income						
	Escaping Assessment						
Note: Weightage of Marks – Theory 20 % and Problems 80%	Locaping Assessment.						

Books for Study:

- 1. Gaur & Narang, Income Tax Law and Practice, Kalyani Publishers, New Delhi.
- 2. Murthy A, Income Tax, Vijay Nicole Imprints Private Ltd., Chennai.
- 3. Girish Ahuja & Ravi Gupta, Practical Approach to Income Tax, Wolters Kluwer India Pvt. Ltd., Mohali, Chandigarh.
- 4. Vinod K Singhania & Monica Singhania, Students' Guide to Income Tax, Taxmann, New Delhi.

5. Anita Raman, Income Tax Theory, Law & Practice, Mc Graw Hill, New Delhi.

Books for Reference:

- 1. Mehrotra H C, Income Tax Law and Practice, Sahithya Bhavan, Agra.
- 2. Hariharan N, Income Tax Law & Practice, Vijay Nicole Imprints Pvt.Ltd., Chennai.
- 3. Vinod K Singhania & Kapil Singhania Direct Taxes Law & Practice -With special reference to Tax Planning, Taxmann, New Delhi.
- 4. Master Guide to Income Tax Rules, Taxmann, New Delhi.
- 5. Income Computation & Disclosure Standards, Taxmann, New Delhi.

	SEMESTER VI						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT			
UACO6004	CORE 18	FINANCIAL MANAGEMENT	5	5			
Course Objec	tives						
1. To impart the Concept of Financial Management.							
2. To enlighten the students about the concept of Capital Structure.							
3. To familiarize the students about the application of Cost of Capital, Corporate Leverage and							
Dividend F	Policy.						
Course Outco	mes						
1. Describe th	e concept of Fina	ncial Management.					
2. Discuss the	e role of Financial	Manager.					
3. Analyse va	rious Capital Stru	cture Theories.					
4. Calculate t	ne Cost of Capital	and Cost of Debt.		41 C			
5. Comprehen	id the userulness of the second se	of Leverages and measure the risks as	ssociated with	the firm.			
7 Goin know	ladge on various r	nodels of Dividend Policy					
7. Gain Kilow	Introduction	nodels of Dividend Foncy.					
	Einonoiol Mono	compart Definition Scope	Objectives				
		gement – Demition – Scope –	Objectives	_			
Unit-I	Significance – Profit Maximisation Vs. Wealth Maximisation –						
	Finance Function – Role of Finance Manager – Methods and Tools						
	of Financial Mar	nagement.					
	Capital Structu	re					
	Capital Structure – Definition – Optimum Capital Structure –						
	Features of an Appropriate Capital Structure – Factors determining						
Unit-II	Capital Structure – Techniques of planning the Capital Structure –						
	Capital Structure Theories – Net Income Approach (NI) – Net						
	Operating Income Approach (NOI)						
	operating meen						
	Cost of Capital						
	Cost of Capita	1 – Importance – Components	Rational an	d			
TT	Cost of Capital – Importance – Components - Rational and						
Unit-III	Assumptions =	Cost of Equity Capital – Cost of I	d = Cost	¹ 15 Hours			
	Preference Capit	al – Cost of Retained Earnings – we	eignied Averag	je			
	Cost of Capital (WACC).					
	*						
	Leverages		-				
Unit-IV	Leverage – Defi	inition – Types – Operating Levera	ge – Degree o	15 Hours			
	Operating Lever	rage – Financial Leverage – Degr	ee of Financia	al 15 Hours			
	Leverage – Com	bined Leverage.					
	Dividend Policy						
TIn:4 17	Meaning - Dividend Policies - Essentials of Sound Dividend Policy-						
	Factors affecting	g Dividend Payment - Dividend Mo	odels - Walter	s 15 Hours			
	Model - Gordon	s Model - M.M. Model - Hypothesis	Model.				

Note: Weightage of Marks – Theory 40 % and Problems 60%

Books for Study

- 1. Chandra, P., Financial Management: Theory and Practice, 8th Edition, Tata McGrawHill Education Pvt. LTd., 2012.
- 2. Chandra, P., Fundamentals of Financial Management, 5th Edition, Tata McGraw-Hill Education Pvt. Ltd., 2011.
- 3. Pandey, I.M., Financial Management, 10th Edition, Vikas Publication House, 2010.
- 4. Periasamy, P., Financial Management, 3rd Edition, Tata McGraw-Hill Education Pvt Ltd., 2012.
- 5. Rustagi, R.P., Financial Management: Problems and Solutions, Taxmann Publication, 2011.

Books for Reference

- 1. Murthy A, Financial Management, Margam Publications, Chennai.
- 2. Srivatsava, Financial Management, Himalaya Publications.
- 3. S.N. Maheswari, Financial Management, Sultan Chand & Sons.
- 4. Y. Khan and Jain, Financial Management, Sultan Chand & Sons.
- 5. William R. Lasher Financial Management CENGAGE New Delhi.

SEMESTER VI							
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT			
UACO6005	Core 19	ENTREPRENEURIAL DEVELOPMENT	4	2			
Course Objectives							
1. To enlig	hten the stude	nts with various concept in the area of en	trepreneurship				
2. To acqua	2. To acquaint the students about entrepreneurship development and process.						
3. To provi	de insights to	students on entrepreneurial finance and	role of various	government			
agencies	& policies in	assisting entrepreneurs.					
Course Outco	mes						
1. Understa	and the concept	ot of entrepreneurship in the context of In	dian economic	scenario.			
2. Develop	understanding	g of entrepreneurship skills and competer	ncies.				
3. Understa	and entreprene	eurial process for initiating new ventures.					
4. Comprel	nend various f	inancial institutions that help entrepreneu	irs.				
5. Understa	and Governme	ent policies and benefits available to entre	epreneurs.				
	Introductio	n:					
	Entrepreneurship - Concept & Functions - Need and Importance -						
	Traits of Successful Entrepreneurs – Growth of Entrepreneurship in						
Unit-I	India – Ro	le of Entrepreneurship in Economic	Development	- 12 Hours			
	Determinants of Entrepreneurship -Dimensions of Entrepreneurship						
	– Intra-prei	neurship, Techno-preneurship, Net-pre	neurship, Eco	-			
preneurship, Social Entrepreneurship and Women Entrepreneurship.							
	Entropropo	unchin Development					
	Entropropou	rship skill and Compatancias	Tunos	f			
	Entrepreneurship skill and Competencies - Types of						
TI:4 TT	Entrepreneurship Skills - Business Management Skills - Ieamwork						
Unit-11	and Leadership Skills - Financial Skills - Analytical and Problem-						
	Solving Skills - Critical Thinking Skills - Strategic Thinking and Planning Skills - Entroproposition Values and Attitude						
	Entrepreneurial mindset in the Contemporary Business Scenario			-			
Entrepreneurial mindset in the Contemporary Business Scenario.							
	Entreprene	urship Process					
	Generation of Business Ideas - Opportunity Sensing and						
Unit-III	Identification - Developing a Business Proposal - Contents of a						
	Business Plan - Project appraisal by External Agencies – Plant						
Location – Registration – Infrastructure - Government Clearance.							
TT	Entreprene	urial Finance and Development Agenc	ies	13 IL			
Unit-1V	Sources of H	Finance – Commercial Banks and Develo	opment Banks	- 12 Hours			

	Role of Agencies in assisting Entrepreneurship - District Industries Centers (DIC), Small Industries Service Institute (SISI), Entrepreneurship Development Institute of India (EDII), National				
	Institute of Entrepreneurship & Small Business Development (NIESBUD), National Entrepreneurship Development Board (NEDB).				
	Government Policies for Entrepreneurs				
	Business Incubation Centres - National Small Industries Corporation				
Unit-V	Subsidy - MSME Market Development Program - MUDRA Loans -	12 Hours			
	- Credit Link Capital Subsidy Scheme – Start -up - Stand-up India –				
	Make in India Initiative.				
	•				
Books for Stu	dy				
1. Dr. S.S	. Khanka, Entrepreneurship Development - S. Chand & Co., New Delhi	•			
2. Jayashi	ree Suresh, Entrepreneurial Development –Margham Publication, Chenn	la1.			
3. Vasant	Desai, Dynamics of Entrepreneurial Development –Himalaya Publicatio	on.			
4. Robert	D. Hisrich, Michael P. Peters & Dean A. Shepherd, Entrepreneurs	hip - Tata			
McGra	w Hill Publishing Company Limited, New Delhi.	~ 1			
5. CB C	Supta and N.P Srinivasan, Entrepreneurial Development, Sulta	an Chand			
Publica	ations, New Delhi.				
Books for Ref	erence:				
1. Rabind	ra N. Kanungo, Entrepreneurship and Innovation, Sage Publications, Ne	w Delhi.			
2. Holt D	2. Holt D. H., Entrepreneurship New Venture Creation. New Delhi: Prentice Hall of India.				
3. Hisrich	3. Hisrich R, and Peters, M., Entrepreneurship. New Delhi: Tata McGraw Hill.				
4. Rajkon	war A.B., Entrepreneurship, Kalyani Publisher, Ludhiana.				
5. Charan	timath, Poornima, Entrepreneurship Development and Small Business				
Enterpr	rises, Pearson Education, New Delhi.				

SEMESTER VI						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UACOCE61	Core Based Elective	FINANCIAL SERVICES	4	2		
Course Objectiv	es					
1. To familiarize	e students with	h various Financial Services in the Corp	orate World.			
2. To acquaint the	ne students on	Leasing, Factoring and Venture Capita	ıl.			
3. To equip stud	ents with Fee	Based, Fund Based and Advisory Finan	ncial Services.			
Course Outcome	es					
1. Comprehend va	arious Financ	ial Services.				
2. Differentiate H	ire Purchase f	from Leasing.				
3. Describe Facto	ring and its ty	ppes.				
4. Evaluate Ventu	re Capital Inv	vestments.				
5. Understand Fee	e Based, Fund	Based and Advisory Financial Service	s.			
	Financial S	ervices				
	Introduction	n – Concept – Significance of Financial	Services – Ar	1		
Unit I	overview o	of Financial Services in India – T	ypes Financia			
Unit-1	Services in India – Asset based – Fund based – Advisory					
	Financial Services – Financial Services and Economic					
	Environment – Players in Financial Services Sector.					
	Leasing and	Hire Purchase				
	Introduction – Concept – Classification – Significance –			_		
	Limitations – Lease documentations and agreements – Tax					
Unit-II	aspects of leasing Hire purchase – Introduction – Concept –			12 Hours		
	Significance – Leasing vs. Hire purchase – Legal frame work –			_		
	Taxation aspects.					
	Tunution us					
	Factoring					
	Introduction	- Concept - Significance - Mechanis	sm – Functions	3		
Unit-III	of a Factor	- Types - Legal aspect of factoring -	- Factoring vs	· 12 Hours		
	Bill discounting. Forfaiting – Meaning – Salient Features of			f		
	forfaiting –	Advantages – Forfaiting vs. Factoring.				
	Venture Ca	pital				
	Introduction	- Features - Selection of investment	nt – Stages of	f		
Unit IV	financing -	Evaluation methods - Conventional	Method, Firs			
	Chicago Me	thod and Revenue Multiplier Method	l – Investmen			
	Nurturing -	VCI Debt Instruments - Venture Ca	apital Funds ir	1		
	India.					

	F	ee Based & Advisory Financial Services				
	In	ntroduction – Types – Merchant Bankers – Underwriters –	1			
U	nit-V Po	ortfolio Management – Issue Management - Bankers to issue –	12 Hours			
	В	ook Building – Stock Broking – Credit Rating – Depository	l I			
	S	ervices – Cryptocurrency – Exchanges.	1			
Books	for Study					
1.	M.Y. Khan, I	Financial Services, McGraw Hill, New Delhi.				
2.	G Ramesh Ba	abu, Financial Services, Concept Publishing House, New Delhi.				
3.	B. Santhanan	n, Financial Services, Margham Publication, Chennai.				
4.	4. Vinod Kumar, Atul Gupta, Manmeet Kuar Bawa, Financial Markets Institutions Services,					
	Taxmann Publication Pvt Limited, Chennai.					
5.	Rajesh Kotha	ari, Financial Services in India: Concept and Application (SAGE Tex	kts), Sage			
	India.					
Books	for Referenc	e:				
1.	S Bhatia and	I G S Batra, Management of Financial Services, Deep & Deep P	ublications			
	Pvt. Ltd., Ne	w Delhi.				
2.	Rajesh Khoth	nari, Financial Service in India, Sage Publications, New Delhi.				
3.	Clifford Gomez, Financial Market, Institution and Financial Services, Prentice Hall, New					
	Delhi.					
4.	PN. Varshne	y and D.K. Mittal – Indian Financial System, Sultan Chand & Sons,	, Delhi.			
-	T 7 A 11					

5. V. Avadhani, Financial Services in India, Himalaya Publishing House, Bengaluru.

SEMESTER VI						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UACOCE62	Core Based Elective	CORPORATE FINANCE	4	2		
Course Objectiv	es					
1.To enlighten the	e students abo	out the key aspects of corporate finance.	,			
2.To impart know	ledge on risk	, return and valuation of bonds and shar	es.			
3.To develop kno	wledge on po	rtfolio, cash and receivable managemer	nt.			
Course Outcome	es					
1.Understand the	key aspects o	f corporate finance.				
2.Understand risk	and return ar	nd valuation of shares and bond.				
3.Know concept of	of portfolio m	anagement.				
4.Understand cas	h and receival	ble management.				
5.Develop an und	erstanding of	the project finance.				
	Introductio	on				
	Meaning of	Corporate Finance - Importance and T	ypes - Role and	1		
Unit-I	Functions o	- 12 Hours				
	Short Term	1				
Sources – Advantages - Disadvantages.						
	Risk & Retu	ırn and Valuation of Bonds and Shar	es			
	Concepts of Risk and Return – Types of Risk - Diversifiable and					
Unit II	Non-Diversi					
0111-11	Return of a					
	Asset and P	f				
	Bonds – Val	uation of Shares.				
	Portfolio M	anagement				
	Meaning – 0	Objectives - Portfolio Theory - Traditio	onal Approach	-		
Unit_III	Fixed and Variable - Income Securities - Markowitz Portfolio) 12 Hours		
	Theory - Modern Approach - CAPM Model - Economic Value -			- 12 110015		
	Sharpe Single & Multi Index Model - Risk Adjusted Measure of			f		
	Performance	2.				
	I		_			
	Cash and R	eceivable Management				
	Cash Manag	ement - Objectives - Motives for Holdi	ng Cash - Casl	1		
Unit-IV	Management Strategies - Cash Management Techniques - Concept					
	of Receivable Management - Credit Policy - Types of Credit					
	Policy - Opt	imum Credit Policy - Credit Standard	and Analysis	sis -		
Credit Terms - Collection Policy and Procedures						

		Project Finance					
		Project Planning - Preparation of Project Report - Project Appraisal	roject Planning - Preparation of Project Report - Project Appraisal				
T T •4 T 7	inder Normal, Inflationary and Deflationary Conditions– Project						
Unit-v		Appraisal by Financial Institutions and Banks – Taxation and its	12 Hours				
		impact on Corporate Financing.					
Books	for Study						
1.	Brealey, N	Ayers & Allen, Principles of Corporate Finance, 9th edition, The Tata	a McGraw-				
	Hill, New	Delhi.					
2.	Ashvarath	Damodaran, Corporate Finance, Wiley India, Latest Edition.					
3.	Pawan Jha	bak, Corporate Finance, Himalaya Publishing House, New Delhi.					
4.	Ross S A,	Westerfield, R. W. & Jordan, B.D. Fundamentals of Corporate Finance	æ,				
	Tata McG	raw-Hill Education India Pvt. Ltd.					
5.	Dr. Jaswant Saini, Corporate Finance, University Book House Pvt. Ltd. Rajasthan						
Books	for Refere	ence:					
1.	1. Krishnamurti, Advanced Corporate Finance, Prentice Hall India Learning Pvt. Ltd., New						
	Delhi.						
2.	2. Richard Bailey & Stewart Myers, Principles of Corporate Finance, Tata McGraw Hill						
	Education	Education Pvt. Ltd., New Delhi.					
3.	Jonathan Berk & Peter DeMarzo, Fundamentals of Corporate Finance, Pearson						
	Education	s					
4.	Pathak Bharti, Indian Financial System, Pearson Education.						
5.	Robert Parrino & David Kidwell, Corporate Finance, Wiley India, Latest Edition.						

SEMESTER VI								
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT				
UACOSP61	Skill Based Practical	COMMERCE PRACTICALS	2	1				
Course Objec	Course Objectives							
1. To impart	Practical kno	wledge on Filling up different forms rel	ated to Bankir	ig, Insurance,				
Cost Accor	unting, Incom	e Tax and GST.						
2. To Prepare	e Office Comm	nunications such as Agenda, Minutes of t	he Meeting.					
3. To File ele	ctronic IT retu	urns and register a firm under GST.						
Course Outco	omes							
1. Prepare Bus	iness Docume	ents like Orders, Quotations and Invoices	etc.					
2. Fill up form	s like DD Cha	CST Determs						
3. Filing of Inc	come Tax and	GST Returns.						
4. Prepare and	t related docu	ments for applying various types of loans	entories					
5. Allange cos		I IST OF EXPERIMENTS	entories.					
	1 Prenara	tion of Invoice Receipts Vouchers De	elivery Challa	2				
	Entry Pass, Gate Pass, Debit and Credit Notes,							
Unit-I	2. Preparation of Application for Shares - Allotment Letter - Call							
	Letters	tters - Share Transfer Forms.						
				1				
	3. Drawin	g, Endorsing and Crossing of Cheques- F	Filling up of Pa	y				
	in Slips	and Demand Draft Application.						
∐nit-II	4. Filling up of Account Opening Forms for SB account, Current							
	Account, FDR's and Entries in the Passbook.							
	5. Drawin	Drawing and Endorsing of Bills of Exchange and Promissory						
Notes.								
	0. Filling	up of Application forms for Admission if	Cooperative					
	7 Filling	zs. un of Loan Application Forms Deposit ([•] hallan and					
Unit-III	Vithdr	awal Challan		6 Hours				
	8. Filling	up of Jewel Loan Application Form.	Procedure fo	or				
	releasin	g of Jewellery in Jewel Loans and Repay	ment.					
		<u> </u>						
TT	9. Prepara	tion of Agenda and Minutes of Meetings	both General					
Unit-IV	Body an	nd Board of Directors.		6 Hours				

	(Students are asked to write Agenda and Minutes of their own					
	and should not use Printed Format)					
	10. Prepare Bin Card and Inventories.					
	11. Prepare Cost Sheet.					
	12. Filling up of an Application Form for L1C Policy, Premium					
	Form and Challan for Remittance of Premium.					
	13. Preparation of an Advertisement Copy, Collection of					
T T 0 / T T	Advertisement in details and Journals, critically evaluating the					
Unit-V	Advertisement Copy. 6 Hou					
	14. On-line Filling up of Income Tax Returns and GST Returns.					
	15. Prepare Application for applying online Permanent Account					
	Number (PAN)					
Note:						
Students may be asked to collect original or Xerox copies of the documents and affix then on the						
record note be	ook after having filled up. Drawing of the documents should not be insist	ed.				
Distribution of Marks for Practical is as follows:						
Practical: 50 Marks (5 questions x 10 Marks = 50 Marks)						
Record Note: 25 Marks						
Viva-Voce:	25 Marks					
Total:	100 Marks					
<u> </u>						

SEMESTER VI							
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT			
UACOSE62	Skill Based Elective	DIGITAL MARKETING	2	1			
Course Objectives							
1.To introduce	1.To introduce Students to the concepts, tools and techniques of Digital Marketing.						
2. To acquaint students with the various types of Digital Marketing.							
3.To educate students the ethics in Digital Marketing.							
Course Outco	Course Outcomes						
1. Define Dig	ital Marketing	g & its types, discuss advantages & limit	tations of Digi	tal Marketing			
and Illustra	and Illustrate the Digital Marketing Process.						
2. Discuss the tools and strategies for running a successful Digital Marketing Campaign.							
3. Understand	3. Understand Digital Analytics and Describe the methods of measuring effectiveness of Digital						
Marketing (Campaigns.						
4. Enumerate the Strategies for Online Reputation Management adopted by Businesses.							
5. Elucidate t	he role of Eth	ics in Digital Marketing					
Unit-I	Introduction Digital Marketing – Definition – Advantages – Limitations – Traditional Marketing Vs. Digital Marketing –Digital Marketing Process – Developing Digital Marketing Strategy – Paid, Owned and Earned Media Model (P.O.E.M. Model) - Framework in Digital marketing Types of Digital marketing.						
Unit-II	Website building, SEO and SEMWebsite – Blogs - Website Planning & Creation – Keywords - Understanding Domain and Webhosting – Search EngineIOptimisation - On Page SEO and Off Page SEO – Techniques - Keyword Planning – Keyword Placement – Indexing - Content Optimization – Search Engine Marketing - Designing and Monitoring search campaigns.						
Unit-III	Display Advertising and Social Media AdvertisingDisplay Advertising - Designing and Monitoring Display campaigns- Designing and Monitoring Video campaigns - Pay-Per ClickAdvertising - Types of Bidding Strategies - Social Media Marketing- Significance - Types of Ad formats - Facebook Audience and itsTypes - Designing Facebook Advertising Campaigns - DesigningTwitter Advertising Campaigns - LinkedIn Marketing.						
Unit-IV	E-mail Mar	keting, Mobile Marketing and Conten	t Marketing	6 Hours			
r							
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	E-mail marketing - Significance - Building E-mail List and Signup						
	Forms - Email Marketing Strategy and Monitoring - Email						
	Automation - Mobile Marketing-SMS – Push Notifications –						
	Mobile Web – Mobile App based Marketing – In-Game Mobile						
	Marketing - Designing and Monitoring Universal App Campaigns -						
	Content Marketing - Content Creation Process. Meaning of						
	Influencer Marketing, Viral Marketing, Buzz Marketing.						
	Digital Analytics & Measurement Online Reputation						
	Management and Ethics in Digital Marketing						
	Digital Analytics and Measurement - Monitoring Traffic Behavior						
Unit-V	and preparing Reports - Measuring Campaign Effectiveness - Return 6 Hours						
Cint- v	on Investment - Customer Lifetime Value – Attribution Models-						
	Online Reputation Management - Need – Strategies – Tactics -						
	Ethics in Digital Marketing – Future of Digital Marketing in India						
Books for Sti	Idv						
1. Seema	Gupta, Digital Marketing, McGraw Hill Education.						
2. Punit	Singh Bhatia, Fundamentals of Digital Marketing, Pearson,						
3. Jerem	v Kagan and Siddharth Shekhar Singh. Digital Marketing – Strategy & Tactics.						
Wilev							
4. Vanda	na Ahuja, Digital Marketing, Oxford University Press.						
5. Punee	t Singh Bhatia, Social Media & Mobile Marketing, Wiley.						
Books for Re							
1. Philip	Kotler, Marketing 4.0: Moving from Traditional to Digital, Wiley.						
2. Ian De	odson, The Art of Digital Marketing: The Definitive Guide to Creating Strategic,						
Target	ed, and Measurable Online Campaigns, Wiley.						
3. Ryan	Deiss and Russ Henneberry, Digital marketing for Dummies, For Dummies.						
4. Rajeno	dra Nargundkar and Romi Sainy, Digital Marketing: Cases from India, Notion						
Press,	Inc.						
5. Damia	In Ryan, Understanding Digital Marketing: Marketing Strategies for Engaging the						
Digita	l Generation, Kogan Page Publisher.						
E-Resources							
1. <u>[E-Bo</u>	ok]Damian Ryan, Understanding Digital Marketing: Marketing Strategies for						
Engag	ing the Digital Generation, Kogan Page Publisher.						
2. <u>[E-Bo</u>	ok] Digital marketer, The Ultimate Guide to Digital Marketing.						
Links to Rela	ited MOOCs						
1. [Link]	Fundamentals of Digital Marketing, Google Digital Garage.						
2. [Link]	2. [Link] Shilpa Bagdare, Basics of Digital Marketing, SWAYAM.						
3. [Link]	Dr. Tejinderpal Singh, Digital Marketing, SWAYAM.						
4. [Link]	Dr. Lalit Engle, Basics of Digital Marketing, SWAYAM.						

DEPARTMENT OF B.Com COMPUTER APPLICATIONS 15TH BOS APPROVED UG SYLLABI FOR

V & VI SEMESTERS

		SEMESTER – V		
COURS CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UACA50	001 Core 10	ACCOUNTING FOR DECISION MAKING – I	5	5
Course O	bjectives			
1. To ma	ke the students acc	quaint with the knowledge of Different Techni	ques of Co	sting
2. To ma	ke the students acc	quaint with the knowledge of Different Method	ds of Costin	ng
3. To dev	elop expertise in (Cost Accounting Skills		
4. To ena	ble students to add	opt suitable Methods to Solve Costing Problem	ns	
Course O	utcomes			
1. Discus	s different Technie	ques Of Costing		
2. Compu	ute cost using diffe	erent Methods Of Costing		
3. Calcul	ate Wags under Di	ifferent Wage System		
4. Prepar	e a Statement of P	ricing of Material Issues		
5. Alloca	te overhead costs	to Different Department		
6. Compu	te Contribution, F	Profit Volume Ratio, BEP and Margin of Safet	y	
Unit-I	COST SHEET A	NALYSIS		15
				Hours
Cost Acco	ounting: Introduct	ion - Definition and Meaning of Cost Account	unting – O	bjectives –
Importanc	e of Cost Account	ting - Elements of Cost - Direct Cost, Indire	ect Cost, O	verheads –
Classificat	ion of Cost - Cost	Accounting Vs Financial Accounting –Prime	e Cost – W	ork Cost –
Cost of Pr	oduction - Cost of	Sales – Cost Sheet: Specimen Format – Prep	paration of	Cost Sheet
- Compute	er Softwares and T	ools used for Cost Analysis		
Init II	MATEDIAL S. I	nyantary Control & Valuation of Matarial	Icanog	15
01111-11	MAILNIALS, I	inventory Control & Valuation of Material	155065	15 Hours
Matariala	Control Mooni	ng Objectives and Eurotions of Material	Control	Inventory
Control	Meaning and Imp	ortance Eisation of Stock Levels Re ord	Control –	Minimum
Stock Lex	vol Maximum (Stock Level Average Level Danger Le	vol Cal	winning
Foonomia	Order Quantity (E	S(OC) Coloulation of EOO Driving of Mat	oriol Issue	Eirst in
Economic First Out	(FIEO) Last in E	F(Q) = Calculation of EOQ - I field of Wat	$\frac{1}{2} = \frac{1}{2} = \frac{1}$	die Simple
Average Methods – ICT Tools used for Inventory Management				
Unit-III	LABOUR COST	CONTROL		15
				Hours
Labour C Accountin	Cost: Meaning – ' g Treatment of 'O	Types of Labour Cost – Control of Labour Over time & "Idle Time'– Meaning - Labour	Cost – teo Turnove	chniques – :: Methods

of Labour Turnover – Separation Method – Replacement Method – Flux Method - **Methods of Remuneration:** Time Rate System – Piece Rate System – Straight Piece Rate System -Taylor's Differential Piece Rate System – Merrick's Differential Piece Rate System - **Incentive** **System:** Halsey Premium Plan - Rowan Plan - Computer Softwares and Tools used for Labour Costing – Gender Equality in Labour Costing

Unit-IV OVERHEADS COSTING

15 Hours

Overhead Cost: Definition and Meaning – Importance - Classification of Overheads – Overhead Analysis - Allocation and Apportionment of Overheads – Basis of Apportionment – Primary Distribution of Overheads – reapportionment or redistribution of Overheads – Methods of re-Apportionment – Direct Re-distribution Method - Repeated Distribution Method – **Machine Hour Rate** – Computer Softwares and Tools used for Overhead Costing

Unit-V MARGINAL COSTING

Hours

15

Marginal Cost: Introduction – Meaning and Definition – Features - Advantages - Limitations -Cost Volume Profit Analysis - Marginal Cost Equation – Contribution - Fixed Cost, Variable Cost, Contribution, Break-Even Analysis – Margin of Safety – Key Factor - Make or Buy Decisions - Computer Softwares and Tools used for Marginal Costing

(Ratio of Problems and Theory = 80%: 20%)

Books for Study:

- 1. Jain and Narang, Cost Accounting Kalyani Publications
- 2. S.N.Maheshwari, Cost and Management Accounting Sulthan Chand Publications
- 3. Dr. P. Periasamy, A text book of Financial, Cost and Management Accounting, HPH
- **4.** T.S. Reddy and Y. Hari Prasad Reddy, Cost Accounting Margham Publications.
- 5. S.P. Iyangar, Cost Accounting Sulthan Chand Publications

Books for Reference :

- 1. Jain S.P and Narang K.L Cost accounting
- 2. Khanna B.S, Pandey I.M, Ahuja G.K and Arora M.N Practical Costing
- 3. N.K.Prasad and V.K.Prasad Cost Accounting b
- 4. Hansen / Mowen Cost & Management Accounting and Control

		SEMESTER – V		
COURSE	COURSE	COURSE TITLE	HRS/	CREDI
CODE	COCHOL		WEEK	Т
UACA5002	Core 11	TAX PLANNING IN DIGITAL ERA	5	5
Course Obj	ectives	· · · ·		
Instructiona	l Objectives:			
1. To make of TIN	the students a	equaint with basic knowledge of provisions of income	tax and w	eb portal
2. To acquar	int with power	rs of Income Tax Authorities		
3. To Famil	arize students	with the concept of Tax Planning & Tax Evasion		
4. To make	the students u	nderstand and apply tax planning tools		
Course Outc	omes			
1. Define In	come Tax, Pe	rson, Previous Year and Other Important Terms		
2. Compute	income from	salaries and house property using Digital Tools		
3. Calculate	income from	business and profession using Digital Tools		
4. Ascertain	income from	capital gains and other sources		
5. Compute	taxable incon	e of individuals and partnership firms		
6. Discuss the function of t	ne concept tax	planning in digital era		
7. Describe	the Powers of	Income Tax Authorities		
Unit-I	INTRODUC	TION TO INCOME TAX	15	Hours
Income tax -	– global dired	ct taxation system - Income Tax Act - 1961 - Curr	ent Fina	nce Act -
Definitions -	Agricultural I	ncome - Assesses - Assessment Year - Income- Person	n - Previo	ous Year -
Residential S	tatus and Inc	idence of Tax - Exempted Incomes - Five heads of i	ncome –	Heads of
Income - Tax Information Network Portal (TIN-NSDL)				
Unit-II	COMPUTA PROPERTY	FION OF INCOME FROM SALARY AND HOUS	E 1	5 Hours
Income from Salary: Meaning of Salary – Features – Basis of Charge - Allowances – Perquisites –				

Income from Salary: Meaning of Salary – Features – Basis of Charge - Allowances – Perquisites – RFA – Motor Car – Other Facilities - Profits in Lieu of Salary – Gratuity – Pension – Leave Salary – Provident Fund - Deductions – Computation of Taxable Salary – ICT Tools for Computation of Salary

Income from House Property: Meaning ofHouse Property – Types of House Property - Annual Value - MRV – FRV – Standard Rent – Actual Rental - Unrealised Rent - LDV – Exempted Income from House Property - Gross Annual value – Net Annual Value – Deductions – Interest on Loan - Computation of Income form House Property - ICT Tools for Computation of House Property

Unit-III	COMPUTATION OF INCOME FROM BUSINESS OR	15 Hours

PROFESSION

Income from Business or Profession : Introduction – Business – Profession – Basis of Charge – Deductions Allowed – Disallowed Expenses – Computation of Income from Business – Computation of Income from Profession – Charted Accounted – Doctor – Legal Professional - ICT Tools for Computation of Income from Business or Professions

Unit-IV

COMPUTATION OF INCOME FROM CAPITAL GAINS AND OTHER SOURCES

15 Hours

Capital Gains: Meaning of Capital Assets and Capital Gains – Types of Capital Gains – Short-Term Capital Gain – Long-Term Capital Gains – Transfer – Deemed Transfer – Cost of Acquisition – Cost of Improvement – Cost Inflation Index - Indexed Cost – Self Generated Assets – Exempted Capital Assets – Computation of Short-Term Capital Gain - Computation of Long-Term Capital Gain - ICT Tools for Computation of Income from Capital Gains

Income from Other Sources: Introduction – Important Terms – Basis of Charge – Incomes Chargeable under Other Sources – Specific Income – general Income – Kinds of Security – Income from Securities – Grossing up – TDS – Casual Income – Gift – Deductions – Computation of Income from Other Sources - ICT Tools for Computation of Income from Other Sources

Unit-V TAX PLANNING, ASSESSMENT OF INDIVIDUALS AND E-GOVERNANCE 15 Hours

Tax Planning: Tax Avoidance – Tax Evasion – Tax Planning by Individuals - Computer Applications in Tax Planning – Financial Incentive for Environment Protection – Special Provisions relating to Women Assessees - **Assessment of Individuals**: Tax Incidence on Individuals- Taxable Income – Problems on Computation of Taxable Income- Tools for Tax Planning of Individuals - **E-Governance:** Income Tax Authorities and their Powers - Permanent Account Number (PAN) – E-Tax Filing System – Types of income returns – E-Filing 2.0 – E-Filing Calendar (**Theory Only**)

(Ratio of Problems and Theory = 80% : 20%)

Books for Study:

- 1. Income Tax Law and Practice, Gaur V.P. Narang D.B. Kalyani Publications
- **2.** Taxmann's Corporate Tax Planning & Business Tax Procedures, Dr. Vinod K. Singhania and Dr. Monica Singhania, 2021, Taxman publications.
- 3. T.S. Reddy and Harry Prasad Reddy : Income Tax Law & Practice Margham Publications
- **4.** Problems and Solutions in Income Tax, Dr.Mehrotra. S. P and Dr. Goyal, Sahitya Bhavan Publications

Books for Reference :

- 1. Income Tax, Dr. H. C. Mehrotra, Dr. S. P. Goyal, Sahitya Bhavan Publications
- 2. A. Murthy : Income Tax Law & Practice, Vijay Nicole Publications
- 3. Income Tax Planning & Management, Dr. R. K. Jain, SBP Publications

		SEMESTER – V						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT				
UACA5003	Core 12	DIGITAL AUDITING	5	5				
Course Objectives								
1. To familiariz	e students with v	arious aspects of auditing using digital to	ools					
2. To make stud	dents understand	different Procedures of Auditing						
3. To explain C	oncepts of Intern	al Control						
4. To acquaint s	students with con	cepts of Vouching						
5. To familiariz	e students with A	Auditing in Digital Era						
Course Outcom	es							
1. Explain Aspe	ects of Auditing							
2. Describe diff	erent Procedure	of Auditing						
3. Discuss proc	edure of Internal	Control						
4. Explain conc	epts of Vouching							
5. Enumerate no	ow Auditing 18 de	Auditor						
6. Appraisal the	Concept of Data N	Auditor Jining for Audit						
		winning for Audit						
Unit-I IN	FRODUCTION	TO AUDITING	15	Hours				
Introduction- Me	eaning and Obje	ct of Audit - Difference Between Audit	ting and Ac	countancy -				
Kinds Of Audit	- Advantages an	d Limitations of Audit - Audit Program	me and Au	dit Working				
Papers - AAS - I	IAS – IFRS – Ro	le of ICT in Auditing – GlobalAuditing	Organizatior	ns (Big Four				
Organizations)								
Unit-II IN	FERNAL CON	FROL	15	Hours				
Internal Contro	l - Meaning and	Definition - Object - Internal check –	Meaning and	d Definition				
- Object - Inter	nal Control rega	rding Purchases - Internal Control reg	arding Sale	s - Internal				
Control Regardin	ng Payment of W	ages – ICT Tools for Internal Control						
Unit-III VC	UCHING		15	Hours				
Vouchin	g: Meaning and	Definition - Objects - Features of Good	Vouching -	- Procedure				
of Vouching - Vouching of Cash Transactions – ICT tools for Verification of Assets and								
Liabilities								
Unit-IV LA	WS RELATED	TO AN AUDITOR	15	Hours				
Domestic Laws:	Auditor - Qualit	fication of Auditor - Disqualification - A	ppointment	- Removal -				
Duties – Powers	- Liabilities – Re	emuneration – International Laws relat	ing to Audi	tors				

Unit-V	DIGITAL ERA AUDITING	15 Hours		
Auditing in	Computerized Environment - Online Computer System Audit -	Data Mining:		
Meaning - H	Features - Data Warehouse: Meaning - Features - Visualisation for	Audit - Digital		
Transformation of Audit				
Books for S	tudy:			
1. Practical	Auditing-Dr. L.Natarajan - Margam Publications – Chennai.			
2. Practical	Auditing - Venkadamani - Margam Publications - Chennai			

- 3. Auditing Dinker Pagare Sultan Chand & Sons New Delhi
- 4. Practical Auditing B.N. Tandon: S. Chand & Sons New Delhi
- 5. Practical Auditing Dr. Premavathy Sri Vishnu Publishing Co Chennai

Books for Reference:

- 1. Auditing: Principles and Techniques Basu Dorlington Kindersley (India) Pvt. Ltd Noida
- 2. Auditing Principles and Practices Ravinder Kumar Virender Sharma Prentice Hall India New Delhi.
- 3. Practical Auditing Sundar. K & Paari. K Vijay Nicole Imprints Pvt. Ltd. Chennai
- 4. Auditing D.P. Jain Konark Publishers Pvt. Ltd New Delhi
- 5. Contemporary Auditing Kamal Gupta Tata McGraw Hill Noida

	SEMESTER – V				
COURS CODE	SE C	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UACA50	004	Core 13	COMPUTER APPLICATIONS IN FINANCE & INVESTMENT	5	5
Course O	bjecti	ives			
1. To mal	ke the	students acq	uaint with the knowledge of Finance		
2. To mal	ke the	students fan	niliar with the mechanisms of Financial In	stitutions	
3. To dev	velop e	expertise for	conducting business transactions through	Electronic Me	eans
4. To mal	ke stud	dents acquain	nt with Screen Based Trading Systems		
Course O	utcom	ies			
1. Define	the C	oncepts of F	inance.		
2. Discus	s the F	Functioning	of Capital Market		
3. Apprai	ise Dif	ferent Invest	ment Alternatives		
4. Descrit	be Col	llective Inves	stment Scheme		
5. Highlig	ght the	e role of Inve	estor Protection		
6. Illustra	te the	role of SEB	I in Investor Protection		
7. Demor	nstrate	Screen Base	ed Trading System		
Unit-I	INT	RODUCTIO	ON TO FINANCE & FINANCIAL		15 Hours
	INST	TITUTIONS			
Finance: I India – Int Meaning Exchanges Functions	Meani roduct and D s – Pro of NS	ng and Defir tion - Types Definition - ominent List DL and CDS	aition – Features - Functions - Financial E of Investors – Constraints - Goals of Inve Features - Basics of Stock Exchanges ed Companies in Tamilnadu – Deposito SL – International Stock Exchanges	Environment o estors - Stock – NSE – B ries: Meaning	f Business in Exchanges: SE – Other 5 - Features -
Unit-II	Unit-II INTRODUCTION TO CAPITAL MARKET 15 Hours				

Overview of Capital Market: Indian Capital Market - Authorities Governing Capital Markets in India, Profile of Securities Market, Securities-Market Reforms and Regulatory Measures to Promote Investor Confidence- Features of Developed Capital Market - **Capital Market Instruments and Rating**: Capital Market Instruments – Equity – Debentures - Preference Shares - Sweat Equity - Non-Voting Shares - Share Warrants - Derivatives & Hybrid Instruments

Unit - IIIINTRODUCTION TO COLLECTIVE INVESTMENT SCHEME15Hours

Introduction to SEBI (Collective Investment Schemes) Regulations, 1999 – An Overview -Conditions for Eligibility - Grant of Certificate - Obligations of Collective Investment Management Company (CIMC) - Contents of Trust Deed - Trustees and their Obligations – Eligibility for Appointment as Trustee - Termination of Trusteeship - Disclosures in the offer Document - Allotment of Units - Unit Certificates, Transfer of units - Investments and Segregation of Funds, Listing of Scheme and Winding up of Scheme – Special Scheme for Women Investors

Unit - IV REGULATORS AND INVESTOR PROTECTION

15 Hours

Role of SEBI and Stock Exchanges in Investor Protection - Investor Grievances and their Redressal System - Insider Trading - Investor Awareness and Activism

Unit - V IT, SCREEN-BASED TRADING SYSTEM, FINANCIAL SOFTWARE AND DATA SOURCES

15 Hours

Trading Floor Architecture: Market Data Network Architecture (MDNA) – Scope –NEAT & BOLT Meaning and Features – Online order Matching System- Sources of Financial Information - Financial Websites - Features – Overview of Yahoo Finance – Overview of Money Control.Com – **Portfolio Tracking Websites**: Meaning – Objectives – Features – Global Trends in Screen Based Trading

Books for Study:

- 1. Jones, C.P. Investments Analysis and Management, Wiley, 8th Edition
- 2. Chandra, Prasanna Investment Analysis and Portfolio Management. McGraw Hill Education
- 3. Rustogi, R.P. Fundamentals of Investment. Sultan Chand & Sons, New Delhi

Books for Reference:

- 1. NCFM Securities Market Basic Module- Textbook
- 2. NISM-Series-XII: Securities Markets Foundation- Textbook
- 3. NCFM Financial Markets: A Beginner's Module Textbook

SEMESTER – V					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UACAPR51	Core Practical – 1	ACCOUNTING SOFTWARE (TALLY ERP.9) – LAB	4	2	
Course Object	ctives				
1. To provide	basic knowledg	e of Computerized Accounting to deservin	g students	under Self-	
Learning N	Iode				
2. To process	Purchase order,	Sales order and Payment			
3. To know th	ne Preparation of	Accounting Inventory Masters in Tally			
4. To know th	ne Preparation of	Cost and Budgeting			
5. To prepare	the Final Accourt	tts with GST			
Course Outco	mes				
1. Demonstra	te preparation of	accounts using Tally ERP 9			
2. Create Gro	ups and Ledgers	using Accounting Software			
3. Create Vot	cher and Invento	ry Masters using Accounting Software			
4. Prepare Co	st and Budgets us	sing Accounting Software			
5. Prepare GS	ST Reports				
EXERCISE -	I INTERFA	ACE AND COMPANY MANAGEMEN	T	8 Hours	
Introduction to	Tally ERP 9: Co	onfiguration of Tally Screens and Menus –	Creation o	f Company	
- Alteration an	d Deletion of Cor	mpany- F12: Configurations			
EXERCISE -	II GROUPS	S AND LEDGERS		8 Hours	
Groups: Pre-	Defined Group	s- Creation, Alteration and Deletion of	Single an	d Multiple	
Groups- Ledg	ers: Creation, A	lteration and Deletion of Ledger- Single	and Multip	ole Ledgers	
Creation					
EXERCISE -	III ACCOUN	NTING VOUCHERS IN TALLY		10 Hours	
Vouchers: Cre	eating, Editing, D	isplaying and Deleting	·		
Voucher Entr	ies in Tally: Cor	ntra Voucher, Purchases, Sales, Payment, P	Purchase Re	eturn Sales	
Return					
EXERCISE -	IV INVENT	ORY MASTERS IN TALLY		10 Hours	
Inventory Ma	sters: Stock Cate	egories – Creating, Displaying and Altering	5		
Stock Groups: Creating Stock Groups – Creating, Displaying and Altering Stock Items:					
Creating, Latting and Deleting stocks					
EXERCISE -	V COST CI	ENTRE AND COST CATEGORIES		8 Hours	
Cost Center:	Creating, Editing	, Displaying and Altering Cost Centre			

Cost Categories: Cr	eating, Editing, Displaying and Altering Cost Category				
EXERCISE - VIPRINTING REPORTS IN DETAILED AND8 Ho					
	CONDENSED FORMAT				
Documents Printin	g: Day Book - Statement of Trial Balance - Trading and Prof	fit and Loss			
Account and Balance	e Sheet				
EXERCISE - VII	INTRODUCTION TO GST IN TALLY	8 Hours			
Goods and Services	Tax: Activating Tally in GST – Setting up GST Company leve	l, Ledger			
level - Configuration	n for Creating Masters -Vouchers Creation - Preparation of GST	Reports			
Books for Study &	References:				
1. Nadhani A K, (2)	016), Implementing Tally, BPB Publication				
2. Dr. Rizwan Ahm	ed P, (2016), Tally ERP 9, Margham Publications, Chennai				
3. Nadhani, (2015),	Computerized Accounting under Tally, Implementing Tally, Bl	PB			
Publication					
4. Namrata Agrawal, (2008), Tally 9 th , Dream Tech Publishers					
5. Tally Software P	5. Tally Software Package Manual				

	SEMESTER – V						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT			
UACACES	Core Based	BANKING WITH INFORMATION					
UACACE	Elective 1	TECHNOLOGY	4	2			
Course Objectives							
1. To Unde	erstand with basic l	knowledge of banking with Information Te	chnology				
2. To Unde	erstand the concept	of Loans and Advances of Banking System	m				
3. To Unde	erstand the Custom	er and Banker Relationship					
4. To Anal	yze Different Type	s of Negotiable Instruments					
5. To Acqu	aint with Electron	c Banking Technology					
Course Out	comes						
1. Explain	the scope of banking	ng with functions of banks and their role ir	ito Banking				
2. Describe	e Lending Operatio	ns of Banking And Causes of NPA into ba	inking secto	or			
3. Describe	the Customer Rec	lressal and Grievances Mechanism					
4. Explain	the Concept of En	dorsements					
5. Discuss	the Recent Develo	pment in Banking with Information Techn	ology				
	·						
Unit-I	INTRODUCTIO	ON TO BANKING	12 H	lours			
Banking: In	ntroduction - Mean	ning and Definition – Types of Banks –	Functions	of Banks –			
Banking Re	gulation Act, 194	9 -Reserve Bank of India (RBI) – Func	tions of RI	3I- Role of			
Banks in Ec	onomic Developm	ent – Interest Free Banking System					
Unit-II	DEPOSITS, LO	ANS AND ADVANCES	<u>12 H</u>	lours			
Deposits, L	oans and Advanc	es: Definition – Types of Deposits - Typ	bes of Loan	is – Special			
Schemes fo	r Women – Spec	cial Schemes for Environment Protectio	n - Style	of Credit -			
Advances ag	gainst various secu	rities – Basel Accord: Merits and weaknes	s of the Bas	sel II, Basel			
III; NPAs: N	Aeaning – Causes	- Impact of NPAs on Banking sector					
Unit-III	CUSTOMER R	ELATIONSHIP WITH BANKERS & T		lours			
Banker and	Customer: Mea	ning and Definitions - Customer Service (Jpening of	an Account			
- Types of	deposit account –	Special Types of Banker's Customers -	Relationsh	lip between			
banker and a	a customer - KYC	Forms – Digital Documentations – Onlin	e Customer	grievances			
and Redress	al - Role of bankin	g Ombudsman					
Unit-IV	NEGOTIABLE	INSTRUMENTS WITH INFORMAT	ION 12 H	lours			
	TECHNOLOGY	<u> </u>					
Negotiable Instruments – Definition - Features – Promissory Note, Cheque, Demand Draft -							
Crossing – Kinds of Crossing - Endorsements – Kinds of endorsements – Cheque Truncation							
System (CTS) 2010 - Blockcain's role in Banking System							
Unit-V	ROLE OF INFO	DRMATION TECHNOLOGY IN THE	12 H	lours			
	BANKING SEC	TOR					

Banking Reforms in India: Sector Recommendations of Narasimham Committee - **Banking Services:** ATM - Credit Card - Debit Card - Card and Payment Service Providers – E-Services – **Online/ Internet Banking:** EFT – NEFT - RTGS – IMPS – SWIFT – UPI – Mobile Banking

Books for Study:

- E.Gordon & K. Natrajan, "Banking Theory, Law & Practice", Himalaya Publishing House, 24th Revised Edition, 2015
- 2. B.Santhanam "Banking Theory, Law & Practice", Marghan Publications, Chennai. 2018
- **3.** Sundharan & Varshney, "Banking Theory Law & Practice". Sultan Chan & Sons, New Delhi, 2018
- 4. Michlael W.Brandi Money Bnaking, Financial Markets and Institutions Cengage, New Delhi
- 5. Gurusamy S, Banking Theory: Law and Practice, Vijay Nicole Publication, 2015, Chennai

Books for Reference:

- 1. G.S.Popli and Anuradha Jain, "Principles and Systems of Banking", PHI Learning Private Limited, 2016
- **2.** K.P.M. Sundaram and P.N.Varshney, **"Banking Law and Practice"**, Sultan Chand & Sons Publishing House, 18th Edition 2014
- **3.** Indian Institute of Banking and Finance, **"Principles & Practice of Banking"**, Macmillan Publishers India Private Ltd., 2016
- **4. 4.** K.C.Shekar, Lekshmy Shekar, **"Banking theory and Practice"**, Vikas Publishing House Pvt.Ltd., 20th Edition, 2007
- 5. Nirmala Parsad, Banking Financial Services, Himalaya Publications

		SEMESTER – V			
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UACACE52	Core Based Elective 1	LOGISTICS & SUPPLY CHAIN MANAGEMENT	4	2	
Course objectiv	ves				
1. To make	e the students ur	derstand the concepts of Logistics	s and Sup	oply Chain	
Manager	nent				
2. To acqua	int the students abo	out out Sourcing of Logistics			
3. To make	the students famili	ar with the issues in SCM frame work			
4. To make	the students under	stand the idea of performance measure	ement in SC	CM	
Course Outcom	ies				
1. Define ba	asic concepts of Lo	ogistics and SCM			
2. Discuss t	he Reasons for Out	sourcing of Logistics			
3. Describe	Supply Chain Mar	agement Activities			
4. Illustrate	Advantages of Per	formance Measurement			
Unit-I L	OGISTICS		12 H	ours	
Logistics: Defin	ition - History and	Evolution- Objectives - Elements - A	Activities i	mportance-	
The work of lo	gistics-Logistics in	nterface with Marketing – Retails I	Logistics -	Emerging	
Concept in Logi	stics				
Unit-II L	OGISTICS MAN	AGEMENT	12 H	ours	
Logistics Mana	agement: Definiti	on - Achievement of Competitive	Advantag	ge through	
Logistics Frame	work - Role of Lo	ogistics Management - Integrated Lo	gistics Ma	nagement -	
Evolution of the	Concept- Model -	Process - Activities			
Unit-III C	UTSOURCING I	LOGISTICS	12 H	ours	
Outsourcing Lo	gistics – Reasons	- Third Party Logistics Provider - F	Fourth Party	y Logistics	
Providers	(4 PL) – Stages - F	Role of Logistics Providers - Logistic	s Strategy	- Strategic	
role of logistics	– Definition - Ro	le of Logistics Managers in Strategic	Decisions	s - Strategy	
Options - Lean	Strategy - Agile S	trategies & Other Strategies - Design	ning & Im	plementing	
Logistical Strate	Logistical Strategy				
Unit-IV S	UPPLY CHAIN N	IANAGEMENT	12 H	ours	
Supply Chain M	lanagement – Defin	nition – objectives – Evolution – Nee	d - Issues i	involved in	
Developing SCM Framework - Types - SCM Activities - Constituents - Organisation - Supply					
chain Integratio	on-Stages-Barriers	to internal integration-Achieving	Excellence	e in SCM	
Dimensions of	Supply Chain Exc	cellence-Forces influencing SCE En	notions, Ph	nysical and	
Financial Supply	Financial Supply Chains-Check list for Excellence.				

Unit-V	PERFORMANCE MEASUREMENT IN SUPPLY CHAIN	12 Hours
	MANAGEMENT	

Performance Measurement in SCM-Meaning - Advantages of performance measures-The benefits of Performance Measurement - Measuring SCM - Supplier Performance Measurement - Parameters Choosing Suppliers

Books for Study:

- 1. Logistics & Supply Chain Management (English, Christopher Martin), Pearson Education Ltd.
- 2. Operations, Logostics and Supply Chain Management, Springer International Publishing.
- **3.** Supply Chain Management: Strategy, Planning And Operation By Sunil Chopra, Pearson Education
- 4. Supply Chain Management, For Global Competitiveness By Sahni, MacMillan India Ltd.

Books for Reference:

- Logistics & Supply Chain Management: Cases & Concepts, By Raghuram, G. Rangaraj, N. Macmillan India
- 2. Logistics Management: Supply Chain Imperative By Sople, V. V., Pearson Education
- **3.** World-Class Supply Management: The Key To Supply Chain Management By Burt, Dobler, Starling, Tata McGraw Hill

			SEMESTER – V			
COURS CODE	E	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UACASE51		Skill Based Elective 1	BASIC NUMERICAL SKILLS	2	1	
Course Obj	jective	es				
1. To Make Students Acquaint With Basic Numerical Skills						
2. To Famil	2. To Familiarize Students with Roots and Averages					
3. To Make	Stude	ents Understan	d Reasoning and Logical Reasoning			
Course Out	comes	8				
1. Calculate	e Num	erical Values U	Jsing Different Quantitative Techniq	ues		
2. Compute	Perce	entages				
3. Apply Lo	ogical	Reasoning Me	thods			
T T • 4 T	ODE				**	
Unit-1	OPE	RATIONS O	N NUMBERS		Hours	
Operations	on Ni	umbers: Num	bers: Meaning and Definition – Typ	pes of Numbe	ers – Natural,	
Whole, Ever	n and	Odd Numbers,	Prime Numbers – Basic Numerical	Operations -	Applications	
of Number S	ystem	i in various Op	erations			
Unit-II	TES	T OF DIVISI	BILITY, LCM AND HCF	6	Hours	
Test of Divi	sibilit	y: Divisibility	By 2, 3, 4, 5, 8, 9 – HCF and LCM	of Numbers –	Introduction	
– Meaning o	f HCF	F and LCM – P	rocedure for finding LCM and HCF	(Simple Probl	ems Only)	
Unit-III	SIM	PLIFICATIO	N, ROOTS AND AVERAGE	6	Hours	
Simplification	n - 1	Introduction –	Concepts - Meaning of Square	Roots and C	ube Roots -	
Averages - 1 Roots (Simp	Proble le Prol	ems in Numbe blems Only)	rs and Ages – Procedure for findin	g Square Roo	ots and Cube	
Unit-IV	REA	SONING AN	D PERCENTAGES	6	Hours	
Reasoning:	Mean	ing - Types of	Reasoning - Percentage - Meaning	g - Formulae a	and Concepts	
of percentag	e - Se	eries Test – D	irection Sense Test - Coding and D	ecoding – Al	phabet Test -	
Procedure fo	r findi	ing Percentage	(Simple Problems Only)			
Unit-V	TIM	IE, DISTANC	E AND BLOOD RELATIONS	6	Hours	
Procedure to	Solve	e Time and Dis	tance – Blood Relations – Height and	d Distances - (Odd Man Out	
Series (Simple Problems Only)						
Ratio of Problems and Theory = (60% : 40%)						
Books for Study:						
1. R.S. Aggarwal - "Quantitative Aptitude for Competitive Examinations" - Seventh Revised						
Edition -	S.Cha	and and Co Ltd	l - New Delhi -2005.			
2. Essential	s of Q	uantitative Ap	titude, Tutors and Mentors, Vijay Nic	ole imprints		

Books for Reference:

- 1. Barron's Guide for GMAT Galgotia publications New Delhi 2006
- 2. Quantum CAT by Sarvesh K Verma

			SEMESTER – VI					
C	COURSE	COURSE	COURSE TITLE HR WE	S/ EK	CREDIT			
UACA6001		1 Core 15	ACCOUNTING FOR DECISION 5 MAKING – II		5			
Co	Course Objectives							
1. 2. 3. 4. 5.	 To make Students Aware of Principles of Management Accounting To Familiarize with Applications of Management Accounting To Acquaint Students on Financial Statements Analysis To Familiarize Students on Marginal Costing To Make Students How To Prepare Various Budgets 							
Co	ourse Ou	tcomes						
1. 2. 3. 4. 5. 6. 7. 8.	 Discuss Principles of Management Accounting Appraise various applications of Management Accounting Analyze Financial Statements Compute Ration Analysis Compute Cash from Operating activity Compute Cash form Financing Activity Prepare Budgets Estimate Pay-Back Period and Net Present Value 							
Ur	nit-I 	NTRODUCTI INANCIAL S	ON TO MANAGEMENT ACCOUNTING AN FATEMENT ANALYSIS	D	15 Hours			
М	Management Accounting: Maaning and Definition Scope Objectives and Eurotions of							

Management Accounting: Meaning and Definition – Scope, Objectives and Functions of Management Accounting – Management Accounting Vs Financial Accounting - **Analysis and Interpretation of Financial Statements**: Meaning of Financial Statements – Tools of Financial Statement Analysis - Comparative statements, Common Size statement and Trend Analysis.

Unit-IIRATIO ANALYSIS12 HoursRatio Analysis:Introduction – Meaning of ratio – Advantages – Classification of Ratios –
Profitability Ratios – Turnover Ratios or Activity Ratios – Solvency or Financial Ratios –
ICT Tools for Ratio AnalysisICT Tools for Ratio Analysis

Unit-III	CASH FLOW STATEMENT	15 Hours
Introduction -	- Meaning of Cash Flow Statements - Purpose of Cash Flow	Statement -
Preparation of	Cash Flow Statements (AS-3) - Flow of cash due to Operations	s – Specimen
Format – Calc	ulation of Cash Received from Operations - ICT Tools for Prepar	ation of Cash
Flow Statemen	nts	

Unit-IVBUDGETING AND BUDGETARY CONTROL15 HoursBudgeting:Introduction – Meaning and Definition of Budget and Budgetary Control –
Objectives of Budgetary Control - Advantages and Limitations - Classification5 Hours

Preparation of Budgets – Sales Budget – Production Budget – Fixed and Flexible Budget – Cash budget - ICT Tools for Budgetary Control

Unit-V CAPITAL BUDGETING

18 Hours

Capital Budgeting: Meaning – Definition – Importance – Principles or Factors of Capital Budgeting Decision – Methods of Evaluating Capital Investment Proposals – Traditional Method – Pay-Back Period Method – Net Present Value Method (NPV) – Accounting Rate of Return Method - ICT Tools for Capital Budgeting

(The Ratio of Problems And Theory = 80% : 20%)

Books for Study:

- 1. Principles of Management Accounting Dr. S. N. Maheswari, Sulthan Chand Publications
- 2. Dr. P. Periasamy A text book of Financial, Cost and Management Accounting, HPH
- 3. R.S.N. Pillai and Bagavathi: Management Accounting, S.Chand Publications
- 4. Management Accounting T.S.Reddy & Y.S. Hariprasad Reddy, Margham Publications

Books for Reference:

- 1. R.S.N. Pillai and Bagavathi: Management Accounting, S.Chand Publications
- 2. Dr. Maheswari S.N Management Accounting
- 3. Chadwick The Essence of Management Accounting
- 4. Charles T.Horngren and Gary N.Sundem Introduction to Management Accounting
- 5. Sharma and Shashi K.Gupta Management Accounting
- 6. Hansen/Mowen Cost Management Accounting and Control

SEMESTER – VI						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UACA6002	Core 16	INDIRECT TAXATION WITH DIGITAL TOOLS	5	5		
Course Objectives						
1. To make the students familiar with Indirect Taxes in India.						
2. To acquaint the students with the Basic Customs Duty.						
3. To make the students understand the provisions of Goods & Services Tax.						
4. To make the	e students learn com	putation of GST.				
Course Outcom	ies					
1. Discuss Indi	rect Taxes in India.					
2. Define Basic	c Terms of Customs	Act.				
3. Compute Cu	istoms Duty on Goo	ods imported into India				
4. Calculate Cu	ustoms Duty on Exp	ports.				
5. Define Impo	ortant Terms used in	Goods & Services Tax Act				
6. Compute GS	ST on Various items	5.				
7. Describe the	procedure to Get In	put Tax Credit				
Unit-I INTI	RODUCTION TO	INDIRECT TAXES		15 Hours		
Constitutional ba	ackground of Indire	ect Taxes in India- Powers of varia	ous Gover	nments to levy		
and collect taxes	s - Constitutional A	Amendment for Bringing GST in	Force – G	ST in Various		
Countries – GST	Portal - Indian Cus	toms Electronic Gateway (ICEGA	TE)			
Unit-II CUS	TOMS DUTY			15 Hours		
Customs Duty :	Basic Concepts - I	mportant definitions - Appointm	ent of Cus	stoms Port and		
Airport, Prohibit	tion on importation	and exportation of goods, prevent	ion or dete	ction of illegal		
export of goods	- Classification of	Goods - Valuation under Customs	s Act 1962	- Concept of		
Value - Terms U	sed in Common Par	rlance				
Unit-III GOO	DDS AND SERVIC	CE TAX		15 Hours		
Goods and Servi	ice Tax - Introducti	on to Goods and Service Tax Act	- Importan	t Definitions –		
Consideration, Continuous Supply of Goods, Continuous Supply of Services, Goods, Central						
Tax, Integrated Tax, State Tax, Input, Input Service, Input Tax, Input Tax Credit, Intra-State						
Supply of Goods, Intra-State Supply of Services, Output Tax, Outward Supply, Place of						
Supply, Place of Business						
Unit-IV LEV	Y AND COLLEC	ΓΙΟΝ OF TAX		15 Hours		
Levy and collec	tion of tax- Input	Tax Credit - Registration - Tax I	nvoice, Ci	redit and Debit		
Notes- Returns	s - Furnishing det	ails of outward supplies - Furni	shing Det	ails of Inward		
Supplies - Levy of late fees - Special Exemption for Environment Protection Goods and						

Sei	rvices					
Un	it-V	PAYMENT OF TAX	15 Hours			
Payment of Tax - Payment of tax, interest, penalty and other amounts - Interest on Delayed Payment of Tax - Transfer of Input Tax Credit						
Bo 1.	oks for Indirect	Study: t Taxation (Goods and Services Tax and Customs Law). Balachandrar	v.: Sultan			
	Chand	& Sons				
2.	Indirect	t Tax Laws by V.S. Datey, K.M. Bansal, Mahesh Gour, Edition: 4th I nn's Cracker	Edition; 2021,			
3.	Indirect	t Taxation Containing GST & Customs By Mohammad Rafi, Bharath	Publications			
Bo	oks for	Reference:				
1.	Indirect	t Tax Laws by Dr.Vandana bangar, Dr.Yogendra Bangar, Aadhya Pral	kashan			
2.	Indirect	t Taxes by Dr. Jaya Vasudevan Suseela, Edition: 2019 - Eastern Book	Company			
3.	System Kluwer	atic Approach To Indirect Taxation by Dr Girish Ahuja And Dr Ravi	Gupta, Wolters			

SEMESTER – VI					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UACA6003	Core 17	COMPUTERIZED HUMAN RESOURCE MANAGEMENT	5	5	

Course Objectives

- 1. To familiarize with the basics of Human Resource Management.
- 2. To acquaint students with Human Resource Management Functions
- 3. To understand how to Evaluate and Improve Efficiency of Human Resources
- 4. To familiarize Enhancement, Movements and Accounting Methods of Human Resources
- 5. To acquaint with Various ICT Applications in HRM

Course Outcomes

- 1. Define Human Resource Management.
- 2. Describe the functions of Human Resource Management.
- 3. Discuss Evaluation of Human Resources.
- 4. Discuss Improvement of Human Resources.
- 5. Appraise Enhancement and Movements of Human Resources.
- 6. Appraise Accounting Methods of Human Resources.
- 7. Describe ICT Applications in Human Resource Management

INTRODUCTION TO HUMAN RESOURCE MANAGEMENT **15 Hours** Unit-I

Human Resource Management - Meaning and Definition - Features of Human Resource Management - Difference between Personnel Management and HRM- Environment of HRM - Global trends in HRM - Human Resource Information System (HRIS) - Gender Neutrality and HRM

Unit-II **FUNCTIONS OF HRM**

HRM Functions: Human Resource Planning - Recruitment - Selection - Placement - Job Analysis - Job Description - Recruitment Procedure of UPSC, SSC, RRB, TNPSC, TRB -Reservation Policies – Application of ICT in functions of HRM – Work from Home Policies

Unit-III	TRAINING AND DEVELOPMENT	15 Hours
Meaning of	f Training and Development - Training Methods - Techniques - Ider	ntification of
Training n	eeds - Induction - Training Methods in MNC - Training and Dev	elopment of
Women En	nployees – ICT in Training and Development	

Unit-IV	PERFORMANCE APPRAISAL & BENEFITS	15 Hours
	MANAGEMENT	

Performance Appraisal – Need for Appraisal – Methods – Performance Appraisal in MNCs – Computerized performance appraisal – Wages and Salary Administration - Fringe benefits – Payroll Softwares - Gender Neutrality in Performance Appraisal - Performance Appraisal in Foot Wear Industries of Tirupattur District

15 Hours

Unit-VENHANCEMENT, MOVEMENT AND HR ACCOUNTING15 HoursStress Maragement – Grievance Redressal – Career Development – Mentoring - Motivation –
Maslow's Theory of Motivation – Motivation Techniques in Foot Wear Industries - Transfer
– Promotion - Termination of Services – HR Accounting and Audit15 Hours

Books for Study:

- 1. Human resource Management Dr.C.D. Balaji Margham Publications Chennai
- 2. Personnel Management Dr.J.Jayasankar Margham Publications Chennai
- 3. Human Resource and Personnel Management Aswathappa Himalaya Publishing House – New Delhi
- 4. Human Resource Management Dr.S.S.Khanka S.Chand & Company Ltd New Delhi
- 5. Human resource Management P.Subba Rao Himalaya Publishing House- New Delhi

Books for Reference:

- A Framework for Human Resource Management Gary Dessler Pearson Education -New Delhi
- Personnel/Human Resource Management DeCenzo, D.A. and S.P. Robbins Pearson Education - New Delhi
- 3. Human Resource Management TN Chhabra, Dhanpat Rai & Co. New Delhi
- 4. Human Resource Management Ivancevich, John M McGraw Hill New Delhi
- 5. Human Resource Management Wreather and Davis -Pearson Education New Delhi

		SEMESTER – VI					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT			
UACA6004	Core 18	ENTREPRENEURSHIP IN	4	2			
Course Object	ives:	DIGITAL INDIA					
1. To acquaint with the Concept of Entrepreneurship							
2. To understand the Problems Faced by Women and Rural Entrepreneurs							
3. To Appraise Training Programmes for Entrepreneurs							
4. To Analyze	Various Business	Plans					
5. To Gain Kn	owledge of Variou	s Financial Institutions Supporting En	trepreneurs	5			
Course Outcon	nes:						
1. Describe the	e Concept of Entre	preneurship Development in India					
2. Discuss the	Growth and Proble	ems of Women and Rural Entrepreneu	rs				
3. Analyze Pha	ases and Evaluation	n of EDP					
4. Describe the	e Project Report an	d Project Life Cycle					
5. Illustrate the	e Functions of IDB	I, IFCI & IRDBI					
Unit-I INT	RODUCTION TO) ENTREPRENEURSHIP	12 Hou	rs			
Entrepreneur:	Meaning – Defini	tion - Characteristics - Functions -	Role of en	trepreneurs			
in the Econom	nic Development	- Classification of Entrepreneurs -	- Desirable	e Traits of			
Successful Entre	epreneur – Success	sful Entrepreneurs of Tamilnadu and T	Firupattur D	District			
Unit-II WO	MEN AND RURA	AL ENTREPRENEURS	12 Hou	rs			
Definition – Fu	inctions - Problem	is faced by women entrepreneurs – I	Limitations	of women			
entrepreneurship	p - growth of	women entrepreneurship in nation	al and sta	ate. Rural			
Entrepreneurs	: Meaning - Pro	blems of rural entrepreneurs - Ste	eps to pro	mote rural			
entrepreneurs -	NGOs and Rural I	Entrepreneurship					
Unit-III TR	AINING PROGR	RAMMES	12 H	ours			
Meaning - Need - Objectives - EDP Training Programme - Phases of Entrepreneurship							
Development programmes – Evaluation of EDPs – Problems of Entrepreneurship							
Development Pr	rogramme						
Unit-IV FOR	MULATION OF	BUSINESS PLANS & PROJECT	12 H	ours			
Meaning – Con	ntents of Busines	s Plan – Significance – Formulatio	n of Busin	ness Plan -			
Projects: Mea	aning - Classifica	tion of Project - Project Ideas Ger	neration Te	chniques -			
Feasibility Stud	y Report – Prepara	tion of Preliminary Project Report - P	roject Life	Cycle			

Unit-V DEVELOPMENT AND INSTITUTIONAL FINANCE OF 12 Hours ENTREPRENEURS 12 Hours

Entrepreneurial Development – Agencies – Commercial Banks – District Industries Centre – National Small Industries Corporation – Small Industries Development Organization – Small Industries Service Institute - All India Financial Institutions – Functions of IDBI – IFCI – IRDBI – MSME

Practical Assignment: Preparation of Project Report

Books for Study:

- 1. Khanka. S.S., "Entrepreneurial Development" S.Chand & Co. Ltd., Ram Nagar, New Delhi, 2013
- 2. Donald F Kuratko, "Entrepreneurship Theory, Process and Practice", 9th Edition, Cengage Learning 2014
- **3.** Jack M. Kaplan, "Patterns of Entrepreneurship", Jhon Wile & Sons (ASIA) Pte Ltd., Singapore, 2004
- **4.** E. Gordon & K. Natarajan, "Entrepreneurship Development" Himalaya Publishing House, New Delhi, 2012
- 5. Jayshree Suresh, "Entrepreneurial Development" Margham Publications, Chennai, 2016

Books for Reference:

- 1. Hisrich R D, Peters M P, "Entrepreneurship" 8th Edition, Tata McGraw-Hill, 2013
- **2.** Mathew J Manimala, "Entrepreneurship theory at cross roads: paradigms and praxis" 2nd Edition Dream tech, 2005.
- 3. Rajeev Roy, 'Entrepreneurship' 2nd Edition, Oxford University Press, 2011
- **4.** EDII "Faulty and External Experts A Hand Book for New Entrepreneurs Publishers: Entrepreneurship Development", Institute of India, Ahmadabad, 1986.
- 5. P.N.Sing Development Entrepreneurship for Economic Growth

SEMESTER – VI						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UACAPR6	1 Core Practical - 2	WEB DESIGNING FOR BUSINESS – LAB	5	5		
Course Obj	ectives					
1. To Demo	onstrate the Role o	f Languages like HTML & DHTMI				
2. To make the students familiar CSS, XML, JavaScript, ASP						
3. To make the students familiar with Dynamic Web Pages using JavaScript (Client Side						
Program	ning)					
4. To devel	op expertise in pro	ptocols for the workings of the Web	and Web App	plications		
5. To make	students proficien	t to Develop a Program using XML	•			
Course Out	comes					
1. Develop	web pages using H	HTML, DHTML and Cascading Sty	les Sheets.			
2. Develop	a Dynamic Web P	ages using JavaScript (Client Side I	Programming)		
3. Develop	an interactive web	applications using ASP.NET				
4. Build and	l Consume Web S	ervices				
5. Develop	a Program using X	XML				
F	Exercise No: 1			8 Hours		
Design a sim tags	ple HTML Web F	Page introducing you (Bio-Data), usi	ing various To	ext formatting		
E	xercise No: 2			8 Hours		
Design a Web page with Simple HTML which discuss your Hobbies, Goal etc., also use images						
E	xercise No: 3			8 Hours		
Create a HTML page, which has properly aligned paragraphs with image along with it						
E	xercise No: 4			8 Hours		
Create a Wel	o Page to display y	your Class Time Table using HTML	. Table Tags			
E	xercise No: 5			8 Hours		

	Exercise No: 6	7 Hours
Create	your own style sheets and use them in your web page	
	Exercise No: 7	7 Hours
Create scriptir	a form with various fields and appropriate front and v	validations using any one of the
	Exercise No: 8	7 Hours
Write a	a program to connect a XML web page to any Databas	se Engine
Create	Exercise No: 9	7 Hours
Create scriptir	Exercise No: 9 a form with various fields and appropriate front and v ng languages Exercise No: 10	7 Hours validations using any one of the 7 Hours
Create scriptir	Exercise No: 9 • a form with various fields and appropriate front and with various fields and appropriate front and with a languages • Exercise No: 10	7 Hours validations using any one of the 7 Hours
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	SEMESTER – VI					
COURS CODI	E COURSE	COURSE TITLE	HRS/WE EK	CREDIT		
UACAC	E61 Core Based Elective – 2	E-COMMERCE AND ITS APPLICATIONS	4	2		
Course O	bjectives	1	4			
1. To Ma	1. To Make the Students Acquaint with The Mechanisms of E-Commerce.					
2. To Make the Students Familiar with E-Commerce Models & Infrastructure.						
3. To Give Awareness On E-Security Issues & Solutions.						
4. To De	velop Expertise for C	onducting Business Transactions Throu	igh Electronic	e Means.		
5. To En	able Students the Unc	lerstanding of Online Business.				
Course O	utcomes					
1. Define	e concepts of E-Comp	nerce.				
2. Explai	in E-Commerce Mode	ls & Infrastructure				
3. Appra	ise E-Security Issues	& Solutions				
4 Demo	nstrate Conduct of Bu	siness Transactions Through Electronic	r Means			
5 Descri	be Online Business P	rocess	, means			
	loe Olline Dushiess I					
Unit-I	INTRODUCTION	TO ECOMMERCE	12 H	Iours		
Introducti	on to E-commerce – I	Features of E-Commerce - Evolution of	E-Commerce	e Application		
- Process	of E-commerce – Diff	Ference between E-Commerce & Tradit	ional Comme	rce		
Unit-II	E-COMMERCE B	USINESS MODELS AND	12 H	Iours		
	INFRASTRUCTU	RE				
E-	commerce Business I	Models - Business Models in Emerging	g E-commerc	e Areas – E-		
Commerc	e Infrastructure - Str	ucture and Process - The Internet - 7	J Fechnology E	Background -		
Internet T	odav		65	U		
	5					
Unit-III	SECURITY AND I	ENCRYPTION	12 H	Iours		
The E-Co	mmerce Security Env	vironment: Need - Definition and Scop	e of E-Securi	ity - Security		
Threats in the E-Commerce Environment - Technology Solutions Encryption - Security						
Channels of Communication- Protecting Networks and Protecting Servers and Clients						
Unit-IV	E - PAYMENT SY	STEM	12 H	Iours		
Models and Methods of E-Payments: Debit Card- Credit Card - Smart Cards - E-Money -						
Digital Signatures: Procedure - Working and Legal Position - Payment Gateways- Online						
Banking: Meaning- Concepts- Importance - Electronic Fund Transfer - Automated Clearing						
House- A	utomated Ledger Post	ing - Risks Involved in E-Payments				

Unit-V ON-LINE BUSINESS TRANSACTIONS

12 Hours

Online Business - Purpose- E-Commerce Applications in Banking - Insurance - Payment Of Utility Bills - Online Marketing - E-Tailing – Auctions - Online Portal - Online Learning-Publishing And Entertainment – OTT - Online Shopping (Amazon, Snapdeal, Alibaba, Flipkart)

Books for Study:

- 1. E-Commerce Kenneth C. Laudon and Carlo Guercio Traver, Pearson Education, New Delhi.
- **2.** E-commerce: Strategy, Technology and Applications David Whiteley, McGraw Hill Education, New Delhi.
- **3.** Electronic Commerce: Framework, Technology and Application Bharat Bhaskar, McGraw Hill Education, New Delhi.
- 4. E-commerce Dr. K. Abirami Devi & Dr. M. Alagammai, Margham Publications, Chennai.
- 5. Fundamentals of E-Commerce Dr. Shivani Arora, Taxmanns Publication, Chennai.

