



Criterion 1 – Curricular Aspects

Key Indicator	1.1	Curriculum Design and Development
Metric	1.1.3	Average percentage of courses having focus on employability/ entrepreneurship/ skill Development offered by the Software engineering

DEPARTMENT OF SOFTWARE ENGINEERING

SYLLABUS COPY OF THE COURSES HIGHLIGHTING THE FOCUS ON EMPLOYABILITY/ ENTREPRENEURSHIP/ SKILL DEVELOPMENT

1. List of courses for the programmes in order of

S. No.	Programme Name								
i.	B.Sc Computer Science								
ii.	B.Sc Animation and Multimedia								
iii.	B.Sc Artificial Intelligence								
iv.	M.Sc Computer Science								
v.	M.Sc Software Engineering								

2. Syllabus of the courses as per the list.

Legend	Words highlighted with Blue Color	-	Entrepreneurship
	Words highlighted with Red Color	-	Employability
	Words highlighted with Green Color	-	Skill Development

Name of the Course	Course Code	Year of introduction	Activities/Content with direct bearing on Employability/ Entrepreneurship/ Skill development
	B.Sc Col	nputer Science	
	2022-23 AC	CADEMIC YEA	AR
Basic English Communication Skills	XGL101	2020-21	Skill development - Group Discussion , Spoken and Written communication training ,
Ariviyal Tamil/ Comprehensive English	XGL102A/ XGL102B	2019-20	Skill development:- Group Discussion , Spoken and Written communication
Programming Methodologies	XBC103	2020-21	Employability : Seminar, Quiz , Assignment , Case Study ,
Algebra, Calculus & Analytical Geometry	XBC104	2019-20	Skill development: - Solving the real world problem by mathematically
Computer Fundamentals	XBC105	2019-20	Employability Seminar, Quiz , Assignment , Case Study , P roject Work,
Human Ethics, Values, Rights, and Gender Equality	XUM106	2019-20	Skill development -Paper Presentation, poster
Advanced English Communication Skills	XGL201	2020-21	Skill development:-Improving communication skill to handle the problems
Data Structures	XBC203	2020-21	Employability: Seminar, Quiz, Assignment, Case Study,
Discrete Mathematics	XBC204	2019-20	Skill development: Solving the real world problem by mathematically
Digital Electronics	XBC205	2019-20	Employability: Seminar, Quiz , Assignment , Case Study ,
Multimedia Systems	XBC301	2020-21	Employability: Seminar, Quiz , Assignment , Case Study ,
Operating System	XBC302	2020-21	Employability: Seminar, Quiz, Assignment, Case Study,
Algorithms	XBC303	2021-22	Employability: Seminar, Quiz, Assignment, Case Study,
Allied Physics	XBC304	2019-20	Skill development :Understand the basics of Physics concepts
R Programming	XBC306	2020-21	Employability:Seminar, Quiz, Assignment, Case Study, Project
Object Oriented Programming	XBC401	2020-21	Employability : Seminar, Quiz , Assignment , Case Study

Database Management Systems	XBC402	2020-21	Employability : Seminar, Quiz , Assignment , Case Study
Statistics	XBC403	2020-21	Employability: Seminar, Quiz , Assignment , Case Study
Principles of Management	XBC404	2020-21	Employability: Seminar, Quiz , Assignment , Case Study
Angular JS	XBC406	2020-21	Employability: Seminar, Quiz, Assignment, Case Study
Python Programming	XBC501C	2022-23	Employability: Seminar, Quiz, Assignment, Case Study
Computer Networks	XBC502D	2022-23	Employability: Seminar, Quiz, Assignment, Case Study
.NET Technologies	XBC503A	2022-23	Employability: Seminar, Quiz, Assignment, Case Study
Internet Technologies	XBC504B	2022-23	Employability: Seminar, Quiz, Assignment, Case Study
IPT 21 Days	XBC505	2020-21	Employability : Improving programming skill of students
Web Technologies	XBC601A	2021-22	Employability: Seminar, Quiz, Assignment, Case Study
Internet of Things	XBC602A	2021-22	Employability: Seminar, Quiz, Assignment, Case Study
Machine Learning	XBC603A	2022-23	Employability: Seminar, Quiz, Assignment, Case Study
Project Work	XBC604	2021-22	Employability : Improving programming skill of students
	B.Sc Animati	ion and Multim	ledia
	2022-23 - A	CADEMIC YE	AR
Basic English Communication Skills	XGL101	2018-19	Employability: Q&A with Expert, GD, One Minute Off-the-Cuff
Ariviyal Tamil/ Comprehensive English	XGL102A/ XGL102B	2015-16	Employability: Paper Presentation, poster
Foundation Art	XAM103	2021-22	Employability: Drawing, poster
Principles of Animation	XAM104	2015-16	Employability: Animation Project
Introduction to Computer Graphic Design	XAM105	2021-22	Employability: D igital Art, Info graphics

Human Ethics, Values, Rights, and Gender Equality	XUMA106	2014-15	Employability: Paper Presentation, poster
Advanced English Communication Skills	XGL201	2020-21	Employability: Improving communication skill
Entrepreneurship Development	XVM203	2015-16	Employability: Seminar, Quiz, Assignment, Case Study
Vector Graphics	XAM203	2021-22	Employability: Seminar, Quiz, Assignment, Case Study
Digital Photography	XAM204	2018-19	Employability: Digital Art, Info graphics
Basics of Clay Modeling	XAM205	2015-16	Skill development: Drawing a model, info graphics, digital art
Audio & Video Editing	XAM301	2015-16	Skill Development : Editing works
Multimedia	XAM302	2022-23	Employability: Seminar, Quiz, Assignment, Case Study
Character & Environment Sketching	XAM303	2015-16	Skill Development : Sketching
2D Animation	XAM304	2016-17	Employability: Animation Project
Digital Matte Painting	XAM306	2019-20	Employability: short films
Script Writing and Story Board Designing	XAM401	2016-17	Skill Development : Script Writing
Compositing Techniques	XAM402	2016-17	Employability
3D Animation	XAM403	2016-17	Employability : 3D Models
Fundamentals of Cinematography	XAM404	2018-19	Employability :effects Project
Online Content Creation	XAM406	2022-23	Skill development:-Group Discussion , Spoken and Written communication
Web Design	XAM501	2016-17	Employability: Claymation Project
3D Modeling	XAM502 A	2016-17	Employability : 3D Models
Script Writing and Story Board Designing	XAM503A	2016-17	Skill Development : Script Writing

Media Technologies	XAM504B	2016-17	Employability									
Stop Motion Animation	Minor Course	2019-20	Skill Development									
Digital Television Production	XAM601	2016-17	Employability : Project									
3D Animation	XAM602	2016-17	Employability : Animation Projects									
Film Making	XAM603 A	2016-17	Employability : Projects									
Texturing& Shading	XAM604 B	2020-21	Employability : Posters									
Project Work	XAM604	2016-17	Employability : Projects									
	B.Sc Artificial Intelligence											
	2022-23 – A	CADEMIC YE	AR									
Basic English Communication Skills	XGL101	2022-23	Skill development - Group Discussion , Spoken and Written communication training ,									
Ariviyal Tamil / Comprehensive English	XGL102A/ XGL102B	2022-23	Skill development:- Group Discussion , Spoken and Written communication									
Programming Methodologies	XAI103	2022-23	Employability : Seminar, Quiz , Assignment , Case Study ,									
Algebra, Calculus & Analytical Geometry	XAI104	2022-23	Skill development: - Solving the real world problem by mathematically									
Principles of statistics	XAI105	2022-23	Employability: Seminar, Quiz , Assignment , Case Study									
Principles of statistics Lab	XAI105P	2022-23	Employability: Seminar, Quiz , Assignment , Case Study									
Human Ethics, Values, Rights, and Gender Equality	XUM106	2022-23	Skill development - Paper Presentation, poster									
Tamil – II / Foundation Tamil-II	XGT201	2022-23	Skill development:- Group Discussion , Spoken and Written communication									
English – II	XGE202	2022-23	Skill development:-Group Discussion , Spoken and Written communication									
Data Structures	XAI203	2022-23	Employability: Seminar, Quiz, Assignment, Case Study									
Discrete Mathematic	XAI204	2022-23	Skill development: Solving the real world problem by mathematically									

Python Programming	XAI205	2022-23	Employability: Seminar, Quiz, Assignment, Case Study										
Data Structures Lab	XAI206	2022-23	Employability : Improving programming skill of students										
Python Programming Lab	XAI207	2022-23	Employability : Improving programming skill of students										
M.Sc Computer Science													
	2022-23 – ACADEMIC YEAR												
Advanced Operating System	YCS101	2021-22	Employability: Seminar, Quiz, Assignment, Case Study										
Internet of Things	YCS102	2021-22	Employability: Seminar, Quiz, Assignment, Case Study										
Advanced Computer Architecture	YCS103	2021-22	Employability: Seminar, Quiz, Assignment, Case Study										
Advanced Database Management System	YCS104	2021-22	Employability: Seminar, Quiz , Assignment , Case Study										
Web Technologies	YCS105	2021-22	Employability: Seminar, Quiz, Assignment, Case Study										
Virtual and Augmented reality	YCS201	2021-22	Employability: Seminar, Quiz, Assignment, Case Study										
Advanced Java Programming	YCS202	2021-22	Employability: Seminar, Quiz , Assignment , Case Study , Project										
Machine Learning	YCS203	2021-22	Employability: Seminar, Quiz, Assignment, Case Study										
Artificial Intelligence	YCS204C	2021-22	Employability: Seminar, Quiz, Assignment, Case Study										
Pervasive Computing	YCS205C	2021-22	Employability: Seminar, Quiz, Assignment, Case Study										
Deep Learning	YCS301	2022-23	Employability: Seminar, Quiz, Assignment, Case Study										
Wireless Networks	YCS302	2022-23	Employability: Seminar, Quiz, Assignment, Case Study										
Big Data and Analytics	YCS303	2022-23	Employability: Seminar, Quiz, Assignment, Case Study										
Block Chain Management	YCS304C	2022-23	Employability: Seminar, Quiz, Assignment, Case Study										
Natural Language Processing	YCS305B	2022-23	Employability: Seminar, Quiz, Assignment, Case Study										

Project Work	YCS401	2022-23	Employability : Improving programming skill of students
Mobile Application Development	YSE901	2013-14	Employability: Seminar, Quiz, Assignment, Case Study
Cyber Security	YSE902	2017-18	Employability: Seminar, Quiz, Assignment, Case Study
Software Reliability	YSE903	2022-23	Employability: Seminar, Quiz, Assignment, Case Study
Usability Engineering	YSE904	2022-23	Employability: Seminar, Quiz, Assignment, Case Study
Internet of Things	YSE905	2017-18	Employability: Seminar, Quiz, Assignment, Case Study
Project Phase I	YSE906	2011-12	Employability: Seminar, Quiz, Assignment, Case Study
Project Phase II	YSE1001	2011-12	Employability: Seminar, Quiz, Assignment, Case Study

Syllabus - B.Sc Computer Science

XGL1	.01					L	T	P	SS	C		
	-	<u> </u>	BASIC ENGLISH	COMMUNICATIO	N SKILLS	L 2 L	0 T	0 P	2	2 11		
C	Р	Α				2	0	r 0	2	<u>п</u> 4		
2	0	0					Ŭ	U				
COU	JRSE	OUT	COMES:			Domai	n	Ι				
CO1	CO1 Recall the basic grammar and using it in proper context Cognitive											
CO2	e	Unde	erstanc	ling								
CO3 Adapt important methods of reading Cognitive												
CO4	De	monst	<i>rate</i> the basic writing sl	kills		Cognitiv	e	Unde	erstanc	ling		
SYL	LAB	US						Η	OUR	S		
UNI	ГΙ	Gra	mmar									
i. Ma corre	jor b ction	asic gr	ammatical categories ii.	Notion of correctne	ss and attitude	e to erro	r		9			
UNI	ΓII	List	ening and Speaking									
iii. Ir	nport	ance o	of listening skills iv. Pro-	oblems of listening	o unfamiliar	dialects	v.		9			
Aspe	cts of	f pronu	inciation and fluency in	speaking vi. Intellig	ibility in spea	king						
		Bas	ics of Reading	. 1 . 1.00	<u> </u>				0			
V11. II narra	ntroa tive	uction descrip	to reading skills vill. In	troducing different ty	pes of texts -	-		9				
UNI	<u>Γ IV</u>	Bas	ics of Writing									
ix. In	trodu	ction	to writing skills x. Aspec	ts of cohesion and co	oherence xi. E	xpandir	g		9			
a give	en se	ntence	without affecting the s	structure xii. Reorgar	nizing jumbled	ł						
sente	ences	into a	coherent paragraph xii	i. Drafting different t	ypes of letter	S						
(pers	onal	notes,	notices, complaints, ap	preciation, conveyin	g sympathies	etc.)						
L	ECT	URE	TUTORIAL	PRACTICAL	SELF STU	JDY		TO	ΓAL			
	30		0	0	30			6	0			
Text	1. et. OL 3. 4. (20 6.	Acever al. (20 JP Eastwo Hadefi 005). N Jolly, E	do and Gower M (1999) 15). Oxford Advanced I ood, John (2008). Oxfor eld, Chris and J Hadefie Writing. Oxford, OUP David (1984). Writing Ta	Reading and Writing Learner's Dictionary d Practice Grammar. dd (2008). Reading G sks: Stuidents' Book.	g Skills. Londo of English (Nir Oxford, OUP Games. Londo Cambridge, G	on, Long nth Editi n, Longr CUP	man on). nan	2. D New 5. He	euter Delh dge, ⁻	, M ii, T		

8. Saraswati, V (2005). Organized Writing 1. Hyderabad, Orient Blackswan

9. Swan, Michael. (1980). Practical English Usage. Oxford, OUP

10. Walter and Swan (1997). How English Works. Oxford, OUP

	Table 1. Mapping of Cos with 1 Os.													
	PO1	Р	PO	PO4	PO5	PO6	PO7	PO8	PO9	PO1	PO11	PO12	PSO1	PSO2
		02	3							0				
CO1	2	0	0	0	0	0	2	0	1	0	0	0	0	0
CO2	2	0	0	0	0	0	2	0	1	0	0	0	0	0
CO3	1	0	0	0	0	0	1	0	1	0	0	0	0	0
CO4	2	0	0	0	0	0	1	0	1	0	0	0	0	0
Total	7	0	0	0	0	0	6	0	4	0	0	0	0	0
Scale	2	0	0	0	0	0	2	0	1	0	0	0	0	0
d														
Value														
	1	0	0	0	0	0	1	0	1	0	0	0	0	0

Table 1: Mapping of Cos with POs:

1-5=1, 6-10 = 2, 11-15=3

0-No Relation, 1- Low Relation, 2 – Medium Relation, 3- High Relation

	Table 2. Mapping of COS with OAS.												
	GA	GA	GA	GA	GA	GA	GA	GA	GA	GA1	GA1	GA1	
	1	2	3	4	5	6	7	8	9	0	1	2	
CO1	0	0	0	0	0	0	0	1	1	2	0	0	
CO2	0	0	0	0	0	0	0	0	0	2	0	0	
CO3	0	0	0	0	0	0	0	0	0	1	0	0	
CO4	0	0	0	0	0	0	0	0	0	0	1	0	
Tota l	0	0	0	0	0	0	0	1	1	5	2	0	
Scal e	0	0	0	0	0	0	0	1	1	1	1	0	

Table 2: Mapping of COs with GAs:

1-5=1, 6-10 = 2, 11-15=3

0-No Relation, 1- Low Relation, 2 – Medium Relation, 3- High Relation

					L	Т	Р	С
XG	XGL102 A						0	3
			அறிவியல்தமிழ					
С	Р	Α			L	Т	Р	Η
2.9	0.1	0			3	0	0	3
PRER	EQUIS	SITE:	Nil					
			COURSE OUTCOMES	DOMAI	N	L	EVE	L
After t	he com	pletio	n of the course, students will be able to					
CO1	Recog துறைக போன்	gnize(சார்ந்த றவற்க	<i>அடையாளம் காணுதல்)</i> பல்வேறுஅறிவியல் நூட்பங்கள்,கலைச் சொல்லாக்கஉத்திகள் றைத் தமிழ்மொழி மூலம் அறிந்துகொள்ளல்.	Cognitive		Ren	nemb	er
CO2	Choo s (<i>தெரி</i> பற்றிப்	se வுசெய பழர்	்தல்) வடமொழிவேர்ச்சொற்கள்,புவியியல்,நிலவியல் தமிழ் இலக்கியங்கள் மூலம் அறிந்துகொள்ளல்.	Cognitive		Ren	nemb	er

CO3	Describe செய்திக	(<i>விளக்குத</i> வைஉணர்த	ல்) தொல்காப்பியம் மூலம் 5ல்.	ை அறிவியல்	Cognitive Psychomotor	Understand Set
CO4	Apply <i>(பயன்படு</i> ல்வித்துவ	<i>த்துதல்)</i> பல் ஹசார்ந்தபி	வேறுகல்வித்துறைசார்ந்தபிரில ரிவுகள் குறித்துதெளிவுபெறல்	4ுகள்,பல்வேறுக	Cognitive	Apply
CO5	Analyze (வளர்ச்சிந	(<i>பகுத்தல்)</i> லைநாடக	அறிவியல் சிறுகதைகளின் ங்களின் பங்குகுறித்துதெளிவு	தாற்றம் மற்றும் பெறுதல்.	Cognitive	Analyze
அබ	ა ფ – 1		அறிவியல்தமிழ்	அறிமுகம்		9
அறிவி படைப் கலைச் வடமெ	யல்தமிழ் - புப் பணி– ஈசொற்கள் ாழிவேர்ச்செ	பொறியிய சொல்லாக் - இ சாற்களைமி	ஸ்,தொழில்நுட்பம்,மருத்துவம், கஉத்திகள் - நுட்பமானவே ந்தியமொழிகளுக்குப் பொ குதியாகக் கொண்டிருத்தலை	உழவியல். தமிழில் முபாடுகளைஉண துவானகலைச் ப் பயன்படுத்துதல்	ல் அறிவியல் - ரந்துசொல்லாக்க சொற்களைஉரு	தமிழில் நுட்பம். ம் செய்தல் - வாக்குதல் -
அல	ა ფ – 2		பிறஅறிவியல்	துறைகள்		9
புவியிய உயிரிட இதழிய	பல்,நிலவிய பல்,மண்ணி பல் உத்திக	ல் பற்றிப யல் பற்றி கள் - வள	ழந்தமிழ் இலக்கியம் குறிப்ட பஅடிப்படைச் செய்திகள் - ர தமிழ்.	ிடும் தகவல்கள் தமிழ் மருத்துவக்	- தொல்காப்பி கல்வி - அறிவ	யம் குறிப்பிடும் 1யல் தமிழுக்கு
୬୦	ა ფ – 3		பல்வேறுகலைகளி	ல் அறிவியல்		9
மொழி மண்ண	பியல் 1ியல்,புவியி	யல்.கணக்	கல்வி–கட்டடக் கியல் அகியவைஇணைந்தக	கலைக்கல்வி–ச(நல்வி - இக்க	ழதாயக்கல்வி–ே ாலக் கல்விப்	சய்மைக்கல்வி–
ക്തസ,,	அறிவியல்	- என்பவற்	றின் விளக்கங்கள்.			பொதுநிலை—
கலை,. அ	அறிவியல் லகு– 4	- என்பவற்	றின் விளக்கங்கள். அறிவியல் தமிழில் சிழ	പ്രക്കുകണിൽ പங്ക്ര	5	பொதுநிலை– 9
கலை, அல சிறுகன நல்லசி	அறிவியல் லகு– 4 றத -இலக் றிகதைஉர	- என்பவற் கணம் உ நவாக்கம் -	<u>றின் விளக்கங்கள்.</u> அறிவியல் தமிழில் சிழ _ருவாக்கும் உத்திகள் - · வரலாறு—சமூகம் - மொழிவெ	யகதைகளின் பங்கு சிறந்தசிறுகதைக பயர்ப்புமற்றும் அற்	5 வியல் சிறுகதை வியல் சிறுகதை	போதுநிலை— 9 வகைகள் - 5கள்.
கலை, அடை சிறுகன நல்லசி	அறிவியல் ல கு– 4 றத -இலக் பிறுகதைஉரு ல கு–5	- என்பவற் கணம் உ நவாக்கம் -	<u>றின் விளக்கங்கள்.</u> அறிவியல் தமிழில் சிழ _ருவாக்கும் உத்திகள் - வரலாற ு சமூகம் - மொழிவெ அறிவியல் தமிழில் நா	யகதைகளின் பங்கு சிறந்தசிறுகதைகள பயர்ப்புமற்றும் அற் படகங்களின் பங்கு	5 ர் - சிறுகதை வியல் சிறுகதை	பொதுநிலை— 9 வகைகள் - 5கள். 9
கலை,, அ சிறுகன நல்லசி அ நாடகப் சரித்தி	அறிவியல் ல கு– 4 றத -இலச் ற்றுகதைஉர ல கு–5 ம் - நாடக ரநாடகம்,சர ல்முறைநாட	- என்பவற் கணம் உ நவாக்கம் நவாக்கம் இலக்கன மகநாடகம் கங்கள்.	<u>றின் விளக்கங்கள்.</u> அறிவியல் தமிழில் சிழ _ருவாக்கும் உத்திகள் - வரலாறு—சமூகம் - மொழிவெ அறிவியல் தமிழில் நா ாம், இருவகைநாடகங்கள் - நகைச்சுவைநாடக	நகைதகளின் பங்கு சிறந்தசிறுகதைக பயர்ப்புமற்றும் அற் டகங்களின் பங்கு படிப்பதற்குரியநாட ங்கள்	5 நிலியல் சிறுகதை வியல் சிறுகதை கம் - நடிப்பதர் அமெச்சூர் ந	பொதுநிலை— 9 வகைகள் - 5கள். 9 3குரியநாடகம் - 1டகங்கள் -
கலை, அ சிறுகன நல்லசி அ நாடகய் சரித்தி தொழில்	அறிவியல் லகு– 4 றத -இலக் றிதுகதைஉர லகு–5 ம் - நாடக ரநாடகம்,சர ல்முறைநாட LECTUR	- என்பவற் கணம் உ நவாக்கம் நவாக்கம் இலக்கண மகநாடகம் கங்கள். E	<u>றின் விளக்கங்கள்.</u> அறிவியல் தமிழில் சிற _ருவாக்கும் உத்திகள் - வரலாறு—சமூகம் - மொழிவெ அறிவியல் தமிழில் நா ரம், இருவகைநாடகங்கள் - நகைச்சுவைநாடக	பல்லா தல்ல பகதைகளின் பங்கு பயர்ப்புமற்றும் அற டகங்களின் பங்கு படிப்பதற்குரியநாட ங்கள் - எ PRACT	ர் - சிறுகதை ர் - சிறுகதை வியில் சிறுகதை கம் - நடிப்பதர் அமெச்சூர் ந ICAL	போதுநிலை— 9 வகைகள் - 5கள். 9 3குரியநாடகம் - ாடகங்கள் - TOTAL
கலை,, அ சிறுகன நல்லசி இ நாடகய் சரித்தி தொழிச	அறிவியல் லகு– 4 றத -இலக் ற்றுகதைஉர லகு–5 லகு–5 ல் - நாடக ரநாடகம்,சர ல்முறைநாட LECTUR 45	- என்பவற் கணம் உ நவாக்கம் நவாக்கம் இலக்கன மகநாடகம் கங்கள். E	ற்ன் விளக்கங்கள். அறிவியல் தமிழில் சிழ _ருவாக்கும் உத்திகள் - வரலாறு—சமூகம் - மொழிவெ அறிவியல் தமிழில் நா ாம், இருவகைநாடகங்கள் - நகைச்சுவைநாடக TUTORIAL 	படிப்பதற்குரியநாட வகைக்கின் பங்கு படிப்பதற்குரியநாட வகள் PRACT	5 நிலியல் சிறுகதை வியல் சிறுகதை கம் - நடிப்பதர் அமெச்சூர் ந ICAL	பொதுநிலை– 9 வகைகள் - 5கள். 9 3குரியநாடகம் - ாடகங்கள் - 7 TOTAL 45

Table 1: CO Versus PO mapping.

				PO				PSO		
B.Sc. A & M										
	1	2	3	4	5	6	7	1	2	
CO1		1								
CO2		1								
CO3		1					1			
CO4	1	2	2	1		1	2			
CO5	2	2	2	2		1	2			
Total	3	7	4	3		2	5			
Scaled Value	1	1	1	1			1			
		$\frac{1}{1-5}$ ->	1 6-	10 ->2	11 - 15	->3				

3–Strong Correlation, 2–Medium Correlation, 1–Low Correlation, 0–No Correlation

													-				
x	XBC103									T	P	SS 1	C				
C			Δ	PF	ROC	GRA	MM	ING I	MET	HODOI	LOGI	ES	3 I		I P	1 55	0 H
2.5	1	-	0.5										3	1	3	1	8
COU	RSE	σί	JTCO	MES							D	OMA	IN	<u> </u>	LE	VEL	<u> </u>
CO1	R	eca	ognize	the in	npoi	rtanc	e of	develo	oping	simple	Cog	nitive		Ren	nemł	ber	
algorithms and flow charts to solve a problem. Psychomotor Perception								on									
CO2	Id	len	<i>tify</i> t	he n	eeds	s pr	obler	m so	olving	skills	Cog	nitive		Unc	lersta	and	
	co	oup	pled wi	th top	dov	wn de	esign	princ	ciples.		Psyc	chomo	tor	Per	cepti	on	
CO3	D al	em go	<i>ionstra</i> rithms	<i>te</i> the coupl	e str ed v	ategi vith i	es of iterat	f arragive m	y pro- ethod	cessing ls.	Cog Psyc Affe	nitive chomo ective	tor	App Rec	oly P eive	ercept	ion
CO4	II de	<i>lus</i> eve	s <i>trate</i> (elopme	the co nt.	ncej	pt of	Stru	ictures	s app	lication	Cog Psyc Affe	nitive chomo ective	tor	App Mee Res	oly chani pond	ism I	
CO5	<i>D</i> עצ די	eve se rog	elop ar of j grammi	nd <i>Est</i> pointe ng	<i>abli</i> rs.	ish sea recu	archi ırsive	ng teo e teo	chniqu chniqu	ues and ues in	Cog Psyc	nitive chomo	tor	Cre Orig	ate ginat	ion	
UNIT	Ι		INT	RODI	UCI	FION	N TO	PRO)GRA	MMIN	G					9+3-	⊦9
Introdu	uction	n t	o Prog	gramm	ning	, Pro	ogran	n Con	ncept,	Charact	teristi	cs of	Prog	amm	ing,	Stages	s in
Progra	m D	ev	elopme	ent, A	lgoi	rithm	is, N	lotatio	ons, D	Design, l	Flow	charts,	Туре	es of	Prog	gramm	ing
Metho	dolog	gie	s, Intro	oductio	on to	o C+-	+ Prc	ogram	ming	- Basic	Progr	am Str	ructur	e In C	2++,	Varia	bles
and As	ssign	me	ents, Inj	put an	dO	utput	t, Sel	ection	n and	Repetitio	on Sta	itemen	its.				
Laha																	
Lap: Given	tha n	rol	hlam et	totome	nt	etudo	nte a	ra raa	mirad	to form	ulata	nrohla	m da	valor			
flower	nart/a	101 101	orithm	write	cod	le ex	ecute	e and i	test it	Studen	ts sho	uld he	ni, uc	n assi	์ onm _f	ents of	n
follow	ing:	150	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	witte	cou	ю, ел	court	e una		. Bruden	15 5110		5100	11 u 551	51111		
a.	Tol	ea	rn elen	nentar	v teo	chnic	jues i	involv	ving a	rithmetic	c opei	ators a	and m	athen	natic	al	
	exp	res	sions,	approp	oriat	te use	e of s	selection	ion (if	, switch,	, cond	itional	l oper	ators)	and	contro	ol
	stru	ctu	ires.		-								-				
UNIT	II		FUN	ICTIC)NS	5										9+3-	+ 9
Top-D	own	D	esign,	Prede	efine	ed F	uncti	ons,	Progr	ammer	-defir	ned Fu	ınctic	n, Lo	ocal	Varia	ble,
Functi	unction Overloading, Functions with Default Arguments, Call -By-Value and Call-By-																
Refere	ence I	ar	ameter	s, Rec	cursi	ion.											
Lab: Given flowch on foll	Lab: Given the problem statement, students are required to formulate problem, develop flowchart/algorithm, write code, execute and test it. Students should be given assignments on following :									nts							
b.	b. Learn how to use functions and parameter passing in functions, writing recursive																

programs.

UNIT III	ARR	RAYS									9+3+9
Introduction	to Arra	ays, Decl	aration	and Re	eferrin	g Arı	ays, A	Arrays	in Me	emory,	, Initializing
Arrays. Arra	iys in Fu	nctions, N	I ulti-Di	mensio	nal Ar	rays.					
Lab:											
Write Prog	rams to	learn the	use of s	strings	and st	ring l	handli	ng oper	ration	S.	
1. Problems	which ca	an effectiv	vely den	nonstrat	te use	of Arr	ays. S	tructure	s and	Union	
Structures	Membe		15 ng Poi	ntors to	Struc	turac	Struc	turas a	nd Fu	nction	9+3+9
Structures I	Inions	I ACCESSI	ing, 101		Suuc	luies,	Suuc	luies a	nu ru	netion	s, Allays Ol
LaD:	e prograi	me usina 1	ointers								
1. •••••••	c prograi	ins using j	Jointers								
UNIT V	FILI	ES AND	SEARO	CHING	ALG	ORIT	HMS				9+3+9
Declaration	and Ini	tialization	, Readi	ng and	Writi	ing St	trings,	Arrays	of S	trings	, String and
Function, St	trings an	d Structu	ire, Star	ndard S	tring	Librar	y Fur	ctions.	Searc	hing A	Algorithms -
Linear Searc	ch, Binar	y Search.	Use of a	files for	data i	nput a	and ou	tput. me	erging	and co	opy files.
Lab:		C 1 (
1. Write prog	grams to	use files f	or data	input ar	id outp	out.					
2. write prog	grains to	mpiemer	it search	i aigorii	mms.						
LECTUR	RE	TUTOR	IAL	PRA	CTIC	AL	SEL	F STU	DY	TO	ГAL
45		15			45		1	.5		105	+15
TEXT BOC	OKS										
1. Prob	lem Solv	ving and P	rogram	Design	in C,	J. R. I	Hanly	and E. I	3. Kof	fman,	Pearson,
2015					. ~					. ~ .	
2. Prog	ramming	g and prob	olem sol	ving wi	th C+-	+: brie	ef editi	on, N. I	Jale ai	nd C.	weems,
Jones	s & Bart	lett Learn	ing, 201	0.							
KEFEKEN	CES										
1. Brian	W. Ker	nighan an	d Denn	is M. R	litchie	. "The	e C Pr	ogramm	ing L	angua	ge". Pearson
Educa	ation Inc	. (2005).				-		0	0	0	5.,
2. Aho A	A.V. J.E.	Hopcroft	and J.I	D. Ullm	an., 20	001. "	The D	esign ar	nd Ana	alysis	of Computer
Algor	rithms", I	Pearson E	ducatio	n Delhi	. Seco	nd Edi	ition.				
E-REFERE	NCES										
http://www.		hdoo ara /	and a /la -	ai atat /:	. dor 1-	t ma 1					
http://www.o	iiith vlob	nuoc.org/l	Jasic/Da	sictut/11	idex.h	uIII					
http://cse02-	video not	JS.ac.III/ tel jitm ac	in/vide	o nhn?c	ource	[d-10	610/1	28			
http://www.i	nntel ac i	in		o.pnp.c	Jourses	u-10	01041	20			
http://www.	vlab.co.i	n									
		- 1	able 1:	Mappi	ing of	Cos w	vith P	Os.			
	B.Sc			I , I ,	PO				PSO)	
	CS	1	2	3	4	5	6	7	1	2	
	CO1	2	2	2	2				2	1	
	CO2	1			2				2		
	CO3	1		2	1						

CO4

CO5

2 1

3

2

	L L	Fotal	8	3	7	11				8	2			
	5	Scaled	0	5	,					0	2			
	Ĩ	Value	2	1	2	3				2	1			
	L			1 5 ->	> 1,	6	10 →	2,	11	15 → 3	3			
	0	–No rela	tion 1-	Low re	lation 2	2–Med	ium re	elation	3–Stro	ong rel	ation			
x	BC10	4								L	Т	Р	SS	С
	DCIU			ALGE	BRA, C		JLUS	AND		4	1	0	1	6
C	<u>P</u>	A		ANAL	YTICA	AL GE	OME	TRY		L	T	P	SS	H
4	0	0	D .							4	1	0	1	6
PREREC	QUIST	TES	Basics	of Mat	hematic	es				DOM	ATN	ТТ		
			IES ha darii	votivoa	of airea	funct	iona						VEL	and
C01		valuale i	the deriv	ofinito	$\frac{01 \text{ given}}{200 \text{ given}}$	l lunci dofinit	ions o inte	arala	using	Cogn	itive	Un	dorst	and
02		arious te	chnique	s	and m	uermit		grais	using	Cogn		Re	mem	anu, ber
CO3	A	nnly has	sic oper	ations o	n matri	ces to	find th	e inve	erse of	Cogn	itive	Ur	derst	and
000	a	matrix	open.							0081		Ar	ply	
CO4	S	olve pi	oblems	using	Bino	mial,	expoi	nential	and	Cogn	itive	Un	derst	and
	lo	ogarithm	ic series	sexpans	sions.		-							
CO5	C	Calculate	the dis	tance b	etween	two p	oints	and e	xplain	Cogn	itive	Un	derst	and
	S	ection fo	rmulae,	slope f	orm and	d intere	cept fo	orm.						
UNIT I	<u>– DIF</u>	FEREN	TIAL	CALCU	JLUS									12+3
Derivat	ive of	t a func	t10n –	Various	formu	lae –	Produ	ct and	l quoti	ent ru	e of d	iffei	rentia	.t10n –
Differen	ntiatio	n of fi	inction	OI IUI	1ction	(chain	rule)	- 1 T	rigonoi	netric	Tuncti	ons	- 1	nverse
differen	metric	i Iunctio	ons – er derive	Expon		sive di)n – fforon	Loga tistion	ritnmic	Tunc nitz th	tions	- 1	Logar	ithmic
	$\mathbf{I} = \mathbf{I} \mathbf{N}$	TFCR			IS	sive u	meren	tiation	I = Leib	miz u	corem.			12±3
Constar	$\frac{1}{1} - \frac{1}{1}$	ntegratio	n – Inde	efinite i	nteoral -	– Elen	entar	v integ	ral forr	nulae -	- Meth	ods	of	1213
integrat	ion –	Integrati	on by su	ıbstituti	ion - Int	egratio	on by	parts –	- Integra	ation t	nrough	part	ial	
fraction	s - Co	oncept of	f definit	e integr	al – Pro	pertie	s of de	finite	integral	l.	0	1		
UNIT I	II – N	ATRIC	CES AN	ID DET	TERMI	NANT	ſS							12+3
Definiți	on an	d types of	of matri	ces – M	atrix O	neratio	n - D	etermi	inants –	Solut	ion of	svste	em of	linear
equation	ns by	Matrix n	nethod.			perun		eterm	intentes	Dorac		5550		mou
UNIT	$\overline{\mathbf{V} - \mathbf{S}}$	ERIES												12+3
Binomi	al the	orem for	a ration	al inde	x – Exp	onenti	al and	Logar	rithmic	series	– Sum	mati	on of	the
above s	eries.				Ť			U						
UNIT V	UNIT V – TWO-DIMENSIONAL ANALYTICAL GEOMETRY 12+3													
Cartesia	Cartesian coordinate system – Introduction to polar coordinates – Distance between two points –													
Section	Section formulae – Area of triangle – Locus and its equations – Straight line: Equation of a													
straight line parallel to an axis – slope form –normal form – Intercept form through two point –														
conditio	on of c	concurre	ncy of the	hree line	es.			7 1				T		T
	$\frac{10K}{60}$	Ľ		KIAL	SE	LLF S.	ιυργ		rkau		_	<u> </u>	\mathbf{UIA}_{75+14}	.L.
			1.	J		13			U				5+1.	,
TEXT	ROO	KS M	1	יוים	T) T	•	V C	C	,1	A 1 1	T 7 1		.	
1.	T. K. S.Visl	Manıcav hvanatha	achagoi n Printe	mPillay ers and l	, T. Nat Publishe	arajan ers Pvt	, K. S. ., Ltd,	Gana	pathy, <i>I</i> nai 200	Algebr 4.	a, Volı	ime	1,	
1	2. S.Naravanan, T.K.ManicavachagamPillay, S.Vishvanathan, Calculus volume I & IIPrinters													

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	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	3						2		
CO2	3						2		
CO3	3						2		
CO4	3						2		
CO5	3						2		
Total	15						10		
Scaled	3						2		
Value									

Mapping of COs with POs:

 $1-5 \rightarrow 1, 6-10 \rightarrow 2, 11-15 \rightarrow 3$

0 – No Relation, 1 – Low Relation, 2- Medium Relation, 3- High Relation

COUI	RSE CODE	XBC105	L	Т	P	SS	С
COUI	RSE NAME	COMPUTER FUNDAMENTALS	3	1	1	1	6
PRER	REQUISITES	Nil	L	Т	Р	SS	Н
C:P:A		3:1:0	3	1	3	1	8
COUI	RSE OUTCOM	Έ	Do	main		Lev	el
CO1	<i>Recognize</i> the application and	importance of computer system, l practice in Libre Office (FOSS) Writer.	Cognit Psycho	ive omotor	1	Unders Origina	ation
CO2	<i>Identify</i> and <i>de</i> hardware and I Impress.	<i>efine</i> basic terms and concepts in computer peripheral devices and Libre Office (FOSS)	Cognit Psycho	ive omotor	1	ation	
CO3	<i>Establish</i> the r <i>Arrange</i> data a Calc.	elationship between hardware and software. and Apply formula in Libre Office (FOSS)	Cognit Psycho	ive omotor	(App Origina	ly ation
CO4	<i>Identify</i> the IO Office (FOSS)	devices. <i>Design</i> database using Libre Base.	Cognit Psycho	ive motor	R	ememł Origina	orance ation
CO5	<i>Identify</i> flowed design a project	hart component and <i>apply</i> in program and et using Libre Office (FOSS).	Cognitive Psychomotor				tand ly ation
UNIT	I – INTRODU	CTION	omautor	Canar	tions	f	9+3+9
Introduction – Characteristics of computer – Evolution of computer- Generationol computer –							

classification of compu	ter- The Computer	r system –Applicat	tions of computers	
Lab:				
Libre Office Writer				
Text Processing				
Table Creation				
Resume Creation				
Mail Merge				
UNIT II - COMPUTE	R ARCHITECT	URE		9+3+9
The Central processin	ng unit (CPU) -	- Main Memory	Unit - Interconnecti	on Unit – Cache –
Communication betwee	en various units of	a computer system	n.	
Lab:				
Libre Office Calc				
Worksheet Crea	ation			
Employee Pay	Details			
Student Result	Sheet			
Simple Charts				
UNIT III - PRIMARY	AND SECON	DARY MEMO	RY	9+3+9
Primary memory : M	emory representati	ion – memory hier	rarchy - Random acces	ss memory – Types of
Memory – Read only	memory – types c	of ROM – Second	larv Memory – Class	ification of secondary
storage devices – Magn	etic tane – Magne	tic disk - Optical	disk – Memory stick -	Universal serial bus –
Mass storage devices	iene upe mugne	de disk optical	disk Wellory stick	eniversur sentur ous
Lah ·				
Libre Office Impress				
Power Point Pr	eneration			
Croote Text An	d Imagas With Ef	facts		
Create Text All	a fillages with El	feets		
				0.2.0
UNIT IV - INPUT AF				<u>9+3+9</u>
Input devices Types of	of input devices	- Optical characte	r recognition – Optica	I Mark recognition -
Magnetic ink characte	r recognition – I	Bar code reader	– Output devices :	Types of output -
Classification of output	devices - Termin	als		
Lab:				
Libre Office Access				
Importing Data	From Data Base			
Creating Macro				
Result Processi	ng			
UNIT V	COMPUTER P	ROGRAM AND	LANGUAGES	9+3+9
Computer Program :	Developing a pro	ogram - Algorith	m – flow chart - dec	ision table – program
testing and debugging-	Program docume	entation – Program	nming paradigms - C	haracteristics of good
program – Compute	<mark>r languages</mark> : H	Evolution of pro	gramming language	– Classification of
programming Languag	e - Generation of	a programming l	anguage - features of	a good programming
language				
Lab:				
Libre Office Project				
Creating A Gre	eting Card			
Creating A Cov	ver Page Of A Pro	iect		
		,		
LECTURE	TUTORIAL	PRACTICAL	Self-Study	TOTAL
45	15	45	15	105+15
Text books				

Dorling Kindersley, 2009. Introduction to Computer Science ITL Education Solutions Limited fourth Edition.

References:

- 1. Roger Hunt and John Shelly, penguin Edition, 2007. Computers and common sense, (PHI)
- 2. Internet for everyone, Lenon&Lenon (Lenon Tech World), 2009.

E-References:

3. http://www.nptel.ac.in

4. <u>http://www.vlab.co.in</u>

Mapping of COs with POs

Course	rse Program Outcomes									
Outcomes	1	2	3	4	5	6	7	PSO1	PSO2	
CO1	2	1	1	1						
CO2			1	1						
CO3	1	2	1	1	1					
CO4	1	2	1	1	1					
CO5	1	1	1	1	2	2		1		
Total	5	6	5	5	4	3		1		
Scaled Value	1	2	1	1	1	1		1		

 $1-5 \rightarrow 1, 6-10 \rightarrow 2, 11-15 \rightarrow 3$

0 – No relation, 1 – Low relation, 2 – Medium relation, 3 – High relation

COUF	RSE CODE	XUM106		L	Τ	P	SS	С
COUF	COURSE NAMEHUMAN ETHICS, VALUES, RIGHTSAND GENDER EQUALITY					0	1	0
PRER	EQUISITES	-		L	Т	Р	SS	Η
C:P:A		1.5:0:0.5		2	0	0	1	3
COUF	RSE OUTCOMES		Domain		Lev	/el		
CO1	<i>Relate</i> and <i>Inter</i> relationships	rpret the human ethics and human	Cognitive	¢	Rei	nem	ber	
CO2	<i>Explain</i> and <i>Apple</i> against women	ly gender issues, equality and violence	Cognitive	e	Un Ap	derst olyin	anding g	g,
CO3	<i>Classify</i> and <i>Dev</i> their violations	elop the identify of human rights and	Cognitive Affective	•	Ana Rec	alyzi eivii	ng ng	
CO4	<i>Classify</i> and <i>Diss</i> report on violation	<i>ect</i> necessity of human rights and ns.	Cognitive	e	Un Ana	Understanding, Analyze		
CO5	<i>List</i> and resp brotherhood, figh and good governa	ond to family values, universal t against corruption by common man nce.	Cognitive Affective	¢	Rei Res	nem pond	ber, 1	
UNIT	I HUMAN	ETHICS AND VALUES					6+3	3
Humai	n Ethics and values	- Understanding of oneself and others-	motives an	nd ne	eds-	Soc	ial ser	vice,
Social	Justice, Dignity an	nd worth, Harmony in human relations	hip: Famil	y an	d Sc	ciety	, Inte	grity
and C	ompetence, Caring	g and Sharing, Honesty and Courage	, WHO's	holi	stic	deve	lopme	ent -
Valuin	Valuing Time, Co-operation, Commitment, Sympathy and Empathy, Self-respect, Self-Confi							
charac	ter building and Pe	rsonality.						
UNIT	IIGENDER EQU	ALITY					6+3	3
Gende	r Equality - Gender	Vs Sex, Concepts, definition, Gender e	quity, equa	ality,	and	emp	owerr	nent.

Status of Women in India Social, Economic, Education, Health, Employment, HDI, GDI, GEM. Contributions of Dr.B.R. Ambetkar, ThanthaiPeriyar and Phule to Women Empowerment.

UNIT IIIWOMEN ISSUES AND CHALLENGES6+3Women Issues and Challenges- Female Infanticide, Female feticide, Violence against women,
Domestic violence, Sexual Harassment, Trafficking, Access to education, Marriage. Remedial
Measures – Acts related to women: Political Right, Property Rights, and Rights to Education,
Medical Termination of Pregnancy Act, and Dowry Prohibition Act.6+3

UNIT IV HUMAN RIGHTS

6+3

Human Rights Movement in India – The preamble to the Constitution of India, Human Rights and Duties, Universal Declaration of Human Rights (UDHR), Civil, Political, Economic, Social and Cultural Rights, Rights against torture, Discrimination and forced Labor, Rights and protection of children and elderly. National Human Rights Commission and other statutory Commissions, Creation of Human Rights Literacy and Awareness. - Intellectual Property Rights (IPR). National Policy on occupational safety, occupational health and working environment.

UNIT VGOOD GOVERNANCE AND ADDRESSING SOCIAL ISSUES6+3

Good Governance - Democracy, People's Participation, Transparency in governance and audit, Corruption, Impact of corruption on society, whom to make corruption complaints, fight against corruption and related issues, Fairness in criminal justice administration, Government system of Redressal. Creation of People friendly environment and universal brotherhood.

LECTURE	TUTORIAL	SELF STUDY	PRACTICAL	TOTAL
30	0	15	0	45
Textbook				

- 1. Aftab A, (Ed.), Human Rights in India: Issues and Challenges, (New Delhi: Raj Publications, 2012).
- 2. Mani. V. S., Human Rights in India: An Overview (New Delhi: Institute for the World Congress on Human Rights, 1998).
- 3. Singh, B. P. Sehgal, (ed) Human Rights in India: Problems and Perspectives (New Delhi: Deep and Deep, 1999).
- 4. Veeramani, K. (ed) Periyar on Women Right, (Chennai: Emerald Publishers, 1996)
- 5. Veeramani, K. (ed) Periyar Feminism, (PeriyarManiammai University, Vallam, Thanjavur: 2010).