Books for Reference:

- 1. E-Commerce: An Indian Perspective PT Joseph, PHI Learning, New Delhi.
- 2. E-commerce KK Bajaj and Debjani Nag, McGraw Hill Education, New Delhi.
- 3. E-Commerce TN Chhabra, Dhanpat Rai Books, New Delhi.
- 4. E-Commerce Sushila Madan, Taxmann, Chennai.
- 5. E-Commerce C. V.S Murthy Himalaya Publishing House, Mumbai.

COURSE CODECOURSECOURSE TITLEHRS/ WEEKCREDITUACACE2Core Based Elective - 2INTERNATIONAL BUSINESS42Course Objective - 2Intransional Business.1. To Make the Students Acquaint with Basics of International Business.2. To Make the Students Acquaint with Basics of International Business.2. To Make the Students Familiar with International Trade3. To Give Awareness on International Finance.4. To Familiarize the Operations of International Business & Trade.5. To Understant the Contribution of India in International Trade & Business.Explain International Finance.1. Introduction to International Business.2. Explain International Finance.A Describe Operations of International Business & Trade.S. Explain International Finance.A Describe Operations of International Business & Trade.S. Enumerate Contribution of India in International Trade & Business.Introduction To International Business & Trade.S. Enumerate Contribution of India in International Trade & Business.Introduction To International Business & Trade.Introduction To International Business - Impact of Globalization – Comparison of International Business with Domestic Business - Modes of Entry into International Business. International Business Environment - Global Trading Environment – Recent Trends World Trade - Trends in India's Foreign Trade.							
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Business Environment - Global Trading Environment – Recent Trends World Trade - Trends in India's Foreign Trade.							
India's Foreign Trade.							
Unit-II INTERNATIONAL TRADE AND ORGANIZATIONS 12 Hours							
International Trade - Commercial Policy Instructions - Balance of Payment Account and Its							
Components - International Organizations and Arrangements - WTO - UNCTAD - WORLD							
BANK – IMF - ADB.							
Unit-IIIINTERNATIONAL FINANCE12 Hours							
Regional Economic Co-Operation - Forms of Regional Groupings - International Financial							
Environment - International Financial System and Institutions - Foreign Exchange Markets and							
Risk Management - Foreign Investments - Types and Flows - Foreign Investment in Indian							
Perspective; FDI – FII.							
Unit-IV INTERNATIONAL BUSINESS OPERATIONS 12 Hours							
Organizational Structure for International Business Operations - Key Issues Involved in Making							
International Production, Finance Marketing, And Human Resource Decisions - Developments							
and Issues in International Business - Outsourcing and Its Potentials for India - Role of IT In							

International Business

Unit-VINTERNATIONAL BUSINESS AND INDIA12 Hours

International Business and Ecological Considerations - Foreign Trade Promotion Measures In India - And Foreign Trade Promotion Organizations In India - Special Economic Zones (SEZS) And 100% Export Oriented Units (EOUS) - Measures For Promoting Foreign Investments In India - Financing Foreign Trade And Payment Terms

Books for Study.

- 1. International Business Sonia Gupta, McGraw-Hill Education, New Delhi
- 2. Fundamentals Of International Business –Sumati Varma Pearson Education, Noida
- 3. International Business Nidhi Gautham, Vayu Education of India, New Delhi
- 4. International Business & Environment Dr. S. Sankaran, Margham Publications, Chennai
- 5. International Business Dr. R. Chandran, Jaico Publishing House, Chennai

Books for Reference.

- 1. International Business Charles W. L. Hill, G.Tomas M.Hult, Rohit Mehtani, Mcgraw Hill Education, New Delhi
- 2. International Business C.B. Gupta, S Chand & Co Ltd, New Delhi
- 3. International Business Aswathappa K, Mcgraw-Hill Education, New Delhi
- 4. International Business Mangemnt F.L. Bascunan, Global Academic Publishers, New Delhi
- International Business Mangemnt N Venkateswaran New Age International Publishers, Chennai

COURSE CODECOURSECOURSE TITLEHRS/ WEEKCREDIUACASE61Skill Based Elective - 2QUANTITATIVE TECHNIQUES21Course Objectives1. To make students acquaint with basic Data Interpretation Skills							
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2. To familiarize students with Permutations and Combinations							
3. To make students understand sets and Venn Diagrams							
1. Interpret results from various types of data							
2. Compute share of profit and amount of investment in partnerships							
5. Calculate Simple and Compound Interest							
Unit-1 DATA INTERPRETATION & COMPREHENSION 6 Hours							
Sources and Classification of data – Data and Governance – Tabulation – Meaning, Types of							
tabulation – Graphical Representation: Bar and Line Graph – Pie Chart – Paragraph							
Comprehensive							
Unit-II PARTNERSHIP 6 Hours							
Basic Concepts – Problems in Share of Profit – Total Profit – Amount of Investment – Duration							
Of Investment							
Unit-IIIPERMUTATION AND COMBINATIONS6 Hours							
Permutation and Combinations- Pipes and Cisterns- Points, Lines and Angles - Probability -							
Profit and Loss – Progressions - Quadratic Equations							
Unit-IV SETS AND SIMPLIFICATION 6 Hours							
Sets and Venn Diagrams - Simplification and Approximation - Data Sufficiency – Surds –							
Indices Exponents, and Powers							
Unit-V SIMPLE AND COMPOUND INTEREST 6 Hours							
Concept of Simple and Compound Interest- computation of Simple and Compound Interest							
problems on Stocks and Shares							
(Ratio of Problems and Theory = 60% : 40%)							
(Ratio of Problems and Theory = 60% : 40%) Books for Study:							
(Ratio of Problems and Theory = 60% : 40%) Books for Study: 1. R.S. Aggarwal - "Quantitative Aptitude for competitive examinations" - seventh revis							
 (Ratio of Problems and Theory = 60% : 40%) Books for Study: 1. R.S. Aggarwal - "Quantitative Aptitude for competitive examinations" - seventh revise edition - S.Chand and Co Ltd - New Delhi -2005. 							
 (Ratio of Problems and Theory = 60% : 40%) Books for Study: 1. R.S. Aggarwal - "Quantitative Aptitude for competitive examinations" - seventh revise edition - S.Chand and Co Ltd - New Delhi -2005. 2. Essentials of Quantitative Aptitude, Tutors and Mentors, Vijay Nicole Imprints 							

Books for Reference:

- 1. Barron's Guide for GMAT Galgotia publications New Delhi -2006
- 2. Quantum CAT by Sarvesh K Verma

SEMESTER – VI							
COURS CODE	COURSE		COURSE TITLE	HRS/ WEEK	CREDIT		
UACASI	E62 Skilled Base Elective – 2	d BASI	C MOBILE COMPUTING	2	1		
Course Objectives							
 To Understand the Basic Concepts of Mobile Computing To Learn the Basics of Mobile Telecommunication System To Be Familiar with the Network Layer Protocols and Ad-Hoc networks To Know the basis of Transport and Application Layer Protocols To Gain Knowledge about Different Mobile Platforms And Application Development 							
Course Outcomes							
 Describe the Concept of Mobile Computing Explain the Platforms and Protocols Used in Mobile Environment Develop New Ad Hoc Network Applications And / Or Algorithms / Protocols Discuss Mobile Platforms and Applications, Develop any Existing Or New Protocol Related to Mobile Environment 							
Unit-I WIRELESS COMMUNICATION FUNDAMENTALS					06 Hours		
Introduction to Mobile Computing – Applications of Mobile Computing- Generations of Mobile Communication Technologies- Multiplexing – Spread spectrum -MAC Protocols –SDMA- TDMA- FDMA- CDMA							
Unit-II	TELECOMMUNI	CATION N	ETWORKS & WIRLESS L	AN	06 Hours		
Introduction to Cellular Systems - GSM - Services & Architecture - Protocols - Connection							
Establishment - Frequency Allocation - Routing - Mobility Management - Security - GPRS -							
UMTS – Architecture – Handover – Security							
Unit-III	MOBILE NETWO	RK LAYEI	R		06 Hours		
Mobile IP – DHCP – Ad-Hoc– Proactive protocol-DSDV, Reactive Routing Protocols – DSR,							
AODV, Hybrid routing –ZRP - Multicast Routing – ODMRP - Vehicular Ad Hoc Networks (VANET) – MANET Vs VANET – Security

Unit-IVMOBILE TRANSPORT AND APPLICATION LAYER06 HoursMobile TCP- WAP - Architecture - WDP - WTLS - WTP - WSP - WAE - WTAArchitecture- WML- WML

Unit-V MOBILE PLATFORMS AND APPLICATIONS

06 Hours

Mobile Device Operating Systems – Special Constraints & Requirements – Commercial Mobile Operating Systems – Software Development Kit: iOS, Android, BlackBerry, Windows Phone – M-Commerce – Structure – Pros & Cons – Mobile Payment System – Security Issues

Books for Study:

- 1. Mobile Computing P.Rizwan Ahmed Margham Publications (1 January 2014) ISBN 9381430837
- 2. "Wireless Communications and Networks" William Stallings, Pearson Education, 2002.
- 3. "Mobile Computing", . Asoke K. Talukdar, Tata McGraw-Hill Education, 2010

Books for Reference:

- 1. Mohammad Ilyas, Imad Mahgoub," Mobile Computing Handbook", AUERBACH, 2004.
- 2. Vilas S. Bagad, "Mobile Computing Introduction", Technical Publications, 2014
- 3. DR SANJAY Sharma, "Mobile Computing", S.K. Kataria & Sons Publication, 2014.
- 4. Dr. Ashish N.Jani, Dr. N.N. Jani, Neeta Kanabar," Mobile Computing Technologies

DEPARTMENT OF B.Com [FINANCE & ACCOUNTS] 15TH BOS APPROVED UG SYLLABI FOR

V & VI SEMESTERS

	V SEMESTER		
Course Cod	le Course Title	LT	C
UAFA5001	I INCOME TAX LAW & PRACTICE – I	5 -	5
Instructiona	al Objectives		
1. To gain ba	asics of income tax Act.		
2. To know t	the income calculation under head salary.		
3. To find ou	at the income under house property.		
4. To gain th	e knowledge on the income from business or profession		
5. To get a c	omprehensive knowledge on depreciation and its calculation.		
Course Out	come-		
CO1 Stud	dents learn about the fundamentals of Income tax and its terminologies		
CO2 Kno	wing how to calculate the income under the head Salary.		
CO3 Lear	rning the way of calculating income under the head House property.		
CO4 Con	nprehensive knowledge on the allowable and disallowable expenses and r	provisi	ions
relat	ting to income from business and profession		
CO5 Gain	ning the knowledge the depreciation concept under income Tax Act 1961		
Unit-I	Basic concent of Income Tax	5 Hou	rc
Basic Co	procepts of Income tax- Meaning of Tax – Definition of Tax – Kinds	of T	15 9X-
Assessme	ent Year – Previous Year – Persons – Assesses – Scope of Ir	ncome	u
Determin	ation of Residential Status – Individual – HUF – Relationship	betwo	een
Residenti	al Status of person -Incidence of Tax- Income from Agriculture-	Inco	me
exempted	l from Income Tax. (Theory only)		
Unit-II	Income from Salary 2	0 Hot	irs
Meaning	of Salary– Characteristics of Salary Income – Basic Allowances – Perc	uisite	s –
Profits in	Lieu of Salary – Deductions allowable under salary– Treatment of F	Provid	ent
Funds – D	Deduction under Section 80C- Exempted income from Salary.		
Unit-III	Income from House Property 1	5 Ho ı	ırs
Income	under the head income from House Property and its Computation -	Basis	of
Charge –	- Exemption – Annual Value – Self-occupied and Let-out House P	roper	ty–
Deduction	ns u/s 24.	-	•
Unit-IV	Income from Business or Profession	15H01	ırs
Meaning	-Computation of Income under the head Business or Profession - Basic o	f Cha	rge
– Specific	c Deduction - General Deductions - Allowable- Disallowable Expenses-	Deen	ned
Income			
Unit-V l	Depreciation	10Hoi	urs
Concept of	of Depreciation – Meaning and Definition- Depreciation Provisions –	U/s-32	2 –
Condition	is for Claiming Depreciation – Block of Assets – Computation of	Norr	nal
Depreciat	ion – Additional Depreciation – Conditions and Rates of Depreciation –	Mean	ing
of Actual	Cost – Unabsorbed Depreciation – Terminal Depreciation – Balancing	, Char	ge.
(Simple p	problem only)		
	Note- Weightage of Marks- Theory 20% and Problems 80%		
Books for St	tudv-		
1.Gaur and N	Narang- "Income Tax Law and Practice"- Kalvani Publishers- New Delhi		
2. T.S Reddy	v & Hari Prasad Reddy-"Income Tax Theory Law & Practice"- Margham		
Publication-	Chennai.		
3 T Srinivas	san- "Income Tax Theory I aw & Practice"- Vijay Nicole Private I imited	_	

3. T.Srinivasan- "Income Tax Theory Law & Practice"- Vijay Nicole Private Limited-Chennai.

4. Anita Raman- "Income Tax Theory Law & Practice"- Mc Graw Hill- New Delhi.
5. Dr.A.Murthy- "Income Tax Law and practice"- Vijay Nicole imprint Private Limited-Chennai.

Books for Reference-

1.Usha Devi-Bhaskera B.G- "Income Tax-I"- Vision Book House- Bangalore.

2. Dr.Vinod K Singhania- Dr.Monica Singhania- "Taxmann students' guide to Income Tax"-Taxmann Publication Pvt Ltd.

3. Chandra Mahesh & Shukla D.C "Income Tax Law & Practice"- Pragathi Publication-Delhi.

4. Dr. Agarwal B.K & Dr. Rajeev Agarwal "Income tax Law & Accounts" Nirupam Sahitya Sadan - New Delhi.

5. Dr.Mehrotra D.C & Dr.Goyal S.P "Income Tax Law And Practice"-Sahitya Bhavan Publications- New Delhi.

Course	e Code	Course Title	L	T C
UAFA	5002	COST ACCOUNTING - I	5	- 5
Instruc	ctional (Objectives		
1. 7	Fo gain	knowledge of basic concepts and techniques of cost accounting.		
2.	Fo enabl	e them to understand cost component		
3.	Fo know	about computations of pricing material.		
4.	Го impa	rt the knowledge of labour cost management system.		
5.	To analy	vse the various overheads cost.		
Course		me-	1 1	
COI	It enna	inces student's knowledge on Basic concepts in Cost Accounting and	i knov	vs now
~ ~ ~	to diffe	erentiate the financial accounting from cost accounting.	. – –	
CO2	This u	nit will make students become familiar with cost components such as	S ABC	2 and
	EOQ.			
CO3	Studer	its are taught how to compute price the materials under various method	ods su	ich as
	FIFO-	LIFO- Simple and Weighted Average Methods.		
CO4	Studen	ts will get to know about how to calculate labour turnover- idle time	and	
	overtir	ne. This enables the students apply various plans in order to calculate	e earn	ings of
	wages			
CO5	It desc	ribes about all overhead namely allocation- absorption and Apportion	nment	t of
	overhe	ad cost.		
Unit-I	Bas	ic concept of Cost Accounting	8 Ho	nrs
Intro	oduction	- Cost Accounting – Nature and Scope – Objectives- Advar	ntages	and
Lim	itations	- Cost Concepts and Classification Financial Vs Cost Accounting –	- Eler	nents
of C	lost – Pr	eparation of Cost Sheets and Quotation.		
Unit-Il	[Inv	entory Control 1	0 Hoi	urs
Inve	entory C	ontrol – ABC Technique – Minimum level- Maximum level- Reorde	er leve	and
Ave	rage sto	ck level - EOQ – Perpetual Inventory System.		
Unit-Il	I Prie	cing of Materials 1	5 Ho	urs
Pric	ing of N	Iaterials - Methods of Pricing of Material Issues - FIFO – LIFO – S	Simpl	e and
Wei	ghted A	verage Method – Accounting for Material Losses.		
Unit-I	V Lat	bour Cost	7 Ho	urs
Labo	Diago	bour Turnover – Idle and Overtime – Remuneration and Incentives –	Time	Rate
and	Piece .	ef Earning of Workers	n Pla	uns –
Unit_V		or Earling of Workers.	5 Ho	urc
Overhe	ad - Cla	ussification of Overhead Costs – Allocation- Absorption and Apport	ionme	ent of
Overhe	ad Cost	– Primary and Secondary Distribution of Overheads.		
		Note Weightage of Marks, Theory 20% and Problems 80%		
		Note- weightage of Marks- Theory 20% and Froblems 80%		
Books	for Stuc	ly-		
1.T.S.R	Reddy ai	nd Hari Prasad Reddy- "Cost Accounting"- Margham Publication	- Che	nnai-
2016.				
2.Nirm	al Gupta	a- "Cost Accounting"- Ane Books Pvt.Ltd -2017		
3. S.P.	Jain and	Narang "Cost Accounting"- Kalyani Banglore-2012.		
4. A. M	lurthy- '	Cost Accounting" Vijay Nicole Imprints- Chennai2018		

5.Rayudu- "Cost Accounting" Tata McGraw Hill- New Delhi-2018

Books for Reference-

1. T.S.P. Iyengar- "Cost Accounting"- Sultan Chand & Sons- New Delhi-2015.

2. Shukla-Grawal & Gupta-"Cost Accounting"- S.Chand & Co Pvt ltd-- New Delhi-2013.

R.S.N. Pillai- "Cost Accounting" S Chand Publishing- New Delhi-2015
 M.N. Arora- "Cost Accounting" Vikas Publishing House- NewDelhi.-2014

5.S. Thothadhitri- S. Nafeesa and R.B.S. A. Jalaludheen"Cost Accounting" Tata McGraw

Hill- Delhi-2018.

Course Code	Course Title	L	Τ	C
UAFA5003	MANAGEMENT ACCOUNTING	5	-	5
Instructional	Objectives			
1. To make	the students to understand the concept of management accounting.			
2. To know	about the calculation of ratio analysis and its significance.			
3. To famil	iarise the fund flow analysis.			
4. To know	the importance of cash flow analysis.			
5. To gain	the knowledge about budget and budgetary control.			
Course Outco	ome-			
CO1 Stude	ents familiarize the concepts of management accounts and its technique	es.		
CO2 Fami	liarized the importance of ratio analysis in business.			
CO3 Stude	ent attains expertise about the fund flow analysis.			
CO4 Gain	knowledge on calculation of cash flow analysis.			
CO5 Com	prehend the preparation of budget and budgetary control techniques.			
Unit_I	Financial Statement Analysis	10 H	0111	•6
Introductio	n - Management Accounting - Meaning - Definition - Objectives -	10 11 . Nati	ure	5 &
Scope – A	1 - Management Accounting – Meaning – Definition - Objectives – dvantages & Limitations – Management Accounting vs. Financial Acc	count	uic ting	α
Manageme	$\Delta c_{countings}$ vs. C_{ost} $\Delta c_{counting}$ – Financial statement a	nalv	ung cic	· _
Comparativ	we and common size statements – Trend analysis	inary	515	
Unit-II	Ratio Analysis	20 H	our	'S
Ratio Ana	lysis-Meanings- Significance- Advantages and Limitations- Types	of I	₹ati	0-
Liquidity	Ratio – Solvency Ratio - Profitability Ratio - Turnover Ratio –	Fina	anci	ial
Ratio.(Bala	ince Sheet) (Simple Problem only)			
Unit-III	Fund Flow Statement	15 H	lou	rs
Meaning -	Need – Importance- objectives- Advantages and Limitations – Steps	to pr	epa	ire
Fund Flow	Statement – Preparation of Funds Flow Statement.	1	1	
Unit-IV	Cash Flow Statement	20 H	our	`S
Meaning -	Objectives - Scope - needs- Funds Flow Statement Vs Cash Flow S	tatem	ient	; —
Steps to pr	epare Cash Flow Statement - Preparation of Cash Flow Statement as	per	AS	-3
(Indirect M	lethod).			
Unit-V	Budget and Budgetary Control	10 H	our	°S
Budget and	l Budgetary Control – Objectives - Advantages and Limitations – Cla	ssific	catio	on
of Budgets	- Zero Based Budget - Production Budget - Cash Budget - Preparation	on of	Sal	es
Budget-F	exible Budget.			
	Note- Weightage of Marks- Theory 20% and Problems 80%			
Books for Stu	ıdv-			
1. S.Reddy &	Y.Hari Prasad Reddy- "Management Accounting"- Margham Publicat	ions-	_	
Chennai-2016				
2. A.Murthy	S.Gurusamy- "Management Accounting Theory & Practice"- Vij	ay N	Jico	ole
Publications-	Chennai- 2018			
3. K.Gupta &	R.K. Sharma Neeti Gupta- "Management Accounting"- Kalyani publi	shers	-	
2019				
4. Pillai Baga	wathi- "Management Accounting"- Sultan Chand & Co- New Delhi-20)10.		
5. Muniraju K	.Ramachandra "Management Accounting"- Himalaya publishing He	ouse-	Ne	W
Delhi-2018				
Books for Re	ference-			

1. S.Reddy & Y.Hari Prasad Reddy- "Cost and Management Accounting"- Margham Publications- Chennai-2016.

2. S.N. Maheswari- "Management Accounting"- Sultan Chand & Sons- New Delhi-2015.

3. Agarwal- "Management Accounting"- G.P Publishers- Jaipur-2014.

4. M.Y. Khan P.K. Jain- "Management Accounting"- Tata McGraw Hill Publishers- New Delhi.

5. T.P. Ghosh- Management Accounting- Excel Books Publishers- Thrissur-2003

Course Code		Course Title	L	Τ	С
UAFA	15004	HUMAN RESOURCE MANAGEMENT	4	-	2
Instru	ctional (Objectives			
1. '	To gain	knowledge of basic concepts and techniques on Human Resource Ma	nage	mer	it.
2. "	To famil	iarise job analysis- recruitment and steps involved in selection proces	s.		
3. '	To know	the significance- purpose- types- techniques of employee training			
4. '	To get a	comprehensive knowledge on different methods of performance appr	aisal		
5. '	To impa	rt dynamics of industrial relations and to manage them			
Course	e Outco	me-			
C01	Comp	rehend human resource management function and issues to tackle evo	lving	τ	
	challer	nges	-		
CO2	Under	stand the job analysis- process of recruitment and steps in selection p	roces	SS	
CO3 Craft policies to acquire- develop- motivate and retain human resources by training					
CO4	Perfor	mance appraisal of employees to fix pay- compensation- profit sharing	ig - f	ring	e
	benefi	ts etc.	C	U	
CO5	Appre	ciate the dynamics of industrial relations and to manage them i.e ma	inta	nin	g
	and ret	taining process			_
Unit-I	J	ntroduction 12	2 Ho	urs	
Natı	are of l	Human Resources Management - Concept – Characteristics – O	bjec	tive	s —
Imp	ortance	- Functions and Scope- Qualities of Human Resource Manager- Role	e of	Hun	nan
Res	ource M	anager- Characteristics.			
Unit-I	[]	Recruitment and Selection Process 16	6 Ho	urs	
Hun	nan Res	ource Planning – Objectives – Need and Importance – Job Analy	sis a	nd	Job
desi	gn – Re	cruitment and Selection- Process of recruitment – Sources – Steps	in se	elect	ion
proc	ess – Te	esting – Interviewing – Placement – Induction – Socialization.			
Unit-I	II Tra	aining & Development 10	6 Ho	urs	
Emp	oloyee T	raining – Need – Importance – Types of Training – Objectives –	Met	hod	s –
Exe	cutive de	evelopment- Objectives and importance – Methods and techniques.			
Unit-I	V I	Performance Appraisal 10	5 Ho	urs	
Mea	ning of	Performance Appraisal- Managing Performance and Compensation-	App	raisa	al —
Met	hods –	Problems – establishing pay plans – Basics of Compensation	_	Fact	ors
dete	rmining	the pay rate - Current trends in Compensation - Concept of prof.	it sh	arin	g –
Frin	ge benet	fits.			-
Unit-V		Retaining Process 1	5 Ho	urs	
Mai	ntaining	and Retaining of Human Resource - Concept of transfer - Pro-	moti	on a	and
Den	notion -	- Absenteeism and Labour turnover - Causes of absenteeism -	Eff	ects	of
abse	enteeism	- Causes of labour turnover - Work Environment - Fatigue - Mo	noto	ny a	and
Bore	edom – (Causes and Effects.		-	
Books	for Stu	ly-			
1.J.Jay	asankar	"Human Resource Management"- Margham Publications- Chennai-20	016.		
2. J.N.J	lain "Hu	man Resource Management"- Regal Publications- Kottayam-2011.			
3. S.K	Bhatia ''	Human Resource Management"- Deep & Deep Publications- New De	elhi-	201	0.
4. S.P.	Singh "I	Human Resource Management"A.I.T.B.S Publishers- New Delhi-20)18.		
5. <u>T.N</u>	. Chhab	ra& Monica S. Chhabra "Human Resource Management"- Chennai-20)14.		
Books	for Ref	erence-			
1. Asw	athappa	- "Human Resource and Personnel Management"- TATA McGraw	Hill	5- N	lew
Dell	ni-2009.				

2. Dr.S.S.Khanka- "Human Resource Management"- S.Chand & Company- New Delhi-2015.

3. L M Prasaad- "Human Resource Management"- S Chand & Co.- New Delhi.2014.

4. P.G Aquinas "Human Resource Management"- Vikas Publishing House Pvt Ltd- 2006.

5. Biju Varrkey & Deddler Gary "Human Resource Management"- Pearson- New Delhi-2017

Course Code	Course Title	L	T C
UAFAPR51	COMPUTERISED ACCOUNTING SYSTEM - TALLY	5	- 5
Instructional (Dbjectives		
1. To enhance	the skills for accounting transactions using computerized accounting	syste	em.
2. To handle t	he day to day business transactions- recording the tax transactions and	d skil	ls to
create and i	nake various accounting reports.		
3. To carry			
outverificat	ion and auditactivities for the voucher entries passed in computerized account of the second secon	inting	g
system.			
Course Outco	me-		
CO1 Under	standComputerizedAccountingSystem environment		
CO2 Create	structure of Computerized Accounting System for a business firm		
CO3 Record	l dayto daybusiness transactions in Computerized AccountingSystem		
CO4 Maker	ecessarytaxadjustmentswhilerecordingbusinesstransactionsandtogene	eratev	arious
Accou	ntingReports for analysis and decision making		
CO5 Perfor	nverificationandauditactivitiesforthevoucherentriespassedincomputer	rized	
accour	itingenvironment.		
Unit-I Int	roduction	10 H	ours
Computerised	Accounting Systems-BasicsofComputerised accounting	syster	ms-
Differencebetw	een manual and computerized Accounting system- factors affecting	select	ion
of suitableCo	mputerised accounting software- Procurement and installa	tion	of
Computerised a	accountingsoftware.		
Using any pop	pular accounting software- Create- Select- shut- and delete a Co	ompa	ny-
settingsecurity	features of company- Date and Period features- Configure and	Featu	ires
settings- Backu	pand Restoredata of aCompany.		-
Unit-II Cre	ation of Ledgers & Inventories	20 H	ours
Creating Accou	inting Ledgers and Groups- Single Create Vs. Multiple Create- creater	ting	
ledgerundera g	roupand enteringopeningbalance		
Creating Stock	a Items and Groups- Creating Unit of Measurement- creating S	tock	
Groups usingS	ingle or multiple create feature under an existing group- creating S	tock	
items using Sin	gle ormultiplefeatureunder anexistinggroup-		
Unit-III Voi	icherEntry	<u>15 H</u>	ours
Types of vouch	ers- selection of voucher type for transactions- Vouchers Entry- Vou	cher	
Rumberanddala	esettings-voucherentrywithmorethanonedebitor creditaccounts-		
Linit IV Tox	ungavoucher-Printingol Voucher and Cheque.	2011	
Tavation-Acco	untingforTay Deducted at Source, Tay Collected at Source	40 Π	UUI'S
andGoodsandS	erviceTax		
GeneratingRe	norts-CashBook-LedgerAccounts-TrialBalance-ProfitandLossAccou	nt-	
Scheraunght	ports cushbook ledger recounts marbalance-i romandLossAccou	110	

BalanceS	neet-Funds Flow Statement-Cash FlowStatement	
Unit-V	Auditing	10Hours
Auditingi	nComputerizedAccountingsystem-StatutoryAudit-Voucherverification-	
Verificati	onof related partytransaction- CAAT (Computer Assisted Audit	Techniques)-
Various T	ools.	
Books for	: Study-	
1. S. Palan	ivel- Tally - Accounting Software- Margham Publications- Chennai-20	17.
2. Dr.P.R	izwan Ahmed- "Tally ERP 9"- Margham Publication- 2018.	
3. Nadhar	ii- Ashok.K- Tally ERP 9 TrainingGuide- BPB Publications- New Delh	i.
4. TallyER	P9bookadvanceduser-SwayamPublication(www.tallyerp9book.com)	D
5. Dr. E. I	Mubark Ali and Mohamed Hakkim - Computer Applications in Busines	s- Print
House Pu	blications.	
Doolra for	• Deference	
$\frac{1}{1} Dr S V$	/ Scinivasa Vallabhan - Computer Applications in Business- Sultan Ch	and- New
Dolhi	· . Shin vasa vanaonan - Computer Applications in Dusiness- Sultan Ch	
		. 7 • 1
2. Alexis	Leon and Mathews Leon by Fundamentals of Information Technology.	Vikas
Publishing	g Company- New Delhi.	
3.Deepak	Bharihoke- Fundamentals of Information Technology- Excel Publication	ons- New
Delhi.		
4. Hem C	hand Jain & H.N.Tawari"- Fundamentals Computer Applications in Bu	siness-
Taxamanı	n's Publication- Odisha2016	
5. Garg an	nd Venkitakrishnan- "ERP- Concepts and Practices"- Prentice Hall- Nev	w Delhi.

Course Code	Course Title	L	Τ	С
UAFACE51	MARKETING MANAGEMENT	4	-	2
Instructional (Objectives			
1. To gain	the knowledge of basic concept of Marketing and its techniques.			
2. To under	rstand the Market Segmentation & Consumer Behaviour and its the	ories.		
3. To obtai	n knowledge on Product Planning and Product Life Cycle.			
4. To know	the concept of pricing and various methods of Promotions.			
5. To expan	nd the knowledge on choice of Channels of Distribution.			
Course Outco	me-			
CO1 Unders	stand the marketing concepts and its environment.			
CO2 Expos	ure on segmentations and consumer behaviour and its theories.			
CO3 Acquin	e knowledge on product planning and product life cycle.			
CO4 Under	stand the concept of pricing and various methods of promotions.			
CO5 Gain th	ne knowledge on choice of channels of distribution.			
Unit-I I	ntroduction to Marketing	10 Ho	urs	
Nature- Scope	and Importance of marketing- Evolution- Types of Market- Ma	rketin	g M	lix-
Marketing Env	ironment – Macro and Micro Environment.			
Unit-II N	Market Segmentation & Consumer Behaviour	10 Ho	urs	
Market Segme	ntation- Benefits- Basis- Types- Consumer behaviour – Consu	ımer	Buy	ing
Motives- Theor	ries of Consumer Behaviour.		·	Ŭ
Unit-III l	Product	15 Ho	urs	
Meaning- Impo	ortance- Product Classification- Product Mix- Product line and item	s- Ex	pans	ion
of Product Mi	x- Positioning the Product- Product Life Cycle- Product Manag	emen	t- N	lew
product develo	pment- Product differentiation- Product Deletion.	,		
Unit-IV	Pricing and Promotion	15 Ho	urs	
Meaning- Imp	ortance- Significance of pricing in marketing - Factors affec	ting t	orici	ng-
objectives of 1	pricing policies- Pricing decision- Kinds- procedure for price d	etermi	inati	on-
Resale price m	aintenance- Nature and importance of promotion- promotion tool	s- Pro	mot	ion
Mix- Consume	r sales promotion. Advertising. Types. Advertising media.	vantac	TEC .	and
diadvantagas	A duartising agonau Eurotions Dersonal Solling Kinds		,co a	an
Channed an intiges-	Advertising agency – Functions- Fersonal Sennig – Kinds	JI Sal	esm	en-
Characteristics	- Selling as a career.			
Unit-V (Channels of Distribution	<u>10 Ho</u>	urs	
Meaning- Imp	ortance- Types- Factors affecting choice of distribution of chanr	els- I	Logi	stic
Management –	Role of Logistic in organisation- Functions of Logistic system- Log	stic P	lann	ing
Books for Stud	ly-			
1. R.S.N Pillai a	nd Bagavathi- "Modern Marketing"- S.Chand & Company- New D	elhi-2	014.	
2. Philip Kotler	- "Marketing Management"- Prentice Hall- New Delhi-2012			
3. C.C.Sontakk	i- "Marketing"- Kalyani Publishers- Bangellur-2010.			
4. Dr. J.Jayasar	ikaran- "Margham Publications"- Chennai-2016.			
5. Stonton- Etz	el and Walker- "Fundamentals of Marketing"- Tata McGraw Hill- N	lew D	elhi	
Books for Ref	erence-			
1.Dr.N.Rajanna	ur & Sanjith R.Nair "Marketing"- Sultan Chand & Sons- New Delh	1-2018	; • • • •	
2. Philip Kotler	- Garry Armstrong "Principles of Marketing"- Prentice Hall- New I	Jelhi-2	2011	L
5. Dr.L.Nataraj	an "Marketing" - Margham Publications- Chennai-2016.	07		
4. Sexana and I	kajan- "Marketing Management"-Tata McGraw Hill- New Delhi-20	07.		

5. Nandi S.K and Ganapathi "Logistic Management"- Oxford University Press- New Delhi-2015.

Course Code	Course Title	L	Τ	С
UAFACE52	PROJECT MANAGEMENT	4	-	2
Instructional (Objectives			
1. To enable	the students to evolve a suitable framework for the preparation- appr	aisal	-	
Monitoring	and control of industrial projects.			
Course Outco	me-			
CO1 Famili	arize with the concept of project management and its attributes			
CO2 Under	standproject planningand projectanalysis			
CO3 Perfor	mprojectappraisal.			
CO4 Exami	neprojectriskandconductperformance			
assessi	mentandqualitymanagementoftheproject			
CO5 Learno	casesinprojectmanagement.			
Unit-I Int	roduction	15 H	lour	`S
Conceptandattr	ibutesofProject-IdentificationofInvestmentopportunities-Project life	cycle	- R	ole
of Project	Manager- Project Management Information System	-	Proj	ject
ManagementPr	ocessandPrinciples-RelationshipbetweenProjectManagerandLineMar	ager	-	
ProjectStakeho	lder Analysis. Project Planning- Monitoring and Control of Investme	ent P	roje	cts.
Pre-Feasibilitys	study.			
Unit-II Pro	ject Preparation	12 H	lour	'S
Technical Fea	sibility- Marketing Feasibility- Financial Planning- Estimation of	Cos	sts a	and
Funds(includin	gsourcesoffunds)-LoanSyndicationfortheProjects-			
DemandAnalys	sisandCommercialViability(briefintroductiontoNPV)-Projectbudget-			
CollaborationA	rrangements-Taxconsiderationsand legal aspects.			
Unit-III Pro	jectAppraisal	<u>13 H</u>	lour	S
Business Criter	ion of Growth- Liquidity and Profitability- Social Cost Benefit Analy	sis i	n	
Publicand Priv	ate Sector- Investment Criterion and Choice of techniques-Estimation	on o	f	
Shadow pricesa	andSocial discount rate			
Unit-IV Pro	jectRisk andPerformanceAssessment	10 H	lour	'S
ProjectRiskMa	nagement-Identification-AnalysisandReduction-Projectqualitymanage	emen	t-	
ProjectPerform	anceMeasurement and Evaluation-Project Report.			
Unit-V Pro	ject ManagementTechniques&CaseStudies	10 H	Iour	`S
ProjectManage	mentTechniques(PERT&CPM)and2CaseStudies.			
Books for Stud	ly-			
1.J Chandra.Pra	as anna. Project Preparation-Appraisal and Implementation. Tara McGraw and the temperature of temperature	Hill.		
2. Gray-Clifford	IFLarson-EricWandDesai-GautamV.ProjectManagement-			
TheManagerial	Process.McGraw Hill Education.			
Books for Ref	erence-			
1. Gido-Jacka	ndClements-JamesP. ProjectManagement. Cengage Learning.			
2. Barker-Stepl	nen.andCole-Rob.BrilliantProjectManagement- Pearson.			
3. Kharua-Sitar	ngshu.ProjectManagementandAppraisal.OxfordPressUniversity.			

Course C	Code	Course Title	L	Τ	С
UAFAS	E51	ORGANISATIONAL BEHAVIOUR	2	-	1
Instructi	onal (Dbjectives			
1. To	under	stand the concept of organisational behaviour			
2. To a	acquir	e the knowledge on motivation and organization culture			
3. To	gain tl	ne knowledge on Leadership and Quality of work life			
4. To	compi	whend the concept of quality circle			
5. To	know	about Transaction analysis and management of change			
Course C)utco i	ne-			
CO1 I	Descri	be the concept of Organizational Behaviour- Personality and Perce	ption		
CO2 I	llustra	te the concept and Theories of Motivation and Organizational Cult	ure		
CO3 A	Articul	ate the Theories and Styles of Leadership and Quality of Work Lif	e		
CO4 I	Demor	nstrate the importance of Quality Circle and Management of	f Chan	iges	in
C	organiz	zations			
CO5 E	Explai	n the concept of Transactional Analysis and Management of Chan	ge		
Unit-I	Intr	oduction to Organizational Behaviour	8 H	lour	'S
Organisat	tional	Behaviour - Meaning- Nature- Scope and its Importance –	Individ	lual	in
Organisat	tion –	Personality- Theories and Determinants – Perception- Meaning and	d Proce	SS.	
Unit-II	Mo	tivation and Organizational Culture	5 I	Iou	rs
Motivatio	on- Co	ncepts – Theories and Applications - Organisational Culture- Mean	ning -		
Character	ristics	- Theories.			
Unit-III	Lea	dership and Quality of Work Life	71	Iou	rs
Leadershi	ip- Th	eories and Styles – Quality of Work Life (QWL)- Meaning and its	impact	on	
Performa	nce –	Ways of its Enhancement.			
Unit-IV	Qua	ality Circle and Management of Conflicts	5 H	lour	'S
Quality Organisat	Circle	(QC)- Meaning and their Importance – Management of	Confl	icts	in
Unit-V	Tra	nsaction al Analysis and Management of Change	5 H	Тош	rs
Transactio	onal A	valysis – Organisational Effectiveness – Management of Change	• -		
Dealer for		I.			
BOOKS IO	r Stuc	1y- K "Organization Bohaviour Toxt, Casos" Himalaya Bublishing H		նստ	hai
2 Burtor	nappa. nG and	Thakur-M ManagementToday-PrinciplesandPractice- Tata McGra	w ND	Ium	Uai
3. Chhabr	ra-T.N	Business Organisation and Management. Sun India Publications. New	vDelhi.		
4. Gupta	C.B.M	odernBusiness Organisation- MayurPaper backs-New Delhi.			
Books for	r Refe	erence-			
1. Stepher	n P Ro	obins "Organizational Behaviour"- Prentice Hall - New Delhi- 2020	0		
2. Basu-C	CBus	inessOrganisationandManagement-McGrawHillEducation.			
3. Kaul-V	/.K.(2	012).BusinessOrganisationManagement.Pearson Education.New D	elhi.		
4. Koontz	z-H&	Weihrich-H.(2012).EssentialsofManagement-			
AnInterna	ational	landLeadershipPerspective.Paperback.	4.4		
5. Singn-J	D.Pð	comgn-A. K.Essentialsonvianagement.NewDeini.ExcelBooksPvt.L	ла.		

Course Code	Course Title	L	T C
UAFASE52	BUSINESS ENVIRONMENT	2	- 1
Instructional (Objectives		
1. To famil	iarise various Business Environment and their impact on Business		
2. To know	the impact of social environment on business		
3. To know	the role of legal environment on business.		
4. To get a	knowledge of economic environment.		
5 To know	the support of financial environment on business		
Course Outcou	me.		
CO1 Provid	e knowledge about the various forms of Business Environment		
CO2 Gainin	g knowledge about the role of social Environment in Business		
CO2 Cammi	g knowledge about the tote of social Environment in Business.	. h	inaaa
	enensive knowledge about the various legal environments followed in	i dus	mess.
CO4 Known	ng the impact of Economic Environment in business.		
CO5 Famili	ar with the role of Financial Environment in business.		
Unit-I (Concept of Business Environment	5 Ho	ours
The concep	t of business environment- its nature and significance- brief obje	ectiv	es of
political- Cu	ltural- Legal-Economic and Social Environment and their impact on	n bus	iness
and strategic	decision.		
Unit-II Soc	ial and Cultural Environment	5 Ho	urs
Social Envir	conment- Cultural Heritage- Social attitudes- Impact of foreign cultu	re- (Cases
and com	nunities- Business Ethics-Corporate Governance-Corporate	S	locial
responsibilit	ies.		
Unit-III I	Legal Environment	8 Ho	urs
Important A	Acts relating to legal environment in India- Indian Contract Ac	t- I	ndian
Companies	Act-Income Tax Act- IDRA- Consumer Protection Act(COPRA)	- FE	EMA-
SEBI-TRIPS	S-GATT-WTO.		
Unit-IV Eco	nomic Environment	6 Ha	ours
Economic s	vstem and their impact on business- Macro Economic- GDP- Gro	wth	rate-
Population-	Monetary and fiscal Policies- per capita income-NITI Aavog- Industr	ial F	olicv
- Liberalisat	ion-Privatisation- Globalisation.		J
Unit-V Fin	ancial Environment	6 Ha	nirs
Financial Sy	ustem- Commercial Bank- Financial Institution- RBI-Money Marke	t- C	anital
Market- S	tock Exchange-IDBI-IECI-SIDBI-NABARD-BIFR-Non-Banking	fina	ncial
companies-I	Financial services - Factoring-Leasing- Merchant Banking	IIIIt	literar
Books for Stu	ly-		
1. Sankaran- "B	usiness Environment ⁷ -Margham Publication- Chennai-2016.		
2. Dr. Premavat	hy M "Business Environment"- Sri Vishnu Publication- Chennai- 201	6	-
3. Dr.Khatri P.	W "Business Environment"- Global Academy Publishers- New Delhi-	2018	3
4. Ghosh P.K "	Business Environment"- Sultan Chand & Sons- New Delhi-2014		
5. Dr.Namita G	opal "Business Environment"- Vijay Nicole - Chennai- 2015		
Books for Ref	erence-		
1. Cherunilam-	Francis- "Business Environment - Text and Cases"- Himalaya P	Publi	shing
House- New D	elhi-2014.		
2. Aswathappa	- K. "Essentials of Business Environment"- Himalaya Publishing Hou	se- N	Jew
Delhi-2014.			
3. Prof.D.A Mu	istafa- "Business Environment & Law"- A.I.T.B.S Publishers-New De	elhi-	
2010.			
4. Shaikh Salee	m- "Business Environment"- Pearson Education- New Delhi- 2015		
	189		

5. Gupta C.B-" Business Environment"- Sultan Chand & Sons- New Delhi- 2013

VI SEMESTER

Course Code	Course Title L T C					
UAFA6001	INCOME TAX LAW & PRACTICE – II	5	-	5		
Instructional	Objectives					
1. To gain	basics knowledge on income from capital assets and its calculation.					
2. To get	information about the income charges under the head other sources.					
3. To kno	w the procedure of set off and carry forward of losses.					
4. To calc	ulate the assessment of Individual- firms and association.					
5. To give	a comprehensive knowledge about the e-filling procedure.					
Course Outc	ome-					
CO1 Stude	nts familiarize the calculation of income under capital gains and its pro	ovisi	ons.			
CO2 Gain	ng the knowledge about those incomes which are treated as Income fro	om o	ther			
sourc	es.					
CO3 Enha	ncing the knowledge on the Clubbing of Income and Set off and carry f	forw	ard	of		
losse	8.					
CO4 Know	ving the various deductions applicable for Assessee.					
CO5 Awar	eness about the various Income tax authorities and procedure of filling	of re	eturi	1.		
Unit-IIncome from Capital Gains15 Hours						
Basic of C	apital Gains – Capital Assets – Meaning – Types - Exemptions – Sho	ort-te	rm a	and		
Long-term	Capital Assets - Transfer of Capital Assets - Exemptions - Com	puta	tion	of		
Short-term	and Long term Capital Gain – Deduction u/s 54.					
Unit-II	Income under the Income from other Sources	15	Ho	ırs		
Meaning-	Computation of Specific Incomes and Other Incomes – Permissible	Ded	ucti	ons		
under the h	ead income from other sources.					
Unit-III	Clubbing of Income- Set-Off and Carry Forward	15	Ho	urs		
Clubbing of	of Income and Set-off of Losses - Aggregation of Income- Transfer	of	Inco	me		
without Ti	ansfer of Assets - Set-off and Carry Forward of Losses - Intra Hea	d an	d Ir	ıter		
Head Adju	stments of losses.					
Unit-IV	Assessment of Individual- Firms	15	Hot	ırs		
Assessmer	t of Individuals- Firms - Deductions from Gross Total Income – Dedu	ctior	ıs fr	om		
Section 80	C to 80U.					
Unit-V	Filling of Income Tax Return	15	Ηοι	irs		
Filing of R	eturn of Income- Assessment & Tax Planning - procedure for Filing of	of Re	turr	of		
Income – T	ime of Filing of Return – PAN – Income Tax Authorities- Types of A	sses	sme	nt–		
Self Asses	sment – Regular Assessment – Best Judgment Assessment and Re-As	ssess	mer	ıt —		
Tax Planni	ng – Meaning- Need and Limitations – Tax Evasion – Tax Avoidance-	E fi	lling	,		
	Note- Weightage of Marks- Theory 20% and Problems80%					
Books for St	ıdy-					
1. Gaur and N	arang- "Income Tax Law and Practice"- Kalyani Publishers- New Dell	ni.				
2. Dr.A.Murt	hy- "Income Tax Law and practice"- Vijay Nicole imprint Private Lim	ited-				

Chennai.

3. T.S Reddy & Hari Prasad Reddy-"Income tax theory law & practice"- Margham Publication-Chennai.

4. T.Srinivasan- "Income tax theory law & practice" - Vijay Nicole Private Limited- Chennai.
5. Anita Raman- "Income tax theory law & practice" - Mc Graw hill - New Delhi.

Books for Reference-

1.Usha Devi-Bhaskera B.G- "Income tax-II"- Vision Book House- Bangalore.

2. Dr.Vinod K Singhania- Dr.Monica Singhania- "Taxmann students' guide to Income Tax"-Taxmann Publication Pvt Ltd.

3. Chandra Mahesh & Shukla D.C "Income Tax Law & Practice"- Pragathi Publication- New Delhi.

4. Dr.Agarwal B.K & Dr. Rajeev Agarwal "Income tax Law & Accounts" Nirupam Sahitya Sadan - New Delhi.

5. Dr.Mehrotra D.C & Dr.Goyal S.P "Income tax law and practice"-Sahitya Bhavan-2019 Publications- New Delhi.

Course	e Code	Course Title L T C			
UAFA	6002	COST ACCOUNTING - II	5	-	5
Instruc	ctional (Dbjectives			
1.	Γo gain I	knowledge of basic concepts and techniques of Job cost accounting			
2.	Fo under	rstand the methods process costing			
3. 7	Го ітра	rt the knowledge of Transport and Service Costing			
4. 7	Го enabl	e them to understand about Marginal Cost.			
5.	Го know	about more on variance analysis of material-labour and overheads.			
Course	e Outcor	ne-			
CO1	It enha	nces student's knowledge on Job- Batch and Contract Costing. Ensur	e wh	ethe	er
	studen	ts have gained knowledge on said topics.			
CO2	CO2 This unit will make students become familiar with process costing and it s importance				ice
CO3	This se	ection is very crucial wherein students are taught to calculate the oper	ating	cos	st
	and tra	nsport costing.	0		
CO4	This m	nit enables the students to prepare marginal costing and its various tec	hnia	ues	
	This u	nit balos students colculate variance analysis and standard costing	Jiiiiq	ucs	•
		Product Report and Continue analysis and standard costing.) TT .		
Unit-I		- Batch & Contract Costing 20	JHO	urs	1
JOD	Costing	– Meaning and Features – Procedure – WIP – Cost Accumulati	on.	Bato	cn
Luco	ing – El mploto (SQ. Contract Costing – Meaning – Features – work Certified and On		lieu	. —
Inco Unit I		Contract – Escaration Clause – Cost Flus Contract and Contract Acco		11100	
Droc		ting Definition and Features Job vs Process Costing Normal			ad
Abn	ormal I	and – Definition and realures – Job Vs. Flocess Costing – Normal oss – Abnormal Gain – By Product and Joint Products	LUS	s ai	Iu
Unit.II		Prations Cost	R Ho	iire	
Mea	ning an	d Importance - Operating Cost Units – Operating Costing in som	ne Se	rvi	ce
Indu	stries –	Transport Costing –Organisation – Costing for Hotels- Hospitals	& Ci	nen	na
Hou	ses.	Transport Costing Organisation Costing for Trotons Trospitais			
Unit-I	V Ma	rginal Costing 14	4 Ho	urs	
Mar	ginal Co	osting- Meaning - Advantages and Limitation – CVP Analysis – Cont	ribut	tion	
Brea	ak Even	Analysis and Break Even Point – Margin of Safety – Key Factor – C	Chang	zes	in
Selli	ing Price	e – Desired Level of Profit.			
Unit-V	Sta	ndard Costing 1	3 Ho	urs	
Stan	dard Co	osting- Meaning – Advantages and Limitations – Analysis of Va	arian	ces	—
Mat	erial Co	st Variance- – Labour Cost Variance and Overhead Variance. (Simpl	e Pro	ble	m
Only	y)	Note- Weightage of Marks- Theory 20% and Problems 80%			
Books	for Stud	ly-			
1.T.S.R	leddy ai	nd Hari Prasad Reddy- "Cost Accounting"- Margham Publication-	Che	enna	ui-
2016.					
2.Nirm	al Gupta	- "Cost Accounting"- Ane Books Pvt.Ltd			
3. S.P.	Jain and	Narang "Cost Accounting"- Kalyani Banglore-2012.			
4. A. M	lurthy- '	Cost Accounting" Vijay Nicole Imprints- Chennai.			
5.Rayu	du- "Co	st Accounting" Tata McGraw Hill- New Delhi.			
	<u> </u>				
Books	for Refe	erence-			
1. T.S.I	P. Iyenga	ar- "Cost Accounting" - Sultan Chand & Sons- New Delhi-2015.	2010		
2. Shuk	da-Graw	al & Gupta-"Cost Accounting" - S.Chand & Co Pvt ltd New Delhi-	2013	•	

2. Shukla-Grawal & Gupta-"Cost Accounting"- S.Chand & Co Pvt Itd-- Ne
 3. R.S.N. Pillai- "Cost Accounting" S Chand Publishing- New Delhi.

4. M.N. Arora- "Cost Accounting" Vikas Publishing House- NewDelhi.5. S. Thothadhitri- S. Nafeesa and R.B.S. A. Jalaludheen"Cost Accounting" Tata McGraw Hill- ND.

UAFA6003FINANCIAL MANAGEMENT5-Instructional Objectives1. To gain a knowledge about the basic functions financial management2. To make Students to know the importance of investment decision.3. To know the importance of financing decision in business.4. To familiarise the students to know the role of share holders in business						
Instructional Objectives1. To gain a knowledge about the basic functions financial management2. To make Students to know the importance of investment decision.3. To know the importance of financing decision in business.4. To familiarise the students to know the role of share holders in business						
 To gain a knowledge about the basic functions financial management To make Students to know the importance of investment decision. To know the importance of financing decision in business. To familiarise the students to know the role of share holders in business 						
 To make Students to know the importance of investment decision. To know the importance of financing decision in business. To familiarise the students to know the role of share holders in business 						
 To know the importance of financing decision in business. To familiarise the students to know the role of share holders in business 						
4. To familiarise the students to know the role of share holders in business						
5. To calculate the working capital requirements and its importance in business.						
Course Outcome-						
CO1 Gain knowledge and skills in financial management and value of risk.						
CO2 Students gain the knowledge on the investment decision undertaking the business.						
CO3 Students should be able to understand cost of capital.						
CO4 Knowing how company pays its dividends to shareholders.						
CO5 Familiarize the calculation of working capital and its types.						
Unit-IIntroduction15 Hours						
Nature and Scope of financial management- Objectives of financial management Functions						
of financial management- Role of finance manager- Functions of financial manager- Time						
value of money- Risk and return. (Theory Only)						
Unit-IIInvestment Decision15 Hours						
Long term investment decisions- Capital budgeting – Needs – Method of Capital budgeting						
Techniques - Payback period method- Accounting Rate of Return method- Net Present						
Value (NPV) - Internal rate of return- Profitability index- Decision Tree Method.						
Unit-IIIFinancing Decisions15 Hours						
Sources of Long term and Short term finance- Estimation and component of Cost of						
Capital- Cost of Debt- Cost of Equity- Cost of retaining Earning- Weighted Average Cost						
of Capital- Capital Structure- Theories of Capital Structure- Determinants of Capital						
Structure.						
Unit-IVDividend Decisions20 Hours						
Dividend policy decisions- Types of Dividends- Factors determining Dividend Policy –						
Dividend Theories- Walter's Model- Gordon's Model- MM approach- Dividend policy in						
practices.						
Unit-V Working Capital Decision 10 Hours						
Working capital Decision- Concept of Working Capital-Types of Working Capital-						
Sources of Working Capital- Determinant of Working Capital requirements- Forecasting of						
Working Capital requirements.						
Note- Weightage of Marks- Theory 60% and Problems 40% .(Simple Problems Only)						
Books for Study-						
1. A. Murnty- "Financial Management" - Margham publication-2016						
2. 5.1N. Maneshwary- Fundamentals of Financial Management- Sulthan Chand & Sons- New Delbi 2009						
DCIIII-2007. 3 Shashi K Gunta- Neeti Gunta-"Financial Management" Kalvani Dublishers New Delhi						
Delhi-2009. 3 Shashi K Cunta Naati Cunta "Einanaial Managamant" Kaluani Publichara Naw Dalhi						

Financial Management - Kalyani Publishers- New Denn-**3.** Shashi K.Oupta-Neeti Oupta2013.

4. V.Gurumurthy G. Selvaraj R.Swarnalakshmi- "Financial Management" Charulatha Publications- Chennai-2016

5. N.Premavathy & M.Inbalakshmi- "Financial Management" Sri Vishnu Publication-2010 **Books for Reference-**

1. Fundamentals of Financial Management- Von Horne- Prentice Hall- New Delhi - 2013

2. Prasana Chandra- "Financial Management-Text & Practices-" Tata McGraw hill- New Delhi-2006.

3. I.M Pandey- "Financial Management- Text & Practices-" Vikas Publishing House- New Delhi-2009.

4. M.Y. Khan & P.K.Jain- Financial Management- Tata McGraw Hill-New Delhi-2005

5. V.K. Bhalla- "Financial Management" Sulthan Chand & Sons-New Delhi-2014

Course	e Code	Course Title	L	Т	C			
UAFA	6004	PRACTICAL AUDITING	4	-	2			
Instruc	ctional (Objectives						
1. 7	1. To gain basic knowledge of the principles and practice of auditing.							
2. 7	2. To understand internal check- audit- working papers- vouching etc.							
3. 7	3. To differentiate verification and valuation of assets & liabilities							
4. 7	Го famil	iarise the auditors appointment- rights and duties- functions and qual	ificat	ion	s			
5. 1	Γo unde	rstanding the audit by computerized accounting						
Course	Outco	me-						
CO1	Able to	o understand the role of auditor in business world.						
CO2	Under	stand importance of audit programme and internal control system.						
CO3	Know	edge about verification and valuation of assets.						
CO4	Aware	on company auditor- functions- duties and rights and report preparat	ion.					
CO5	Becon	he aware about vouching and their importance and overview of auditi	ng.					
Unit-I		Concept of Auditing 1	0 Ho	urs				
Mea	aning ar	d Definitions of Auditing – Objectives – Types – Advantages and I	Limita	atio	ns			
– Q	ualities	of an Auditor - Accounting- Auditing and Investigation.						
Unit-Il	[Internal Control System 1	5 Ho	urs				
Inte	rnal Co	ntrol – Internal Check and Internal Audit – Audit Note Book – Work	ing P	ape	rs			
- V	ouching	- Vouching of Personal Ledger – Vouching of Impersonal Ledger.						
Unit-Il	Ι	Verification and Valuation 1	5 Ho	urs				
Ver	ificatior	and Valuations of Assets and Liabilities – Auditor's Position reg	ardin	g tl	he			
Val	uation	and Verification of Assets and Liabilities - Depreciation -Res	erves	a	nd			
Pro	visions.							
Unit-I	V	Company Audit 1	0 Ho	urs				
Cor	npany A	Audit – Qualifications and Disqualifications of Auditors Appoin	tmen	t ai	nd			
Ren	noval –	Right and Duties – Comptroller and Audit General – Appoi	ntme	nts	-			
Fun	ctions-	Right and Duties – Branch- Joint and Special Audit – Audit Report –	Туре	es.				
Unit-V		Investigation 1	<u>0 Ho</u>	urs				
Inve	estigatio	n – Objectives – Differences between Investigation and Auditing – P	oints	to l	be			
note	ed while	e conducting an Investigation – Audit of Computerized Accounts –	Elect	tron	ic			
Audit- Auditing Ethics.								

Books for Study-

1.Vengadamani- "Practical Auditing-" Margham Publication- Chennai-2016.

2. Dr.N.Preemavathy- "Practical Auditing"- Sri Vishnu Publication-Chennai-2012

3. Dr.G.Rajapriya- "Practical Auditing"- Thakur publication-Chennai-2012

4. .Dr.T.R.Sharma- - "Practical Auditing"-Sahitya Bhavan Publication-Agra -2017

5. R.G.Saxena' - "Practical Auditing"-Himalaya publishing Pvt Ltd-Mumbai-2016.

Books for Reference-

1.B.N. Tandon- "Practical Auditing"- S Chand & Co- New Delhi-2006.

2. A.R Solanki- "Auditing Principles & Techniques"- Cyber Tech Publication- New Delhi-

- 3. Kamal Gupta and Ashok Arora- "Fundamentals of Auditing"- TATA McGraw Hills- Delhi.
- 4. K.Sunder & Pari-"Practical Auditing"- Vijay Nicole Imprints Pvt Ltd- Chennai-2014.

5. Aruna Jha- "Auditing"-Taxmann Publication- New Delhi- 2018

Course Code	Course Title	L	T	C		
UAFAPR61	E-FILINGOFRETURNS - LAB	5	-	5		
Objectives						
1. To equip	the students with the practical skill required for filling of returns up	nder In	con	ne		
Tax Laws.						
2. To provid	de the students with the practical skills required for filling of returns	under				
Goods ar	nd Services Tax Laws.					
Course Outco	me-					
CO1 Know	thedifferencebetweene-					
filinga	indregularfilingofIncometaxreturnsandunderstandthe circumstances	whene	-			
filling	is mandatory.					
CO2 Under	standthebasicprocessofcomputingtaxableincomeandtaxliability-					
andkno	owaboutvarioustypes of income taxfeturn forms.	darrala	41-	_		
CO3 Appre	clatelineconceptoradvancepaymentonaxandtaxdeductionalsourceanc	ldevelo	pui	8		
CO4 Awara	of e-mingor rDS returns.	auttox c	rad	it l		
and th	e process of its utilization	ullar (icu	n		
CO5 Acqua	inted withvarious typesofGST returns and their filing					
Unit-I Con	ncentual Framework-e-filing	12 Ho	urs			
henefiteendli	ming-difference betweene-ining and regularining of returns-	lavont				
potifications	initationsol e-ming- typesol e-ming- e-mingprocess- re	levant				
Unit-II Inc	ometavande filing of ITRs	16 Ho	urc			
		10 110	uis			
Introduction	to income tax $-$ basic terminology- types of assesse- income ta	axable				
under differ	entheads- basics of computation of total income and tax lia	bility-				
deductions available from grosstotalincome- PANcard-duedate of filingofincome						
laxreturn.	for filling out form ITD 1 ITD 2 ITD 2 ITD 4 ITD 40 ITD					
5 ITD 6 Inter	101 IIIIIIg Out IOFIN 11K-1- 11K-2- 11K-3- 11K-4- 11K-4S- 11K-					
J-IIK-0.IIIU	S and a Filing of TDS roturns	16 Ho	urc			
		10 110	urs			
Introduction	to the concept of TDS- provisions in brief relating to advance paym	ent of				

tax-schedule for deposit of TDS- schedule for submission of TDS returns- prescribed								
forms for filingof TDS returns- exemption from TDS – Form 13- 15G- 15H- I	Practical							
workshop on e-filing of TDS return								
Unit-IV Conceptualframeworkof GST	16 Hours							
IntroductiontobasicconceptsofGST-OutputtaxliabilityofCGST-SGST-UTGST-IGST-								
Statecompensation cess- GST Network- input tax credit utilization- small	supplies							
and compositionscheme- schedule for payment of GST- interest/penalty for l	ate/non-							
filing of return- payment of GST by electronic ledger – electronic liability	register-							
electronic credit ledger- electronic cashledger.	0							
Unit-V Filing of GST returns	15 Hours							
CET astrong CETD 1 CETD 2 CETD 2 CETD 4 CETD 0 CETD 2D	£							
G51felums- G51K-1G51K-2-G51K-3- G51K-4- G51K-9-G51K-3B								
Books for Study-								
1.Ahuja- Girish- GuptaRavi-GST&Customs Law.								
2 Ahuja. Girish. and Gupta. Ravi. Systematic Approach to Income Tax. Bharat L	aw							
House-Delhi.								
3. Babbar-Sonal-Kaur-RasleenandKhurana-Kritika.GoodsandServiceTax								
(GST)andCustomsLaw. ScholarTech Press.								
Books for Reference-								
1. Bansal-K.MGST&CustomsLaw- TaxmannPublication								
2. Gupta-S.SVastuandSevakar-TaxmannPublications-2017								
3. SisodiaPushpendra-GSTLaw-BharatLawHouse.								
1								
1								

Course	e Code	Course Title	L	Τ	С			
UAFA	CE61	COMPANY LAW	4	-	2			
Instruc	ctional (Objectives						
1.	1. To impart the basic knowledge of the companies Act among the students.							
2.	2. To know the procedure of formation of companies.							
3.	To get t	he knowledge about the documents required for formation of compan	y.					
4.	To fami	liarise the role of directors in a company.						
5.	To get t	he basic knowledge about the meetings and winding up of company.						
Course	e Outco	me-						
CO1	Studen	ts are familiarizing the revised Company Act 2013 and its provision.						
CO2	Provid	e an idea about promoters and its role.						
CO3	Gainin	g the knowledge on the procedure of companies' registration and its j	proce	SS.				
CO4	Unders	standing the role of directors in a company.						
CO5	Knowi	ng the procedure of winding up of company and its legal process.						
Unit-I	Int	roduction	10 H	our	S			
M	eaning-	Definition- Characteristics of Company- Types of Company inclu-	uding	g or	ıe			
pe	person company- Difference between public Vs Private companies- Special privilege of							
Private Company Ltd- Advantages and disadvantages of public and private companies-								
Co	onversio	n of public company to private company.						