Reference Books

- 1. Bajwa, G.S. and Bajwa, D.K. Human Rights in India: Implementation and Violations (New Delhi: D.K. Publications, 1996).
- 2. Chatrath, K. J. S., (ed.), Education for Human Rights and Democracy (Shimala: Indian Institute of Advanced Studies, 1998).
- 3. Jagadeesan. P. Marriage and Social legislations in Tamil Nadu, Chennai: Elachiapen Publications, 1990).
- 4. Kaushal, Rachna, Women and Human Rights in India (New Delhi: Kaveri Books, 2000)

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- http://planningcommission.nic.in/aboutus/committee/wrkgrp12/wg_occup_safety.p
- 2. <u>http://cvc.nic.in/welcome.html</u>.
- 3. <u>https://www.transparency.org/</u>
- 4. https://www.hrw.org/world-report/2015/country-chapters/india

Mapping of COs with Pos

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1					2	2	1			

CO2		2	2			
CO3			2			
CO4			2	1		
CO5			3			
Total		4	11	2		
Scaled Value		1	2	1		

 $1-5 \rightarrow 1$, $6-10 \rightarrow 2$, $11-15 \rightarrow 3$ 0 – No relation, 1 – Low relation, 2 – Medium relation, 3 – High relation

							L	Т	Р	SS	С	
XGL2	201	AI	DVANC	ED ENGI	LISH COMM	IUNICATION	2	0	0	0	2	
C P	201 ADVANCED ENGLISH COMMUNICA SKILLS 0.5 SKILLS 2QUISITE: Nil SEOUTCOMES successful completion of this course students would <i>Recall</i> the basic grammar and using it in proper cor <i>Explain</i> the process of listening and speaking <i>Adapt</i> important methods of reading <i>Demonstrate</i> the basic writing skills Advanced Reading ng texts of different genres and of varying length ii. I ding and interpreting non-linguistic texts iv. Reading of varying lengths and gaps; distorted texts.) I Advanced Writing ysing a topic for an essay or a report vi. Editing the dr i. Re-draft a piece of text with a different persp rise a piece of prose or poetry ix. Using phrases, idiom II Principles of communication and communication to communication – principles and process xiverbal xii. Identifying and overcoming problems of communicative competence V Cross Cultural Communication oss-cultural communication SELF STUDY PRAC 30 0 30						L	Т	Р	SS	H	
1.5 0	0.5						2	0	0	2	4	
PREREC	UISIT	'E: N	Vil									
COURSE	E OUT	COM	IES				DO	LEV	VEL			
On the su	ıccessfı	ıl cor	mpletion	of this co	ourse student	s would be able t	0					
CO1	Recal	the l	basic gra	immar and	using it in pr	oper context	Cogr	Cognitive			nberi	
CO2	Expla	<i>in</i> the	e process	s of listeni	ng and speaki	ng	Cogr	nitive		Under ng	standi	
CO3	Adapt	imp	ortant m	ethods of	reading		Cogr	nitive		Creatin	ng	
CO4	Demo	nstra	<i>te</i> the ba	sic writing	g skills		Cogr	nitive		Under ng	standi	
UNIT I		Ad	vanced	Reading			6					
i. Reading	g texts o	of dif	fferent ge	enres and	of varying lei	ngth ii. Different s	strateg	ies c	of co	mprehe	nsion	
iii. Readi	ng and	inter	preting 1	non-lingui	stic texts iv.	Reading and unde	erstan	ding	inco	mplete	texts	
(Cloze of	varying	g leng	gths and	gaps; disto	orted texts.)							
UNIT II		Ad	vanced	Writing							6	
v. Analys	ing a to	pic f	or an ess	say or a re	port vi. Editir	g the drafts arrive	ed at a	nd p	repai	ring the	final	
draft vii.	Re-dra	aft a	piece of	of text w	ith a differen	nt perspective (N	Ianipu	latio	n ey	(kercise	viii.	
Summaris	se a piec	ce of	prose or	poetry ix.	Using phrase	s, idioms and pun	ctuatio	on ap	prop	oriately		
UNIT III	[Pri	inciples	of commu	nication and	communicative of	compe	etenc	e		6	
x. Introdu	iction to	o com	imunicat	ion – princ	ciples and pro	cess xi. Types of c	comm	unica	ation	– verba	al	
and non-v	verbal x	ii. Ide	entifying	and over	coming proble	ems of communica	tion					
xiii. Com	municat	tive c	competer	ice								
UNIT IV			oss Cult	ural Com	munication						6	
x1v. Cross	s-cultura	al cor	mmunica	ation		l	r					
LEC	TURE		TUT	ORIAL	SELF STUDY	PRACTICAL	TOTAL					
	30			0	30	0			6	0		
REFERE	ENCES	:										
 Bailey, Depart 	, Stephe ment of	en (20 Engl	003). Ac lish, Del	ademic W hi Univers	riting. Londo ity (2006). F	n and New York, I luency in English	Routle Part I	edge. I. Ne	w De	elhi, OU	JP	
I												

3) Grellet, F (1981). Developing Reading Skills: A Practical Guide to Reading Skills. New York, CUP

4) Hedge, T. (2005). Writing. London, OUP

5) Kumar, S and Pushp Lata (2015). Communication Skills. New Delhi, OUP

6) Lazar, G. (2010). Literature and Language Teaching. Cambridge, CUP

7) Nuttall, C (1996). Teaching Reading Skills in a Foreign Language. London, Macmillan

8) Raman, Meenakshi and Sangeeta Sharma (2011). Technical Communication: Principles and Practice. New Delhi, OUP

	XES202		L	Т	Р	SS	С			
	XES202	2		0	0	0	0	0		
С	Р	А	ENVIRONMENTAL STUDIES	L	Т	Р	SS	Н		
1.5	0	0.5		2	0	0	1	3		
PREI	REQUIS	SITE :	Nil							
Cours	e Outco	mes		Domain Level						
After	the com	pletion	of the course, students will be able to							
CO1	Descri explai	<i>be</i> the <i>i</i> anthr	significance of natural resources and opogenic impacts.	Cognitive	e	Remember Understand				
CO2	<i>Illustra</i> and na ecolog	<i>ate</i> the atural g ical bal	significance of ecosystem, biodiversity geo bio chemical cycles for maintaining ance.	Cognitive	e	Understand				
CO3	<i>Identif</i> of ma phenor	y the ajor p nenon	facts, consequences, preventive measures follutions and <i>recognize</i> the disaster	Cognitive Affective	e	Remember Receiving				
CO4	<i>Explai</i> and <i>pra</i> sustain	n the ctice t able de	e socio-economic, policy dynamics he control measures of global issues for evelopment.	Cognitive	e	Unders	stand			
CO5	the im welfare toward	pact o e prog s envir	f population and the concept of various rams, and <i>apply</i> themodern technology onmental protection.	Cognitive	e	Unders Apply	stand			
UNIT	I	INT AN	TRODUCTION TO ENVIRONMENTAL D ENERGY	ι STUDIΗ	ES			6		
Defin explo forest water	ition, sco itation, c s and tr , flood,	ope and lefores ibal pe drough	l importance – Need for public awareness – tation, case studies. Timber extraction, mi ople – Water resources: Use and over-ut t, conflicts over water, dams-benefits and	Forest re ning, dan ilization problems	source ns and of sur s – M	es: Use l their of face ar lineral	and offect and offect and groups and groups and groups and groups and groups and groups and and and and and and and and and and and and a and a and a and a and a and a and a a and a a and a a a a a a a a a a a a a a a a a a a	over- ts on ound rces:		

Use and exploitation, environmental effects of extracting and using mineral resources, case

studies – Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies – Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies – Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification – Role of an individual in conservation of natural resources – Equitable use of resources for sustainable lifestyles.

UNIT II ECOSYSTEMS AND BIODIVERSITY

6

Concept of an ecosystem – Structure and function of an ecosystem – Producers, consumers and decomposers – Energy flow in the ecosystem – Ecological succession – Food chains, food webs and ecological pyramids – Introduction, types, characteristic features, structure and function of the (a) Forest ecosystem (b) Grassland ecosystem (c) Desert ecosystem (d) Aquatic ecosystem (ponds, streams, lakes, rivers, oceans, estuaries) – Introduction to Biodiversity – Definition: genetic, species and ecosystem diversity - Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

UNIT III ENVIRONMENTAL POLLUTION

Definition – Causes, effects and control measures of: (a) Air pollution (b) Water pollution (c) Soil pollution (d) Marine pollution (e) Noise pollution (f) Thermal pollution (g) Nuclear hazards – Solid waste management: Causes, effects and control measures of urban and industrial wastes – Role of an individual in prevention of pollution – Pollution case studies – Disaster management: flood, earthquake, cyclone and landslide.

UNIT IV SOCIAL ISSUES AND THE ENVIRONMENT

6

6

Urban problems related to energy – Water conservation, rain water harvesting, watershed management – Resettlement and rehabilitation of people; its problems and concerns, climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, Wasteland reclamation – Consumerism and waste products – Environment Protection Act – Air (Prevention and Control of Pollution) Act – Water (Prevention and control of Pollution) Act – Wildlife Protection Act – Forest Conservation Act – Issues involved in enforcement of environmental legislation – Public awareness.

UNIT V HUMAN POPULATION AND THE ENVIRONMENT

6

Population growth, variation among nations – Population explosion – Family welfare programme – Environment and human health – Human rights – Value education - HIV / AIDS – Women and Child welfare programme– Role of Information Technology in Environment and human health – Case studies.

Lecture	Tutorial	Self-Study	Practical	Total
30	0	15	0	45

Text book

- 1. Miller T.G. Jr., Environmental Science, Wadsworth Publishing Co, USA, 2000.
- 2. <u>Townsend C., Harper J and Michael Begon, Essentials of Ecology, Blackwell Science,</u> <u>UK, 2003</u>

Reference Books

- 1. <u>Trivedi R.K and P.K.Goel, Introduction to Air pollution, Techno Science Publications,</u> <u>India, 2003.</u>
- 2. Disaster mitigation, Preparedness, Recovery and Response, SBS Publishers & Distributors Pvt. Ltd, New Delhi, 2006.

- 3. Introduction to International disaster management, Butterworth Heinemann, 2006.
- 4. <u>Gilbert M.Masters, Introduction to Environmental Engineering and Science, Pearson</u> Education Pvt., Ltd., Second Edition, New Delhi, 2004.
- 5. <u>Trivedi R.K., Handbook of Environmental Laws, Rules, Guidelines, Compliances and</u> <u>Standards, Vol. I and II, Enviro Media, India, 2009.</u>
- 6. <u>Cunningham, W.P.Cooper, T.H.Gorhani, Environmental Encyclopedia, Jaico Publ.</u>, <u>House, Mumbai, 2001.</u>
- 7. <u>S.K.Dhameja</u>, Environmental Engineering and Management, S.K.Kataria and Sons, <u>New Delhi</u>, 2012.
- 8. Sahni, Disaster Risk Reduction in South Asia, PHI Learning, New Delhi, 2003.
- 9. Sundar, Disaster Management, Sarup& Sons, New Delhi, 2007.
- 10. G.K.Ghosh, Disaster Management, A.P.H.Publishers, New Delhi, 2006.

E-references

- 1. http://www.e-booksdirectory.com/details.php?ebook=10526
- 2. <u>https://www.free-ebooks.net/ebook/Introduction-to-Environmental-Science</u>
- 3. https://www.free-ebooks.net/ebook/What-is-Biodiversity
- 4. <u>https://www.learner.org/courses/envsci/unit/unit_vis.php?unit=4</u>
- 5. <u>http://bookboon.com/en/pollution-prevention-and-control-ebook</u>
- 6. <u>http://www.e-booksdirectory.com/details.php?ebook=8557</u>
- 7. http://www.e-booksdirectory.com/details.php?ebook=6804

	GA1	GA2	GA3	GA4	GA5	GA6	GA7	GA8	GA9	GA10
CO1	2						2		2	2
CO2	1						2			2
CO3	2	1	2				3		2	3
CO4	2	2	2				2			3
CO5	2				3	3				2
	9	3	4		3	3	9		4	12
Scaled value	2	1	1		1	1	2		1	3

					L	Т	Р	SS	С	
Χ	BC2	.03			3	1	1	1	6	
			DATA STRUCTURES							
С	Р	Α			L	Т	Р	SS	Η	
3	1	0		3	1	3	1	7		
PREREQUISITE: Computer Programming										
Cou	rse	Outco	mes De	omain	L	Level				
Afte	r the	comp	letion of the course, students will be able to							
CO1 Explains the concept of data structures and with the manner in which these data structures can best be implemented; become accustomed to the description of algorithms in both functional and procedural styles					ve noto	Une Apj	ders ply	stand		
CO2	CO2 <i>Choose</i> To have a knowledge of complexity of bas				Cognitive Remem					

	operations like insert, delete, search on these data							
	structures							
CO3	Ability to choose a data structure to suitably model any data used in computer applications	Cognitive Psychomoto r	Apply Set					
CO4	Design programs using various data structures including hash tables, Binary and general search trees, heaps, graphs etc.	Cognitive	Analyze					
CO5	Ability to assess efficiency tradeoffs among different data structure implementations. Implement and know the applications of algorithms for sorting, pattern matching etc.	Cognitive	Create					
UNIT I INTRODUCTION 9+3+9								
Perform Concate Operati represer Lab	nance analysis, Linear and Non-Linear data structures, Sin enating, circularly linked lists-Operations for Circularly link ons. Representation of single, two dimensional arrays, spa ntations.	ngly Linked L ed lists, Doubl rse matrices-a	ists-Operations, ly Linked Lists- rray and linked					
a) Creat	tion of list of elements where the size of the list elements to l	be incerted and	deleted are					
dynami	cally given as input	be miseried and	defeted are					
b) Impl	ement the operations insertion deletion at a given position i	n the list and se	arch for an					
elemen	t in the list	i the list and se						
c) To d	isplay the elements in forward / reverse order							
ÚNIT I	I LINEAR DATA STRUCTURES		9+3+9					
UNIT IILINEAR DATA STRUCTURES9+3+9Stack- Operations, Array and Linked Implementations, Applications- Infix to Postfix Conversion, Postfix Expression Evaluation, Recursion Implementation, Queue- Definition and Operations, Array and Linked Implementations, Circular Queues - Insertion and Deletion Operations, Dequeue (Double Ended Queue).9+3+9								
LaD	Write a program that demonstrates the application of stack of	perations (Eg: i	nfix expression					
	to postfix conversion)		r					
2.	Write a program to implement queue data structure and basic deletion, find length) and code at least one application using	operations on queues	it (Insertion,					
UNIT I	III TREES		9+3+9					
Trees, Represe Trees, I	Representation of Trees, Binary tree, Properties of entations- Array and Linked Representations, Binary Tree Priority Queue- Implementation, Heap- Definition, Insertion,	Binary Trees Traversals, T Deletion.	, Binary Tree hreaded Binary					
Lab 1.	Write a program that uses well defined functions to Create Traverse a Binary tree in preorder, inorder and postorder.	a binary tree	of elements and					
	V GRAPHS		9+3+9					
Graphs Hashing Compa	, Graph ADT, Graph Representations, Graph Traversals, Sear g- Introduction, Hash tables, Hash functions, Overflow rison of Sorting Methods.	ching, Static Handling. So	rting Methods,					
Lab 1.	Write program that implements linear and binary search element in a list.	methods of se	earching for an					

2. W	/rite and trac	ce prog	grams to und	lerstand the various	phases of	f sorting	eleme	ents		
us	sing the meth	hods.								
-) T	C t									
a) Inserti	on Sort									
b) Quicks	sort									
C D UDDIE	e son			DESIGN TECHNI	OUES				0	2 0
Search T	rees_ Rinary		$\frac{\mathbf{OKITIM}}{\mathbf{Ch} \mathbf{Trees} \mathbf{\Delta}}$	VI Trees- Definition	QUES on and F	vamnles	Red	Black	and	Splay
Trees.	Comparison	of Sear	earch Trees	Pattern Matchin	g Algorit	hm- Th	e Kr	uth-N	Morrig	s-Pratt
Algorithm	n. Tries (exa	amples	s).	,	8,80		-			
Lab	,	1								
1. W	/rite and trac	ce prog	grams to Cre	ate a Binary search	tree and	insert an	d dele	te fro	om the	e tree.
2. R	epresent suit	tably a	ı graph data	structure and demor	istrate op	erations	of tra	versa	ls on	it.
LECT	URE	TUI	ORIAL	PRACTICAL	SELF	-STUDY		T	OTAI	
4	5		15	45		15		1	05+1	5
REFERI	ENCES:									
1. Funda	amentals of	Data	structures	in C, 2nd Edition	n, E. Ho	orowitz,	S. S	ahni	and	Susan
Ande	rson-Freed,	Unive	rsities Press.							
2. Data	structures an	nd Alg	orithm Anal	ysis in C, 2nd edition	on, M. A.	Weiss, I	Pearso	n		
3. Lipsc	hutz: Schau	m's ou	utline series	Data structures Tata	McGrav	/-Hill				
1. w	ww.tutorials	spoint.	com							
$2. \underline{w}$	ww.nptel.co	$\frac{m}{1}$.								
3. <u>w</u>	<u>ww.virtualla</u>	ab.ac.11	<u>n</u> Maalain	la Chaina	Overtier	• •	A			Link
4. L	ecture S	d mbo	Nulup ducation cor	n/sites/0072067757	Question	$1S, \qquad 1S, $	Anima dox b	ations	8	LINK:
5 L	ecture Slides	$\frac{u.111100}{v}$	$\frac{uucation.con}{www.mb}$	$\frac{11/31103/0072907737}{2907737}$	sci/forou	$\frac{v10w0/11}{van}$	uex.n	<u>uIII</u>		
		<u>Е</u>		XBC204	3 0 1/1010 0 1	L	Т	Р	SS	C
COL	URSE NAM	Ē	DISCR	ETE MATHEMAT	TICS	3	1	0	2	6
PRE	EREQUIST	E		NIL		L	Т	Р	SS	Н
	C:P:A			3:0:0		3	1	0	2	6
Course	Outcome					Domai	n	Le	vel	•
								•		
CO1	Define the	e prop	erties and l	aws of sets, relation	ons and	Cognit	ive	R,	Ар	
	functions	andAp	oply the op	eration of the set	s using					
	venDiagram	m.								
CO2	Applythe c	oncept	ts of logic ar	nd to find the norma	ll forms.	Cognit	ive	U,	Ар	
	Explain the	e tauto	ologies and							
CO2	Contradicti	10n.				<u>C</u>	•	TT	A	
003	Apply the	e co	unting pri	the problem Ern	on and	Cognit	ive	υ,	Ар	
	nigeonhole	n and	inle	ule problem. <i>Expl</i>	un ine					
CO4	Explain th	he typ	ipic. les of lattic	es and to show lat	tices as	Cognit	ive	II	An	
04	partially or	dered	sets		tices as	Cogini	IVC	0,	чр	
CO5	Apply the	prope	erties of ser	ni groups and groups	ups and	Cognit	ive	U.	An	
000	Explain an	iv set	with binary	operation as a set	nigroup	008		с,	p	
	and group	with e	xamples.	I	0 1					
UNIT I	[12	
Set not	ations – Ba	sic de	finitions and	d set operations -	Venn dia	ıgram –	Alge	braic	laws	of set
	D 1 (1								
theory -	– D Morgan	ís law	7. Relations:	Properties of relati	ions – Ty	pes of r	elatio	ns –	Equiv	valence

classes. Functions: Definition – Domain – Range and types of function- Classification of function.

12

12

12

12

UNIT II

Statements - Normal forms - CNF - DNF - PCNF - PDN - Tautologies - Contradictions.

UNIT III

Counting principles – The Pigeonhole principle – Counting – Permutations and Combinations – Combinatorial arguments – Countable and uncountable sets.

UNIT IV

Lattices as partially ordered set – Types of lattices – Lattices as algebraic system.

UNIT V

Binary operations – Semi groups - Groups – Examples and elementary properties.

LECTURE	TUTORIAL	PRACTICAL	SELF STUDY	TOTAL
45	15	0	30	60 + 30
TEXT BOOK				

- **1.** Ralph. P. Grimaldi, "Discrete and Combinatorial Mathematics: An Applied Introduction", Fourth Edition, Pearson Education Asia, Delhi, 2002.
- 2. Kenneth Levasseur and Alan Doerr, "Applied Discrete Structures, Department of Mathematical Sciences, University of Massachusetts Lowell, Version 2.0, 2013.

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- 1. Kenneth H.Rosen, "Discrete Mathematics and its Application", Fifth edition, Tata McGraw-Hill Publishing company pvt.Ltd., New Delhi, 2003.
- 2. Dr.M.K.Venkataraman, Dr.N.SridharanN.Chandrasekaran, "Discrete Mathematics", the National Publishing Company, 2003.
- 3. Veerajan T., Discrete Mathematics with Graph Theory and Combinatorics", 10th edition, Tata McGraw Hill Companies, 2010.

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- 1. <u>www.nptel.ac.in</u>
- 2. Graph Theory A NPTEL Course S.A. Choudum.
- **3.** Graph Theory by Prof. L. Sunil Chandran Computer Science and Automation Indian Institute of Science, Bangalore.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8				
CO1	3	1				1		1				
CO2	3	1	1			1		1				
CO3	3		1			1		1				
CO4	3					1	1	1				
CO5	3					1	1	1				

Mapping of CO's with PO's:

3-Strong Correlation, 2-Medium Correlation, 1-Low Correlation, 0-No Correlation

XBC205	DIGITAL ELECTRONICS	L	Т	P	SS	C	
ADC203	DIGITAL ELECTRONICS	3	1	1	1	6	ĺ

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$\frac{C}{25}$	$\frac{\mathbf{P} \mathbf{A}}{5 0.5}$			T	P		H e			
$\frac{2.5}{\text{PRER}}$	<u>.5 U.5 </u> Eoliisite• n	II	5	1	5	1	0			
Course	e Outcomes		Domai	in		Leve				
After tl	ne completion o	f the course, students will be able to								
CO1	<i>Know</i> the nu and perform number system	nerical values in various number systems number conversions between different ns.	Cognitiv	e	Un	derstar	nd			
CO2	CO2 Demonstrate the operation of logic gates, Boolean algebra including algebraic manipulation/simplification, application of DeMorgan's theorems and Karnaugh map reduction method. Cognitive or Understand Apply									
CO3	Identify, Anal	yze and <i>Design</i> combinational circuits	Cognitiv Psychom or	re not	Un Ap	derstar ply	nd			
CO4	Analyze and Design sequential digital circuits like flip- flops, registers, counters									
CO5	Understand									
UN	IT I NUM TEC	BER SYSTEMS AND MINIMIZATION				9+3+	9			
Binary, number ASCII NOT, I using g Lab :L	, Octal, Decima rs. Binary Arith –Error detectin NAND, NOR, H ates, NAND –N ogic gates – ver	l, Hexadecimal-Number base conversions – c metic- Binary codes: Weighted –BCD – 242 g code – conversion from one code to anoth exclusive – OR and Exclusive – NOR- Impler OR implementations.	complem 1 - Gray er- Logionentation	ents code c Ga s of	– sig e-Exc tes : Logi	gned B cess 3 AND c Fund	inary code- , OR, ctions			
UN	T II BOO	LEAN ALGEBRA & SIMPLIFICATION				9+3+	9			
Boolea Forms	n Algebra – Ba – Karnaugh Ma	sic Theorems and properties – Boolean Functi p Simplification – Two, ThreeVariables – NA	ons – Ca ND and I	noni NOR	cal a Imp	nd Sta lemen	ndard			
– Don' Lab : A	t Care Condition	oolean functions					tation			
- Don' Lab: A	t Care Condition Application of E	ns. oolean functions			1	0 : 2 :				
– Don' Lab : A UNI	t Care Condition Application of E	ns. oolean functions BINATIONAL CIRCUITS s – Adder - Subtractor – Design and Analysis	procedu	res -	- Rin	9+3+	9 rallel			
– Don' Lab : 4 UNI Combin Adder	t Care Condition Application of E T III COM national Circuit	ns. oolean functions BINATIONAL CIRCUITS s – Adder - Subtractor – Design and Analysis der – Encoder – Decoder – Multiplexer –	procedu	res –	- Bin er –	9+3+ ary Pa Magr	9 rallel			
– Don' Lab : 2 UNI Combin Adder compan	t Care Condition Application of E T III COM national Circuit – Decimal Ad cators – Read O	ns. oolean functions BINATIONAL CIRCUITS s – Adder - Subtractor – Design and Analysis der – Encoder – Decoder – Multiplexer – nly Memory (ROM) – Programmable Logic A	procedu Demulti rray(PLA	res - plex	- Bin er –	9+3+ ary Pa Magr	9 Irallel nitude			
– Don' Lab : 2 UNI Combin Adder compan Lab : 2	t Care Condition Application of E T III COM national Circuit – Decimal Ad cators – Read O Applications of	ns. oolean functions BINATIONAL CIRCUITS s – Adder - Subtractor – Design and Analysis der – Encoder – Decoder – Multiplexer – nly Memory (ROM) – Programmable Logic Ar combinational circuits.	procedu Demulti rray(PLA	res – plex .).	- Bin er –	9+3+ ary Pa Magr	9 rallel nitude			

Sequential circuits – Latches – Flip-flops – Triggering of Flip-Flops – Analysis of clocked sequential circuits – State reduction and state assignment – Design procedure of clocked sequential circuits – Design of counters – Registers – Shift registers – Ripple counter and Synchronous counter.

Lab: Design and verify the circuits of Flip Flops, Registers and counters.

UNIT V MEMORIES

9+3+9

Classification of memories –RAM organization – Write operation –Read operation – Memory cycle - Timing wave forms – Memory decoding – memory expansion – Static RAM Cell-Bipolar RAM cell – MOSFET RAM cell –Dynamic RAM cell –ROM organization - PROM –EPROM – EEPROM –EAPROM –Programmable Logic Devices.

Lab :Verification of timing waveforms.

LECTURE	TUTORIAL	PRACTICAL	SELF- STUDY	TOTAL
45	15	45	15	105+15

TEXT BOOK

- 1. M. Morris Mano, "Digital Design", 3rd Edition, Prentice Hall of India Pvt. Ltd., New Delhi, 2003/Pearson Education (Singapore) Pvt. Ltd., New Delhi, 2003.
- 2. John .M Yarbrough, "Digital Logic Applications and Design", Thomson- Vikas publishing house, New Delhi, 2002.
- 3. Microprocessor Architecture Programming and Application, Ganonker, Ramesh, PHI Learning, New Delhi.

REFERENCES:

- 1. Salivahanan and S. Arivazhagan, "Digital Circuits and Design", 2nd Edition, Vikas Publishing House Pvt. Ltd New Delhi, 2004
- 2. Charles H.Roth. "Fundamentals of Logic Design", Thomson Publication Company, 2003.
- 3. Donald P.Leach and Albert Paul Malvino, "Digital Principles and applications", 5th Edition., Tata McGraw Hill Publishing Company Limited, New Delhi, 2003.

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- 1. www.tutorialspoint.com/computer_logical_organization/pdf/quick_guide.pdf
- 2. www.vlab.co.in/ba_labs_all.php?id=1
- 3. www.nptel.ac.in/video.php?subjectId=117105080
- 4. https://www.youtube.com/watch?v=CeD2L6KbtV

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

DSo	РО								PSO	
D.5C.	1	2	3	4	5	6	7	1	2	
CO1	3	2	1	1	0	1	0	1	1	
CO2	0	1	3	2	0	2	0	2	2	
CO3	1	2	3	0	0	2	0	2	2	
CO4	1	2	3	1	0	2	0	1	2	
CO5	0	3	0	1	0	2	0	1	2	
Average	1	2	2	1	0	2	0	1	2	

3-High Relation, 2-Medium Relation, 1-Low Relation, 0-No Relation

<u>т </u>					
	L	Т	Р	SS	C

						0	0	0	0	0
C	D	Δ				T	Т	D	66	п
2 75	r O	A 0.25					1	Г 0	55	<u>п</u> 3
	U USTE · X	<u> </u>				5	U	U	U	5
Course ($\frac{2015112.7}{1000000000000000000000000000000000000$	L6202			T	Domain		Level	1	
Course C	Jucomes					Domain		Unde	rstand	1
CO1	Understa	nd and	<i>Recognize</i> the	e concepts of disaster	(Cognitiv	e	Reme	ember	
CO2	<i>Recogniz</i> disaster	e and d	<i>escribe</i> the ca	uses and effects of	(Cognitiv	e	Unde Reme	rstanc ember	1
CO3	Describe	the vari	ous approach	es of risk reduction	(Cognitiv	e	Reme	ember	•
CO4	Demonstr developm	rate the	inter-relation	ship between disaster	and C	Cognitiv	e	Unde	rstanc	ł
	Discuss h	azard a	nd vulnerabili	ty profile of India and	d (Cognitiv	e	Reme	ember	•
CO5	respond to	o drills	related to reli	ef		Affective	2	Resp	onse	
UNIT - I	IN IN	JTROE	DICTION T	O DISASTERS	1	meetre		resp	onse	6
Concepts	s and defin	itions- l	Disaster, Haza	ard, Vulnerability, Re	silience,	Risks				0
UNIT - I	II D	ISAST	ERS: CLASS	SIFICATION, CAUS	SES, IM	PACTS				12
Differen	tial impact	s- in te	erms of caste	, class, gender, age,	location	, disabil	ity (Global	trend	ls in
disasters, urban disasters, pandemics, complex emergencies, Climate change										
UNIT - III APPROACHES TO DISASTER RISK REDUCTION 10										10
Disaster	cycle - its	analys	sis, Phases, C	ulture of safety, prev	vention,	mitigati	on ai	nd pre	pared	ness
commun	ity based	DRR,	Structural-	nonstructural measu	ires, rol	les and	resp	onsibi	lities	of-
commun	ity, Panch	ayati R	aj Institution	s/Urban Local Bodi	es (PRIs	s/ULBs),	stat	es, Ce	entre,	and
other sta	ke-holders									
UNIT - I	IV IN	TER-I	RELATIONS	SHIP BETWEEN DI	ISASTE	RS ANI)			6
	D	EVEL(OPMENT							
Factors	affecting V	/ulnera	bilities, differ	rential impacts, impa	ct of De	evelopm	ent p	project	s sucl	h as
dams, e	mbankmer	its, cha	inges in Lar	nd-use etc. Climate	Change	e Adapta	ation	Rele	vance	e of
indigeno	us knowled	lge, app	propriate tech	nology and local reso	urces					
UNIT -	\mathbf{V} D	ISAST	ER RISK MA	ANAGEMENT IN I	NDIA					11
Hazard a	nd Vulner	ability p	profile of Indi	a Components of Dis	aster Re	lief: Wa	ter, F	ood, S	anitat	tion,
Shelter,	Health, V	Vaste	Management	Institutional arrang	ements	(Mitigat	tion,	Resp	onse	and
Prepared	ness, DM	Act and	l Policy, Othe	r related policies, plar	ns, progr	ammes a	and le	egislati	on).	
The proj	ect / fieldw	ork to	understand vu	Inerabilities work on	reductio	on of dis	aster	risk aı	nd bui	ild a
cultural	safety.	T								
LEC	TURE	TU	TORIAL	PRACTICAL	SELI	F-STUD	Y	T	OTAI	Ĺ
	45		0	0		0		45		
TEXT B	TEXT BOOKS:									
1. 0	Coppola P	Damor	n, "Introducti	on to International	Disaster	Manag	emer	it, But	tterwo	orth-
H	Heinemann, 2015									
2. K	2. K. N. Shastri, "Disaster Management in India", Pinnacle Technology, 2012									
3. 0	3. Gupta Anil K, Sreeja S. Nair, "Environmental Knowledge for Disaster Risk Management,									
	NDM, Nev	v Delhi,	2011		1	10				
4. L	4. Lee Allyn Davis, "Natural Disasters", Infobase Publishing, 2010									
5. A	Andharia J	, "Vulı	nerability in	Disaster Discourse"	, JTCDI	M, Tata	Inst	itute	of Sc	ocial
S	ciences W	orking	Paper no. 8, 2	008						
1										

REFERENCES:

- 1. Alexander David, Introduction in 'Confronting Catastrophe', Oxford University Press, 2000
- 2. Carter, Nick 1991. Disaster Management: A Disaster Manager's Handbook. Asian Development Bank, Manila Philippines.

E- RESOURCES:

1. NIDM Publications at http://nidm.gov.in- Official Website of National Institute of Disaster Management (NIDM), Ministry of Home Affairs,

- 2. http://cwc.gov.in, http://ekdrm.net, http://www.emdat.be,
- 3. http://www.nws.noaa.gov, http://pubs.usgs.gov, http://nidm.gov.ini
- 4. http://www.imd.gov.in

	Mapping of CO with GA											
COs	GA1	GA2	GA3	GA4	GA5	GA6	GA7	GA8	GA9	GA1	GA11	GA12
CO1	1					3	2	1				1
CO2	1					3	2	1				1
CO3	1					3	2	1				1
CO4	1					3	2	1				1
CO5	1					3	2	1				1
Total	5					15	10	5				5
Scaled value	1					3	2	1				1

X	BC3	01	MULTIMEDIA SYSTEMS		L 3	T 0	P 1	S S 0	C 4
С	Р	Α			L	Т	Р	S S	H
3	1	0			3	0	2	0	5
PRI	ERE	QUIS	SITE:XBC103						
Cou	irse	Outco	omes	Domain	L	evel			
Afte	er the	e com	pletion of the course, students will be able to						
CO	CO1 <i>Identify</i> and <i>describe</i> the Multimedia components, various html tags, Image editing open source software Cognitive							nd	
CO	2	<i>Creat</i> and a	te webpage with necessary image document (text) nimation and practice in HTML.	Cognitive Psychomotor	U A S	Inde Ippli et	rsta cati	nd ion	
CO	3	Gain editin	a working knowledge and <i>develop</i> their skills in g and altering photographs.	Cognitive	U A	nde: .ppli	rsta cati	nd on	
CO	4	Stude the fi	ents can <i>renovate</i> the damaged photos. And export les with various formats and printing devices.	Cognitive Psychomotor	U A	Inde Inaly	rsta /ze	nd	

						Sat
	Ctudanta agu du	men and danalan	about aling and b			Sei
	Students can are	<i>aw</i> and <i>aevelop</i>	snort clips and b	anners	A	Understand
CO5	with animation t	using flash and ci	eate Audio files.	Using	Cognitive	Create
	ntml image edi	ting and 2D ar	imation software	e, can	Psychomotor	Set
	<i>develop</i> and <i>depl</i>	oy a complete we	b site in internet.			0.(
		IEDIA SYSTEM	<u>S DESIGN</u>			9+6
Introd	uction – Multime	edia applications	and its impact	– Mult	imedia System	Architecture –
Networ	rk architecture foi	r multimedia. Ev	olving technologi	les for	Multimedia–H	
Audio	logies and digital s	signal processing.	Defining objects	for Mu	litimedia system	ns-Text-Image –
Audio	and video, Audio-	recording				
I oh Fr	novimonta Using I	maga Editing Taal	0			
	II IMACE ED	TINC BASICS	5			0+6
Introdu	iction about Image	- Editor- Navigat	ing _ Menus and	nanele_	Working with	mages -Zooming
& Donn	ing an Image Wor	Lunor-Mavigat	la Imagas Pulars	Guide	e & Gride Un	doing Stops with
History	Adjusting Color	with the New Ac	liustments Danel 7	, Oulue	v Maske Danal	The New Note
Tool	r the Save for W	Veh & Devices I	nterface. The Ne		o Bland & Au	to Align Lavers
Comm	and s_{-} The New (3D Commands-	Asizing & Cronn	ing Im	ages Understa	nding Pixels
Resolu	tion-The Image Si	ize Command-Int	erpolation Option	ing ini Is-Resiz	ving for Print &	Web-Cronning
& Strai	ohtening an Image	- Adjusting Cany	vas Size & Canvas	Rotati	on	e web cropping
a bua	ignitening an inage	c rugusting canv		Rotati	511.	
Lab Ex	periments Using I	nage Editing Tool	s			
UNIT	III IMAGE A	ND TEXT EDI	FING- LAYERS			9+6
Lavers	-Background Lave	er- Creating, Sele	cting, Linking & I	Deleting	z Lavers- Locki	ng & Merging
Layers	-Copying Layers,	Using Perspec	tive & Laver S	Styles-	Filling & G	ouping Lavers-
Introdu	ction to Blending	Modes-Blending	Modes, Opacity &	ہے۔ Fill C ک	reating & Modi	ifying Text
	C C	C C			C	• •
Lab Ex	periments Using I	nage Editing Tool	S			
UNIT	IV IMAGE A	ND TEXT EDI	FING-EFFECTS	5		9+6
Photo I	Retouching - The R	ed Eye Tool-The	Clone Stamp Too	l- The l	Patch Tool & th	e Healing Brush
Tool-C	olor Correction:	Adjusting Levels-	-Adjust Curves-C	reating	Special Effects	- Getting Started
with Fi	ilters-Creating Tex	xt Effects- Apply	ing Gradients to '	Text-Ex	porting- Savin	g with Different
File Fo	rmats-Saving for V	Web & Devices-P	rinting Options			
Lab Ex	periments Using In	mage Editing Tool	S			0.(
UNIT	V 2D ANIM	ATION			a a	9+6
Explor	ing the 2D environ	iment – working v	with images - basi	c drawi	ng and selectio	n – shapes –
color –	text – layers – sce	ene and frame labe	el – symbol and in	istance	– animation	
	• • • •					
Lad Ex	ECTUDE	D Animation 1001		SEI	E STUDY	ΤΟΤΑΙ
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2.K.La	vallya, FIIVIL J, F hIoffoonto Multin	media in practica	u, 2011	nnlight	one" DUI 1000	>
J.Juail		incuta in practice	and A	ppncati	0115, 111,1990).
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2.Foley, Vandam, Feiner, Huges, 2003. "Computer Graphics: Principles & Practice", Pearson Education, second edition.

3. PhotoShopCS for digital photographers by Colin Smith Publisher: Charles River Media. 1st edition .

4. ActionScript for Flash MX: The Definitive Guide, 2nd Edition By Colin Moock.

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1. https://www.youtube.com/watch?v=ZGXS5HoBYAQ

2. https://www.youtube.com/watch?v=spoJ7Z8LzW8

3. www.tutorialspoint.com/listtutorials/multimedia/1

4. http://www.vlab.co.in

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

P So CS	PO								50
D.50 C5	1	2	3	4	5	6	7	1	2
CO1	2	2	2	2	2	1	1	2	2
CO2	2	3	2	1	1	1	1	2	2
CO3	2	2	3	1	2	1	1	3	2
CO4	2	3	1	1	1	1	1	2	2
CO5	2	1	1	2	2	1	1	2	2
Average	2	2	2	1	2	1	1	2	2

3–Strong Correlation, 2–Medium Correlation, 1–Low Correlation, 0–No Correlation

v	BC302			L	Т	Р	SS	С			
Λ	DC302		ODED ATING SYSTEMS	4	1	0	1	6			
С	P	Α	OPERATING SYSTEMS	Р	SS	Η					
4	0	0		4	1	0	1	6			
PRERE	PREREQUISITE Computer Fundamentals										
Course	Outcon	mes		Domain Level							
After th	e comp	letion of	of the course, students will be able to								
CO1	CO1 <i>Identifying</i> the important computer system resources and the role of operating system in their management policies and algorithms.							r			
CO2	Ability Calcul	y to late sch	explain the process scheduling algorithms and eduling problems	algorithms and Cognitive Understand Apply							
CO3	CO3 Ability to <i>express various</i> process synchronization issues.						Understand Apply				
CO4	Indica file sy	te the stem.	memory management techniques and importance of	Cogni	tive	Understand		d			
CO5	Classi of ope	fy func rating	tionality and have sound knowledge of various types system android.	Cogni	tive	Unc	lerstan	d			
UNIT I	II	NTRO	DUCTION TO OPERATING SYSTEM				1	2+3			
What is	Operat	ting Sy	stem? History and Evolution of OS, Basic OS func	tions, R	lesou	rce A	bstract	tion,			
Types of	of Oper	ating a	Systems- Multiprogramming Systems, Batch System	ms, Tir	ne Sl	naring	Syste	ems;			
Operatio	ng Syst	ems fo	r Personal Computers, Workstations and Hand-held	Device	s, Pro	ocess	Contro	ol &			
Real tim	ne Syste	ems.									
UNIT I	I P	ROCE	SS CHARACTERIZATION				1	2+3			
Process	or and	User M	lodes, Kernels, System Calls and System Programs,	System	Viev	v of tl	ne Pro	cess			
•											

and Resources, Process Abstraction, Process Hierarchy, Threads, Threading Issues, Thread Libraries; Process Scheduling, Non-Pre-emptive and Pre-emptive Scheduling Algorithms.

UNIT III	INTER PROCESS COMMUNICATION AND	12 - 2
	SYNCHRONIZATION	12+3

Deadlock, Deadlock Characterization, Necessary and Sufficient Conditions for Deadlock, Deadlock Handling Approaches: Deadlock Prevention, Deadlock Avoidance and Deadlock Detection and Recovery. Concurrent and Dependent Processes, Critical Section, Semaphores, Methods for Interprocess Communication; Process Synchronization, Classical Process Synchronization Problems: Producer-Consumer, Reader-Writer.

UNIT IV	MEMORY MANAGEMENT	12+3

Physical and Virtual Address Space; Memory Allocation Strategies– Fixed and -Variable Partitions, Paging, Segmentation, Virtual Memory. (File and I/O Management, OS security) Directory Structure, File Operations, File Allocation Methods, Device Management, Pipes, Buffer, Shared Memory, Security Policy Mechanism, Protection, Authentication and Internal Access Authorization.

UNIT V	INTRODUCTION TO ANDROID OPERATING SYSTEM	12+3
Introduction	to Android Operating System, Android Development Framework,	Android Application
Architecture	, Android Process Management and File System, Small Application	Development using
Android Dev	relopment Framework.	

LECTURE	TUTORIAL	PRACTICAL	SELF STUDY	TOTAL	
60	15	0	15	75	

Text book

- 1. A Silberschatz, P.B. Galvin, G. Gagne, Operating Systems Concepts, 8th Edition, John Wiley Publications 2008.
- 2. A.S. Tanenbaum, Modern Operating Systems, 3rd Edition, Pearson Education 2007.
- 3. G. Nutt, Operating Systems: A Modern Perspective, 2nd Edition Pearson Education ,1997.
- 4. W. Stallings, Operating Systems, Internals & Design Principles 2008 5th Edition, Prentice Hall of India.
- 5. M. Milenkovic, Operating Systems- Concepts and design, Tata McGraw Hill 1992

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- 1. NPTEL Evidence, 2009. *IISc Bangalore*. [Online] Available at:
- 2. http://nptel.ac.in/courses/Webcoursecontents/IIScBANG/Operating%20Systems/New_index1.ht ml
- 3. http://nptel.iitg.ernet.in/Comp_Sci_Engg/IISc%20Bangalore/Operating%20Systems.htm

			CO	Versus	s PO ma	pping.							
D C-	nn		PO							PSO			
B.50 (LD	1	2	3	4	5	6	7	1	2	Í		
CO	1	3	2	1				ĺ		2			
CO2	2	2	1	2	2			2		2			
CO	3	2	2	1				2		3			
CO	4	2	2	1									
CO	5	2	1				1			1			
Tota	al	11	8	5	2		1	2		8			
Scaled V	alue	3	2	1	1		1	1		2			
0-No rel	0-No relation 1– Low relation 2- Medium relation 3- Highly							y relati	ion				
XBC303	XBC303 ALGORITHMS							L	Т	Р	S S	С	

					3 1 1 1 6					
	1	T								
С	P	Α			L I P S H					
2.8		0.2	FE , VDC105		3 1 3 1 7					
PKE	KE	QUISI		Domain	Lovol					
After	r the	compl	etion of the course students will be able to	Domain	Level					
CO1		Recog design	<i>nize</i> to learn good principles of algorithm.	Cognitive Psychomotor	Remember Perception					
CO2	2	<i>Identij</i> algorit averag	<i>fy</i> and <i>Achieve</i> to learn how to analyses hms and estimate their worst -case and re-case behavior (in easy cases);	Cognitive Psychomotor	Understand Set					
CO3	111 Ustrate and practice to become familiar with fundamental data structures and with the manner in which these data structures can best be implemented:									
CO4	ı	DemonstrateTolearnhowtoapplytheirCognitiveApplytheoreticalknowledgeinpractice(viathePsychomotorMechanismpracticalcomponent of the course).ororororor								
CO5	5	Develo Techni	<i>pp</i> and <i>Maintain</i> Advanced Analysis	Create Complete Overt						
UNI	ΤI	IN	TRODUCTION	1.59 • • • • • • • • • •	9+3+9					
Prog Lab	ram ram fo 2. V a:	ming, C Vrite a p or sortin Vrite a p scendir	Greedy Algorithms. test program to implement Divide and Conquing list of integers in ascending order program to implement Merge sort algorithm to go order.	er Strategy. Eg: Q	Quick sort algorithm					
UNI	T II	SC	ORTING AND SEARCHING TECHNIQU	ES	9+3+9					
Elem techr Sort, Lab	nenta niqua , Sea V 2. V	ary Sor es- Hea rching Vrite pr Vrite pr	rting techniques– Bubble Sort, Insertion S ap Sort, Quick Sort, Sorting in Linear Time Techniques- Medians & Order Statistics, cor ogram to implement the DFS and BFS algori ogram to implement backtracking algorithm	ort, Merge Sort, - Bucket Sort, Ra nplexity analysis. thm for a graph. for solving proble	Advanced Sorting adix Sort and Count					
Gran	$\frac{1}{he}$	I GI	NAT NO ALGUKII MMO ums: Graph Algorithms_ Breadth First Search	Denth First Sea	rch and its					
Appl Lab	 Graphs Algorithms: Graph Algorithms– Breadth First Search, Depth First Search and its Applications, Minimum Spanning Trees. String Processing Lab Write a program to implement the backtracking algorithm for the sum of subsets problem. Write program to implement greedy algorithm for iob sequencing with deadlines. 									
UNI	TI		OWER BOUNDING TECHNIQUES		9+3+9					
Low Lab	UNIT IV LOWER BOUNDING TECHNIQUES 9+3+9 Lower Bounding Techniques: Decision Trees, Balanced Trees, Red-Black Trees 1 Lab 1. Write a program to implement Dijkstra's algorithm for the Single source shortest path problem.									

- 2. Write a program that implements Prim's algorithm to generate minimum cost spanning tree.
- 3. Write a program that implements Kruskal's algorithm to generate minimum cost spanning tree

9+3+9

UNIT V ADVANCED ANALYSIS TECHNIQUE

Advanced Analysis Technique: Randomized Algorithm, Distributed Algorithm, Heuristics. Lab

- 1. Write program to implement Dynamic Programming algorithm for the 0/1 Knapsack problem.
- **2.** Write program to implement Dynamic Programming algorithm for the Optimal Binary Search Tree Problem.

LECTURE	TUTORIAL	PRACTICAL	SELF STUDY	TOTAL
45	15	45	15	105+15

TEXT BOOKS:

- 1. T.H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein Introduction to Algorithms, PHI, 3rd Edition 2009.
- 2. Sara basse & A.V. Gelder Computer Algorithm Introduction to Design and Analysis, Publisher Pearson 3rd Edition 1999

REFERENCES:

- 1. Mark Allen Weiss, "Data Structures and Algorithm Analysis in C", Second Edition, Pearson Education, 2007.
- 2. Ellis Horowitz, SartajSahni and SanguthevarRajasekaran, "Computer Algorithms", Galgotia Publications Pvt. Ltd., 2002
- 3. A.V. Aho, J.E. Hopcroft and J.D. Ullman "Data Structures and Algorithms" Pearson Education Delhi, 2002

E-REFERENCES:

- 1. www.tutorialspoint.com
- 2. <u>www.nptel.com</u>
- 3. www.virtuallab.ac.inLecture Slides,
- 4. Multiple Choice Questions, Animations Link: http://highered.mheducation.com/sites/0072967757/student_view0/index.html
- 5. Lecture Slides : <u>http://www.mhhe.com/engcs/compsci/forouzan/</u>

			PSO						
B.50 US	1	2	3	4	5	6	7	1	2
CO1	3				1				
CO2	2	3							
CO3	1	3	3	2	2				
CO4	1	3	3	2	2	3	2		
CO5		3	3	3	2	3	2	2	3
Total	7	12	9	7	7	6	4	2	3
Scaled Value	2	3	2	2	2	2	1	1	1

3-High Relation, 2-Medium Relation, 1-Low Relation, 0-No Relation

VDC204	304 ALLIED PHYSICS I	L	Т	Р	SS	С
ADC304		4	1	0	1	6

C	P	' A	4					L	Τ	P	SS	Н	
	1 'DF		0 (ST	тг. (Students with fundem	antal physics knowled	go in USC or S	4		0	1	5	
FRE	ANC.	ιυy	191			entar physics knowled	ge III HSC OI S	SLC					
On t	he s	ucce	ssf	ul con	mpletion of the course	e, students will be able	e to						
Cou	rse	Outo	con	ne			Domain			L	evel		
C01		S <i>tate</i> system letec	the ms	basic and <i>i</i>	es of laser and <i>disting</i> <i>dentify</i> various optica	<i>uish</i> the various laser al fiber and source and	Cognitive		Kno Ana	owledge, alyze			
CO2		Reca Expla	ll tl ain	<i>he</i> sei chara	niconductor fundame cterization and appli	entals and cations.	Cognitive] Con	Knov preh	vledge	è, n	
CO3		Know Cons	v th tru cati	e bas <i>ct</i> var	ics of operational am ious oscillators <i>Expl</i>	plifier and <i>lain</i> various	Cognitive, Psychomoto	r	Kno Ana	wled lysis	lge, , Set		
CO4	۲ ۱	U nde Boole	e <i>rst</i> ean	<i>and</i> t algel	he digital and gate pri ora from algebra.	inciples <i>distinguish</i>	Cognitive		Kno	wled	lge		
CO5		<i>Kno</i> neth	w tl ods	he ba of IC	sics of IC's <i>understat</i> C's	nd the fabrication	Cognitive	nitive Perc Kno			rception, nowledge		
UNIT - I : LASER PHYSICS 12											12	+3	
Princ Yag	– C	es of O2 la	las ase	er– p r – H	opulation inversion – elium – neon laser – a	- meta stable state – co applications of lasers.	onditions for las	er a	iction	s - 1	ypes -	-Nd-	
UNI	T -	II :		FIBE	R OPTICS PHYSICS						12	+3	
Princ of op – Ap	ciple otica oplic	e and al fib ation	l pr ers ns.	opaga – So	ation of light in optica urce & detector – LE	al fibers – Numerical D sensor – Block diag	Aperture and ac ram fiber optics	ccep coi	nmu	e ang nicat	le – T ion sy	'ypes stem	
UNI	T -	III :		SEM	ICONDUCTOR PHY	SICS					12	+3	
Semi P-N com	icor juno mor	duct ction emi	or i Di itter	funda iode - r NPN	mentals – Properties - Zener diode – appl V transistor, FET, UJT	 Types of semicondu ications of Zener dio Γ and SCR – Principle 	ictor– Volt – An les - Volt – Ar s of LED and L	mpe npe CD	ere Ch re Ch	narac narac	teristi teristi	cs of cs of	
UNI	Т-	IV:		OPE	RATIONAL AMPLIE	TIER					12	+3	
Oper integ oscil	ratic grate lato	onal or an rs	am Id (plifie differ	er characteristics – entiator circuits – W	inverting and non-ir /ien bridge oscillator	verting amplif – Phase shift	ier- osc	- add illato	ler, rs ar	subtra 1d Tw	ctor, /in-T	
UNI	T -	V :		INTE	EGRATED ELECTRO	DNICS					12	+3	
Basic impu conta	c m irity acts	onoli diff and	ithi usi inte	c ICs on fa er cor	– Steps in fabricatio bricating monolithic mections– General ap	n of Monolithic IC's resistors, diodes, trans oplications of IC's	– epitaxial gro sistors and capa	wth cito	– ma ors –	askin circu	g –etc it layo	hing out –	
I	LEC	CTU	RE		TUTORIAL	SELF - STUDY	SELF - STUDY PRACTICAL TOTAL						

	60	15	15	0	75+15							
TEX	Г BOOKS:		1	•								
1.	V.K. Mehta, Principles of Electronics, S.Chand and CompanyLtd., 2009.											
2. Laser Physics – Thiagarajan, Springer												
3.	3. Digital principles and Applications – Malvino& Leech, McGraw Hill Publication 7 th edition, 2011.											
REF	ERENCE BOC	DKS:										
1.	Basic Electror	nics – B.L. Theraja, S C	Chand & company L	td, New Delhi.								
2.	Fundamentals of digital computers – Bartee, McGraw-Hill.											
3.	A. Mottershed	l, Semiconductor Devic	ces and Applications	s, New Age Int Pu	b,							

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

R So				PO				PSO		
D.5C.	1	2	3	4	5	6	7	1	2	
CO1	3	2	1	1	0	1	0	1	1	
CO2	0	1	3	2	0	2	0	2	2	
CO3	1	2	3	0	0	2	0	2	2	
CO4	1	2	3	1	0	2	0	1	2	
CO5	0	3	0	1	0	2	0	1	2	
Average	1	2	2	1	0	2	0	1	2	