Unit-II	Formation of Companies	15 Hours						
Incor	poration of companies- certificate of incorporation- Promoters I	Functions of						
prom	oter- Legal status of Promoter.							
Unit-III	Memorandum and Articles of Association	15 Hours						
Mem	orandum of Association- Contents of Memorandum of Association-	Alteration of						
Mem	orandum of Association- Articles of Association- Contents of	Articles of						
Association- Alteration of Articles of Association – Doctrine of Indore Managen								
Ultra	vires- Difference between Memorandum of Association Vs Articles of	Association.						
Unit-IV	Directors of a company	10 Hours						
Mean	ing – Eligibility to become a Director – Number of Directorships – Ap	pointment of						
Direc	tors – First Directors – Subsequent Directors – Vacation of Office –	Removal of						
Direc	tors – Positions of the Directors – Powers- Duties and Liabilities of Directors	ectors						
Unit-V	Company meeting and Winding up	10 Hours						
Meet	ing of the company- types of meeting – requisites of valid meeting	ng- Agenda-						
chair	man- proxy- Resolution and its types- Minutes of meeting- Voting's- w	vinding up of						
comp	anies- Methods of winding up and its procedures- Liquidator's -	-Liquidator's						
Powe	r- Duties and liabilities.							
 Books for Study- 1.J.Santhi- "Company Law (As per Companies Act 2013)-"Margham Publications- Chennai-2019 2. Abdul Gaffor P.M.S & Thothadri S- "Company Law"- Vijay Nicole Imprints Pvt Ltd-Chennai- 2018 3. Dr.Srirenganayaki.P "Company Law & Secretarial Practice"- Charulatha Publication-Chennai- 2019 4. Dr.V.Balachandran "Company Law & Practice"- Sultan Chand & Sons Publiscation- New Delhi-2017 5. Dr.Umesh Maiya "A Text book of Company Law"- Jagadhamba Publishing House- New Delhi- 2015. 								
Books for 1. Dr.M.S	Books for Reference- 1. Dr.M.Sreenivasan- "Company Law"- Margham Publication- Chennai-2015.							

2. Kapoor N.D- "Elements of Company Law"- Sultan Chand & Sons- New Delhi-2010.

3. Gonga-P.P.S "A Text book of Company Law"-S.Chand & Co.-2015.

4. Krati Rajoria "Company Law"- Allahabad Law Agency- Faridabad-2016

5. Sangeeta Kedia "Company Law" Pooja Law Publishing Company-2017

Course Code	Course Title	L	Τ	С			
UAFACE62	INVESTMENT MANAGEMENT	4	-	2			
Instructional	Objectives						
1. To imp	art the basic knowledge of the investment management.						
2. To know	w the sources of investment decision.						
3. To get t	he knowledge about the alternative investment.						
4. To fami	iliarise the fundamental analysis.						
5. To get t	he basic knowledge about the portfolio management.						
Course Outco	me-						
CO1 Under	stand theory relevant to determining investment risk and return.						
CO2 Acquir	CO2 Acquire the knowledge on various sources of investment.						
CO3 Plan to	CO3 Plan to invest in alternative investment.						
CO4 Gain p	CO4 Gain practical knowledge on fundamental analysis of investment.						
CO5 Able to	o develop portfolio and risk management.						
Unit-I Int	roduction	10 H	ours	\$			
Definition	of investment - objectives - features - classification - distinction	ı bet	wee	n			
investmen	t and speculation - gambling - growing popularity of investments	- fa	actor	S			
favouring	investment.						
Unit-II Sou	irces of investment	15 H	our	S			
Sources of	f investment - annual report of companies - investment companies	- ty	pes ·	—			
structure.		•	-				
Unit-III Alt	ernative Investment	15 H	our	s			
Bond – ty	pes – preference shares – types – equity shares - distinction betwee	en e	quit	y			
shares and	preference shares – government securities – real estate – money mark	cet.		•			
Unit-IV Fur	ndamental analysis	10 H	[our	S			
Fundamen	tal analysis - Approaches to security analysis - Approaches to	tech	nnica	ıl			
analysis –	differences between security analysis and technical analysis.						
Unit-V Por	tfolio Management	10 H	lour	'S			
Meaning -	- process - factors - principles - policies - portfolio investment	proc	ess ·	_			
planning s	tages- risk and return analysis – meaning - causes of risk- classification	on of	risk	•			
Books for Stu	dv-						
1.Bhalla- V.K-	Investment Management- S.Chand & Co- New Delhi- 1999.						
2. Dr. Natarajar	L- Investment Management- Margham Publications- Chennai-2018.						
3. Mahrshwari	Yogesh- Investment Management – Prentice Hall of India pvt Ltd- 20)19.					
4. Dr.Sumi KV	- Investment Management – Abhijeet Publications – 2019.						
5. Mahrshwari	RB - Investment Management – SBPD Publication House- 2020						
Books for Ref	erence-						
1. Prasana Ch	andra- Investment Analysis and Portfolio Management- Tata McC	braw	Hill	1-			
Noida-2009	······································						
2. Punithavathy Pandiyan - Security Analysis and Portfolio Management- Vikas Publications							
3. Peter L Bernstein & Aswati Damodaran - Investment Management – John wiley & sons							
Inc-2019.							
4. Dr.K. Rama	4. Dr.K. Ramamurthi - Investment Management – Shanlax Publications- 2020.						
5. Vishwaiit - I	nvestment Management – Notion Press – 2020						
	6						

Course Code	Course Title	L	Τ	С				
UAFASE61	INDUSTRIAL RELATIONS	2	-	1				
Instructional (Objectives							
1. To imp	part the fundamentals of Industrial Relations							
2. To expl	ain the various industrial disputes							
3. To reve	al the philosophy of workers' participation in management							
4. To unde	erstand the concept of Industrial Relations							
5. To unde	erstand the International Labour Organization							
Course Outco	Course Outcome-							
CO1 Describethefundamentals concepts of Industrial relations								
CO2 Identif	CO2 Identify themajor causes of industrial disputes							
CO3 Under	stand the role of workers participation management							
CO4 Analyz	ze and interpret industrial relations with public enterprises							
CO5 Gainu	nderstandingofemerging International Labour Organization							
Unit-I Int	roduction	10	Hou	irs				
Meaning- Natu	re- Importance and Scope of Industrial Relations – Formation of Tra	de U	Inio	n –				
Trade Union L	egislation – Trade Union Movement in India – Recognitions of Trad	le U	nior	ıs -				
Problems of Tr	ade Unions in India – Impact of Liberalization on Trade Union Move	ment						
Unit-II Ind	ustrial Disputes	5 I	Iou	rs				
Nature of Indu	strial Disputes - Strikes and Lockouts - Causes of Disputes - Pre-	venti	on a	and				
Settlement of D	Disputes							
Unit-III Wo	rkers' Participation in Management	5 I	Iou	rs				
Workers' Parti	cipation in Management - Philosophy - Rationale - Present Day	Stat	us a	and				
Future Prospec	ts – Adjudication and Collective Bargaining.							
Unit-IV Ind	ustrial Relations in Public Enterprises	5 H	lour	`S				
Industrial Rela	ations in Public Enterprises – Absenteeism and Labour Turnover	r in	Ind	ian				
Industries and t	their Causes and Remedies							
Unit-V Inte	ernational Labour Organisation	5 H	loui	s				
International L	abour Organisation (ILO) and its Functions							
Books for Stud	dy-							
1. R. Subbarao	"Essentials of HRM & Industrial Relations" Himalaya Publishing I	Hous	e.					
New Delhi-201		х , т	. 1					
2. S.C. Srivasta	ava ".Industrial Relations & Labour Laws Vikas Publishing House F	vt. I	_td					
New Delhi-2018								
3. Karthikeyan,	Industrial Relations – Walnut Publications - 2020							
4. Sapna Munja	al "Industrial Relations" - Vayu Education of India-2020							
5. Dr.Pankaj Ku	ımar Industrial Relations and Trade Unionism – Pratiyogita Sandardn							
Publication-20	16							
Books for Ref	erence-							
1. C.S.Venkata	Ratnam & Manoranjan "Industrial Relations Dhal"- Oxford Unversi	ty Pr	ess-					
New Delhi-201	8							

2. Piyali Ghosh & Shifali Nanda ".Industrial Relations & Labour Laws- McGraw Hill Education- New Delhi-2019

3. Gupta O.P "Industrial Relations and Labour Laws"- SBPD publishing House- Agra- 2021 Sapna

4.Sarma AM Industrial Relations- Himalaya Publishing House. New Delhi-2019

5.Jaya Kumar Gayathri Industrial Relations – LAP Lambert Academic Publishing - 2020

Course	Code	Course Title	L	Τ	С	
UAFA	SE62	FINANCIALREPORTINGANDANALYSIS	2	-	1	
Instruc	tional (Dbjectives				
1. To achieve understanding of the financial accounting and reporting frameworks used by						
busi	ness en	terprises globally.				
2. To	attain k	nowledge and skills required to apply the knowledge of accounting p	rinci	ple i	n	
perf	orming	financial reporting and other tasks as corporate finance professionals		-		
Course	Outco	ne-				
CO1	Descri	betheconceptualframeworkoffinancialreportinghaveanunderstandingt	heco	mpc	one	
	ntsof f	inancial statements		•		
CO2	Identif	ymajor disclosures to bemadein theannual report bythelisted compan	ies.			
CO3	Explai	ntechniques of analysis of financial statements.				
CO4	Analyz	e and interpret financial statements of companies using the case stud	y me	tho	1.	
CO5	Gainu	nderstandingofemergingareasin financialreporting- AccountingforE-	•			
	comm	erce business-valueaddedstatements and IntegratedReporting				
Unit-I	Int	oduction	10	Hou	ırs	
Conc	ept an	d objectives of financial reporting- Users of financial reports-	Con	cept	ual	
Fram	eworkf	or financial reporting- Understanding financial statements of a	Joint	t St	ock	
Com	pany -	Balancesheet- Statement of Profit and Loss- Cash Flow statement- S	State	men	t of	
chan	ges in l	Equity- Notestotheaccounts-Significantaccountingpolicies-Accounting	igSta	ndaı	ds-	
Conv	vergedI	ndianAccountingStandards (Ind AS) relevant to thefinancial statemen	its			
Unit-II	Dis	closures	51	Hou	rs	
Disc	losures	under Companies Act- 2013- Accounting Standards- Securities Excl	nange	e Bo	ard	
ofInc	lia (SEl	3I)- in annualreports and companywebsite				
Unit-II	[Ana	llysisofFinancialStatements –Techniques	51	Hou	rs	
Com	parativo	efinancialstatements-CommonSizeFinancialStatements-RatioAnalysi	S-			
Cash	FlowA	nalysis-Trend Analysis.				
Unit-IV	/ Ana	llysisofFinancialStatements-ACaseStudy	5 H	Iou	:S	
Intra-	firm a	nd inter-firm comparison of any three listed companies from	n an	у		
sector	/indust	y for aperiodoffiveyears using the spread sheet-				
UseofRatio analysis-IndustryAverages- Growthrates-CAGR-Z-scoreetc.intheanalysis						
Unit-VEmergingTrendsin Reporting5 Hours						
Αссоι	intingfo	orE-commercebusiness-Introduction-elementsofe-commercetransacti	ons-			
busine	essmod	els-classificationofe-commercewebsites-				
reven	uerecog	nitionandmeasurementofcosts-Indian AccountingStandard	andit	S		
implic	cation o	nE-Commercecompanies				
Integr	ated Re	eporting – Meaning- Purpose- Salient features of framework- the Ca	apital	S		
and Valuecreation - ValueAddedStatement						

Books for Study-

 Bhattacharya-KAshish.CorporateFinancialReportingandanalysis.PHIlearning-Delhi.
 Gupta-Ambrish-FinancialAccountingforManagement-AnAnalyticalPerspective-PearsonEducation-Delhi.

3. Lal-Jawahar&Sucheta-Gauba-FinancialReportingandAnalysis.HimalayaPublishingHouse-Mumbai.

4. Sapra- Ritu-Kaur-Kamaldeep&ChawlaKanika.FinancialReporting

andAnalysis.WisdomPublications-Delhi.

Books for Reference-

1. GeorgeJ.Benstonet.Al-WorldFinancialReporting-OxfordUniversityPress.

2. Gibson-C.H.-Financialreporting and analysis. Nelson Education.

3. LawrenceRevsine-DanielW.Collins-W.BruceJohnson-

H.FredMittelstaedt.FinancialReportingand Analysis. McGrawHill Education

4. R.K.MautzandWilliamG.May-FinancialDisclosureinaCompetitiveEconomy-

FinancialExecutiveResearchFoundation-USA.

DEPARTMENT OF MATHEMATICS 15TH BOS APPROVED UG SYLLABI FOR

V & VI SEMESTERS

SEMESTER V							
Course	Code	Course	Course Title Hr	rs/Week	Credit		
UAMS	5001	Core 7	MODERN ALGEBRA - I	5	4		
Course O	bjective	S					
 To impart emphasis on concepts and technology of the groups and rings and their algebraic structures having applications in Mathematical Physics and Computer Science. To introduce algebra from the basic concepts of functions To introduce and develop deeply into the concepts of Group theory To introduce the concepts of ring theory and ideals in a ring To introduce polynomial rings Course Outcome On the successful completion of the course, students will be able to:							
1. Ur 2. Ex 3. Ar 4. So 5. Ex	 Understand the properties of group structures. Examine the properties of Normal Subgroups and Quotient Groups Analyze the concepts of homomorphism, isomorphism and automorphism. Solve the problems using Cayley's theorem. Extend group structure to ring theory and fields 						
Unit-I	Group Definiti Prelimi Chapte	Theory ion of a G nary Lemmas er 2: Sections	roup – Some Examples of Groups – S s – Subgroups. s 2.1 to 2.4.	Some 15	Hours		
Unit-II	Group Countin Homon Chapte	Theory (Connection of the orghological of the	ntd) – Normal Subgroups and Quotient Group s 2.5 to 2.7.	ps – 15	5 Hours		
Unit-III	Group Automo Chapte	Theory (Con orphisms – C er 2: Sections	ntd) ayley's theorem – Permutation Groups. s 2.8 to 2.10.	15	5 Hours		

Unit-IV	Ring TheoryUnit-IVDefinition and Examples of Rings – Some Special Classes of Rings – Homomorphisms – Ideal and Quotient Rings.Chapter 3: Sections 3.1 to 3.4.					
Unit-V	 Ring Theory (Contd) More Ideals and Quotient Rings – The Field of Quotients of an Integral Domain – Euclidean Rings. Chapter 3: Sections 3.5 to 3.7. 	15 Hours				
Recomme	ended Text:					
TOPIO	CS IN ALGEBRA, I.N. Herstein (2016), 2 nd Edn, Wiley Eastern Ltd., Ne	ew Delhi.				
Books for	Books for Reference:					
 MODERN ALGEBRA, S. Arumugam, (2004), Scitech Publications, Chennai. MODERN ALGEBRA, M.L. Santiago, (2002), Tata McGraw Hill, New Delhi. MODERN ALGEBRA, Surjeet Singh and Qazi Zameeruddin, (1982), Vikas Publishing House Pvt. Ltd., New Delhi. 						

Course C	ode	Course	Course Title	Hrs/w	eek	Credit		
UAMS5	002	Core 8	REAL ANALYSIS – I	5		4		
Course O	bject	ives						
 To understand various limiting behavior of sequences and series. To explore the various limiting processes viz. continuity, uniform Continuity, differentiability and integrability. To enhance the mathematical maturity and to work comfortably with concepts. Course Outcome On the successful completion of the course, students will be able to: Understand the basic properties of real numbers and functions Learn the concept of limits, sequence and convergent sequence. 								
4. Ap 5. Ac	oply the course	he appropriate te the knowledge	st to identify the convergence of the series about metric spaces and continuous func	es. tions on	metr	ic		
spa	$\frac{1}{1}$	hrough open and	l closed sets.					
Unit-I	Functions Unit-IFunctions – Real valued functions – Equivalence, Countability – Real numbers – Least upper bound.Charter 1, Section 1, 2 to 1.7				^{7 –} 15 Hours			
	Cha							
	r							
Unit-II	Seq Defi Con – M	uences of Real M inition of Sequen vergent Sequence onotone Sequence	Numbers nce and Subsequence – Limit of a Sequence – Divergent Sequence – Bounded Sec ce.	ence – Juence	15 H	lours		
	Cha	pter 2 : Section	2.1 to 2.6					
	Seq	uences and Ser	ies of Real Numbers					
Unit-III	Ope Sequ – Co Alte Con	rations on Conv uence – Limit Su onvergence and I ernating Series vergence.	vergent Sequence – Operations on Div operior and Limit Inferior – Cauchy Sequence Divergence – Series with non-negative to – Conditional Convergence and Ab	ergent uences erms – osolute	ent ses 5 – 15 Hours ite			
	Cha	pter 2 : Section	2.7 to 2.10					

	Chapter 3 : Section 3.1 to 3.4							
Series of Real Numbers, Limit and Metric Spaces								
Unit-IV	Rearrangement of Series – Tests for Absolute Convergence – Series whose terms form a non-increasing Sequence – Summation by Parts – Limit of a function on the real line – Metric Spaces – Limits in Metric Spaces.	15 Hours						
	Chapter 3: Section 3.5 to 3.9							
	Chapter 4 : Section 4.1 to 4.3	.1 to 4.3						
	Continuous Functions on Metric Spaces							
Unit-V	Functions Continuous at a point on the real line – Reformulation – Functions continuous on a Metric Space – Open Sets – Closed Sets.	15 Hours						
	Chapter 5 : Section 5.1 to 5.5							
Recommended Text:								
METHODS OF REAL ANALYSIS, Richard R. Goldberg, Reprint (2019), Oxford & IBH Publishing Co., New Delhi								
Books for Reference:								
 MATHAMATICAL ANALYSIS, Tom M. Apostol, (1974), 2nd Edition, Addison – Wesley, New York. REAL ANALYSIS, Bertle, R.G. and Shebert, (1976), John Wiley and Sons, New Net 1 								
 3. MATHEMATICAL ANALYSIS, Malik, S.C. and Savita Arora, (1991), Wiley Eastern Limited, New Delhi. 								
4. IN Sa	4. INTRODUCTION TO REAL ANALYSIS, Sanjay Arora and Bansi Lal, (1991), Satya Prakashan, New Delhi.							

Course C	ode	Course	Course Title	Hrs/Week	Credit			
UAMS50	003	Core 9	COMPLEX ANALYSIS I	5	4			
Course Objectives								
1. To study the complex behavior of complex-valued functions.								
2. To train the students in the operative techniques on complex valued functions.								
3. This course provides a modern treatment of concepts and techniques of complex								
runction theory and the methods to solve problems in Pure and Applied Mathematics.								
On the successful completion of the course, student will be able to:								
1. Verify the C-R equations in Cartesian and Polar forms.								
2. Recognize the simple and multiple connected domains.								
3. Investigate a function for its analyticity.								
4. Analyze the Bilinear transformations and its properties.								
5. Examine the relationship between conformal mapping and analytic functions								
Unit-I	Introduction – Open set and closed set – Bounded set and unbounded set – Jordan arc – Function of a Complex variable – Continuity – Differentiability – Analytic function – Necessary and Sufficient conditions for $f(z)$ to be analytic – Polar form of Cauchy-Riemann Equations – Derivatives of w in polar form – Function of a function. Chapter 2: Sections: 2.1 to 2.12							
	Analytic Functions (Contd)							
Unit-II	Orthogonal system – Harmonic functions – Determination of the conjugate function – To construct a function $f(z)$ when one conjugate function is given – An important result $\left(\frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2}\right) = 4 \frac{\partial^2}{\partial z \partial \overline{z}}.$ Chapter 2: Sections:2.13 to 2.17							
	L							
	Confor	mal Ronroso	ntation					
Unit-III	Introdu	ction –Neces	ssary Conditions of conformality - S	Sufficient	5 Hours			
r								
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	conditions of conformal mappings – The case $f'(z_0) = 0$, when							
	$f'(z) = 0$ – Geometric interpretation of $R = f'(z) $ and $\beta_1 = \alpha_1 + \lambda$.							
	Transformation which are Isogonal but not conformal - Bilinear							
	Transformation (Mobius Transformation) $w = \frac{az+b}{cz+d}$ – Equivalent							
	Bilinear Transformation – Bilinear Transformation with simple							
	geometric imports – Cross Ratio – Preservance of cross ratio under							
	the bilinear transformation.							
	Chapter 3: Sections: 3.1 to 3.11							
	Conformal Representation (Contd)							
	Bilinear transformation which transforms the points $z_1 z_2$ of z							
Unit_IV	plane respectively into the points x_1, x_2, x_3 of x_1	15 Hours						
0111-1 V	plane respectively into the points W_1, W_2, W_3 of <i>w</i> -plane – Difficult	15 110015						
	Chapter 3: Sections: 3.12 to 3.13							
		Г						
	Conformal Representation (Contd)							
	The transformation $w = z^n$ – The transformation $w = z^2$ - The							
	transformation $z = \sqrt{w}$ (Inverse mapping of $w = z^2$) - The							
Unit-V	transformation $w = \frac{1}{2}\left(z + \frac{1}{z}\right)$ - The transformation $w = e^z$ - The	15 Hours						
	$2 \left(2 \right)$							
	transformation $w = \cos z$ - The transformation $z = c \sin w$.							
	Chapter 4: Sections: 4.1 – 4.4, 4.8, 4.9, 4.10							
Recomme	ended Text:							
FUN	ICTIONS OF A COMPLEX VARIABLE, B.S. Tvagi, (2020) First Ed	ition Kedar						
Natl	n Ram Nath Publications, Meerut, Delhi							
Dooks for	Deference							
DUUKS 10								
1. CC	MPLEX VARIABLES AND APPLICATIONS, R.V. Churchill and J	.W. Brown,						
	990), McGraw Hill International Book Co., Singapore.							
2. CC	DMPLEX ANALYSIS, P. Duraipandian & Laxmi Duraipandian, (197	b), Emerald						
3 FO	JUSIEIS, CHEIHIAI. JUNDATIONS OF COMPLEX ANALYSIS & Ponnusamy (200)() Narosa						
Pul	5. FOUNDATIONS OF COMPLEX ANALYSIS, S. Ponnusamy, (2000), Narosa Publishing House, New Delhi.							

Course (Code	Course	Course Title	Hrs/we	eek	Credit
UAMS5	5004	Core 10	STATICS	5		4
Course O	bjectiv	es				
1. T	o know	the concept	of Parallel Forces and Moments.			
2. T	o study	the concept	of Couples.			
3. T	o under	rstand the Fri	ction laws.			
4. T	4. To determine the Centre of Gravity.					
5. T	o study	the Common	n Catenary.			
Course O	utcom	e				
On the suc	ccessful	completion	of the course, students will be able to:			
1. Ac	quire t	ne knowledge	e in parallel forces and moments.			
2. Di	scuss th	ne concepts o	f couples and their applications.			
3. Ap	oply the	laws of frict	ions in practical problems.			
4. Fii	nd the c	entre of grav	ity for various objects.			
5. Ar	halyze t	he geometric	al properties of common catenary.			
Unit-I	Like a paralle unlike Result Condi Centra signiff Repre mome Chap	and Unlike Pa el forces actin and unequi cant of a nun tions of equi e of two par icance of sentation of ent – Varigno ter III: Secti	arallel Forces – To find the resultant of t and parallel Forces – To find the resultant al parallel forces acting on a rigid orber of parallel forces acting on a rigid uilibrium of three coplanar parallel for callel forces – Moment of a force – F the moment of a force – Geor a moment – Sign of the moment – on's Theorem of Moments.	wo like t of two body – body – orces – Physical netrical Unit of	15 I	Iours
	Coup	les			_	
Unit-II	Coupl couple by a v and a	es – Equilit es – Couples ector – Resul force – Theor	orium of two couples – Equivalence in Parallel Planes – Representation of a ltant of coplanar couples – Resultant of a rems on couples.	of two couple couple	15 H	Iours
	Chap	ter IV: Secti	ons 1 to 10			

Unit-III	Friction Introduction – Experimental Results – Statical, Dynamical and Limiting Friction – Laws of friction – Friction - a passive force – Coefficient of Friction – Angle of Friction – Cone of Friction – Numerical Values – Equilibrium of a body on a rough inclined	15 Hours				
	 plane – Equilibrium of a body on a rough inclined plane under a force parallel to the plane – Equilibrium of a body on a rough inclined plane under any force. Chapter VII: Section 1 to 12 					
	Centre of Gravity					
Unit-IV	Centre of Gravity – Distinction between centre of gravity and centre of mass – The centre of gravity of a body is unique – Determination of centre of gravity in simple cases – Centre of Gravity by symmetry – Centre of Gravity of a uniform triangular lamina –Theorem – Centre of Gravity of three rods forming a triangle - Centre of Gravity by Integration	15 Hours				
	Chapter VIII: Sections 3 to 10,18,18.1,18.2,18.3,18.4					
	Equilibrium of Strings					
Unit-V	Equilibrium of strings – Equation of the common catenary – tension at any point – Geometrical properties of common catenary – simple problems.	15 Hours				
	Chapter XI: Sections 1 to 6					
	Recommended Text:	1.1				
STATICS, Dr. M.K. Venkataraman, (2018), Nineteen Edition, Agasthiar publications, Trichy.						
	Books for Reference:					
1. S	TATICS, Narayanan, S, Sultan Chand and Co., Chennai1986.					
2. M C	2. MECHANICS, Duraipandian, P and Lakshimi Duraipandian, Emerald Publishers, Chennai, 1987					

Course (Code	Course	Course Title	Hrs/Week	Credit
UAMS5	5005	Core 11	OPERATIONS RESEARCH – I	4	4
Course O	bjectiv	'es			
1. To	impro	ve the skill	of solving very common problem which	ch one come	e across in
va 2. To	rious fi enhand	elds like trans	sportation and assignment, game and ind natical maturity and to work comfortably	ustries with a with a with a second s	machines
Course O	utcom	e			
On the suc	ccessful	l completion	of the course, students will be able to:		
1 V.	ow the	n min ain lag af	construction of mothematical models of	Coonflicting	ituationa
2. So	lve the	Linear progr	amming problem using simplex method.	conneting	situations.
3. Re	duce th	e transportat	ion cost in real life situation.		
4. As	sign th	e job in critic	al situation to reduce cost/time.		
5. De	etermin	e a solution to	o a rectangular game.		
	[·		
	Linea	r Programm	ing Problem		
	Introd	uction – Rec	uirements for a Linear Programming F	roblem –	
	Assun	nptions in L	inear Programming Models – Applic	ations of	
Unit-I	progra	amming – F	ormulation of Linear Programming Pr	oblems –	12 Hours
	Advar	ntages of Line	ear Programming methods – Limitations	s of linear	
	progra	amming Mod	el – Graphical Method of Solution.		
	Chapt	er 2: Sections	s 2.1 – 2.9.		
	I			I	
	Linea	r Programm	ing Problem		
	Theor	y of Simple	x method – Some important definition	ns – The	
Unit-II	Simpl	ex method(7	Technique or Algorithm) - Artificial	variables 1	12 Hours
	techni	ques (Big M-	- method only).		
	Chapt	er 2: Sections	\$ 2.13, 2.14, 2.16, 2.17.1		
				I	
	Trans	sportation P	roblems		
Unit-III	Introd	uction to the	model – assumptions in the Transportati	on Model	12 Hours
	–Defi	nition of the	Transportation Model – Matrix Term	nology –	
	Form	lation and s	olution of Transportation Models – V	ariants in	

	Transportation Problems.	
	Chapter 3: Sections 3.1 – 3.6.	
Unit-IV	Assignment Problems Definition of the Assignment model – Mathematical Representation of the Assignment Model – Comparison with the Transportation Model – solution of the Assignment Models – the Hungarian method for solution of the Assignment Problems – Variations of the Assignment Problem –The Travelling Salesman Problem (Shortest Cyclic Route Models). Chapter 4: Sections 4.1 – 4.7 and 4.10	12 Hours
Unit-V	Game Theory The Theory of Games – Characteristics of Games – Games Models – Definitions – Rules for Game Theory –Rule 1. Look for a pure Strategy (Saddle Point) –Rule 2. Reduce Game by Dominance – Rule 3. Solve for Mixed Strategy – Mixed Strategies (2× 2 Games) – Mixed Strategies (2× n Games or m× 2 Games)	12 Hours
	Chapter 9: Sections 9.10 – 9.19	
Recomme	ended Text:	
OPE Chan	RATIONS RESEARCH, Prem Kumar Gupta and D.S. Hira, (2018 7 th d & Co., New Delhi.	Edition), S.
Books for	Reference:	
1. PRO Manr	BLEMS IN OPERATIONS RESEARCH, Kanti Swaroop, P.K. nohan, (2002), Sultan Chand & Son.	Gupta and
2. OPER York	ATION RESEARCH, H.A. Taha, (2003), Macmillan Publishing Comp	any, New
3. OPER	ATIONS RESEARCH, V.K. Kapoor, (1989), Sultan Chand & Sons.	
4. PROI	BLEMS IN OPERATIONS RESEARCH, P.K. Gupta and D.S. Hira d & Co., New Delhi.	a, (2000), S.
5. OPER Wiley	RATIONS RESEARCH, A. Ravindran, D.T. Philips and J.J. Solberg, www. & Sons, New York.	(1987), John

Course cod	e Course	Course Title	Hrs/Week	Credit			
UAMSCE5	1 CB	PROGRAMMING IN C++	4	4			
	Elective 1	:THEORY					
Course Obje	ectives						
1. To in	npart knowledge	of object oriented programming concepts	and implement	nt them			
in C+	+.						
2. To en	2. To enable the differentiate procedure oriented and object-oriented concepts.						
3. To ec	3. To equip the knowledge of concept of Inheritance so that learner understands the need						
of inf	eritance.	town of data hiding in chiest eviented and					
4. 10 ex	plain the impor	tance of data hiding in object oriented prog	ramming				
Course Out	come						
On the succe	ssful completion	n of the course, student will be able to:					
1. Know	v about class str	ucture, member functions & data members,	, inheritance t	ypes and			
exam	ple problems						
2. Unde	rstand now C++	a skills					
J. Deve A. Use f	he objects and c	g skills. Jasses for developing programs					
5. Build	C++ classes.	asses for developing programs.					
	Introduction 1	co C++					
IINIT_I	D · · · · · · · · · · · · · · · · · · ·		12 1	Jours			
	Principles of C	OOP - Beginning with C++ .					
	Chapters : 1 –	2					
			i				
	Classes and O	bjects					
	Functions in C	++ – Tokens, Expressions and Control	10 1	Tauna			
UN11 - II	Structures.	Tonons, Expressions and Control	14 Г	lours			
	Chapters: 4 –	5.					
	Operator Ove	rloading					
LINIT III	Constructors a	nd destructors – Operator Overloading and	Type 12 I	Tours			
	Conversions.	and desirations operation of enfourning and		10015			
	Chapters : 6 –	7					

	Dointors		
UNIT- 1	V Inheritance : Extending Classes – Pointers. Chapter : 8	12 Hours	
	Virtual Functions		
UNIT-`	V Virtual Functions and Polymorphism. Chapter : 9.	12 Hours	
Recomm OBJECT	ended Text: -ORIENTED PROGRAMMING WITH C++, E. Balagurusamy, (1998	s), TMH.	
Books fo	or Reference:		
1. 0	BJECT-ORIENTED PROGRAMMING WITH ANSI AND TURBO	C++, Ashok N	
ŀ	amthane, (2003), Pearson Education.		
2. F	ROGRAMMING WITH C++, D. Ravichandran, (1996), Tata McGraw	⁷ Hill, New	
Ι	elhi.		
3. 0	++ FOR YOU, Maria Litvin and Gray Litvin(2002), Vikas publication		
4. F	ROGRAMMING WITH C, John R Hubbard(2002), 2nd Edition, TMI	I publication.	

Elective	Course	Core	Course Title	Irs/Week	Credit	
UAMS	CE52	CB Elective 1	FUZZY ALGEBRA	4	4	
			Course Objectives			
1. To	o introdu	ice the fuzzy co	ncepts to students			
2. To	o facilita	te the students	to study fuzzy operations and fuzzy numb	ers		
3. To	o introdu	uce the fuzzy or	dering relations and fuzzy morphisms			
Course Or		1 1				
On the st 1 Un	lccessiu	ll completion of	Eugene and their properties			
1. 0	 Onderstand the concept of Fuzzy sets, u-cuts and then properties. Acquire knowledge in operations on Euzzy sets and Euzzy arithmetic and relations. 					
2. Au 3. Un	der the (combination of	operators, arthimetic operators on interval	c and fuzz	IOIIS V	
	uer me v nhers		operators, arunnette operators on interval	s and fuzz	у	
4 Gai	in the kr	nowledge in Bir	ary Fuzzy relations Fuzzy equivalence re	lation and	Fuzzy	
con	npatibili	ity relations.		interiori una	I uzzy	
5. Lea	Irn the F	Fuzzy morphism	and composition of Fuzzy relations.			
	Fuzzy	y sets – Basic	types – Basic concepts - α - cuts	-		
	Addit	tional prosperit	ies of α - cuts – Extension principle f	or		
Unit-I	Fuzzy	y sets.		12 I	Hours	
	Chap	oter 1 sections	1.3, 1.4			
	Chap	oter 2 sections 2	2.1, 2.3			
	Opera	tions on Fuzz	y sets – Types of operations – Fuzz	zy		
Unit-II	comp	lements – Fuzzy	y intersections: t-norms – Fuzzy Unions	s : 12]	Hours	
	t-cond	orms.				
	Chap	ter 3 sections 3	5.1 to 3.4			
	0 1	· · · · · ·		•		
	Comb	of one of open	erations – Fuzzy Arithmetic – Linguist	.1C		
Un:t III	variat	tions on fuzzy n	operations on intervals- Arithmet	.10	Tours	
0111-111	Chan	tor 3 soction 3	5	141	nours	
	Chap	ter 4 section 4	5 1 to 4 4			
	Chap	ter 4 section 4.	1 10 7.7			
	Fuzzy	v relations – Pro	piections and culindric extensions - Bina	rv		
	fuzzy	relations –	Fuzzy equivalence relations – Fuzz	zy		
Unit-IV	comp	atibility relation	s.	121	Hours	
	Chap	ter 5 sections 5	5.1 to 5.3, 5.5, 5.6			
	Fuzzy	v ordering relation	tions - fuzzy morphisms- composition	of		
Unit-V	Fuzzy	relations		12 1	Hours	
	Chap	ter 5 sections 5	5.7 to 5.10			

FUZZY SETS AND FUZZY LOGIC, THEORY AND APPLICATIONS, George J.Klir and Bo Yuan, Prentice Hall Inc., New Jersey. 1995.

Book for Reference:

- 1. FUZZY SET THEORY AND ITS APPLICATIONS(1991), H.J. Zimmermann, Allied Publishers Limited, New Delhi.
- 2. INTRODUCTION TO FUZZY SETS AND FUZZY LOGIC (2006), M Ganesh, Prentice Hall India Learning Private Limited.
- 3. FUZZY SETS THEORY FUZZY LOGIC AND THEIR APPLICATIONS(2013), A.K Bhargava, S Chand & Company

Course Code	Course	Course Title	Hrs/Week	Credit				
UAMSSE51	SB	PROGRAMMING IN C++ :	2	1				
	Elective 1	PRACTICAL						
Course Object	Course Objectives							
1. To impa in C++. 2. To enab	 To impart knowledge of object oriented programming concepts and implement them in C++. To enable the differentiate procedure oriented and object-oriented concepts. 							
of inher	itance.			the need				
4. To expla	ain the impor	tance of data hiding in object oriented prog	ramming					
On the successf	ful completion	n of the course, student will be able to:						
1. Implem	ent the conce	ots of object oriented programming.						
2. Apply s	tring function	s to perform operator overloading.						
3. Demons	strate virtual f	unctions and inheritance.						
4. Impleme	ent files and c	command line arguments.						
PROGRAMS								
Write a C++ Pr	ogram to get							
• Prim	e numbers be	tween two given numbers.						
• First	• First N Fibonacci numbers.							
• Addi	• Addition of matrices.							
• Asce	nding and de	scending orders in a given array.						
• Com	puting the po	wer of a number.						
• Basic	c arithmetic o	perations.						

- Number of vowels and consonants in a string.
- Solving quadratic equations.
- Swapping two given strings.
- Sorting techniques.

OBJECT-ORIENTED PROGRAMMING WITH C++,E. Balagurusamy, (1998), TMH.

Books for Reference:

- 1. OBJECT-ORIENTED PROGRAMMING WITH ANSI AND TURBO C++,Ashok N Kamthane, (2003), Pearson Education.
- 2. PROGRAMMING WITH C++, D. Ravichandran, (1996), Tata McGraw Hill, New Delhi.
- 3. C++ FOR YOU, Maria Litvinand Gray Litvin(2002), Vikas publication.
- 4. PROGRAMMING WITH C, John R Hubbard(2002), 2nd Edition, TMH publication.

SB Elective	Course	Course Title	Hrs/Week	Credit
UAMSSE52	SB Elective 1	ASTRONOMY	2	1
Course Obje	ctives			
1. To gi	e knowledge abo	it space		
2. To int	roduce the excitin	g world of astronomy to the students		
3. To fai	niliarize the stude	nts with the earth and Kepler's laws		
4. To ga	in knowledge abou	it spherical trigonometry.		
Course Outo	ome			
On the succes	ssful completion o	f the course, student will be able to:		
1. Under	stand the spherica	l trigonometry.		
2. Gain	knowledge about t	he celestial sphere.		
3. Explo	re the zones of ear	th.		
4. Study	the nature and pro	operties of earth.		
5. Analy	ze Kepler's laws	-		
S	oherical Trigonor	netry		
Unit-I S _I	ohere – Distance b	petween two points – Angle between tw	o circles 6	Hours
	herical triangle	- Polar Triangle - Properties of S	Spherical	

	Triangles – Cosine Formula – Sine formula – Cotangent formula –Five part formula – Functions of Half an angel – Functions of Half a	
	side- Delambre's analogies - Napier Analogies - Right Angle	
	Triangle- Napier Rules - The Spherical and rectangular Coordinates	
	Chapter -1 Sections 1 – 37	
	Celestial sphere, Diurnal Motion	
	Astronomy - Celestial Sphere - Diurnal motion - Equinoxes and	
	Solstices -Celestial Co-ordinates -Conversion of Co-ordinates - Co-	
Unit-II	ordinates of Sun -Sidereal time - Latitude of a place - Hour angle at	6 Hours
	rising – Azimuth at rising – Changes in azimuth – Morning and evening stars	
	Chapter -2 Sections 39 – 84	
	The Earth	
Unit-III	Zones of Earth – Terrestrial Latitudes and Longitudes	6 Hours
	Chapter – 3 Sections 87 – 91	
	The Earth(contn.)	
Unit-IV	Radius of Earth - Rotation of Earth - Dip of Horizon - Twilight	6 Hours
	Chapter – 3 Sections 102 – 116	
	Kepler's Law	
Unit-V	Kepler's law of planetary motion –Longitude of Perigee –Eccentricity of Earth's orbit – verification of Kepler's laws – Newton's Deductions – Newton's law of Gravitation – Correct form of Kepler's third law – Mass of a planet – True and eccentric anomalies – Mean Anomaly – Keplers Equation	6 Hours
	Chapter -6 Sections 146 – 164	

ASTRONOMY FOR DEGREE CLASSES, Reprint (2000), Kumeravelu and Susila Kumeravelu, Muruga Bhavanam, Chidambara nagar, Nagercoil

Books for Reference:

- 1. ASTRONOMY, G.V Ramachandram, Mission Press, Palayamkottai (1989).
- **2.** ASTRONOMY FOR GRADUATE AND POST GRADUATE CLASSES, Rukumani Ramachandran, Trichirapally 1968.
- **3.** A TEXT BOOK OF ASTRONOMY, V. Thiruvenkatacharya, S. Chand and Co., Pvt Ltd., 1972

SEMESTER VI

Course C	Code	Course	Course Title	Hrs/We	eek	Credit
UAMS6	001	Core13	MODERN ALGEBRA – II	5		4
Course O	bjecti	ves				
1. To	study	the Algebra	c Structures of Vector Spaces			
2. To	study	the concept	of Linear Transformation.			
3. To	study	the application	ons of Linear Transformation.			
Course O	utcom	ie				
On the suc	ccessfu	al completion	n of the course, student will be able to:			
1. Ur	ndersta	nd the basic	concepts of Vector space.			
2. Ap	oply th	e Gram-Sch	midt process to construct an orthonormal	set of v	vecto	ors in an
inı	ner pro	duct space.				
3. De	emonst	rate compete	ence with the basic ideas of Linear transform	nation.		
4. Ar	halyze	the canonica	l and triangular forms.			
5. AC	Vecto	r Spaces	Trace and Transpose.			
	veen	of spaces				
Unit-I	-I Elementary Basic Concepts – Linear Independence and Bases.				15 H	lours
	Chap	oter 4: Section	ons 4.1 – 4.2.			
	1					
	Vecto	or Spaces (C	Contd)			
Unit-II	Dual	Spaces – Inr	ner Product Spaces.		15 H	lours
	Chap	oter 4: Section	ons 4.3 – 4.4.			
				I		
	Linea	ar Transfor	mations			
Unit-III	The A	Algebra of Li	near Transformations – Characteristic Roo	ts.	15 H	lours
	Chapter 6: Sections 6.1 – 6.2.					
	I			I		
	Linea	ar Transfor	mations (Contd)			
Unit-IV	Matri	ices – Canon	ical Forms: Triangular Form.		15 H	Iours

	Chapter 6: Sections 6.3 – 6.4.	
	Linear Transformations (Contd)	
Unit-V	Trace and Transpose.	15 Hours
	Chapter 6: Section 6.8.	
Decomm	and ad Tout	

TOPICS IN ALGEBRA, I.N. Herstein (Reprint 2016), 2ndEdn, Wiley Indian Pvt. Ltd., New Delhi.

Books for Reference:

- 1. MODERN ALGEBRA, S. Arumugam, (2004), Scitech Publications, Chennai.
- 2. MODERN ALGEBRA, M.L. Santiago, (2002), Tata McGraw Hill, New Delhi.
- 3. MODERN ALGEBRA, Surjeet Singh and Qazi Zameeruddin, (1982), Vikas Publishing House Pvt. Ltd., New Delhi.

Course Code	Course	Course Title	Hrs/Week	Credit			
UAMS6002	Core 14	REAL ANALYSIS – II	5	4			
Course Objective	S						
1. To underst	and Integrat	ion process of Riemann.					
2. To develop	the underst	anding of point wise and uniform conver-	gence of sequ	ence and			
series of fu	nctions.						
3. To enhance	e the mather	natical maturity to work comfortably with	1 concepts.				
Course Outcome	Course Outcome						
On the successful	completion	of the course, student will be able to:					
 Gain know Identify the Acquire in- 	ledge about e Uniform c -depth knov	connectedness and completeness ontinuity using compact metric space. Vedge on Riemann integrals					
4. Analyze th	e concept of	f fundamentals of calculus					
		222					

5. Fii	nd the convergence of sequence and series of Functions	
Unit-I	Connectedness, Completeness More about open Sets – Connected Sets – Bounded Sets and Totally Bounded Sets – Complete Metric Spaces. Chapter 6 : Section 6.1 to 6.4	15 Hours
Unit-II	Compactness Compact Metric Space – Continuous Functions on Compact Metric Spaces – Continuity of Inverse Functions – Uniform Continuity. Chapter 6 : Section 6.5 to 6.8	15 Hours
Unit-III	Calculus Sets of measure zero - Definition of the Riemann Integral – Properties of the Riemann Integral – Derivatives – Rolle's Theorem – The law of the Mean – Fundamental Theorem of Calculus. Chapter 7 : Section 7.1, 7.2, 7.4, 7.5, 7.6, 7.7, 7.8(Omit Sections 7.3)	15 Hours
Unit-IV	Calculus(Contd) and Taylor series Improper Integrals – Taylor's theorem – The binomial theorem – L'Hospital rule Chapter 7 : Section 7.9 Chapter 8: Section 8.5,8.6 and 8.7	15 Hours
Unit-V	Sequence and Series of Functions Pointwise convergence of sequence of functions – Uniform convergence of sequence of functions – Consequences of uniform convergence – Convergence and uniform convergence of series of	15 Hours

functions – Integration and differentiation of series of functions.

Chapter 9 : Section 9.1 to 9.5

Recommended Text:

METHODS OF REAL ANALYSIS, Richard R. Goldberg, Reprint (2019),Oxford & IBH Publishing Co., New Delhi

Books for Reference:

- MATHEMATICAL ANALYSIS, Tom M. Apostol, (1974), 2nd Edition, Addison Wesley, New York.
- 2. REAL ANALYSIS, Bertle, R.G. and Shebert, (1976), John Wiley and Sons, New York.
- 3. MATHEMATICAL ANALYSIS, Malik, S.C. and Savita Arora, (1991), Wiley Eastern Limited, New Delhi.
- 4. INTRODUCTION TO REAL ANALYSIS, Sanjay Arora and Bansi Lal, (1991), Satya Prakashan, New Delhi.

Course CodeCourseCourse TitleHrs/Week					k Cred	lit	
UAMS	UAMS6003Core 15COMPLEX ANALYSIS II5						
Course Objectives							
1. To	study	the complex	behavior of complex-valued functions.				
2. To	study	the use of g	eneral Cauchy integral theorem and formula	a.			
3. 10 4 To	study i	the Residue	theorem to compute several kind of real in tions as infinite series	tegrals.			
Course O	outcom	e					
On the cu	aaaafu	laomnlatio	of the course, student will be able to:				
On the suc	ccessiu	r completion	f of the course, student will be able to:				
1. Ac	equire t	he knowled	ge of Complex integration				
2. Ur	nderstar	nd the vario	us types domains and integral formulas				
3. Di 4. Re	epresent	t the series f	form of analytic functions in its domain				
5. Co	ompute	the integrat	ion using Cauchy Residue theorem and con	tour integr	ation		
tec	chnique	es.		-			
	Comp	olex Integra	tion:				
	Introd	uction –	General Definitions – Rectifiable c	urves-			
	Riema	ann's defini	tion of Integration – Evaluation of some in	tegrals			
Unit-I	– Cor	mplex integ	ral as sum of two real line integrals -	Some 1	5 Hours		
	eleme	ntary prope	rties of complex integrals – An upper Boun	d for a			
	compl	lex integral.					
	Chapter 5: Sections: 5.1 to 5.8						
				i			
	Comp	olex Integra	tion (Contd)				
	Cauch	y's Theore	m – Cauchy Gousrat's theorem – Con	nected			
	Regio	n, Simply-C	Connected Region and Multi-Connected Re	gion –			
Unit-II	Cross	cut – Exte	nsion of Cauchy's Theorem to multi-Con	nected 1	5 Hours		
	region	n – Indefir	ite integral – Derivative of $F(z)$ - Ca	uchy's			
	Integr	al formula					
	Chapter 5: Sections: 5.9 to 5.15						
Unit-III	Comp	olex Integra	tion (Contd)	1	5 Hours		
	Extension of Cauchy Integral formula to multi-connected regions –						

	Cauchy's Integral formula for the Derivative of an Analytic Function – Analytic character of the successive derivatives of an analytic function – Morea's theorem – Cauchy's Inequality – Liouville's Theorem	
	Chapter 5: Sections: 5.16 to 5.21	
	Complex Integration (Contd)	
Unit-IV	Taylor's theorem – Laurent's Theorem – Related problems	15 Hours
	Chapter 5: Sections: 5.23, 5.24	
	The Calculus of Residues	
	Introduction – Definition of the Residue at infinity – To show that $f(x) = f(x)$	
Unit-V	a function $f(z)$ may be analytic at $z = \infty$ but it has a residue at $z = \infty$ – Cauchy's Residue Theorem – Computation of Residue at a finite pole – Computation of Residue at infinity – Evaluation of Real definite integrals by contour integration –Integration Round the Unit Circle.	15 Hours
	Chapter 8: Sections: 8.1 to 8.8	
Recomme	ended Text:	
FU Kedar Na	JNCTIONS OF A COMPLEX VARIABLE, B.S. Tyagi, (2020), ath Ram Nath Publications, Meerut, Delhi	First Edition,
Books for	· Reference:	
1. CO (1)	OMPLEX VARIABLES AND APPLICATIONS, R.V. Churchill and . 990), McGraw Hill International Book Co., Singapore.	J.W. Brown,
2. CO	OMPLEX ANALYSIS, P. Duraipandian & Laxmi Duraipandian, (197 blishers, Chennai	6), Emerald
3. FC Pu	DUNDATIONS OF COMPLEX ANALYSIS, S. Ponnusamy, (2000), I blishing House, New Delhi.	Narosa

UAMS6004 Core 16 DVNAMICS 5						
CAMBOUGH COLC ID DIMAMICS 5	4					
Course Objectives						
1. Applications of Projectile in practical problems.						
2. Direct impact of two smooth spheres.						
3. Behavior of elastic bodies in real life problems.						
4. Simple Harmonic Motion and its Applications.						
5. Law of forces in central orbit.						
Course Outcome						
On the successful completion of the course, student will be able to:						
1. Understand the concept of projectile and their range.						
2. Analyze the knowledge in Fundamental law of impact and loss of kinetic energy	y due					
to direct impact.	_					
3. Discuss the oblique impact, loss of kinetic energy due to oblique impact of	f two					
smooth spheres.						
4. Find the general solution of SHM and Composition of two SHM.	madal					
5. Acquire the knowledge velocity and acceleration in polar coordinates and p	pedal					
Projectiles						
Introduction – Definitions – Two fundamental principles – To						
show that the path of a projectile is a parabola–Characteristics of						
the motion of a projectiles-A particle is projected horizontally						
from a point at a certain height above the ground: to show that the						
path described by it is a parabola – To determine when the	_					
Unit-I horizontal range of a projectile in maximum, given the magnitude 15 He	ours					
of the velocity of projection–To show that, for a given initial						
velocity of projection there are, in general two possible directions						
of projections so as to obtain a given horizontal range–Range on						
an inclined plane.						
Chapter6: Sections 6.1 to 6.8, 6.12						
Collision of Elastic Bodies						
Introduction – Definitions - Fundamental laws of impact - Impact						
Unit-II of a smooth sphere on a fixed smooth plane–Direct impact of two 15 He	ours					
smooth spheres–Loss of kinetic energy due to direct impact of two						
smooth spheres.						
Chapter8 :Sections8.1 to 8.6						
Colligion of Florido Dodiog (Contra)						
Oblique impact of two smooth spheres. Loss of kinetic operation						
Unit-III due to oblique impact of two smooth spheres – Compression and 15 He	ours					
Restitution – Impact of a particle on a rough plane						

	Chapter8 :Sections8.7 to 8.8, 8.10,8.11	
	Simple Harmonic Motion	
	Introduction – Simple Harmonic Motion in a Straight line –	
	General solution of the S.H.M. equation – Geometrical	
	Representation of a Simple Harmonic Motion- Change of origin –	
Unit-IV	Composition of two Simple Harmonic Motions of the same period	15 Hours
	and in the same straight line- Composition of two Simple	
	Harmonic Motions of the same period in two perpendicular	
	directions.	
	Chapter10 : Sections10.1to 10.7	
	Motion under the Action of Central Forces	
	Introduction – Velocity and Acceleration in Polar Coordinates –	
	Equations of Motion in Polar Coordinates - Note on the	
	equiangular spiral – Motion under a central force – Differential	
Unit-V	equation of central orbits Perpendicular from the pole on the	15 Hours
	tangent Formulae in polar coordinates - Pedal equation of the	
	central orbit – Pedal equation of some of the well-known curves–	
	Velocities in a central orbit.	
	Chapter11:Sections 11.1 to11.10	

DYNAMICS, Dr. M.K. Venkataraman (2017), Eighteenth Edition, Agasthiar Publications.

Books for Reference:

1. DYNAMICS, A.V. Dharmapadham, S.Viswanathan Printers & Publishers Pvt Ltd2006.

2. DYNAMICS, M.L. Khanna, Jai Prakash Nath And Company, 2004.

Course co	ode	Course	Course Title	Hrs/Wee	k Credit			
UAMS60	05	Core 17	OPERATIONS RESEARCH – II	4	4			
Course Ob	Course Objectives							
1. To	deve	lop computationa	l skills and logical thinking in formulat	ing industr	y oriented			
problems as mathematical problems and finding solutions to these problems								
2. To enhance the mathematical maturity and to work comfortably with concepts.								
Course Ou	itcon	ne						
On the succ	cessf	ul completion of	the course, student will be able to:					
1. Cal	culat	e the replacement	, recruitment and promotion in real wo	rld probler	ns			
2. Solv	ve th	e real time proble	ms using network scheduling by PERT	'/ CPM				
3. Fine	d the	solution of seque	encing problems.					
4. Acc	quire	the knowledge of	of solving managerial problems using	various te	chniques in			
5 Get	ratio deci	ns research sions in Manager	nent problems					
Unit-I	REP	LACEMENT P	ROBLEMS	1	2 Hours			
	Intro Repl Chaj	ate –						
Unit-II	NET	WORK ANALY	SIS IN PROJECT PLANNING (PE	RT 12	2 Hours			
	and	CPM)	×					
	Proje Cont and Tech Arro Activ Diag Revi Cha j	ect – Project F rolling – Work Techniques of miques in Project w Diagram) – N vity on Node F rams- Critical F ew Technique (Pf pter 14 : Section	Planning – Project Scheduling – H Breakdown Structure (W.B.S)- Basic project Management – Role of ne t Management- Network Logic (Netw Numbering the Events (Fulkerson's R Diagram- Merits and Demerits of Path Method – Progamme Evaluatio ERT) s 14.1 to 14.13	Project Tools etwork ork or ule) – AON n and				
IIn:4 III	<u>SEO</u>	TIENCING DDC	NDI EMC	1/) Uouna			
	SEQ	ULINUING PRU	DLENIS		2 MOULS			
	Sequ	encing problem	- Assumptions in Sequencing Prob	lem –				

	Processing n jobs through One machines – Processing n jobs	
	through Two machines $-$ Processing n jobs through Three	
	machines – Processing two jobs through <i>m</i> machines –	
	Processing n jobs through m machines.	
	Chapter 5 :Sections 5.1 to 5.7	
Unit-IV	QUEUING THEORY	12 Hours
	Application of Oueuing Models- Introduction – Element of a	
	Oueuing System (Structure of a Oueuing System) – Operating	
	Characteristics of a Oueuing System – Waiting Time and Idle time	
	Costs – Transient steady states of the system – Kendall's Notation	
	for Representing Oueuing Models – Classification of Oueuing	
	Models – Single – Channel Oueuing Theory – Model VI. Multi-	
	channel Oueuing Theory Model (M/M/C): (FCFS/ ∞ / ∞)	
	Chapter 10 : Sections 10.1 to 10.10	
Unit-V	DECISION THEORY	12 Hours
	Steps in decision theory approach- Decision making environments	
	Steps in decision theory approach- Decision making environments - Decision making under conditions of certainity- Decision making	
	Steps in decision theory approach- Decision making environments - Decision making under conditions of certainity- Decision making under conditions of uncertainity- Decision making under	
	Steps in decision theory approach- Decision making environments - Decision making under conditions of certainity- Decision making under conditions of uncertainity- Decision making under conditions of risk.	
	Steps in decision theory approach- Decision making environments - Decision making under conditions of certainity- Decision making under conditions of uncertainity- Decision making under conditions of risk. Chapter 9: Sections 9.1 to 9.5	
	 Steps in decision theory approach- Decision making environments Decision making under conditions of certainity- Decision making under conditions of uncertainity- Decision making under conditions of risk. Chapter 9: Sections 9.1 to 9.5 	
Recomm	Steps in decision theory approach- Decision making environments - Decision making under conditions of certainity- Decision making under conditions of uncertainity- Decision making under conditions of risk. Chapter 9: Sections 9.1 to 9.5 ended Text:	
Recomm OPERAT	Steps in decision theory approach- Decision making environments - Decision making under conditions of certainity- Decision making under conditions of uncertainity- Decision making under conditions of risk. Chapter 9: Sections 9.1 to 9.5 ended Text: IONS RESEARCH, P.K. Gupta and D.S. Hira (2018 7 th Edition),S.	Chand & Co.,
Recommo OPERAT New Delh	Steps in decision theory approach- Decision making environments - Decision making under conditions of certainity- Decision making under conditions of uncertainity- Decision making under conditions of risk. Chapter 9: Sections 9.1 to 9.5 ended Text: IONS RESEARCH, P.K. Gupta and D.S. Hira (2018 7 th Edition),S. ni	Chand & Co.,
Recommo OPERAT New Dell Books for	Steps in decision theory approach- Decision making environments - Decision making under conditions of certainity- Decision making under conditions of uncertainity- Decision making under conditions of risk. Chapter 9: Sections 9.1 to 9.5 ended Text: IONS RESEARCH, P.K. Gupta and D.S. Hira (2018 7 th Edition),S. ni	Chand & Co.,
Recommo OPERAT New Della Books for	Steps in decision theory approach- Decision making environments - Decision making under conditions of certainity- Decision making under conditions of uncertainity- Decision making under conditions of risk. Chapter 9: Sections 9.1 to 9.5 ended Text: IONS RESEARCH, P.K. Gupta and D.S. Hira (2018 7 th Edition),S. ni r Reference: PERATIONS RESEARCH: THEORY AND APPLICATIONS	Chand & Co.,
Recommo OPERAT New Delh Books for 1. Ol	Steps in decision theory approach- Decision making environments - Decision making under conditions of certainity- Decision making under conditions of uncertainity- Decision making under conditions of risk. Chapter 9: Sections 9.1 to 9.5 ended Text: IONS RESEARCH, P.K. Gupta and D.S. Hira (2018 7 th Edition),S. ni r Reference: PERATIONS RESEARCH: THEORY AND APPLICATIONS, 998) Macmillan, New Delhi.	Chand & Co., J.K. Sharma,
Recommo OPERAT New Delh Books for 1. OI (1 2. PH	Steps in decision theory approach- Decision making environments - Decision making under conditions of certainity- Decision making under conditions of uncertainity- Decision making under conditions of risk. Chapter 9: Sections 9.1 to 9.5 ended Text: IONS RESEARCH, P.K. Gupta and D.S. Hira (2018 7 th Edition),S. ni r Reference: PERATIONS RESEARCH: THEORY AND APPLICATIONS, 998) Macmillan, New Delhi. ROBLEMS IN OPERATIONS RESEARCH, Kanti Swaroop, P.F	Chand & Co., J.K. Sharma, K. Gupta and
Recommo OPERAT New Della Books for 1. OI (1 2. PH M	Steps in decision theory approach- Decision making environments - Decision making under conditions of certainity- Decision making under conditions of uncertainity- Decision making under conditions of risk. Chapter 9: Sections 9.1 to 9.5 ended Text: IONS RESEARCH, P.K. Gupta and D.S. Hira (2018 7 th Edition),S. hi r Reference: PERATIONS RESEARCH: THEORY AND APPLICATIONS, 998) Macmillan, New Delhi. ROBLEMS IN OPERATIONS RESEARCH, Kanti Swaroop, P.F anmohan, (2002), Sultan Chand & Sons.	Chand & Co., J.K. Sharma, K. Gupta and
Recommo OPERAT New Delh Books for 1. Ol (1 2. PH M 3. Ol	Steps in decision theory approach- Decision making environments - Decision making under conditions of certainity- Decision making under conditions of uncertainity- Decision making under conditions of risk. Chapter 9: Sections 9.1 to 9.5 ended Text: IONS RESEARCH, P.K. Gupta and D.S. Hira (2018 7 th Edition),S. ni r Reference: PERATIONS RESEARCH: THEORY AND APPLICATIONS, 998) Macmillan, New Delhi. ROBLEMS IN OPERATIONS RESEARCH, Kanti Swaroop, P.F anmohan, (2002), Sultan Chand & Sons. PERATIONS RESEARCH, A. Ravindran, D.T. Philips and J.J. So	Chand & Co., J.K. Sharma, K. Gupta and Iberg, (1987),
Recommo OPERAT New Delh Books for 1. Ol (1' 2. PF M 3. Ol Jo	Steps in decision theory approach- Decision making environments - Decision making under conditions of certainity- Decision making under conditions of uncertainity- Decision making under conditions of risk. Chapter 9: Sections 9.1 to 9.5 ended Text: IONS RESEARCH, P.K. Gupta and D.S. Hira (2018 7 th Edition),S. ni r Reference: PERATIONS RESEARCH: THEORY AND APPLICATIONS, 998) Macmillan, New Delhi. ROBLEMS IN OPERATIONS RESEARCH, Kanti Swaroop, P.F anmohan, (2002), Sultan Chand & Sons. PERATIONS RESEARCH, A. Ravindran, D.T. Philips and J.J. So hn Wiley & Sons, New York.	Chand & Co., J.K. Sharma, K. Gupta and Iberg, (1987),

New York.

5. OPERATIONS RESEARCH, S.J. Venkatesan, J.S. Publishers, Cheyyar.

Course Code	Course	Course Title	Hrs/Week	Credit
UAMSCE61	СВ	Mathematics For ompetitive	4	4
	Elective 2	Examinations		
		Course Objectives		
1. To de	evelop know	ledge in the concepts of Mathematics for Compe	titive	
Exam	inations and	d its applications.		
2. To de	evelop exper	tise in mathematics.		
3. To en	hance probl	em solving techniques.		
4. To en	able studen	ts to formulate, interpret and draw inferences from	m mathemati	ical
soluti	ons.			
Course Outco	ome			
On the succes	sful comple	tion of the course, student will be able to:		
	e the knowl	ada of numbers and simplification in mathemat	ice	
1. Acquil 2 Prepar	e for compa	titive examinations	105	
2. Frepar	ageing prob	lems		
4 Acquir	the knowl	edge of calculating time and work & time and di	stance	
i. riequi	N N	umbers HCF & LCM of Numbers	btuilee	
Unit-I	Chapter: 1 and 2			
		Simplification - Average		
Unit-II		Chapter: 4 and 6	12 Hours	
		<u>*</u>	I	
	Pro	blem on Numbers and Problem on Ages	10 11	
Unit-III		Chapter: 7 and 8	12 H	ours
			I	
IImit IV		Time & Work and Time & Distance	12 11	011100
Unit-1 v		Chapter:15 and 17	12 П	ours
Unit_V		Calendar - Clocks	12 н	ours
Omt-v		Chapter: 28 and 29	12 11	louis
		Recommended Text:		
OBJE	CTIVE ARI	THMETIC, Dr. R. S. Aggarwal, S. Chand public	ations. Ed: 2	2014

Books for Reference:

- 1. QUANTITATIVE APTITUDE FOR COMPETITIVE EXAMINATIONS, Abhijit Gupta, Tata McGraw Hill Publisher,2009.
- 2. QUANTITATIVE APTITUDE, P. Gupta, Unique Publisher, 2013.
- 3. QUANTITATIVE APTITUDE FOR COMPETITIVE EXAMINATIONS, U.MohanRao, SCITECH Publications (India) Pvt Ltd. 2013.

Course (Code Course	Course Title	Hrs/Week	Credit				
UAMSC	E62 CB Elective 2	GRAPH THEORY	4	4				
	·	Course Objectives						
1. To	o develop knowledg	e in the concepts of graphs, sub graphs, tro	ees, connecti	ivity,				
Eı	ulerian graphs, Ham	ltonian graphs and trees.						
2. To	2. To apply graph theory based tools in solving practical problems.							
3. To	o enhance problem s	olving skills.						
4. To	o model real world p	roblems using graph theory.						
Course O	utcome							
On the suc	cessful completion	f the course, students will be able to:						
1. Sol	lve problems using b	asic graph theory						
2. Ide	ntify induced sub gr	aphs , matching, covering graph						
3. De	termine whether gra	ohs are Hamiltonian and/or Eulerian.						
4. Sol	lve problems involvi	ng vertex and edges connectivity						
5. Un	derstand the concep	of matrices in graphs.						
		Graphs and Subgraphs						
TI-si4 T	Definition and	Examples – Degrees – Subgraphs	- 12	Hanna				
Unit-1	Isomorphism – Ind	ependent Sets and Coverings.	12	Hours				
	Chaj	ter 2: Section 2.1 to 2.4 & 2.6						
			I					
	Matrices and Deg	ree Sequences						
	Matrices – Adjace	ncy and incidence matrices - Operations	s on					
Unit-II	Graphs – Degree S	equences – Graphic Sequences.	12	Hours				
	C	hapter 2: Section 2.8 to2.9						
	C	hapter 3: Section 3.1 to3.2						
	I		I					
		Connectedness						
Ilait III	Walks, Trials and	Paths - Connectedness and Components	;- 12	Hauna				
Unit-III		Blocks – Connectivity.	12	nours				
	C	hapter 4: Section 4.1 to 4.4						
	Eule	rian and Hamiltonian Graphs						
Unit-IV	Euleri	an graphs – Hamiltonian graphs.	12	Hours				
	C	hapter 5: Section 5.1 & 5.2						
		Trees and Matchings						
	Trees: Characteris	ation of Trees - Centre of a Tree - sin	nple					
In:4 V	problems. Match	ings: Matchings – Matchings in Bipa	rtite	Houng				
Unit-V	Graphs		12	110015				
	C	hapter 6: Section 6.1 & 6.2						
	C	hapter 7: Section 7.1 & 7.2						

INVITATION TO GRAPH THEORY, S. Arumugam and S. Ramachandran, (2013), SCITECH Publications India Pvt. Ltd. Chennai

Books for Reference:

- 1. GRAPH THEORY, S. Kumaravelu, Susheela Kumaravelu, Publishers, 182, Chidambaram Nagar, Nagercoil-629002.
- 2. BASIC GRAPH THEORY, K.R. Parthasarathy, McGraw-Hill Professional Publishing.
- 3. A FIRST COURSE IN GRAPH THEORY, S.A. Choudham, Macmillan India Ltd.
- 4. INTRODUCTION TO GRAPH THEORY, Robin J. Wilson, Longman Group Ltd.
- 5. GRAPH THEORY WITH APPLICATIONS, Bondy and U.S.R. Murthy, Macmillon, London.

Course Code	Course	Course Title	Hrs/Week	Credit				
UAMSSE61	SB Elective 2	Latex Lab	2	1				
Course Object	Course Objectives							
This course aims to practice the students in Mathematics document preparation and utilizing the software facility available for tedious computations								
Course Outcor	ne							
On the successf	ul completion of	the course, student will be able to:						
 Prepare Prepare 	any documents. articles for journa	als and chapters in books.						
		List of Exporimonts						
1 .		List of Experiments						
1. Intro	oduction & Docu	ment Structures						
2. Typ 3. Tab	les and Figures							
3. Tab 4. Fau	ations							
5. Inse	erting references							
Recommended	Text:							
LAB Manual, prepared by the Department of Mathematics								
Books for Refe	erence:							
 A DOC Pearson Online I 	UMENTATION I Publishers, New Latex Manual	PREPARATION SYSTEM LATEX, Delhi	Leslie Lampor	t,				

Course Code	e Course	Course Title	Hrs/Week	Credit
UAMSSE62	SB Elective	FINANCIAL MATHEMATICS	2	1
	2	Course Objectives		
1 To dev	velon knowledge	in the concepts of Financial Mathematics an	d its applic	ations
2 To dev	elop expertise i	n Financial Mathematics	ta no appire	auono.
2. To dev	ance problem s	alving techniques		
J. To end	ble students to f	formulate interpret and draw informations from	mothomoti	
4. 10 ella	ible students to I	ormutate, interpret and draw interences from	maneman	icai
Course Outco	me			
On the success:	ful completion of	f the course, student will be able to:		
1. Calcula	te the percentag	e related problems.		
2. Acquire	e knowledge of p	profit and loss in business.		
3. Find sir	nple interest and	l compound interest in financial sector.		
4. Compar	re the interest ca	lculation in simple interest and compound in	terest.	
5. Underst	and the share an	id stocks.	1	
∐nit-I		Percentage - Profit & Loss	6 Ho	urs
	Chapter:10 & 11		0 110 115	
Unit-II	R	atio & Proportion – Partnership	6 Hours	
Omt-H		Chapter: 12 & 13		
Unit-III	Sir	nple interest - Compound interest	6 Ho	urs
		Chapter: 21 & 22		
	т			
Unit-IV	11	Chapter: 25 & 26	6 Ho	urs
Chapter .25 & 20				
Stocks & Shares				
Unit-V		Chapter:27	6 Hours	
Recommended Text:				
OBJE	ECTIVE ARITH	METIC, Dr. R. S. Aggarwal, S.Chand public	cations. Ed:	2014

Books for Reference:

- 1. QUANTITATIVE APTITUDE FOR COMPETITIVE EXAMINATIONS, Abhijit Gupta, Tata McGraw Hill Publisher, 2009.
- 2. QUANTITATIVE APTITUDE, P. Gupta, Unique Publisher, 2013.
- 3. QUANTITATIVE APTITUDE FOR COMPETITIVE EXAMINATIONS, U.Mohan Rao, SCITECH Publications(India) PvtLtd.2013.