3-High Relation, 2-Medium Relation, 1-Low Relation, 0-No Relation

					L	Т	Р	SS	C			
2	XBC3	07			1	0	0	0	1			
			R PROGRAMMING									
С	Р	Α			L	Т	Р	SS	Η			
0.5	0.4	0.1			1	0	0	0	1			
PREREQUISITE: Nil												
COURSE OUTCOMES:												
			COURSE OUTCOMES	DOMAIN			LEVEL					
After	the co	ompleti	on of the course, students will be able to									
CO1	Rec	cognize	the significance of R	Cogniti		Remember						
				Psychon	noto	r	Per	ceptic	on			
CO2	Exp	oress the	e knowledge on events and functions of R	Cogniti	ve		Un	dersta	nd			
CO3	Em	<i>ploy</i> th	e understanding of the R and <i>Establish</i> an	Cogniti	ve		Ap	ply				
	app	lication	programme on their own and actively	Psychon	noto	r	Set					
	<i>participate</i> in the teams for designing various projects Affective Respond											
Intro	ductio	n - Hist	tory - Features - Setting up path - Working with	th R - Ba	asic	Synt	ax -	Varia	ıble			
and l	Data T	ypes -	Operator - Conditional Statements - Looping -	Control	Stat	eme	nts -	Obje	ct -			
Functions –Strings- Vector-Lists-arrays-Packages–Dataframes– Database-Visualization Lab: Obtaining user data Using conditionals

Using Random numbers Using Iteration Using Vector-Lists-arrays

Using Functions

LECTURE	TUTORIAL	PRACTICAL	SELF-STUDY	TOTAL	
15	0	0	0	15	

TEXT BOOKS:

1. Hands-On Programming with R, Garrett Grolemund, O'Reilly Media, Inc, 2014.

REFERENCES:

1. Mastering Predictive Analytics with R, Rui Miguel Forte, 2015 Packt Publishing .

E-REFERENCES:

- 1. https://www.tutorialspoint.com/r/index.htm
- 2. https://www.statmethods.net/r-tutorial/index.htm
- 3. https://www.guru99.com/r-tutorial.html
- 4. https://www.edureka.co/blog/r-tutorial/

					L	Т	P	SS	С		
XI	BC40	1			3	0	1	0	4		
			OBJECT ORIENTED PROGRAMMING								
С	Р	Α			L	Т	Р	SS	Η		
2.5	1	0.5			3	0	2	0	5		
PREREQUISITE: Problem Solving Using C											
Cours	Course Outcomes Domain										
				Don	14111			Leve	71		
After	the co	mplet	ion of the course, students will be able to								
CO1	Red	cogniz	ethe concepts of data, abstraction and	Cogniti	ve		Rei	nem	ber		
COI	O1 encapsulation.										
CON	Me	moriz	e the knowledge of classes and objects, packages	Cogniti	ve		Un	derst	and		
CO2	and	l write	the programs using them.	Affectiv	/e		Receive				
CO3	De	velop	the solution to the Complex problems.	Cogniti	ve		An	alyze	:		
	Im	pleme	ntgood programming design methods for	Comiti			۸n	ماير			
CO4	pro	gram	development using exception and basic event		ve		Ap	ргу	1		
	har	dling	mechanisms.	Affectiv	/e		Res	spone	1		
COF	Red	cogniz	<i>e</i> the typical object-oriented constructs of specific	Cogniti	ve		Un	derst	and		
005	obj	ect-or	iented programming language.	Psychor	noto	r	Set				
UNIT	Ι	I	NTRODUCTION						9+6		
Basics	: Intro	oductio	on to Object Oriented Programming and its Basic F	eatures,	Bas	ic C	omp	onen	ts of		
C++.	Chara	cterist	ics of Object-Oriented Language. Structure of a	C++ Pi	rogra	m.	Flow	Co	ntrol		

C++, Characteristics of Object-Oriented Language, Structure of a C++ Program, Flow Control Statements in C++, Functions - Scope of Variables, Inline Functions, Recursive Functions, Pointers to Functions, C++ Pointers, Arrays, Dynamic Memory Allocation and De-Allocation. Lab :

1. Number of vowels and number of characters in a string.

2. Write a function called zeros maller () that is passed with two introduce arguments by reference and

set the smaller of	f the number to zero.	Write a man() progra	m to access this funct	ion.				
UNIT II	OBJECT ORIENT	ED AND PROCEDU	RE ORIENTED	9+6				
Differences Detu	PROGRAMMING	l and Dragodyna Origi	atad Ducanomina Al	hotmostion Overview of				
Object-Oriented	Programming Princi	ples Encapsulation	C++ Classes Objects	User Defined Types				
Constructors and	Destructors, this Poir	iter, Friend Functions,	Data Abstraction, Ope	rator Overloading, Type				
Conversion.								
Lab:	C C 1							
3.Demonstration	1 of array of object.	(naturn by rafarance)						
4. Using this pol	INHERITANCE	(letuin by leterence)	•	9+6				
Class Inheritance	. Base and Derived (Classes, Virtual Base (Class. Virtual Function	s. Polymorphism. Static				
and Dynamic Bi	ndings, Base and D	erived Class Virtual	Functions, Dynamic E	Binding through Virtual				
Functions, Pure V	virtual Functions, Abs	stract Classes, Virtual I	Destructors.					
Lab:								
5.Demonstration	n of virtual function							
6. Demonstration	n of static function							
UNIT IV	FILE STREAMS	E'lle Commente	- l'an des Perturations	9+6				
Error Handling du	uring File Operations,	, File Streams, Overlo , Formatted I/O.	bading the Extraction a	and Insertion Operators,				
Lab:								
7. Accessing a p	articular record in a	student's file.						
8. Demonstration	n of operator overloa	ding.						
UNIT V	EXCEPTION HAN	NDLING	ving on Exponetion, the	9+6 Tru Diock Catabing an				
Exception, Excep	tion Objects, Exception	on Specifications, Reth	rowing an Exception, The	Uncaught Exceptions.				
0 Write a progr	am to create a datab	and for students that	contains Name Enro	lmont no				
Department Pro	oramme using Con	structors destructors	input and output fu	actions : input and				
output for 10 pe	ople using different	methods.	, input and output ful	ictions, input and				
10. Create a clas	ss holding information	on of the salaries of a	all the family member	rs (husband, wife, son,				
daughter). Using	friend functions giv	e the total salary of th	e family.	· · · · ·				
LECTURE	TUTORIAL	PRACTICAL	SELF-STUDY	TOTAL				
45	0	30	0	75				
		Г						
TEXT BOOKS	•							
1. Problem	solving with C++:	The Object of Progra	mming, Walter Savit	ch, 4th Edition,				
Pearson	Education.							
2. C++: The	e Complete Referenc	e, Herbert Schildt, 4tl	n Edition					
REFERENCES								
1. Ubject C 2. The C_{++}	Programming Lang	ng with C++, Sourav	Sanay, 2nd Edition, Brd Edition, Poerson E	UXIOra				
 The C++ Programming Language, B. Stroutstrup, 3rd Edition, Pearson Education Programming in C++ Ashok N Kamthane, Pearson 2nd Edition 								
E-REFERENC	E		no Lonition					
1. https://w	ww. tutorials point.	com/cplusplus/						
2. www.cp	rogramming.com/ tu	itorial/c++-tutorial.	html					

			PSO						
B.50 C5	1	2	3	4	5	6	7	1	2
CO1	2	1	1	1	1	2	1	1	1
CO2	3	2	2	2	2	2	2	2	1
CO3	2	2	2	2	3	2	2	2	1
CO4	3	2	2	2	2	2	2	3	1
CO5	3	3	3	3	3	3	3	3	1
Average	3	2	2	2	2	2	2	2	1

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

3-High Relation, 2-Medium Relation, 1-Low Relation, 0-No Relation

				L	Т	Р	S S	С		
XB	SC402			3	1	1	1	6		
			DATA BASE MANAGEMENT SYSTEM							
С	Р	Α		L	Т	Р	S S	Н		
3	1	0		3	1	3	1	8		
PRERE										
Course		Lev	vel							
After th	e com	pletio	n of the course, students will be able to							
CO1 <i>Recognize</i> and <i>Express</i> the fundamentals of Data Base Management System and Relational database systemCognitive								d		
CO2	Reco Stora	g <i>nize</i> ige im	and <i>Explain</i> the Transaction Management and Cognitive uplementation techniques	;	Remember Understand			d		
CO3	<i>Sket</i> etime	c h an applie	<i>d show</i> the Relational data base design for the real cation. Cognitive Psychom or	; ot	Apply Set					
CO4	;	Ana Ap	alyz ply	e						
CO5	Design and Construct an application with suitable form Psychomot or									
UNIT I	[INTRODUCTION		9+3	8+9				

Basic Database Concepts, Terminology, and Architecture; Types of Database Management Systems. Differences between Relational and other Database Models. Data Modelling: Relations, Schemas, Constraints, Queries, and Updates; Conceptual vs. Physical Modeling; Entity Types, attributes, ER Diagrams.

Lab:

1: E-R Model

Analyze the organization and identify the entities, attributes and relationships in it. .

Identify the primary keys for all the entities. Identify the other keys like candidate keys, partial keys, if any.

2: Concept design with E-R Model

Relate the entities appropriately. Apply cardinalities for each relationship. Identify strong entities and weak entities (if any).

UNIT II	RELATIONAL DATABASES	9+3+9
SQL Data Defini UPDATE, DELE	tion: Specifying Tables, Data Types, Constraints; Simple SELE TE Statements; Complex SELECT Queries, including Joins an	ECT, INSERT, d Nested Queries;
Actions and Trig Relations as Sets Functional Depen	gers; Views; Altering Schemas. Relational Algebra: Definition ; Operations: SELECT, PROJECT, JOIN, etc. Normalization T adencies 2NE 3NE BCNE 4NE 5NE	of Algebra; heory and
Lab:	Idencies, 2141, 5141, Detti, 4141, 5141.	
3: Relational Mo Represent all the	odel entities (Strong, Weak) in tabular fashion. Represent relationsh	ips in a tabular
ashion.		
Apply the First, Sorganization	Second and Third Normalization levels on the database designed	d for the
	DATABASE DESIGN	9+3+9
ndexing: Files, I ndexes; B-Trees Fransactions, Co	Blocks, and Records, Hashing; RAID; Replication; Single-Leve and B+-Trees. Query Processing Translation of SQL into Quer ncurrency and Recovery.	l and Multi-Level y Plans; Basics of
Lab:		
: Installation o nstallation of M ables and databa	f Mysql and practicing DDL commands ySql. Creating databases, how to create tables, altering the datal ses if not required. Try truncate, rename commands etc.	base, dropping
 6: Practicing DM DML commands SELECT - retr INSERT - inse 	AL commands on the Database created for the example org are used to for managing data within schema objects. Some ex- ieve data from a database rt data into a table	anization amples:
• UPDATE - upo	lates existing data within a table	
DELETE - del	stes all records from a table, the space for the records remain	
U NIT IV	TRANSACTION MANAGEMENT	9+3+9
DATABASE PR Attacks; Stored F Applications; PH Rails.	OGRAMMING: Embedded SQL; Dynamic SQL, JDBC; Avoid rocedures; Lightweight Data Access Layers for Python and Jav P and MySQL, Object Relational Modeling: Hibernate for Java	ding Injection vaScript a, Active Record for
Lab:		
7: Querying practice queries (NTERSECT, Co	along with sub queries) involving ANY, ALL, IN, Exists, NOT onstraints etc.	EXISTS, UNION,
3 and 9: Queryi Practice queries u 3Y, HAVING ar	ng (continued) Ising Aggregate functions (COUNT, SUM, AVG, and MAX and Id Creation and dropping of Views.	d MIN), GROUP
	IMPLEMENTATION TECHNIOUES	9+3+9

BIG DATA: Motivations; OLAP vs. OLTP; Batch Processing; MapReduce and Hadoop; Spark; Other Systems: HBase. Working with POSTGRES, REDIS, MONGO, and NEO: Setting up the same Database on Four Platforms; Basic Queries and Reporting.

Lab:

10: Triggers

Work on Triggers. Creation of, insert trigger, delete trigger, update trigger. Practice triggers using the above database

LECTURE	TUTORIAL	PRACTICAL	SELF-STUDY	TOTAL
45	15	45	15	105+15

REFERENCES:

- 1. Abraham Silberschatz, Henry F. Korth, S. Sudharshan, 2011"Database System Concepts", Sixth Edition, Tata McGraw Hill.
- 2. RamezElmasri, Shamkant B. Navathe., 2008. "Fundamentals of Database Systems", Fifth Edition, Pearson.
- 3. Raghu Ramakrishnan., 2010. "Database Management Systems", Fourth Edition, Tata McGraw Hill.
- 4. G.K.Gupta, 2011."Database Management Systems", Tata McGraw Hill.

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

D So CS	PO	PO							
D.SC CS	1	2	3	4	5	6	7	1	2
CO1	0	1	2	0	1	0	0	3	3
CO2	0	1	1	1	0	0	0	1	1
CO3	1	3	1	1	1	0	0	3	3
CO4	1	3	2	1	1	1	1	3	3
CO5	3	3	2	2	1	1	1	3	2
Average	1	2	2	1	1	0	0	3	2

					L	Т	Р	S S	С
	XBC403		STATISTICS		4	1	0	1	6
			STATISTICS						
C	Р	Α			L	Т	Р	S	Η
3.0	0.5	0.5			4	1	0	1	6
PRERI	EQUISIT	E: SOM	E BASIC KNOWLEDGE OF STAT	TISTICS IS I	REC	UIF	ED		
COUR	SE OUT	COMES	:						
Course	outcome	es:		Domain		Lev	el		
CO1:	Explain diagram	the stat	Cognitive		App	olyin	g		
CO2: Find the measures of central tendency and measures Cognitive Apply of dispersion and skewness for the given data.								g	

				ng							
CO3:	Evaluate	correlation co	efficient using Karl	Cognitive	Understanding						
	Pearson' data.	s and find the regre	ession line for the given		Applying						
CO4:	Solve th	e problem in the	time series using the	Cognitive	Applying						
	interpola	tion using Newtons	and Lagranges method	Psychomoto r	Imitation						
CO5:	Find the	index number usi	ng aggregative, relative	Cognitive	Remembering						
	and cost	of living index num	nber method. Define the		Applying						
	significa	nce for t. f and chi-	square.	Affective	Receiving						
LINIT I	I INTRODUCTION										
Later de clier Charifier en databalation ef statistical data. Disconsection et amplical											
represe	ction - Cla	data	ulation of statistical data	i - Diagramma	tic and graphical						
UNIT I	I ME	ASURES OF CEN	TRAL TENDENCY		12+3						
Measur	Measures of Central tendency - Mean, Median and Mode - Dispersion, Range, Quartile										
deviation, Mean Deviation, Standard Deviation - Measures of Skewness.											
UNIT IIICORRELATION12+3											
Correla	tion - Ka	rl Pearson's co-ef	ficient of correlation -	Spearman's F	ank Correlation						
regressi	on lines a	nd Co-efficient.									
UNIT I		IE SERIES ANAL	YSIS		12+3						
Time se method	eries Anal of estimat	ysis - Trend - Seas tion.	onal variations - Interpol	ation - Newtor	s and Lagranges						
UNIT	V IND	EX NUMBERS			12+3						
Index n	umbers -	aggregative and re	lative index - chain and	fixed indeed w	holesale index -						
Cost of	living ind	ex - Sampling Tecl	nniques - types of sample	e and sampling	procedure - tests						
LEC	TURE	TUTORIAL	PRACTICAL SE	LF-STUDY	TOTAL						
	60	15	0	15	75+15						
00 15 0 15 75+15 TEXT											
IEAI		1.Statistical methods - S.P. Gupta - S. Chand & Co., New Delhi.									
1.Statis	tical methe	ods - S.P. Gupta - S	. Chand & Co., New Del	hi.							
1EAI 1.Statis	tical methor	ods - S.P. Gupta - S	. Chand & Co., New Del	hi.							
1 EA I 1.Statis REFER	tical methe RENCES Fundamen	ods - S.P. Gupta - S	. Chand & Co., New Del	hi.							
IEAI1.Statis REFEH 1. The I2. Busin	tical metho RENCES Fundamen ness Matho	ods - S.P. Gupta - S tals of Statistics - E ematics and Statistic	Chand & Co., New Del hance. Elhance publicat cs - Dr. P. R. Vittal - Mar	hi. ion. gham Publicati	ons, Chennai.						
IEAI1.StatisREFEH1. The I2. BusinE REF	tical methe RENCES Fundamen ness Mathe ERENCE	ods - S.P. Gupta - S tals of Statistics - E ematics and Statistic S	. Chand & Co., New Del lhance. Elhance publicat cs - Dr. P. R. Vittal - Mat	hi. ion. gham Publicati	ons, Chennai.						
IEAI1.StatisREFEH1. The I2. BusinE REFwww.n	tical metho RENCES Fundamen ness Matho ERENCE ptel.ac.in	ods - S.P. Gupta - S tals of Statistics - E ematics and Statisti S	. Chand & Co., New Del lhance. Elhance publicat cs - Dr. P. R. Vittal - Mar	hi. ion. gham Publicati	ons, Chennai.						
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TABLE 1: COs VS GAs Mapping

	GA1	GA2	GA3	GA4	GA5	GA6	GA7	GA8	GA9	GA10
--	-----	-----	-----	-----	-----	-----	-----	-----	-----	------

CO 1	3	2		1	1				1	
CO 2	3	2		1					1	
CO 3	3	2		1					1	0
CO 4	3	2		1	1				1	0
CO 5	3	2		1	1				1	0
	15	10	0	5	3	0	0	0	0	5

1 - Low , 2 – Medium , 3- high

VDC404				L	Т	Р	S S	С						
Х	BC404		DDINCIDI ES OF MANACEMENT	4	1	0	1	6						
PRINCIPLES OF MANAGEMENT														
С	Р	Α		L T										
3	0.5	0.5			4	1	0	1	6					
PREF	REQUI	SITE	: Basic principles in an organization.			_								
Cours	se Outo	omes		Domain		L	evel							
After	the con	pletio	on of the course, students will be able to											
CO1 <i>Recognize</i> the significance of Management Principle.Cognitive Psychome						Remember Perception			er n					
CO2	CO2 <i>Express</i> the understanding of the concept of planning the Cognitive events in organization.						Understand							
CO3 Employ the understanding of the various scheduling activities and actively participate in terms for the organizing of various events in organization. Cognitive						Apply Respond								
CO4	<i>Utili</i> room	z <i>e</i> the mana	e directing effectively in the real-world class agement.	Cognitive		Apply								
CO5	Desiz conc	g <i>n</i> an ept in	nd <i>Establish</i> the principles of management day to day activities.	Cognitive Psychomo	otor	Create Set			t					
UNIT	' I	0	VERVIEW OF MANAGEMENT				12	2+3						
Defini and th	ition - N e envir	Manag onme	gement - Role of managers - Evolution of Manag ntal factors – Trends and Challenges of Managem	ement Tho ent in Glob	ugh al S	cena	gan ario	izati	on					
UNIT	' II	P	LANNING				12	2+3						
Nature	e and p	urpos	e of planning - Planning process - Types of pla	ns –Object	ives	- N	Iana	agin	g by					
object	ive (M	BO) S	trategies - Types of strategies - Policies - Decisio	n Making -	Ty	pes	of d	ecis	ion					
Decisi condit	ion Mal tions.	king I	Process - Rational Decision-Making Process - Do	ecision Mal	king	un	der	diffe	eren					
UNIT	' III	0	RGANIZING				12	2+3						

Nature and purpose of organizing - Organization structure - Formal and informal groups organization - Line and Staff authority - Departmentation - Span of control - Centralization and Decentralization - Delegation of authority - Staffing - Selection and Recruitment - Orientation - Career Development - Career stages – Training - -Performance Appraisal.

UNIT IV DIRECTING	12+3
Creativity and Innovation - Motivation and Satisfaction - Motivation T	heories - Leadership
Styles - Leadership theories - Communication - Barriers to effective	ve communication -
Organization Culture - Elements and types of culture - Managing cultural	diversity.

UNIT V CONTROLLING	12+3
Process of controlling - Types of control - Budgetary and non-budgetary control	techniques -
Managing Productivity - Cost Control - Purchase Control - Maintenance Contr	ol - Quality
Control - Planning operations.	

LECTURE	TUTORIAL	PRACTICAL	SELF STUDY	TOTAL
60	15		15	75+15

REFERENCES:

1. Stephen P. Robbins and Mary Coulter, 'Management', Prentice Hall of India,8th edition.

2. Charles W L Hill, Steven L McShane, 'Principles of Management', Mcgraw Hill Education, Special Indian Edition, 2007.

3. Hellriegel, Slocum & Jackson, 'Management - A Competency Based Approach', Thomson South Western, 10th edition, 2007.

- 4. https://www.pearsonhighered.com
- 5. www.miracleworx.com

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

B.Sc CS	РО							PSO		
2.20000	1	2	3	4	5	6	7	1	2	
CO1	0	0	1	1	0	0	0	2	2	
CO2	0	1	0	1	0	1	1	2	2	
CO3	0	2	2	1	1	2	2	2	1	
CO4	0	1	1	1	0	1	1	2	2	
CO5	0	1	1	1	0	1	1	3	3	
Average	0	1	1	1	1	1	1	2	2	

3-Strong Correlation, 2-Medium Correlation, 1-Low Correlation, 0-No Correlation

XBC406	ANGULAR JS	L	Т	Р	S S	С	
							-

						_	1 0 0 0 1						
			_										
C	P	Α					$\begin{array}{c c c c c c c c c c c c c c c c c c c $						
0.5	0.5	0	_				1 0 0 0 1						
PR	PREREQUISITE: Nil												
CO	URSI	E OUT	COMES:										
			Course Outco	omes		Domain	Level						
Afte	er the	comple	ion of the course, stude	nts will be able to									
CO	1:	Recogni	ze the fundamentals and	l techniques of Angu	lar JS.	Cognitive	Remember						
CO	2: 1	E <i>xpress</i> Commu	the knowledge on Invol nication over http, cooki	king, MVC, Validati les and file upload in	on,	Cognitive	Understand Guided						
	1	Angular	IS	•		Psychomotor	Response						
Intro - Ch Rum Tem Com Loc Lab	Introduction to AngularJS - Invoking Angular - Model View Controller - Formatting Data with Filters - Changing Views with Routes and \$location - Validating User Input - Project Organization - Tools - Running Your Application - Testing with AngularJS - Relationship Between Model, Controller, and Template - Communicating Over \$http - Directives and HTML Validation - API Overview - Communicating Between Scopes with \$on, \$emit, and \$broadcast - Cookies - Internationalization and Localization - Wrapping a jQueryDatepicker - File Upload in AngularJS Lab: 1. Create single page web applications using the MVC pattern of AngularJS 2. Understand the programming model provided by the AngularJS framework 3. Define Angular controllers and directives 4. Control Angular data bindings												
L	<u>/LUI</u> 15						101AL 15						
TE	XTB(DOKS	U	0	v		10						
RE Die	1. Bi 2. Ko 20 FERI go Ne	rad Gree en Willi 015. E NCES etto,Vale	n, ShyamSeshadri "Ang amson "Learning Angu riKarpov Professional A	gularJS", O'Reilly M IlarJS: A Guide to A AngularJS : A Concis	edia, 2013 AngularJS Se Approac	Development' h Wiley 2015	' O`reilly Media						
E-R		KENCI	28 	1.0.0/									
2	1. ht 2. w	tps://ww ww.tuto	vw.w3scnools.com/angu rialsteacher.com/angula	nar/ rjs/angularjs-tutorial	S								
XBC501C L T P C P A L T P 3.5 0.25 0.25 0.25 2.0 0.25							$\begin{array}{c cccc} P & S \\ \hline P & S \\ \hline 1 & 0 & 4 \\ \hline \\ \hline P & S \\ \hline 2 & 0 & 5 \\ \end{array}$						
PREI	REQ	UISITE	: XBC402										
Cour	se Ou	itcomes			De	omain	Level						

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

CO1	Analyze Multidimensional Intelligent model from typical system	Cognitive	Analyze
CO2	<i>Evaluate</i> various mining techniques on complex data objects	Cognitive	Evaluate
CO3	<i>Understand</i> Data Mining processes using Open Source Data Mining tool.	Cognitive	Understand
CO4	<i>Choose</i> the appropriate techniques and algorithms for extracting data	Cognitive Affective	Apply Respond
CO5	CO5 <i>Recognize</i> the knowledge of data mining, data preprocessing and data warehousing		Analyze Perception
UNIT	I INTRODUCTION		9+6

Introduction to Python, Python, Features of Python, Execution of a Python, Program, Writing Our First Python Program, Data types in Python. Python Interpreter and Interactive Mode; Values and Types: int, float, boolean, string, and list; Variables, Expressions, Statements, TupleAssignment, Precedenceof Operators, Comments; Modules and Functions, Function Definition and use, Flow of Execution, Parameters and Arguments.

Lab:

1.Write a program to demonstrate different number data types in Python.

2. Write a program to perform different Arithmetic Operations on numbers in Python.

3. Write a program to create, concatenate and print a string and accessing sub-string from a given string.

UNIT II OPERATORS IN PYTHON

9+6

Operators in Python, Input and Output, Control Statements. Boolean Values and operators, Conditional (if), Alternative (if-else), Chained Conditional (if-else if-else); Iteration: state, while, for, break, continue, pass; Fruitful Functions: Return Values, Parameters, Local and Global Scope, Function Composition, Recursion.

Lab:

4.Write a python script to print the current date in the following format "Fri Oct 11 02:26:23 IST 2019"

5. Write a program to create, append, and remove lists in python.

6. Write a program to demonstrate working with tuples in python.

UNIT III ARRAYS IN PYTHON

9+6

Arrays inPython, Strings and Characters. Strings: String Slices, Immutability, String Functions and Methods, String Module; Lists as Arrays. Illustrative Programs: Square Root, gcd, Exponentiation, Sum an Array of Numbers, Linear Search, Binary Search.

Lab:

7. Write a program to demonstrate working with dictionaries in python.

8. Write a python program to find largest of three numbers.

- 9. Write a Python program to construct the following pattern, using a nested for loop
- * *
- * * *

~ ~ * * * * *

~ ~ * * * * * * *

* * *		
* *		
*		

UNIT IV	FUNCTIONS	9+6
Functions, List	s and Tuples. List Operations, List Slices, List Methods, List Loop	, Mutability,
Aliasing, Clon	ing Lists, List Parameters; Tuples: Tuple Assignment, Tuple as R	eturn Value;
Dictionaries:	Operations and Methods; Advanced ListProcessing - List Con	mprehension;
Illustrative Pro	ograms: Selection Sort, InsertionSort, Merge sort, Histogram.	

Lab:

10.Write a Python script that prints prime numbers less than 20.

11. Write a python program to define a module to find Fibonacci Numbers and import the module to another program.

12. Write a python program to define a module and import a specific function in that module to another program.

UNIT V FILES AND EXCEPTION

9+6

Files and Exception: Text Files, Reading andWriting Files, Format Operator; Command Line Arguments, Errors and Exceptions, Handling Exceptions, Modules, Packages; Illustrative Programs: Word Count, Copy File.

Lab:

13.Write a program that inputs a text file. The program should print all of the unique words in the file in alphabetical order.

14. Write a Python class to convert an integer to a roman numeral.

15. Write a Python class to reverse a string word by word.

LECTURE	LECTURE TUTORIAL PRACTICAL SELF-STUDY TOT									
45	45 0 30 0 75									
TEXTBOOKS:										
1. Mark Lutz, Learnin	g Python									
2. Tony Gaddis, starti	ng out with Pythor	1								
3. Kenneth A. Lamber	t, Fundamentals o	f Python								
REFERENCES:	REFERENCES:									

1.James Payne, Beginning Python using Python 2.6 and Python 3

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

	РО							PSO	
D.50 C5	1	2	3	4	5	6	7	1	2
CO1	3	2	3	2	2	1	1	1	3
CO2	2	3	2	3	1	1	1	2	3
CO3	3	2	3	2	2	2	1	2	3
CO4	3	2	2	3	1	1	1	1	3
CO5	2	3	2	2	2	2	1	2	3

3-Strong Correlation, 2-Medium Correlation, 1-Low Correlation, 0-No Correlation

						Т	Т	р	C
VR	C50	2D				4	2	0	6
AD	0.50	20	COMP	UTER NETWORK	S				
<u>C</u>	P	<u>A</u>						P	H
2.8 COUI	RSE	OUTC	COMES		DOM	4 AIN		U TVFI	0
Aftort	the c	omnlet	ion of the course stude	nts will be able to	DOM				
					Cognitiv	ve .	Remember		
COI	exp	<i>olain</i> th	e network models, med	ia, layering.	Psychor	notor	Guided		
CO2	De	scribe	the functionalities of lay	ver and <i>indicate</i> the	Cognitiv	ve .	Underst	and	
CO3	De	monstr	rate the unicast and mul	Cognitiv Psychor	ve notor	Underst Respon	tand se		
CO4	4 Match and Show theprotocol for real time applications.					ve notor	Remem Set	ber	
CO5	CO5 <i>Analyze</i> the protocols of application layer and <i>Design</i> a simple network						Analyze Origina	e tion	
UNIT	'I		NETWORK FUNDAN	IENTALS AND PH	YSICAL LAY	ER	8		12+6
Transr UNIT Introdu Data I Conne UNIT	nissi ' II uctic Link ecting ' III	on Me	dia – Switching. DATA LINK LAYER Data Link Layer – Link Data Link Layer – Link Di - MAC – Wired LA ces and Virtual LANs. NETWORK LAYER	Layer Addressing - Ns: Ethernet - Wirel	Error Detectioness LANs – O	on and l ther Wi	Error Co ireless N	orrect	12+6 ion - rks - 12+6
Introd	uctic	on to No	etwork Layer – Networl	k Layer Protocols – U	Unicast Routing	; – Mult	icast Ro	outing	•
UNIT Introdu Transr	' IV uctic missi	on to on Cor	FRANSPORT LAYER Transport Layer – T ntrol Protocol – SCTP.	ransport Layer Pro	otocols – Use	r Data	gram P	Protoc	<u>12+6</u> ol –
UNIT	' V	1	APPLICATION LAYI	ER AND SECURIT	Y	1 L.	1		12+6
HTTP	v = F	on to A $\Gamma P - El$	lectronic Mail – TELNE	andard Client Server ET – DNS.	Protocols – r	luitime	dia – V	v w w	and
LE	ECTU	URE	TUTORIAL	PRACTICAL	SELF STU	DY	TO	TAL	
	60		30	0	0			90	
TEAT BOOKS: 1. BehrouzA.Forouzan, "Data Communications and Networking", Fifth Edition, McGraw Hill Education, 2013.									
REFE 1.	EREN Aci	NCES: hyut S	Godbole, Atul Hahate,	'Data Communicatio	ns and Networl	ks", Sec	ond Edi	tion, 1	New
	De	ini: Tat	a McGraw-Hill Educati	on, 2011.					

- 2. Andrew S. Tanenbaum, David J. Wetherall "Computer Networks", Fifth Edition, Pearson Education Inc., 2013.
- **3.** William Stallings, "Data and Computer Communications", Tenth Edition, Pearson Education, 2014.

E-REFERENCES

- 1. Video Lecture Link: <u>http://media.pearsoncmg.com/ph/streaming/esm/tanenbaum5e_videonotes/tanenbaum_video</u>N otes.html
- 2. Lecture Slides, Multiple Choice Questions, Animations Link: http://highered.mheducation.com/sites/0072967757/student_view0/index.html
- 3. Lecture Slides: http://www.mhhe.com/engcs/compsci/forouzan/

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

DSa			PS	50					
D. 5C.	1	2	3	4	5	6	7	1	2
CO1	3	2	1	1	0	1	0	1	1
CO2	0	1	3	2	0	2	0	2	2
CO3	1	2	3	0	0	2	0	2	2
CO4	1	2	3	1	0	2	0	1	2
CO5	0	3	0	1	0	2	0	1	2
Average	1	2	2	1	0	2	0	1	2

x	BC5	03A			L 3	T 2	P 1	SS 0	C 6
C	Р	Α	.NET TECHNOLOGIES		L	Т	Р	S S	Н
2.8	1	0.2			3	2	3	0	8
PRE	REÇ	UISITE	: Nil						
COU	JRSE	OUTC	OMES:						
			Course Outcomes	D	omain		Le	vel	
After	the	completi	on of the course, students will be able to						
C01	ŀ	Recogniz	e the basics of .net frame work	Cogni	itive	R	eme	embe	er
				Psych	omotor	Perceptio			n
CO2	E	E xpre ss a	nd <i>relate</i> decision and iteration control structures	Cogni	tive	U	nde	rstai	nd
	t	o implen	nent programs	Psych	omotor	Pe	erce	ptio	n
CO3	ŀ	Predict ar	nd <i>Create</i> database connection and <i>manipulate</i> the	Cogni	itive	U	nde	rstai	nd
	d	ata sourc	ce	Psych	omotor	C	reat	e	
						G	uide	ed	
						R	espo	onse	;
CO 4	0	Choose a	nd <i>Apply</i> controls and <i>reproduce</i> well-structured	Cogni	itive	R	eme	embe	er
	.]	NET app	lications	Psych	omotor	A	pply	y	
						G	uide	ed	
						R	espo	onse	;

000	Construct a	and <i>demonstrate</i> varie T with C#	ous real-world applications	Cognitive Psychomotor	Create
		1 with $C\pi$		Affective	Valuing
	I INTDA		T EDAMEWODK	Allective	
Manac	ad Code and	the CLP Intermedi	ate Language Matadata an	d IIT Compilati	17+0+7
Memor Library Lab: 1	y Manageme NET objec Familiarizin	ent- Visual Studio .N ets – ASP .NETNE g with .NET Environi	NET – Using the .NET Fra T web services – Windows I ment.	mework- The F Forms	ramework Clas
UNIT	II INTRO	DDUCTION TO C#	.NET		9+6+9
Variabl Progran Enume – dyna Menus showD	es and const n flow – l rations. Refe mic arrays V and Dialog ialog () meth	tants – data types – Decision statements rence data types- Sin Vindows programmir Boxes– Creating mer od.	declaration. Operators – ty – Loop statements – V gle dimensional – Multi-dir ng– creating windows Form nus – menu items – contex	rpes – preceden alue data type nensional arrays as – windows co t menu – Using	ce. Expressions s – Structures – jagged array ontrols –Events g dialog boxes
Lab: 1 2 3	Work with Looping and Working wi	Console I Conditional Stateme th various Controls su	ents uch as timer, calendar, etc.,		
4	Create basic	text editor			
4. <u>UNIT</u> :	III APPL	text editor	PMENT USING ADO .NI	ET	9+6+9
4 UNIT Archite Dataset	Create basic III APPL acture of AD c. Accessing	text editor ICATION DEVELO O.NET – ADO.NET Data with ADO.NET	PMENT USING ADO .NI Γ providers – Connection Γ - Connecting to Data Source	ET – Command – ce, Accessing Da	9+6+9 Data Adapter ata with Data so
4. <u>UNIT</u> Archite Dataset and Da Lab: 1. Inser 2.	Create basic III APPL Acture of AD Accessing ta Reader - C t, Delete, Up Store and re	text editor ICATION DEVELO O.NET – ADO.NET Data with ADO.NET treate an ADO.NET a date and Modify Ope trieve data using Data	PMENT USING ADO .NI Γ providers – Connection Γ - Connecting to Data Source application - Using Stored Presentions a Grids	ET – Command – ce, Accessing Da rocedures.	9+6+9 Data Adapter ata with Data se
4. Archite Dataset and Da Lab: 1. Inser 2. UNIT	III APPL acture of AD acture of AD	text editor ICATION DEVELO O.NET – ADO.NET Data with ADO.NET reate an ADO.NET a date and Modify Ope trieve data using Data DDUCTION TO AS	PMENT USING ADO .NI Γ providers – Connection – Γ - Connecting to Data Source application - Using Stored Presentions a Grids P.NET	ET – Command – ce, Accessing Da ocedures.	9+6+9 Data Adapter ata with Data se 9+6+9
4 Archite Dataset and Da Lab: 1. Inser 2. UNIT ASP.N Docum Contro Contro	Create basic III APPL Acture of AD Accessing ta Reader - C t, Delete, Up Store and re IV INTRO ET Features: ent for IIS - ls - HTML ls for Applic ls - Adding A	text editor ICATION DEVELO O.NET – ADO.NET Data with ADO.NET reate an ADO.NET a date and Modify Ope trieve data using Data DUCTION TO AS Change the Home D Change Log File P Controls, Using Intri cations - Adding we SP.NET Code to a Pa	PMENT USING ADO .NI F providers – Connection C - Connecting to Data Source pplication - Using Stored Pre- erations a Grids P.NET irectory in IIS - Add a Virtue properties for IIS - Stop, Stop insic Controls, Using Input b controls to a Page. Servage.	ET – Command – ce, Accessing Da ocedures. al Directory in I art, or Pause a Validation Con- ver Controls – 7	9+6+9 Data Adapter ata with Data se 9+6+9 IIS Set a Defau Web Site. We ntrols, Selectin Fypes of Serve
4 Archite Dataset and Da Lab: 1. Inser 2. UNIT ASP.N Docum Contro Contro Contro	III APPL acture of AD ta Reader - C Store and re INTRO ET Features: ent for IIS - ls for Applic ls - Adding A	text editor ICATION DEVELO O.NET – ADO.NET Data with ADO.NET treate an ADO.NET a date and Modify Ope trieve data using Data DUCTION TO AS Change the Home D Change Log File P Controls, Using Intri cations - Adding we SP.NET Code to a Pa	PMENT USING ADO .NI F providers – Connection C - Connecting to Data Source pplication - Using Stored Pre- erations a Grids P.NET irectory in IIS - Add a Virtue properties for IIS - Stop, Stip insic Controls, Using Input b controls to a Page. Serve age.	ET – Command – ce, Accessing Da ocedures. and Directory in Da art, or Pause a Validation Conver Controls – 7	9+6+9 Data Adapter ata with Data se 9+6+9 IIS Set a Defau Web Site. We ntrols, Selectin Fypes of Serve
4 Archite Dataset and Da Lab: 1. Inser 2. UNIT ASP.N Docum Contro Contro Contro Contro Contro Contro	Create basic III APPL Acture of AD Accessing ta Reader - C t, Delete, Up Store and re IV INTRO ET Features: ent for IIS - ls - HTML ls for Applic ls - Adding A king with var	text editor ICATION DEVELO O.NET – ADO.NET Data with ADO.NET Treate an ADO.NET a date and Modify Ope trieve data using Data DUCTION TO AS Change the Home D Change Log File P Controls, Using Intri cations - Adding we SP.NET Code to a Pa	PMENT USING ADO .NI F providers – Connection C - Connecting to Data Source pplication - Using Stored Pre- erations a Grids P.NET irectory in IIS - Add a Virtue properties for IIS - Stop, Stop insic Controls, Using Input b controls to a Page. Servage.	ET – Command – ce, Accessing Da ocedures. al Directory in I art, or Pause a Validation Con- ver Controls – T	9+6+9 Data Adapter ata with Data so 9+6+9 IIS Set a Defau Web Site. We ntrols, Selectin Fypes of Serve
4 Archite Dataset and Da Lab: 1. Inser 2. UNIT ASP.N Docum Contro	Create basic III APPL acture of AD bacture of AD ta Reader - C t, Delete, Up Store and re IV INTRO ET Features: ent for IIS - ls - HTML ls for Applic ls - Adding A king with var Using stored	text editor ICATION DEVELO O.NET – ADO.NET Data with ADO.NET Treate an ADO.NET a date and Modify Ope trieve data using Data DUCTION TO AS Change the Home D Change Log File P Controls, Using Intri cations - Adding we SP.NET Code to a Pa ious Controls H Procedures	PMENT USING ADO .NI Γ providers – Connection Γ - Connecting to Data Source pplication - Using Stored Pre- erations a Grids P.NET irectory in IIS - Add a Virtue roperties for IIS - Stop, Stop insic Controls, Using Input b controls to a Page. Servage.	ET – Command – ce, Accessing Da ocedures. al Directory in Da art, or Pause a Validation Conver Controls – Ta	9+6+9 Data Adapter ata with Data se 9+6+9 IIS Set a Defau Web Site. We ntrols, Selectin Fypes of Serve
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- 2. Andrew Troelsen, PhilJapikse, "Pro C# 7 With .NET and .NET Core", Apress, 2017.
- 3. Matthew Macdonald, "ASP.NET: The Complete Reference", McGraw Hill Education, 2017.

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- 5. Marino Posadas, "Mastering C# and .NET Framework", Packt Publishing, 2016.
- 3. Paul Deitel and Harvey Deitel, "Visual C# How to Program", Prentice Hall; Pearson Education Limited; 6th edition (2017).

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COs versus POs mapping

P So CS				PO				PS	50
D.5C C5	1	2	3	4	5	6	7	1	2
CO1	3				1		1		
CO2	2	2	1	2	3	0	2	1	
CO3	2	3	2	2	3	1	2	2	
CO4	2	3	2	2	3	0	2	2	3
CO5	1	3	3	2	3	1	2	3	2
Total	10	11	8	10	13	2	9	8	5
Scaled Value	2	3	2	2	3	1	2	2	1

$1-5 \rightarrow 1, 6-10 \rightarrow 2, 11-15 \rightarrow 3$

					L	Т	Р	S S	С
XB	SC504B				4	2	0	0	6
		-	INTERNET TECHNOLOGIES						
С	Р	A			L	Т	Р	S S	H
2.5	0.5	0			4	2	0	0	6
PRER	REQUIS	SITE	: Computer Networks						
			Course Outcomes	Domai	in		Lev	vel	
After t	he com	pleti	on of the course, students will be able to						
CO1	Ident	tify	the terms related to the Internet and how the	Cognitive		Ren	nemł	ber	
	Intern	net is	changing the world.	Psychomot	or	Perc	cepti	on	
CO2	Desig abilit	gn an y to	d connected to the Internet and demonstrate the use the World Wide Web	Cognitive		Crea	ate		
CO3	Perce	eive 1	the significance electronic mail and other internet-	Cognitive		Crea	ate		
	based	l serv	vices.	Psychomot	or	Perc	cepti	on	
CO4	Reco	gniz	e the design principles of the web pages and how	Cognitive		Crea	ate		
	they	are c	reated.						
CO5	Com	bine	the needed internet resources and implement in	Cognitive		Ana	lyze		
	the b	usine	ess model						
U	NIT I		INTRODUCTION				12-	+6	

Introduction: Over	rview, Network of Network	etworks, Intranet, Ex	tranet and Internet.	World Wide Web,
Domain and Sub do	main, Address Resolu	ition, DNS, Telnet, F	TP, HTTP. Review of	f TCP/IP: Features,
Segment, Three-Wa	ıy Handshaking, Flow	Control, Error Contr	ol, Congestion contro	1.
UNIT II I	P DATAGRAM			12+6
IP Datagram, IPv4	and IPv6. IP Subr	netting and addressin	ng: Classful and Cla	assless Addressing,
Subnetting. NAT,	IP masquerading, IP	v tables. Internet Ro	outing Protocol: Rout	ting -Intra andInter
Domain Routing, U	nicast and Multicast H	Routing, Broadcast. E	lectronic Mail: POP3,	, SMTP.
UNIT III H	ITML INTRODUC	ΓΙΟΝ		12+6
HTML: Introduc	tion, Editors, Elemen	nts, Attributes, Headi	ing, Paragraph. Form	atting, Link, Head,
Table, List, Block,	Layout, CSS. Form,	Iframe, Colors, Color	name, Color value.	Image Maps: map,
area, attributes ofin	mage area. Extensi	ble Markup Langua	ge (XML): Introduct	tion, Tree, Syntax,
Elements, Attribute	s, Validation, Viewin	g. XHTML in brief.	CGI Scripts: Introdu	ction, Environment
Variable, GET and	POST Methods			
UNIT IV F	PERL INTRODUCT	ION		12+6
PERL: Introduction	on, Variable, Conditio	on, Loop, Array, Imp	lementing data struc	cture, Hash, String,
Regular Expression	, File handling, I/O h	andling. JavaScript:	Basics, Statements, c	comments, variable,
comparison, conditi	on, switch, loop, bre	ak. Object - string, a	rray, Boolean, reg-ex	. Function, Errors,
Validation. Cookie	es: Definition of coo	kies, Create and Stor	re a cookie with exam	nple. Java Applets:
Container Class,	Components, Applet	Life Cycle, Updat	te method; Paramete	er passing applet,
Applications.				T
UNIT V C	CLIENT- SERVER I	PROGRAMMING		12+6
Client-Server progr	ramming In Java: Jav	va Socket, Java RMI.	Threats: Malicious co	
	1			ode-viruses, Trojan
horses, worms; ea	vesdropping, spootin	ng, modification, der	nial of service attacks	ode-viruses, Trojan s. Network security
horses, worms; ea techniques: Passwo	rd and Authenticatio	ng, modification, den on; VPN, IP Security	nial of service attacks v, security in elect	ode-viruses, Trojan s. Network security tronic transaction,
horses, worms; ea techniques: Passwo Secure Socket La	rd and Authentication yer (SSL), Secure S	ng, modification, den n; VPN, IP Security Shell (SSH). Firewall	nial of service attacks y, security in elect l: Introduction, Packe	ode-viruses, Trojan s. Network security tronic transaction, t filtering, Stateful,
horses, worms; ea techniques: Passwo Secure Socket La Application layer, P	vesdropping, spootif rd and Authenticatio yer (SSL), Secure 3 'roxy.	ng, modification, den on; VPN, IP Security Shell (SSH). Firewall	nial of service attacks v, security in elect l: Introduction, Packe	ode-viruses, Trojan s. Network security tronic transaction, t filtering, Stateful,
horses, worms; ea techniques: Passwo Secure Socket La Application layer, P Internet Telephony	vesdropping, spoorir ord and Authenticatio yer (SSL), Secure 5 Proxy. 7: Introduction, VoI	ng, modification, den on; VPN, IP Security Shell (SSH). Firewall P. Multimedia App	nial of service attacks v, security in elect l: Introduction, Packe lications: Multimedia	ode-viruses, Trojan s. Network security tronic transaction, t filtering, Stateful, a over IP: RSVP,
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Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

				PO				PS	50
B.SC CS	1	2	3	4	5	6	7	1	2
CO1	1	2	2	1	1	0	0	1	2
CO2	1	3	1	2	2	0	1	2	2
CO3	0	3	1	2	2	1	1	2	2
CO4	0	3	0	2	2	0	1	2	2
CO5	0	3	2	1	3	1	1	3	2
Average	1	2	1	2	2	1	1	2	2

XB	8C60) 1A		L 3	T 0	P	s s 0	C 4		
С	Р	A			L	Τ	Р	S S	H	
2 DD1	1 FDE		TTE: Software Engineering		3	0	2	0	5	
PKI	LKE	QUIS	Course Outcomes				_			
			course outcomes	Domain	n	Level				
Afte	er the	e com	pletion of the course, students will be able to							
CO	1	Recog	gnize the significance of Web Technology.	Cognitive Psychomotor		Rei Per	ner cep	nbe tior	r 1	
CO	2	<i>Expre</i> and P	ess the knowledge on HTML, CSS and JavaScript HP in Web Design.	Cognitive		Un	der	stan	d	
CO3	O3Employ the understanding of the Client and Server- side scripts and actively participate in teams for the creation of static and dynamic web pages.Cognitive Affective							nd		
CO-	4	<i>Utiliz</i> world	<i>e</i> the web designing tools effectively in the real applications.	Cognitive		Ap	ply			
CO:	5	Desig Softw	<i>n</i> and <i>Establish</i> the Website or Web based vare.	Cognitive Psychomotor		Create Set				
Intro Web form Lab	oduc o Pag ns an o: orma	tion to ges – Id Inp atting	Web Technology – Concept of Tier – Web Pages HTML Basics – HTML CSS – Links – Images – T ut tags. tags, ordered list and unordered list.	– Static Web I ables – Lists -	Page Fra	es – mes	Dy - H	nan ITN	nic 1L	
2.Ta	ables	, fram	ie, image map and hyperlink.			<u> </u>		0	16	
CSS Dim Stat Lab 1.Fc 2. B 3.Fc 4.Lc	UNIT II CSS & JAVASCRIPT 9+6 CSS Basics – Texts and Fonts – Links, Lists and Tables – Border and Outline – Position – Dimension and Display - Java Script Basics – Functions – Events – Conditional and Looping Statements – Forms. 9+6 Lab: 1.Font, color and style 2. Background and Links 3.Form Validation 4. Looping and Conditional Statements									
UN	IT II	I	PHP BASIC CONCEPTS					9	+6	
PHI Sele addi	PHP - Basic Syntax – Data Types – Variables & Constants in PHP - String and Operators - Selective and Iterative flow of controls - PHP arrays & types - PHP function declaration - adding parameters - Server side includes - Built in functions									
Lab 1. S 2.Fl	Lab: . Strings and Operators 2.Flow of controls and Arrays									

3.PHP Forms

4.PHP Functions

UNIT IV **PHP ADVANCED CONCEPTS**

9+6

9+6

PHP File Handling - Opening a File - Closing a File - Check End-Of-File - Reading a File Line By Line - Reading File Character By Character - PHP File Upload - Exception Handling -Creating Custom Exception Class - Re-Throwing Exceptions - Cookies - Sessions - E-Mails

Lab:

1.File Handling

2.Exception Handling

3. PHP Sessions and Cookies

UNIT V PHP & MySQL MySQL Database - Connect - Create DB - Create Table - Insert Data - Get Last ID - Insert

Multiple - Select Data – Delete Data – Update Data – Limit Data Lab:

PHP with MvSOL

LECTURE	TUTORIAL	PRACTICAL	ELF STUDY	TOTAL
45	0	30	-	75
TEXT BOOKS				

- 1. AchyutS.Godbole, AtulKahate, "Web Technologies TCP/IP To Internet Application Architectures", First Edition, Tata McGraw-Hill Publishing Company Limited, 2003.
- 2. Elizabeth Castro, Bruce Hyslop, "HTML 5 and CSS 3", Eight Edition, Peachpit Press, 2015.
- 3. Thomas A. Powell, Fritz Schneider, "JavaScript: The Complete Reference", Second Edition, Tata McGraw Hill Education Private Limited, New Delhi, 2008.
- 4. Kevin Tatroe, Peter MacIntyre and RasmusLerdorf, "Programming PHP", Third Edition, O'Reilly Media, Inc., 2015.