DEPARTMENT OF PHYSICS 15TH BOS APPROVED UG SYLLABI FOR

V & VI SEMESTERS

SEMESTER V				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UAPY5001	Core 5	ELECTRICITY AND ELECTROMAGNETISM	5	5
Course Obje	ctives			
To introduce	the laws gove	erning the distribution and propagation	n of electroma	agnetic fields
created by sta	tic and dynami	c charge distributions and their interaction	on with matter.	
Course Outc	omes			
 Understand the fundamental laws of electrostatics and their applications. Demonstrate working and applications of capacitors. Articulate the knowledge of magnetic effect of electric currents. Understand the fundamentals of electromagnetic induction and its significance. Explain and differentiate the fundamentals of DC and AC circuits and their working. Understand the Maxwell's equation and their application. 				
Unit-I	Electric Field	l and Potential		15 Hours
and quantization of charge-calculation of $E(r)$ for simple distributions of charge at rest. monopole, dipole. Work done on a charge in an electrostatic field expressed as a line integral – Electric field as a gradient of scalar field $E(r) = -\nabla V$ – Potential at a point due to uniformly charged conducting sphere-Potential due to an infinitely charged long wire- Potential at a point on the Rim of the disc and electric field- Potential Energy due to charge distribution- Electrostatic energy of a uniformly charged sphere. Flux of the electric field- Gauss law and its applications for finding electric field- Coulomb's Theorem – Poisson's and Laplace's Equations.				
Unit-II Dielectric Polarization and Magnetic effects		15 Hours		
Capacitors and Dielectrics: Capacitance-capacitance of a parallel plate capacitor-A cylindrical capacitor-A spherical capacitor-Force of attraction between capacitor plates-Polarisation of a dielectric - capacitance of a parallel plate capacitor when completely and partially filled with dielectric. Magnetic fields due to steady currents: Biot and Savart's law –Magnetic field along the axis of a circular coil-Magnetic field due to a solenoid carrying current – Helmholtz galvanometer - Moving coil ballistic galvanometer – Theory – dead beat and ballistic conditions-Damping correction – Determination of the absolute capacity of a condenser using BG				
Unit-III	Electromagn	etic Induction		15 Hours
Faraday's laws of electromagnetic induction – Integral and differential form – Self Induction- Expression for self inductance of a coil- Determination of self-inductance of a coil using Rayleigh's method- Calculation of self inductance – Two parallel wires – Two coaxial cylinders – Toroidal coil of rectangular cross section – Mutual inductance – Expression for mutual				

inductance- Experimental determination of mutual inductance – Coefficient of coupling.

Unit-IV Circuit Analysis

15 Hours

DC Circuit: Growth and decay of current in a circuit containing resistance and inductance – Growth and decay of charge in a circuit containing resistance and capacitor- Measurement of High Resistance by the method of leakage- Dissipation of energy during charging of the capacitor – Growth and decay in an LCR circuit – Condition for the discharge to be oscillatory-frequency of oscillation.

AC Circuit: Peak, average and RMS values of AC voltage and current – AC circuit analysis using complex variable with LR, RC and LCR - series and parallel resonance circuits – Quality factor (sharpness of resonance)- Comparative study of a series Resonant and a parallel Resonant circuit- Wattless current.

Unit-V

Magnetism and Maxwell's Equations

15 Hours

Magnetic induction-Magnetic flux-solenoidal nature of vector filed of induction-Relation between magnetic induction, intensity of magnetisation and magnetic field intensitymagnetic susceptibility-permeability-classification of magnetic materials-Langevin's theory of Diamagnetism- Langevin's theory of Paramagnetism-Domain theory of Ferromagnetism-Weiss's molecular field theory of Ferromagnetism- Displacement current-Magnitude of displacement current- Maxwell's equation- Maxwell's equation in free space-Propagation of electromagnetic wave in a non conducting medium- Hertz experiment.

Books for Study:

1. Duggal and Chhabra, Electricity and Magnetism, Vishal Publishing Co,2004.

2. M. Narayanamurthy and N. Nagarathnam, Electricity and Magnetism 5th Edition

National Publishing Co. Meerut.

3. R. Murugeshan – Electricity and Magnetism 9th Edition 2009 S. Chand and Co.

New Delhi.

4. Brijlal N. Subramanyan and Jivan Seshan Electricity and Magnetism, Eurasia Publishing House (Pvt) Ltd, New Delhi.

Books for Reference:

1. Sehgal D.L. Chopra K.L. Sehgal NK – Electricity and Magnetism, Sultan Chand and Sons, New Delhi.

2. David J. Griffiths Introduction to Electrodynamics 2nd Edition 1997 Prentice Hall ofIndia Pvt. Ltd. New Delhi.

3. Electricity and Magnetism by K.K. Tewari S. Chand and 3rd Edition 2001.

SEMESTER V				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UAPY5002	Core 6	ATOMIC PHYSICS	5	5
Course Obje	ectives		1	
To provi	de and make	understand the discharge Phenomena, P	hotoelectric et	fect, Atomic
structure	and to familia	rize the students with the basics of X-rays.		
Course Outo	comes		-	
1. Under	rstand the basi	ic concepts of discharge phenomenon throu	gh gases.	
2. Class	fy various ph	enomenon of electron ejection-Photoelectr	ic emission.	
4 Distir	iy various qua	and Anomalous Zeeman effect		
5. Comr	nunicate the i	function function of the second se	atomic states.	
6. Analy	ze the import	ance of X-rays and its use in the interpretat	ion of different	spectra.
	1	7 1		
Unit-I	I Positive Ray Analysis		15 Hours	
Discovery -	Positive rays	- properties - e / m of positive rays - Th	omson's narah	ola method -
Aston's. Dem	pster's and Ba	ainbridge mass spectrographs–Isotopes – A	tomic masses -	- Explanation
of failure by	classical me	chanics – Black body radiation-photo elec	ctric effect-Co	mpton effect
and heat cap	acity of solid	s.		-
Unit-II	Photoelectric Effect			15 Hours
Introduction	- Photoelectri	ic emission - laws - Lenard's experiment	- Richardson	and Compton
experiment	- Einstein's	photoelectric equation - experimental	verification	of Einstein's
photoelectric	equation by	Millikan's experiment - photo electric ce	lls – Photo en	nission cell –
photo voltai	c cell-photoc	onductive cell- Photomultiplier-Applica	tions of photo	electric cell-
sound repro		ms, automatic operation of street lights.		
Unit-III	Structure of	fAtom		15 Hours
	Structure			10 110015
Introduction	-Rutherford	l's experiment on scattering of alpha pa	rticle -Ruther	ford Nuclear
model-Theor	ry of alpha	scattering-Experimental verification	of Rutherfor	d scattering
theory- Bohr and Sommerfeld's relativistic atom Model - Vector Atom Model - Various				
quantum numbers - Coupling Schemes - L.S and J.J couplings - Pauli's Exclusion principle -				
Stern and Gerlach experiment – The Selection rules – Selection rules for LS and JJ coupling –				
Intensity rule				
Unit-IV	Fine Struct	ure of Spectral Lines		15 Hours
Critical potential – Excitation and ionization potentials - experimental determination of critical				
potentials - Frank and Hertz's experiment - Davis & Goucher's experiment - Zeeman effect –				
Lorentz classical theory of normal Zeeman effect-Correspondence Principle and Explanation-				
Debye's explanation of normal Zeeman effect. Anamalous Zeeman effect - theoretical				
explanation. Lande's 'g' factor and explanation of splitting of D_1 and D_2 lines of sodium – Paschen				
– Back Effect – Stark Effect.				

Unit-V	X-Rays and Crystal Structure Analysis	15 Hours	
Introduction – Production of X rays – Polarisation of X- rays – Bragg's law and its derivation –			
Bragg's X-ray Spectrometer - Diffraction of x-rays - Details of Laue, rotating crystal and powder			
methods - Compton effect - derivation of expression for change in wavelength - experimental			
verification – Application of X-rays [industry, medical field and instrumentation only].			

Books for Study:

1. Modern Physics by R. Murugesan, S. Chand & Co., 8th Edition, 2001.

2. Modern Physics by N.K. Sehgal, N.K. Sehgal & D.L Chopra, Sultan Chand And Sons, 2004.

Books for Reference:

1. Atomic Physics by J.B. Rajam, S Chand & Co Ltd, 1987.

2. Atomic & Nuclear Physics by N. Subrarnaniam & Brij Lal, S. Chand & Co., 5th Edition, 2000.

3. Atomic Physics by A.B. Gupta & Dipak Ghosh - Books & Allied Publishers.

4. Modern Physics by J. H. Hamilton and Yang, McGraw Hill Publication, 1996.

5. Concepts of Modern Physics by A. Beiser, Tata McGraw-Hill, New Delhi, 1997.

SEMESTER V				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UAPY5003	Core 7	APPLIED ELECTRONICS	5	5
Course Obje	ctives			
 To provide brief introduction to semiconductor theory and semiconductor devices. To enhance the knowledge on working principle of oscillators, Op-Amp, Optoelectronic devices and communication electronics. To understand the cellular fundamentals and different types of radio propagation models, the system architecture, the concepts of emerging technologies for 4 G. 				
Course Outc	omes			
 Able to understand Semiconductor, Optoelectronic Diodes and their uses. Analyze the transistor operation under different configurations and application of Transistor as an Amplifier, to learn construction – Working of different Semiconductor Devices. Able to know types of amplifiers, understand and learn to construct different oscillators. Can design wave shaping circuits and explain the operational amplifier applications, Solve simple problems and develop circuits using Semiconductor Devices for simple Electronic circuit applications. Able to understand the basics of satellite communication, space segment and earth segment, Understand different satellite orbits and orbital parameters and upcoming mobile communication systems. 				
Unit-I	Semiconduct	or Theory and Semiconductor Diodes		15 Hours
Materials: conductor-insulator- Semiconductors-intrinsic and extrinsic semiconductor- Fermi energy level-Junction Diode. Special diodes: Zener diode – Thermal runaway - PIN Diode. Optoelectronic diodes: Light emitting diode (LED)-types of LED- bicolour-tri colour- organic LED – LED strips-Liquid crystal display (LCD) – Photo diode- Laser Diode-Golay Cell.				
Unit-II	Semiconduct	or Devices		15 Hours
Transistor construction – Working- characteristics in CE and CB mode- FET – Characteristics – parameters –Current Limiter-MOSFET – Depletion and Enhancement modes – UJT characteristics– UJT relaxation oscillator — SCR characteristics – SCR as half and full wave rectifier-DIAC and TRIAC- Light Dimmer				

Unit-III	Amplifiers and Oscillators	15 Hours						
Types of Amp	blifier (Class A, Class B, Class AB and Class C) - Single Stage RC cou	pled						
amplifier- frequency response-power amplifier-push pull- Feedback amplifier- types of feedback								
Voltage gain Barkhausen criterion - Oscillators: Hartley and Colpitt's Oscillator- Crystal								
Oscillator.								
Unit-IV	Multivibrator and Op-Amp	15 Hours						
---	--	-------------	--	--	--	--	--	--
RC timing cir	RC timing circuits- wave shaping circuits -clipping and clamping- multivibrators – astable and							
bi-stable mult	ivibrator using transistor.							
OP AMP- pin	Configuration of IC 741 -Ideal characteristics of OP-AMP - Voltage	follower-						
Inverting and	Non inverting amplifier – Summing amplifier – averager -Difference a	amplifier –						
Integrator – D	ifferentiator –Phase shift oscillator using OP-AMP-Attenuation Fa	ctor-Wien						
Bridge oscilla	ator.							
Unit-V	Radio Communication	15 Hours						
Communication – Modulation –Need for modulation - Amplitude Modulation – Frequency Modulation – Phase Modulation – AM Transmitter - Superhetrodyne receiver- digital								

modulation technique-Principles of ASK, FSK, PSK.(Qualitative Analysis) - Global System for Mobile Communications: GSM Network architecture-GSM evolution: General Packet Radio Service (GPRS) and Enhanced Data for Global Evolution (EDGE)- architecture, principle and working.

Books for study:

- 1. Basic Electronics by B.L.Theraja, S. Chand &Co. New Delhi
- 2. A text book in Electrical Technology-BL Theraja, S Chand &Co.
- 3. Physics of Semiconductor devices by S.M. Sze, (John Wiley, New York, 1982).
- 4. Applied Electronics –RS Sedha, S. Chand &Co.New Delhi.
- 5. A Text Book of Electronics Engineering (English, Paperback, Dr. D.C. Tayal, Praveen Tayal)

6. Introduction to Analog & Digital Communications by Simon Haykin, Michael Moher, Wiley India Pvt. Ltd.

7. Theodore S. Rappaport wireless communications – principles and practice, Pearson, Second edition.

Books for Reference:

- 1. Digital Integrated Electronics by Taub Herbert McGraw Hill.
- 2.Physics and Technology of semiconductors by S.M. Sze (John Wiley, New York, 1990)
- 3. Microwave Engineering by Das Sushrut, OUP India, 2015.
- 4. Digital Communication by Sharma S, S K Kataria & Sons-New Delhi,2013.

E-Resources:

MIT Open Course ware: https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-452-principles-of-wireless-communications-spring-2006.

SEMESTER V									
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT					
UAPYPR51	Core Practical4	Physics Practical IV	4	2					
Course Objectiv	Course Objectives								
1. To devel	op the ability of	the students to conduct, observe, and	alyze and to co	omment on the					
experime	experiment.								
2. To streng models.	gthen the stude	nts knowledge and enhance the a	bility to deal	with physical					
Course Outcom	ies								
1. To deterr	nine Young's m	odulus by Koenig's method and to p	rove parallel a	xes					
theorem	using bifilar pen	dulum.	ial of the long						
3. To analyz	ze earth's magne	etic induction using deflection magn	etometer.						
4. Evaluate	dispersive powe	er of a prism and Cauchy's constant	using spectrom	neter.					
5. Calibratio	on of high range	voltmeter and conversion of milli an	mmeter into vo	oltmeter using					
6 To comp	neter. ute internal resis	stance of a cell and comparison of ca	nacitance usin	σBG					
7. Evaluate	different param	eters of transistor, FET and Hartley	paellator.	5 DO.					
		List of Experiments (Any Twelve	e)						
1. Young's	modulus by Ko	enig's method (Non-Uniform bendin	g).						
2. Bifilar Pe	endulum-perpen	dicular axis theorem.							
3. Newton's	s rings – R_1 , R_2 s	and μ of a convex lens.							
4. Field alor	ng the axis of a o	coil- Deflection Magnetometer.							
5. Carey Fo	ster`s Bridge-Te	emperature Coefficient of resistance.							
6. Spectrom	neter i –i' curve.								
7. Spectrom	neter-Prism- Det	ermination of Cauchy's constants.							
8. Spectrom	neter - Dispersiv	e power of a prism.							
9. Potentior	neter – Calibrati	on of High Range Voltmeter.							
10. Potentior	neter – Convers	ion of milliammeter into a Voltmeter	r.						
11. Internal r	resistance of a ce	ell-BG.							
12. Comparis	12. Comparison of Capacitances- BG.								
13. Characteristics of Transistor -CE mode.									
14. Hartley C	14. Hartley Oscillator-Frequency response.								
15. FET Cha	15. FET Characteristics.								
L		247							

SEMESTER V							
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT			
UAPYPR52	Core Practical 5	Electronics Experiments I	4	2			
Course Object	ives						
 To acquire the basic knowledge of digital logic levels and the application of knowledge to understand digital electronic circuits. Prepare students to perform the analysis and design of various digital electronic circuits. 							
Course Outcor	nes	• •					
 Construi Design I Apply te Verify I Construi Design I 	ct logic gates us NAND and NO echniques of sin De Morgan's the ct Inverter, Nor half adder, full	sing discrete components. R as universal logic gates. nplifying logic equations using Karnau eorem. n-Inverter, Adder, Subtractor using OP adder, half subtractor and full subtractor	igh map. -AMP. or using NAN	D.			
7. Design of	of Astable mult	ivibrator using Timer- 555 and counter	rs.				
		List of Experiments (Any Twelve)					
1. Logic gates	s using Discrete	e components.					
2. NAND as	s Universal gate	2.					
3. NOR as U	Universal gate.						
4. Karnaugh	n map reduction	and logic circuit implementation.					
5. Verificati	on of Demorga	n`s theorems.					
6. Construct	tion of Inverter,	Non-Inverter, Adder, Subtractor using	g Op-Amp.				
7. Study of i	integrator and c	lifferentiator using Op-Amp 741.					
8. Half Add	er and Full Add	ler.					
9. Half Subt	tractor And Ful	l Subtractor.					
10. Study of 1	R-S, JK and D	flip-flop using NAND gate.					
11. Construct	tion of Phase sh	ift Oscillator using Op-Amp.					
12. Construct	tion of Wien's l	oridge Oscillator using Op-Amp.					
13. Astable multivibrator using -555 timer.							
14. BCD to s	even segment d	lecoder (Common anode and Common	cathode)				
15. Ring cour	nter and Johnso	n's counter.					

Course Code Course Title		L	Т	С	
UAPYCE51 DIGITAL ELECTRONICS				5	
Instructional	Objectives				
 To acquir understand To prepare electronic 	e the basic knowledge of digital circuits and application of digital electronic circuits. e students to perform, analyze and design various digital electroni components.	know c circu	/ledg uits u	ge to using	
 Understan Solve the Identify th Identify th Understan Develop a 	d the basics of logic gates and their importance. logic equations applying logic gates. le fundamentals of sequential logic circuits and electronic counters le principles of memory devices and their significance. d electronic timers and distinguish D/A and A/D convertors. digital logic circuit to solve real life problems.				
Unit-I Nu	umber Systems and IC Logic Families:		12 H	ours	
Decimal, binar arithmetic: – complements o AND, OR and & NOR as un dissipation, no positive and ne logic – CMOS	y, octal and hexadecimal systems – Conversion from one code to a binary addition – subtraction – multiplication – division - 1' f decimal number- Binary Codes – 8421 code - Gray Code and Ex NOT gates using diode and transistor – NAND, NOR and Ex-OR niversal gates – Logic families: – Definitions - propagation bise margin, logic voltage level, fan-in, fan-out, speed, operating gative logic - RTL NOR – DTL NAND – TTL NAND – ECL OR Inverter – CMOS – NAND and NOR – Tri-State logic	nother s, 2's cess-3 –gates delay g temj /NOR	r - B and codd - N y, p pera - Cl	inary 1 9's e AND ower ture, MOS	
Unit-II Si Ci	Unit-IISimplification of Logic Circuits and Combinational Logic12 HourCircuits:12 Hour				
Boolean algebra – Simplifications of logic equations using Boolean algebra – De Morgan's theorems and their circuit implementations – Karnaugh map – Minterms- Relation between K-map & Truth Table – pairs, quads, octets – 2,3 and 4 variables – Don't care conditions – Maxterms – K map using Maxterms - Sum of product – Product of Sum – NAND-NAND network – NOR-NOR network.					
bit subtractor - Multiplexer – Demultiplexer – Decoder – BCD to Seven Segment Decoder – Encoder – Parity Generator and Checker					
Unit-III See	quential Logic circuits, Shift registers & Counters	-	12 H	ours	
Flip-flops: NA concept - JK F	Flip-flops: NAND latch - RS Flip-flop – clocked RS Flip-flop – D Flip-flop – Edge triggering concept - JK Flip-flop – JK master slave Flip-flop - T Flip-flop				
Shift Registers: Serial in-serial out – serial in-parallel out – parallel in-serial out – parallel in- 249					

parallel out – Counters: Ring Counter – Shift counter- Johnson's Counter - Asynchronous/Ripple counter – **4-Bit up/down counter** – Synchronous counter – **Design of synchronous counter** - Decade counter.

Unit-IV	Memory Devices	12 Hours
Read only r	nemory – PROM – EPROM – EEPROM – Random access memory	– Static RAM –
Dynamic R	AM – Memory expansion - Memory parameters - Magnetic core mer	nory – Magnetic
disc memor	y – Hard disc system –Buffer – Cache memory – Programmable Log	gic Array – PLA

versus ROM – Semiconductor Memory Trends.

Unit-V	Timers and AD & DA Converters	12 Hours

555-Timer internal structure - pin diagram- Astable, monostable operations - Schmitt trigger -

DC to AC Inverter using 555 Timer – Signal generator with 555 circuit.

OP-AMP - Binary Weighted Resistor D/A converter – R-2R Ladder D/A converter – Counter type A/D - Converter - Successive Approximation A/D converter – Dual Slope A/D converter.

Books for Study:

- 1. Digital Principles and Applications-A.P. Malvino, McGraw Hill International Editions (Fourth Edition)
- 2. Modern Digital Electronics- R.P.Jain, Tata McGraw Hill Pub. Company (Fourth Edition)
- 3. Digital Fundamentals-Thomas L. Floyd, Universal Book Stall
- 4. Introduction to Integrated Electronics-V.Vijayendran, Viswanathan Pub.Chennai.
- 5. Fundamentals of digital computers-Arul Thalapathi, Comptek Publishers, Chennai.

Books for Reference:

- 1. Digital Electronics with Practical Approach- G.N Shinde, Shivani Pub. Nanded
- 2. Digital electronics: An Introduction to Theory and Practice William H. Gothmann, Prentice Hall of India.
- 3. Digital Integrated electronics- Herbert Taub and Donald Schilling, Mc.Graw Hill.
- 4. Fundamental of Digital Electronics and Microprocessors, 2nd revised and enlarged Ed.-Anoka Singh and A. K Chhabra, S Chand& Co, Ltd., New Delhi .

Course Code	Course Title	L	Т	С		
UAPYCE52	YCE52 POWER ELECTRONICS		1	5		
Instructional	Objectives					
 To acquire the basic knowledge different types of power semiconductor devices and their switching, Operation, characteristics and performance parameters of controlled rectifiers, Operation, switching techniques and basics topologies of DC-DC switching, Different modulation techniques of pulse width modulated inverters and to regulators. Operation of AC voltage controller and various configurations. To prepare students to perform, analyze and design of various power electronics circuits. 						
 Understa Identify t Identify t Understa Apprecia 	nd the basics of power semiconductor devices. he fundamentals of Phase controlled convertors. he principles of AC to DC convertors and their significance. nd the principles of Invertors and their significance. te the different types of Controllers.					
Unit-I I	POWER SEMI-CONDUCTOR DEVICES	12 H	ours			
Study of swit MOSFET-IGE commutation	ching devices - Silicon diode – Schottky diode – SCR – TRIA 3T- IGCT- Static characteristics: SCR - MOSFET and IGBT – circuit for SCR – UJT - Introduction to Driver and snubber circuits	C- GT Trigge	O - ering	BJT, and		
Unit-II P	HASE-CONTROLLED CONVERTERS	12 Ho	urs			
Full wave rectifier with large inductive load –Three phase full wave rectifier – Swinging reactor -Fully controlled bridge rectifier with R-L load - 2-pulse, 3-pulse and 6-pulse converters– performance parameters –Effect of source inductance– Firing Schemes for converter–Dual converters, Applications-light dimmer, Excitation system, Solar PV systems – Double –Y-type controlled rectifier with flywheel diode.						
Unit-III A	C TO DC CONVERTERS	12 Ho	urs			
Manually controlled voltage regulator – Automatic voltage regulators –Phase controlled AC regulator – Firing circuit of AC regulator – Ferro resonant AC stabilizer- DC voltage regulator-Step-down and step-up chopper-control strategy– Introduction to types of choppers-A, B, C, D and E-Switched mode regulators- Buck, Boost, Buck- Boost regulator- Introduction to Resonant Converters and applications –Battery operated vehicles.						
Unit-IV I	NVERTERS	12 Ho	urs			
Single phase and three phase voltage source inverters (both1200 mode and 1800 mode)– Voltage& harmonic control-PWM techniques: Multiple PWM, Sinusoidal PWM, modified sinusoidal PWM – Introduction to space vector modulation- Current source Inverter - Applications-Induction heating and UPS – Reduction storage time – Digital delay circuit –						

Inverte	Inverter with resistive load – Bridge rectifier using McMurry –Bedford commutation.					
Unit-V	AC and DC Motor Controller	12 Hours				
Single	Single phase and Three phase AC voltage controllers-Control strategy- Power Factor Control -					
Multis	tage sequence control -single phase and three phase cycloconverters - Intr	oduction to				
Matrix	converters, Applications -welding -Single phase SCR drive - Starting (re	generative) and				
dynam	ic braking of separately excited DC motor - Microprocessor - Controlled	DC drive –				
Breaki	ng induction motor – Synchronous Motor control -Slip power recovery sy	stem.				
Books	for Study:					
1.	Power Electronics by P C SEN, Tata McGraw-Hill Publisher Company L	imited, New				
	Delhi.					
2.	Semiconductor Power circuit handbook, Motorola, USA, 1968					
3.	Power diode and Thyristors Circuits Vol. I by Mullard London 1970					
4.	Solid State Dc Motor Drives by Kusko A, MIT Press USA, 1971					
5.	Industrial Solid State Electronics Device System By Maloney T.J. Prentic Jersey, 1975.	e Hall, New				
Books	for Reference:					
1.	Power Electronics, Ramshaw, R.S. London, 1975					
2.	Silicon controlled rectifier, Lytel A.W, Foulsham & Co, England, 1966					
3.	Thyristor Phase Controlled Converters and Cycloconverters, Pelly, B.R,	John Wiley &				
	Sons, New York, 1971					
4.	The Power Thyristor and its applications, Finney, D., McGraw-Hill Book	Company				
	(UK) Ltd,1970.					

		SEMESTER V				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UAPYSBE1	Skill Based Elective 1	RADIATION PHYSICS	2	1		
Course Objec	tives					
 Make the students to learn about nuclear transformation. Familiarize the students with different interaction mechanism of radiation with matter. Ensure the students understand the various dosimetric quantities and concepts. Make the students to learn principles of radiation detection. Gain knowledge about various radiation measuring and monitoring instruments. Course Outcomes To demonstrate radiological physics in medicine. Apply the interaction of radiation knowledge in radiation shielding. 						
4. To accu 5. Selection	arately measure ng appropriate	e radiation dose in radiation treatment. monitoring instruments for survey and p	protection.			
IInit I	Nuclean Tra	aformation		6 U.01100		
energy-Genera radioactive dec reactor and cyc Unit-II Thomson scatt positrons) and	I properties of cay - nuclear i clotron produce Interaction o ering , Rayleig heavy charge	 f alpha, beta and gamma rays. Laws somerism -nuclear reactions – natural d Isotopes-fission products -fusion. f Radiation with Matter h scattering, Compton scattering-Intera d particles with matter—specific ionized 	and artificial	6 Hours (electrons and cov radiation-		
mass-energy- a heavy charged and path length	attenuation and particles, mas of charged pa	absorption coefficient - Bethe-Block fess-collision-Bragg peak, mass-radioact rticles.	ormalism for e ive stopping	energy loss by power, range		
Unit-III	Dosimetric Q	uantities and Units		6 Hours		
Introduction -exposure-Roentgen - photon fluence and energy fluence -KERMA –Kerma and absorbed dose CEMA -Absorbed dose -Radiation Dose Equivalent - stopping power – relationship between the dosimetric quantities –stopping power ratio.						
Unit-IV	Principles of	Radiation Detection and Dosimeters		6 Hours		
Principles of Radiation detection-properties of dosimeters- Theory of gas filled detectors -Ion chamber dosimetry systems -parallel plate chamber -Ionization chamber –proportional chamber - GM counter- thimble chambers-working and different applications-film dosimetry –						

Luminescence dosimetry-TLD- OSLD-semiconductor dosimetry -Gel dosimetry

Unit-V

Radiation Monitoring Instruments

6 Hours

Introduction - operational quantities for Radiation monitoring- Area survey meters-neutron area survey meters-GM survey meters-scintillation detectors -Personal monitoring-Pocket Dosimeters-film badge-Properties of personal monitors.

Books for study:

- 1. E .B ,Podgorsak, Radiation Physics for Medical Physicists,3rd Edition,Springer,2016.
- 2. Khan's The Physics of Radiation Therapy , Khan Faiz M, Fifth edition , Lippincott Williams and Wilkins.
- 3. W.J. Meradith and J.B. Massey, Fundamental Physics of Radiology, John Wright and Sons.U.K..2000.

Books for Reference:

- 1. H. E. John6, J. R. Cunningham, The Physics of Radiology, Charles C. Thomas, NewYork, 2002
- 2. Frank Herben Attix, Introduction to Radiation Physics and Radiation Dosimetry, Wiley-VCHVerlag, 2007.
- 3. Donald T. Graham. Paul J. Cloke, Principles of Radiological Physics, Fifth edition, Churchilll Livingstone.

SEMESTER V							
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT			
UAPYSE52	Skill Based Elective 1	ELECTRICAL CIRCUITS AND NETWORK SKILLS	2	1			
Course Object	ctives			1			
1.To pro2.To lear3.To und4.To accordskills of F	vide basic know rn the procedure lerstand the med quire the know Electrical Protec	vledge about basic electricity principles e of Electrical drawing and symbols. chanisms of Generators, Transformers a ledge of electrical components of bas tion and wiring.	and electrical and Motors. ic Solid State	circuits. Devices and			
Course Outco	ome						
 To und circuits Learn Able to Able to Train t Unders Acquir device To lear and to 	 To understand basic electrical terms, rules and analyze DC and AC sourced electrical circuits. Learn to draw and Read the symbols, Blueprints. Schematics, Ladder diagrams. Able to track electrical connections and identify current flow. Able to understand the mechanisms of Generators, Transformers and Motors. Train to design, Interface DC and AC sources to control heaters and motors. Understand the uses of basic Solid-State Devices. Acquire knowledge to rectify the Relays, Fuses, switches, Circuit breakers and Overload devices. To learn the Basic procedures of wiring and handling of Instruments, solder the junctions and to prepare extension boards. 						
Voltage, Curre	ent, Resistance,	and Power- Ohm's law -Series, parallel	, and series-pa	ırallel			
combinations.	AC and DC Ele	ectricity -Basic electric circuit elements	and their comb	vination -			
Rules to analy	ze DC sourced	electrical circuits - Current and voltage	drop across th	e DC circuit			
elements. Sing electrical circu	elements. Single-phase and three-phase alternating current sources. Rules to analyze AC sourced electrical circuits.						
Unit-II	Electrical Dr	awing and Symbols		6 Hours			
Drawing symbols. Blueprints. Reading Schematics. Ladder diagrams. Electrical Schematics. Power circuits. Control circuits. Reading of circuit schematics. Tracking the connections of elements and identify current flow and voltage drop.							
Unit-III	Generators,	Fransformers and Motors:		6 Hours			
Generators and	d Transformers:	DC Power sources AC/DC generators	Inductonce	anacitanca			

Generators and Transformers: DC Power sources. AC/DC generators. Inductance, capacitance, and impedance. Operation of transformers. Electric Motors: Single-phase, three-phase & DC motors. Basic design. Interfacing DC or AC sources to control heaters and motors. Speed &

power of AC motor.						
Unit-IVSolid-State Devices and Electrical Protection:6 Hou						
Solid-State Devices: Resistors, inductors and capacitors. Diode and rectifiers. Components in Series or in shunt. Response of inductors and capacitors with DC or AC sources.						
Relays. Fuses protection- Gre	s and disconnect switches-Circuit Breakers-Overload Devices-Grounding and isolating-Phase Reversal-Surge Protection-Relay protection	round-fault 1 device.				
Unit-V	Electrical Wiring	6 Hours				
Different types	of conductors and cables. Basics of wiring-Star and delta connection. Ve	oltage drop				
and losses acre	oss cables and conductors. Instruments to measure current, voltage, po	wer in DC				
and AC circu	its-Insulation Solid and stranded cable. Conduit Cable trays. Splices	: wirenuts,				
crimps, termin	al blocks and solder-extension board.					
Books for stu	dy:					
1.Electrical	Circuits, K.A. Smith and R.E. Alley, 2014, Cambridge University Press	s.				
2. A text bo	ok in Electrical Technology - B L Theraja - S Chand & Co.					
3. A text bo	ok of Electrical Technology by A K Theraja, S Chand & Co Ltd.					
4. Performance and design of AC machines - M G Say ELBS Edn.						
Books for Ref	erence:					
1. Electrical Drawing by N.D. Bhutt, charotar publishing house Pvt.Ltd.						
2.Integrated Electronics by Taub and Schilling Mc Graw Hill.						
3.Physics and Technology of semiconductors by S.M. Sze (John Wiley, New York, 1990).						

SEMESTER VI					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UAPY6001	Core 9	NUCLEAR AND PARTICLE PHYSICS	5	5	
Course Object	ives				
To provide	brief introd	uction to the various nuclear models	and the expe	eriments data	
supporting t	he model and	provide an introduction to nuclear inter	action and nuc	lear reaction.	
Course Outcor	nes				
 Revise Explain Compa Identif Unders Classif Evalua 	concepts of r n principles o re and analyz y various radi stand basic ide y elementary te conservatio	nuclear models. f radioactivity. we working of particle accelerators. ation detectors. eas and principles behind nuclear reactio particles and fundamental interactions. on laws and symmetries of nuclear partic	ns. les.		
Unit-I	General Pr	operties of Nuclei		15 Hours	
Nuclear defect and bind number-binding theory of nucl models-liquid collective mode	size, charge ing energy-pa g energy with ear forces- 1 drop model	, mass-determination of nuclear radius- acking fraction –average binding energy mass number curve-N/A plot- nuclear s nagnetic dipole moment – electric qu -Weizacker`s semi-empirical mass f	mirror nuclei and its variati pin -nuclear f adrupole mo formula-Shell	method-mass on with mass forces-Meson ment -nuclear model and	
Unit-II	Radioactivi	tv		15 Hours	
		-5			
Natural radioactivity -ra alpha decayG theory of beta	radioactivity adiocarbon da eiger-Nuttal decay-energy	y-law of disintegration-half life and ting-age of earth –basics of alpha decay law - α-ray spectra- beta ray-characteristic kinematics for beta decay-neutrino hy prification with Co^{60} gamma ray emission	mean life pe process-Gamo stics-beta ray pothesis-viola	priod-units of ow's theory of spectra-Fermi tion of parity	
Unit-III	Radiation I	Detectors and Particle Accelerators	11.	15 Hours	
Ionisatio	on chamber-	G M Counter-quenching and resolving	time-scintilla	tion counter-	
photo multiplie	er tube –sem	iconductor detectors for charged parti	cle and photo	on detection-	
Linear accelera	ator-Cyclotro	n-Synchrocyclotron-Betatron-synchrotr	ons-Solid sta	te detectors-	
electron and p	roton.				
Unit-IV	Nuclear Re	actions		15 Hours	
Conserv	vation laws-n	uclear reaction Kinematics-Q-value-th	reshold energ	y – artificial	
radioactivity-ra	dioisotopes a	and its uses-classification of neutrons	-nuclear fission	on-Bohr and	
Wheeler's theory of nuclear fission-chain reaction -critical mass and size-nuclear reactor-					
breeder reactor –nuclear fusion-thermonuclear reactions-sources of stellar energy.					
Unit-V	ELEMENI	CARY PARTICLES		15 Hours	
Classifie	cation of e	lementary particles-fundamental inter	action-elemen	tary particle	
quantum numbers -Lepton number, Isospin and Strangeness -colored quarks and gluons-					
charm, botton	n and top	quarks, three generation of quarks	s -color quan	tum number-	
conservation laws and symmetry- Types and characteristics of quarks - quark's model of					

nucleus. Quantum chromodynamics-Bremsstrahlung annihilation and leptons.

Books for Study:

1. Atomic and Nuclear Physics by N. Subrahmanyam and Brijlal, S Chand & Co., New Delhi(1996).

- 2. Nuclear Physics by Tayal D.C., Himalaya Publishing House, Mumbai(2006).
- 3. Nuclear Physics by R.C.Sharma, K.Nath & Co., Meerut (2000)
- 4. Nuclear Physics by Irving Kaplan, Narosa Publishing house, New Delhi.
- 5.Introduction to Nuclear and Particle Physics (2nd Edition) by A. Das and T. Ferbe, World Scientific Publishing Co. Pte. Ltd.
- 6. Introduction to Elementary Particles By Griffiths, David J, John Wiley & Sons, Inc.(1987)

Books for Reference:

- 1. Nuclear Physics by R.R.Roy and B.P.Nigam, New Age International (P) Ltd., New Delhi(1997).
- 2. Fundamentals of Elementary Particle Physics by Longo, Mc Graw-Hill.
- 3. Nuclei and Particles by Serge., W.A. Benjamin, USA.
- 4. Elements of Nuclear Physics by ML Pandya and RPS Yadav, Kedarnath Ram Nath, Meerut.

SEMESTER VI				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UAPY6002	Core 10	WAVE MECHANICS AND SPECIAL FUNCTIONS	5	5
Course Objec	tives			
To provid	e brief introd	uction to the various nuclear models	and the exp	eriments data
supporting	the model and	l provide an introduction to nuclear inter	action and nuc	elear reaction.
Lourse Outcomes				
2. Expla	in about the in	properties of qualitum mechanics.	er wave equation	on in solving
quant	um mechanica	l problems.		
3. Expla	in the types an	d properties of matrices for acquiring sk	ills to solve lir	near
equati	ions.			
4. Use b	asic ideas of v	ector analysis.		
5. Analy	ze special fund	ctions for solving differential equations.		
6. Comp	are electron tr	ansport phenomena-Tunneling effect.		
7. Formu	late ideas on o	dual nature of matter.		15 Uoung
Unit-1	madequacy	of Classical theory		15 Hours
Black body radiation – difficulties with classical theory of black body radiation – Planck's hypothesis – Planck's radiation formula- difficulties with classical theory of specific heat of solids – Einstein's theory of specific heat – the Frank-Hertz experiment –Quantization rule for the harmonic oscillator and its limitation.Unit-IIFoundations of Wave Mechanics15 HoursDual nature of matter – Davison and Germer's experiment – G.P. Thomson's experiment – velocity of de-Broglie wave – Wave packet – Group velocity – Phase velocity – Uncertainty principle –Examples of position momentum uncertainty-Heisenberg's gamma ray microscope-Diffraction of a beam of electrons by a slit-Applications of wave Mechanics – Postulates of wave Mechanics – Postulates of wave Mechanics – Postulates of wave Mechanics –				
Unit-III	Formulation	n of Wave Mechanics		15Hours
Operators – Basic definitions – orthonormal functions – Eigen functions and Eigen values – Hermitian operator – Operator formalism - Measurability of Observables –Operators associated with different observables-momentum wave function-significance of the momentum wave function-Box normalization-spin functions for two electrons and three electrons- Superposition state and probability – Characteristics of wave function – Probability Interpretation – Probability current density – Expansion theorem – Ehrenfest's theorem (Statement and Proof).15 Hours				
Equation of motion of motion more time independent C 1 1' C 1 1'				
Equation for a	free particle	time dependent Schrödinger equation	_ physical int	- schrödinger
wave function	-Schrödinger	equation – Applications of Schrödinger	r's equations -	- Particle in a
one-dimension	al box - Linea	ar harmonic oscillator – Zero point energy	gy – Barrier pe	enetration and

Tunneling effect.

Unit-V Special function and differential equations

15 Hours

Beta and gamma functions – Relation between Beta and gamma functions – Simple problems – Bessel's differential equation- Legendre differential equations- Hermite's differential equations – Simple problems – Dirac delta functions and its properties.

Books for Study:

- 1. Sathya Prakash and G.K. Singh, Quantum Mechanics, First edition, Kedar Nath Ram Nath & Co,1991
- 2. G. Aruldhas and P. Rajagopal, Modern Physics, Second edition, Prentice Hall of India, 2005.
- 3. G. Aruldhas, Classical Mechanics, Second edition, Prentice Hall of India,2008 UNIT I Chapter 1 Sections 1.3 1.
- 4. Mathematical Physics with Classical Mechanics by Satya Prakash's , Sixth edition Sultan Chand & Sons

Books for Reference:

- 1. R. Murugesan, Modern physics, S.Chand & Company Ltd, 4th edition, 2005
- 2. Mathematical Physics By B.D. Gupta, Fourth edition Vikas Publishing House Pvt Ltd.

		SEMESTER VI			
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UAPY6003	Core 11	NUMERICAL METHODS AND FUNDAMENTALS OF "C"	5	5	
Course Obje	ctives				
To expose	e the students to	the foundation of various numerical m	nethods and to	introduce the	
learner to the basics of 'C' Programming					
Course Outco	omes				
2. Evalu	od ate simultaneou	is equations by iteration methods.		Jauss Jordan	
3. Solve	e higher order di	fferential equations.			
4. Acqu	nite knowledge a	using Lagrange forward and inverse inte	ernolation New	uton's	
j. com	polation formula	using Lagrange forward and inverse ind		1011 5	
6. Ident 7. Form	ify the fundame	 ntal concepts of C programme. ze C programme for various mathematic	cal operations.		
Unit-I	Simultaneous	Linear Algebraic Equations		15 Hours	
Gauss elimin	ation method –	Gauss- Jordan method, Gauss Seide	l, Gauss Jaco	bi – Iterative	
Eigen values	putation of inve	rse of a matrix using Gauss elimination	method – Det	ermination of	
Unit-II	Numerical Di	fferentiation and Integration		15 Hours	
				ie iiouis	
Numerical in -Double inte solving secon	tegration by T gration using ' d and fourth o	rapezoidal and Simpson 1/3 and 3/8 1 Frapezoidal and Simpson's rules –R rder equations	rules – Romb lunge – Kutta	erg's method a method for	
Unit-III	Interpolation	and Approximation		15 Hours	
Lagrange's i formula- New Newton's Bac	Lagrange's interpolation formula for unequal intervals- Lagrange's Inverse interpolation formula- Newton's Divided Difference formula- Newton's Forward interpolation formula-Newton's Backward interpolation formula and related				
Unit-IV	C Fundament	als		15 Hours	
C fundamenta	als –character s	et – identifiers and keywords - data t	types – consta	int variable –	
declaration –	expression –sta	tement –arithmetic, relational, logical,	assignment, co	onditional and	
common operators- library functions- Data input/output functions- User defined Function.					
System Defined Function Types of parameter - passing in functionBasic structure of C					
program.					
Unit-V	Simple Progra	ams		15 Hours	
Simple C pro	grams (addition	, subtraction, multiplication and comp	arison) – flow	v of control –	
control struct	ure, break and	continue-go to, for statement. Decision	Making - if	, simple if, if	
else, else if	else, else if ladder, for and block statements (simple programs), Switch case				

statement(simple program) Arithmetic Expressions, Evaluation of Expressions. Books for Study:

- 1. Venkatraman M.K (1977) Numerical methods in Science and Engineering, national publishing company- Chennai.
- 2. Shastry SS Introductory methods of numerical methods Prentice Hall Ltd
- 3. Sankara Rao K Numerical methods for Scientist and Engineers, 3rd edition, Prentice Hall of India Private Ltd
- 4. Programming In C by E. Balagurusamy, Fourth edition, McGraw Hill India.

Books for Reference:

- 1. Numerical methods with Programming in C by Veerarajan T and Ramachandran T, Tata Mc Graw Hill Publishing Co Ltd
- 2. Let Us C by Yashwanth Kanithkar, BPB Publications.

		SEMESTER VI					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK CREDIT				
UAPYPR61	Core Practical 6	Physics Practical V	4	2			
Course Objectiv	'es			·			
1. To develop the ability of the students to conduct, observe, analyzes and report an							
experimen	nt.		•1•4 4 1 1				
2. To streng models.	then the student	knowledge and enhance the ab	ility to deal	with physical			
Course Outcome	es						
1. Determin	ne the Young's m	odulus by Koenig's uniform bendi	ng method				
2. Measure 3. Evaluate	resistance and st	pecific resistance using Carey foste	netometer r's bridge				
4. Explore d	lispersive power of	of a grating and wavelength of pror	ninent colors of	of mercury			
spectrum							
5. Analyze t	he emf of a thern	nocouple and conversion of milli an	nmeter into ar	nmeter			
using pote	entiometer.	acitance of a capacitor using BG					
7. Design c	vircuits using tran	sistor, UJT and Colpitts oscillator.					
	List	t of Experiments (Any Twelve)					
1. Young's r	modulus – Koeni	g's method – uniform bending.					
2. Field alon	ig the axis of the	coil-vibration magnetometer.					
3. Carey Fas	ster`s Bridge- Res	sistance and specific resistance.					
4. Potention	neter – EMF of a	thermocouple.					
5. Conversio	on of milliammete	er into Ammeter-Potentiometer.					
6. Spectrom	eter-Diffraction g	grating-Normal incidence- determin	nation of wave	length.			
7. Spectrom	eter - Dispersive	power of a grating.					
8. Spectrom	eter – Narrow Ar	gled Prism-refractive index.					
9. BG – com	parison - emf of	cells.					
10. BG – Abs	solute capacitance	e of a capacitor.					
11. Character	istic of transistor	-CB Mode.					
12. Single sta	ge RC Coupled A	Amplifier-Frequency response					
13. Colpitt`s	Oscillator using T	Fransistor.					
14. Determina	ation of velocity	of sound in air- Kundt`s Tube.					
15. UJT Char	acteristics & Rela	axation Oscillator.					

		SEMESTER V			
COURSE CODE COURSE		COURSE TITLE	HRS/ WEEK	CREDIT	
UAPYPR62	Core Practical 7	Electronics Experiments II	4	2	
Course Object	ives				
 To acquudersta To prepcircuits. 	 To acquire the basic knowledge of digital logic levels and application of knowledge to understand digital electronics circuits. To prepare students to perform the analysis and design of various digital electronic circuits. 				
Course Outcor	nes				
1. Construction 2. Design	BCD counter	adder, subtractor and binary counter			
3. Compa	are multiplexer,	demultiplexer.			
4. Formul	late programme	for Addition, Subtraction, Multiplicat	ion& Divisior	n using 8085.	
6. Genera	te different way	e forms using 8085.			
	I	List of Experiments (Any Twelve)			
1. 4 Bi	t Binary Adder	and Subtractor			
2. 4 Bi	t Binary Counte	r.			
3. BCI	O Counter.				
4. Shif	t Registers (4 bi	t).			
5. Stud	ly of Multiplexe	r and Demultiplexer (4 bit).			
6. Stud	ly of Up/down c	ounter.			
7. 8-Bi	t Addition & Su	btraction using Microprocessor 8085			
8. 8-Bi	tMultiplication	& Division using Microprocessor 808	5		
9. Sele	ction of largest	and smallest element from an array us	ing Microproc	cessor 8085.	
10. BCI	D TO HEXA Co	nversion using 8085.			
11. HEX	KA to BCD conv	version using 8085.			
12. Bina	ary to ASCII and	ASCII to Binary conversion using 8	085.		
13. ASC	CII to BCD conv	ersion and BCD to ASCII conversion	using 8085.		
14. Ram	np Wave Form C	Generation using 8085.			
15. Squa	are Wave Form	Generation using 8085.			

SEMESTER V						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UAPYCE61	Core based Elective 2	MICROPROCESSOR 8085 and 8086	5	5		
Course Objecti	Course Objectives					
1.To introd 8085 and 80	uce the studer	nt to understand the architecture, fun	ctioning of m	nicroprocessor		
2. To enhar 8085	ice the knowle	edge of programming and interfacing t	echnique of m	icroprocessor		
3.To Know Microproce	about the ssor.	Architecture, addressing modes and	instruction	sets of 8086		
Course Outcom	ne					
1.Able to un	derstand basic	s of architecture, functioning of microp	processor 8085	and 8086		
2. Learn to v	vrite Basics of	programming, Algorithm and to draw	-Flow chart			
3. Able to ca	llculate time de	elay using one and pair of registers				
4 Learn to dr	raw timing dia	gram for memory read and memory wi	rite cycles			
5. getting k Memory Inte	nowledge abore abore abore abore abore and I/	out Peripheral devices for processors O Interfacing	s, learnt the	techniques of		
6. Able to ur	nderstand fund	amentals of 8086 Microprocessor.				
Unit-I	Microproce	ssor 8085Architecture and Interrupt	S	15 Hours		
Microprocessors – Architecture of 8085 – Functions of different pins of 8085 – Bus organization and timings: buses – buffer – address bus, data bus, multiplexing address/data bus and control & status signals – flags– 8085 -interrupt – interrupt priorities-clock and RESET signals.						
Unit-II	Programmi	ng model and Instructions of 8085		15 Hours		
Basics of programming: Algorithm-Flow chart- Labels-Reset Accumulator. Classification of instructions and format: 8-bit,16-bit data transfer, arithmetic, logical and branch instructions – Addressing modes – stack and subroutine instructions– Logical rotate and compare instructions – RIM and SIM interrupt instructions.						
Unit-III	Time delay	and Instruction timings		15 Hours		
Time delay: delay calculations, time delay using one and pair of registers – different delay routines for square wave, ramp wave.						

Instruction timings of 8085 –**T**-states -instructions cycle, machine cycle- WAIT statetiming diagram for memory read and memory write cycles - data transfer instructions. – **Static and dynamic debugging of a program-**Addition, subtraction, multiplication and division Programs(8-bit).

Unit-IVMemory Interfacing15 HoursPeripheral devices for processors: 8255 – Parallel Communication Interface (PPI),8251 –
Interfacing Types: Memory Interfacing. 2K X 8, 4K x 16 ROM and RAM interface. I/O

Interfacing: Types. Memory interfacing. 2K X 8, 4K X 10 KOM and KAM interface. FO Interfacing: Types- Memory mapped I/O device, Standard I/O mapped I/O device –difference between direct I/O and memory mapped I/O. Seven segment display interface through 8255.

Unit-V	Introduction to Microprocessor 8086	15 Hours
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Introduction to 8086 – Features of 8086- Functions of different pins of 8086 - Comparison between 8085 & 8086 Microprocessor- RAM-Static and Dynamic-Address ,Data and control bus-Execution of an instruction-Minimum and Maximum mode of Microprocessor-8086 architecture.

Book for study:

- 1. Microprocessor Architecture, Programming and applications with the 8085 R.S. Goenkar, 3rdEdn. Prentice Hall.
- Fundamental of Microprocessor 8085 Architecture, programming and interfacing V. Vijayendran, S. Viswanathan, Pvt., Ltd. 2003.
- Fundamental of Microprocessor 8086 Architecture, programming and interfacing V. Vijayendran, S. Viswanathan, Pvt., Ltd. 2003.

Book for reference:

- Digital computer electronics: an introduction to microcomputers Malvino, 2ndEdn., Tata McGraw Hill.
- 2. Fundamentals of Microprocessors and microcomputers B. Ram.
- 3. Computer system architecture Morris Mano, 3rdEdn., Prentice Hall India.
- 4. Introduction to microprocessors: software, hardware, programming Lance A. Leventha, Prentice Hall India.

		SEMESTER VI		
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UAPYCE62	Core based Elective 2	MICROCONTROLLER AND ITS APPLICATIONS	5	5
Course Object	ives			
1.To introd 8051.	uce the stude	nt to understand the architecture, fun	ctioning of m	icrocontroller
2.Toenhanc 8051.	e the knowled	lge of programming and interfacing te	echnique of m	icrocontroller
3.To Know 8051.	about the Arc	hitecture, addressing modes and instruc	ction sets of m	icrocontroller
Course Outcor	ne			
1. Able to u	nderstand basi	cs of architecture, functioning of micro	ocontroller 805	1
2. Learn to	write Basics of	f programming, Memory Organization	of microcontro	ller 8051
3. Able to Interrupt ha	understand bandling	asics of Architecture, addressing mo	des and instru	action sets of
4. Getting techniques	knowledge al	oout Peripheral devices for of micro ndling	controller 805	51, learnt the
5.Able to un	nderstand basic	cs interfacing technics of digital and ana	alog interfacing	g methods
Unit-I	Architecture	e and Memory Organisation of Micro	controller	15 Hours
Introduction of microcontroller – Types of microcontroller-block diagram Architecture of 8051 microcontroller – ALU- Special function registers Pinout Description- Input/output Ports- Memory Organization- Program Memory- Data Memory- Internal RAM-Additional RAM- Memory expansion.				
Unit-II	8051 Family	Microcontrollers Instruction Set		15 Hours
Basic assembly	language pro	gramming – Data transfer instructions -	- Data and Bit	manipulation
instructions - Arithmetic instructions - Instructions for Logical operations and Program flow				
control instruct	ions – Interrup	t control flow.		
Unit-III	Real Time C	Control : Interrupts		15 Hours

Interrupt handling structure of an MCU- Interrupt Enable Register - **Interrupt structure in Intel 8051-** Interrupt Priorities- Handling a number of Interrupts by Intel 8259- Software Interrupts- – Interrupt Latency and Interrupt deadline – Multiple sources of the interrupts – Non-maskable interrupt sources – Enabling or disabling of the sources – Polling to determine the interrupt source and the priorities.

Unit-IV	Real Time Control: Timers	15 Hours

Programmable Timers in the MCU's – Timer T0- TMOD Register- Timer Control (TCON) Register-'reading' a timer- measuring pulse duration- UART (Universal Asynchronous Receiver and Transmitter)- Baud Rate- Multiprocessor Communication

Unit-VSystems Design: Digital and Analog Interfacing Methods15 HoursSwitch, Keypad and Keyboard interfacings – LED and Array of LEDs – Keyboard cum Displaycontroller (8279) – Alphanumeric Devices – Display Systems and its interfaces – Printerinterfaces –Interfacing with the Flash Memory – Interfaces – Interfacing to High Power Devices– Analog input interfacing – Analog output interfacing.

Book for study:

1. Microcontrollers Architecture, Programming, Interfacing and System Design – Raj Kamal, Pearson Education, 2005.

2. 8051 Microcontroller and Embedded Systems by Mazidi Muhammad Ali , Pearson Education India.

Book for reference:

1. Microcontrollers (Theory & Applications) – A.V. Deshmuk, WTMH, 2005.

2. Design with PIC Microcontrollers – John B. Peatman, Pearson Education, 2005.

3. S.Yeralan and A.Ahluwalia, 'Programming and Interfacing the 8051 Microcontroller',

Addison Wesley, 1995

4. MykePredko, Programming and Customizing the 8051 micro-controller, Tata McGraw-Hill,

New Delhi

5. Kenneth J.Ayala, The 8051 Micro-controller Architecture, programming and applications, Penram International Publishers, Mumbai, 1996.

Course Co	ode Course Title L T C					
UAPYSE	61	DIGITAL TELEVISION MAINTENANCE & TROUBLESHOOTING	2	1	1	
Course Objectives						
 To provide the knowledge of testing of various electronic components. To provide an understanding of the various sections in Television and impart knowledge of servicing techniques adopted in various Television system 						
		Course Outcome				
1. 2. 3. 4. Disc syst	cuss tem.	Gain knowledge of colour coding and servicing of PCB. Analyze fundamentals of power supply and frequency tuner. Understand the construction and working of Digital Televisio the construction and working of colour picture tube and variou Compile ideas of antenna in signal transmission and receptio	on sys s colo n.	tem. our '	TV	
Unit-I	Circ	cuit Components and Trouble shooting	<u>8</u>	Ho	urs	
using multi instruments in Televisio Unit-II	imete s: Ar on So Tele	er. Printed circuit board (PCB) – Troubleshooting techniques of PCI nalog & Digital Multimeter – Cathode Ray Oscilloscope – Safety ervicing.	3 – Se Preca	ervic autio Ho	ing ons urs	
Basic power supply circuit - Shunt and Series pass voltage regulators – Regulator power supply for small screen B&W receivers - Switch Mode Power Supply (SMPS) – Troubleshooting techniques for SMPS power supply- Mains Supply Filters - Merits and Demerits of SMPS – EHT generation - Horizontal and Vertical Scanning – Simple and Interlaced Scanning – Composite Video Signal – Blanking pulses – Equalizing pulses – Repairing procedure for Weak picture Tube – Block diagram of monochrome TV receiver – Function of each section – RF Tuner – VHF Tuner and function of various blocks – Troubleshooting techniques for each section of TV.						
Unit-III	Digi	tal Television System	8	Ho	urs	
Digital Satellite Television – Digital Satellite Receiver – Block diagram of Digital Colour TV Receiver – Merits of Digital TV Receiver – LCD TV – Principle –Block diagram– Troubleshooting – LED and OLED TV –Principle –Block diagram & Troubleshooting – Screen Mirroring devices for LED TV.						
	C010	bur relevision System	8	H 0	uгs	

Colour picture Tube: Principle, construction and working – Adjustments for Colour Picture Tube: Colour Purity – Colour Convergence – Degaussing – Pincushion Correction - Compatibility – Three Colour Theory – Mixing of Colors – Luminance Signal (Y) - NTSC Colour TV system – Limitations of NTSC System - PAL Colour TV system - Merit and Demerits of PAL System – SECAM system.

Unit-VTelevision Antenna System & Cable TV8 Hours

Television Antenna – Resonance antennas and their Characteristics – Antenna Parameters – Yagi-Uda Antenna and Design – Satellite Communication System – Transponders -Transmitting Earth Station – Numbers of Transponders - Cable TV: Signal sources for Cable TV – Front End Converter – Head – End or Signal Processing Unit – Satellite Signals – Cable Signal Distribution.

Books for Study:

- 1. Modern Television Practice R.R. Gulati, New Age International (P) Limited, Publishers, New Delhi.
- 2. Television Engineering and Video Systems Second Edition RG Gupta, Tata McGraw Hill Education Private Limited New Delhi.
- 3. Television and Video Engineering J Rangarajan, Charulatha Publications, Chennai.

Books for Reference:

- 1. Basic television theory & Servicing Paul B Zbar, petter W One, Tata McGraw Hill Education Private Limited New Delhi.
- 2. Modern television circuit S.K Gupta, BPB Publication, New Delhi.
- 3. Standard Handbook of Video and Television Engineering Jerry C Whitaker and K. Blair BensonTata McGraw Hill Education Private Limited New Delhi.
- 4. TV and Video Engineering,- A. M. Dhake, New Age International (P) Limited, Publishers, New Delhi.
- 5. Digital Television Fundamentals- Michael Robin and Michel Poulin, Tata McGraw Hill Education Private Limited New Delhi.
- 6. A Practical Guide to Television Sound Engineering- Dennis Baxter Taylor & Francis, 2014.

	SEMESTER VI				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UAPYSE62	Skill BasedASTROPHYSICS2Elective 22		1		
Course Object	ives				
To make s	To make students learn about different aspects of astrophysics and gain fundamental				
knowledge in astronomical instruments.					
1. Apply th	ne basic laws of Ph	vsics to explore the astronomical a	nd astrophysic	al	
concept	S.	,	i ji		
2. Gain kn	owledge about the	properties of the sun.			
3. Know a	bout characteristics	s and evolution of stars.			
4. Underst	idea about cosmol	pes of galaxies.			
6. Know a	bout the fundament	ogy. tals of Astronomical instruments			
Unit-I	The Sun			6 Hours	
Electromagneti	c spectrum – Sun -	-Sun's continuous spectrum -solar	r absorption lii	ne spectrum –	
physical proper	ties of the sun – st	ructure of the sun -solar atmosphe	re – active sun	ı – Sunspots –	
Sunspot Cycle -	 butterfly diagram 	– solar wind – Auroras-solar flare	S		
Unit-II	The Universe of	Stars		6 Hours	
Birth of stars – diagram –stella –supernova exp – neutron stars	chemical composi- r evolution and H- losion – observatio – pulsars.	tion and energy generation of the s R diagram- luminosity of a star – to onal evidence of stellar evaluation	tars –Hertzspr heoretical evo – white dwarfs	ung – Russell lution of stars s – blackholes	
Unit-III	Galaxies			6 Hours	
Galaxies-Classification of galaxies -milky way galaxy – galactic clusters – differential galactic rotation – determination of the rotation curve – spiral structure in the milky way – optical tracers of spiral structure –radio tracers of spiral structure – galactic center – distribution of material near the center– a massive black hole.					
Unit-IV	Cosmology			6 Hours	
Cosmological methods – Big bang theory – Steady state theory and its failure– Hubble's Law – Olber's Paradox – interstellar extinction – dark matter-The thermal history of Universe- Thermodynamic equilibrium -Primordial Nucleosynthesis-Pulsating universe.					
Unit-V	Astronomical In	struments		6 Hours	
Telescopes: an introduction – elements of telescope – properties of the image –kinds of optical					

telescopes – refracting telescope – reflecting telescope – difference between reflecting and refracting telescopes – radio telescope – spectrograph –photographic photometry – photoelectric photometry – spectrophotometry – detectors and image processing.

Book for study:

1. Mujiber Rahman, A. (2018). Concepts of Astrophysics, Scitech Publications (India) Pvt. Ltd.

Book for reference:

1. Kumaravelu, Susheelakumaravelu, S.(2009). Astronomy, Sivakasi.

A.Bhaskara Selvan Printers.

2. William Kaufmann, (1999). Astronomy: The Structure of the Universe,

NewYork: MacMillan Publishing Co.inc.

3. Thiruvenkatacharya, V. (1972). A Text Book of Astronomy, New Delhi: S. Chand and Co., Pvt Ltd.

DEPARTMENT OF CHEMISTRY 15TH BOS APPROVED UG SYLLABI FOR

V & VI SEMESTERS

			SEMESTER V			
C	OURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UA	CH5001	CORE 5	INORGANIC CHEMISTRY - I	5	5	
Cou	irse Objec	tives				
1	To unders	stand the prin	ciple of gravimetry.			
2	2 To give students a firm grounding in coordination chemistry.					
3	To gain th	ne knowledge	of halogens and related compounds.			
4	To apprai	se the online	resources in analytical chemistry to stud	lents.		
Cou	irse Outco	mes				
1	Estimate	various metal	ions by Gravimetric analysis.			
2	Construct	thermograms	s by carrying out thermo analytical expe	riments.		
3	Identify h	eavy metal to	xicity in food products and also in the e	nvironment.		
4	Detect an	d determine t	ne structure of metal ions in various con	nplexes.		
5	Compare	the structure	and reactivity of various metal ions in c	oordination con	npounds.	
6	Prepare in	nter-halogen c	ompounds and other halogenating reage	ents.		
U	nit-I	Gravi	netric Analysis and Thermoanalytica	l methods	15 Hours	
1.1	Principles	of gravimetri	c analysis - Characteristics of precipitat	ing agents - cho	vice of	
	precipitan	ts - condition	s of precipitation – specific and selectiv	e precipitants -	DMG,	
	ethylened	iamine - use o	of sequestering agents - co-precipitation			
	post preci	pitation - diff	erences - reduction of error - peptisation	-precipitation	from	
	homogene	eous solution	- calculation in gravimetric methods - u	se of gravimetic	e factor.	
	Estimation	n of Ni using	DMG and Al using oxime.			
1.2	Thermoar	nalytical meth	ods - principles involved in thermograv	imetric analysis	and	
	differentia	al thermal ana	lysis - characteristics of TGA and DTA	- thermograms	- factors	
	affecting	TGA and DT	A curves - discussion of various compo	nents of the ins	trument with	
	block dia	grams - appli	cations of TGA and DTA – Examples -	(CaC ₂ O ₄ . 2H ₂ O	O & CuSO ₄ .	
	5H ₂ O) Th	ermometric ti	tration (HCl vs NaOH), Electrogravime	try - principle a	ind	
	applicatio	ns.				
U	nit-II		Theories of Bonding		15 Hours	
2.1	Molecular	r Orbital theor	ry – Bonding, anti-bonding orbitals – Re	elative order of	energies of	
	molecular	orbitals – M	O diagrams of H_2 , He_2 , N_2 , F_2 , O_2 , O_2^+	D_2 and CO – Bo	nd order –	
	stability a	nd magnetic j	property of the molecules – Comparison	of VB and MC	theories	
2.2	Pi-accepto	or ligands - bo	onding, hybridization, structures and pro	perties of mono	o and Bi	
	nuclear ca	arbonyl comp	exes of Ni, Cr, Fe, Co, Mn & V.			

U	nit-III	Coordination Compounds – I	15 Hours
3.1	Definiti	on of terms used - classification of ligands coordination number and stereo)-
	chemist	try of complexes - chelation and effect of chelation - applications of EDTA	
	Nomen	clature of Coordination Compounds-Formulas of Mononulclear Coordinati	on
	Entitie	s and Naming of Mononuclear Coordination Compounds nomenclature. St	ructural
	determi	nation of complexes.	
3.2	Bridge	d (or) polynuclear complexes – inter metallic complexes - Isomerism in co	mplexes –
	ionizati	on isomerism, solvate isomerism, linkage isomerism, ligand isomerism,	
	Metam	erism, coordination isomerism, polymerization isomerism, geometrical and	1 optical
	Isomeri	sm in 4 and 6 coordination complexes.	
U	nit-IV	Coordination Compounds - II	15 Hours
4.1	Werne	r's theory, Sidgwick theory - EAN rule, theory of Bonding - Valence bond	theory
	hybridi	zation - geometry and magnetic properties - failure of VBT.	
4.2	Crysta	l field theory - spectrochemical series - splitting of d - orbitals in octahedra	l and
	tetrahe	dral complexes - crystal field stabilization energy - calculation of CFSE in	octahedral
	and tet	rahedral complexes. Low spin and high spin complexes-explanation of ma	Ignetic
	proper	ties, colour and geometry using CFT. Comparison of VBT and CFT theorie	ès.
	Applic	ations and Importance of coordination compounds	
U	nit-V	Halogens and their Compounds	15 Hours
5.1	Haloge	ns – Basic properties of Halogens, comparative study of F, Cl, Br, and I –	
	compa	rison of reactivity's F and O - exceptional properties of fluorine, positive io	odine –
	evidenc	es.	
5.2	Oxy ac	ids of halogens – structure. Inter halogen compounds - Reason for formation	on,
	Classif	ication - Preparation, Properties and Structure of AX, AX_3 , AX_5 , AX_7 type	inter
	haloge	n compounds - pseudo halogens.	
Boo	oks for S	Study	
1.	Inorga	nic chemistry - P.L. Soni - Sultan Chand	
2.	Inorga	nic chemistry - B.R. Puri, L.R. Sharma and K.C. Kallia – Vallabh Publicati	ions
3.	Selecte	ed topics in inorganic chemistry - W.U. Malik, G.D. Tuli and R.D. Madan	- S. Chand
	Public	ations	
4.	Inorga	nic chemistry - J.E. Huheey, Harper and Collins - NY IV edition	
5.	Concis Vereil	se Inorganic chemistry - J.D. Lee - III edition - Von Nostrand	
0. P o:	v oger	s nanubook of quantitative morganic analysis – Longman	
DUG	742 IUI I		
	1. Indus	trial chemistry - B.K Sharma - Goel Publications	

- 2. Industrial chemistry R.K. Das Kalyani Publications, New Delhi
- 3. Coordination chemistry S.F.A. Kettle ELBS
- 4. Coordination chemistry K. Burger Butterworthy
- 5. Text book of qualitative inorganic analysis A.I. Vogel III edition
- 6. Source book on atomic energy -Samuel Glasstone, Van Nostrand Co.,
- 7. Nuclear and radiochemistry -Frielander and Kennedy John wiley and sons
- 8. Nuclear chemistry H.J. Arnikar Wiley Eastern Co.,
- 9. Advanced Inorganic chemistry Cotton and Wilkinson V Edition Wiley and Sons

SEMESTER V					
COURSE CODE	COURSE	COURSE	TITLE	HRS/ WEEK	CREDIT
UACH5002	CORE 6	ORGANIC CH	EMISTRY- I	5	5
Course Objec	tives	. 1 1 1 1	<u> </u>		1
1. 10 eff	ectively impa	irt knowledge in	Carbohydrate ch	iemistry, Ste	reochemistry,
Heteroc	yclic chemistry	, Polynuclear hydroca	arbons and dyes.		
2. To mak	e the students	more inquisitive in l	earning the mecha	anistic approa	ch in Organic
Chemis	try through the	teaching of named rea	actions		
3. To learn	the synthetic a	applications of certain	organic compoun	ds	
4. To expl	ore the use mul	timedia tools in orgar	nic structural analy	rsis.	
Course Outco	mes				
1. Classif	y carbohydrate	s and elucidate the str	ucture		
2. Classif	y stereochemic	al isomerism and exp	lain RS/EZ notatio	on and configu	ration/
conform	national analys	is.			
3. Compa	re reactivity, ta	utomerism and nam	ing reactions.		
4. Descrit	be the preparat	ion, properties and ap	plications of Heter	cocyclic comp	ounds
5. Synthe	sise and charac	terize dyes			
Unit-I		Chemistry of	Carbohydrates		15 Hours
1.1 Carbohy	drates : classifi	cation - reactions of g	lucose and fructos	e - Osazone fo	ormation,
Mutarota	tion and its me	chanism – structural	elucidation of gluc	cose and fructo	ose -
pyranose	and furanose f	orms.			
1.2 Determ	ination of ring	size - Haworth proje	ection formula - co	onfiguration o	f glucose and
fructose	- epimerizatio	on – chain lengtheni	ng and chain sho	ortening of al	doses - inter
conversi	on of aldoses a	nd ketoses			
1.3 Disaccha	rides and polys	accharides: reactions	and structural eluc	cidation of suc	rose,
maltose a	and cellulose				
Unit-II Stereochemistry and Isomerism 15 Hours					
2.1 Stereoise	omerism : De	finition – classificat	ion - Optical a	nd geometrica	al isomerism.
Projectio	n formulae : F	ischer, Sawhorse and	d Newmann proje	ction formula	e - rotation of
optical isomers - Cahn - Ingold - Prelog rules - D, L notations - R, S notation of optical					
isomers with one and two asymmetric carbon atoms - Optical activities in compounds not					
containing asymmetric carbon atoms : biphenyls, allenes and spiranes					
2.2 Geometri	cal isomerism :	cis - trans, syn - anti	and E, Z notations	s - geometrical	isomerism in
maleic and fumaric acid - methods of distinguishing geometrical isomers using melting					

points, dipole moment, solubility, dehydration, cyclisation, heat of hydrogenation and combustion.

2.3 Conformational analysis : introduction of terms - conformers, configuration, dihedral angle, torsional strain, conformational analysis of ethane and n-butane including energy diagrams – conformation analysis of cyclohexane - axial and equatorial bonds - ring flipping – conformers of mono and 1,2 - 1,3 and 1,4-dimethylcyclohexane.

Unit-III		Reactions of active methylene Compounds, oxidation, reduction and other reactions		
3.1	Active methylene group - keto-enol tautomerism - enolization - addition reactions with			
	Grignard reagents, cyanide, and bisulphate. Preparation, properties and uses of acetoace			
	and cyano	acetic esters.		
3.2	2 Oxidation and reduction reactions – Conversion of alcohols to carbonyls using CrO			
	Jone's rea	agent - alkenes to diols $-$ OsO ₄ and KMnO ₄ - alkenes to carbonyl	- KMnO ₄ ,	
OsO ₄ & NaIO ₄ . Reduction - hydrogenation of alkenes - reduction of carbonyl com			mpounds –	
	NaBH ₄ , LiAlH ₄ .3 Aldol, Perkin and Benzoin condensations, Knoevenagel, Claissen, Cannizzaro and			
3.3				
Reformatsky reactions with mechanism.				
U	Init-IV	Heterocyclic compounds	15 Hours	
4.1	Heterocyclic compounds - Classification: Five membered ring compounds: Preparation,			
	properties and uses of furan, pyrrole, and thiophene.			
10				

4.2 Six membered rings. Preparation, properties and uses of pyridine and piperidine. Methods of opening of heterocyclic rings - oxidation, reduction, Hoffman's exhaustive methylation, Van Braun's method. Comparative study of basicity of pyrrole, pyridine and piperidine with aromatic and aliphatic amines.

4.3 Synthesis and reactions of quinoline, isoquinoline and indole - Skraup, Bischler Napieralski and Fischer indole synthesis

ו	U nit-V	Polynuclear hydrocarbons and Dyes	15 Hours	
5.1	Polynuclear hydrocarbons - preparation , properties and uses of naphthalene, anthracene			
	and phena	nthrene - structural elucidation of naphthalene		
5.2	2 Diazonium compounds - preparations and properties of diazo methane, diazoacetic ester			
and benzene diazonium chloride.				
5.3	Dyes - Th	eory of colour and constitution - classification according to the structur	e and	
method of application. Preparation and uses of - Azo dye - methyl orange and congo red -				
	triphenyl	methane dye - malachite green - phthalein dye - phenolphthalein and flo	ourescein	

	– Vat dye - Indigo dye - Anthraquinone dye – alizarin				
Boo	ks for Study				
1.	Organic Chemistry - R. T. Morrison and Boyd - Pearson Education				
2.	Organic Chemistry - I. L Finar - Volume I and II - Pearson Education				
3.	Text Book of Organic Chemistry - P.L.Soni - Sultan Chand				
4.	. Advanced Organic Chemistry - Bahl and Arun Bahl - S. Chand				
5.	. Stereochemistry, conformations and mechanisms - Kalsi - New Age				
Books for Reference:					
1.	Organic Chemistry of Natural Products - Volume I and II- O.P. Agarwal - GOEL				
	Publishing House				
2.	A guide book to mechanism in Organic Chemistry - Peter Skyes - Pearson Education				
3.	. Stereo Chemistry of Organic Compounds - D. Nasipuri - New Age				
4.	. Chemistry of Natural Products – Gurdeep Chatwal- Himalaya Publishing House				
5.	. Reactions and Reagents - O.P. Agarwal- GOEL Publishing House				
6.	Organic reaction mechanisms – Gurdeep Chatwal- Himalaya Publishing House				
7.	A text book of Organic Chemistry K.S.Tewari, N.K.Vishol, S.N.Mehrotra -Vikas				
	Publishing House				
8.	Organic Chemistry- M.K.Jain and S.C.Sharma-ShobanLal and Nagin Chand				
9.	Reaction, Mechanism and Structure- Jerry March- John Wiley and Sons				
10.	Organic Chemistry –Bruice - Pearson Education				

11. Organic Reaction and Mechanism by Ahluwalia.

SEMESTER V					
CC C	OURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UA	CH5003	CORE 7	PHYSICAL CHEMISTRY	-I 5	5
Cour	Course Objectives				
1.	To study a	about the soluti	ons and Colligative properties		
2.	To know a	about Chemica	l Equilibrium.		
3.	To study p	phase rule.			
4.	To study t	he basics in su	rface chemistry, catalysis & che	mical kinetics.	
Cour	se Outcom	es			
1.	Distinguis	h ideal and not	n ideal solutions.		
2.	Measure t	he colligative p	properties.		
3.	Illustrate t	he phase equil	bria of one, two component and	composite syste	ems.
4.	Apply the	adsorption pro	cess and catalysis.		
5.	Appreciat	e the kinetics o	f various reaction and derive eq	uations.	
J	J nit-I		Solutions		15 Hours
1.1	Solutions	of gases in liq	uids – Solubility of gas in liq	uids - Effect of	temperature and
	pressure or	n solubility of a	a gas - Henry's law - solution of	liquids in liquid	s - Raoult's law -
	vapour pre	essure of ideal	solutions - activity of a compo	onent in an idea	l solution Gibb's
	Duhem Ma	argulus equatio	n - Thermodynamics of ideal s	olutions – Free	energy change of
	mixing for an ideal solution - volume change and enthalpy changes of an ideal solution -				
	vapour pressures of real or non-ideal solutions - vapour pressure - composition and Boiling				
	point- composition curves of completely miscible binary solutions - Fractional distillation				
	of binary li	quid solutions.			
1.2	Azeotropi	c mixtures - D	istillation of immiscible liquids	s - solubility of	partially miscible
	liquids - phenol water system - CST and effect of impurities on CST.				
Unit-IIColligative properties and chemical equilibrium15 Hours					
2.1	Colligative	e properties: I	owering of vapour pressure -	osmosis and os	smotic pressure -
	relation between osmotic pressure and vapour pressure lowering of an ideal solution -				
	elevation of boiling point - depression of freezing point - derivations and determination of				
	molar masses - measurement of colligative properties - problems in the determination of				
	molar masses of unknown solutes.				
2.2	Chemical e	equilibrium: lav	w of mass action - law of Chem	ical equilibrium	- thermodynamic
	derivation of law of Chemical equilibrium - Vant Hoff reaction isotherm - standard free				
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	energy change - and its relation with equilibrium constant - temperature dependence of				
	equilibrium constants – Vant Hoff's isochore - Le Chatelier principle and its applications.				
U	Unit-IIIPhase Equilibria15 Hours				
3.1	Gibb's phase rule - statement and definition of terms - Application to one component				
	systems - Water and sulphur system - Reduced phase rule - Two component systems -				
	simple eutectic system - lead - silver system - Freezing mixtures .				
3.2	Thermal analysis and cooling curves - compound formation with congruent melting point -				
	Zn-Mg system, Ferric chloride - water system - compound formation with incongruent				
	melting point Na-K system				
ι	Jnit-IVSurface Chemistry15 Hours				
4.1	Adsorption - terms adsorbate, adsorbent, heat of adsorption - Physisorption and				
	Chemisorption - Applications of adsorption - Types of Adsorption isotherms - Freundlich				
	adsorption isotherm - Langmuir's theory of adsorption – merits and demerits.				
4.2	Catalysis - General characteristics of catalysts - Acid-base catalysis - Enzyme catalysis				
	Mechanism and kinetics of enzyme catalyzed reactions - Michaelis - Menton equation -				
	Effect of temperature on enzyme catalysis.				
τ	Unit-V Chemical Kinetics 15 Hours				
1 5.1	Unit-VChemical Kinetics15 HoursThe rate equation - Order and molecularity of simple reactions – Derivation of integrated				
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5.1 5.2 Bool	Unit-V Chemical Kinetics 15 Hours The rate equation - Order and molecularity of simple reactions – Derivation of integrated rate equations of first, second, third and zero order reactions – Half life time of a reaction - methods of determining order of a reaction – experimental methods in the study of kinetics of reaction - volumetry and polarimetry - effect of temperature on reaction rates – Arrhenius equation - concept of activation energy - energy barrier - Effect of catalyst. Collision theory and derivation of rate constant for bimolecular reactions – Lindeman's theory of Unimolecular reaction - theory of absolute reaction rates - thermodynamic derivation for the rate constant for a bimolecular reaction – Eyring equation – Definitions of Reversible, Consecutive and Parallel reactions. ss for Study:				
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5.1 5.2 Bool 1. 2. 3.	Unit-V Chemical Kinetics 15 Hours The rate equation - Order and molecularity of simple reactions – Derivation of integrated rate equations of first, second, third and zero order reactions – Half life time of a reaction - methods of determining order of a reaction – experimental methods in the study of kinetics of reaction - volumetry and polarimetry - effect of temperature on reaction rates – Arrhenius equation - concept of activation energy - energy barrier - Effect of catalyst. Collision theory and derivation of rate constant for bimolecular reactions – Lindeman's theory of Unimolecular reaction - theory of absolute reaction rates - thermodynamic derivation for the rate constant for a bimolecular reaction – Eyring equation – Definitions of Reversible, Consecutive and Parallel reactions. st for Study: Principles of physical chemistry - B.R. Puri and Sharma - S Chand & Co., Text Book of physical chemistry - P.L. Soni - Sultan Chand. Physical chemistry - Negi and Anand - New Age.				
5.1 5.2 Bool 1. 2. 3. 4.	Unit-V Chemical Kinetics 15 Hours The rate equation - Order and molecularity of simple reactions – Derivation of integrated rate equations of first, second, third and zero order reactions – Half life time of a reaction - methods of determining order of a reaction – experimental methods in the study of kinetics of reaction - volumetry and polarimetry - effect of temperature on reaction rates – Arrhenius equation - concept of activation energy - energy barrier - Effect of catalyst. Collision theory and derivation of rate constant for bimolecular reactions – Lindeman's theory of Unimolecular reaction - theory of absolute reaction rates - bernodynamic derivation for the rate constant for a bimolecular reaction – Eyring equation – Definitions of Reversible, Consecutive and Parallel reactions. cs for Study: Principles of physical chemistry - B.R. Puri and Sharma - S Chand & Co., Text Book of physical chemistry - P.L. Soni - Sultan Chand. Physical chemistry - Negi and Anand - New Age. Physical chemistry - Kundu and Jain - S. Chand.				
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Books for Reference:

- 1. Elements of physical chemistry Glasstone and Lewis Macmillan.
- 2. Text book of physical chemistry S.Glasstone, Macmillan.
- 3. Fundamentals of physical chemistry Maron and Lando Colier Macmillan.
- 4. Physical chemistry G.W. Castellan Narosa publishing house.
- 5. Physical chemistry Walter J. Moore Orient Longman.
- Numerical problems on physical chemistry Gashal, Books and Allied (P) Ltd.,
- 7. Universal General Chemistry, C.N.R. Rao, Macmillan.

SEMESTER V						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UACHPR51	CORE PRACTICAL 4	PRACTICAL IV : GRAVIMETRIC ESTIMATION - I	4	2		
Course Objectives						
1. To learn bas	sic laboratory skills in	gravimetric estimation techniqu	les.			
2. To develop	skills in the estimation	of metal ions using gravimetry	techniques			
Course Outcor	nes					
1. Precipitate 1	metal ions in the form	of metal salts and weigh the pre	cipitate to esti	mate the		
amount of n	netal ions present in the	e salt solution.				
2. Estimate Su	llphate, Barium and Le	ad by gravimetric methods.				
3. Develop ski	Ills in the gravimetric la	aboratory practices and minimiz	zation of error	s.		
4. Acquire an	alytical skill and minin	nization of errors				
		Experiments				
1. Estimation	of Barium as Barium s	ulphate.				
2. Estimation	of Barium as Barium c	hromate.				
3. Estimation	of Lead as Lead chrom	ate.				
4. Estimation	of Lead as Lead sulpha	te				
		Marks Allotment				
<u>Marks 75</u>						
1. Record	1	10 marks				
2. Experiment	al work	35 marks				
3. Accuracy/ F	Result	25 marks				
4. Viva Voce	()5 marks				
Books for Study						
1. Text book of Practical Chemistry V. Veeraswamy						
Books for Refe	erence:					
1. Text book o	of Practical Inorganic C	Chemistry by Vogel.				

		SEMESTER V					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT			
UACHPR52	CORE PRACTICAL 5	PRACTICAL V : PHYSICAL CHEMISTRY PRACTICAL – I	4	2			
Course Objec	tives						
1. To study the	1. To study the kinetics of a reaction.						
2. To find ou	t the transition temp	perature of hydrated salt by thermometri	c method.				
3. To gain the	e knowledge of dete	ermination of molecular weight of a solu	ite.				
4. To study p	henol sodium chlor	ide to component system.					
5. To learn th	e determination of	cell constant and equivalent conductanc	e.				
Course Outco	omes						
1. Carry out	he kinetic experime	ents and understand the mechanism of si	imple organ	ic reactions.			
2. Determine	transition temperat	ure of salt hydrides.					
3. Determine	the molecular weig	ht of the given compounds by Rast's m	ethod.				
4. Determine	the equivalent conc	luctance of electrolytes.					
5. Handle ph	ase rule apparatus a	nd understand the effect of impurity.					
		Experiments					
1. Studying t	he Ester Hydrolysis	and showing it follows first order Kine	tics.				
2. Determina	tion of the transition	n temperature of the given salt hydrates,					
$Na_2S_2O_3.5$	6 H ₂ O, CH ₃ COONa.	3H ₂ O, SrCl ₂ .6H ₂ O, MnCl ₂ .4H ₂ O.					
3. Molecular	weight determination	on by Rast's method.					
4. Conductor	netric determination	n of cell constant and equivalent condu	ctance of t	wo different			
strong elec	etrolytes.						
5. Phenol soc	lium chloride syster	n.					
		Marks Allotment					
<u>Marks 75</u>							
1. Record		10 marks					
2. Procedure		10 marks					
3. Viva Voce	;	05 marks					
4. Experimer	nt	50 marks (Expt. 25 + Manipulation	25)				
Books for Stu	dy						
1. Basic prine	cipies of Practical cl	hemistry by A.R. kulandaivelu.					
Books for Re	erence:	homistar by V. Vanlaterer					
1. Basic principles of Practical chemistry by V. Venkatesaran							

	SEMESTER V					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UACHCE51	CORE BASED ELECTIVE 1	APPLIED CHEMISTRY- I	5	5		
Course Objectives						
1. To learn at	out processing of Le	ather and various methods of wate	er treatment.			
2. To gain the	knowledge in indus	trial usage chemicals.				
3. To learn re	cent development in	industrial chemistry.				
Course Outco	mes					
1. Characteriz	e impurities in water	r and apply various method of wat	er treatment.			
2. Manage wa	aste from various sou	rces and prevent environmental p	ollution.			
3. Classify the	e industrial product o	of polymer chemistry.				
4. Extract oils	s and fats by followin	ng standard methods .				
5. Identify the	e fuels and nanomate	rials by their properties.				
Unit-I		Water Chemistry		15 Hours		
1.1 Water - Cl	1.1 Water - Characteristic - Hardness-types - determination - complexometric method -					
Softening	method - Lime soda-	hot and cold lime soda process -	Zeolite proces	s - Ion		
exchange proc	ess.					
1.2 Domestic	water treatment coa	gulation - contact and electrochen	nical coagulati	on		
sterilization (o	zonation, UV) disinfe	ectant, chlorination and break poin	nt chlorination			
Desalinat	on - electrodialysis a	and reverse osmosis.				
1.3 Chemical	process -Type and sl	hape of chemical reactor – method	l of operation	- batch		
process - back	nixing.					
Unit-II		Leather Chemistry		15 Hours		
2.1 Introduction	on - anatomical struc	ture of hide and skin - elementary	treatment of le	eather		
Processing	g - Types and factor a	affecting of tanning process-veget	able tanning, o	chrome		
tanning – finis	hing process - dyein	g ,dye fixation and fat Liquoring.				
2.2 Analysis c	f chemical substance	e in effluent water - dissolved oxy	gen, biological	oxygen		
demand (H	demand (BOD), Chemical oxygen demand (COD), ammonia ,cyanide					
2.3 Waste water management - methods of treatment of tannery effluents - primary, secondary						
and tertiary tre	atment. Activated slu	udge process Pollution and its co	ontrol			
Unit-III		Polymer Chemistry		15 Hours		
3.1 Plastics - t	hermoplastics and th	ermosetting plastics - preparation,	properties and	d uses of		

nyl	on 6,6, polyvinyl chloride (PVC). biodegradable plastics – starch, soy based plastics –					
	Adhesive - preparation, properties of epoxy resins.					
3.2	Textile fibers - preparation, properties and uses - cotton and wool - synthetic fibres-rayon,					
	Orlon, Saran, Vinyon and Teflon					
3.3	3.3 Rubber – classification - vulcanisation - properties and uses of Buna-S, silicone, thiokol.					
	Conducting polymer - preparation, properties and uses of polyacetylene.					
I	Unit-IV Industrial Chemistry – I 15 Hours					
4.1	Oils and fats - Lipids - types - triglycerides - fatty acids - fatty acid composition in some					
	fats and oils - extraction of oils and fats - rendering, pressing with mechanical process and					
	extracting with volatile solvent.					
4.2	Refining of oils and fats- hydrogenation of oil, saponification number, iodine value,					
	Reichert-Meissel value and theirs significance. Manufacture and cleansing action of soap.					
4.3	Lubricants - types - oiliness, flash point, fire point and cloud point, pour point, aniline point.					
	Liquid lubricants- Solid lubricants - molybdenum sulphide. semi-solid-greases.					
	Synthetic lubricants-silicone oil.					
	Unit-V Industrial Chemistry – II 15 Hours					
5.1	Ceramics – types - silicon nitride, zirconia, White pottery. Refractories – types - silica					
refr	actories, magnesia refractories and graphite refractories.					
5.2	Fuels – classification - coal and coke – proximate and ultimate analysis – Manufacture of					
	coke(Otto Hoffmann method) - Petroleum refining and diesel - manufacture of synthetic					
	petrol – Bergius process - Flue gas analysis – Orsat process					
5.3	Nanomaterials - difference between molecules, nanomaterials and bulk materials - types -					
app	lication of nanomaterials-preparation, properties and uses of fullerene and CNT.					
Bo	oks for Study:					
1.	Industrial chemistry (including chemical – engineering) – B.K Sharma – Goel					
	Publishing house, Meerut.					
2.	Pollution control in process industries – S.P Mahajan – Tata Megraw – hill Publishing					
	Company Ltd., New Delhi.					
3.	Water pollution and management – C.K Varashney – wiley Eastern Ltd., Chennai-20.					
4.	Applied chemistry by K.Bagavathi - Sundari, MJP Publishers.					
Bo	oks for Reference:					
1.	Fundamental concept of Applied chemistry by Jayashree Ghosh, S.Chand & Company Ltd.,					
2.	Chemical treatment of hides a leather by J. Partridge Noyes, Park Ridge, N.J					
1						

- 3. Materials Science-Rajendran
- 4. Industrial Chemistry-B.N.Chakrabarthy, Oxford Publishing Co.Pvt Ltd.,
- 5. College Industrial Chemistry-P.P.Singh ,T.M.Joseph,R.G.Dhavale,Himalaya Publishing House.
- 6. Material Science and Engineering-V.R Raghavan ,Prince Hall Ltd.
- 7. Material Science P.K Palaniswamy, SCITECH Publication India Pvt Ltd.,
- 8. Perfumes, Cosmetic and Soap-W.A. Poucher(Vol.3)
- 9. Engineering Chemistry-R.Gopalan, D.Venagappya

SEMESTER V						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UACHCE52	CORE BASED ELECTIVE 1	ESSENTIAL SKILL IN CHEMISTRY– I	5	5		
Course Objectives						
1. To learn t	the data analysis, sign	nificant figure and error				
2. To learn 0	Chromatographic sep	aration techniques				
Course Outco	mes					
1. Identify s	ignificant figures.					
2. Minimize	errors and maintain	accuracy in chemical experiments	5.			
3. Extract na	atural products and p	urify liquid solvents.				
4. Separate	organic compounds b	y chromatographic methods				
5. Synthesis	organic compounds	by green chemical methods.				
Unit-I		Data analysis		15 Hours		
1.1 Data analy	ysis – Theory of error	rs – Idea of significant figures and	its importanc	e with		
examples -	- Precision – Accurac	cy – Methods of expressing accura	acy.			
1.2 Error anal	ysis – Minimizing er	rors – Method of expressing preci	sion – average	e deviation –		
standard de	standard deviation and confidence limit.					
Unit-II	Unit-IIExtraction and purification of chemicals15 Hours					
2.1 Purificatio	on of solid organic co	mpounds – Extraction – Use of in	nmiscible solv	ents –		
Soxhlet extraction – Crystallization – Use of miscible solvents – Fractional crystallization –						
Sublimatio	on					
2.2 Purification	on of liquids – Exper	imental techniques of distillation -	– Fractional di	stillation –		

	Vacuum distillation – Steam distillation – Tests for purity	
	Unit-III Separation and identification of chemicals 15	5 Hours
3.1	1 Chromatography – Principles and techniques of column, paper and thin layer	
chi	romatography $-R_f$ value $-$ Applications.	
3.2	2 Ion exchange chromatography – Principle – Experimental techniques and application	ıs.
	Unit-IVInstrumentation and applications of chromatography15	5 Hours
4.1	1 HPLC ad GC – Principle – Instrumentation and applications	
4.2	2 GC-MS and LC-MS – Principle – Instrumentation and applications	
	Unit-VGreen Chemistry and practices for sustainable development15	5 Hours
5.1	1 Twelve principle of green chemistry – choice of starting materials – biomimetic,	
	multifunctional reagents – materials reagent.	
5.2	2 Combinatorial green chemistry – green chemistry in sustainable developments.	
5.3	3 Importance of green chemistry in day to day life – Versatile bleaching agents and an	nalgesic
	drugs	
Bo	ooks for Study:	
1.	Fundamentals of Analytical Chemistry, 4 th Edition, D. A. Skoog and D. M. We	est, Holt
	Reinhard and Winston Publication, 1982	
2.	Elements of Analytical Chemistry, R. Gopalan, P. S. Subramanian, K. Rengarajan, S	. Chand
	and Sons, 1997	
Bo	ooks for Reference:	
1.	Elements of Analytical Chemistry, R. Gopalan, P. S. Subramanian, K. Rengarajan, S	S. Chand
	and Sons, 1997	
2.	Green Chemistry Environment Friendly Alternatives, Rashmi Sannghi & M. M. Sriv	vastava,

Narosa Publishing House Pvt Ltd, 2009

		SEMESTER V		
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UACHSP51	SKILLED BASED ELECTIVE PRACTICAL - I	PRACTICAL: ORGANIC CHEMISTRY PRACTICAL – I	2	1
Course Objec	tives			
1. To under	rstand the reactivity of	the functional groups.		
2. To learn	the recrystallization te	echniques.		
3. To gain	first hand knowledge b	by visiting industry.		
Course Outco	omes			
1. Carry out	reactions and find out	the functional groups in different	organic com	pounds.
2. Analyse of	organic compounds sys	stematically.		
3. Prepare d	erivatives for organic	compounds and determine melting	and boiling	points
		Experiments		
I. Analysis	of organic compound	ds containing one functional gro	up and Cha	racterization
with a de Reaction > Carl > Phe: > Este > Ald > Kete > Carl > Prin > Am: > Nitr > Dian > Ani	erivative. s of the following func- boxylic acid (mono and nol er ehyde one bohydrate nary Amine ide o compound mide lide	ctional groups: d di),		
		Marks Allotment		
Marks 75 1 . Record 2. Procedure 3. Aliphatic / 4. Saturated/U 5. Element pre 6. Functional O 7. Derivative 8. Viva Voce Books for Stu 1. Vogel's ter 2. Practical c Books for Ref	Aromatic nsaturated esent/ absent Group dy xt book of chemical an hemistry - A.O. Thoma ference:	10 marks 15 marks 06 marks 06 marks 12 marks 12 marks 09 marks 05 marks alysis. as - Scientific book center, Cannar	nore.	
 Practical cl Vogel's text 	nemistry-S. Sundaram xt book of practical or	- 3 Volumes - S. Viswanthan. ganic chemistry – Longmann.		

	SEMESTER V						
COUR COD	SE E	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UACHS	P52	SKILLED BASED ELECTIVE PRACTICAL - I	SKILLED DEVELOPMENT IN CHEMISTRY PRACTICAL - I	2	1		
Course Objectives							
1. To lea	arn th	e various chromatogra	phic techniques in the separation	n and purificat	ion process.		
2. To id	2. To identify the biologically important molecules by chromatographic techniques.						
3. To lea	arn th	e separation of impuri	ties and mixtures in industrial ch	emicals.			
Course (Dutco	mes					
1. Separ	rate m	etal ions by paper chro	omatography.				
2. Separ	rate or	ganic compounds by	chromatography.				
3. Separ	rate b	iomolecules and indus	strial products by chromatograph	ic techniques.			
4. Distil	l orga	nic compounds and p	urify by steam distillations.				
			Experiments				
1. Separ	ration	of Nickel (II) and Col	oalt (II) by Paper chromatograph	у			
2. Separ	ration	of Iron (III) and Alu	minium (III) by Paper chromato	graphy			
3. Separ	ration	of monosaccharide -	a mixture of D-galactose and	D-fructose us	ing n-butanol,		
acetor	ne and	d water (4:5:1)					
4. Separ	ration	of a mixture of two a	mino acids(glycine, aspartic acid	d, glutamic ac	id, tyrosine or		
any o	ther a	mino acid) by ascend	ing and horizontal paper chroma	tography			
5. Separ	ratrior	n of mixture of dyes us	sing cyclohexane and ethylacetat	e (8.5:1.5)			
6. Separ	ration	of a mixture of pheno	ol and benzoic acid by thin layer				
chrom	natogr	aphy (TLC)					
7. Steam	n disti	llation of naphthalene	from its suspension in water / C	love oil from	cloves / o-and		
p- nit	rophe	nol					
			Marks Allotment				
Marks 7	<u>5</u>						
1. Reco	rd		10 marks				
2. Proce	edure		10 marks				
3. Exper	rimen Vocc	t	50 marks				
4. VIVa	r Stu	dv	UJ IIIdIKS				
1. Funda	ament	als of Analytical Ch	emistry, 4 th Edition, D. A. Sko	oog and D. N	A. West. Holt		

Reinhard and Winston Publication, 1982

2. Elements of Analytical Chemistry, R. Gopalan, P. S. Subramanian, K. Rengarajan, S. Chand and Sons, 1997

Books for Reference:

- Fundamentals of Analytical Chemistry, 4th Edition, D. A. Skoog and D. M. West, Holt Reinhard and Winston Publication, 1982
- 2. Elements of Analytical Chemistry, R. Gopalan, P. S. Subramanian, K. Rengarajan, S. Chand and Sons, 1997

	SEMESTER VI					
CO CO	URSE ODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UAC	CH6001	CORE 8	INORGANIC CHEMISTRY- II	5	5	
Cour	se Objec	tives				
1.	To impa	art knowledge a	bout radioactivity and nuclear chemist	ry.		
2.	To unde	erstand the meta	llic bond and bio-inorganic chemistry.			
3.	To learr	about d and f	block elements.			
4.	To prov	ide knowledge	about the industrial chemistry.			
Cour	se Outco	mes				
1.	Calcula	te binding energ	gy and mass defects.			
2.	Detect a	and measure of	radio activity and half life period after	learning the th	eory.	
3.	Disting	uish fission and	fusion reactions.			
4.	Design	devices with se	miconductors.			
5.	Compar	e the properties	and characteristics of d- and f- block	elements.		
6.	Explain	biological func	tions, toxicity of elements.			
7.	Compar	e the fuel gases	and understand the composition and	production of i	ndustrial	
c	hemicals					
U	nit-I		Nuclear Chemistry – I		15 Hours	
1.1	Introduct	ion - compositi	on of nucleus - nuclear forces operatin	g between the	nucleons - n/p	
	ratio, cui	ves, stability be	elts – isotopes, isobars, and isotones, pa	acking fraction	•	
1.2	Nuclear	binding energy	y - Mass defect - simple calculations	involving ma	uss defect and	
	binding	energy per n	ucleon - magic numbers - liquid	drop model -	shell model	
	(elementary).					
U	nit-II		Nuclear Chemistry – II		15 Hours	
2.1	Natural	radioactivity -	Detection and measurement of radio	activity - radi	oactive series	
	including	g neptunium sei	ries - group displacement law - Rate of	disintegration	and half - life	
	period -	Average half lif	e period.			

2.2 Artificial radioactivity - induced radioactivity - uses of radioisotopes - medical applications
- hazards of radiations - nuclear fission - nuclear energy - nuclear reactors - nuclear fusion
- thermo nuclear reactions - sun and stars as a source of energy.

U	nit-III	Metal, Semi Conductors and Hydrogen bonding	15 Hours			
3.1	Metallic	bonds – Electron sea model for metals and explanation of metallic p	properties –			
	Valence	Valence bond model -The band model-MO approach -semiconductors - Intrinsic, Extrinsic				
	and types	s of semiconductors				
3.2	Hydroge	en bond - nature-intra molecular hydrogen bonding – consequences o	of hydrogen			
	bonding-	Unique properties of water. Intra molecular forces and London forces.				
U	nit-IV	d and f elements	15 Hours			
4.1	Chemist	ry of d block elements - characteristics of d block elements - variable	e valency -			
	magnetic	properties and colour - comparative study of Ti, V, Cr, Mn and Fe gro	oup metals -			
	occurren	ce, oxidation states, magnetic properties and colour - preparation a	ind uses of			
	ammoniu	am molybdate, V_2O_5 and UF_6				
4.2	Chemistr	ry of f block elements - comparative account of lanthanides and	l actinides,			
	occurren	ce, elements, oxidation states, magnetic properties, colour and spectra -	lanthanide			
	contracti	on - causes, consequences and uses -comparison between 3d and	d 4f block			
	elements					
U	nit-V	Bio inorganic and Industrial Chemistry	15 Hours			
			10 Hours			
5.1	Bioinorg	ganic chemistry - Biological aspects of Fe, Zn, Mg, Co and Mo - Role	e of Na, K,			
5.1	Bioinorg Ca, and I	ganic chemistry - Biological aspects of Fe, Zn, Mg, Co and Mo - Role P - Biological functions and toxicity of some elements.	e of Na, K,			
5.1 5.2	Bioinorg Ca, and I Industria	ganic chemistry - Biological aspects of Fe, Zn, Mg, Co and Mo - Role P - Biological functions and toxicity of some elements. I chemistry - Fuel gases - calorific value - composition and sources of	e of Na, K,			
5.1 5.2	Bioinors Ca, and I Industria semi wat	ganic chemistry - Biological aspects of Fe, Zn, Mg, Co and Mo - Role P - Biological functions and toxicity of some elements. I chemistry - Fuel gases - calorific value - composition and sources of er gas, carbureted water gas, producer gas, oil gas, natural gas, LPG and	e of Na, K, f water gas, d bio gas.			
5.1 5.2 5.3	Bioinors Ca, and I Industria semi wat Manufae	ganic chemistry - Biological aspects of Fe, Zn, Mg, Co and Mo - Role P - Biological functions and toxicity of some elements. I chemistry - Fuel gases - calorific value - composition and sources of er gas, carbureted water gas, producer gas, oil gas, natural gas, LPG and cture of cement - Composition and setting of cement - examples for	e of Na, K, f water gas, d bio gas. pigments –			
5.1 5.2 5.3	Bioinorg Ca, and I Industria semi wat Manufae constitue	ganic chemistry - Biological aspects of Fe, Zn, Mg, Co and Mo - Role P - Biological functions and toxicity of some elements. Il chemistry - Fuel gases - calorific value - composition and sources of er gas, carbureted water gas, producer gas, oil gas, natural gas, LPG and cture of cement - Composition and setting of cement - examples for ents of paints and their functions - type of glasses - manufacture	e of Na, K, f water gas, d bio gas. pigments – e of glass.			
5.1 5.2 5.3	Bioinorg Ca, and I Industria semi wat Manufae constitue Composi	ganic chemistry - Biological aspects of Fe, Zn, Mg, Co and Mo - Role P - Biological functions and toxicity of some elements. Il chemistry - Fuel gases - calorific value - composition and sources of er gas, carbureted water gas, producer gas, oil gas, natural gas, LPG and cture of cement - Composition and setting of cement - examples for ents of paints and their functions - type of glasses - manufacture tion of Match sticks and match box - Industrial making of safety match	e of Na, K, f water gas, d bio gas. pigments – e of glass. es.			
5.1 5.2 5.3 Bool	Bioinor Ca, and I Industria semi wat Manufac constitue Composi	ganic chemistry - Biological aspects of Fe, Zn, Mg, Co and Mo - Rol- P - Biological functions and toxicity of some elements. Il chemistry - Fuel gases - calorific value - composition and sources of eer gas, carbureted water gas, producer gas, oil gas, natural gas, LPG and cture of cement - Composition and setting of cement - examples for ents of paints and their functions - type of glasses - manufacture tion of Match sticks and match box - Industrial making of safety match dy:	e of Na, K, f water gas, d bio gas. pigments – e of glass. es.			
5.1 5.2 5.3 Bool 1.	Bioinor Bioinor Ca, and I Industria semi wat Manufac constitue Composi cs for Stu Inorgani	ganic chemistry - Biological aspects of Fe, Zn, Mg, Co and Mo - Rol- P - Biological functions and toxicity of some elements. It chemistry - Fuel gases - calorific value - composition and sources of eer gas, carbureted water gas, producer gas, oil gas, natural gas, LPG and cture of cement - Composition and setting of cement - examples for ents of paints and their functions - type of glasses - manufacture tion of Match sticks and match box - Industrial making of safety match dy: ic chemistry - P.L. Soni - Sultan Chand.	e of Na, K, f water gas, d bio gas. pigments – e of glass. es.			
5.1 5.2 5.3 Bool 1. 2.	Bioinor Bioinor Ca, and l Industria semi wat Manufa constitue Composi cs for Stu Inorgani Inorgani	ganic chemistry - Biological aspects of Fe, Zn, Mg, Co and Mo - Rol- P - Biological functions and toxicity of some elements. Il chemistry - Fuel gases - calorific value - composition and sources of eer gas, carbureted water gas, producer gas, oil gas, natural gas, LPG and cture of cement - Composition and setting of cement - examples for ents of paints and their functions - type of glasses - manufacture tion of Match sticks and match box - Industrial making of safety match dy: ic chemistry - P.L. Soni - Sultan Chand. ic chemistry - B.R. Puri, L.R. Sharma and K.C. Kallia – Vallabh Public	e of Na, K, f water gas, d bio gas. pigments – e of glass. es.			
5.1 5.2 5.3 Bool 1. 2. 3.	Bioinor Bioinor Ca, and I Industria semi wat Manufa constitue Composi cs for Stu Inorgani Selected	ganic chemistry - Biological aspects of Fe, Zn, Mg, Co and Mo - Rol- P - Biological functions and toxicity of some elements. It chemistry - Fuel gases - calorific value - composition and sources of eer gas, carbureted water gas, producer gas, oil gas, natural gas, LPG and cture of cement - Composition and setting of cement - examples for ents of paints and their functions - type of glasses - manufacture tion of Match sticks and match box - Industrial making of safety match dy: ic chemistry - P.L. Soni - Sultan Chand. ic chemistry - B.R. Puri, L.R. Sharma and K.C. Kallia – Vallabh Public I topics in inorganic chemistry - W.U. Malik, G.D. Tuli and R.D. M	e of Na, K, f water gas, d bio gas. pigments – e of glass. es. ations. Madan - S.			
5.1 5.2 5.3 Bool 1. 2. 3.	Bioinor Bioinor Ca, and I Industria semi wat Manufa constitue Composi ss for Stu Inorgani Selected Chand F	ganic chemistry - Biological aspects of Fe, Zn, Mg, Co and Mo - Rol- P - Biological functions and toxicity of some elements. I chemistry - Fuel gases - calorific value - composition and sources of the gas, carbureted water gas, producer gas, oil gas, natural gas, LPG and cture of cement - Composition and setting of cement - examples for ents of paints and their functions - type of glasses - manufacture tion of Match sticks and match box - Industrial making of safety match dy: ic chemistry - P.L. Soni - Sultan Chand. ic chemistry - B.R. Puri, L.R. Sharma and K.C. Kallia – Vallabh Public l topics in inorganic chemistry - W.U. Malik, G.D. Tuli and R.D. N Publications .	e of Na, K, f water gas, d bio gas. pigments – e of glass. es. ations. Madan - S.			

5. Concise Inorganic chemistry - J.D. Lee - III edition - Von Nostrand

6. Industrial chemistry - B.K Sharma - Goel Publications

Books for Reference:

- 1. Industrial chemistry R.K. Das Kalyani Publications, New Delhi.
- 2. Coordination chemistry S.F.A. Kettle ELBS .
- 3. Coordination chemistry K. Burger Butterworthy .
- 4. Vogel's handbook of quantitative inorganic enalysis Longman.
- 5. Text book of qualitative inorganic analysis A.I. Vogel III edition .
- 6. Source book on atomic energy Van Nostrand Co.,.
- 7. Nuclear and radiochemistry John wiley and sons .
- 8. Nuclear chemistry H.J. Arnikar Wiley Eastern Co., II edition (1987).
- 9. Advanced Inorganic chemistry Cotton and Wilkinson V Edition Wiley and Sons

			SEMESTER VI		
C	COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
U	ACH6002	CORE 9	ORGANIC CHEMISTRY- II	5	5
Cou	rse Objectiv	es			
1.	To understar	nd the basic co	oncepts of organic photochemistry and	l Molecular	
	Rearrangem	ents.			
2.	To kindle in	terest in stude	nts in learning bio-organic chemistry t	through the int	roduction of
	topics such a	as Nucleic acio	ls, Proteins, Terpenes, Alkaloids and	rearrangemen	ts.
3	To assign th	e spectra usino	simple organic molecules	U U	
5.	10 ussign ti		5 simple organic molecules.		
Cou	rse Outcome	es			
1.	Characterise	amino acids,	peptides and elucidate structure of pr	oteins.	
2.	Synthesize p	yrimidine and	purine bases.		
3.	Describe RN	NA & DNA, st	ructure of nucleic acids.		
4.	Understand	the structures	of vitamins and their biological roles.		
5.	Isolate the a	lkaloids and el	ucidate their structure.		
6.	Interpret the	spectra and ic	lentifies the simple organic compound	ls.	
	Unit-I		Amino acids & Proteins		15 Hours
1.1	Amino acids	: Classificatio	n of amino acids - Zwitter ion, isoelec	etric point, Gei	neral
react	tions and pro	operties of pr	oteins (Test for Proteins) preparatio	ns and prope	rties of alpha
	amino acids	s - with special	reference to Gabriel phthalimide syn	thesis, Strecke	er synthesis.

1.2	Polypeptide	es and proteins: Classification of proteins based on physical and	d chemical			
	properties a	and physiological functions - peptide synthesis - Bergman synthesis.				
1.3	Primary s	tructure of proteins - End group analysis - Akabori method, reduction	on method,			
	Edman method, Sanger's method, secondary structure of protein - helical and sheet					
	structures –	- de-naturation of proteins.				
	Unit-II	Nucleic Acids and Heterocyclic Bases	15 Hours			
2.1	Nucleic acid	ls: Nucleoside, nucleotide, degradation of nucleotide chain - structure	of			
	nucleic acid	ls, functions of nucleic acids - RNA and DNA - elementary idea about	it protein			
	synthesis					
2.2	Synthesis of	f pyrimidine and purine bases - guanine, adenine, uracil, cytosine and	l thyamine.			
2.3	Antibiotics:	Classification and its importance, structural elucidation of penicillin				
	Unit-III	Alkaloids & Terpenes	15 Hours			
3.1	Alkaloids: (General methods of isolation and structural elucidation of nicotine				
3.2	Terpenes - i	isoprene rule –structural elucidation of camphor.				
3.3.	Vitamins: C	Classification – importance of vitamins - structural elucidation of asco	orbic acid			
	Unit-IV	Organic Spectroscopy	15 Hours			
4.1	Basic princ	tiple of UV-visible spectroscopy – chromophore – auxochrome	– factors			
	affecting w	avelength of absorption – applications of UV-visible spectroscopy.				
4.2	Basic prin	ciple of Infra red spectroscopy - number of fundamental vibratio	on – factor			
	affecting vi	brational frequency – Identification of maleic acid, fumaric acid, be	nzaldehyde			
	& benzami	de by IR spectroscopy.				
4.2	Basic Princ	ciple of Nuclear Magnetic Resonance spectroscopy - chemical shift	 shielding 			
	and deshie	lding. Identification of Ethanol, Isopropyl alcohol, toluene and	d n-propyl			
	chloride us	sing NMR spectroscopy.				
	Unit-V	Photochemistry and Molecular Rearrangements	15 Hours			
5.1	Organic pho	otochemistry: Types of photochemical reactions - photo dissociation	- gas phase			
	photolysis -	- isomerisation - cyclisation - dimerisation and oxetane formation.				
5.2	Norrish-I a	and II reactions. Barton reaction - photo - Fries rearrangement - pho	tochemical			
	formation of	of smog - photochemistry of vision.				
5.3	Molecular	rearrangements - inter and intra molecular rearrangements - Pinacol-	pinacolone,			
	Benzillic a	cid, Cope, Oxy Cope, Beckmann, Hoffmann, Curtius, Baeyer-Villi	ger, Wolff,			
	Claissen a	nd Fries rearrangements.				
Boo	oks for Study	:				

1. Organic Chemistry - R. T. Morrison and Boyd - Pearson Education

I

- 2. Organic Chemistry I. L Finar Volume I and II Pearson Education
- 3. Text Book of Organic Chemistry P.L.Soni Sultan Chand
- 4. Advanced Organic Chemistry Bahl and ArunBahl S. Chand

Books for Reference:

- 1. Stereochemistry, conformations and mechanisms Kalsi New Age
- 2. Organic Chemistry of Natural Products Volume I and II- O.P. Agarwal GOEL Publishing House
- 3. A guide book to mechanism in Organic Chemistry Peter Skyes Pearson Education
- 4. Stereo Chemistry of Organic Compounds D. Nasipuri New Age
- 5. Chemistry of Natural Products Gurdeep Chatwal- Himalaya Publishing House
- 6. Reactions and Reagents O.P. Agarwal- GOEL Publishing House
- 7. Organic reaction mechanisms Gurdeep Chatwal- Himalaya Publishing House
- 8. A text book of Organic Chemistry K.S.Tewari,N.K.Vishol,S.N.Mehrotra-Vikas Publishing House
- 9. Organic Chemistry- M.K.Jain and S.C.Sharma-ShobanLal and Nagin Chand
- 10. Reaction, Mechanism and Structure- Jerry March- John Wiley and Sons
- 11. Organic Chemistry Bruice Pearson Education

	SEMESTER VI						
C	OURSE CODE	COURSE	COURSE TITLE	HRS WEE	/ CREDIT		
UA	CH6003	CORE 10	PHYSICAL CHEMISTR	Y- II 5	5		
Cou	Course Objectives						
	1. To stu	dy the basic p	rinciples of photo chemistry and	d laser.			
	2. To lea	rn about Elect	ro chemistry and its application	S.			
	3. To stu	dy about the	pasics in Electro analytical tech	niques			
	irse Outco	mes					
1	. Apply t	ne laws of Pho	otochemistry and the kinetics of	photochemical rea	ictions.		
2	. Measure	es the electric	al conductivity by applying con	cept of electrochen	nistry.		
3	6. Analyze	e different typ	es of electrodes and cells with c	ell reactions			
4	. Apply E	Emf measuren	ents in various applications.				
5	5. Illustrat	e the principle	s of polarography, storage cells	and batteries.			
1	Unit-I		Photochemistry		15 Hours		
1.1	Laws	of photocher	nistry – Stark – Einstein's lav	w – Grotthus Drag	per law - Beer –		
	Lambert	's law - Quar	tum Yield - Jablonski diagram	- Non radiative tran	asitions – IC – ISC		
	– Radiati	ive transitions	- Fluorescence and phosphores	cence - chemilumi	nescence -		
pho	tosentisatio	on – Photosyn	thesis.				
1.2	Kinetics	of hydrogen	Chlorine reaction. Lasers - prin	nciple and uses.			
I	Unit-II		Electrochemistry -	Ι	15 Hours		
2.1	Introduc	tion: Metallic	and Electrolytic conductors – S	pecific – Equivale	nt - Molar		
	Conduct	ance – Variat	on of Specific and Equivalent of	conductance with d	ilution - Transport		
	number a	and its determ	nation by Hittorff's and moving	g boundary method	l - effect of		
	temperat	ture and conc	entration on ionic mobility and	ionic conductance	- Kohlrausch's		
	law and	its application	s - salt hydrolysis – hydrolysis	of salt of weak aci	id and strong base,		
	hydrolys	is of salt of st	ong acid and weak base - degre	e of hydrolysis and	l pH of a salt		
solu	tion, buffe	r action and i	t's applications.				
2.2	Applica	tions of cond	uctivity measurements - degre	e of dissociation o	of weak electrolyte		
	and solu	bility product	- conductometric neutralizatio	n titrations - HCl	Vs NaOH, ACOH		
	Vs NaOH and mixture of acids Vs NaOH.						
U	nit-III		Electochemistry - I	[15 Hours		
3.1	Theory of	f strong electr	olytes - Debye - Huckel - Onsag	ger theory - verifica	ation of Onsager		
	equation -	- Wein effect	and Debye Falkenhagen effect -	ionic strength and	its calculations		
3.2	Galvanic	cells - reversi	ole and irreversible electrodes a	nd cells - standard	cell - emf and its		

	measurement - types of electrodes - Gas electrode - Metal - Metal ion electrode - Metal
	Metal insoluble salt electrode – Redox electrode – Glass electrode – electrode reactions –
elec	trode potentials - reference electrodes - Standard electrode potentials. Derivation of
	Nernst equation for electrode potential and cell emf - sign conventions.
U	Init-IVElectochemistry - III15 Hours
4.1	Electrochemical series and its applications - Chemical cells and concentration cells with
	and without transference - examples and derivation of expressions for their emfs - liquid
	junction potential and its significance.
4.2	Applications of emf measurement – Determination of Transport numbers, valency of ions
	in doubtful cases and solubility products - Determination of pH using quinhydrone and
	glass electrodes – Potentiometric acid-base titrations. Calculation of ΔG , ΔH , ΔS and
	Equilibrium constant.
τ	Jnit-VPolarography and batteries15 Hours
5.1	Polarography - principle - concentration polarization – dropping mercury electrode -
	advantages and limitations - convection, migration and diffusion currents - Ilkovic equation
	(derivation not required) and significance -current voltage curve - oxygen wave -
	Polarography as analytical tool in quantitative and qualitative analysis.
5.2	Battery - lead acid battery - mechanism of discharging and recharging - Advantages and
	Limitations
Boo	ks for Study:
1.	Principles of physical chemistry - B.R. Puri and Sharma - S.Chand & Co.,
2.	Text Book of physical chemistry - P.L. Soni - Sultan Chand.
3.	Physical chemistry - Negi and Anand - New Age.
4.	Physical chemistry - Kundu and Jain - S. Chand.
5.	Physical chemistry - K.L kapoor - Macmillan - 4 volumes
Boo	ks for Reference:
1.	Elements of physical chemistry - Glasstone and Lewis - Macmillan.
2.	Text book of physical chemistry - S.Glasstone, Macmillan.
3.	Fundamentals of physical chemistry - Maron and Lando - Colier - Macmillan.
4.	Physical chemistry - G.W. Castellan - Narosa publishing house.
5.	Physical chemistry - Walter J. Moore - Orient Longman.
6.	Numerical problems on physical chemistry Gashal, Books and Allied (P) Ltd.,
7.	Universal General Chemistry, C.N.R. Rao, Macmillan.

	SEMESTER VI				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UACHPR61	CORE PRACTICAL 6	PRACTICAL VI : GRAVIMETRIC ESTIMATION - II	4	2	
Course Objec	tives				
1. To learn ba	sic laboratory skills	in gravimetric estimation techniques.			
2. To develop	skills in the estimat	ion of metal ions using gravimetry te	chniques.		
3. To develop	skills in the estimat	ion of anions using gravimetry techni	ques.		
Course Outco	mes				
1. Precipitate	metal ions in the for	m of metal salts			
2. Estimate S	ulphate, Calcium, Ni	ckel and Magnesium by gravimetric	methods.		
3. Develop sk	tills in the gravimetri	c laboratory practices			
4. Acquire an	alytical skills and mi	nimization of errors			
		Experiments			
1. Estimation	of Calcium as Calci	um oxalate monohydrate.			
2. Estimation	of Sulphate as Bariu	m sulphate.			
3. Estimation	of Nickel as Nickel	dimethyl glyoxime.			
4. Estimation	of Magnesium as M	agnesium oxinate.			
		Marks Allotment			
<u>Marks 75</u>					
1 .Record		10 marks			
2. Execution	of work	35 marks			
3. Accuracy/	Result	25 marks			
4. Viva Voce	4. Viva Voce 05 marks				
Books for Stu	dy				
1. Text book	1. Text book of Practical Chemistry V. Veeraswamy				
Books for Ref	erence:				
1. Text books	of Practical Inorgan	ic Chemistry by A.I. Vogel.			

		SEMESTER VI					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT			
UACHPR62	CHPR62 CORE PRACTICAL VII: PRACTICAL 7 PHYSICAL CHEMISTRY PRACTICAL – II		4	2			
Course Objec	Course Objectives						
1. To study the	e critical solution ter	nperature of immiscible binary sys	tem.				
2. To gain the	knowledge of condu	actometric neutralization titration.					
3. To study the	e Nernst distribution	law.					
4. To study the	e zero order kinetics						
5. To learn the	determination of ec	uilibrium constant.					
Course Outco	mes						
1. Determine t	he critical solution t	emperature of some simple physica	al systems.				
2. Titrate acids	and bases conductor	ometrically.					
3. Calculate th	e partition co-efficie	ent of Iodine between various immi	scible liquids				
4. Determine t	he equilibrium cons	tant.					
5. Determine t	he order of a reaction	n the by carrying out kinetics expe	eriments				
		Experiments					
1. Using Phene	ol-water system, upp	per critical solution temperature and	d composition				
determination.							
2. Neutralizati	on titration of strong	g acid and a strong base by conduct	ometric metho	od.			
3. Distribution	Co-efficient of Iod	ine between aqueous and organic la	iyer.				
4. Study of Eq	uilibrium constant c	of a reaction between KI and Iodine					
5. Kinetic stud	y of Iodination of A	cetone in the presence of sulphuric	acid.				
		Marks Allotment					
Marks 75		10 marks					
1. Recold 2. Procedure		10 marks					
3 Viva Voce		05 marks					
4. Experimen	t	50 marks (Expt. 25 + Manipulat	(100, 25)				
Books for Stu	dv		,				
1. Basic princ	ciples of Practical ch	emistry by A.R. kulandaivelu					
Books for Ref	erence:						
1. Basic princ	ciples of Practical ch	nemistry by V. Venkatesaran.					
2. Basic princ	ciples of Practical ch	nemistry by R. Veeraswamy.					

			EMESTER VI				
CO C	URSE ODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UAC	CHCE61	CORE BASED ELECTIVE - 2	APPLIED CHEMISTRY- II	5	5		
Cour	Course Objectives						
1.	1. To effectively impart knowledge about - various diseases and their treatment.						
2.	To unde	erstand about chemic	al characteristic of soil.				
3.	To impa	art knowledge of food	d adulteration.				
4.	To separ	rate the drug using cl	hromatography technique.				
Cour	rse Outco	mes					
1.	Describ	e the types and uses	of the drugs curing various disease	28.			
2.	Establis	h the effects of analg	gesics, antiseptics and antibiotics in	n pharmaceutio	cal chemistry.		
3.	Identify	the causes of cancer	and AIDS and understands the tre	eatments of car	ncer and		
	AIDS.						
4.	Differen	ntiate the types of soi	l and fertilizers and explains the ro	ole of micronu	trients.		
5.	Preserve	e food and find adult	eration in food products				
6.	Elute m	etals and organic cor	npounds by chromatographic tech	niques			
U	nit-I	Pha	armaceutical Chemistry - I		15 Hours		
1.1	Importa	nt terminology used	in pharmaceutical chemistry-Medi	cinal herbs an	d their uses –		
node o	of action -	• Mechanism of drug	action.				
1.2	Disease	- Cause and treatment	nt of Cancer, AIDS, AZT, DDC ar	nd diabetes. An	ntibacteria –		
	Sulpha dı	rugs-examples and ac	ctions - prontosil, sulphathiazole, s	ulphafurazole			
1.3	Antibioti	cs - classification-pre	eparation, properties and therapeut	ic uses of chlo	ram-		
phienio	col, penic	illin, streptomycin ar	nd tetracyclin.				
U	nit-II	Pha	armaceutical Chemistry - II		15 Hours		
2.1	Anaesth	etics - general anaes	thetic - preparation, properties and	therapeutic us	ses of ether,		
	halother	ne, cyclopropane - no	on volatile anaesthetic - thiopental	sodium, local	anaesthetic –		
cocain	e, procain	e.					
2.2	Analgesio	c - Narcotic analgesio	cs morphine, pethidine and method	line. Non-narc	cotic		
	analgesic	cs, antipyretic, anti-ii	nflammation salicylic derivatives,	paracetamol, i	buprofen		
2.3	Antisept	ics – disinfectant - pl	nenol coefficient - Preparation, the	rapeutic uses	- phenol		
compo	unds, chlo	oro compounds and o	organic mercurial.				
Ur	nit-III		Agricultural Chemistry		15 Hours		
3.1	Soil – pr	operties - types - Fer	tilizer - biofertilizers-organic man	ures and their	important -		
ole of	N, P, K s	econdary nutrients a	nd micronutrients in plants growth	l .			

- 3.2 Nitrogenous fertilizer preparation and uses of calcium ammonium nitrate, Urea, Sindri fertilizer. Phosphate fertilizer preparation and uses of monoammonium and diammonium phosphate. Potassium fertilizer potassium sulphate.
- 3.3 Pesticides classification preparation and uses of fluorene compounds, boron compounds, arsenic compounds, organomercuric compounds, DDT, BHC, pyridine compounds

omp	ounus.		
U	nit-IV	Food Chemistry	15 Hours
4.1 F	ood additi	ve - nutritive sweetners - non nutritive sweetners - food flavors - flavo	r enhancers
	emulsifi	er and stabilizers. Food colours – colourants.	
4.2	Food ad	lulteration – adulterants - intentional adulterant - incidental adulterants	- detection
	of adulte	eration in milk	
4.3	Food pre	eservation – preservation by low temperature & high temperature – past	eurization -
	preserva	tion by chemical - tomato product - preservation by osmosis - preservation	ervation by
	dehydrat	tion	
τ	J nit-V	Separation Technique	15 Hours
5.1.	Chromate	ography techniques - column chromatography - principle - absorbent u	sed -
prep	aration of	column - adsorption - elution – recovery of substances - application.	
5.2	Thin laye	r chromatography - principle - choice absorbent and solvent - preparation	on of
	chromato	gram - Rf value - application of TLC in organic and inorganic chemistry	у
5.3	Paper chr	omatography – choice of paper and solvent principle, Rf value factors –	-
applic	cation - sep	paration of amino acids mixture - radial paper chromatography. Applica	tion
	of HPLC	and GC in organic and inorganic chemistry	
Boo	ks for Stu	ıdy:	
1.	A text bo	ook of Pharmaceutical chemistry - Jayashree Ghosh - S. Chand	
2.	Pharmace	eutical Chemistry - S. Lakshmi Sultan Chand	
3.	Pharmac	ology and Pharmatherapeutics - R.S. Satoskar - popular prakashan - Vol	I.I and II.
4.	Medicina	ıl Chemistry – Asutosh Kar - New Age	
5.	A text bo	ook of Synthetic drugs - O.D. Tyagi - Ammol publications.	
6.	Soil scien	nce-A.Sankara.	
7.	Food Che	emistry –L.H.Meyer-CBS Publisher	
Boo	ks for Ref	ference:	
1.	Nature an	nd properties of soils-Harry,O.Bukman.	
2.	Principle	s of instrumental methods of analysis - D.A. Skoog and Saunders	- College
	publication	ons - III edition (1985).	

3. Applied chemistry for home science and allied science –T.Jacob,Macmillan.

- 4. Applied chemistry-theory and practice-O.P.Veramani and A.K.Narula.
- 5. Food Science-Srilakshmi.B
- 6. Agricultural Chemistry Vol. I & Vol. II edited by B.A. Yagodin– NewCentury books (P) Ltd.,
- 7. The nature and properties of soils IX Edition Nyle.C.Bready S.Chandand Company Ltd.,
- 8. Soils and soil fertility Louis M.Thompson and Frederick. R.Troch- TataMc. Graw hill.

		SEMESTER VI						
COURSE CODE	COURSE CODECOURSECOURSE TITLEHRS/ WEEKCREDI							
UACHCE62	CORE BASED ELECTIVE - 2	ESSENTIAL SKILL IN CHEMISTRY- II	5	5				
Course Objec	Course Objectives							
1. To intro	1. To introduce the basics of computers							
2. To learn	n C language and its a	applications in solving problems in	h Chemistry					
Course Outco	omes							
1. Relate h	nardwares and softwa	res in computer system and applie	s computer pr	ogramming				
in chem	istry.							
2. Calcula	te quantum mechanic	cal parameters in quantum chemist	ry.					
3. Develop	p program for making	g calculations in various experiment	nts.					
4. Draw st	ructure of molecules	using computer programming.						
5. Develop	o skills to meet the ch	allenges in the field of industrial of	chemistry.					
Unit-I		Software and Hardware	Unit-I Software and Hardware 15 Hours					
11 D'	1.1 Basic computer organization, processor and memory – Main memory, secondary storage							
1.1 Basic co	omputer organization	a, processor and memory – Main	memory, seco	ndary storage				
1.1 Basic co devices	omputer organization and storage hierarchy	a, processor and memory – Main y. Software – Relationship betwee	memory, seco en hardware a	ndary storage nd software –				
1.1 Basic co devices Types of	omputer organization and storage hierarchy f software. Planning t	a, processor and memory – Main y. Software – Relationship betwee the computer program – Algorithi	memory, seco en hardware a n and flowcha	ndary storage nd software – arts. Basics of				
1.1 Basic co devices Types of operating	omputer organization and storage hierarchy f software. Planning t g systems.	a, processor and memory – Main y. Software – Relationship betwee the computer program – Algorithi	memory, seco en hardware a m and flowcha	ndary storage nd software – arts. Basics of				
1.1 Basic co devices Types of operating Unit-II	omputer organization and storage hierarchy f software. Planning t g systems.	a, processor and memory – Main y. Software – Relationship betwee the computer program – Algorith Computer Languages	memory, seco en hardware a n and flowcha	ndary storage nd software – arts. Basics of 15 Hours				
1.1Basic condensitiesdevicesdevicesTypes of operatingUnit-II2.1Compute	omputer organization and storage hierarchy f software. Planning t g systems.	n, processor and memory – Main y. Software – Relationship betwee the computer program – Algorith Computer Languages ne language, assembly language, as	memory, seco en hardware a m and flowcha	ndary storage nd software – arts. Basics of 15 Hours piler,				
1.1Basic councildevicesdevicesTypes of operatingUnit-II2.1ComputesInterpret	omputer organization and storage hierarchy f software. Planning t g systems. r languages – Machin er and programming	a, processor and memory – Main y. Software – Relationship betwee the computer program – Algorith Computer Languages he language, assembly language, as languages – C language – Introduc	memory, seco en hardware a m and flowcha ssembler, com ction, C comp	ndary storage nd software – arts. Basics of 15 Hours piler, iler, operating				
I.1 Basic condensities devices Types of operating Unit-II 2.1 Computes Interpret systems	omputer organization and storage hierarchy f software. Planning t g systems. r languages – Machin er and programming and preprocessor di	a, processor and memory – Main y. Software – Relationship betwee the computer program – Algorithm Computer Languages he language, assembly language, as languages – C language – Introduc rectives – Variables, constants, o	memory, seco en hardware a m and flowcha ssembler, com ction, C comp operators, inp	ndary storage nd software – arts. Basics of 15 Hours piler, iler, operating ut and output				
1.1 Basic condensities devices Types of operating Unit-II 2.1 Compute Interpret systems function	omputer organization and storage hierarchy f software. Planning t g systems. r languages – Machin er and programming f and preprocessor dia	a, processor and memory – Main y. Software – Relationship betwee the computer program – Algorithm Computer Languages he language, assembly language, as languages – C language – Introduc rectives – Variables, constants, o	memory, seco en hardware a m and flowcha ssembler, com ction, C comp operators, inp	ndary storage nd software – arts. Basics of 15 Hours piler, iler, operating ut and output				
1.1 Basic condensities devices Types of operating Unit-II 0 2.1 Compute Interpret systems function Unit-III	omputer organization and storage hierarchy f software. Planning t g systems. r languages – Machin er and programming 1 and preprocessor dia s Application	a, processor and memory – Main y. Software – Relationship betwee the computer program – Algorithm Computer Languages ne language, assembly language, as languages – C language – Introduc rectives – Variables, constants, o of computer programming in cl	memory, seco en hardware a m and flowcha ssembler, com ction, C comp operators, inp nemistry	ndary storage nd software – arts. Basics of 15 Hours piler, iler, operating ut and output 15 Hours				
1.1Basic councildevicesdevicesTypes of operatingUnit-II2.1ComputeInterpret systems functionUnit-III3.1Applicat	omputer organization and storage hierarchy f software. Planning t g systems. r languages – Machin er and programming 1 and preprocessor dir s Application ions in Chemistry – C	a, processor and memory – Main y. Software – Relationship betwee the computer program – Algorithm Computer Languages he language, assembly language, as languages – C language – Introduc rectives – Variables, constants, o of computer programming in cl Calculation of the radius of the first	memory, seco en hardware a m and flowcha ssembler, com ction, C comp operators, inp <u>nemistry</u> st Bohr orbit fo	ndary storage nd software – arts. Basics of 15 Hours piler, iler, operating ut and output 15 Hours or an electron,				

mol	molality and normality of a solution - calculation of pressure of ideal or van der Waal's					
gas,	gas, calculation of electronegativity of an element using Pauling's relation.					
Unit-IV	Application of readymade softwares in chemistry	15 Hours				
4.1 Intro	luction to word processor and structure drawing (Chemsketch) software -					
Inco	porating chemical structures, chemical equations, expressions from	chemistry				
(Bra	gg's law, van der Waal's equation, etc.) into word processing documents.					
Unit-V	Computer data software	15 Hours				
5.1 Spre	dsheet software (Excel), creating a spreadsheet, entering and formatting info	ormation,				
basi	functions and formulae, creating charts, tables and graphs – Incorporating ta	ables and				
graph	s into word processing documents – Simple calculation, plotting graphs using	g a				
spre	dsheet [pressure - volume curves of van der Waal's gas (van der Waal's iso	therms)]				
Curre	nt challenges and opportunities for the chemistry - using industries - role of					
chemistry	n India and global economies.					
Books for	Study:					
1. Pro	gramming with C, 11 th Edition, Venugopal and Prasad, 1971					
2. Co	nputers in Chemistry, 8 th Edition, K.V. Raman, Tata McGraw, 2005					
Books for	Reference:					
1. Con	1. Computational Chemistry – Introduction to the Theory and Applications of Molecular and					
Qu	ntum Mechanics, Springer, ISBN: 978-81-8128-476-1.					
2. Bio 81-	informatics, S C Rastogi, N Mendiratta and P Rastogi, Prentice Hall India, I 203-3595-0.	SBN:978-				

	SEMESTER VI						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT			
UACHSP61	SKILLED BASED ELECTIVE PRACTICAL – 2	PRACTICAL : ORGANIC CHEMISTRY PRACTICAL – II	2	1			
Course Objectiv	Course Objectives						
1. To learn the	skills of preparative me	thods.					
2. To learn the	determination of boiling	g points of liquids.					
Course Outcom	es						
1. Prepare orga	nic compounds by follo	wing established procedure					
2. Employ varie	ous chemical reactions	for the preparation of organic con	mpounds				
3. Measure the	boiling points of organi	c compounds					
		Experiments					
Organic Prepar	<u>ations</u>						
Acylation							
a. Acet	ylation of salicylic acid	or aniline.					
b. Benz	oylation of aniline or p	henol.					
Nitration							
a. Prep	aration of m-dinitroben	zene					
b. Prep	aration of p- nitroacetar	ilide					
Halogenation							
a. Prepar	ation of p-bromoacetan	ilide					
b. Prepa	ration of 2,4,6-tribromo	phenol					
Diazotization /	coupling						
a. Prep	aration of methyl orang	е.					
b. Prep	aration of benzoic acid	from toluene					
Hydrolysis:							
Hyd	rolysis of ethyl benzoat	e (or) methyl salicylate					
Benzoylation							
Prep	paration of benzanilide	from aniline					
Oxidation							
Prep	paration of benzoic acid	from benzaldehyde					
Determination	of boiling point of Wat	er, Ethanol, Benzene, Acetic A	cid and To	oluene			
		Marks Allotment					
<u>Marks 75</u>							
1. Record	10	marks					
2. Procedure	2. Procedure 15 marks						
3. Preparation 25 marks							
4. Recrystallisati	4. Recrystallisation 05 marks						
5. Boiling point	5. Boiling point 15 marks						
6. Viva Voce	6. Viva Voce 05 marks						
Books for Study 1. Vogel's text	y book of chemical analy	sis.					
2. Practical che	mistry - A.O. Thomas -	Scientific book center. Cannanc	ore.				

- 3. Practical chemistry Volumes 3 S. Sundaram , S. Viswanthan.
- 4. Practical Organic Chemistry by Gnanaprakasam.