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- 1. N.P. Gopalan, J.Akilandeswari, "Web Technology: A Developer's Perspective", Second Edition, PHI Learning Private Limited, 2014.
- 2. Thomas A. Powell, "HTML & CSS: The Complete Reference", Fifth Edition, Tata McGraw Hill Education Private Limited, New Delhi, 2010.

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1.www.php.net/manual/en/intro-whatis.php

- 2.www.w3schools.com
- 3.www.tutorialspoint.com

B Sc CS				PO				P	PSO		
D. 5C C5	1	2	3	4	5	6	7	1	2		
CO1	2	1	1	1	1	1	3	1	0		
CO2	2	1	1	1	1	1	1	1	0		
CO3	2	2	1	1	2	2	2	1	0		
CO4	2	1	1	1	0	1	1	1	0		

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

CO5	1	1	1	1	1	1	2	1	0			
Average	2	1	1	1	1	1	3	1	2			
1	$1-5 \rightarrow 1, 6-10 \rightarrow 2, 11-15 \rightarrow 3$											

						L	Т	Р	SS	С
XBC	602	A				4	0	0	2	6
			INT	5						
С	Р	Α				L	Т	Р	SS	Η
3	0	0				4	0	0	2	6
PREI	RE	QUISI	FE: Fundamenta	ls of Computer						
Cour	se (Outcor	nes			Doma	in	Le	evel	
After	the	comp	etion of the cours	e, students will be able	to					
CO1	j	Identif	the components	of IOT and learn the	basic	Cognit	ive	Re	memb	er
	i	ssues,	oolicy and challen	ges in the Internet		Psycho	motor	Per	rceptio	n
CO2	1	Design	the portable dev	ice, program the senso	rs and	Cognit	ive	Cr	eate	
	1	nicroc	ontrollers			Cogint	IVC	CI	cate	
CO3	Ì	Perceiv	e the significance	e of <i>build</i> ing the so	ftware	Cognit	ive	Cre	eate	
	í	agents	n the real time en	vironments		Psycho	motor	Per	rceptio	n
CO4	j	Formu	ate and Est	ablish the cloud	-based	Cognit	ive	Cre	eate	
	(commu	nication through v	vi Fi/ Bluetooth		Psycho	omoto	: Set	t	
CO5		Combi	e the needed	internet resources	and	Cognit	ive	An	alvze	
	i	mplem	ent in the busines	s model					J	
UNIT	ΓΙ		INTRODUCTION ACTUATORS	DN TO IOT, SENSOF	RS ANI)				12
Introd	luc	tion to	IoT: Defin	tion, Characteristics,	Applic	ations,	Evo	lution	, Ena	ublers,
Conn	ecti	ivity	Layers, Address	ing, Networking ar	nd Con	nnectiv	ity 🛛	ssues	, Ne	twork
Confi	gui	ations	Multi -Homing,	Sensing: Sensors and '	Transdu	icers, C	lassif	ïcatio	n, Dif	ferent
Types	5 0	f Sens	ors, Errors, Actua	tion: Basics, Actuator	: Types	- Elect	rical,	Mech	nanica	1 Soft
Actua	tor	S								
UNIT	r II		INTRODUCTI(ON TO NETWORKIN	IG					12
Basic	s c	ofNetw	orking, Commun	ication Protocols, Sen	isor Ne	etwork,	Mac	hine	to Ma	achine
Comr	nur	nication	(IoT Compon	ents, Inter-Dependence	cies, S	oA, G	atewa	iys, (Comp	arison
Betwe	een	IoT &	Web, Differenc	e Protocols, Complexi	ty of N	letwork	s, W	ireless	s Netv	vorks,
Scala	bili	ty, Pro	ocolClassification	n, MQTT& SMQTT, II	EEE 802	2.15.4, 2	Zigbe	e)		
UNI	r II	I	ARDUINO PRO	DGRAMMING						12
Interc	ope	rability	in IoT, Introdu	ctionto Arduino Prog	rammin	g, Integ	gratio	n Of S	Sensor	s And
Actua	itor	s With	Arduino							- 10
UNIT	<u> </u>	/ · · · ·	PYTHON PRO	GRAMMING	<u> </u>	D' 1	. 1		<i>.</i> •	12 6 J T
Introc		tion to	Python Programn	ing, introduction to F	(aspberi	ry P1, I	mple	menta	tion c	of IoT
With I	Kas	pberry	Pi, Implementatio	on of 101 with Raspberr	ry Pi					10
		n dlin a	DATA ANALY	IICS					in a C	12
Data	на	ndling	and Analytics, C	loud Computing Fund	amenta	IS, CIO		omput	ing S	ervice
View	и, I	CIOUC	Computing Servi	be initial sector and s	Security	, sense		$\int ua A$	Arcnite	cure,
Chall	an anc	u Dala	now. FUG Com	Studies: A griculture U	altheer	a Activ	vity N	Appil	cation ring	is and
				DDACTICAT	CET 1		\mathbf{N}		ning. Fot a	T
LĽ	ι	UKŁ		PRACIICAL	SEL	r 91 UI	JI	_		L

60	0	0	30	60+30
TEXT BOO	K			
1. The	nternet of Things: Enab	ling Technologies,	Platforms, and Use C	Cases", by
Peth	ru Raj and Anupama C	. Raman (CRC Pres	s).	
2. Inter	et of Things: A Hands	-on Approach", by A	A Bahga and Vijay M	Iadisetti
(Uni	ersities Press)			
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Apri	2002.			
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Atzo	et.al. "The Internet of	Things: A survey. "	Journal on Network	s. Elsevier
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3 Arch	tecting the Internet of	Chings - Dieter Ucke	lmann [.] Mark Harris	on: Florian
J. Mich	abelles- (Eds.) – Spring	r = 2011		on, i ionan
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Davi	Easley and Jon Klein	perg. Cambridge Un	iversity Press - 2010	
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Oliv	r Hersent, Omar Ellou	mi and David Bosw	arthick - Wiley -201	2
6. Oliv	er Hersent, David Bosw	varthick, Omar Ellou	umi, "The Internet o	f Things – Key
appli	ations and Protocols",	Wiley, 2012		с .
E-REFERE	ICES	•		
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Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

D So CS				PO				PSO		
D.50 C5	1	2	3	4	5	6	7	1	2	
CO1	1	2	2	1	1	0	0	1	2	
CO2	1	3	1	2	2	0	1	2	2	
CO3	0	3	1	2	2	1	1	2	2	
CO4	0	3	0	2	2	0	1	2	2	
CO5	0	3	2	1	3	1	1	3	2	
Average	1	2	1	2	2	1	1	2	2	

							L	Т	Р	SS	С
XB	C603A						4	0	0	2	6
0		_		MACHINH	E LEARNING				D	aa	
C 3	P Α 0 0	_							P 0	<u>88</u> 2	H 6
PR	EREOI	JISITI	E: Data	Mining			-	U	U	4	U
Cou	irse Ou	itcome	es				Domai	n	Lev	vel	
Aft	er the co	ompleti	ion of th	e course, st	udents will be able to						
СО	$1 \begin{vmatrix} An \\ app \end{vmatrix}$	<i>alyze t</i> roache	t he supe es	ervised, un	supervised machine	learning	Cogniti	ve	Ana	alyze	
CO	2 Un	derstan	<i>nd</i> linear	algebra co	ncepts.		Cogniti	ve	Uno	derstan	d
CO	3 Una	derstan	<i>nd</i> a reg problem	gression ma	chine learning algori	thm for	Cogniti	ve	Uno	lerstan	d
CO	4 <i>Ch</i>	oose ar	regulariz	zation conce	epts and solve the pro	blem.	Cogniti	ve	App	oly	
CO	5 Rec	ognize	e the neu	ral network	model		Cogniti	ve	Ana	alyze	
UN	IT I	INT	rodu	CTION							12
Cor Lea Nai	rning, S ve Baye	Mach Supervi es Class	ine Lea ised vs. sifier.	rning, Appl Unsupervis	sed Learning, Statistic	Learning, cal Learni	Key el ng: Bay	emer vesiai	its of 1 Me	thod,	The
UN	IT II	LIN	NEAR A	LGEBRA							12
Sof Vec Ava	tware's ctorizati ailable 7	for on, Ma Tool su	Machin atrices a ich as M	e Learning and Vectors ATLAB.	g and Linear Alge s: Addition, Multiplic	bra Over cation, Tra	view: anspose	Plott and	ing Inve	of E erse u)ata, sing
UN	IT III	REC	GRESS	ION							12
UN Reg Lin	ear Reg n one V ling/Sel gression iables. IT IV gulariza ear and	ression ariable ection. vs. Li REC tion an Logist	n: Predi e, Linear inear Ro GULAR nd its U ic Regre	Regression, I egression, I RIZATION tility: The ession, Regu	problem of Overfittin larization and Bias/V	bles, Polyn sing Log with one V	nomial (istic R ariable)	f Reg	ear F essio sion, with gular	ization	ture istic tiple 12 n in
UN	IT V	NEU	URAL N	NETWORE	KS						12
Inta Gra Alg	roductio dient I orithm.	on, Mo Descen	odel Re it, Mult	presentatior ilayer Perc	n, Gradient Descent eptron's, Multiclass	vs. Perce Represer	ptron T itation,	Traini Bac	ng, ¦ k Pr	Stocha opaga	istic tion
Ι	LECTU	RE	TU	FORIAL	PRACTICAL	SELF ST	ΓUDY		TC	TAL	
	60	0.7-		0	0	30			6)+30	
TE	XT BO 1. Eth 200 2. Tor	<u>OK</u> em Alp 9. n M. N	paydin, ' Iitchell.	'Introductio "Machine I	n to Machine Learnin Learning", First Editio	g" 2nd Ed n by Tata	ition, Tl McGrav	ne M w-Hil	IT Pr	ess,	n.
	201	3.	,			-					

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 - 2012.

ing of Course Outcomes (CO) with Frogramme Outcomes											
DSa				PO				PS	0		
D. 5C.	1	2	3	4	5	6	7	1	2		
CO1	3	2	1	1	0	1	0	1	1		
CO2	0	1	3	2	0	2	0	2	2		
CO3	1	2	3	0	0	2	0	2	2		
CO4	1	2	3	1	0	2	0	1	2		
CO5	0	3	0	1	0	2	0	1	2		
Average	1	2	2	1	0	2	0	1	2		

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

B.Sc (Animation and Multimedia)

X	GL1()1				L 2	T 0	P 0	SS 2	C 2			
C	ъ		BASIC ENGLISH	COMMUNICATIO	N SKILLS	L	T	P	SS	H			
C	P	А				2	0	0	2	4			
2	$\frac{0}{0}$					D ·		T	oral				
	RSE			•••		Domai	n .						
	Re	call the	basic grammar and us	ing it in proper conte	ext	Cognitiv	/e	Rem	ember	ing			
CO2	CO2 Explain the process of listening and speaking Cognitive CO3 A dant important methods of reading Cognitive												
CO3	CO3 Adapt important methods of reading Cognitive												
CO4	CO4Demonstrate the basic writing skillsCognitive												
SYL	SYLLABUS												
UNI	ТΙ	Grai	nmar						7				
i. Ma	ijor ba	asic gra	mmatical categories ii.	Notion of correctnes	ss and attitud	e to erro	r						
corre	ction	T = -							-				
UNI	ГΠ	Liste	ening and Speaking						8				
iii. I	nport	ance of	f listening skills iv. Pre-	oblems of listening t	o unfamiliar	dialects	v.						
Aspe	ects of	pronu	nciation and fluency in	speaking vi. Intelligi	ibility in spea	aking							
UNI	T III	Basi	cs of Reading						7				
vii. I narra	ntrodu tive	action t	o reading skills viii. In tive extrapolative	troducing different ty	pes of texts	_							
UNI	T IV	Basi	cs of Writing						8				
ix. Ir	trodu	ction to	writing skills x. Aspe	cts of cohesion and c	oherence xi.	Expandi	ng		-				
a giv	en sei	ntence	without affecting the st	ructure xii. Reorgani	zing jumbled	l sentenc	es						
into	a cohe	erent pa	ragraph xiii. Drafting o	different types of lett	ers (personal	notes,							
notic	es, co	mplain	ts, appreciation, conve	ying sympathies etc.))								
L	ECT	URE	TUTORIAL	PRACTICAL	SELF ST	UDY		TO	ΓAL				
		6	0										
Text 1. Ac (201	2. De Delh	euter, i, OU	M et	.al.									
3. Ea	stwo	od, Johi	n (2008). Oxford Pract	ice Grammar. Oxford	l, OUP								
4. Ha Writ	adefie ing. C	ld, Chr Dxford,	is and J Hadefield (200 OUP	8). Reading Games.	London, Lon	ngman 5	. Hec	lge,]	Г (200)5).			

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	PO	Р	P	PO	PO	PO	PO	PO	PO	P	PO1	PO1	PSO	PS
	1	0	0	4	5	6	7	8	9	01	1	2	1	O2
		2	3							0				
CO1	2	0	0	0	0	0	2	0	1	0	0	0	0	0
CO2	2	0	0	0	0	0	2	0	1	0	0	0	0	0
CO3	1	0	0	0	0	0	1	0	1	0	0	0	0	0
CO4	2	0	0	0	0	0	1	0	1	0	0	0	0	0
Total	7	0	0	0	0	0	6	0	4	0	0	0	0	0
Scale	2	0	0	0	0	0	2	0	1	0	0	0	0	0
d														
Value														
	1	0	0	0	0	0	1	0	1	0	0	0	0	0

 Table 1: Mapping of Cos with POs:

1-5=1, 6-10 = 2, 11-15=3

0-No Relation, 1- Low Relation, 2 – Medium Relation, 3- High Relation

Table 2: Mapping of COs with GAs:

	GA	GA1	GA1	GA1								
	1	2	3	4	5	6	7	8	9	0	1	2
CO1	0	0	0	0	0	0	0	1	1	2	0	0
CO2	0	0	0	0	0	0	0	0	0	2	0	0
CO3	0	0	0	0	0	0	0	0	0	1	0	0
CO4	0	0	0	0	0	0	0	0	0	0	1	0
Tota l	0	0	0	0	0	0	0	1	1	5	2	0
Scal e	0	0	0	0	0	0	0	1	1	1	1	0

1-5=1, 6-10 = 2, 11-15= 3

0-No Relation, 1- Low Relation, 2 - Medium Relation, 3- High Relation

XAI	M102	A			L 2	Т 0	P 0	C 2
			அறுவயலதமுழ					
С	Р	Α			L	Т	Р	Η
2.9	0.1	0			2	0	0	2
PRER	EQUIS	ITE:	Nil					
			COURSE OUTCOMES	DOMAI	N	L	EVE	L
After the	he comp	oletion	of the course, students will be able to					
CO1	Recog துறைக போன்	r nize(ச சார்ந்த நவற்றை	அடையாளம் காணுதல்) பல்வேறு அறிவியல் நுட்பங்கள், கலைச் சொல்லாக்க உத்திகள் நத் தமிழ்மொழி மூலம் அறிந்துகொள்ளல்.	Cognitive		Ren	nemb	er
CO2	Choos	se		Cognitive		Ren	nemb	er

	(ടെറ്റിപ്പറെ	ரய்தல்) வடமெ	ாமிவேர்ச்சொந்கள்,புவியிய	ல்,நிலவியல்		
	ບຼັງຫຼີ່ບໍ່ມຸ	<u> </u>	க்கியங்கள் மூலம் அறிந்த	தகொள்ளல்.		
CO3	<i>Describe</i> (செய்திகள	் விளக்குதல்) வைஉணர்தல்	தொல்காப்பியம் மூலப் 	ம் அறிவியல்	Cognitive Psychomotor	Understand Set
CO4	Apply <i>(பயன்படு</i> ல்வித்துன	த்<i>துதல்)</i>பல்லே மசார்ந்தபிரிவ	வறுகல்வித்துறைசார்ந்தபிரி 4ுகள் குறித்துதெளிவுபெறல்	வுகள்,பல்வேறுக).	Cognitive	Apply
CO5	Analyze (I வளர்ச்சிநீ	்<i>குத்தல்)</i>அ றி லைநாடகங்ச	வியல் சிறுகதைகளின் (5ளின் பங்குகுறித்துதெளிவு	தோற்றம் மற்றும் பெறுதல்.	Cognitive	Analyze
அ	ა ფ - 1		அறிவியல்தமிழ்	ஹ ிமுகம்		9
அறுவா படைப் கலைச் வடமெ	யலதமழ் - புப் பணி— ஈசொற்கள் ஈழிவேர்ச்செ	பொறியியல், சொல்லாக்கஉ - இந்த ாற்களைமிகு?	தொழலநுடபம்,மருத்துவம், டத்திகள் - நுட்பமானவே ியமொழிகளுக்குப் பொ தியாகக் கொண்டிருத்தலை	உழவாயல். தமழல வறுபாடுகளைஉண ரதுவானகலைச் ப் பயன்படுத்துதல்	ல அறவயல் - த ரந்துசொல்லாக்கப் சொற்களைஉருஞ	நமழல நுடபம. 6 செய்தல் - வாக்குதல் -
ക്ക	ა ფ – 2		பிறஅறிவியல்	துறைகள்		9
புவியிய உயிரிய இதழிய	பல்,நிலவிய பல்,மண்ணி பல் உத்திச	ல் பற்றிபழந் பல் பற்றியஆ ள் - வளர் إ	,தமிழ் இலக்கியம் குறிப் அடிப்படைச் செய்திகள் - தமிழ்.	பிடும் தகவல்கள் தமிழ் மருத்துவக்	- தொல்காப்பிய கல்வி - அறிவி	பம் குறிப்பிடும் யல் தமிழுக்கு
ച	ა ფ – 3		பல்வேறுகலைகள்	ில் அறிவியல்		9
மொழிய மண்ண கலை,	பியல் ரியல்,புவியிய அறிவியல் - 	கவை பல்,கணக்கிய என்பவற்றிவ	≀வி–கடடடக ıல் ஆகியவைஇணைந்த∂ ர் விளக்கங்கள்.	கலைக்கலவி—ச, கல்வி - இக்க	முதாயககலவி–சே ாலக் கல்விப்	சயமைக்கல்வி− பொதுநிலை−
ക്ക	ა ფ – 4		அறிவியல் தமிழில் சிழ	றுகதைகளின் பங்கு	5	
சிறுகன சல்லசி	றத -இலக்					9
நலலச	ிறுகதைஉர	கணம் உரு நவாக்கம் - எ 	வாக்கும் உத்திகள் - பரலாறு—சமூகம் - மொழிெ	சிறந்தசிறுகதைக பயர்ப்புமற்றும் அ <u>ர</u> ்	ள் - சிறுகதை வியில் சிறுகதை	9 வகைகள் - கள்.
நலலச அ	ി്വുകക്കളം ന്ദ്ര ക്രെ —5	கணம் உரு jவாக்கம் - எ 	வாக்கும் உத்திகள் - பரலாறு—சமூகம் - மொழிெ அறிவியல் தமிழில் ந	சிறந்தசிறுகதைக பயர்ப்புமற்றும் அற் ாடகங்களின் பங்கு	ள் - சிறுகதை வியல் சிறுகதை	9 வகைகள் - கள். 9
நலலச அ தரித்தி தொழி	றுகதைஉர ல கு–5 ம் - நாடக ரநாடகம்,சரூ ல்முறைநாட	கணம் உரு ஹாக்கம் - எ இலக்கணம் நகநாடகம் கங்கள்.	வாக்கும் உத்திகள் - வரலாறு—சமூகம் - மொழிெ அறிவியல் தமிழில் ந , இருவகைநாடகங்கள் - - நகைச்சுவைநாடக	சிறந்தசிறுகதைக பயர்ப்புமற்றும் அற் ாடகங்களின் பங்கு படிப்பதற்குரியநாட ங்கள் - ,	ள் - சிறுகதை வியல் சிறுகதை _கம் - நடிப்பதற் அமெச்சூர் நா	9 வகைகள் - கள். 9 குரியநாடகம் - டகங்கள் -
நலலச அ நாடகப் சரித்தி தொழி	றுகதைஉர லகு–5 ம் - நாடக ரநாடகம்,சரூ ல்முறைநாட LECTUR	கணம் உரு ஹாக்கம் - எ இலக்கணம் நகநாடகம் கங்கள். E	வாக்கும் உத்திகள் - வரலாறு–சமூகம் - மொழிெ அறிவியல் தமிழில் ந , இருவகைநாடகங்கள் - - நகைச்சுவைநாடக TUTORIAL	சிறந்தசிறுகதைக பயர்ப்புமற்றும் அற ாடகங்களின் பங்கு படிப்பதற்குரியநாட எங்கள் - , PRACT	ள் - சிறுகதை வியல் சிறுகதை .கம் - நடிப்பதற் அமெச்சூர் நா ICAL	9 வகைகள் - கள். 9 குரியநாடகம் - டகங்கள் - TOTAL
நலலச அ நாடகப் சரித்தி தொழில	றுகதைஉர லகு–5 ம் - நாடக ரநாடகம்,சர ல்முறைநாட LECTUR 45	கணம் உரு ஹாக்கம் - எ இலக்கணம் நகநாடகம் கங்கள். E	வாக்கும் உத்திகள் - வரலாறு–சமூகம் - மொழி அறிவியல் தமிழில் ந , இருவகைநாடகங்கள் - நகைச்சுவைநாடக TUTORIAL 	சிறந்தசிறுகதைக பயர்ப்புமற்றும் அற் ாடகங்களின் பங்கு படிப்பதற்குரியநாட நங்கள் - , PRACT	ள் - சிறுகதை வியல் சிறுகதை _கம் - நடிப்பதற் அமெச்சூர் நா ICAL	9 வகைகள் - கள். 9 குரியநாடகம் - டகங்கள் - TOTAL 45
நலலச அ நாடகப் சரித்தி தொழில் சாழில்	றுகதைஉர லகு–5 ம் - நாடக ரநாடகம்,சரூ ல்முறைநாட LECTUR 45	கணம் உரு ஹாக்கம் - எ இலக்கணம் நகநாடகம் கங்கள். E	வாக்கும் உத்திகள் - வரலாறு–சமூகம் - மொழிெ அறிவியல் தமிழில் ந , இருவகைநாடகங்கள் - - நகைச்சுவைநாடக TUTORIAL 	சிறந்தசிறுகதைக பயர்ப்புமற்றும் அற ாடகங்களின் பங்கு படிப்பதற்குரியநாட ங்கள் PRACT 	ள் - சிறுகதை வியல் சிறுகதை .கம் - நடிப்பதற் அமெச்சூர் நா ICAL	9 வகைகள் - கள். 9 குரியநாடகம் - டகங்கள் - TOTAL 45
நலலச நாடகப் சரித்தி தொழில் மேற்பா 1. அறி 2. வள 3 இல	ிறுகதைஉர லகு–5 ந் - நாடக ரநாடகம்,சரு ல்முறைநாட <u>LECTUR 45</u> ர்வைநூல்க வியல் தமி ர் தமிழ் -	கணம் உரு ஹாக்கம் - எ இலக்கணம் நகநாடகம் கங்கள். E ந் - டாக்டர் இதழ்கள் நடசிறககை	வாக்கும் உத்திகள் - வரலாறு—சமூகம் - மொழி ெற்றிவியல் தமிழில் ந , இருவகைநாடகங்கள் - - நகைச்சுவைநாடக TUTORIAL 	சிறந்தசிறுகதைக பயர்ப்புமற்றும் அற் ாடகங்களின் பங்கு படிப்பதற்குரியநாட வக்கள்	ள் - சிறுகதை வியல் சிறுகதை _கம் - நடிப்பதற் அமெச்சூர் நா ICAL	9 வகைகள் - கள். 9 குரியநாடகம் - டகங்கள் - TOTAL 45
நலலச தாடகப் சரித்தி தொழில் மேற்பா 1. அறி 2. வள 3. இல 4. இல	றுகதைஉர லகு–5 ம் - நாடக ரநாடகம்,சர ல்முறைநாட LECTUR 45 ர்வைநூல்க வியல் தமி ர் தமிழ் - லக்கியவரலா லக்கியவரலா	கணம் உரு வாக்கம் - எ இலக்கணம் நகநாடகம் கங்கள். <u>E</u> <u>ர்:</u> ழ் - டாக்டர் இதழ்கள் று–சிறுகதை று–புதினம்ப <u>ர்</u>	வாக்கும் உத்திகள் - வரலாறு—சமூகம் - மொழிெ அறிவியல் தமிழில் ந , இருவகைநாடகங்கள் - - நகைச்சுவைநாடக TUTORIAL வா.செ. குழந்தைச்சாமி ற்றியது	சிறந்தசிறுகதைக பயர்ப்புமற்றும் அற ாடகங்களின் பங்கு படிப்பதற்குரியநாட ங்கள் PRACT	ள் - சிறுகதை வியல் சிறுகதை .கம் - நடிப்பதற் அமெச்சூர் நா ICAL	9 வகைகள் - கள். 9 குரியநாடகம் - டகங்கள் - TOTAL 45