Books for Reference:

- 1. Vogel's text book of practical organic chemistry Longman
- 2. Practical Organic Chemistry by FG Mann ,BC Saunders ,Pearson Publication

SEMESTER VI					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UACHSP62 SKILLED BASED ELECTIVE PRACTICAL – 2		SKILLED DEVELOPMENT IN CHEMISTRY PRACTICAL - II	2	1	
Course Object	tives				
1. To unders	stand the software and h	hardwares of computers and its op	perations		
2. To learn	the basic computer pro-	ogramming for making simple	calculations	in chemistry	
practicals					
3. To learn t	the Computer C program	nming language.			
4. To make	use of readymade softw	ares useful for drawing chemical	l structures.		
Course Outco	mes				
1. Develop j	programs in basics lang	uage to make calculations in cher	mistry exper	iments.	
2. Draw mo	lecular structures with c	computer programming skills.			
3. Master cl	hemsketch software				
4. Optimize	atomic and molecular s	tructures in chemistry.			
		Experiments			
1. Drawing	of flow charts to sugges	at architecture of computing meth	ods (hardwa	re)	
2. Write a pr	rogram in Basic to calcu	ulate and print pH of a solution fi	rom concenti	ration	
3. Convert a	bout five sentences into	binaries using your own algorith	hms		
4. Write a pr	rogram in C to convert	centigrade into Fahrenheit			
5. Use any f	formula to incorporate '	looping', 'goto' and 'continue' r	eserved wor	ds	
6. Use Chen	nSketch software to dra	w any five chemical structure and	d save them	in SMILES	
or Mol fo	rmat				
7. Draw any	two general aromatic s	tructure and present an optimized	d structure u	sing	
ChemSke	tch or Discovery Studio	o (freeware)			

		Marks	s Allotment	
Marks 75				
1. Record		10 marks		
2. Computer	r programming	45 marks		
3. Result an	nd output	15 marks		
4. Viva Voc	e	05 marks		
Books for Stu	dy			
1. Molecular	Modelling – Princip	les and App	plications, Andrew R Leach, Pearson	Education
Ltd				
2. Essentials	of Computational C	hemistry, 7	Cheories and Models – Christopher	J Cramer,
Wiley, ISB	3N: 0-470-09182-7.			
Books for Ref	ference:			
1. Computation	onal Chemistry – A pr	ractical guid	le for applying techniques to real world	d problems
– David Yo	oung,			
2. Computation	onal Organic Chemist	ry, Steven N	A Bachrach, Wiley Interscience	

DEPARTMENT OF BIOCHEMISTRY 15TH BOS APPROVED UG SYLLABI FOR

V & VI SEMESTERS

SEMESTER V					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UABI5001	Core 5	Enzymology	5	5	
Course Objec	tives				
 To understand the various classes of enzymes, their kinetics; mechanism of action and inhibition, structure and functions of coenzymes. To study the applications of some enzymes in industries. Course Outcomes Understand the structure, classification, properties and functions of enzymes. Demonstrate various classes of enzymes with mechanism of action and kinetics. Along with the structure and functions of coenzymes. Discuss factors that affect enzymatic activity. Able to demonstrate how a given inhibitor affects the kinetics of an enzymatic reaction. Apply various methods of immobilization of enzymes. Outline various industrial applications of enzymes. 					
Unit-I	Unit-IIntroduction & ClassificationUnit-IDiscovery, holoenzyme, apoenzyme, cofactor, coenzyme and prosthetic group. International Union of Biochemistry and Molecular Biology's system of enzyme classification- salient features, seven classes. Activation energy and transition state. Active site, lock and key hypothesis, induced fit hypothesis. Non-protein enzymes- ribozymes and DNA enzymes.			d r h 15 Hours d -	
Unit-II	Enzyme spec Factors affe concentration substrate enzy Km, Linewea catalyzed rea katal, turnove	Enzyme Kinetics cificity (stereo-, reaction and substra- acting enzyme activity (enzyme , pH, temperature and activators). Kin yme-catalyzed reactions- Michaelis-M ver-Burk equation. Kinetics of multi-su ctions- Ping-pong, bi-bi mechanism. r number.	ate specificity) and substrate netics of single enten equation bstrate enzyme Enzyme units	2 3 4 5 4 5 5 5 5 5 5 5 5 7 5 7 5 7 7 7 7 7	
Unit-III	Enzyme inhib competitive in	Regulation and Inhibition oition- reversible- competitive, uncomponibilition (only concepts). Enzyme inhibition	etitive and non bitors as drugs	15 Hours	

	Regulation of enzyme activity- allosteric binding sites, covalent modification, induction and repression of enzyme synthesis.			
	Coenzymes & Isoenzymes			
Unit-IV	Coenzymes- structure and functions of NAD ⁺ , NADP ⁺ , FMN, FAD and coenzyme A. Isoenzymes- isoenzymes of Lactate dehydrogenase with their diagnostic importance.	15 Hours		
	Application of Enzymes In Industries			
Unit-V	Industrial uses of some enzymes (amylases, protease, pectinase, catalase, glucose isomers and cellulase). Immobilization of enzymes- different methods physical adsorption, encapsulation, covalent bonding, copolymerization, entrapment in matrix and liposome. Advantages and applications of immobilized enzymes.	15 Hours		
Books for Stu	dy			
1. Understandi	ing Enzymes- Trevor Palmer, Fourth Edition, Ellis Horwood Ltd, 20016			
2. Harper's Illustrated Biochemistry — RK. Murray, et al, 31 st edition, Mc GrawHill				
Publications, 2018.				
4 Biochemistry- U Satvanarayan and U Chakarapani 5th edition Books and Allied (P) Itd				
2019.				
5. Biotechnology- V. Kumaresan, Third Edition, Saras Publication 2015.				
Books for Reference:				
1. Biochemistry- D. Voet, J.G. Voet, 4th edition, John Wiley & Sons.				
2. Fundamentals of Biochemistry- D.Voet, J.G.Voet, C.W. Pratt, 5th edition, Wiley 2016.				
3. Lehninger Principles of Biochemistry – D.L. Nelson and M.M. Cox, 7 th Edition, Macmillan				
Worm Publications, 2015. 4 Text book of biochemistry with Clinical correlations, Doulin, 7th adition, A John Willow, Liss				
Inc. 2010				
5. Biochemistr	5. Biochemistry- Lubert Stryer, Ninth edition, WH Freeman Publishers, 2019.			

SEMESTER V							
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT			
UABI5002	Core 6	GENETICS AND MOLECULAR BIOLOGY	5	5			
Course Obje	Course Objectives						
1. To underst	and gene and	gene inheritance.					
2. To study a	bout gene exp	pression and regulation, DNA repair and m	utation.				
Course Outo	comes						
1. Understand	the principle	es of gene inheritance.					
2. Explain the	e mechanism	of the prokaryotic & retroviral replication.					
3. Discuss the	e mechanism	of the prokaryotic transcription.					
4. Understand	l the mechani	sm of the translation in prokaryotes.					
5 Understand	the mechani	sm of gene expression genetic mutation an	d DNA repair	processes			
5. Onderstand		sin of gene expression, genetic induction an	a DIWI Iopan	processes.			
		GENETICS					
	Mendelian	genetics: Mendel's laws of inheritance -	mono hybri	d			
Unit-I	experiments	, law of dominance, law of segregation	n, phenotype	[,] 15Hours			
	dihybrid experiments law of independent assortment. Incomplete						
REPLICATION							
	DNA as ge	netic material, Types of replication, evid	ence for sem	i			
Unit-II	conservative replication. Replication in prokaryotes, DNA 1						
	polymerases	s I, II, III, topoisomerases, helicase, pri	mase, leadin	g			
	Inhibitors of	Freplication. Reverse transcriptase, retroviru	Ises.				
T T • / • ••							
Unit-III		TRANSCRIPTION		15 Hours			

	Prokaryotic transcription, RNA polymerases, role of sigma factor, coding and non-coding strands of DNA. Promoter initiation, elongation and termination. (Rho - dependent and independent). Inhibitors of transcription, rRNA and tRNA modification.			
	TRANSLATION			
Unit-IV	Genetic code - definition, deciphering and salient features of genetic code, composition of prokaryotic and eukaryotic ribosomes, structure of t-RNA, and mRNA, Translational activation of amino acids, initiation, elongation and termination of protein synthesis in prokaryotes. Inhibitors of protein synthesis. Brief account of post translational modification of proteins.	15 Hours		
Unit-V	GENE- MUTATION, REPAIR AND REGULATION Gene mutation types - point mutation (transition and transversion) and frame shift mutation (insertion and deletion) - consequences. DNA repair mechanism – base excision, nucleotide excision, SOS, Mismatch repair and double strand break repair. Prokaryotic gene regulation - Operon, Lac operon, positive and negative control.	15 Hours		
Books for Study 1. Biochemistry- U Satyanarayan and U Chakarapani 5 th edition, Books and Allied (P) Ltd.				
 2019. Lehinger's Principle of Biochemistry- David L Nelson and Michael M Cox, 7th edition, Freeman Publishers, 2015. Harper's Illustrated Biochemistry - RK. Murray, et al, 31st edition, Mc GrawHill, 2018. Lippincott's illustrated Biochemistry - Denise R Ferrier 6th edition, Lippincott's Publication, 2013. 				
 Books for Reference: 1. Lewis Genes XII. Benjamin Lewin, Oxford Univ press, 2017. 2. Molecular Biology - David Freifielder 2nd Edition, Narosha, publication 2004. 3. Molecular Cell Biology – Harvey Lodish, global Edition ,Freeman Publication, 2014 4. Cell and Molecular Biology - N.Y Karp. 6th Edition, John Wiley and Sons, 2015. 				
5. Essential of Microbiology David Freifielder 4 th Edition 2015.				

			SEMESTER V				
Course Code	COURSE	Course Title	HRS/ WEEK	CREDIT			
UABI5003	Core 7	HUMAN ANATOMY AND	5	5			
		PHYSIOLOGY					
Course Objectiv	es: To under	stand the structure of vital human tissues and org	ans, basic	principles			
of physiology.							
Course Outcome	Course Outcomes						
1. Co	orrelate the st	ructure and functions of skeletal system.					
2. Ide	entify differe	nt cells and tissue types.					
3. Re	scuss the stru	cture and functions of tissues.					
5. Ur	iderstand the	mechanism of digestion, excretion, respiration a	nd hormo	ne action.			
6. Re	elate structure	e and functions of nervous system.					
Unit-I SKE	ELETAL & I	MUSCULAR SYSTEM	15 H	Iours			
contraction. Neur Unit-II DIG	contraction. Neuromuscular junction. Unit-II DIGESTIVE & RESPIRATORY SYSTEM 15 Hours						
Functional anatomy of digestive tract, secretions of digestive tract, process of digestion, absorption and assimilation of carbohydrates, proteins, and fats. Functional anatomy of respiratory tract, Structure of respiratory unit, mechanism of respiration. Transport and exchange of respiratory gases between lungs and tissues.							
Unit-III CAI	RDIOVASC	ULAR SYSTEM	15 H	Iours			
Composition and functions of blood, morphology of erythrocytes and leucocytes, properties of							
blood, mechanism of blood coagulation, Types of blood circulation, Function of arteries, veins and							
capillaries. Structure and functions of heart, cardiac cycle. ECG.							

Umt-1v	EXCRETORY & REPRODUCTIVE SYSTEM	15 Hours
Structure a formation. pregnancy.	nd functions of kidney, structure and types of nephron, dial Structure and functions of the male and female reproducti	lysis, mechanism of urinov ve organs, Physiology o
Unit-V	NERVOUS & ENDOCRINE SYSTEM	15 Hours
Classificati neuron. Br physiologic	on of nervous system, neuroanatomy of brain and spinal cord, ief outline of various endocrine glands and their secretions, c cal role of insulin.	structure and functions o
Books for 1. Ess Pub 2. Rev 3. Hui 4. Har	Study: entials of Medical Physiology. K Sembulingam, Prema Sembul ilications, 2019. view of Physiology- Soumen Manna, 4 th edition, Jaypee Publica nan Physiology – Chatterjee, C.C, Volume I & II. 11 th edition, per's Illustrated Biochemistry. Murray, Robert K. New York: M	lingam, 8 th edition, Jaypee ttions, 2019. CBS publications, 2018. AcGraw-Hill, 2003.
Books for 1. Atla 2. Rev 201 3. Tex 4. Tie Mis	Reference: as of Human Anatomy- Frank H Nettar 7 th edition, Elsevier, 201 view of Medical Physiology, William. F. Ganong, 26 th edition 9. t Book of Medical Physiology, A.C. Guyton 10 th edition, 2015. tz Textbook of Clinical Chemistry and Molecular Diagnostics. S asouri: Elsevier, 2018.	19. on, Lange Medical books Sixth edition. St. Louis,

		SEIVIESTEK V					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT			
UABIPR5	Core Practical 4	Practical IV- Colorimetric Analysis & Electrophoresis	4	2			
Course Ob	Course Objectives						
 To understand the principles, protocol and calculation of each experiment. They should know the preparation of all the reagents. Estimation should be done individually. 							
Course Ou	tcomes						
1. Und 2. Der 3. Car	 Understand the principle, theory and calculation of colorimetric experiments. Demonstrate the estimation of glucose, creatinine, urea and cholesterol. Carry out SDS-PAGE and agarose gel electrophoresis. 						
Colorime	try						
 Esti Esti Esti Esti Esti Esti Esti 	mation of Creatinin mation of Urea by mation of Protein b mation of Glucose mation of Glucose mation of Choleste	ne by Jaffe's method. DAM method. by Lowry's method. by OT method. by Folin Wu's method. rol by Zak's method.					
Electropho	resis						
 Extraction of human DNA from Buffy coat by salting out method. Separation of protein by SDS-PAGE. Separation of DNA by AGE. Automation 10. Automation in Biochemistry- Demonstration. 							
Decks for Study							
BOOKS IOI SHUUY							
 Met Hill Tex Sau Praticular Met Mc 	lical Laboratory Te Publishing Compa tbook of Clinical nders Publications, etical Clinical Bioc lical laboratory sci Graw Hill Educatio	chnology - L. Mukherjee. Vol. I, II, III ny Limited, 2017. Chemistry and Molecular Diagnos 2017. hemistry- H. Varley, 5 th edition, WH M ence theory and practice- Ochei J an ons, 2000.	I, 3 rd Edition, 7 Stics, Tietz, 9 Iedical Books d Kolhatkar A	Tata Mc GrawSixth edition,Ltd, 2002.A, 3 nd Edition,			
- 1. Medical Laboratory Technology- Methods and Interpretations, Ramnik Sood, Fifth edition, Jay Pee Brothers Medical Publishers, New Delhi, 2006.
- 2. Practical Clinical Biochemistry Methods And Interpretations, Ranjna Chawala, Jay Pee Brothers Medical Publishers, New Delhi, 2020.
- 3. Introductory Practical Biochemistry, S.K. Sawhney, Randhir Singh, Narosa Publishing House, 2001.
- 4. Microbiology Laboratory Manual, Abdul Jaffar Ali, H, Vijay Nicole Imprints Pvt Ltd, 2018.

		SEMESTER V		
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
	Core	Practical V- Medical Laboratory	4	2
UABIPR52	Practical 5	Technology I	-	-
Course Obje	ctives			
1. To und 2. They s individ	derstand the pri should know the lually.	nciples, protocol and calculation of ea e preparation of all the reagents. Estin	ch experiment. ation should be	done
Course Outco	omes			
1. Collec 2. Deterr 3. Carry	t and store bloc nine hemoglob out blood grou	od samples for analysis. in concentration, CBC, ESR, PCV, B' ping and operate cell counter.	۲ and CT.	
Hematology	,			
 Deterri Estima Deterri Deterri Differo Deterri 	nination of bloc ation of hemogl nination of tota nination of tota ential WBC con nination of PC nination of hae nination of clot nination of clot nination of bloc nination of bloc nination of bloc nination of bloc nination of wai	od grouping. lobin by Shali's method. l RBC count. l WBC count. unt. V. matocrit. R. ting time. eding time. cosylated hemoglobin. od pressure. ly Mass Index. st-hip ratio.		
Cell Counter				
15. Deterr	nination of som	ne hematological parameters using cel	l counter- demor	nstration.
Books for Stu	ıdy			
 Medic Hill Pt Textbo Saund 	al Laboratory 7 ublishing Compook of Clinication	Technology - L. Mukherjee. Vol. I, II, bany Limited, 2017. al Chemistry and Molecular Diag s, 2017.	III, 3 rd Edition, 7 nostics, Tietz, 7	Tata Mc Graw Sixth edition,

- Saunders Publications, 2017.
 Practical Clinical Biochemistry- H. Varley, 5th edition, WH Medical Books Ltd, 2002.
 Medical laboratory science theory and practice- Ochei J and Kolhatkar A, 3nd Edition,

Mc Graw Hill Educations, 2000.

5. Laboratory Manual in Biochemistry- J. Jayaraman, Wiley Eastern Limited, 1981.

Books for Reference:

- 1. Medical Laboratory Technology- Methods and Interpretations, Ramnik Sood, Fifth edition, Jay Pee Brothers Medical Publishers, New Delhi, 2006.
- 2. Practical Clinical Biochemistry Methods And Interpretations, Ranjna Chawala, Jay Pee Brothers Medical Publishers, New Delhi, 2020.
- 3. Introductory Practical Biochemistry, S.K. Sawhney, Randhir Singh, Narosa Publishing House, 2001.
- 4. Microbiology Laboratory Manual, Abdul Jaffar Ali, H, Vijay Nicole Imprints Pvt Ltd, 2018.

SEMESTER V					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UADICE51	Core based	MEDICAL LABORATORY	5	5	
Course Objec	tives	TECHNOLOGY			
To train the st reports to faci	tudents to carry ilitate proper dia	out laboratory investigations accur agnosis and prognosis of diseases.	ately and pro	vide reliable	
Course Outco	mes				
On successful	completion of the	e course students will:			
1. Aware	of safety measure	es in storage of chemicals, first aid in	laboratory acc	idents,	
reportin 2 Undere	ng lab tests & qua	dity control in a clinical lab.	ago and thair	analyzia with	
2. Unders	interpretation.	of conection of blood, Office and fac	eces and their	anarysis with	
3. Unders	tand the importan	nce of Blood cells, their disorders and	l diagnosis. Bl	ood grouping,	
Blood I 4 Get kno	oanking, compati owledge about ba	bility testing and complications.	sputum and th	heir analysis	
with cli	inical interpretation	on.	, sputum und u	ion unurysis	
5. Acquire	e insight into the	basics of Microbiology, Media prepar	ration and st	aining of	
differei	nt microbes.				
Unit-I	Laboratory car	re and instrumentation		15 Hours	
Good laboratory practices, Code of conduct for laboratory personnel - safety measures in the laboratory-chemical and reagents, labeling, storage and usage. First aid in laboratory accidents - precautions and first aid equipments. Reporting laboratory tests and keeping records. General approach to quality control, quality control of quantitative data. Biomedical waste management in the lab.					
Unit-II	Urine Analysis	& Stool Examination		15 Hours	
Composition, examination. S hematuria. Mid test & interpret Specimen colle for occult bloo	collection, pres Significance of s croscopic examin tation.Urine analy ection - inspection d, faecal fat.	servation, gross examination, inte sugar in urine, protein, ketone bodi ation of urine. Creatinine/protein rati yser. n of faeces- physical, chemical & mic	erfering facto es in urine, b o, 24 hour urin roscopic exam	rs, chemical vile pigments, ne. Pregnancy vination. Test	
321					

Unit-III	Clinical Hematology & Blood Banking	15 Hours
Collection of E ESR. Clotting anemia- Morj transfusion, cr advances.	Blood, Anticoagulant, preservation, Estimation of Hb, PCV, WBC, RBC time, bleeding time - normal value, clinical interpretation. Anemia phological, Etiological. Blood grouping- ABO system, Rh typi oss matching, blood transfusion and its complications. Automation	C, Platelets, a, types of ng, Blood and recent
Unit-IV	CSF and Other body fluids	15 Hours
Cerebrospinal examination ar	fluid and amniotic fluid, semen analysis, sputum examination–collection and microscopic examination and interpretation.	on, physical
Unit-V	Medical microbiology	15 Hours
media and anti Safety procedu intestinal paras	biotic sensitivity test. Gram staining, Zielh –Neilson staining -TB, Lpra re in microbiological techniques. Diagnosis of malaria, filarial and com sites.	a bacilli. 1mon
 Books for Stu Text book o Medical Lal Publishing 0 Textbook of Medical Pul Essentials of Jaypee Publica 	dy: f Medical Biochemistry- Dinesh Puri, 4 th edition, Jayppe publications, 2 poratory Technology - L. Mukherjee. Vol. I, II, III, 3 rd Edition, Tata Mc Company Limited, 2017. f Medical Biochemistry- MN Chatterjea, Rana Shinde, 8 th edition, Jaype plishers (P) Ltd, 2011. f Medical Physiology. K Sembulingam, Prema Sembulingam. 8 th Editio tions, 2019.	2018. Graw Hill ee Brothers n.
Books for Ref	erence:	
1. Text book o 2015.	f Medical laboratory technology- Ramnik Sood, 2 nd edition, Jaypee pub	lications,
2. Medical labo Graw Hill Edu	pratory science theory and practice- Ochei J and Kolhatkar A, 3 nd Editic cations, 2000.	on, Mc
3. Microbiolog	y – L.M. Prescott, J.P. Harley and D.A. Klein, 6 th edition, McGraw Hill	1, 2004.

4. Fundamentals of Clinical Chemistry and Molecular Diagnosis- Teitz, 7th edition, Elsevier, 2007.

SEMESTER V					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UABICE52	Core Based Elective	MICROBIOLOGY	5	5	
Course Objec	tives		· · · · · ·		
To underst	and the basic struc	cture of Microbes and Microbiologic	al techniques.		
Course Outco	mes				
1. Get acc	uainted with cont	ributions of various scientists.			
2. Gain ki	nowledge about m	icroscopy.			
3. Identify	y the shapes of mi	crobes.			
4. Acquai	nted with staining	techniques.			
5. Explore	e basic techniques	of microbiology and cultivate micro	bes in the lab.		
]	HISTORY OF MICROBIOLOGY			
Unit-I	Init-IHistory and Scope of Microbiology – Spontaneous generation theory – conflict – Contribution of Leuwenhoek, Louis Pasteur, Robert15 Hour 15 HourKoch, and Alexander Fleming.				
		MICROSCOPY			
Unit-II	Unit-II Microscopy – Principles and applications – Bright field, Dark field, Phase contrast, Fluorescence, Confocal, SEM & TEM – Specimen preparation for Electron microscopy.				
		BACTERIOLOGY			
Unit-III	Bacteria–Ultra s negative); Shape curve and Facto diseases – Tuber	tructure; Classification (Gram posend arrangement; Cell wall polysaccies affecting microbial growth. Structulosis.	itive and Gran harides; Growtl cture,. Bacteria	1 15 Hours	

Unit IV	STAINING TECHNIQUES Structure and organization of bacterial cell wall: Gram positive and Gram Negative bacterial cell wall. Staining – Principles – Types of staining – Simple Differential (Gram Spare AFP) Capsula	15 Hours
	staining – Simple, Differential (Gram, Spore, AFB), Capsule staining (Negative), Giemsa Staining.	
	MICROBIAL CULTURE	
Unit-V	Culture and Media preparation – Solid and Liquid – Types of Media – Synthetic and Complex, Enriched, Enrichment, Selective and Differential media, Natural components as media and Special Purpose Media (one example for each type). Pure culture techniques. Bacterial Growth – Lag Phase, Exponential Phase, Linear Phase, Continuous growth. Tube dilution, Pour, Spread and Streak plate.	15 Hours
Books for Stu 1. A text of I Company Ltd 2. Principles	ndy Microbiology (Revised edition), Dubey. R.C. and Maheswari. D.K., S. ., New Delhi, 2012. of Microbiology, Geeta Sumbali and Mehrotra R.S., First edition, Tata	Chand and Mc Graw
Hill P.Ltd., N3. General MHimalaya pub4. Park Willia	ew Delhi, 2009. icrobiology, Powar C.B. and Daginawala. H. F., volume 1 and 2. Eigh lishing house, Mumbai, 2005. m Halock Pathogenic Microorganisms, Leafebiger, Philadelphia, 2001.	nth edition,
Books for Re 1General Mi 2.Microbiolog Mc Graw Hill 3. Microbiolo 2006. 4. Microbiolo	ference: crobiology, Robert. F. Boyd. Times Mirror/Mosby College Publishers,1 gy, Prescott .L. M, J. P. Harley and D. A. Klein, Sixth edition, Internation ,2005. gy, Pelczar, Chan and Kreig, Fifth edition, Tata Mc Graw-Hill INC. 1 gy- A Human Perspective, Nester, tenth edition, Mc Graw Hill Publication	984. nal edition, New York, ons.
5. Microbiolo (India), 2006.	ogy- Fundamentals and Applications, S.S. Purohit, Seventh edition,	Agrobios

SEMESTER V						
COURSE CODE	COURS E	COURSE TITLE	HRS/ WEEK	CREDIT		
UABISE51	Skill Based Elective 1	BIOTECNOLOGY I	2	1		
Course Obje	ectives					
1. To underst	and the tools	, and techniques of genetic engineering.				
2. To study the	ne application	ns of genetic engineering				
Course Outo	comes					
1. Design enz	zymatic tools	of genetic engineering, cloning, and gene	transfer method	s.		
2. Able to con	mmunicate v	arious experimental techniques used in rec	ombinant techn	ology.		
3. Exploit ger	netic enginee	ring for human welfare.				
Unit-I	GENETIC ENGENEERING- ENZYMOLOGY Biotechnology- definition and scope: types and branches of biotechnology. Genetic engineering tools – brief account of restriction endo nucleases, exonuclease, SI nucleases, DNA ligases, alkaline phosphatase, reverse transcriptase, DNA polymerase, poly nucleotide kinase, and terminal nucleotide transferase. Conversion of blunt end to sticky end, homopolymer tailing and uses of linkers and adapters in genetic engineering.					
Unit-II	VECTORS Isolation of genes – genomic DNA and cDNA. Cloning vectors: Plasmid (PBR ³²² , PUC ¹⁹), Phage (<i>Phage</i> λ), Cosmid, Yeast vectors YIp, YEp, YRp, YCp pYAC-Yeast artificial chromosome, Shuttle vector and Expression vectors.			s: s 6 Hours e		
		GENE TRANSFER METHODS				
Unit-III	Methods electroporat injection.	of gene transfer, transfection, cal tion, liposome mediated gene transfe	cium chlorid r, and micr	e, 6 Hours		

Unit-IV	⁷ Method for screening, antibiotic resistantship insertional inactivation, Blue white selection. Gene amplification by PCR and its application.			
Unit-V	RECOMBINANT MOLECULE PRODUCTION Genetic engineering for human welfare – post translational modification of insulin, production of insulin. Production of Tissue plasminogen activator (TPA) from mammalian cultures using HAT medium and methotrexate.	6 Hours		
Books for St	udy			
1. Biotechnol	logy – U. Satyanarayana,12 th Edition Books and Allied Limited, 2018.			
 A text boo Elements of 	k of Biotechnology – R. C. Dubey, 4 th Edition S. Chand & co, 2006. of Biotechnology - P.K.Gupta 2 nd Edition Rastogi publications, New Delh	i, 2016.		
4. Biotechnol 2007	logy fundamentals and Applications- SS Purohit Agrobios Publications, 4	th Edition,		

1. Recombinant DNA - James D. Watson, 3rd Edition Freeman W H & Company, 2006.

2. Recombinant DNA – genes and genomes-a short course James D. Watson, Richard M Meyers, Amy A Caudy, Jan A Witkowski, 3rd Edition, Cold Spring Harbor Laboratory Press &Company 2007.

3.Molecular biotechnology – principle and application of recombinant DNA Bernard, R. Glick Jack, J. Pasternak, 5th edition, Library of Congress cataloging in publication data,2013.

SEMESTER V					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UABISE52	Skill Based Elective 1	BIOINFORMATICS	2	1	
Course Objec	tives				
To und biological sequ	erstand the use of iences (DNA, RN	f computer techniques for the storage, JA and Proteins).	analysis, and J	prediction of	
Course Outco	omes				
1. Understand	the fundamentals	concepts of bioinformatics.			
2. Provide a cl	ear knowledge or	the sequence analysis and its softwar	re tools.		
3. Analyze stru	ctural functional	relationship of sequence.			
4. Attain know	ledge on the diffe	erent level of protein structure and the	eir prediction to	ols.	
5. Provide dee	per insights into p	protein structure, prediction and homo	logy modeling	process.	
		-		-	
	INT	RODUCTION TO BIOINFORMAT	FICS		
Unit-I	Introduction, Bioinformatics, Sequence and M	definition, Aim and objectives. Scope and Research area of Iolecular file format.	Branches of Bioinformatics	f 6 Hours	
		BIOLOGICAL DATABASES			
Unit-II	-II Introduction, Biological Databases – Sequence, Structure and Classification of Databases. National Centre for Biotechnology (NCBI) – Introduction, Tools and Databases of NCBI.				
		SEQUENCE ANALYSIS			
Unit-III	Introduction to Pair wise align sequence alignn	Sequences, alignments and Dynamic ment (BLAST and FASTA Algorithm nent (Clustal W algorithm), Sequence	e Programming n) and multipl analysis tools.	^{;;} 6 Hours e	

	GENE IDENTIFICATION AND PREDICTION		
Unit-IV	Similarity Search Introduction, Working with FASTA, Working With BLAST. Basis of gene prediction, Pattern Recognition, Gene prediction Methods, Other gene prediction tools.		
	PROTEIN STRUCTURE VISUALISATION		
Unit-V	Overview of the Protein Structure, Protein Structure Visualization and prediction: Pymol, Rasmol, and Structure - based Protein Classification, Protein Structure databases, Protein Structure Visualization Databases and tools. Homology modeling.	6 Hours	
ooks for Stu	ıdy		
 Introdu 1999 Bioinfo 2001 Bioinfo and B. Bioinfo Gentle 	action to Bioinformatics, Attwood. T.K. Parry D.J. and Smith, A joint Putormatics: The Machine Learning Approach, Baldi, P. and Brunak, S. MI ormatics: A practical guide to the analysis of genes and proteins, A.D. B F.F. Ouellette. John Wiley and Sons, 2002. ormatics and Computational Biology Solutions using R and Bioconductoman, R. Springer Science and Business media Inc, 2005	iblications, T Press, axevanis or,	
looks for Re	ference:		
 Bio Int 20 Bio Put 	binformatics, D.W. Mount, Cold spring Press, 2001. roduction to Bioinformatics, 4th Edition, Lesk, A. K, Oxford Univer 13. binformatics Concepts, Skills & Applications, Rastogi, S.C, 2nd Edi blishers, 2009.	rsity Press, ition, CBS	

SEMESTER V					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UABI6001	Core 8	INTERMEDIARY	5	5	
Course Objec	- tives	METABOLISM			
1. To und	lerstand the varion	ous metabolic pathways of carbohydrat	es, lipids, ami	no acids and	
Course Outco	omes				
1. Explain how biochemical energy is generated in the cells. 2. Able to know the chemical reactions involved in the biochemical pathways that produce ATP. 3. Describe gluconeogenesis, HMP shunt, glycogenesis and glycogenolysis. 4. Determine the process of lipogenesis, lipolysis and ketogenesis. 5. Discuss transamination, oxidative and non-oxidative deamination. 6. Understand the de novo and salvage pathway of purines and pyrimidines. Bioenergetics and Metabolism First and second laws of thermodynamics, enthalpy, entropy and free energy. Endergonic and exergonic reactions. Metabolic pathways, anabolism, catabolism, amphibolism. High energy compounds, structure and role of ATP, cAMP. Respiratory chain, oxidative phosphorylation and substrate level phosphorylation. Inhibitors of					
Unit-II Metabolism of Carbohydrates Unit-II Glycolysis, oxidation of pyruvate, TCA cycle, Gluconeogenesis, HMP shunt, Glycogenesis, Glycogenolysis (key enzymes and regulation).					
Unit-IIIMetabolism of Lipids15 HouUnit-IIIBiosynthesis of fatty acids. FAS complex. Biosynthesis of cholesterol & their regulation. Activation of fatty acids for oxidation. Degradation of fatty acids by β-oxidation. Ketogenesis.15 Hou					
Unit-IV	Metabolism of Oxidative &	f Amino Acids non-oxidative deamination, decarb	oxylations ar	15 Hours	

	transamination of amino acids. Urea cycle, biosynthesis of creatine & creatinine. Disposal of ammonia- Ammonotelic, ureotelic, uricotelic organisms.				
Unit-V	Metabolism of Nucleotides Sources of nitrogen and carbon atoms of the purine and pyrimidine rings. Biosynthesis of purine nucleotides- synthesis of IMP by <i>de</i> <i>novo</i> pathway. Conversion of IMP to AMP and GMP. Salvage of purine nucleotides. Biosynthesis of pyrimidine nucleotides- synthesis of CMP, UMP and TMP by <i>de novo</i> pathway. Salvage of pyrimidine nucleotides. Synthesis of uric acid from purine nucleosides. Degradation of pyrimidine nucleotides.	15 Hours			
Books for Stu	ıdy				
1. Harper's Ille	ustrated Biochemistry – RK. Murray, et al, 31st Edition, Mc GrawHill, 2	018.			
2. Lehninger 2017, Macmill	Principles of Biochemistry- D.L. Nelson and M.M. Cox, 7th Illustration lan Worth Publishers.	ted edition			
3. Biochemist 2019.	ry- U Satyanarayan and U Chakarapani 5th edition, Books and Allied	d (P), Ltd.			
4. Textbook of Jaypee Brother	f Biochemistry For Medical Students- DM. Vasudevan, S. Sreekumari, rs Medical Publishers (P) Ltd, 2019.	9 th edition,			
5. Textbook of Medical Biochemistry- MN Chatterjea, Rana Shinde, 8 th edition, Jaypee Brothers Medical Publishers (P) Ltd, 2011.					
Books for Ref	ference:				
1. Biochemistr	ry- D. Voet, J.G. Voet, 4th edition, John Wiley & Sons.				
2. Fundamentals of Biochemistry- D.Voet, J.G.Voet, C.W. Pratt, 5th edition, Wiley 2016.					
3. Text book of biochemistry with Clinical correlations, Devlin, 7th edition, A.John Wiley-Liss Inc. 2010.					
4. Illustrated L	4. Illustrated Lippincot's Biochemistry, Champe, 4 th edition,				
5.Biochemistry- A Case Oriented Approach, Rex Montgomery, Sixth Edition, Mosby Inc., 1996.					

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SEMESTER VI						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UABI6002	Core 9	CLINICAL BIOCHEMISTRY	5	5		
Course Obje	Course Objectives					

Students should be able to understand and demonstrate the basics of setting up of a clinical biochemistry laboratory, handling of clinical samples, diagnosis and management of diseases through the analysis of blood, urine and other body fluids.

Course Outcomes

On successful completion of the course students will be:

- 1. Acquainted with basics in setting up of a clinical biochemistry laboratory and carrying out day today routine work in the laboratory.
- 2. Able to comprehend the disorders of carbohydrate metabolism and their diagnosis.
- 3. Introduced to various inborn errors of metabolism and their management.
- 4. Able to independently identify the functional tests related to gastrointestinal, liver and kidney diseases.
- 5. Aware of the importance of plasma enzymes in diagnosis.

Unit-I INTRODUCTION TO CLINICAL BIOCHEMISTRY

15 Hours

Definition and scope of Clinical biochemistry in diagnosis. Collection, preservation, transport and handling of clinical specimens (blood, urine & faeces). Normal values of important constituents of blood and urine. Requirements for setting up of a clinical laboratory. Anticoagulants and their mechanism of action, Preservatives of urine. Safety measures in clinical laboratory.

Unit-II	DISEASES	RELATED	ТО	CARBOHYDRATE	AND	LIPID	15 Hours
	METABOLISM						15 110018

Regulation of blood sugar, Glycosuria - types of glycosuria. Oral glucose tolerance test in normal and diabetic condition. HbA_{1C} , Diabetes mellitus and Diabetic insipidus – hypoglycemia hyperglycemia and its treatment. Ketonemia, Ketonuria, diabetic ketosis. Complications, treatment and management of Diabetes mellitus. Galactosemia and fructosuria.

Unit-III	Unit-III INBORN ERRORS OF METABOLISM					
Introduction	- clinical	importance,	phenylketonuria,	cystinuria,	alkaptonuria,	Fanconi's
syndrome, albinism, tyrosinemia, and hemophilia. SCID: Adenosine deaminase deficiency.						

Unit-IV	ORGAN FUNCTION TEST	15 Hours

Renal function test: Clearance test (Urea, Creatinine, Inulin), PAH test, Concentration and dilution test.

Gastric function test: Collection of gastric contents, examination of gastric residuum, FTM, stimulation test, tubeless gastric analysis.

Liver function test: Metabolism of bilirubin. Jaundice - types, differential diagnosis. Icteric index, Vandenberg test, Plasma protein changes, Prothrombin Time. Plasma enzymes in liver diseases.

Unit-V	CLINICAL ENZYMOLOGY & TUMOR MARKERS	15 Hours

Functional and non- Functional plasma enzymes. Isoenzymes with examples. Enzyme patterns in acute pancreatitis, liver damage, bone disorder, myocardial infarction and muscle wasting.

Tumor Markers: AFP, hCG, PSA & CEA.

Books for Study

- 1. Textbook of Biochemistry For Medical Students- DM. Vasudevan, S. Sreekumari, 9th edition, Jaypee Brothers Medical Publishers (P) Ltd, 2019.
- 2. Textbook of Medical Biochemistry- MN Chatterjea, Rana Shinde, 8th edition, Jaypee Brothers Medical Publishers (P) Ltd, 2011
- 3. Clinical Chemistry- M.N. Chatterjee & R. Chawla, 2nd edition, Jaypee Brothers Medical Publishers (P) Ltd., 2010.
- 4. Clinical chemistry in diagnosis and treatment Philip D. Mayne, 6th edition. ELBS/Arnold, 1994.

Books for Reference:

1. Text book of Clinical Biochemistry- Ramnik Sood, 2nd edition, CBS Publishers, 2019.

2. Text book of biochemistry with Clinical correlations, Devlin, 7th edition, A.John Wiley-Liss Inc. 2010.

3. Fundamentals of Clinical Chemistry and Molecular Diagnosis- Teitz, 7th edition, Elsevier, 2007.

4. Biochemsitry, a case oriented approach, 6th edition, Montgomeri, Coway, Spector & Chapel, Mosboi, Inc.St Lois Missouri. 1996.

SEMESTER VI							
Course Co	de	COURSE	Course Title	HRS/ WEEF	CREDIT		
UABI600	3	Core 10	IMMUNOLOGY	5	5		
Course Obj	ectiv	res: To enable students to un	derstand how immune system	m can figh	t infections and		
diseases.							
Course Obj	Course Objectives						
 Compare the difference between innate and acquired immunity. Explain the principles of hypersensitivity and autoimmunity, vaccination and inflammation. Describe the molecular basis of immune responses. Analyze the immunodeficiencies related diseases. 							
5	. De	emonstrate immunological n	nethods.				
Unit-I	INT SYS	RODUCTION & OR STEM	GANIZATION OF IM	IMUNE	15 Hours		
Introduction mechanical, determinants features of a	to chen s of cquin	immunology. Primary and nical & biological factors in innate immunity. Acquired red immunity, T cell and B c	l secondary lymphoid organvolved in innate immunity, d immunity; humoral and ell activation.	ans, types cells of in cell media	of Immunity; inate immunity, ated immunity,		
Unit-II	AN	FIGEN & ANTIBODIES			15 Hours		
Antigens; cr action, antig subclasses or	riteria genic f imr	a for antigenicity, classifica determinants, haptens, epit nunoglobins, biological func	tion of antigens based on cope, paratope. Antibodies; locations of antibodies.	chemical n basic struc	ature, mode of cture, classes &		
Unit-III	CO	MPLEMENT SYSTEM			15 Hours		
Components Biological ad	s of c ctivit	omplement system, Classica ies of complement compone	al and alternative pathways on the second seco	of compler ent system.	nent activation.		
Unit-IV	HY	PERSENSITIVITY			15 Hours		
Mechanisms and types of hypersensitivity reactions: anaphylactic, antibody dependent cytotoxic, immune complex mediated and cell mediated delayed hypersensitivity. Grave's disease. Types of transplants/grafts, mechanism of allograft rejection.							
Unit-V	IMN	MUNOLOGICAL TEST			15 Hours		

Antigen-antibody reactions, agglutination, precipitation, complement fixation test, immunoassays using labeled reagents; immunofluorescence, ELISA, RIA. Examples of commonly used immunological tests; WIDAL test, VDRL, Hepatitis B, Rheumatoid Arthritis.

Books for Study:

- 1. Clinical Immunology; Principle and practice- Robert R Rich, 5th edition, Elsevier, 2018.
- 2. Immunology- SR Ramesh, McGraw Hill Publications, 2017.
- 3. Cellular and Molecular Immunology- Abul Abbas, Andrew H. Lichtman, 1st edition, Elsevier, 2017.
- 4. BIOS Instant notes in Immunology- Lydyard, Whelan, Fanger, 3rd edition, Taylor & Francis, 2011.
- 5. Immunology- A Short Textbook- Md Akram Hussain, 4th edition, Jaypee Brothers Medical Publishers (P) Ltd., 2008.

Books for Reference:

- 1. Immunology- Kuby Richard: Jenni Punt, Sharon Stranford, Patricia Jones, 8th edition, W.H. Freeman and Company, New York, 2018.
- 2. Essential Immunology- SK Gupta, Arya Publishers, 2017.
- 3. Immunology- Janeway, Paul Travels, 4th edition, Black well Scientific Publishers, 1994.
- 4. Basic and Clinical Immunology- Stites, Stobo, Fundanberg and Wells, 6th edition, Los Atlas Lange, 1990.

		SEMESTER V				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
	Core	Practical VI- Enzymology and	4	2		
UABIPR61	Practical 6	Chromatography	-	-		
Course Obj	ectives					
1. To u	nderstand the princ	ciples of enzyme assays their clinical si	ignificance.			
 I o understand the basic principles of paper, thin layer and column chromatography. They should know the preparations of the entire reagent. Estimations should be done 						
indiv	idually.	preparations of the entire reagent. Estin	nations should			
Course Out	comes					
1. Dem	onstrate the effect	of pH, temperature and substrate conce	entration on sa	alivary		
amyl	ase enzyme activit	y.				
2. Asse	ss the activity of li	ver marker enzymes.	techniques			
Enzyme As	says	e, instrumentation of enromatography	teeninques.			
1. Effec	t of pH on salivary	y amylase.				
2. Effec	et of temperature of	n salivary amylase.				
3. Effec	t of substrate conc	centration on salivary amylase.				
4. Estin	nation of blood glu	cose by glucose oxidase method.				
5. Enzy	me Immobilization	n				
Chromatog	raphic Technique	S				
6. Sepa	ration and detectio	n of amino acids by Paper chromatogr	aphy.			
7. Sepa	ration and detectio	n of sugars by Paper chromatography.				
8. Sepa	ration of amino act	ids by thin layer chromatography.				
9. Sepa	ration of plant pig	ments by column chromatography- Der	monstration.			
Books for S	tudy					
1. Med	ical Laboratory Te	chnology - L. Mukheriee. Vol. I. II. III	, 3 rd Edition.	Fata Mc Graw		
Hill	Publishing Compar	ny Limited, 2017.	,,			
2. Text	book of Clinical	Chemistry and Molecular Diagnos	stics, Tietz, S	Sixth edition,		
Saun	ders Publications,	2017. nemistry- H_Varley_5 th edition_WH M	ledical Books	Ltd 2002		
4. Med Mc (ical laboratory scie	ence theory and practice- Ochei J and ons, 2000.	d Kolhatkar A	A, 3 nd Edition,		
5. Labo	ratory Manual in H	Biochemistry- J. Jayaraman, Wiley Eas	tern Limited,	1981.		

- 1. Medical Laboratory Technology- Methods and Interpretations, Ramnik Sood, Fifth edition, Jay Pee Brothers Medical Publishers, New Delhi, 2006.
- 2. Practical Clinical Biochemistry Methods And Interpretations, Ranjna Chawala, Jay Pee Brothers Medical Publishers, New Delhi, 2020.
- 3. Introductory Practical Biochemistry, S.K. Sawhney, Randhir Singh, Narosa Publishing House, 2001.
- 4. Microbiology Laboratory Manual, Abdul Jaffar Ali, H, Vijay Nicole Imprints Pvt Ltd, 2018.

COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
	Core	Practical V- Medical Laboratory	1	2
UABIPR62	Practical 7	Technology II	4	2
Course Obj	ectives			
1. To u	nderstand the bas	ic concepts related to microbial culture	, staining and t	esting for
antib	iotic sensitivity.	action and analysis of wine under nor	not and nothel	rical
2. TO u cond	itions	ection and analysis of urine under nor	nai and patholo	ogical
Course Out	comes			
1. Colle	ection, preservation	on and transport and analysis of pathole.	ogical urine sar	nple
2. Open 3. Dem	onstrate the steril	ization methods preparation of culture	media identif	ication of
pathe	ogenic bacteria ar	d evaluate the antibiotic sensitivity		•••••••••
Microbiolog	gy			
1. Steri	lization by moist	heat method.		
2. Steri	lization by dry he	at method.		
3. Steri	lization by filtrati	on.		
4. Cult	ure of <u>E. coli</u> fron	n sewage water.		
5. Gran	n staining.			
6. Anti	oiotic sensitivity	esting.		
7. Calc	ulation of viabilit	y after exposure of bacterial culture to	UV rays.	
Urine Anal	ysis			
8. Qual	itative analysis of	Furine- physical, chemical and microso	opic examinati	.on.
9. Urin	e Analyser- Demo	onstration.		
Books for S	tudy			
1. Med	ical Laboratory T	echnology - L. Mukherjee. Vol. I, II, II	I, 3 rd Edition, 7	Fata Mc Graw
Hill 2 Toxt	Publishing Comp	any Limited, 2017.	etion Tintz	Sixth adition
Z. Text	ders Publications	2017	stics, Hetz,	Sixui editioli,
3. Prac	tical Clinical Bio	chemistry- H. Varley, 5 th edition, WH I	Medical Books	Ltd, 2002.
4. Med	ical laboratory sc	ience theory and practice- Ochei J and	nd Kolhatkar A	A, 3 nd Edition,
Mc (5 Labo	Fraw Hill Education of the second sec	ons, 2000. Biochemistry- I. Javaraman, Wiley Fa	stern Limited	1981
Books for F	leference:	Electromotry J. Juyuruman, whey Ed		1701.
				a 1 –
1. Med editi	ical Laboratory	Technology- Methods and Interpretation of the second secon	ations, Ramnil 06.	x Sood, Fifth
2. Prac	ical Clinical Bio	chemistry Methods And Interpretation	is, Ranjna Cha	wala, Jay Pee

Brothers Medical Publishers, New Delhi, 2020.

- 3. Introductory Practical Biochemistry, S.K. Sawhney, Randhir Singh, Narosa Publishing House, 2001.
- 4. Microbiology Laboratory Manual, Abdul Jaffar Ali, H, Vijay Nicole Imprints Pvt Ltd, 2018.

SEMESTER VI						
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT		
UABICE61	Core Based Elective 2	NUTRITIONAL BIOCHEMISTRY & DIETETICS	5	5		
Course Objec	tives					
1. Understand	about importanc	e of Nutrition and associated health risks.				
2. To study dis	sease managemen	nt with help of diet.				
Course Outco	omes					
1. Acquire sou	nd knowledge al	pout different types of nutrients and its co	mposition.			
2. Evaluate cal	orific and nutriti	ve value of foods.				
3. Formulate b	alanced diet for	different age groups.				
4. Managing d	iseases with diet					
5. Differentiate	e food preservati	ve and adulterants.				
		INTRODUCTION TO NUTRITION				
Unit-I Definition of foods and nutrition. Functions of food and its relation to nutritional and clinical health, Basic food groups: Energy giving foods, body building foods and protective foods. Essential nutrients, RDA for average Indian, analysis of food composition, food habits, food fads and fallacies.						
Unit-II	NUTRI	FIVE AND CALORIFIC VALUE OF I	FOOD	15 Hours		
	Definition and	unit of energy - Kcal. Estimation of en	ergy of foc	d		

	stuffs by Bomb calorimeter, calorific, physiological value and RQ of food stuffs. Body mass index (BMI), Basel metabolic rate (BMR), its measurements and influencing factors, SDA of food. Nutritive value of proteins, essential amino acids, complete protein and incomplete protein.	
Unit-III	BALANCED DIET FORMULATION Assessment of nutritional status. Nutrition at various stages of growth and development: Diets for infants. Children, adolescent, pregnant women, lactating mothers and older persons. RDA for average Indian. Protein nutritional Nitrogen balance, quality of food proteins and requirements. Protein malnutrition (Kwashiorkor) and under nutrition (marasmus) and their preventive, curative measures.	15 Hours
Unit-IV	DISEASE MANAGEMENT WITH DIET Nutritional therapy during Obesity, diabetes, anemia, constipation, peptic ulcer, high blood pressure and atherosclerosis. Vitamin deficiency diseases.	15 Hours
Unit-V	FOOD HYGIENE AND HEALTH Food spoilage, Types of food Decay- Rancidity, Fermentation and Putrefaction. Food preservation- methods (freezing, pasteurization, blanching, canning). Food adulteration- Types of adulterants (intentional and incidental). Food additives – preservatives, food colours.	15 Hours
Books for Stu	ldy	
1. Food Scien	ce – B. Srilakshmi, 6 th edition, New Age International Publishers, 2018.	
2. Essential of publication, 19	of Food and Nutrition –M.S. Swaminathan, 2 nd edition, Bangalore 985.	print and
3. Food and 1 edition, Jaype	Nutrition – facts and figures- L.C.Gupta, Kusum Gupta and Abhishek e publishers 2006.	Gupta, 6 th
4. Human Nut omega books,	rition and Dietetics - Davidson and Passamore, Eastwood 8 th edition alp UK, 1986.	bha 2

1. Food science and Nutrition – Sunetra Roday1st edition,Oxford Publication, 2012.

2. Modern nutrition in health and disease –A.catharine Ross et al., 11th edition, Lippincott publication, 2012.

3. Modern nutrition in health and disease –Maurice. E. Shills et al., 10th edition, Lippincott publication, 2006.

4. Clinical dietetics and nutrition - E.P. Antia.1st edition QUP India Publisher, 1998.

5. Normal and therapeutic nutrition - Corinne H Robinson Marilyn R Lawler et al ., 1st edition Mac Millan USA Publisher, 1990

6. Foundation of normal and therapeutic nutrition –T. Randall Lankford et al., 1st edition Willey Medical publication, 1986.

SEMESTER VI							
COURSE CODE	COURSE CODECOURSECOURSE TITLEHRS/ WEEKCREDIT						
UABICE62	Core Based Elective 2	ENDOCRINOLOGY	5	5			
Course Objec	tives						
To und	erstand the mol	lecular basis of hormone action, secretion	on and function	n.			
Course Outco	omes						
1. Understand the basic terminologies, classification and mechanism of action of hormones.							
2. Understand the synthesis, mechanism and disorders of thyroid and parathyroid hormones							
3. Learn various functions of pancreatic hormones.							
4. Describe the	e secretions and	functions of steroid hormones.					

5. Explain the	e biological actions of sex hormone.				
Unit-I	Introduction & Mechanism of Action Hormones: Definition, Chemical nature and classification. Mechanism of action of Group I and Group II hormones, Signal transduction and introduction to Hormonal receptors (Tyrosine receptors) G protein coupled receptors, signal transduction, role of secondary messengers in hormonal action – cAMP, cGMP, IP3 and calcium. Positive and negative feedback regulation of endocrine system.				
	Hormonos of Thuroid and Parathuroid gland				
Unit-II	Biosynthesis and biological action of thyroid hormones. Hypo and hyper thyroidism-cretinism, myxoedema, Grave's diseases and Goiter. Biosynthesis and biological action of parathyroid hormones (PTH). Disorders of parathyroid hormones- rickets and osteomalacia.	15 Hours			
Unit-III	Hormones of Pancreatic Gland Biosynthesis and biological actions of pancreatic hormones- Insulin and Glucagon. Disorders of pancreas – Diabetes mellitus. GI hormones (secretin, gastrin, somatostatin and CCK) and its role.	15 Hours			
Unit-IV	Hormones of Adrenal Gland Biosynthesis and biological role of adrenal medullary hormones– Catecholamine's (Epinephrine and Nor epinephrine). Biosynthesis and biological role of adrenal cortical hormones–Mineralocorticoids (aldosterone) and Glucocorticoids (cortisol). Disorders of adrenal medulla and cortex -Addison's disease, Cushing's syndrome, Conn's syndrome and Phaeochromocytoma.	15 Hours			
Unit-V	Gonadal Hormones Chemistry, Secretion, Functions and Regulations of Gonadal	15 Hours			

hormones Testosterone, Estrogen and Progesterone. Ovarian cycle and its regulation.

Books for Study

- 1. Endocrinology Prakash. S. Lohar MJP Publishers 2005.
- 2. Textbook of Endocrinology. R.Radheshyam Neha Publishers 2012.

3. Endocrinology Hadely, M. amnd Levine .J.E Endocrinology, Benjamin CummingsEdition 2006.

4. Principles of Biochemistry, Emil Smith, Handler, Abraham White, Mcgraw. Hill,7th Edition, 1983.

Books for Reference:

- 4. William's Endocrinology, ShlomoMelmed Kenneth Polonsky P. Reed Larson Henry Kronenberg, 13thEdn Elsevier publishers 2015.
- 5. Endocrinology, Hadley, M.C. and Levine, J.E 6th ed., Pearson Education, New Delhi, 2007
- 6. Text Book of Medical Physiology Guyton, A.C. and Hall., J.E. 12th Edition, Saunders Publishers 2010.
- 7. Williams Textbook of Endocrinology, Larson et al.,: 10th ed., Elseiver. 2003.

SEMESTER VI							
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT			
UABISE61	Skill Based Elective 2	BIOTECHNOLOGY – II	2	1			
Course Obje	ectives						
1. To study a	bout plant and ani	mal tissue culture and its application					
2. To underst	2. To understand production and application of transgenic plants and transgenic animals						
Course Outo	comes						
1. Understan	d various equipme	ents used in tissue culture laboratory.					
2. Demonstra	te plant tissue cul	ture and mammalian tissue culture tec	hniques.				
3. Recombination	ant production of	transgenic plants and animals for hum	an welfare.				
	r	FISSUE CULTURE EQUIPMENTS	5				
Unit-I	Equipment and requirements for plant & animal cell culture - sterilization of glassware, laminar flow, CO_2 incubator, shakers, fermentors, centrifuge, inverted microscope, culture room. Risks in tissue culture laboratory and safety regulations.						
		PLANT TISSUE CULTURE					
Unit-II	Plant tissue culture – Totipotency, explants, callus, Dedifferentiation, Media, composition, nutrients, growth regulators, initiation. Explants culture, callus culture, suspension culture, organogenesis, root, shoot culture and, somatic embryogenesis. Microprpogation, somoclonal variation, synthetic seeds, and germplasm storage. Protoplast culture.						
	_						
Unit-III	MAMMALIAN CELL CULTURE Init-III Mammalian cell culture – cell line, cell viability, media – natural media, pH and buffer system, oxygen, synthetic media, substrate for cell culture, composition of nutrients. Suspension culture, Immobilized culture, somatic cell fusion.						

	TRANSGENIC PLANTS			
Unit-IV	Transgenic Plants-Gene transfer method using agro bacterium, insect resistant, virus resistant, Herbicide resistant, stress tolerant plant. Transgenic plant with Improved nutrition- golden rice.	6 Hours		
	TRANSGENIC ANIMALS			
Unit-V	Transgenic animals, microinjection method, transgenic sheep, transgenic fish, transgenic cattle. Dolly- the transgenic clone.	6 Hours		
Books for St	udy	L		
1. Biotechnol	logy – U. Satyanarayana, 12th Edition Books and Allied Limited, 2018.			
 A text book of Biotechnology – R. C. Dubey, 4th Edition S. Chand & co, 2006. Elements of Biotechnology - P.K.Gupta 2nd Edition Rastogi publication, New Delhi, 2016. 				
Books for R	eference:			
1. Recombinant DNA - James D. Watson, 3 rd Edition Freeman W H &Company, 2006.				
2. Recombina Amy A Cauc 2007.	ant DNA – genes and genomes-a short course James D. Watson, Richard ly, Jan A Witkowski, 3 rd Edition, Cold Spring Harbor Laboratory Press &	M Meyers, &Company		
3. Molecular biotechnology – principle and application of recombinant DNA Bernard, R. Glick Jack, J. Pasternak, 5 th edition, Library of Congress cataloging in publication data, 2013.				

SEMESTER VI					
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UABISE62	Skill Based Elective 2	Animal Cell and Tissue Culture	2	1	
Course Obje	ectives				
To understar	nd the basics of an	imal cell culture and its application.			
Course Outo	comes				
1. Learn Anii	mal cell morpholo	bgy and equipments for animal cell cult	ture.		
2. Formulation	on and Sterilizatio	n of various growth media.			
3. Screening	of viable cells.				
4. Understand	d mammalian cell	culture technique.			
5. Acquire kr	nowledge about st	em cell culture.			
		ANIMAL CELL			
Unit-I	Structure and organization of animal cell, cell physiology. 6 Hour Equipments and materials for animal cell culture technology. Aseptic Technique for cell cultures. Cryopreservation.				
	STERILIZATI	ON AND PREPARATION OF MEI	DIA		
Unit-II	Preparation and Sterilization of cell culture media and reagents. Introduction to the balance salt solutions and simple growth medium. Chemical, physical and metabolic functions of different constituents of culture media. Role of carbon dioxide in animal cell culture.			6 Hours	
Unit-III	CHAR Role of serum a and their applic Biology and cha of growth.	ACTERIZATION OF CULTURED nd supplements, Serum & protein free cations. Measurement of viability ar aracterization of cultured cells, measu	CELLS e defined medind cytotoxicity ring parameter	a 6 Hours 7. 8	
	Biology and cha of growth.	aracterization of cultured cells, measu	ring parameter	S	

Unit-IV	MAMMALIAN CELL CULTUREUnit-IV Basic techniques of mammalian cell culture in vitro; disaggregation of tissue and primary culture; maintenance of cell culture; cel separation. Scaling – up of animal cell culture, Cell synchronization Cell cloning, micromanipulation and types of cloning. Cel transformation. Application of animal cell culture.				
Unit-V	Unit-VStem cell culture, embryonic stem cells and their applications. Cell culture based vaccines. Somatic cell genetics. Organ and histotypic cultures. Measurement of cell death. Apoptosis. Three dimensional culture and tissue engineering.				
Books for St	udy				
1. Animal Cell Culture Techniques. Ed. Martin Clynes, Springer lab manuals, 1998.					
 Animal Biotechnology, M. M. Ranga, III Revised edition, Agrobios (India), Jodhpur, 2000. Biotechnology of Animal Tissue. P.R.Yadav & Rajiv Tyagi. Discovery Publishing House. New Delhi, 2006. 					
Books for Reference:					
1. Culture of Animal cells, R. Ian Freshney. A John Wiley & Sons, Inc., publications, 3rd Edition, 2010					
2. Animal Cell Culture- Practical Approach, R.W. Masters, Oxford press, blications3rd Edition, 2000					
3. Animal Cell Biotechnology, Methods and protocols, Nigel Jenkins, Humana Press, 1999.					

DEPARTMENT OF BIOTECHNOLOGY 15TH BOS APPROVED UG SYLLABI FOR

V & VI SEMESTERS

		SEMESTER V		
COURSE	COURSE	COURSE TITLE	HRS./	CREDIT
CODE			WEEK	
UABT5001	Core 5	r-DNA Technology	5	5
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Course Objectives:

- 1. To acquaint the students to versatile tools and techniques employed in Recombinant DNA technology.
- 2. To enable students to understand vector types, host genotype specificities and enzymes.
- 3. To make themunderstand Gene Recombination and Gene transfer methods.
- 4. To make the student understand Hybridization and DNA sequencing.
- 5. To make them understand the applications of Genetic engineering in plant and animals.

Course Outcomes:

After completion of the course, the students will be able to

1 - Have atechnical knowledge on recombinant genes.

- 2 Construct recombinant DNA and use them for cloning.
- 3 Be competent in PCR, Restriction Digestion, Ligation and related molecular methods.
- 4 -Conduct and interpret genetic engineering experiments using various types of vectors and hosts.
- 5 –Get familiar with about genetic engineering products.

Unit IIntroduction to r-DNA technology15 Hours

History, scope and recent developments in Genetic Engineering - Concept and basic steps in Recombinant DNA technology - Isolation of gene of interest – Amplification Using PCR-Restriction Digestion - DNA purification - Ligation of DNA Molecules – Bacterial Transformation.

Unit IIHost, Vectors and Enzymes15 Hours

Host: Prokaryotic host and Eukaryotic host. Vectors: Plasmid vectors, Bacteriophages, Cloning vector, expression vectors. Enzymes: Restriction Endonucleases: Types of restriction Endonucleases, classification and uses.

Unit IIIGene Recombination and Gene transfer methods15 Hours

Construction of genomic and c-DNA libraries, Joining of DNA Fragments to vectors, Homo polymer tailing, cohesive and blunt end ligation, adaptors, linkers. Bacterial Conjugation, Transformation, Transduction.

Unit IVHybridization and DNA sequencing15 Hours

Principle of hybridization. Northern blotting, Southern blotting, Western blotting. PCR and its types, RFLP, RAPD, AFLP. DNA sequencing: Maxam-Gilbert (Chemical) and Sanger- Nicolson

(dideoxy/ enzymatic) sequencing method.

Unit VGenetic engineering in plants & animals15 Hours

Gene Transfer Methods: Episomes, Plasmids, Microinjection, Electroporation, Micro projectile, Shot Gun method, Ultrasonication, Liposome fusion, Microlaser. Transgenic animals: transgenic mice. Therapeutic products produced by genetic engineering: blood proteins, human hormones, immune modulators and vaccines (Covid-19). Production of proteins of Pharmaceutical value. Ethics in genetic engineering of plants and animals.

Books for study:

- 1. J.D. Watson, M. Gilman, J. Witowski and Mark Zoller. 1992. *Recombinant DNA*. Scientific American Books.
- 2. Dubey, R.C. 2006. A Text Book of Biotechnology. S. Chand & Co Ltd, New Delhi.
- 3. Brown, TA. 2006. *Gene Cloning and DNA Analysis*. 5th edition. Blackwell Publishing, Oxford, U.K.
- 4. Satyanarayana, U. 2008. Biotechnology, Books and Allied (P) Ltd.
- 5. Abdul Jaffar Ali, H. 2018. DNA barcoding: Methods and Protocol, New Centaury Book House, Chennai.

Books for References:

- 1. Winnacker, E.L. 1987. From Genes to Clones: Introduction to gene technology
- 2. Sambrook J, Fritsch EF and Maniatis T. 2001. *Molecular Cloning-A Laboratory Manual*. 3rd edition. Cold Spring Harbor Laboratory Press.
- 3. Primrose SB and Twyman RM. 2006. *Principles of Gene Manipulation and Genomics*, 7th edition. Blackwell Publishing, Oxford, U.K.
- 4. Gene Cloning and DNA Analysis. An Introduction 2006 by T. A. Brown, Blackwell Scientific Publications.
- 5. Julia Lodge et al. 2007. Gene Cloning 2007 Taylor and Francis.

Semester V				
Course Code	ourse Code Course Course Title Hrs/Week Cred			
UABT5002	Core 6	Plant Biotechnology	5	5
Course Objecti	ves			
 To study the principles and techniques involved in plant tissue To learn the concepts of transformation and achievements of biotechnology in Plants. To know the culture initiation methods. To study about methods of micropropagation To know the applications of plant transformation and transgenic ideas. Course Outcomes				
 Understand the fundamentals of tissue culture media and techniques. Determine the factors influencing plant cell differentiation and thereby execute proper techniques/ procedures for the maintenance of sterile condition and proper plant growth. Remember the various types of culture methods. Apply the methods of production Techniques. 				
Unit – I		Introduction:	1	5 Hours
Plant Tissue Culture: History of plant tissue culture –Scope of plant tissue culture - laboratory organization – aseptic techniques – nutritional requirements and culture media – Types of culture media – Solid and Liquid.				
Unit – II		Culture initiation	1	5 Hours
Explant – Totipotency – Dedifferentiation – Redifferentiation – Various types of culture – Leaf culture, Callus culture, Cell culture, Anther culture and Meristem culture. Organogenesis – Direct and Indirect.				
Unit – III		Micropropagation	1	5 Hours
Methods of micropropagation, somatic embryogenesis – Plant protoplast – isolation, culture and somatic hybridization – somaclonal variation. Factors affecting the production in culture. Plant products: secondary metabolites of plants.				
Unit – IV	Application	of Plant Transformation and transgenic	plants 1	5 Hours
Transgenic plants: Ti plasmids-Use of <i>Agrobacterium tumefaciens</i> and <i>A. rhizogenes</i> . Strategies for gene transfer to plant cells, Direct DNA transfer to plants. Insect (pest) resistance – Virus resistance- fungal and bacterial disease – Herbicide resistance – Tolerant to water deficit stresses.				

Unit – V	Ethical and regulatory issues	15 Hours				
Intellectual property rights introduction, trade secret, patents, copyright, National Biodiversity						
Act, 2002 – int	Act, 2002 – introduction- patenting related to genetically modified organisms.					
Books for Stu	dv·					
DOOKS IOI DU	uy.					
1. Kumaresan.	V. Biotechnology, Saras Publications.					
2. Dubey. R.C	2. Dubey. R.C. Text book of Biotechnology. S.Chand. Co. New Delhi					
3. Satyanaraya	na U., Biotechnology, Books and Allied P.Ltd, Kolkata. (2015).					
4. Kalyankumar De. An Introduction to Plant Tissue Culture Techniques. New Central Book Agency, Kolkata. (2007).						
5.Chrispeels, N	A.J. and D.F. Sadava. Plants- Genes and Agriculture Jones and Bart	tlett. (1994).				
Books for Ref	erence:					
1. Hammond, Applicatior	J., P.McGarvey and V.Yusibov (eds). Plant Biotechnology – New as. By Springer Publication, (2012).	v products and				
2. Glick and F	Paster mark Molecular Biotechnology by Panima. (2002).					
3. Dixon, R.A	3. Dixon, R.A And R.A. Gonzales.Plant cell culture, IRL press. (2012).					
4. Bhojwani,	4. Bhojwani, S.S. and M.K. Razdan Plant Tissue culture: theory and practice a revised edition					
Elsevier sci	ence. (2014).					
5. Bernard R application	.Glick and Jack J. Pasternak. Molecular Biotechnology, F s of recombinant DNA technology, ASM Press Washington DC. (2)	rinciples and 015).				

Web Source

- 1. https://nptel.ac.in/courses/102/103/102103016/
- 2. https://nptel.ac.in/courses/102/103/102103013/
- 3. https://swayam.gov.in/nd2_cec19_bt01/preview

SEMESTER V					
Course Code	Course	Course Title	Hrs/ Week	Credit	
UABT5003	CORE 7	Industrial Biotechnology	5	5	
 Course Objectives To identify various optimization parameters and strain improvement. To build the theoretical knowledge on bioreactors and fermentation process. To learn about the methods of immobilization To gain fundamental knowledge to explore microbes for the production of industrially relevant primary and secondary metabolites. To understand the various techniques and applications used in downstream technology. Course Outcomes After completion of the course, the students will be able to Derive Outline process-flow sheeting for the industrial fermentation processes. Perform Experiments with the techniques involved in strain improvement. Apply the knowledge of kinetics for microbial growth and product formation. Construct Biosystems for upstreaming and down streaming process. Choose from the production processes for primary and secondary metabolite					
		10015			
Introduction to Industrial Biotechnology- History- Industrial important microbes and their products in food, sugar, dairy and leather industry. HACCP – FSSAI act					
Unit – II		Bioreactors and Growth Kinetics	15 I	Iours	
Fermentation technology: Fermentation and its types - Bioreactors- design and their functions; Types of Bioreactor - Airlift bioreactor, Tower bioreactors, Fluidized bed reactor, Packed bed reactors. Microbial growth Kinetics - Batch cultivation and continuous cultivation.					
Unit – III		Immobilization	15 I	Iours	
Methods of immobilization - adsorption, crosslinking, ionic bonding, entrapment, encapsulation; Advantages and industrial applications of Immobilization of enzymes and whole cells.					
Unit – IV	U	pstream and Downstream Processing	15 I	Iours	
Introduction - Isolation, preservation and improvement of industrial micro-organisms for large scale production of primary and secondary metabolites - Production of Industrially important products: Upstream and downstream processing of Alcohol (Ethanol) - Antibiotic (Penicillin) - Enzyme (Amylase)					
Unit – V		Applications	15 1	iours	
Applications of Biotechnology in food, sugar, dairy and leather industry Ethics in use of microbes in Industry

Books for Study:

- 1. Satyanarayana, U. "Biotechnology" Books & Allied (P) Ltd., 2005.
- 2. Dubey, R.C. "A Textbook of Biotechnology" S. Chand & Co. Ltd., 2006
- 3. Peter F Stanbury, Allan Whitaker, Stephen J Hall, "Principles of Fermentation Technology" Butterworth Heinemann, Third Edition, 2016.
- 4. Wulf Crueger, Anneliese Crueger, K. R. Aneja, "Biotechnology A textbook of Industrial Biotechnology" Medtech, 2017.
- 5. Shuler ML and Kargi F., Bioprocess Engineering: Basic concepts, 2nd Edition, Prentice Hall, Engelwood Cliffs, 2017.

Books for Reference:

- 1. Colin Ratledge, Bjorn Kristiansen, "Basic Biotechnology" Cambridge University Press, Third Edition,2006
- 2. Thangadurai D and Sangeetha J (2017) Industrial Biotechnology: Sustainable production and Bioresource Utilization. CRC press
- 3. Maheshwari, D. K. *et. al.*, Biotechnological applications of microorganisms, IK. International, New Delhi, 2006.
- 4. Stanbury, P. F. et. al., Principles of Fermentation Technology, 2nd Edition, Elsevier, UK, 1995.
- 5. Prescott LM, et al, Microbiology, 3rd Edition, Wm. C. Brown Publishers, 1996.

		SEMESTER V		
COURSE	COURSE	COURSE TITLE	HRS. /	CREDIT
CODE			WEEK	
UABTPR51	Core	r-DNA Technology & Plant	4	2
	Practical 4	Biotechnology Practical		

- 1. To Provide an opportunity to experimentally verify the theoretical principles of genetic Engineering in a more explicit and concentrated manner.
- 2. To provide knowledge about isolation of DNA and Vectors.
- 3. To provide knowledge about cloning experiments.
- 4. To develop skill in basic techniques involved in plant biotechnology.
- 5. To provide knowledge about plant cell culture methods and media requirements.

Course Outcomes

After completion of the course, the students will be able to:

- 1. Isolate plasmid, Digest, ligate and transform DNA into a suitable host.
- 2. Apply PCR techniques for identification of genes.
- 3. Apply SDS PAGE for identification of Protein.
- 4. perform plant tissue culture techniques
- 5. Immobilize the seeds.

r -DNA Technology

- 1. Isolation of genomic DNA from bacteria and Agarose Gel Electrophoresis
- 2. Isolation of plasmid vector
- 3. PCR Amplification
- 4. Restriction Digestion
- 5. DNA Ligation
- 6. Bacterial Transformation
- 7. SDS PAGE

Plant Biotechnology

- 1. Surface sterilization of plant materials.
- 2. Preparation of Culture media & Reagents
- 3. Preparation of Explants (Seed, Nodal, Meristem and leaf Culture)
- 4. Preparation of synthetic of seeds.

Books for study:

1. Judith W. Zyskind and Sanford I. Bernstein, Recombinant DNA Laboratory Manual. Academic Press, 1989.

- 2. Primrose SB and Twyman RM. (2006). *Principles of Gene Manipulation and Genomics*, 7th edition. Blackwell Publishing, Oxford, U.K.
- 3. Sambrook J, Fritsch EF and Maniatis T. (2001). *Molecular Cloning-A Laboratory Manual*. 3rd edition. Cold Spring Harbor Laboratory Press.
- 4. Plant Tissue Culture by MK Razdan & SS Bhojwani (1996) Elsevier.
- 5. Plant Tissue Culture Concepts and Laboratory Exercises, Second Edition, Robert N.
- 6. Ignacimuthu, S. (1996). Applied Plant Biotechnology. Mc Graw Hill publications Co. Ltd., New Delhi.

Books for References:

- 1. Sambrook et al 2012. "Molecular Cloning" A Laboratory manual.
- 2. Brown TA. (2006). *Gene Cloning and DNA Analysis*. 5th edition. Blackwell Publishing, Oxford, U.K.
- 3. Gene Cloning and DNA Analysis. An Introduction 2006 by T. A. Brown, Blackwell Scientific Publications.
- 4. Gene Cloning 2007 by Julia Lodge, Pete Lund and Steve Minchin, Taylor and Francis.
- 5. Plant Physiology by L Taiz& E Zeiger 4th Edition (2006) Sinauer, Associates Inc, Publishers.

SEMESTER V						
COURSE	COURSE	COURSE TITLE	HRS. /	CREDIT		
CODE			WEEK			
UABTPR52	Core	Industrial Biotochnology Practical	4	2		
	Practical 5	muustriai biotecimology - Practical				

- 1. To obtain knowledge on wide-ranging practical's related to applications of biotechnology in industries.
- 2. To learn about bioprocess technology and its applications used in industries.
- 3. To get familiar with enzymes and microbes used for industrial purposes.

Course Outcomes:

After completion of the course, the students will be able to:

- 1. Outline process-flow sheeting for the industrial fermentation processes.
- 2. Ability on production process of wine in industry level.
- 3. Apply the knowledge of kinetics for microbial growth and product formation.
- 4. Choose from the production processes for primary metabolite.
- 5. Develop the critical thinking on the production processes for secondary metabolite.
 - 1. Bacterial Growth curve.
 - 2. Mass production of *E.coli* in fermentor.
 - 3. Production of wine using common yeast by fermentation.
 - 4. Purification of alcohol from fermented wine by distillation.
 - 5. Screening of amylase producing microorganisms.
 - 6. Screening of microbes for antibiotic production.
 - 7. Screening of organic acid producing microorganisms.
 - 8. Immobilization of yeast.
 - 9. Industrial visit

Books for study:

- 1. Presscott, Dunn, Industrial Microbiology, Agrobios (India), 2009.
- 2. Christoph Wittmann, James C. Liao, Industrial Biotechnology: Products and Processes, Wiley VCH Verlag Gmb H & Co. K Ga A, 2017.
- 3. Kumar, H.D. "A Textbook on Biotechnology" 2nd Edition. Affiliated East West Press Pvt. Ltd., 1998.
- 4. Balasubramanian, D. et al., "Concepts in Biotechnology" Universities Press Pvt. Ltd., 2004.
- 5. Dubey, R.C. "A Textbook of Biotechnology" S. Chand & Co. Ltd., 2006.

Books for References:

- 1. Maheshwari, D. K. *et. al.*, Biotechnological applications of microorganisms, IK. International, New Delhi, 2006.
- 2. Stanbury, P. F. *et. al.*, Principles of Fermentation Technology, 2nd Edition, Elsevier, UK, 1995.
- 3. Anton Moser, "Bioprocess Technology, Kinetics and Reactors", Springer Verlag.
- 4. C.F.A Bryce and EL. Mansi, Fermentation microbiology & Biotechnology, 1999.
- 5. K.G. Ramawat & Shaily Goyal, Comprehensive Biotechnology, 2009, S. Chand

publications YouTube Link:

- 1. <u>https://www.youtube.com/watch?v=ga4XqCWl_Z8</u>
- 2. <u>https://www.youtube.com/watch?v=WRHBf7UcsqA</u>
- 3. <u>https://www.youtube.com/watch?v=TtiomCqPYUY</u>

Course Code Course Title Hrs/ Week Credit UABTCE51 Core based Elective 1 ANIMAL BIOTECHNOLOGY 5 5 Course Objectives:	Semester V						
UABTCE51 Core based Elective 1 ANIMAL BIOTECHNOLOGY 5 5 Course Objectives: 5 5 5 1. To make students understand about the basics of animal science. 2. To familiarize the cell culture techniques and Gene transfer method. 3. To inpart the knowledge in production of transgenic animals and applications. 4. To study the application tools of molecular biology in animal biotechnology 5 5 2. To study the application tools of molecular biology in animal biotechnology 5 5 5 3. To study the application tools of molecular biology in animal biotechnology 5 5 5 5. To provide knowledge on genetic engineering in the improvement of animal for human welfare. 5 6 1 Course Outcomes: After completion of the course, the students will be able to: 1. Use laboratory facilities and culture media for animal sculture. 2 1 1 Agency of the course of techniques in genetic modification and stem cell research. Acquire knowledge on transgenic technique. Unit - I Animal Cell culture-Fundamentals, Facilities and Applications 15 Hours Animal Cell culture, Contamination, aseptic conditions and sterilization, Applications of animal cell sci nos of animal cell sci n	Course Code	Course	Course Title	Hrs/ Week	Credit		
Course Objectives: 1. To make students understand about the basics of animal science. 2. To familiarize the cell culture techniques and Gene transfer method. 3. To impart the knowledge in production of transgenic animals and applications. 4. To study the application tools of molecular biology in animal biotechnology 5. To provide knowledge on genetic engineering in the improvement of animal for human welfare. 70 Course Outcomes: After completion of the course, the students will be able to: 1. Use laboratory facilities and culture media for animal tissue culture. 2. Prepare Culture Media for animal cells 3. Reproduce gene transfer technologies for animals and animal cell lines. 4.Describe basic principles and techniques in genetic modification and stem cell research. 5. Acquire knowledge on transgenic technique. Unit – I Animal Cell culture-Fundamentals, Facilities and Applications – Animal Cell and its types. Facilities for cell culture, Contamination, aseptic conditions and sterilization, Applications of animal cell cultures, Risks in a tissue culture laboratory and safety, Biohazards. Unit – I Culture Media for animal cells Is Hours Tota culture, Sisks in a tissue culture laboratory and safe	UABTCE51	Core based Elective 1	ANIMAL BIOTECHNOLOGY	5	5		
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and cen nnes – Primary cen culture, cen Lines- General considerations-Scale up in suspension,	and cell lines –	Primary cell cult	ure, cell Lines- General considerations	Scale up in su	spension,		

Scale-up in more	nolayer-Monitoring of cell growth in scale-up.				
Unit – III	Biology and Characterization	15 Hours			
Biology and Characterization – Characterization of cultured cells- Measurement of growth parameters of cultured cells – Cell synchronization – Senescence and apoptosis.					
Unit – IV	Cell Viability, transformation and Cell cloning	15 Hours			
Cell Viability, transformation and Cell cloning- Assays of cell viability and cytotoxicity, Transformation of cells and cell cloning, Organ and Histotypic Cultures and Tissue Engineering, Embryonic stem cell engineering.					
Unit – V	Transgenic animals	15 Hours			
 vaccine Product for hepatitis E (CPECA) - Eth Books for Stud 1. Satyanarayar 2. Animal Biote 3. Animal Biote 4. Animal Biote 	 A. Rabies, polio virus, malaria. Introduction of Recombinant vacca is in production of Transgenic animals. A. Biotechnology, Books and Allied P. Ltd, Kolkata. (2017). Bechnology, Ranga MM 2007. 3rd Edition Bechnology, Varun Mehta 2009. Bechnology, Ramadas P 2002. 2nd Edition 	cal Committee			
5. Principles an	d Practice of Animal Tissue culture – By Sudha Gangal (Universit	ies Press).			
Books for Refe	erence:				
1. Freshney, R.	I.2010, Animal cell culture, Fifth edition, Wiley Publishers				
2. Masters J.R.V	W.2000, Animal cell culture, .Oxford University Press.				
3. Butler, M. (2	004). Animal cell culture and technology: The basics.IIEdition.Bio	os scientific			
 4. Ashish Verm Translation , 2ⁿ 	a, Anchal Singh (2020), Animal Biotechnology, Models in Discov ^d Edition, Elseveir Press.	ery and			
5. IN. Arumugai	n, v. Kumaresan, Animai Biotechnology, Saras Publications.				

	SEMESTER V						
Course Code	Course	Course Title	Hrs./ Week	Credit			
UABTCE52	Core based	INDUSTRIAL EFFLUENT	5	5			
	Elective 1	TREATMENT					
Elective 1 TREATMENT Course Objectives: 1. To impart knowledge on causes and characteristics of various industrial wastes and strategies for its prevention and control. 2. To learn about the various sources of effluents. 3. Understand the design and working principle of various treatment methods. 4. To know about the biological treatment process of toxic pollutants. 5. Understand magnitude and influence of hazardous content Course Outcomes: After completion of the course, the students will be able to 1. Ability to plan minimization of industrial wastes 2. Ability to design facilities for the processing and reclamation of industrial waste water							
3. Unders 4. Manag	stand the design se sewage and in the critical the	and working principle of various treatment met ndustrial effluent issues.	hods.				
Unit – I	INTI	RODUCTION TO INDUSTRIAL WASTES]	15 Hours			
industrial eff Environmenta hazardous was	istries and indu luents on strea l legislations stes.	artial pollution – Characteristics of industrial arms, sewer, land, sewage treatment plants a related to prevention and control of indus	wastes – 6 and huma trial efflu	effects of n health. ents and			
Unit – II	PO	LLUTION FROM MAJOR INDUSTRIES]	15 Hours			
Sources, Chai Tanneries, Pha	acteristics, was armaceuticals,	ste treatment flow sheets for selected industrie Dairy, Sugar, Paper, distilleries, Refineries, ferti	es such as ilizer.	Textiles,			
Unit – III		TREATMENT TECHNOLOGIES]	15 Hours			
Equalisation – Neutralisation – Removal of suspended and dissolved organic solids - Chemical oxidation – Adsorption - Removal of dissolved inorganics – Combined treatment of industrial and municipal wastes – Residue management – Dewatering – Disposal.							
Unit – IV		MICROBIAL TREATMENT]	15 Hours			
Microbial Tre halogenated p	Microbial Treatment - Degradation of high concentrated toxic pollutants, non-halogenated, halogenated petroleum hydrocarbons metals.						
Unit – V	Н	AZARDOUS WASTE MANAGEMENT	1	15 Hours			
Membrane fi	Membrane filteration, Nanofiltration - Hazardous wastes - Physico chemical treatment -						

solidification – incineration – Secured landfills

Books for Study:

- 1. Rao M. N. & Dutta A. K. "Wastewater Treatment", Oxford IBH Publication, 1995.
- 2. Eckenfelder W.W. Jr., "Industrial Water Pollution Control", McGraw Hill Book Company, New Delhi, 2000.
- 3. Patwardhan. A.D., Industrial Wastewater Treatment", Prentice Hall of India, New Delhi 2010.
- 4. Wastewater Treatment by M. N. Rao and A. K. Datta–Oxford I. B. H publishers
- 5. Industrial Wastewater Management, Treatment and Disposal" (WEF MOP FD3) McGraw Hill, 2008.

Books for Reference:

- 1. Shen T.T., "Industrial Pollution Prevention", Springer, 1999.
- 2. Stephenson R.L. and Blackburn J.B., Jr., "Industrial Wastewater Systems Hand book", Lewis Publisher, New York, 1998.
- 3. Freeman H.M., "Industrial Pollution Prevention Hand Book", McGraw Hill Inc., New Delhi, 1995.
- 4. Bishop, P.L., "Pollution Prevention: Fundamental & Practice", McGraw Hill, 2000.
- 5. Pandey, "Environmental Management" Vikas Publications, 2010.

SEMESTER V							
COURSE	COURSE	COURSE TITLE	HRS./	CREDIT			
CODE			WEEK				
UABTSE51	Skill based	Fermentation Technology	2	1			
	Elective 1						

1. To explain the basics of dairy and food products.

2. To provide in-depth knowledge in various unit operations and basic concepts in dairy processing.

3. To project the importance of biotechnology in dairy processing.

4. To impart knowledge on all aspects of dairy process biotechnology in production

5. To project the significance and status of traditional and value added dairy products in Indian dairy industry.

Course Outcomes:

After completion of the course, the students will be able to:

- 1. Develop the skill in dairy processing.
- 2. Impart basic and advanced knowledge of dairy and food packaging.
- 3. Preservation of dairy products employing the principles of biotechnology.
- 4. Impact of processing parameters on the milk.
- 5. Get employment in diary industry.

Unit 1Introduction to Dairy technology6 Hours

Availability and utilization of dairy by-products in india and abroad - Associated economic and pollution problems - Physico chemical characteristics of whey, butter milk and ghee residue.

Unit 2By-products from skim milk6 Hours

Casein: types of commercial casein, their specifications, manufacturing processes with basic principles involved - Industrial and food uses of caseins - Manufacture of sodium and calcium caseinates their physico - chemical and functional properties and food applications - Manufacture of casein hydrolysates and its industrial application.

Unit 3Whey processing6 Hours

Fermented products from whey - Beverages from whey - Deproteinized and demineralized whey -Condensed whey - Dried whey, types and their specification - manufacturing techniques - Utilization of whey products.

Unit 4Lactose processing6 Hours

Methods for the industrial production of lactose - refining of lactose - uses of lactose and

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hydrolysis of lactose.

Unit 5

Butter milk processing

6 Hours

Condensed butter milk - Dried butter milk - Utilization of butter milk products Ghee residue. Composition - processing and utilization. Nutritional characteristics of by products.

Books for study:

- 1. Spreer E. (2017) Milk and Dairy Products Technology, Taylor and Francis.
- 2. Walstra P., Wouters J.T.M., Geurts T.J. (2006) Dairy Science and Technology, CRC Press.
- 3. Britz T.J., Robinson R.K. (2008) Advanced Dairy Science and Technology, Wiley Blackwell Publishing.
- 4. By Products technology (2016), VijayaKumar, Dairy technology Division, Karnal. ICAR E-course, New Delhi.
- 5. Cheese technology (2016), S. K. Kanawjia & Yogesh Khetra, Karnal. ICAR E-course, NewDelhi.

Books for References:

- 1. Law BA. 1997. *Microbiology and Biochemistry of Cheese and Fermented Milks*. 2nd Ed. Blackie.
- 2. Marth EM & Steele JL.1998. Applied Dairy Microbiology. Marcel Dekker.
- 3. Robinson RK. 1998. Developments in Food Microbiology. Vol. IV. Elsevier.
- 4. Salminen S & Wright AV. 1998. Lactic Acid Bacteria. Marcel Dekker.
- 5. Wood BJ & Warner PJ. (Eds.). 2003. Genetics of Lactic Acid Bacteria. Springer-Verlag.

Semester V					
Course Code	Course	Course Title	Hrs/ Week	Credit	
UABTSE52	Skill based Elective 1	STEM CELL BIOLOGY	2	1	

1. To make students understand the basics of stem cells.

- 2. To give a detailed idea about the application of stem cells.
- 3. To provide ideas on the technologies implied in stem cell culturing and application.
- 4. To give a broad view of mammalian stem cells, reviewing where they are found in the body, the different types and how they are cultured.

5. To learn the basic biology of these stem cells as well as application of these stem cells to potential treatments of human diseases.

Course Outcomes:

After completion of the course, the students will be able to:

- 1. Students remember the scientific terms by repeated learning
- 2. To familiarize the students with stem cell technology and its applications for betterment of the society.
- 3. Inculcate the understanding of stem cell culture techniques.
- 4. Acquire knowledge on gene therapy techniques.

5. Understand basic principles and techniques in genetic modification and stem cell research.

Unit – I	Introduction to stem cells	6 Hours					
Introduction	Introduction–History and scope, Stem Cells and its types – Structure and types.						
Unit – II	Somatic and Germ cell derived stem cells –	6 Hours					
Germinate s	stem cells and germ line - derived pluripotent cells, Stem cell niche, ep	ithelial stem					
cells, meser	nchymal stem cells, neural stem cells, hematopoietic stem cells, cardia	c stem cells,					
cancer stem	cancer stem cells.						
Unit – III	Stem cell technologies	6 Hours					
Generation	of chimeric animals and animal cloning; Reprogramming of the	nuclei and					
generation of	eloned animals, Gene editing technologies – CRISPR Cas9.						
Unit – IV	Therapeutic applications of stem cells Gene Therapy:	6 Hours					
Introduction, History and evolution of Gene therapy, optimal disease targets. Gene Delivery							
methods- V	iral vectors and Non-viral Vectors.						

Unit – V	Ethical	Issues	associated	with	stem	cell-based	regenerative	6 Hours
	medicin	e field						0 110015

Regulatory and Ethical Considerations of stem cell and Gene Therapy, Assessing Human Stem Cell Safety, Use of Genetically Modified Stem Cells in Experimental Gene Therapies

Books for Study:

- 1.Lanza R, Gaerhart J, Hogan B, Melton R, Thomas D, Thomas J and Wilmut S. Essentials of Stem Cell Biology. Elsevier Inc. 3 rd Edition (2014).
- 2.Stillman B, Stewart D and Grodzicker T, Control and Regulation of Stem cells.
- 3. TursenKursad, Stem Cell Biology and Regenerative Medicine, Humana Press.
- 4. Dov Zipori, Biology Of Stem Cells And The Molecular Basis Of The Stem State (Stem Cell Biology and Regenerative Medicine) Humana Press Inc.
- 5. Meghna Razdan, P.C. Trivedi, 2009. Stem Cell Technology.

Books for Reference:

1. Stem Cells Handbook: Stewart Sell, Humana Press; Totowa NJ, USA; Oct. 2003.

2. Principles of Stem Cell Biology and Cancer: Future Applications and Therapeutics.

3. Stem Cell Biology- Daniel R. Marshak., Cold Spring Harbor Laboratory Press.

4. Federico Calegari, Claudia Waskow, Stem Cells: From Basic Research to Therapy, Basic Stem Cell Biology, Tissue Formation during Development, and Model Organisms.

5. Anthony Atala 1958-Principles of regenerative medicine, Academic Press, 2011.

	Semester VI								
Course Code	Course	Course Title	Hrs/ Week	Credit					
UABT6001	Core 8	ENVIRONMENTAL BIOTECHNOLOGY	5	5					
Course Obje	Course Objectives:								
1. Tostudy ab	1. Tostudy about Environmental problems and its management.								
2. To underst	and various	s treatments of effluent waste.							
3. To understa	and about I	Biological degradation methods.							
4. To study al	oout plant b	based remediation technique.							
5. Tostudy ab	out value a	dded products from environmental waste.							
Course Outc	omes:								
After comple	etion of the	e course, the students will be able to:							
 Analy Repro Descrition Apply 	 Analyse the global environmental problems Reproduce the industrial waste water treatment methods. Describe the Biotechnological approach for the Biodegradation of Xenobiotics. Apply Green remediation methods to clean the Environment. 								
J. Produ	ce the value	Basic Concepts and Issues	·•	15 Hours					
		Dusie Concepts and Issues	-	10 110015					
Global environ house effect,	onmental pr Acid rain, g	oblems - Ozone depletion, UV radiation effects global warming, sea level raising. Environmental	, climate chang bio indicators	ge, Green s.					
									
Unit – II		Effluent Water Treatment		15 Hours					
Primary, seco	ondary and	tertiary methods for Waste water treatment -	tannery, dair	y, textile,					
pulp, paper ai	nd pharma	industries.							
Unit – III		Biodegradation of Xenobiotics		15 Hours					
Ecological co	nsideration	s, decay behaviour and degradative plasmids, hy	/drocarbons, si	ubstituted					
hydrocarbons, oils and surfactants. Biodegradation of plastics by molecular techniques.									
Unit – IV		Phytoremediation	-	15 Hours					
Process of phytoremediation - Rhizofiltration, Phytostabilization, phytodegradation,									
phytovolatiliz	phytovolatilization, phytoaccumulation, phytochelation, biotrasformation. Phytoremediation of								
heavy metals,	herbicides	and pesticides in soil and water.							
Unit – V		Value added byproducts	-	15 Hours					
Composting,	bioconvers	ion of organic wastes into fertilizer – Methods	of Soil conse	ervation –					

Crop rotation, reduce tillage, mulching, cover cropping & cross slope farming. Soil improvement – ground treatment- lime addicture – fly ash – vitrification – remove and replace unsuitable soils.

Books for Study:

1. A.K. Chatterji, Environmental Biotechnology, Prentice Hall of India Pvt. Ltd. (2007).

2. K. Pradipta, Environmental Microbiology, I.K International Publishing House Pvt. Ltd. (2008).

3. N. Arumugam, Environmental Science and Biotechnology, Saras Publication. (2008).

4. V. Kumaresan, A Text Book of Biotechnology, Saras Publication. (2009).

5. Agarwall K.V., Environmental Biotechnology, Nidhi Publishers. (2005).

Books for Reference:

1. Metcalf and Eddy Inc. Waste water engineering - treatment, disposal and reuse, Tata McGraw Hill, New Delhi.

2. AK. De. Environmental Chemistry, Wiley Eastern Ltd, New Delhi.

3. D.Allsopp and K.J. Seal. Introduction to Biodeterioration, ELBS / Edward Arnold.

4. Martin Alexander (1999), Biodegradation& Bioremediation. Academic press.

5. Nuzhat Ahmed, Fouad M. Qureshi and Obaid Y. Khan, 2006. Industrial and Environmental Biotechnology - Horizon Press.

6. Evans, G.M. and Furlong J.C. 2003. Environmental Biotechnology: Theory and Application. John Wiley and Sons.

Web Source

1. <u>http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.539.8486&rep=rep1&type=pdf</u> 2. <u>https://www.biotecharticles.com/Bioinformatics-Article/Environmental-Informatics-and-itsApplications-3381.html</u>

3.http://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S000014ER/P000273/M028133/ ET/1520573189Paper3_Module36__etext.pdf

Semester VI					
Course	Course	Course Title	Hrs/	Credit	

Code			Week			
UABT6002	Core 9	NANOBIOTECHNOLOGY	5	5		
 Course Objectives: 1. To implement concepts in nanomaterials and their use with biocomponents. 2. To gain insight into the technological impact of nanoscale systems, synthesis and characterizations of nanoscale materials. 3. To understand the process and applications of nanoparticle in biotechnology. 4. To understand the new concept of nanotechnology applied to the area of biotechnology. 						
5. To foundat	ional know	ledge of the Nanoscience and related fields.				
Course Outc	omes:					
 Develop a fundamental understanding of basic concepts of nano-biotechnology and its uses in the field of life sciences. Differentiating various methods of synthesis of nanoparticles and obtain the skills in characterization methods of the nanomaterials. Evaluate applications of various concepts & techniques of nano-biotechnology to facilitate biotechnological advancement and innovations. This course provides perspective for students who are interested in nanoscale physical and biological systems and their applications in medicine. 						
Unit – I		Introduction, History & Applications		15 Hours		
Various defi Fundamental biotechnology	nitions ar sciences a / - Cell and	nd Concept of Nano-biotechnology - H nd broad areas of Nanobiotechnology-Vario Nanostructure interactions	Historical b bus applicati	ackground - ons of Nano-		
Unit – II	Spe	ectroscopic Characterization of Nanopartie	cles	15 Hours		
UV-Vis Spectroscopy, Mass Spectroscopy-Types-Nuclear Magnetic Resonance (NMR) Spectroscopy, FT-IR Spectroscopy- X-Ray Diffraction (XRD),Differential Scanning Calorimetry (DSC).						
Unit – III	Μ	icroscopic Characterization of Nanopartic	les	15 Hours		
Electron Microscopy- Scanning Electron Microscopy (SEM) - Transmission Electron microscopy (TEM) - Biological sample preparation for TEM - Atomic Force Microscopy(AFM).						
Unit – IV		Biosynthesis of Nanoparticles		15 Hours		
Overview and	d concept	- Methods of production of nanoparticles	by Bacteria,	, Fungus and		
Plants - Appli	cations of	biosynthesized nanoparticles.				
Unit – V	- VApplications of Nano-biotechnology15 Hours					

Nanobiotechnological applications in Agriculture, Medical, Cosmetics, Textile, Nutrition and Environment. Ethics in the use of Biosynthesised Nanoparticles

Books for Study:

1. Christof M. Niemeyer (Editor), Chad A. Mirkin (Editor), Nanobiotechnology - I: Concepts, Applications and Perspectives (2004), Wiley VCH.

2. Chad A Mirkin and Christof M. Niemeyer (Eds)Nanobiotechnology - II more concepts and applications (2007) - Wiley VCH.

3. N. Yao And Zhong Lin Wang, Handbook Of Microscopy For Nanotechnology Kluwer Academic Publishers, 2005.

4. Yang Leng, Materials Characterization: Introduction to Microscopic and Spectroscopic Methods, John Wiley & Sons, 2013.

5. Richard Leach, Fundamental Principles of Engineering Nanometrology, Elsevier, 2014

Books for Reference:

1. T.Pradeep, Nano, The Essentials, Understanding Nanoscience and Nanotechnology, Tata McGraw-Hill, Publishing Company Limited, 2007.

2. E. David Reisner, Bionanotechnology- Global Prospects, Taylor & Francis Group, LLC, 2009.

3. Claudio Nicolini, Nanobiotechnology & Nanobiosciences Pan Stanford Publishing Pte. Ltd, 2009.

4. Bharat Bhushan, Handbook of Nanotechnology, Springer, 2005.

5. Hari Singh Nalwa, Handbook Of Nanostructured Biomaterials And Their Applications In

Nanobiotechnology, Journal of Nanoscience and Nanotechnology, 2005.

SEMESTER VI				
COURSE	COURSE	COURSE TITLE	HRS./	CREDIT
CODE			WEEK	
UABT6003	Core 10	Medical Biotechnology	5	5

- 1. To impart the knowledge of biotechnological advancement in treating infectious
- 2. To impart the knowledge on genetic diseases and diagnosis.
- 3. To impart the knowledge on gene therapy.
- 4. To impart the principals involved in preparation of antibodies and vaccines and understand the various techniques and advancements of biotechnology in the field of medicine.
- 5. To understand the medical diagnostics techniques.

Course Outcomes:

On completion of the course, students are able to

- 1. To understand the structure and functions of various system in human.
- 2. Diagnose some diseases by biotechnology method.
- 3. Gain knowledge on manipulation of genes for genetic diseases.
- 4. Understand the Concept of Hybridoma technology and Vaccines Production.
- 5. Get placements in Diagnostic labs.

Unit – IIntroduction to human physiology15 Hours

Organ structure and function - Respiratory, Circulatory, Digestive, Excretory, Nervous and Reproductive Systems.

Unit – IIDisease and Diagnostics15 Hours

Pathogenesis, biological specimen diagnosis, prevention and control of important microbial diseases - TB, AIDS, Malaria. Genetic diseases and its diagnosis - Cystic fibrosis, Alzheimer's diseases.

Unit – III	Gene therapy	15 Hours
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Background, types of gene therapy (*ex vivo &in vivo*). Vectors used in gene therapy - retroviruses, adenoviruses & adeno-associated viruses. Types of gene delivery - Weismann barrier (soma-to-germ line barrier), epigenetic inheritance and its limitations. Antigen and antisense therapy and its applications.

Unit – IV Monoclonal antibody and Diagnostic Methods 15 Hours

Hybridoma technology – Monoclonal antibodies. Advantages and limitations of monoclonal antibody production. Elisa, VDRL, Widal, Pregnancy, Blood Glucose Level, RT-PCR for Covid-19. Karyotyping.

Unit – V Tissue engineering 15 Hours

Tissue engineering of Skin, liver, pancreas – drug delivery system – conventional and non conventional system – xenotransplantation – organ transplantation – ethical issues in transplantations.

Books for study:

- 1. Medical Physiology by Guyton and Hall- 1996.
- 2. Medical biotechnology- S.N Jogdand, Himalaya publishing house, 2005.
- 3. A text book of biotechnology by Satyanarayana U 2017. 12th Edition.
- 4. Medical Laboratory Technology by K. L. Mukherjee, Vol III, 10th Edition, Tata Mc. Graw-Hill Pub Co., 1988.
- 5. Handbook of Medical Laboratory Technology by V.H. Talib 2008. CBS Publishers.

Books for References:

- 1.Medical Microbiology by Mims Play fair Roitt, wekelin Williams 2009.
- 2.Medical Bacteriology, N.C. Dey, and T. K. Dey, Allied Agency, Calcutta, 17th Edition, 1988.
- 3.Textbook of Medical Laboratory Technology by P. B. Godkar and D. P. Godkar Vol 1 and 2 Bhalani Publishing, 2005.
- 4.Text book of Biotechnology by R. C. Dubey 2008.

	Semester VI				
Course	Course	Course Title	Hrs/	Credit	
Code			Week		
UABTPR61	Core	Environmental Biotechnology& Nano	4	2	
	Practical 6	Biotechnology- Practical			

Course Objectives:

1. To understand the basic principles involved in waste water management.

2. To get the information on microbes of Tannery, Distillery, Textile and Paper Industry.

3. To get the information on usage of nanoparticle in antimicrobial activity.

4. To give basic idea on nanoparticle synthesis and its application.

5. Enable students to apply the concepts of nanomaterials in the field of energy storage, biomedicine and environmental applications

Course Outcomes:

On completion of the course, students are able to

- 1. Check Microbial Contamination in Water Samples.
- 2. Perform the BOD and COD to ensure the quality of the environmental samples.
- 3. Extract Phytochemicals from Plants.

- 4. Synthesis Silver Nanoparticles by both Chemical and Biological methods.
- 5. Evaluate Synthesized AgNPs for their effect against some pathogenic bacteria.

ENVIRONMENTAL BIOTECHNOLOGY

- 1. Microbial Quality Check of Water by MPN Method.
- 2. Enumeration of bacteria from Waste Waters.
- 3. Estimation of Total Dissolved Solids (TDS) in Waste Water Sample.
- 4. Estimation of BOD in Sewage water.
- 5. Estimation of COD in Sewage water.

NANOBIOTECHNOLOGY

- 1. Chemical synthesis of silver nanoparticles.
- 2. Preparation of Aqueous Extract of Plants for Synthesis of AgNPs.
- 3. Biological synthesis (plant) of silver nanoparticles.
- 4. UV-Visible absorption of the Chemically and Biologically Synthesised AgNPs.
- 5. Antibacterial assay of Chemically and Biologically Synthesised AgNPs.

Books for Study:

- 1. Environmental Science, S.C. Santra
- 2. Environmental Biotechnology, Pradipta Kumar Mohapatra
- 3. David S. Goodsell, Bionanotechnology: Lessons from Nature, 1st Edition, Wiley- Liss, 2004.
- 4. Neelina H. Malsch, Biomedical Nanotechnology, 1st Edition, CRC Press, 2005.

5. J. R. Lakowicz, Principle of Fluorescence Spectroscopy, third Edition, Kluwer Academic Publisher, Newyork, 2007.

Books for Reference:

1. Environmental Biotechnology –Concepts and Applications, Hans-Joachim Jordening and Jesef Winter

2. GeroDecher, Joseph B. Schlenoff, Multilayer Thin Films, Wiley- VCH Verlag, GmbH & Co. KGaA, 2003.

3. Mauro Sardela, Practical Materials Characterization, Springer, 2014.

4. "No Small Matter: Science on the Nanoscale": Felice C. Frankel and George M. Whitesides, The Belknap Press of Harvard University Press, 2009.

5. "Introductory Nanoscience: Physical and Chemical Concepts": Masaru Kuno, Garland Science; 1 edition (August 19, 2011).

SEMESTER VI				
COURSE	COURSE	COURSE TITLE	HRS. /	CREDIT
CODE			WEEK	
UABTPR62	Core	Medical Biotechnology –	4	2
	Practical 7	Practical		

Course Objectives:

- 1. To provide an opportunity to experimentally verify the practical concepts on Medical Biotechnology.
- 2. To develop skill in basic techniques involved in medical biotechnology.
- 3. To provide knowledge on estimation of blood parameters.
- 4. To provide knowledge on detection of sexual diseases.
- 5. To develop skill in strip test methods.

Course Outcomes:

On completion of the course, students are able to

- 1. Understand explicitly the concepts.
- 2. Develop their skills in the biomedical techniques.
- 3. Enable the students to understand the theoretical concepts in medical biotechnology.
- 4. Gain hands on experience on medical laboratorial techniques like ELISA and WIDAL.
- 5. Gain hands on training on identification of Syphilis by WDRL test.

- 1. Estimation of blood glucose level by Shali method
- 2. Estimation of Hemoglobin
- 3. Estimation of bacteria from Urine
- 4. Quantitative estimation of urine sugar by benedict's method
- 5. Checking of Blood Pressure using Sphygmomanometer.
- 6. ELISA Test
- 7. VDRL Test
- 8. WIDAL Test
- 9. Hospital visit.

Books for study:

- 1. Handbook of Medical Laboratory Technology by V.H. Talib 2008. CBS Publishers.
- 2. Medical Laboratory Technology by K. L. Mukherjee, Vol III, 10th Edition, Tata Mc. Graw-Hill Pub Co., 1988.
- 3. A text book of biotechnology by Satyanarayana U 2017. 12th Edition.
- 4. Textbook of Medical Laboratory Technology by P. B. Godkar and D. P. Godkar Vol 1 and 2 Bhalani Publishing, 2005.

Books for References:

- 1. Medical Physiology by Guyton and Hall- 1996.
- 2.Medical biotechnology- S.N Jogdand, Himalaya publishing house, 2005.
- 3. Medical Microbiology by Mims Play fair Roitt, wekelin Williams 2009.
- 4.Medical Bacteriology, N.C. Dey, and T. K. Dey, Allied Agency, Calcutta, 17th Edition, 1988.
- 5.Text book of Biotechnology by R. C. Dubey 2008.

		SEMESTER		
COURSE	COURSE	COURSE TITLE	HRS/WEEK	CREDIT
CODE				
UABTCE61	Core Based	Bioinformatics	5	5
	Elective 2			

Aims at providing a fundamental knowledge in Bioinformatics and Biological Information on the web.

Course Outcome:

After the completion of this course student will be able

- 1. To understand scope of Bioinformatics
- 2. Understand the general bioinformatics database
- 3. Understand the basics of sequence alignment and apply it in performing Sequence alignment using different tools
- 4. Understand the basic concepts of Proteomics and Genomics
- 5. Apply the knowledge in predicting the gene structure

UNIT I **INTERNET USING BASICS OF BIOINFORMATICS 15 Hours**

Search engines - data retrieval - IP address - hyperlinks and URLs - Internet access - Internet service providers (ISPs)- URL - Wi-Fi - File Transfer Protocol -Malware.

UNIT II HISTORY, SCOPE AND IMPORTANCE **15 Hours**

History of Bioinformatics, Definition of Bioinformatics, Scope and applications, Bioinformatics: areas of research. Bioinformatics searching methods of tools- EMBL, DDBJ, GenBank, PIR, SwissProt, CSD, PDB and NCBI

UNIT III SEQUENCE ALIGNMENT METHODS 15 Hours

Introduction to Sequences, alignments and Dynamic Programming; Local alignment and Global alignment (algorithm and example), Pairwise alignment (BLAST and FASTA Algorithm) and multiple sequence alignment (Clustal W algorithm).

UNIT IV GENOMICS AND PROTEOMICS 15 Hours

Introduction to genomics and proteomics - Introduction to Medline, PubMed, OMIM., Data mining, ENTREZ and SRS.

UNIT V **Medical Coding 15 Hours**

Introduction - history - scope - medical terminology - epidemiological studies of disease distribution – e- publishing.

Books for Study:

- 1. Alexis Leon & Mathews Leon, Fundamentals of computers science and Communication Engineering. (2010). Vikas Publishing House Pvt. Ltd., New Delhi
- 2. Irfan Ali Khan, Atiya Khanum, Fundamentals of Bioinformatics (2003). Ukaaz publications.
- 3. S.C. Rastogi& others, "Bioinformatics- Concepts, Skills, and Applications", CBS Publishing, 2003.
- 4. Andreas D Baxevanis & B F Francis, "*Bioinformatics- A practical guide to analysis of Genes & Proteins*", John Wiley, 2000.
- 5. T K Attwood, D J parry-Smith," *Introduction to Bioinformatics*", Pearson Education, 1st Edition, 11th Reprint 2005.

Books for Reference:

- 1. C S V Murthy," Bioinformatics", Himalaya Publishing House, 1st Edition2003
- 2. David W.Mount "*Bioinformatics sequence and genome analysis*", Cold spring harbor laboratory press, 2004.
- 3. S. Ignacimuthu, S.J., "Basic Bioinformatics', Narosa Publishing House, 1995.
- 4. Hooman H. Rashidi and Lukas K.Buehler, Bioinformatics Basics. Applications in Biological Science and Medicine, CAC Press 2000.
- 5. Attwood T.K. and Parry Smith D.J., Introduction to Bioinformatics, 2002. Pearson Education Asia.

SEMESTER V				
Course	Course	Course Title	Hrs/	Credit

Code			Week		
UABTCE62	Core Based Elective 2	Biofertilizer And Organic Farming	5	5	
Course Object	ctives:				
1. To unc	lerstand about t	he importance of biofertilizer.			
2. To lear	rn about the syr	nbiotic relations of nitrogen fixers.	1		
3. To der	nonstrate the kr	nowledge of ecofriendly agricultural inputs in	1 biofertilizer		
A To uno	2000. Terstand the imp	portance of organic farming			
5. Build 1	the practical know	owledge on biofertilizers and compositing me	thods		
Course Outco	omes	in the set of the set			
After comple	tion of the cou	rse, the students will be able to			
1. Ability	to distinguish	the types of biofertilizers and methods of app	olication in fie	eld.	
2. Develo	opment of integ	rated management for best results using nitro	ogenous		
3. Knowl	ledge on theory	of Mycorrhizal and phosphate biofertilizers.		ст. с	
4. Develo	op a critical und	erstanding of ill effects of conventional farm	ing and benef	TITS OF	
5 Demoi	o farming. Instrate skills on	different composting methods			
Unit – I	BIOFERTILI	ZERS	15	Hours	
		-			
Introduction	and scope of	Biofertilizers. History of biofertilizers pr	oduction. Ty	ypes and	
classification	of Biofertilizers	S.			
Unit – II	Symbiotic and	l non-symbiotic nitrogen fixers	15	Hours	
Structure, cha	racteristic feat	ures and mass Production of bacterial biof	ertilizers- Rh	nizobium,	
Azospirillum	and Azotobacte	r; Cyanobacterial biofertilizers- Blue – Greer	n algae, Nosto	DC.	
Unit – III	Mycorrhizal	biofertilizers and phosphate solubilizers	15	Hours	
Fungal biofer	tilizers- Vesicu	ılar – arbuscular Mycorrhizal Fungi (VAN	/ Fungi). Az	zolla and	
application in	rice fields. Ph	osphate solubilizing microbes - Isolation, o	characterizati	on, mass	
inoculum pro	duction, field	application – plant based biofertilizer – r	neem – anim	al based	
biofertilizer –	fish				
Unit – IV	Organic farm	ing	15	Hours	
Introduction,	Introduction, status, Components, Concepts, principles and applications of Organic farming –				
advantages an	nd disadvantage	es - beneficial and non beneficial insects -	common ins	secticides	
and pesticides -Production of Biogas and its applications.					
Unit – V	Organic Ferti	lizers	15	Hours	
Green manuri	ng and organic	fertilizers, Recycling of biodegradable mun	icipal and ag	ricultural	
waste – Vern	nicomposting -	types and method for municipal and agrie	cultural wast	e – field	
L					

Applic	cation
Books	for Study:
1.	Dubey, R.C., 2005 A Text book of Biotechnology S. Chand & Co, New Delhi.
2.	Kumaresan, V. 2005, Biotechnology, Saras Publications, New Delhi.
3.	Kannaiyan, S. (2003). Biotechnology of Biofertilizers, CHIPS, Texas.
4.	Mahendra K. Rai (2005). Hand book of Microbial biofertilizers, The Haworth Press, Inc.
	New York.
5.	Sathe, T.V. 2004 Vermiculture and Organic Farming. Daya publishers.
6.	Vayas, S.C, Vayas, S. and Modi, H.A. 1998 Bio-fertilizers and organic ¬ Farming
	AktaPrakashan, Nadiad.
7.	Palaniappan, S.P., & Annadurai, 2016. Organic Farming: Theory and Practice, Scientific
	Publishers, Jodhpur
Books	for Reference:
1.	Bagyaraj, D.J. and A. Manjunath. 1990. Mycorrhizal symbiosis and plant growth, Univ.
	of Agricultural Sciences, Bangalore, India.
2.	Purohit, S.S., P.R. Kothari and S.K. Mathur, 1993. Basic and Agricultural
	Biotechnology, Agro Botanical Pub. India.
3.	Subba Rao, N. S. 1988. Biological nitrogen fixation: recent developments, Mohan
	Primlani for Oxford and IBH Pub. Co. (P) Ltd., India.
4.	Subba Rao, N.S., G.S. Venkataraman and S. Kannaiyan 1993. Biological nitrogen
	fixation, ICAR Pub., New Delhi.
5.	Somani, L.L., S.C. Bhandari, K.K. Vyas and S.N. Saxena. 1990. Biofertilizers, Scientific
	Publishers - Jodhpur.
6.	Reddy, S.R., 2017. Principles of Organic Farming, Kalyani Publishers, New Delhi.

COURSE	COURSE	COURSE TITLE	HRS/WEEK	CREDIT		
CODE						
UABTSE61	Skill Based	Human Pathology	2	1		
	Elective 2					
Course Objective	es:					
1. Aims at	providing a fund	amental knowledge in genera	l pathology ar	nd provide		
laboratory	based diagnosis of	illness.				
Course Outcome	Course Outcome:					
After the complete	tion of this course	student will be able to				
1. Understand	d the cellular chang	es during diseased condition				
2. Understand	d now cell adapts to	o injury				
5. Understand	d the role of enviro	amontal and nutritional factors	n disaasa			
5. Understand	d the defects in infa	nev and childhood	li uisease			
UNIT I		General Pathology	6	Hours		
Pathogens – types	of pathogens – vii	ulence – infection and its types	- diseases $-$ inf	ections and		
non-infectious –	adoptive characte	ristics of pathogens – host –	- pathogens int	eractions -		
transmission of pa	thogens.	notes of paulogens note	puttiogens int	eraetronis		
UNIT II	Pathology of wat	er born Diseases	6	Hours		
Causative organis	ms, mode of infe	ction, pathogenesis, treatment a	and prevention	of cholera,		
typhoid, amebiasis	5		-			
UNIT III	Pathology of vect	tor born Diseases	6	Hours		
Causative organis	ms, mode of infec	ction, pathogenesis, treatment a	and prevention	of malaria,		
dengue, elephantia	asis		1			
UNIT IV	Pathology of air	born Diseases	6	Hours		
Causative organis	ms, mode of infec	tion, pathogenesis, treatment a	nd prevention of	of common		
cold – Influenza –	Chickenpox – Who	oping cough (pertussis) – covid	19			
	Pathology of Sex	ually transmitted diseases	6	Hours		
Causative organis	ms, mode of infect	on, pathogenesis, treatment and	prevention of C	jonorrhea -		
Genital Herpes – I	Hepatitis - HIV/AII	58				
BOOKS for Study:	lionabiology C Doi	on MID muhlisher 2007				
1. Medical M	1. Medical Microbiology, S. Rajan, MJP publisher, 2007.					
2. Histology for Pathologists. Stephen S. Stepherg (Ed), Raven Piess, New Fork. Andreas.						
5. ramology Emanuel Rubin, John L raiber, JD Lippincou Co., Filladelpilla.						
5 Human Pathology 1 Jana Balaram P Jain Large Print 2008						
Books for Refere	nce:	<u></u>				
1. Potter's Pa	athology of the Fet	us & Infant. Enid Gilbert-Barn	es (Ed). Mosby	, St. Louis.		
Indian Jou	rnal Of Pathology &	& Microbiology.	(,	, ,		
$0 - D_{-} + 1^{+} + 1$						

2. Robbin's Pathologic Basis of Disease *RamziS.Cotran, Vinay Kumar, Stanley LRobbins* WB Saunders Co., Philadelphia.

SEMESTER VI

COURSE CODE	COURSE	COURSE TITLE	HRS. / WEEK	CREDIT
UABTSE62	Skill Based Elective 2	Oncology	2	1

- 1. To make students learn the fundamentals and principles of cancer biology
- 2. To provide knowledge on types of carcinogens.
- 3. To make the students understand the molecular biology of cancer.
- 4. To enable students to understand cancer metastasis.
- 5. To provide knowledge on treatment of cancer.

Course Outcomes:

After the completion of this course student will be able to

- 1. Students are practiced to remember the specific terminologies by repeated Discussions.
- 2. Describe different types of cancers.
- 3. Students are explained with neat diagrams to understand the molecular mechanism of cancer.
- 4. Students are trained to apply their new ideas in the field of cancer therapy.
- 5. Students are triggered to assume and analyze the results and interpret.

Unit 1FUNDAMENTALS OF CANCER BIOLOGY6 Hours

Definition of Cancer, Types of Cancers, Role of cancer in population health and illness, Cancers – Epidemiology, Risk factors. Modulation of cell cycle-in cancer, Diet and cancer.

Unit 2PRINCIPLES OF CARCINOGENESIS6 Hours

Chemical Carcinogenesis, Metabolism of Carcinogenesis, Natural History of Carcinogenesis, Targets of Chemical Carcinogenesis, Principles of Physical Carcinogenesis, X-Ray radiation – Mechanism of radiation Carcinogenesis.

Unit 3 PRINCIPLES OF MOLECULAR CELL BIOLOGY OF 6 Hours CANCER

Oncogenes, Identification of Oncogenes, Retroviruses and Oncogenes, detection of Oncogenes, Growth factor and Growth factor receptors that are Oncogenes. Oncogenes / Proto Oncogenes activity. Growth factors related to transformations.

Unit 4PRINCIPLES OF CANCER METASTASIS6 Hours

Clinical significances of invasion, heterogeneity of metastatic phenotype, Metastatic cascade, Basement membrane disruption, Three step theory of invasion, Proteinases and tumour cell invasion.

Unit 5

CANCER THERAPY

6 Hours

Prediction of aggressiveness of Cancer - Detection of Cancers - Advances in Cancer detection - Different forms of therapy, Chemotherapy, Radiation Therapy

Books for study:

- 1. Robin Hesketh. Introduction to Cancer Biology Cambridge, University Press 2013.
- 2. Harvey Lodish et al., 2003. Molecular Cell biology, W.H.Freeman & Co Ltd.
- 3. Molecular Biology of the Cell, by Bruce Alberts, Alexander D. Johnson, Julian Lewis.
- 4. Weinberg, R.A. "The Biology of Cancer" Garland Science, 2007.
- 5. McDonald, F et al., "Molecular Biology of Cancer" IInd Edition. Taylor & Francis, 2004.

Books for References:

- 1. King R.J.B., Cancer Biology, Addision Wesley Longmann Ltd, U.K., 1996.
- 2. Ruddon. R. W., Cancer Biology, Oxford University Press, Oxford, 1995.
- 3. Maly B.W.J., Virology a practical approach, IRL press, Oxford, 1987.
- 4. Dunmock. N. J and Primrose S.B., Introduction to modern Virology, Blackwell Scientific Publications, Oxford, 1988.
- 5. Molecular Biology of Cancer: Mechanisms, Targets, and Therapeutics (2nd Edition) by Lauren Pecorino. Oxford University Press.

DEPARTMENT OF COMPUTER SCIENCE 15TH BOS APPROVED UG SYLLABI FOR

V & VI SEMESTERS

SEMESTER V				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UACC5001	Core 5	Programming in R	5	5
Course Obje	ctives			
 Toexp Prep Preps Under 	osethestudents t pare students for are students to a standthebasicsin	othefundamentalconcepts of RProgramm predictive analysis pply R for statistical applications Rintermsofconstructs,controlstatement	ming s, String functi	ons
Course Outc	omes			
 Understa Apply R Apprecia 	nd R for Big Da for Text Process te and apply R f	ta Analysis ing rom a statistical perspective		
Unit-I	R Fundament Functions, Bas Advanced Dat Classes.	tals : Introduction, How to run R, ic Math, Variables, Data Types, Vect a Structures, Data Frames, Lists, M	R Sessions an ors, Conclusion latrices, Array	d ^{1,} ^{3,} 15 Hours
	1			1
Unit-II	R Controls and Functions: R Programming Structures, Control Statements, Loops, - Looping Over Non vector Sets,- If-Else, Arithmetic and Boolean Operators and values, Default Values for Argument, Return Values, Deciding Whether to explicitly call return- Returning Complex Objects, Functions are Objective, No Pointers in R, Recursion, A Quick sort Implementation- Extended Example: A Binary Search Tree.			
	Γ			
Unit-III	R Math and Simulation: Doing Math and Simulation in R, Math Function, Extended Example Calculating Probability- Cumulative Sums and Products-Minima and Maxima- Calculus, Functions for Statistical Distribution, Sorting, Linear Algebra Operation on Vectors and Matrices, Extended Example: Vector cross Product- Extended Example: Finding Stationary Distribution of Markov Chains, Set Operation, Input /output, Accessing the Keyboard and Monitor, Reading and writer Files,15 Hour			h e or rs d 15 Hours et r,
Unit-IV	-IV R Graphics: Graphics, Creating Graphs, The Workhorse of R Base Graphics, the plot () Function – Customizing Graphs, Saving Graphs to Files.			e s 15 Hours
Unit-V	R Statistics: Binomial Dist Basic Statistic	Probability Distributions, Norma tribution- Poisson Distributions Oth es, Correlation and Covariance, T-T	l Distribution er Distribution ests,- ANOVA	1- 15 Hours

	Linear Models, Simple Linear Regression, -Multiple Regression		
	Generalized Linear Models, Logistic Regression, - Poisson		
	Regression- other Generalized Linear Models-Survival Analysis,		
	Nonlinear Models, Spines- Decision- Random Forests		
Books for St	ıdy		
1. The Art of R Programming, Norman Matloff, Cengage Learning			
2. R fo	or Everyone, Lander, Pearson		

SEMESTER	V
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COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
U8CC5002	Core 6	DATABASE MANAGEMENT SYSTEM	5	5	
Course Obje	ctives				
1. To un	derstand the co	oncepts of Database Management System			
2. To ma	ster Structured	d Query Language			
3. Educa	te the students	on the essentials of database and databas	e components.		
4. To fin	d effective wa	ys to model a database			
5. Create	awareness the	e students on effectively protecting the da	tabase by givin	ng exposure	
or on	transaction pro	beessing, concurring control techniques an	id database sec	curity.	
Course Outc	omes				
1. The archit	ecture of data	base and the languages used to maintain I	DBMS was edu	icated.	
2. To recogn	ize the import	ance of relational data models and its ope	ration educate	d.	
3. To acqui	re the knowl	edge on relational algebra and relatio	nal calculus	to know the	
procedura	l and declarati	ve ways of manipulating of database.			
4. To enrich	the students of	on functional dependencies and the diffe	rent ways of a	normalizing a	
data base					
	INTRODUC	TION AND DATABASE DESIGN: D	atabase-System	m	
	Applications	– Purpose of Database Systems – V	iew of Data	_	
	Database Languages - Relational Databases: Database Design –				
IImit I	Database Architecture – Data Mining and Information Retrieval –				
Unit-1	Overview of the Design Process – The Entity-Relationship Model –				
	Constraints -	- Removing Redundant Attributes in Entit	y Sets – Entity	y-	
	Relationship	Diagrams (Chapter 1 Sections : 1.1 to)	1.6 & 1.9, 1.10	Э,	
<i>Chapter 7 Section: 7.1 to 7.5)</i>					
	KELAHON	AL DATABASES AND FURMAL F	CLATIONA		
IInit-II	Detebase Scheme Kove Scheme Diagrame Deletional Overy Hours				
	Languages =	Relational Operations – The Relational	Algebra - Th		
	Tuple Relat	ional Calculus - The Domain Relat	ional Calculu	15	

	(Chapter 2 Sections: 2.1 to 2.6, Chapter 6 Sections: 6.1 to 6.3)		
Unit-III	INTRODUCTION TO SQL AND INTERMEDIATE SQL: Overview of the SQL Query Language – SQL Data Definition – Basic Structure of SQL Queries – Additional Basic Operations – Set Operations – Null Values – Aggregate Functions – Nested Subqueries – Modification of the Database - Summary – Join Expressions – Views – Integrity Constraints – SQL Data Types and Schemas (<i>Chapter 3 Section: 3.1 to 3.10, Chapter 4 Section: 4.1 to 4.2 & 4.4 to</i> <i>4.5</i>)	Hours	
	RELATIONAL DATABASE DESIGN: Features of Good		
Unit-IV	Relational Designs – Atomic Domains and First Normal Form – Decomposition using Functional Dependencies – Functional Dependency Theory - Decomposition using Multivalued Dependencies – More Normal Forms (<i>Chapter 8 Sections 8.1 to 8.4</i> & 8.6, 8.7)	Hours	
	CDECIAL TV DATADACES, Originary Constant Data Trans		
Unit-V	SPECIALTY DATABASES: Overview – Complex Data Types – Structured Types and Inheritance in SQL – Table Inheritance – Array and Multiset Types in SQL – Object-Identity and Reference Types in SQL – Implementing O-R Functions – Persistent Programming Languages – Object-Relational Mapping – Object-Oriented versus Object-Relational (<i>Chapter 22: Sections 22.1 to 22.10</i>)	Hours	
Books for Study 1. Database System Concepts , Abraham Silberchatz, Henry F Korth , S.Sudarshan, McGraw- Hill - 6 th Edition - 2013.			
Books for Reference: 1.Fundamentals of Database Systems, Elmasri and Navathe:, Pearson Education, 7 th Edition 2015.			
2.Database Management Systems, Raghu Ramakrishnan and Johannes Gehrke: McGraw-Hill, 3 rd Edition. 2002.			

SEMESTER V				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UACC5003	Core 7	Programming in Python	5	5
Course Objecti	ves			
1. To understar	nd the fundam	entals of Python Programming		
2. To apply Pyrengineering	thon Program , business, hea	ming Constructs for solving real life pro- alth care, and other social applications.	oblems in the c	lomain of
Course Outcom	nes			
1. To summarize	e the fundame	ntals of Python Programming Construc	ts for problem	solving.
2. To make use of	of Control flo	w and Functions for solving problems	•	C
3. To utilize Lis	st, Modules an	d Packages to develop solutions for rea	l life problems	5.
4. To build	solutions of	real life use cases using Files.	Modules a	nd Packages
throughdataproc	essing and an	alvsis.		
5. To analyze . y	visualize and r	perform predictive modeling of data usi	ng Python .	
	is contact on the p			
Unit-I	INTRODU	CTION TO PYTHON		15 Hours
Installing a cor	nplete Pytho	n environment, Python Introduction,	Keywords an	d Identifiers.
Statements and	comments. Py	thon Data types. Python I/O and impo	ort. Python Op	erators. Basic
Mathematics. V	ariables. Stri	ngs and text. Interacting with users.	Illustrative Pr	ograms using
Variables and I	Data Types: 1	Numeric Lists Strings tuples Sets	and Dictionar	v: Illustrative
Programs using	Operators: Ar	ithmetic Comparison Assignment Lo	gical Bitwise	Membership.
and Identity.	operatoristica	,,,	8, 2,	
Unit-II	CONTROL	FLOW AND FUNCTIONS		15 Hours
Looping and lo	gic . Python	Flow Control, if-else, for loop, while	loop, break a	nd continue.
Illustrative prog	rams. Python	Functions, Python Functions, function	argument, pytl	non recursion.
python module,	python packa	ge Illustrative Programs using Condition	onal Statement	s: If, Elif and
Else: Loops: Wh	nile, for and no	ested loops; Functions:		,
Unit-III	DATA STR	UCTURES		15 Hours
Data structures	using lists, Tu	ple and dictionaries; Lists: list operation	ons, list slices.	list methods,
list loop, mutabi	lity, Tuples; I	Dictionaries: operations and methods;		,
Unit-IV	FILES, MO	DDULES, PACKAGES		15 Hours
Files: text files, reading and writing files, format operator; modules, packages; Illustrative				
programs: word count, copy				
Unit-V	PYTHON	FOR DATA ANALYSIS ANI) MACHIN	E 15 Hours
	LEARNING	J		
Python Basics For Data Analysis and Visualization: Loading, Cleaning and Exploring and				
Visualization. Python Libraries For Data Science (Numpy ,Pandas , Matplotlib, Seaborn				
,ScikitLearn), Data Science and Machine Learning – Use Cases				
Books for Study:				
1. Allen B. Downey, "Think Python: How to Think Like a Computer Scientist", 2nd edition,				
Updated for Python 3, Shroff/O'Reilly Publishers, 2016 (http://greenteapress.com/wp/think-				
python/)				
2. Guido van Rossum and Fred L. Drake Jr, "An Introduction to Python – Revised and updated				d and updated

for Python 3.2, Network Theory Ltd., 2011. (reprint)

SEMESTER V				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UACCCE51	Core Based	DESIGN AND ANALYSIS OF	5	5
	Elective 1	ALGORITHMS	5	5
Course Object	ives			
1. To build a s	solid foundation	n of the most important fundamental	subject in comp	uter science.
2. To build C	reative thinking	to algorithm design and mathemati	cal acumen and	programming
skills.				
Course Outcon	nes			
1. Ability to de	sign problem s	olving strategies		
2. Ability to de	cide right strate	egy		
3. Ability to con	npare two algo	rithms		
4. Ability for ef	fective coding			
Unit-I	INTRODUC	ΓΙΟΝ		12 Hours
What	t is an Alg	orithm? - Algorithm Specification	on- Performance	ce Analysis-
Randomized Al	gorithms. (Cha	pter 1 Sections: 1.1 to 1.4)		
Unit-II	DIVIDE AN	D CONQUER		15 Hours
General Method - Binary Search - Finding the Maximum and Minimum-Merge Sort				
- Quick Sort	- Selection S	ort- Strassen's Matrix Multiplica	tions. (Chapter	3: Sections
3.1,3.3,3.4,3.5,3	3.6,3.7,3.8)			
Unit-III	THE GREEI	DY METHOD		18 Hours
The	General Meth	od - Knapsack Problem – Tree Vert	ex Splitting - Jo	b Sequencing
with Deadlines-	· Minimum Co	st Spanning Trees - Optimal Storag	ge on Tapes - O	ptimal Merge
Pattern - Single	Source Shortes	st Paths.(Chapter 4: Sections: 4.1,4.3	to 4.9	
Unit-IV	DYNAMIC I	'ROGRAMMING	1	15 Hours
The General Method – Multistage Graphs - All pair shortest path – <u>Single Source</u>				
Shortest Path-String Editing - 0/1 Knapsack – Reliability Design - The Traveling Salesperson				
Problem - (Cna	pter 5: Sections	5.1 to 5.4, 5.0 to 5.9		15 11
Unit-V	IRAVERSA	L, SEARCHING & BACKIRACK	ING The Concert Me	15 Hours
Deconfigues for Binary frees- fechniques for Graphs - The General Method - The 8-				
Queens Problem – Sum of Subsets- Graph Coloring- Hamiltonian Cycles. (Chapter 0: Sections:				
Dooks for study:				
1 Fundamentals of Computer Algorithms Ellis Horowitz Sartai Sahni Sanguthevar				
Paiseskaran 2 nd Edition 2015 Universities Press				
Rajasekaran, 2 Edition, 2015, Universities Press.				
Books for reference:				
1.Introduction to Algorithms , Coremen T.H, Leiserson C.E. and Rivest R.L., PHI, 3 rd Edition				
2009.				
2. Introduction to the Design and Analysis of Algorithms, AnanyLevitin, Pearson Education, 3 rd				
Edition 2012.				
		SEMESTER V		
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COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UACCCE52	Core Based Elective 2	SOFTWARE TESTING	5	5
Course Object	ives			
1. To discuss te	chniques that of	can be effectively for Programmers, T	esters, Teache	ers,
Researchers and	Researchers and Developers in practice, present object oriented testing and emphasize testing			
web application	is and automat	ed test data generation techniques.		
Course Outcon	nes			
 Ability to fir Ability for p 	nd errors in des erformance an	sign stage alysis		
Unit-I	INTRODUC	TION and TAXONOMY OF BUG	S	15 Hours
Purp	ose of Testin	g-Some Dichotomies- a Modal for	Testing-Play	ing Pool and
Consulting Ora	acles-Is comp	lete Testing Possible? (Chapter 1)	Taxonomy o	f Bugs: The
Consequences of	of Bugs-Taxon	omy for Bugs-Some Bug Statistics (C	Chapter 2).	
Unit-IIFLOW GRAPHS and PATH TESTING15 Hours				
Path	Testing Ba	sics-Predicates, Path Predicates, a	nd Achievabl	le Paths-Path
Sensitizing-Path	n Instrumentat	ion-Implement and Application of Pa	th Testing –Te	estability Tips
(Chapter 5).		TION EL OW AND DATA EL OW T	TESTINC	15 Hound
Gene	ralizations_Tr	ansaction Flows-Transaction Flow	ESTING	Techniques-
Implementation	Comments (Chapter 4) Data-Flow Testing: Data	Flow Testing	g Basics-Data
Flow Testing St	trategies-Appl	cation. Tools. Effectiveness (<i>Chapter</i>	· 5).	5 Dusies Duiu
Unit-IV	DOMAIN T	ESTING	0).	15 Hours
Don	nains and Path	ns-Nice Domains and Ugly Domain	s-Domain Tes	ting-Domains
and Interface T	esting-Domain	s and Testability (<i>Chapter 6</i>).		e
Unit-V	METRICS A	AND COMPLEXITY		15 Hours
Metric	es, What and	Why-Linguistic Metrics-Structura	l Metrics-Hy	brid Metrics-
Metrics Implem	entation-Testa	bility Tips (Chapter 7).	-	
Boks for study	:			_
1.Software Testing Techniques, Boris Beizer, Published by DreamTech, Second Reprint, 2 nd				
Edition 2014				
Books for Refe	erence:			
1. Software Testing, Yogesh Singh, Cambridge University Press, 1st Edition, 2013.				
2. Software Testing A Craftmans Approach, Paul C Jourgensen, Aueredach Publications, 3 rd				
Edition, 2011 .				Testa"
3. Foundation	S OI SOITWA	tre resting – Fundamental Alg	orithms and	l echniques,
AuturyaP.wiath	ui, rearson Ed			

		SEMESTER V			
COURSE CODE	COURSE	COURSE TIT	LE	HRS/ WEEK	CREDIT
UACCPR51	Core Practical 4	Data Base Managemer Lab	nt System	4	2
Course Objectiv	ves				
1. To understan	d the concepts of	of Database Management	System		
2. To master Str	2. To master Structured Query Language				
3. Educate the s	3. Educate the students on the essentials of database and database components.				
4. To find effec	tive ways to mo	del a database			2
5. Create aware	ness the student	s on effectively protectin	ng the databa	se by giving e	exposure of
on transaction	n processing, co	ncurring control techniq	ues and datal	base security.	
Course Outcom	es				
1. The architectu	ure of database a	and the languages used to	o maintain D	BMS was edu	cated.
2. To recognize	the importance	of relational data models	and its oper	ation educated	d.
3. To acquire	the knowledge	e on relational algebra	and relation	nal calculus	to know the
procedural a	nd declarative w	vays of manipulating of c	latabase.		
4. To enrich th	e students on fu	unctional dependencies a	and the diffe	rent ways of	normalizing a
data base					
1. DML Comm	ands				
2. DDL Comma	ands				
3. Built in Strin	g/Date/Aggrega	te Functions			
4. Single Table	Queries				
5. Joins					
6. Sub Queries					
7. Set Operators	S				
8. Multiple Tab	le Queries	······			
9. Programmab	le Objects (Fun	ctions, Procedures, Trigg	gers) NorthWind F	atabasas and	SalDoporto
10. Auvance Que		Enture works, Pubs, and I		•	Squkepons.
	Ex No.	Ex Name	No of Quer	1es	
		World Database	70		
	2	HR Database	40		
	3	Publisher Database	25		
	4	Northwind Database	21		
	5	Sailor Database	20		
	6	Sakila Database	35		
	7	Adventure Works DB	30		
	8	Functions	6		
	9	Procedures	5		

	10	Triggers	3			
Books for Stud	y:					
1.Database Syst	em Conc	epts , Abraham Silbercha	atz, Henry F Kor	th , S.Sudarshan,		
McGraw-Hill -	6 th Editio	n - 2013.				
Books for Refe	Books for Reference:					
1.Fundamentals	of Data	base Systems, Elmasri	and Navathe:,	Pearson Education, 7 th		
Edition 2015.						
2.Database Man	agement	Systems, Raghu Ramaki	rishnan and Joha	nnes Gehrke: McGraw-		
Hill, 3 rd Edition	. 2002.					
3. Lab Manual.						

		SEMESTER V			
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UACCPR52	Core Practical 5	Python and R Programming LAB	4	2	
Course Object	ives				
 To write, test, and debug simple Python programs. To implement Python programs with conditionals and loops. Use functions for structuring Python programs. Represent compound data using Python lists, tuples, dictionaries. Read and write data from/to files in Python. 					
	iies				
 Upon completion of the course, students will be able to Write, test, and debug simple Python programs. Implement Python programs with conditionals and loops. Develop Python programs step-wise by defining functions and calling them. Use Python lists, tuples, dictionaries for representing compound data. Read and write data from/to files in Python 					
		List of Programs in Python			
 Find the square root of a number (Newton's method) Exponentiation (power of a number) Linear search and Binary search Selection sort, Insertion sort, Merge sort (Object Oriented approach) Programs that take command line arguments (word count) Find the most frequent words in a text read from a file Simulate elliptical orbits in Pygame Simulate bouncing ball using Pygame List of Programs in R R as Calculator Application 					
2. Descriptiv	ve statistics in R	8			

- 3. Reading and writing different types of Datasets
- 4. Visualizations
- 5. Correlations and Covariance
- 6. Regression Model
- 7. Multiple regression model
- 8. Regression model for prediction
- 9. Classification model
- 10. Clustering mode

Books for Study:

1. Allen B. Downey, "Think Python: How to Think Like a Computer Scientist", 2nd edition, Updated for Python 3, Shroff/O'Reilly Publishers, 2016 (<u>http://greenteapress.com/wp/think-python/</u>)

2. Guido van Rossum and Fred L. Drake Jr, "An Introduction to Python – Revised and updated for Python 3.2, Network Theory Ltd., 2011. (reprint)

3. The Art of R Programming, Norman Matloff, Cengage Learning

4. R for Everyone, Lander, Pearson

Books for Reference:

1. Lab manual

			SEMESTER V		
COURS CODE	SE 2	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UACCSE	251	Skill Based	MOBILE APPLICATION	2	1
		Elective 1	DEVELOPMENT LAB	-	
			List of Experiments		
1. Si 2. M 3. Li 4. In 5. Ch 6. To 7. Im 8. Sp 9. Sta 10. We	mple ulti L st Vie tent a ange store pleme lash S tus B ebVie	Calculator anguage List V ew nd Activity. Background co data using Sha ent Tween Anir Screen ar Notification. w.	iew lor using Seek Bars red Preferences nations		
Books for 1. Profession	Stud y onal <i>A</i>	y Android 4 Appl	cation Development, Reto Meier, Wi	ley-India 2012	2
Books for 1.Lab	Refe Manı	rence: Ial			

		SEMESTER V		
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UACCSE52	Skill Based Elective 1	SOFTWARE PROJECT MANAGEMENT	2	1
Course Object	ives			
•To und	erstand the Softwar	re Project Planning and Evaluation	techniques.	
• To pla	n and manage proje	ects at each stage of the software de	evelopment lif	e cycle
(SDLC)				
•To lear	n about the activity	planning and risk management pr	inciples.	
•To mar	nage software proje	cts and control software deliverabl	es.	
• To dev	elop skills to mana	ige the various phases involved in	project manage	ement and
people r	nanagement.			
Course Outcon	nes			
At the end of t	he course, the stud	lents should be able to:	0	
•Unders	tand Project Manag	gement principles while developing	g software.	C
• Gain e	xtensive knowledg	e about the basic project managem	ent concepts, i	ramework
• Obtain	process models.	a about software process models	and softwara a	offort
• Obtain	on techniques	ge about software process models	and software e	
• Estimat	on techniques.	d in various project activities		
Define	the checknoints n	roject reporting structure project r	rogress and tr	acking
mechan	isms using project	management principles	nogress and th	ucking
Unit-I	PROJECT EVA	LUATION AND PROJECT PLA	ANNING	15 Hours
Importance of	Software Project N	Ianagement – Activities - Method	lologies – Cat	egorization of
Software Proje	cts – Setting obje	ectives – Management Principles	– Manageme	ent Control –
Project portfoli	o Management – C	ost-benefit evaluation technology -	- Risk evaluati	on – Strategic
program Manag	gement – Stepwise	Project Planning.		4
Unit-II	PROJECT LIFE	CYCLE AND EFFORT ESTIN	IATION	15 Hours
Software proce	ess and Process I	Models – Choice of Process m	odels - Rapio	1 Application
development -	- Agile methods	– Dynamic System Develop	ment Method	Effort and
Programming-	Managing interact	ive processes – Basics of Software	are estimation	- Effort and
Droductivity M	i techniques – CC	DSMIC Full function points - Co	JCOMO II -	a Parametric
Init_III		NNINC AND DISK MANACEN	JENT	15 Hours
Objectives of A	ctivity planning _	Project schedules $-\Delta$ ctivities $-S$	equencing and	13 Hours
Network Plann	ing models – For	nulating Network Model – Forw	ard Pass & R	ackward Pass
techniques - Critical path (CRM) method - Risk identification - Assessment - Risk Planning -				
Risk Management – – PERT technique – Monte Carlo simulation – Resource Allocation –				
Creation of critical paths – Cost schedules.				
Unit-IV	PROJECT MAN	AGEMENT AND CONTROL		15 Hours
Framework for	Management and	control – Collection of data – V	Visualizing pro	ogress – Cost
monitoring – H	Earned Value Ana	lysis – Prioritizing Monitoring –	Project track	ing – Change
control – Softw	are Configuration 1	Management – Managing contracts	– Contract M	anagement.
Unit-V	STAFFING IN	SOFTWARE PROJECTS		15Hours
Managing peop	ole – Organizationa	al behavior – Best methods of sta	ff selection -	Motivation –

The Oldham – Hackman job characteristic model – Stress – Health and Safety – Ethical and Professional concerns – Working in teams – Decision making – Organizational structures – Dispersed and Virtual teams – Communications genres – Communication plans – Leadership.

Books for Study:

Bob Hughes, Mike Cotterell and Rajib Mall: Software Project Management – Fifth Edition, Tata McGraw Hill, New Delhi, 2012.

Books for Reference:

Robert K. Wysocki —Effective Software Project Management – Wiley Publication, 2011.
 Walker Royce: —Software Project Management – Addison-Wesley, 1998.
 Gopalaswamy Ramesh, —Managing Global Software Projects – McGraw Hill Education (India), Fourteenth Reprint 2013.

	SEMESTER VI			
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UACC6001	Core 8	COMPUTER GRAPHICS AND MULTIMEDIA	5	5
Course Object	ives			
1.	To equip students	to basics of computer drawing and	prepare them	for computer
	modeling of object	S.		
2.	To distinguish two	dimension and three dimension of	objects	
3.	To impart knowle	dge of multimedia		
Course Outcor	nes			
1. 1	Able to model 2D c	bbjects		
2. 1	Able to identify hid	den surfaces of 3D object		
3. 4	Able to edit multim	ledia file		
Unit-I	GRAPHIC SYS	FEMS AND OUTPUT PRIMITI	VES	12 Hours
Video	Display Devices	: Refresh CRT -Raster scan dis	play-Random	scan display-
Raster Scan S	ystems – Random	Scan Systems – Output Primiti	ves :DDA lin	e algorithm-
Bresenham Line	e Drawing Algorith	mms – Bresenham Circle Generatin	g Algorithm –	GUI: Logical
Classification o	of Input Devices – I	interactive Picture Construction Me	ethods. (Chapt	er 2 Sections:
2.1 to 2.3,Chap	ter 3: Sections: 3.1	,3.2,3.5, Chapter 8: Sections: 8.2,8	3.5)	
Unit-II	2D TRANSFOR	MATION AND VIEWING		15 Hours
2D	Geometric transf	ormations: Translation-Rotation	-Scaling -	Homogenous
Coordinates- Co	omposite Transforr	nation-other Transformation - 2D	Viewing : View	ving pipeline-
Window to Vi	iewport Co-ordina	te Transformation – point clippi	ng-Cohen Sut	herland Line
Clipping Algorithms – Liang Barsky Line Clipping Algorithm-Sutherland Hodgeman polygon				
Clipping Algorithm. (Chapter 5: Sections: 5.1 to 5.4, Chapter 6: Sections: 6.1, 6.3, 6.5 to 6.8)				
Unit-III	3D TRANSFOR	MATION AND VIEWING	<u> </u>	15Hours
3D Ge	ometric Transform	ation : Iranslation, Rotation, Scalin	g-General 3D	rotation - 3D
viewing: view	ing pipeline-view	ing coordinates-Projections: para	allel projectio	n-perspective
projection.(Cha	projection.(Chapter 11: Sections: 11.1 to 11.3, Chapter 12: Sections: 12.1 to 12.3)			

Unit-IV	VISIBLE SURFACE DETECTION	15 Hours
Classific	cation- Back Face detection- Depth buffer method- A buffer method	- Scan line
method-BSP tre	e method-Area subdivision method-Octree methods - Ray Castin	ng method
(Chapter 13: Sec	tions:13.1 to 13.10)	
Unit-V	MULTIMEDIA	18 Hours
Classifi	cation- MM building blocks: Audio-audio editing-MIDI-Text-disp	lay design
and content desig	gn- Images-development- Computer animation classifications-2D ani	mation-3D
Animation—3D	Animation environment-digital video fundamentals-video br	oadcasting
standards-MM fi	le format.(Chapter 1, Chapter 5 to 10, Chapter 12 to 16, Appendix A)	
Books for Study	/:	
1. D. Hearn an	nd M.P. Baker - Computer Graphics (C version) with OpenGL	– Pearson
Education-4 th	¹ edition- Second Impression - 2016	
2. S. Gokul - M	ultimedia Magic – BPB Publications- 2 nd Edition 2008	
Books for Refer	ence:	
1. W.M. Newm	an and R.F. Sproull – Principles of Interactive Computer Graphics	– McGraw
Hill Internati	onal Edition – 2 nd Edition, 2001	
Tay Vaughan	n-Multimedia making it work -TMH publication-9 th Edition, 2014	

		SEMESTER VI			
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UACC6002	Core 9	SOFTWARE ENGINEERING	5	5	
Course Objectives					
This course intro	oduces the con	cepts and methods required for the co	nstruction of]	large software	
intensive system	S.				
Course (Dutcome:				
1. Know the dif	fferent approad	ches of developing an efficient softwar	e.		
2. Facilitate the	2. Facilitate the knowledge of technological and managerial aspect of incorporating software.				
3. Aware the de	evelopment of	process of software.			
4. Develop the	skills in cost e	stimation.			
5. Learn now to) IUIIIII good s	oftware requirements specification.	a ofference to at		
6. Understand t	he different va	induction and vertification techniques of	software test	ng.	
7. Develop a w		TION AND SOFTWARE PROCES		15 Hours	
UIIIt-I The	Problem Dor	noin The Software Engineering (BEB	The Software	
Engineering Ap	proach Softwa	ra Process Desired Characteristics of	Software Pro	case Software	
Development P	prodell.Softwa	s Other Software Processes (Chanta	software Flo	\cdot 11 to 13	
(Chapter 2: Sect	ions: 2 1 to 2	(Chapte 1)	I Sections.	1.1 10 1.3)	
Unit-II	SOFTWAR	7/ F REQUIREMENT ANAL'	VSIS AN	D 15 Hours	
	SPECIFICA	TION AND SOFTWARE ARCHI	FECTURE		
Softw	are Requirer	nents-Problem Analysis-Requiremen	t Specificati	on-Functional	
Specification wi	th Use Cases	-Validation-Metrics - Role of Softwar	e Architecture	e-Architecture	
Views-Compone	ent and Conne	ctor View (Chapter 3 Sections : 3.1 to	3.6 Chapter 4	: Sections:4.1	
to 4.3)					
Unit-III	PLANNING DESIGN	A SOFTWARE PROJECT ANI	D DETAILE	D 15 Hours	
Proc	ess Planning	-Effort Estimation-Project Scheduli	ng and Staf	fing-Software	
Consideration N	Anagement H	Plan-Quality Plan-Risk Management-	Project Moni	toring Plan -	
Detailed Design	and PDL-V	erification-Metrics.(Chapter 5 Section	ns: 5.1 to 5.	7, Chapter 8	
Sections: 8.1 to a	8.3)	· •		-	
Unit-IV	FUNCTION	-ORIENTED DESIGN ANI) OBJEC	T 15 Hours	
	ORIENTED	DESIGN			
Desig	gn Principles-	Module Level Concepts-Design No	otation and	Specification-	
Structured Des	ign Methodo	logy-Verification-MetricsOO Analy	vsis and OC	Design-OO	
Concepts-Design Concepts-Unified Modeling Language- A Design Methodology-Metrics.					
(Chapter 6: Sections: 6.1 to 6.6, Chapter 7 Sections: 7.1 to 7.6)					
Unit-VCODING AND TESTING15 Hours					
Prog	gramming Prin	nciples and Guidelines-Coding Proces	ss-Refactoring	-Verification-	
Metrics Testing Fundamentals-Black Box Testing-White Box Testing-Testing Process-Defect					
Analysis and Prevention-Metrics- (Reliability Estimation) (Chapter 9 Sections: 9.1 to 9.5,					
Chapter 10 Sect	ions: 10.1 to 1	0.6)			
Books for Study	y:		_	ard	
1. An Integrated	Approach to S	oftware Engineering, PankajJalote, Na	rosa Publishin	g - 3 ¹⁴	
Edition Reprint 2	2014				

Books for Reference:

Software Engineering, Richard Fairley, TMH Publication,2012
 Software Engineering, Ian Sommerville, Person Education Ltd, 9th Edition, 2011.

SEMESTER V				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UACC6003	Core 10	OPERATING SYSTEM	5	5
Course Obje	ctives			
To learn the various aspects of the internal operation of modern operating systems such as				
process management, threads, mutual exclusion, CPU scheduling, deadlock, memory				
management, a	and file systems.			
Course Outco	ome :			
1. Demonstrate	e understanding of	the concepts, Structure and design o	f operating Sy	stem.
2. Demonstrate	e understanding of	operating system design and its impa	act on applicat	tion system
design and per	formance.	a anizina and using a quating another	- fastures	
5. Demonstrate	e competence in rec	s and commont about performance	n reatures.	corithms used
for manageme	nt of memory CPI	Scheduling File handling and I/O	Operations	goriums used
$5 \Delta pply yar$	ious concent relat	ed with Deadlock to solve probl	lems related	with resource
allocation after	er checking system	in safe state or not	ieniis related	with resource
6. To apprecia	te role of Process S	vnchronization towards increasing t	hroughput of s	system.
7. To familiari	ze the students wit	h various views and management po	olicies adopted	by operating
System as pert	aining with process	ses Deadlock, memory, File, and I/O	operations.	
Unit-I	INTRODUCTIO	N & OPERATING SYSTEM ST	RUCTURES	12Hours
Wha	t Operating System	ns do - Computer System Organ	isation - Con	nputer System
Architecture -	Operating System	n Structure - Process Management	t - Memory I	Management -
Storage Mana	gement - Comut	ing Environment - System Call -	Types of C	alls – System
Programs (Cha	apter 1 Section : 1.	1 1.4, 1.6, to 1.8, 1.11 Chapter 2 Se	ction : 2.3. to	2.5)
Unit-11	PROCESS MA DEADLOCKS	NAGEMENT, PROCESS SCH	EDULING o	& 15 Hours
Pro	ocess Concept-Pro	cess Scheduling - Operations or	n Processes	- Interprocess
Communicatio	on - Basic Conce	epts-Scheduling Criteria-Schedulin	g Algorithms	s - Deadlock
Characterizatio	on-Methods for Ha	andling Deadlocks-Deadlock Preve	ntion-Deadloc	ck Avoidance-
Deadlock Dete	ection-Recovery fro	om Deadlock (Chapter 3 Section : 3.	1 to 3.4, Chap	oter 5 Section :
5.1 to 5.3 Chapter 7: Sections 7.2 to 7.7)				
Unit-III	MEMOR	Y MANAGEMENT		15 Hours
Swapp	ing-Contiguous Me	emory Allocation-Segmentation - Pa	aging- Structu	re of the Page
I able	-Demand Paging-F	rage Replacement (Chapter 8: Sect	tions 8.2 to 8	.o Chapter 9:
Jinit-IV	$\frac{5.2 \times 9.4}{\text{STORAC}}$	E MANAGEMENT		18 Hours
				10 Hours

File Concept-Access Methods-Directory and Disc Structure – File System Mounting-File Sharing-(*Chapter 10 : Sections 10.1 to 10.5*)-Disk Structure-Disk Scheduling-Disk Management-Swap Space Management (*Chapter 12 : Sections 12.2,12.4,12.5,12.6*)

Unit-VPROTECTION AND SECURITY15 HoursGoalsofProtection-Domain ofProtection-AccessMatrix-ImplementationofAccessMatrix (Chapter 14 : Sections 14.1,14.3 to 14.5)The Security Problem -Program Threats-Systemand Network Threats - Cryptography as a Security Tool – User Authentication - (Chapter 15:Sections 15.1 to 15.5)

Books for Study:

1.Operating System Concepts, Silbershatz, Galvin, Gange, John Wiley & Sons Inc, 9th Edition, 2016 Reprint.

Books for Reference:

1. Operating Systems – Internals and Design Principles, William Stallings - Pearson, 8th Edition, 2014

2. Operating Systems – A Concept Based Approach- Dhananjay M. Dhamdhere, Tata McGraw – Hill, 3rd Edition, 2012.

	SEMESTER VI				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UACCCE61	Core Based Elective 2	COMPUTER NETWORKS	5	5	
Course Objec	tives				
This c	ourse introduces t	he concepts and theories of netwo	orking and ap	plies them to	
various	s situations, classif	ying networks, analyzing performation	nce and impl	ementing new	
technol	logies.				
Course Outco	ome :				
1. Prov	vide foundation kno	wledge of Network Hardware and N	letwork Softw	are.	
2. Give	e an in-depth know	ledge about ISO/OSI and TCP/IP pro	otocol stacks.		
3. Clas	sify type of media	and IEEE LAN standards.			
4. Pres	ent various types of	f error handling mechanisms.			
5. Gain	n Knowledge on rou	uting algorithms as well as application	on layer functi	ons.	
6. Gain	h knowledge of serv	ver and client servicing.			
7. Lear	n to trouble shooting	ng.			
Unit-I	BASIC CONCE	PTS OF OSI LAYERS		12 Hours	
Dat	ta Communication	- Networks -Network Types - I	nternet Histor	ry - Protocol	
Layering - TC	P/IP Protocol Suite	e - The OSI Models.(Chapter 1: Sec	tions: 1.1 to 1	.4, Chapter 2:	
Sections: 2.1 to 2.3)					
Unit-II	PHYSICAL LA	YERS		15 Hours	
Data and Signals - Periodic Analog Signals - Digital Signals - Transmission					
Impairment - I	Data Rate Limits -I	Performance - Transmission Media	Introduction -	Guided Media	
- Un Guided M	Iedia: Wireless (Ch	napters 3 Sections: 3.1 to 3.6, Chapt	er 7 Sections 2	7.1 to 7.3)	

Unit-III	SWITCHING & DATA LINK LAYER	15 Hours		
Introd	duction to Circuit Switched Networks - Packet Switching - Structure of	f a Switch -		
Introduction D	ata Link Layer - Link - Layer Addressing (Chapter 8: Sections: 8.1 to 8	8.4, Chapter		
9 Sections : 9.	<i>l to 9.2)</i>			
Unit-IV	ERROR DETECTION AND CORRECTION	15 Hours		
Intro	duction - Block Coding - Cyclic Codes - Checksum - Forward Error (Correction -		
Unicast Routir	ng - Routing Algorithms - Unicast Routing Algorithm (Chapter 10 Sec	tions : 10.1		
to 10.5, Chapte	er 20 Sections: 20.1 to 20.3)			
	TRANSPORT LAYER PROTOCOLS AND STANDARD			
Unit-V	CLIENT SERVER PROTOCOLS & CRYPTOGRAPHY AND	18 Hours		
	NETWORK SECURITY			
Intro	oduction - User Datagram Protocols - Transmission Control Protocols -	WWW and		
HTTP - FTP -	Electronic Mail - Telnet - Domain Name System - Introduction - Confi	identiality –		
Other Aspects	of Security(Chapter 24 Sections : 24.1 to 24.3, Chapter 26 Sections 2	6.1 to 26.4,		
26.6, Chapter.	31 Sections: 31.1 to 31.3)			
Books for Stu	dy:			
1.Data Commu	inication and Networking 5 th Edition Behrouz A. Forouzan, McGraw H	ill		
Education Sev	enth Reprint 2015.			
Books for Ref	erence:			
1.Data and Con	mmunication Network, William Stalling PHI 2014.			
2 . Computer N	2. Computer Networks, Andrew S. Tanenbaum , David J. Wetherall, 5th Edition, Prentice Hall.			
2010				

SEMESTER VI							
COURSE CODE	COURSE COURSE TITLE HRS/ WEEK CREDIT						
UACCCE62	Core Based Elective 2	CLOUD COMPUTING	5	5			
Course Objectiv	ves						
1. To learn clou	d fundamentals						
2. To learn clou	d services						
3. To learn clou	d virtualization						
Course Outcom	es						
1. Ability to apply cloud services							
2. Ability to imp	plement cloud tec	hnology					
Unit-I	Cloud C	Computing Fundamentals:		12 Hours			
Cloud Computin	ng definition, Typ	bes of cloud, Cloud services: Benef	fits and challer	nges of cloud			
computing, Evol	computing, Evolution of Cloud Computing, Applications cloud computing, Business models						
around Cloud – Major Players in Cloud Computing - Issues in Cloud - Eucalyptus - Nimbus -							
Open Nebula, Cloud Sim.							
Unit-II	Cloud	Services and File System Ty	pes of Clou	d 15 Hours			
	services	:	_				

Software as a Service - Platform as a Service – Infrastructure as a Service - Database as a Service- Monitoring as a Service – Communication as services. Service providersGoogle App Engine, Amazon EC2, Microsoft Azure, Sales force. Introduction to MapReduce, GFS, HDFS, Hadoop Framework.

Unit-III	Collaborating With Cloud:	15 Hours			
Collaborating of	n Calendars, Schedules and Task Management - Collaborating	on Event			
Management, Co	Management, Contact Management, Project Management – Collaborating on Word Processing				
,Databases Storing and Sharing Files- Collaborating via Web-Based Communication Tools -					
Evaluating Web	Mail Services - Collaborating via Social Networks - Collaborating	via Blogs			
and Wikis.					

Unit-IVVirtualization:15 HoursBasics of Virtualization - Types of Virtualization - Implementation Levels of VirtualizationVirtualizationVirtualization Structures - Tools and Mechanisms - Virtualization of CPU, Memory, I/O Devices- Virtual Clusters and Resource management - Virtualization for Data-center Automation.Hardware and Infrastructure Clients, Security, Network, Services. Accessing the Cloud -Platforms, Web Applications, Web APIs, Web Browsers. Cloud Storage - Overview, CloudStorage Providers, Standards - Application, Client, Infrastructure, Service.

Unit-VSecurity in the Cloud:18 HoursSecurity Overview - Cloud Security Challenges and Risks - Software-as-a-Service Security -
Security Governance - Risk Management - Security Monitoring - Security Architecture Design
- Data Security - Application Security - Virtual Machine Security - Identity Management and
Access Control - Autonomic Security

Books for Study:

1. Cloud Computing "A Practical Approach" Anthony T. Velte, Toby J. Velte, Robert Elsenpeter. McGraw-Hill.

2. Kai Hwang, Geoffrey C Fox, Jack G Dongarra, "Distributed and Cloud Computing, From Parallel Processing to the Internet of Things", Morgan Kaufmann Publishers, 2012.

3. John W.Rittinghouse and James F.Ransome, "Cloud Computing: Implementation, Management, and Security", CRC Press, 2010.

Books for Reference:

1. Toby Velte, Anthony Velte, Robert Elsenpeter, "Cloud Computing, A Practical Approach", TMH, 2009. Kumar Saurabh, "Cloud Computing – insights into New -Era Infrastructure", Wiley India, 2011.

2. Ronald L. Krutz, Russell Dean Vines, "Cloud Security – A comprehensive Guide to Secure Cloud Computing", Wiley – India, 2010.

SEMESTER VI				
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT
UACCSP61	Skill Based	COMPUTER NETWORKS	3	1
	Elective 2	LAB	5	1
Course Object	ctives			
This course int	roduces the conc	epts in practical of networking and	l applies them	to various
situations, clas	sifying networks.	, analyzing performance and implei	menting new	
technologies.C	ourse Objective	8		
Course Outco	mes			
1.Describe the	functions of each	a layer in OSI and TCP/IP model.		
2. Explain the	functions of App	lication layer and Presentation laye	r paradigms ai	nd Protocols.
3. Describe the	e Session layer de	sign issues and Transport layer ser	vices.	1 .
4. Classify the	routing protocols	s and analyze now to assign the IP a	addresses for t	ne given
5 Describe the	functions of dat	link laver and explain the protoco	1c	
5. Describe the	types of transmis	sion media with real time application	018. One	
7 Learn about	trouble shooting	sion media with real time application	0115.	
1. Bus.	Star. Ring. Mesh	and Hybrid Networks		
2. Stati	c Routing.			
3. Defa	ult Routing.			
4. Rout	ing Information l	Protocol – RIP		
5. Enha	nced Interior Ga	teway Routing Protocol – EIGRP		
6. Oper	n Shortest Path Fi	rst – OSPF		
7. Bord	ler Gateway Proto	ocol – BGP		
8. Dyna	amic Host Config	guration Protocol – DHCP		
9. E-ma	ail SMTP, POP3			
10. FTI	P – File Upload/E	Download		
11. DH	CP, DNS, HTTP	, FTP & Mail – Application Layer		
12. Vir	tual LANs – VLA	ANs		
Books	for Reference:			
1.Data	and Communicat	ion Network, William Stalling PH	HI 2014.	
2 . Com	puter Networks,	Andrew S. Tanenbaum , David J. V	Vetherall, 5th	
Edition	,Prentice Hall. 20)10		

SEMESTER VI							
COURSE CODE	COURSE	COURSE TITLE	HRS/ WEEK	CREDIT			
UACCSE62	Skill Based Elective 2	ArtificialNeuralNetwork	3	1			
	CourseObjectives						
1. Tointroduce	etheconcepts of ar	tificial neuralnetworks andfuzz	zysystems				
2. To explain	thebasic mathem	atical elements ofthetheoryof fu	zzysets.				
	CourseOu	tcomes					
1. Explaintheo	conceptsof neural	networksand, fuzzylogic					
2. Understand	ingof the basic m	athematicalelements of the theo	ryoffuzzysets.				
3. Understand	ingthe difference	sandsimilaritiesbetween fuzzys	etsand classica	alsets Theories			
4. Solveproble	ems that areappro	priatelysolved byneural networ	ksand fuzzylo	ogic			
UNITI		BasicConcepts		17			
Basicconcer	ots-singlelayerper	ceptron-Multilayerperceptron-A	Adaline-Mada	line-Learningrules-			
Supervise	dlearning-Backp	ropagationnetworks-Irainingalg	gorithm, Advai	ncedalgorithms-			
	aptivenetwork-	Kadiai basis network modular i	ietwork-Appli				
Introduction u	nsupervisedlearn	ing Competitivelearning	rlzo	19			
Kohonenselfu	antizatinetworks.	L earning vectoriantization –	. Hebbian le	arning – Honfield			
network-Cont	ent		neoblair ie	anning Hopfield			
addressablena	ture.BinarvHopfi	eldnetwork.ContinuousHopfield	dnetworkTrav	ellingSalespersonpr			
oblem-	····· ,- ···· , -··· , -··· , -···	FF		B			
Adaptiveresor	ancetheory-Bidi	rectionalAssociativeMemory-P	rinciplecompo	onentAnalysis			
UNITIII FuzzyLogic 18							
Introdu	ction-crispsetsan	overview-thenotionoffuzzysets	-Basicconcep	tsoffuzzysets-			
classicallog	gicanoverview–Fu	zzylogic.Operationsonfuzzyset	s-fuzzycompl	ement-fuzzyunion			
fuz	zzyintersection –	combinationsofoperations-gene	ralaggregatior	operations			
UNITIV		FuzzyLogicContd	1	17			
(ations –binaryrelations–binaryr	elationsonasir	igleset–			
equiv	alenceandsimilar	Ityrelations-Compatibilityortol	erancerelation	s-orderings-			
	meth	Membershiptunctions- odsofgeneration_defuzzification	amethods				
UNITV		NeuroFuzzvSystems	iniculous	19			
Adaptive Neu	ro Fuzzy based i	inference systems – classificati	on and regres	sion trees: decision			
tress.Cart alg	orithm – Data	clustering algorithms: K me	ans clustering	g. Fuzzy C means			
clustering, M	ountainclustering	, Subtractive clustering – rul	e base struct	ure identification –			
Neuro	C	fuzzy		control:			
FeedbackControlSystems,ExpertControl,InverseLearning,SpecializedLearning,Backpropagation							
through							
Real–TimeRecurrentLearning.							
Books for Study:							
1. NeuroFuzzyandSoftcomputing", JangJ.S.R., SunC.TandMizutaniE–Pearson education, 2004							
2. "Fundamen	talsofNeuralNetv	vorks", LaureneFauseett, Prentic	eHall India,N	ewDelhi,1994.			
	Reference	Book(s)					
1 "Fuzz	yLogicEngineerii	ngApplications",TimothyJ.Ross	,McGrawHill	NewYork,1997.			
	Neuralnetworks G.A.	, Fuzzylogics,and Geneticalgori VijayalakshmiPaiPrenticeHallo	thms",S.Rajas fIndia,2003	sekaranand			

3	"FuzzySetsandFuzzyLogic",GeorgeJ.KlirandBoYuan,PrenticeHall Inc.,New Jersey,1995
4	"PrinciplesofSoftComputing"S.N.Sivanandam, S.N.DeepaWileyIndiaPvt Ltd.

SEMESTER VI					
COUR COD	SE COURSE	COURSE TITLE	HRS/ WEEK	CREDIT	
UACCI	PJ62 Core PROJECT	Software Project work & Viva Voce	4	2	
Course O	bjectives				
	Т	hemain objectives of this courseareto:			
1. T 2. T 3. T 4. E 5. P	ounderstandand selec ogettheknowledge ab ogetconfidenceforim xpresstechnicalandbe repareandconductoral	tthetask basedontheircoreskills. outanalyticalskillforsolvingtheselecte- plementingthe taskand solvingthereal havioralideasandthoughtinoralsettings presentations	dtask. timeproblems. s.		
		1 11 11 1 1	1 1 1 1	1	
 Formulate a real world problemanddevelopitsrequirementsdevelopa designsolution forasetofrequirements Testandvalidatetheconformanceofthedevelopedprototypeagainsttheoriginal requirementsof theproblem					
4. I	Expresstechnicalideas	strategiesandmethodologiesinwritten	form.Self-lear	n new	
tools,algo	rithmsandtechniquest	hatcontributetothesoftwaresolutionof	theproje	ct	
5. Genera	atealternativesolutions	,comparethemandselecttheoptimumor	ne		
Regulatio	ons of the Project wo	rk			
 The aim of the project work is to acquire practical knowledge on the implementation of theprogrammingconcepts studied. Each student should carry out individually one project work and it may be a work using thesoftware packages that they have learned or the implementation of concepts from the papers studiedorimplementation of anyinnovative ideafocusingon application oriented concepts. 					
3. Th	 Theprojectwork should be compulsorilydonein thecollege Lab onlyunderthe supervision of thedepartmentstaff (Supervisor allotted) concerned. 				
4. Pr	oject report should be ft copy and hard copy	submitted as per the format provided .	by the departr	nent both	
5. Th	e project report shoul	d contain minimum of 50 pages.			
6. In	ternal mark 25 will be	for model viva.			
7. Vi an	va-Voce will be cond dExternalExaminers.	ucted at the end of the semester by bo	oth Internal		
8. Ot	tof100 marks,50mark	sforproject reportand 25marksfor Viv	vaVoce, 25 for	internal.	

COURSE CODECOURSECOURSE TITLEHRS/ WEEKCREDITU8CCPR61Core Practical 7UNIX AND OPERATING SYSTEM LAB32List of Experiments1Create process (Child Zombie Orphan)
U8CCPR61 Core Practical 7 UNIX AND OPERATING SYSTEM LAB 3 2 List of Experiments 1 Create process (Child Zombie Orphan)
List of Experiments 1 Create process (Child Zombie Orphan)
1 Create process (Child Zombie Orphan)
1. Create process (Child, Zonioic, Orphun).
2. Inter Process Communication (Pipes, Message Queues and Semaphores)
3. Implement the various process scheduling (First Come First Serve, Shortest Job First,
Priority, Round Robin).
4. Implement Memory allocation strategies (FirstFit, BestFit and WorstFit)
5. Implement Page Replacement Algorithms (First In First Out, Least Recently Used, Optimal)
6. Implement Disk Scheduling Algorithms (First In First Out, Shortest Seek Time First and
SCAN)
Books for Study:
1.Operating System Concepts, Silbershatz, Galvin, Gange, John Wiley & Sons Inc, 9 th Edition,
2016 Reprint.
Books for Reference:
1. Operating Systems – Internals and Design Principles, William Stallings - Pearson, 8th Edition,
2014
2. Operating Systems - A Concept Based Approach- Dhananjay M. Dhamdhere, Tata McGraw -
Hill, 3rd Edition, 2012.
3. Lab Manual

	SEMESTER I				
COURSE	COURSE	COURSE TITLE	HRS. /	CREDIT	
CODE			WEEK		
UAFAR101	LANGUAGE	ARABIC I	6	5	

Course Objectives:

Students are aimed to develop the correct pronunciation of Arabic Alphabet and write them joint to gather as per the give rules and to acquire adequate ability to form meaningful words and small sentences in Arabic.

Course Outcomes:

Students will be able

CO1: To get to know the ability to distinguish different alphabet.

- CO2: To develop the skill of reading
- CO3: To enhance the skill of writing
- CO4: To clear understand the basic grammar
- CO5: To write and use the language correctly and to develop the correct grammar sense.

Unit - I	Durus-al-Lughat-al-arabiyyah li ghair al natiqinabiha	Lesson 1, 2 & 3
	Vol-1.	
Unit - 2	Durus-al-Lughat-al-arabiyyah li ghair al natiqinabiha	Lesson 4, 5 & 6
	Vol-1.	
Unit - 3	Durus-al-Lughat-al-arabiyyah li ghair al natiqinabiha	Lesson 7, 8, 9 &
	Vol-1.	10
Unit -4	Basic Arabic Grammar	Lesson 1 to 10
Unit - 5	Basic Arabic Grammar	Lesson 11 to 20

Prescribed Text Book:

Title of the Book	Author Name	Publishing House
Durus-al-Lughat-al-arabiyyah li ghair al	Dr. V.	I. F. T. Chennai
natiqinabiha Vol-1.	AbdurRaheem	
Basic Arabic Grammar	Dr. Syed	Deen Store,
	Rahmathullah	Chennai

Reference / Recommended Book for Study:

Title of the Book	Author Name	Publishing House
Al Arabiyyahlil Hayat	NasifMusthafa,	King Saud University Riyadh.

SEMESTER II				
COURSE	COURSE	COURSE TITLE	HRS. /	CREDIT
CODE			WEEK	
UAFAR201	LANGUAGE	ARABIC II	6	5

Course Objectives:

Students are expected to develop the sentences construction based on the lessons taught and to gain the translation skill.

Course Outcomes:

Students will be able

- CO1: To under the types of sentences
- CO2: To develop the skill of reading simple sentences
- CO3: To develop the skill of writing simple sentences
- CO4: To translate small sentences from Arabic to English
- CO5: To gain the skill of translation

Unit - I	Durus-al-Lughat-al-arabiyyah li ghair al natiqinabiha	Lesson 11, 12, 13 & 14
	Vol-1.	
Unit - 2	Durus-al-Lughat-al-arabiyyah li ghair al natiqinabiha	Lesson 15, 16, 17 & 18
	Vol-1.	
Unit - 3	Durus-al-Lughat-al-arabiyyah li ghair al natiqinabiha	Lesson 19, 20, 21, 22 &
	Vol-1.	23
Unit -4	AhadeethSahla	Lesson 1 to 10
Unit - 5	AhadeethSahla	Lesson 11 to 20

Prescribed Text Book:

Title of the Book	Author Name	Publishing House
Durus-al-Lughat-al-arabiyyah li ghair al	Dr. V.	I. F. T. Chennai
natiqinabiha Vol-1.	AbdurRaheem	
AhadeethSahla	Dr. V.	I. F. T. Chennai
	AbdurRaheem	

Reference / Recommended Book for Study:

Title of the Book	Author Name	Publishing House
Al Arabiyyahlil Hayat	NasifMusthafa,	King Saud University
		Riyadh.

SEMESTER I					
COURSE	COURSE	COURSE TITLE	HRS. /	CREDIT	
CODE			WEEK		
UAFUR101	LANGUAGE	URDU I	6	5	

PROSE, GRAMMER & LETTER WRITING

COURSE OUTCOME

1. Prose makes students understand National Integration and they inculcate moral and human values within themselves.

2. Develop their creative thinking and writing in prose.

3. Students will be able to write and use the language correctly and they develop the correct grammar sense.

4. Students to develop skill in writing and communicating to other personalities through letter.

5. They will be able to communicate effectively.

<u>UNIT - I</u>

- 1. SAIR PAHLAY DARWESH KI Meer Amman Dehlavi
- 2. Ism aurUskiQismein
- 3. Letter to the Principal Seeking leave

<u>UNIT II</u>

- 1. GHALIB KE AKHLAQ -O- AADAT MoulanaAlthafHussainHali
- 2. Fe'laurUskiQismein
- 3. Letter to the father/guardian asking money for payment of college fees

<u>UNIT III</u>

- 1. UmmedkiKhushi Sir Syed Ahmed Khan
- 2. SifataurUskiQismein
- 3. Letter to a friend inviting him to your sister's marriage

<u>UNIT IV</u>

- 1. ZubaidaKhatoon Moulana Abdul HaleemSharar
- 2. ZameeraurUskiQismein
- 3. Letter to the manager of a firm seeking employment

<u>UNIT V</u>

1.SAWERAY JO KAL MERI AANKH KHULI – PutarsBukhari

- 2. Alamat-e-Faa'il "Ne" aurAlamat-e-Mafool "Ku" bananeykeQaidey
- 3. Letter to a publisher of a book seller placing order for books.

Books for reference:

1. URDU TEXT BOOK CUM WORK BOOK & Urdu Nasar Published by the Applied Books, New Delhi

SEMESTER II					
COURSE	COURSE	COURSE TITLE	HRS. /	CREDIT	
CODE			WEEK		
UAFUR201	LANGUAGE	URDU II	6	5	

GHAZALIAT, MANZOOMAT, RUBAIYAT & TRANSLATION

<u>UNIT - I</u>

1. MEER TAQI MEER – Ultihogayeen Sab tadbeereinkuchnadawa nay kamkiya

- 2. KHUSH AAMAD NAZEER AKBAR ABADI
- 3. MEER ANEES Gulshan me phirun k sairsehradekhun

<u>UNIT II</u>

- 1. GHALIB Dil hi to haina Sang-o-QishtDard se bharnaaayekyun
- 2. SHIKWA ALLAMA IQBAL
- 3. AMJAD Is naamkizindagi me kuchjan to ho

<u>UNIT III</u>

- 1. NIYAZ VANIYAMBADI Hum O hainjo k waqtkichalon me aagaye
- 2. JAWAB-E-SHIWA—ALLAMA IQBAL
- 3. AKBAR Gaflatkihansi se aahbharnaachcha

<u>UNIT IV</u>

- 1. SHAKIR Nayeti Shahid-e-Maqsoodek din rubaruhojayega
- 2. TAJ MAHAL—SAHIR LUDHIANAWI
- 3. JOSH Pa mal-e-Gham insane huwajatahai

<u>UNIT V</u>

- 1. JIGAR MURADABADI Duniyakesitamyaadnaapni hi wafayaad
- 2. SUBH-E-AZADI—FAIZ AHMED FAIZ
- 3. ASGAR VELLORI Dhoondha to kitabon me sadaqatnamili
- 4. TRANSLATION from English to Urdu

Books for reference:

- 1. URDU SHAYERI Published by the Applied Books, New Delhi
- 2. MAZHAR-E-ADAB Published by the Applied Books, New Delhi

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SEMESTER I					
COURSE	COURSE	COURSE TITLE	HRS. /	CREDIT	
CODE			WEEK		
UAFHD101	LANGUAGE	HINDI I	6	5	

C01	Understand National Integration (Dinakar) and inculcate moral
	& human values within themselves through prose.
CO2	Develop their creative thinking and writing in prose.
CO3	Identify, write and use the language correctly and develop the correct
	Grammar sense.
CO4	Improve letter writing skills.
CO5	Effectively face interviews for the post of Hindi translators by understanding
	translation oftechnical terms and phrases.
CO6	Understand and develop writing Gender and Number correctly
CO7	Understand and use Causative Verbs effectively.

<u>Objectives</u>: 1. To acquaint the students with different forms of thoughts and styles used in Hindi Prose writing 2. Todevelop a correct grammar sense is very important for written communication.3. Functional Hindi will help the students to improve their writing skills. **<u>SYLLABUS</u>**:

UNIT – I PROSE: 'GADYA NIKASH'
LESSONS PRESCRIBED:
1. MAHAVEER PRASAD DWIVEDI - LOBH
2. PREMCHAND - SABHYATA KA RAHASYA
3. DINAKAR - BHARAT EK HAI
4. HARISHANKAR PARSAYEE - KRANTIKAR

4. HARISHANKAR PARSAYEE - KRANTIKARI KI KATHA

5. SUBHADRAKUMARI CHOUHAN – RAAHI

UNIT – IIAPPLIEDGRAMMAR-PRESCRIBEDPOINTS:a) LING b) VACHAN c) PRERANARTHAK KRIYA d) VISHESHAN e) SHUDDH ROOP UNIT –III LETTERWRITING:

PRESCRIBEDLETTERS :(PERSONAL& COMMERCIAL):

1. ORDERINGFORBOOKS 2. EMPLOYMENT LETTER

3. LETTEROFCOMPLAINT4.LETTER TO BANK

5. LETTER TO THE EDITOR & 6. LETTER TO A FRIEND

UNIT –IV FUNCTIONALHINDI: ADMINISTRATIVE&BUSINESS TERMINOLOGY: TERMS/WORDS FROM ENGLISHTOHINDI& VICE VERSA

UNIT -V PHRASES FROM HINDI TO ENGLISH only

[PRESCRIBEDTERMINOLOGY ENCLOSED]

BOOK FOR STUDY:GADYA NIKASH, Ed. SHAIK ABDUL WAHAB, RAKA PRAKASHAN, ALLAHABAD.

BOOKSFORREFERENCE:

1. SHAIKSHIK VYAKARAN AUR VYAVAHARIK HINDI, Dr.KRISHNA

KUMAR GOSWAMI, AALEKH PRAKASHAN, DELHI – 32.

2. PRAMANIK ALEKHAN AUR TIPPAN, PROF. VIRAJ, RAJPAL & SONS,

- KASHMERE GATE, DELHI, 2001
- 3. SAMPOORNA HINDI VYAKARAN, SREESHARAN & SRI ALOK KUMAR RASTOGI, MADHUR BOOKS, DELHI - 51.
- 4. GLOSSARY OF ADMINISTRATIVE TERMINOLOGY, MINISTRY OF HRD, NEW DELHI, 2004

<u>PRESCRIBED TERMINOLOGY : UNIT - IV</u> ADMINISTRATIVE AND BUSINESS TERMINOLOGY

A) ENGLISH TO HINDI and VICE VERSA

ACCOUNTANT = लेखपाल; ACTING = कार्यकारी; ADMINISTRATOR = प्रशासक; ALLOTMENT = आबंटन; AUCTION = नीलाम; AUDITOR = लेखापरीक्षक; ALLOWANCE = भत्ता; BALANCE SHEET = तुलनपत्र; BROKER = दलाल; MANAGER = प्रबंधक; BEARER = धारक;CABINET = मंत्रिमंडल; CIRCULAR = परिपत्र; CLERK = लिपिक; CONTROLLER = नियंत्रक; CONSUMER = उपभोक्ता; COMMISSIONER = आयुक्त; CASHIER = रोकडिया; CUSTOMER = ग्राहक; DEBENTURE = ऋणपत्र; DIRECTOR = निदेशक; DOCUMENT = प्रलेख / दस्तावेज़; EDITOR = संपादक; ELECTION =चुनाव; EMPLOYMENT = रोज़गार; EXCHANGE = विनिमय; FUND = निधि; GOVERNOR = राज्यपाल; GRANT = अनुदान;GAZETTE = राजपत्र; INCOME TAX = आयकर; INSPECTOR = निरीक्षक;INSURANCE = बीमा; INVOICE = बीजक; MAYOR = महापौर; MINISTRY = मंत्रालय; PRIME MINISTER = प्रधानमंत्री; MINISTRY OF DEFENCE = रक्षामंत्रालय; MINISTRY OF FINANCE = वित्तमंत्रालय; MINISTRY OF HOME = गृहमंत्रालय; MINISTRY OF HEALTH = स्वास्थयमंत्रालय; MINISTRY OF RAILWAYS = रेलमंत्रालय; MINISTRY OF EXTERNAL AFFAIRS = विदेशमंत्रालय; MINISTRY OF COMMERCE = वाणिज्यमंत्राल;PARLIAMENT = संसद;PASSPORT = पारपत्र; QUALIFICATION= अर्हता / योग्यता; SECRETARY = सचिव;DEPUTY SECRETARY = उपसचिव; JOINT SECRETARY = संयुक्तसचिव; GENERAL SECRETARY= महासचिव;SUPER TAX = अधिकर; TENDER = निविदा; TYPIST = टंकक; UNDERTAKING = उपक्रम; VICE CHANCELLOR = कुलपति; WHIP = सचेतक.

B) HINDI TO ENGLISH PHRASES:

तदनुसार= ACCORDINGLY; यथाप्रस्तावअनुमोदित = APPROVED AS PROPOSED; यथासंभव = AS FAR AS POSSIBLE; केप्राधिकारसे = BY AUTHORITY OF; पदकेनाते = by VIRTUE OF OFFICE; अनुमोदनार्थप्रारूप = DRAFT FOR APPROVAL; कार्रवाईशीघ्रकरें = EXPEDITE ACTION; मुझेनिदेशहुआहै = I AM DIRECTED TO; सेपरामर्शकरके = IN CONSULTATION OF; अमुमतिदीजाये = MAY BE PERMITTED; पक्ष-विपक्ष =PROS AND CONS; देखलिया , धन्यवाद् = SEEN,THANKS; प्रमाणितकियाजाताहै = THIS IS TO CERTIFY; कीसीमातक = TO THE EXTENT OF; केबारेमें = with REGARD TO; अवलोकनार्थ = FOR PERUSAL; सूचनार्थ = FOR INFORMATION; मार्गदर्शनकेलिए = FOR GUIDANCE; हस्ताक्षरकेलिए = FOR SIGNATURE; केआदेशसे = BY ORDER; लागुहोना = COME INTO FORCE; टिप्पणीकेलिए = FOR COMMENTS; आजहीजारीकरें = ISSUE TODAY; पालनकरना= ABIDE BY;इसमामले / विषयमें = IN THIS CASE / IN THIS INSTANCE.

SEMESTER II					
COURSE	COURSE	COURSE TITLE	HRS. /	CREDIT	
CODE			WEEK		
UAFHD201	LANGUAGE	HINDI II	6	5	

CO1	Understand and promote communal harmony, humanity and patriotism through One
	Act Plays.
CO2	Understand and inculcate loyalty, human values through short stories
CO3	Develop skill to translate from one language to another through translation practice
CO4	Improve effective Communication skill through Dialogue Writing
CO5	Develop the correct grammar sense
CO6	Improve word power by understanding synonyms & Antonyms.
CO7	Understand and use Abstact Nouns effectively.

<u>Objectives</u>: 1. Fiction and One – Act plays to the students for appreciation and critical analysis 2.To help students develop their creative thinking and writing. 3. Dialogue Writing

enables students to develop the effective communicative skills 4.To help students develop Practical translation skills.

SYLLABUS AND BOOKS PRESCRIBED:

UNIT – I ONE ACT PLAY: GADYA NIKASH

LESSONS PRESCRIBED :

- 1. RAMKUMAR VARMA CHARUMITRA
- 2. UDAYSHANKAR BHATT DAS HAZAR.
- 3. HARIKRISHNA PREMI RAKSHA BANDHAN
- UNIT II SHORT- STORY: TEXT GADYA NIKASH

LESSONS PRESCRIBED

- 1. PREMCHAND MUKTIDHAN
 - 2. JAYSHANKAR PRASAD DEVRATH
 - 3. RAJENDRA YADAV BIRADARI BAAHAR

UNIT -III TRANSLATION PRACTICE:

HINDI TO ENGLISH & VICEVERSA

LESSONS PRESCRIBED: ENGLISH TO HINDI16, 17, 18&19

HINDI TO ENGLISH – 8, 9, 10, 11& 12 only

UNIT -IV DIALOGUE WRITING:

PRESCRIBED COMMUNICATIONS:

1. ADHYAPAK AUR VIDYARTHI

- 2.DUKANDAR AUR GRAHAK
- 3. DUKANDAR AUR VIDYARTHI
- 4. DOCTOR AUR ROGI
- 5. DO YAATRI
- 6. DO MITRA

UNIT –V APPLIED GRAMMAR:

- 1. SAMANARTHI SHABD
- 2. VILOM SHABD
- 3. ANEKARTHAKSHABD
- 4. YUGM SHABD
- 5. ABSTRACT NOUN

BOOKS FOR STUDY: 1.GADYA NIKASH, Ed. SHAIK ABDUL WAHAB, RAKA PRAKASHAN, ALLAHABAD, 2018

2. ANUVAD ABHYAS – I, D.B.HINDI PRACHAR SABHA, CHENNAI

BOOKS FOR REFERENCE :

1. NAYEE HINDI RACHNA- PART – II D.B.HINDI PRACHAR SABHA, CHENNAI, 2001

2. SHAIKSHIK VYAKARAN AUR VYAVAHARIK HINDI, Dr. KRISHNA KUMAR GOSWAMI, AALEKH PRAKASHAN, DELHI – 32.

3. BOLCHAL KI HINDI, Dr.SUSHEELA GUPTA, LOKBHARATI PRAKASHAN, ALLAHABAD, 2006

SEMESTER I				
COURSE	COURSE	COURSE TITLE	HRS. /	CREDIT
CODE			WEEK	
UAFTA101	LANGUAGE	TAMIL I	6	5

Objectives:மாணவர்களிடையேசங்கஇலக்கியம், நீதிஇலக்கியத்தைஅறிமுகப்படுத்துதல். ஊடகநுட்பங்களைஅறிவித்தல் மொழித்திறன்பயிற்சிஅளித்தல்.

அலகு 1	சங்க இலக்கியம்
	குறுந்தொகை 5 பாடல்கள்
	புறநானூறு 5 பாடல்கள்
அலகு 2	நீதி இலக்கியம்
	இனியவை நாற்பது 10 பாடல்கள்
	ஆசாரக்கோவை 10 பாடல்கள்
	நான்மணிக்கடிகை 10 பாடல்கள்
அலகு 3	ஊடகவெளியீட்டுநுட்பங்கள்
	1.அறிவித்தல்
	2.வாசித்தல்
	3.நேர்முகவருணனைகள்
அலகு 4	தன்னம்பிக்கைக் கட்டுரை
	1. எண்ணங்கள் - எம்.எஸ். உதயமூர்த்தி
	2. கல்வியியல் கருத்து - எம்.ஆர்.எம். அப்துற் ரஹீம்
அலகு 5	மொழித்திறன்
	அகரவரிசைப்படுத்தல்
	எழுத்துப்பிழை நீக்கம்
	வல்லினம் மிகுமிடம்
	கலைச்சொல்லாக்கம்
	நிறுத்தக் குறிகள்

பார்வைநூல்கள்

1.குறுந்தொகைமூலமும்உரையும் நியூசெஞ்சுரிபுக்ஹவுஸ்(பி)லிட் 41-பி, சிட்கோஇண்டஸ்ட்ரியல்எஸ்டேட் அம்பத்தூர், சென்னை-98.

 2. புறநானூறுமூலமும்உரையும் நியூசெஞ்சுரிபுக்ஹவுஸ்(பி)லிட்
 41-பி, சிட்கோஇண்டஸ்ட்ரியல்எஸ்டேட் அம்பத்தூர்,சென்னை-98.
 3. பதினெண்கீழ்க்கணக்கு நூல்கள் சாரதாபதிப்பகம், சென்னை-98.

4.எண்ணங்கள்- எம்.எஸ்.உதயமூர்த்தி கங்கைபுத்தகநிலையம் 23,தீனதயாளன்தெரு சென்னை-17.

5.கல்வியியல்கருத்து எம்.ஆர்.எம். அப்துற்றஹீம் யுனிவர்ஸல்பப்ளிஒர்ஸ், தியாகராயர்நகர்,சென்னை-17.

6.ஊடகவியல் முனைவர்துரை.மணிகண்டன் கமலினிபதிப்பகம், தஞ்சாவூர்-2

7.மொழித்திறன் பேராசிரியர்ஜெ.ஜெயச்சந்திரன் வர்த்தமானன்பதிப்பகம் தியாகராயர்நகர்,சென்னை-17.

Course Outcome (பாடப்பயன்)

- சங்கஇலக்கியத்தின்வாயிலாகசங்ககாலமக்களின்பண்பாட்டை அறிந்து கொள்வதற்கும்நீதி இலக்கியங்கள்வாயிலாகஅறக்கருத்துக்களைத்தெரிந்துகொள்ளுதல்.
- ஊடகநுட்பங்கள்வாயிலாகபத்திரிகையாளர்மற்றும்செய்தியாளராகஊட கத்துறையின்பணியில்சேரஉறுதுணையாகஇருக்கும்.
- உரைடைப்பகுதியில் இடம்பெற்றிருக்கும்கட்டுரைவாயிலாகதன்னம்பிக் கையோடுசெயல்பட உதவும்.
- மொழித்திறன்வாயிலாகதமிழ்மொழியின் அமைப்பை அறியலாம்.

 பிழையின்றிஎழுதுவதற்கும்பேசுவதற்கும்மாணவர்களுக்குபயன்படும் எ ன்பதுகுறிப்பிடத்தக்கது.

SEMESTER II				
COURSE	COURSE	COURSE TITLE	HRS. /	CREDIT
CODE			WEEK	
UAFTA201	LANGUAGE	TAMIL II	6	5

Objectives:மாணவர்களுக்குபக்தி இலக்கியத்தையும்	,	காப்பிய
இலக்கியத்தையும்அறிமுகப்படுத்துதல்		இணையம்,
பேச்சுக்கலைகுறித்துஅறிவித்தல்		
கடிதம்எழுதும்முறையைஉணர்த்திபயிற்சிஅளித்தல்		
அலகு 1 பக்கி இலக்கியம்		

	சைவம் - திருநாவுக்கரசர்தேவாரம்- திருத்தாண்டகம் (10
	பாடல்கள்)
	வைணவம் - ஆண்டாள் (10 பாடல்கள்)
	இசுலாம் - சீறாப்புராணம்- ஒட்டகைபேசியபடலம்
	கிறித்துவம் - தேம்பாவணி- வளன்சனித்தபடலம்
<u> </u> அலகு 2	காப்பிய இலக்கியம்
	சிலப்பதிகாரம் - காட்சிக்காதை
	கம்பராமாயணம் - நகர்நீங்குபடலம்
அலகு 3	இணையமும் தமிழும்
	இணையம் - அறிமுகம்
	இணையம்வழிதமிழ்க்கற்றலும், கற்பித்தலும்
அலகு 4	பேச்சுக்கலை
	பேச்சாளர்தகுதிகள், வகைகள், பேச்சுக்கலையின்பண்புகள்,
	கற்றல் - கற்பித்தல்கலை
அலகு 5	கடிதங்கள்
	1. அலுவல் முறைக் கடிதங்கள்

2. உறவு முறைக் கடிதங்கள்

பார்வைநூல்கள்

- திருநாவுக்கரசர்தேவாரம்-கழகவெளியீடு திருநெல்வேலிதென்னிந்தியசைவசித்தாந்தநூற்பதிப்புக்கழகம், லிமிடெட், 154, டி.டி.கே.சாலை,சென்னை-18
- திருவெம்பாவை
 சாரதாபதிப்பகம்,சென்னை-14.
- சீறாப்புராணம்
 செய்குதம்பிபாவலர்உரை
 யுனிவர்ஸல்பப்ளிஒர்ஸ், தியாகராயர்நகர்,சென்னை-17.
- 4. சிலப்பதிகாரம்- கழகவெளியீடு திருநெல்வேலிதென்னிந்தியசைவசித்தாந்தநூற்பதிப்புக்கழகம், லிமிடெட், 154, டி.டி.கே.சாலை,சென்னை-18.
- கம்பராமாயணம்-கழகவெளியீடு திருநெல்வேலிதென்னிந்தியசைவசித்தாந்தநூற்பதிப்புக்கழகம், லிமிடெட், 154, டி.டி.கே.சாலை,சென்னை-18.
- 6. தேம்பாவணி–கழகவெளியீடு திருநெல்வேலிதென்னிந்தியசைவசித்தாந்தநூற்பதிப்புக்கழகம், லிமிடெட், 154, டி.டி.கே.சாலை,சென்னை-18.
- தமிழ்க்கணினிஇணையப்பயன்பாடுகள் முனைவர்துரை.மணிகண்டன் கமலினிபதிப்பகம், தஞ்சாவூர்-2
- 8. பேச்சுக்கலை முனைவர்ம. திருமலை மீனாட்சிபுத்தகநிலையம் சென்னை-17.

Course Outcome(பாடப்பயன்)

1. பக்தி

இலக்கியங்கள்வாயிலாகஅனைத்துசமயநல்லிணக்ககருத்துக்களைஅ றிந்துகொள்ளலாம். 2. காப்பிய

இலக்கியம்வாயிலாகவாழ்வியல்நெறிமுறைகளைஅறிந்துகொள்ளஉத வும்.

- இணையம் அறிமுகம்வாயிலாக இணையம் வழிதமிழ்கற்றல், கற்பித்தல்.
- பேச்சுக்கலைவாயிலாகமாணவர்களைமேடைப்பேச்சாளராகஆவதற்கு வழிவகுக்கும்.
- 5. கடிதம்எழுதும்பயிற்சிபெறுவதன்மூலம்அலுவல்முறைக் கடிதங்கள்எழுதிஅதன்மூலம்பணிபெறுவதற்கும்உரியவகையில்இப்பா டத்திட்டம்உதவும்.

SEMESTER I				
COURSE	COURSE	COURSE TITLE	HRS. /	CREDIT
CODE			WEEK	
UAFEN101	ENGLISH	ENGLISH I	6	5

Instructional Objectives:

- 1. To promote the linguistics competence into the minds of the young learners through teaching the basics of English.
- 2. To acquaint them with situational dialogues
- 3. To expose the learners to the production skills.
- 4. To expose the learners to receptive skills
- 5. To acquaint the learners with different speaking contexts

COURSE OUTCOMES:

- 1. Promotes linguistics competence of the learner
- 2. Acquainting with situational dialogues
- 3. Practicing production and receptive skills.
- 4. Enhancing the language to suit the context in Restaurant, airport, telephone banking and getting driving license.
- 5. To set language which adapts to the global economy and the current markets

Unit-I	GRAMMAR	8 Hours
Pa	rts of Speech	

1. Noun, Pronoun, Adjective, Verb, Adverb, Preposition, Conjunction, Interj	ection
2. Articles	
Unit-II GRAMMAR	8 Hours
1. Infinitives	
2. Participles	
3. Gerunds	
4. Auxiliaries and Modals	
5. Subject Verb Agreement	
6. Tenses	
Language Lab – <i>1 hour per week</i> .	
Unit-III BUSINESS ENGLISH: Essential Phrases For Meetings And	7 Hours
Phone Calls	
1. Beginning a Conference Call	
2. Clarifying Things on a Phone Call	
3. Taking a Break from the Conversation	
4. Starting a Great Presentation	
5. Introducing the Topic of Your Presentation	
6. Ending Your Presentation	
7. Being an Active Participant in Meetings	
8. Negotiating Successfully	
9. Planning for Future Meetings	
Unit-IV BUSINESS ENGLISH:English Phrases for Advanced Fluency	7 Hours
1. On Topic/On Track and Off Topic/Off Track	
2. Through The Roof	
3. Train of Thought	
4. To Bank On	
5. Brush Up On	
6. Bring To The Table	
7. To Table/To Shelve	
8. Off The Top of My Head	
9. Left Field/Out of Left Field	
10. Think Outside the Box	
11. Bring Up To Speed	
12. To Touch Base	
13. To Reach Out	
14. In the Loop	
15. At the End of the Day	
Unit-V WRITING	6 Hours
1. Short messages	
2. Paragraph Writing	
3. Note – making	
4. Jumbled sentences	
5. Comprehension	
Books for Study/Online Materials:	
1. Foundation English for Semester I – published by Islamiah Col	lege (Autonomous),
Vaniyambadi, 2013.	, ,

- 2. https://www.learngrammar.net/english-grammar/modal-auxiliaries
- 3. <u>https://webapps.towson.edu/ows/sub-verb.htm</u>
- 4. <u>https://www.onsip.com/voip-resources/smb-tips/conference-call-script-sample-5-examples-for-your-next-meeting</u>
- 5. <u>https://www.oxbridgeacademy.edu.za/blog/the-8-secrets-of-effective-negotiation/</u>

Books for Reference/Online Materials:

- 1. https://www.toppr.com/guides/english/verbs/auxiliary-and-modal-verbs/
- 2. <u>https://www.grammarbook.com/grammar/subjectVerbAgree.asp</u>
- 3. <u>https://www.businessballs.com/communication-skills/meetings-how-to-plan-and-run-meetings/</u>
- 4. <u>https://www.toppr.com/guides/reasoning-ability/verbal-reasoning/spotting-errors/</u>
- 5. <u>https://www.esleschool.com/a2-short-messages-exercise-1/</u>

SEMESTER II				
COURSE	COURSE	COURSE TITLE	HRS. /	CREDIT
CODE			WEEK	
UAFEN201	ENGLISH	ENGLISH II	6	5

Instructional Objectives 1. To promote the linguistics competence into the minds of the young learners through teaching the basics of English. 2. To acquaint them with entrepreneurial skills 3. To inculcate business acumen. 4. To expose the learners to various prose 5. To acquaint the learners with different genres of writing **COURSE OUTCOME:** 1. Promoting linguistics competence 2. Practicing production and receptive skills 3. Make learner read the selected passages aloud 4. To Build the core values of human society and leading the humanistic life 5. To set language which adapts to the global economy and the current markets Unit-I PROSE 12 Hours 1. Anita Desai : A Devoted Son

2. O	Henry : The Gift of the Magi	
Unit-II	POETRY	12 Hours
1. Ni	ssimEzeikel : Night of the Scorpion	
2. Ro	bert Frost : The Road Not Taken	
3. W	illiam Wordsworth: Daffodils	
Unit-III	BUSINESS ENGLISH	12 Hours
A.Busines	ss :Idioms and Expressions	s are tied. Un in the
air To l	earn the rones learning curve. To go down swinging By	the book. To cut
	tarn the ropes, Rarning curve, ro go down swinging, by	the book, to cut
corners, l	Between a rock and a hard place, From the ground up, The J	bottom line, To get
down to k	ousiness, It's not rocket science	
B.Busines	ss Etiquette: DOs and DON'Ts	
Do Pay A	ttention to The Subject Line, Do Use a Proper Salutation, Do Use	an Introduction

Do Know The Culture, Don't Include Humor and Sarcasm, Do Double-Check Your Attachments, Don't Hit "Reply All", Do Protect Privacy, Do Proof reading, Don't Forget the Conversation Closer

Unit-IV	SOFT SKILLS	12 Hours
А.	Time management	
1. Im	portance of time	
2. Cł	aracteristics of management tasks	
3. De	etermining time elements	
4. Ti	me management techniques	
B.	Entrepreneurship	
1. En	trepreneur and its role	
2. Es	sentials steps to become an entrepreneur	
3. EI	DP training	
Unit-V	WRITING	12 Hours
1. Re	port writing	
2. Co	over letter	
3. Cu	urriculum vitae	

Books for Study/Online Materials:

- 1. Foundation English for Semester II published by Islamiah College (Autonomous), Vaniyambadi, 2013.
- 2. <u>https://www.enotes.com/topics/devoted-son</u>
- 3. <u>https://americanenglish.state.gov/files/ae/resource_files/1-the_gift_of_the_magi_0.pdf</u>
- 4. <u>https://www.gradesaver.com/the-poems-of-nissim-ezekiel/study-guide/summary-night-of-the-scorpion</u>
- 5. https://englishsummary.com/night-scorpion-nissim-ezekiel/

6. How to become a successful student.(time management)

Books for Reference/Online Materials:

- 1. https://www.supersummary.com/a-devoted-son/summary/
- 2. <u>https://www.shmoop.com/study-guides/literature/gift-of-the-magi/summary</u>
- 3. <u>https://www.successcds.net/learn-english/class-9/the-road-not-taken-class-9-cbse-english.html</u>
- 4. <u>https://englicist.com/notes/daffodils-i-wandered-lonely-as-a-cloud-wordsworth-summary</u>
- 5. https://www.pinterest.com/pin/549017010822452591/

SEMESTER I				
COURSE	COURSE	COURSE TITLE	HRS. /	CREDIT
CODE			WEEK	
UBVED101	ENGLISH	VALUE EDUCATION	2	1

Instru	ctional Objectives	
1.	To promote the linguistics competence into the minds of the young le	earners through
	teaching the basics of English.	
2.	To acquaint them with family values	
3.	To educate learners status of women in family	
4.	To establish awareness on anger management	
5.	To acquaint the learners with ethics and leadership qualities	
COUR	SE OUTCOME:	
1.	Establish contexts for the learners to make a right moral judgment	
2.	Cultivate their minds to adopt the values	
3.	Enable the learners to reflect on issues and develop the right attitude to ad	ddress them
4.	Cultivate compassion and responsibility with themselves and people arou	und them
5.	Recognize and uphold human, social and global values	
Unit-I	VALUES	3 Hours
1.	Definition and relevance in present day	4
2.	Good values to be followed by individuals	
3.	Values related to self, society, culture, organization, country development	, goodness and
	self-esteem	
Unit-I	FAMILY	3 Hours
1.	Family and family values – responsibility of the family	

nit-III	ETHICS	2 Hours
1. D	Definition – Types – Ethical Values	
2. P	rofessional Ethics – Mass Media Ethics – Advertisement E	thics
3. L	eadership qualities – personality development	
Unit-IV	SOCIAL VALUES	2 Hours
1. D	efinition –faith - service - secularism – social senses and co	ommitment
2. S ²	tudents and Politics – Social Awareness – Consumer Awar	eness
3. R	ights and Responsibility – Rights to Food and Shelter, good	d education, medical care
aı	nd attention, to earn in right and good manner	
Unit-V	GLOBAL ISSUES	2 Hours
1. D	Pefinition – Effect of International Affairs on values of life -	– Issues of Globalization
2. E	nvironmental Issues	
	Intual respect for different culture, religion and their values	
3. M	futual respect for unreferit culture, religion and their values	3
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SEMESTER I				
COURSE	COURSE	COURSE TITLE	HRS. /	CREDIT
CODE			WEEK	
UBSKB101	SKILL BASED	COMMUNICATIVE ENGLISH	4	3

Unit I (20 hours)

- 1. Listening and Speaking
 - a. Introducing self and others
 - b. Listening for specific information
- c. Pronunciation (without phonetic symbols)
- i. Essentials of pronunciation
- ii. American and British pronunciation

2. Reading and Writing

- a. Reading short articles newspaper reports / fact based articles
- i. Skimming and scanning
- ii. Diction and tone
- iii. Identifying topic sentences
- b. Reading aloud: Reading an article/report
- c. Journal (Diary) Writing
- 3. Study Skills –1
 - a. Using dictionaries, encyclopaedias, thesaurus
- 4. Grammar in Context:

Naming and Describing

- Nouns & Pronouns
- Adjectives

Unit II (20 hours)

1. Listening and Speaking

- a. Listening with a Purpose
- b. Effective Listening
- c. Tonal Variation
- d. Listening for Information
- e. Asking for Information
- f. Giving Information

2. Reading and Writing

a. Strategies of Reading:Skimming and Scanningb. Types of Reading :
Extensive and Intensive Reading

- c. Reading a prose passage
- d. Reading a poem
- e. Reading a short story

2. Paragraphs: Structure and Types

- a. What is a Paragraph?
- b. Paragraph structure
- c. Topic Sentence
- d. Unity
- e. Coherence
- f. Connections between Ideas: Using Transitional words and expressions
- g. Types of Paragraphs

4. Study Skills II:

Using the Internet as a Resource

- a. Online search
- b. Know the keyword
- c. Refine your search
- d. Guidelines for using the Resources
- e. e-learning resources of Government of India
- f. Terms to know

4. Grammar in Context

- Involving Action-I
- a. Verbs
- b. Concord

Unit III (16 hours)

1. Listening and Speaking

- a. Giving and following instructions
- b. Asking for and giving directions
- c. Continuing discussions with connecting ideas

2. Reading and writing

a. Reading feature articles (from newspapers and magazines)

b. Reading to identify point of view and perspective (opinion pieces, editorials etc.)

c. Descriptive writing – writing a short descriptive essay of two to three paragraphs.

3. Grammar in Context:

Involving Action – II

- Verbals Gerund, Participle, Infinitive
- Modals

Unit IV (16 hours)

- 1. Listening and Speaking
- a. Giving and responding to opinions
- 2. Reading and writing
- a. Note taking
- b. Narrative writing writing narrative essays of two to three paragraphs
- 3. Grammar in Context:

Tense

- Present
- Past
- Future

Unit V (18 hours)