				PO				PSO		
B.Sc. A & M										
	1	2	3	4	5	6	7	1	2	
CO1		1								
CO2		1								
CO3		1					1			
CO4	1	2	2	1		1	2			

Γ	CO5		2	2	2	2		1	2				1			
	Total		3	7	4	3		2	5							
	Scaled Va	alue	1	1	1	1			1							
	3–Strong C	orrelat	1 ion. 2-	– 5 -> Mediun	1 6 –	10 ->2 lation. 1	11 – 15 –Low (-> 3 Correlat	on. 0–1	No Co	rrela	tion				
									,	L	Τ	P	SS	C		
2	XAM103			FOU	J NDA T	TION O	OF ART			3	1	1	1	6		
С	P A									L	Τ	P	SS	Η		
2.8	0.2 0									3	1	3	1	8		
PR	EREQUISI	TE: N	il													
CO	URSE OU	ГСОМ	ES						DO	MAIN	N	LE	VEL			
Aft	er the comp	letion o	f the co	urse, sti	udents v	will be a	able to									
CO	1 Recogn	<i>ize</i> the	importa	nce of o	drawing	, materi	al and to	ools.	Cog	nitive		Rei	nemb	er		
CO	2 <i>Choose</i> shapes.	the m	ethods t	to make	e the dr	awings	using l	ines an	d Cog	nitive		Rei	nemb	er		
CO	3 Describ	e the v	vays dra	awing b	y obse	rvation	and <i>ack</i>	<i>hieve</i> th	e Cog	nitive		Un	dersta	nd		
00	knowled	lge on	attitude.			n duarri			Psy	chome	otor	or Set				
CO	4 Apply ti	the d	ifferent	pective method	$\frac{1}{1}$	n arawı lighting	ng pictu	ires ading t		itive		Ap	ply			
CO	5 make th	e realis	stic pictu	ares.	15 101 1	ingining		aung t	Cog	nitive		An	alyze			
UN	IT I	INT	rodu	ICTIO	N							21				
Intr Pas (Wa (Paj Kni	eduction to o tels, Erasers, ater based, A pers, Newsprives, Easels.	Smudg lcohol	t drawin ing Tool based, Ir ercolor	g mater s), Wet ndian/Ch paper, C	Media Media inese ir harcoal	(Dip per (Dip per nk), Pain paper, C	Dry mec ns, Dispo nts (Wate Canvas) T	tia (Pendosable an er based Fools for	nd Cartr Acryli erasing	idge P c, Oil) g and s	s, Ch ens, o, Dra harpe	alks, Brusl awing ening:	Crayo nes), I g surfa Palet	nks nks ices tes,		
UN	IT II	DO	ODLIN	IG ANI	D SHA	PES						21				
Doo the Sha	odling and n pencil: Ang pes and for	oodling gle and ns, Me	g (Draw directio mory an	ing stra on of li id imag	ight lin nes (Di ination	es, Drav awing drawing	wing cur lines, C g, Drawi	ved line ircles, (ing with	es, Free Ovals, S grids.	hand Scribb	drav les,	ving) Patte	Hold rns E	ing tc.)		
UN		DR	AWIN	G FRO	M OBS	SERVA	TION					21				
Dra ske figu	wing from tching from tres, Line of damentals	bserva live m f action	ation: Li odels, A 1, Balan ration	ife draw Attitude ce, Rhy	ving, Us : Gestur vthm, P	se of ba res, Lin ositive	sic shap e drawin and neg	bes and ng, Qui ative sp	forms, ck skete baces, S	Sketc ches, ' Silhoue	hing Thur ettes	pose nbna , Car	s, Ra ils, St icatur	pid ick ing		
UN	IT IV	PE	RSPEC	TIVE	DRAW	ING						21				
Per per and For	spective dr spective, Tw intersection eshortening	awing, vo poin on of	Vanisl t perspe shapes	ning po octive, T in one	oints, (Three po e point	Orthogo pint per c, Two	onal lin spective point	es, Ho , Multi- and th	rizon, point p ree po	Eye erspec int p	level ctive erspe	. Or , Ove	ne po erlapp e viev	oint ing ws,		
UN	IT V	LIC	GHTIN	G AND	SHAD	ING						21				
Tor	es, Lightin	g and s	shading,	Basic	3Dime	nsional	light se	et up, S	everal	types	of s	hado	ws, C	last		

shadow, Contact shadow, Contour shadow, Reflected light, Overhang shadow, Highlight, Core shadow, Objects and shapes in perspective with light and shade.

45 15 45 105	LECTURE	TUTORIAL	PRACTICAL	TOTAL
	45	15	45	105

REFERENCES:

1. Exploring the Elements of Design: Mark A. Thomas, Poppy Evans

2. The Art of Composition: Michael Jacobs

3. The Art of Pictorial Composition: Wolehonok

- 4. Complete Books of Artist Techniques: Dr. Kurt Herbers
- 5. Drawing for The Absolute and Utter Beginner: Claire Watson Garcia
- 6. Perspective Made Easy: Ernest R Norling
- 7. Perspective Drawing Handbook: Joseph D'Amelio .

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

B.Sc.		РО							
A &M	1	2	3	4	5	6	7	1	2
CO1	3	3	2	1	2	2	1	1	0
CO2	1	2	3	2	2	3	3	3	0
CO3	2	2	3	2	2	3	3	3	0
CO4	1	3	3	2	1	3	3	3	0
CO5	2	1	3	2	3	2	3	1	0
AVG	2	3	3	2	2	3	3	2	0

					L	Τ	Р	SS	C
XA	AM 10)4			4	1	0	1	6
			PRINCIPLES OF ANIMATION						
С	Р	Α			L	Т	Р	SS	Η
2.8	0.2	0			4	1	0	1	6
PRE	REQ	UISI	FE: Nil						
COU	JRSE	OUI	COMES	DOM	[AIN	1	LE	VEL	
After	r the c	ompl	etion of the course, students will be able to						
CO1	Re	cogni	<i>ze</i> the importance of drawing and the animation.	Cogni	itive		Rer	nemb	er
CO2	CO2 <i>Choose</i> the methods to make the drawings for animation.CognitiveRemer								
CO2	De	scrib	e the stages of animation and <i>achieve</i> the knowledge	Cogni	itive		Uno	lersta	nd
CUS	on	anim	ation.	Psych	omo	otor	Set		

						-	
CO4	Apply the characters	e body la	inguages con	ncepts in maki	ng animated	Cognitive	Apply
C O 5	Analyze character	the differ to make th	rent actions ne realistic ar	to be performination.	med by the	Cognitive	Analyze
UNIT	I	INTRO	DUCTION				15
Drawir nodel and "s Guidel	ngs with the study, Intro eeing the ine- Line o	e help of l oduction- drawing" f action, C	basic shapes, Importance of What is of Overcome the	Animal study, 2 of confidence, D bservation, Proce e fear, Drawing	Human anaton ifference betw cedure- How for animation.	ny, Shading een "looking to approach	techniques, Liv g at the drawing , Importance o
UNIT	II	MAKE	DRAWING	S FOR ANIMA	TION		15
rawin xercis bserva	gs, Caricat ses and wa ation, mem	arm ups, ory and ir	undamentals, gesture drav nagination.	, Exaggeration, wing, Line drav	Attitude, Silh wing and qui	ouettes, Bou ck sketches	ndary- breakin Drawing from
JNIT	III	STAGE	S OF ANIM	ATION			15
U NIT The Be Basic F	IV ody langua Principles i	BODY I age, Re-d n animatic	LANGUAGI efining the on.	E drawings, Intro	duction to an	imation pro	15 duction process
UNIT	V	ACTIO	NS OF CHA	RACTERS			15
Squash overlag drawin cycles- LECT	and stretco oping actio g, Appeal, animal and URE	ch, Anticij n, Slow i Mass and human.	pation, Stagi n and slow weight, Cha	ng, Straight ahe out, Arcs, Seco racter acting, Vo	ead and pose to ndary action, olume, Line of PRACTICA	to pose, Foll Timing, Exa f action, Path	ow through and ggeration, Solid of action, Wall
()			15				
<u> </u>							/5
60 REFE	RENCES:						75

B.Sc.		PSO							
A&M	1	2	3	4	5	6	7	1	2
CO1	3	1	2	2	1	2	2	1	2
CO2	2	3	1	2	2	1	2	1	3
CO3	2	1	3	1	1	2	0	1	2
CO4	3	2	2	2	1	0	2	2	2
CO5	3	1	2	1	0	1	1	2	1
AVG	3	2	2	2	1	1	1	1	2

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

					L	Т	P	SS	С			
XAN	/105		INTRODUCTION TO COMPUTER GRAPHI	CS	3	1	1	1	6			
0			DESIGN		Ŧ		D	aa	**			
	<u>P</u>	A				1	<u>Р</u>	55	H			
2.0 DDE			FF . Viewel design		3	I	3	I	ð			
PKE	COURSE OUTCOMES											
DOMAIN LEVE												
After	r the o	compl	etion of the course, students will be able to									
CO1Understand and recognize the Graphic Design conceptsCognitiveUnderstandandits applications.Remember												
CO2Understand the elements of designand Apply it to produce own shapes and color design.Cognitive PsychomotorUnderstand Apply 												
CO3Understand theprinciples of designand Apply it to develop a page for Website and print media.Cognitive PsychomotorUnderstand Apply Set												
CO4	$\begin{array}{c c} U \\ U \\ for \end{array}$	<i>iderst</i> r adve	<i>and</i> the poster design concepts and <i>develop</i> posters rtisement and academic poster presentation.	Cogn Psycł	itive 10m0	tor	Und App Set	erstan ly	d			
COS	Eq en	<i>uip</i> ploya	hemselves for self-employment and <i>develop</i> the ble skills.	Cogn Affec	itive tive		Rem Rece Resp	embe eiving oondir	r ng			
UNI	ΤI		BASIC OF COMPUTER GRAPHICS					12	2+9			
Basi	c of	Comp	uter Graphics, Applications of computer graphics,	Displa	ay de	vices	, Ran	dom	and			
Rast	er sca	ın sys	tems, Graphics input devices, Graphical Input Tech	inique	s, Gra	aphic	s soft	ware	and			
stanc	lards	- Po	ints, lines, circles and ellipses as primitives, sc	an co	nvers	ion a	algori	thms	for			
prim	itives	- cha	racter generation, line attributes, area-fill attributes, c	haract	er att	ribute	ers.					
UNI	TII		2D TRANSFORMATION, VIEWING AND 3D	CON	CEP	ГS		12	2+9			
Tran	sform	ation	s (translation, rotation, scaling), matrix representati	on, ho	omog	eneoi	is coo	ordina	ites,			
com	posite	tran	sformations, reflection and shearing, viewing pipe	eline	and o	coord	inates	syst	em,			
wind	low-to	o-viev	port transformation, clipping including point cl	ipping	, lin	e cli	pping	(coh	ien-			

B.Sc.			PSO						
A &M	1	2	3	4	5	6	7	1	2
CO1	3	2	2	1	2	1	1	1	0
CO2	2	3	3	3	2	2	3	3	0
CO3	2	3	3	3	2	2	3	3	0
CO4	2	3	3	3	1	2	3	3	0
CO5	2	3	3	1	3	2	3	1	0
AVG	2	3	3	2	2	2	3	2	0

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

COUF	RSE CODE	XUM106		L	Т	P	SS	С		
COUF	RSE NAME	HUMAN ETHICS, VALUES, RIGHTS AND CENDER FOULLITY 0 0 0								
		AND GENDER EQUALITY	7	v	v	v	U	U		
PRER	EQUISITES	-		L	Т	P	SS	Η		
C:P:A		1.5:0:0.5		2	0	0	1	3		
COUF	DURSE OUTCOMES Domain Level									
Delate and Interment the human athics and human										
CO1 <i>Relate</i> and <i>Interpret</i> the human ethics and human relationships Cognitive Remember										
CO2 <i>Explain</i> and <i>Apply</i> gender issues, equality and violence against women Cognitive Applying										
CO3	<i>Classify</i> and <i>Dev</i> their violations	elop the identify of human rights and	Cognitive Affective	2	Ana Rec	alyzi ceivii	ng 1g			
CO4 Classifyand Dissect necessity of human rights and Cognitive Understand Analyze								, ,		
CO5 List and respond to family values, universal brotherhood, fight against corruption by common man and good governance. Remember, Respond										
UNIT	I HUMAN	ETHICS AND VALUES					6			
Human Social and C Valuin charac	n Ethics and values Justice, Dignity an ompetence, Caring g Time, Co-operati ter building and Per	- Understanding of oneself and others- nd worth, Harmony in human relations g and Sharing, Honesty and Courage ion, Commitment, Sympathy and Empa rsonality.	motives an hip: Famil , WHO's thy, Self-r	nd ne y an holi espe	eeds- d So stic ct, So	Society deve elf-C	ial ser , Inte lopme onfide	vice, grity ent - ence,		
UNIT	IIGENDER EQU	ALITY					6			
Gende	r Equality - Gender	Vs Sex, Concepts, definition, Gender e	quity, equa	ality,	and	emp	owerr	nent.		
Status Contri	of Women in Indibutions of Dr.B.R.	a Social, Economic, Education, Health Ambetkar, ThanthaiPeriyar and Phule to	n, Employn Women B	ment Empo	, HE	DI, G ment	DI, G	EM.		
UNIT	IIIWOMEN ISSU	JES AND CHALLENGES					6			
Wome Domes Measu	n Issues and Cha stic violence, Sexu res – Acts related	llenges- Female Infanticide, Female f al Harassment, Trafficking, Access t to women: Political Right, Property	eticide, Vi o educatic Rights, ar	iolen on, N nd R	ce a Marri ights	gain age. to	st wo Rem Educa	men, edial tion,		

Medical Termination of Pregnancy Act, and Dowry Prohibition Act.

UNIT IV HUMAN RIGHTS

Human Rights Movement in India – The preamble to the Constitution of India, Human Rights and Duties, Universal Declaration of Human Rights (UDHR), Civil, Political, Economic, Social and Cultural Rights, Rights against torture, Discrimination and forced Labor, Rights and protection of children and elderly. National Human Rights Commission and other statutory Commissions, Creation of Human Rights Literacy and Awareness. - Intellectual Property Rights (IPR). National Policy on occupational safety, occupational health and working environment.

6

6

UNIT V GOOD GOVERNANCE AND ADDRESSING SOCIAL ISSUES

Good Governance - Democracy, People's Participation, Transparency in governance and audit, Corruption, Impact of corruption on society, whom to make corruption complaints, fight against corruption and related issues, Fairness in criminal justice administration, Government system of Redressal. Creation of People friendly environment and universal brotherhood.

LECTURE T	UTORIAL	SELF STUDY	PRACTICAL	TOTAL
30	0	15	0	45

Textbook

6. Aftab A, (Ed.), Human Rights in India: Issues and Challenges, (New Delhi: Raj Publications, 2012).

- 7. Mani. V. S., Human Rights in India: An Overview (New Delhi: Institute for the World Congress on Human Rights, 1998).
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5. Bajwa, G.S. and Bajwa, D.K. Human Rights in India: Implementation and Violations (New Delhi: D.K. Publications, 1996).

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http://www.transparency.org/

8. https://www.hrw.org/world-report/2015/country-chapters/india

Mapping of COs with Pos

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CO1					2	2	1			
CO2					2	2				

CO3				2			
CO4				2	1		
CO5				3			
Total			4	11	2		
Scaled			1	2	1		
Value							

 $1-5 \rightarrow 1$, $6-10 \rightarrow 2$, $11-15 \rightarrow 3$ 0 - No relation, 1 - Low relation, 2 - Medium relation, 3 - High relation

XCI 201				L	Т	Р	SS	C					
								0	0	2			
AGI	62	J1	A	JVANCED ENGLISH COMMUNICATION						-	1		
CI	P	Α			L	Т	Р	SS	Η				
1.5 ()	0.5			2	0	0	2	4				
PREREQUISITE: Nil													
COUR	SE	OUT	COM	IES			DO	MA	LEVEL				
On the successful completion of this course students would be able t							to						
CO1		<i>Recall</i> the basic grammar and using it in proper context						nitive	Remember ing				
CO2		<i>Explain</i> the process of listening and speaking						nitive	e	Understan ding			
CO3		Adap	t imp	portant methods of	reading		Cog	nitive	e	Creating			
CO4		Demo	onstra	the basic writing	g skills		Cog	nitive	e	Understan ding			
UNIT I Advanced Reading							7						
i. Reading texts of different genres and of varying iii. Reading and interpreting non-linguistic texts i (Cloze of varying lengths and gaps: distorted texts						ngth ii. Different s Reading and unde	strateg erstan	ies o ding	f con inco	mprehei mplete	nsion texts		
UNIT	Π		Ad	lvanced Writing	,						8		
v. Analysing a topic for an essay or a report vi. Editing the drafts arrive draft vii. Re-draft a piece of text with a different perspective (M Summarise a piece of prose or poetry ix. Using phrases, idioms and purp						ed at a Ianipu ctuatio	nd pi ilatio on ap	repar n ex prop	ring the tercise) priately	final viii.			
UNIT	III		Pri	inciples of commu	unication and communicative competence								
x. Introduction to communication – principles and process xi. Types of communication – and non-verbal xii. Identifying and overcoming problems of communication xiii. Communicative competence							– verba	d					
UNIT	UNIT IV Cross Cultural Communication												
xiv. Cross-cultural communication													
LECTURE				TUTORIAL	SELF STUDY	Y PRACTICAL TO					ſAL		
30				0	30	0			6	0			
REFE	RE	NCES	:										
 Bailey, Stephen (2003). Academic Writing. London and New York, Routledge. Department of English, Delhi University (2006). Fluency in English Part II. New D OUP 								w Delh	i,				

3.	Grellet, F (1981). Developing Reading Skills: A Practical Guide to Reading Skills. New York, CUP										
4.	Hedge, T. (2005). Writing. London, OUP										
5.	Kumar, S and Pushp Lata (2015). Communication Skills. New Delhi, OUP										
6.	Lazar, G. (2010). Literature and Language Teaching. Cambridge, CUP										
7.	Nuttall, C (1996). Teaching Reading Skills in a Foreign Language. London, Macmillan										
	Raman, Meenakshi and Sangeeta Sharma (2011). Technical Communication: Principles										
	and Pr	actice.	New Delhi, OUP	1	1		1 1				
-				L	Т	P	SS	С			
XES202				2	0	0	0	2			
С	Р	А	ENVIRONMENTAL STUDIES	L	Т	Р	SS	Н			
1.5	0	0.5		2	0	0	1	3			
PRER	EQUIS	SITE :	Nil		1		1				
Course Outcomes Dor						Level					
After t	After the completion of the course, students will be able to										
CO1	Describe the significance of natural resources and cognitive explain anthropogenic impacts.										
CO2	<i>Illustrate</i> the significance of ecosystem, biodiversity and natural geo bio chemical cycles for maintaining ecological balance.										
CO3	<i>Identify</i> the facts, consequences, preventive measures Cognitive I of major pollutions and <i>recognize</i> the disaster Affective I phenomenon										
CO4	<i>Explain</i> the socio-economic, policy dynamics and <i>practice</i> the control measures of global issues for Cognitive sustainable development.										
CO5	the im welfare toward	e	Understand Apply								
UNIT	INIT I INTRODUCTION TO ENVIRONMENTAL STUDIES AND ENERGY										
Definition, scope and importance – Need for public awareness – Forest resources: Use and over- exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on											

Definition, scope and importance – Need for public awareness – Porest resources: Use and overexploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people – Water resources: Use and over-utilization of surface and ground water, flood, drought, conflicts over water, dams-benefits and problems – Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies – Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies – Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies – Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification – Role of an individual in conservation of natural resources – Equitable use of resources for sustainable lifestyles.

	•	BIODIVERSITY	OSYSTEMS AND	NIT II ECO
ers, consumers ar chains, food wel are and function Aquatic ecosyste rsity – Definitio n-situ and Ex-si	cosystem – Produce succession – Food tic features, structu sert ecosystem (d) duction to Biodive of biodiversity: I	d function of an ed stem – Ecological types, characteris ecosystem (c) Des estuaries) – Introd ty - Conservation	stem – Structure an gy flow in the ecosy hids – Introduction, tem (b) Grassland es, rivers, oceans, ecosystem diversi versity.	oncept of an ecosys composers – Energ d ecological pyram e (a) Forest ecosyst onds, streams, lake netic, species and nservation of biodiv
		POLLUTION	VIRONMENTAL	NIT III ENV
g) Nuclear hazaro d industrial wast studies – Disast	Thermal pollution (easures of urban an - Pollution case s	oise pollution (f) Tects and control me on of pollution – and landslide.	rine pollution (e) N ement: Causes, effe vidual in prevention earthquake, cyclone	bil pollution (d) Mar Solid waste manage Role of an indiv anagement: flood, e
	NMENT	D THE ENVIRO	CIAL ISSUES AN	NIT IV SOC
concerns, clima nts and holocaus rotection $Act - A$	on, rain water har ; its problems and on, nuclear accident s – Environment Pr	Water conservation ilitation of people one layer depletion and waste product	ttlement and rehabining, acid rain, oz on – Consumerism	anagement – Reset ange, global warm asteland reclamatio
concerns, clima nts and holocaus rotection Act – A of Pollution) Act n enforcement	on, rain water hard ; its problems and on, nuclear accident s – Environment Pro- ention and control of Issues involved i	Water conservation ilitation of people one layer depletion and waste products of – Water (Prevention Act – ness.	ated to energy – ttlement and rehab- ning, acid rain, oz on – Consumerism trol of Pollution) A Act – Forest Con ation – Public aware	anagement – Reset ange, global warm asteland reclamatio revention and Cont ildlife Protection vironmental legisla
concerns, clima nts and holocaus rotection Act – A of Pollution) Act n enforcement	on, rain water har ; its problems and on, nuclear accident s – Environment Pro- ention and control of Issues involved i	Water conservation ilitation of people one layer depletion and waste products of – Water (Prevent servation Act – ness.	ated to energy – ttlement and rehabining, acid rain, oz on – Consumerism trol of Pollution) A Act – Forest Con ation – Public aware MAN POPULATI	anagement – Reset ange, global warm asteland reclamatio revention and Cont ildlife Protection vironmental legisla NIT V HUN
concerns, clima nts and holocaus rotection Act – A of Pollution) Act n enforcement - Family welfa on - HIV / AIDS	on, rain water har ; its problems and on, nuclear accident s – Environment Pre- ention and control of Issues involved i NVIRONMENT lation explosion - hts – Value educati tion Technology in	Water conservation ilitation of people one layer depletion and waste products act – Water (Prevent inservation Act – ness. ON AND THE EN nations – Popul ealth – Human rig - Role of Information	ated to energy – ttlement and rehabining, acid rain, oz on – Consumerism trol of Pollution) A Act – Forest Con ation – Public aware MAN POPULATI variation among nment and human h velfare programme- studies.	Total problems relation anagement – Reset ange, global warm asteland reclamation revention and Contribution ildlife Protection vironmental legislar NIT V pulation growth, ogramme – Environ omen and Child w uman health – Case
concerns, clima nts and holocaus rotection Act – A of Pollution) Act n enforcement – Family welfa on - HIV / AIDS Environment ar	on, rain water hard ; its problems and on, nuclear accident s – Environment Pre- ention and control of Issues involved i NVIRONMENT lation explosion - hts – Value educatition Technology in Practical	Water conservation ilitation of people one layer depletion and waste products act – Water (Prevent inservation Act – mess. ON AND THE EN nations – Popul ealth – Human rig Role of Information	ttlement and rehabining, acid rain, oz on – Consumerism trol of Pollution) A Act – Forest Con ation – Public aware MAN POPULATI variation among nment and human h velfare programme- studies. Tutorial	Total problems relationanagement – Resetange, global warmasteland reclamationrevention and Contildlife Protectionvironmental legislarNIT VHUNopulation growth,ogramme – Environomen and Child wuman health – CaseLecture
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concerns, clima nts and holocaus rotection Act – A of Pollution) Act n enforcement - Family welfa on - HIV / AIDS n Environment ar Total 45 6A, 2000. ckwell Science,	on, rain water harver, its problems and on, nuclear accidents – Environment Presention and control of Issues involved in NVIRONMENT and the education explosion – hts – Value education Technology in Practical 0 Publishing Co, US als of Ecology, Bla	Water conservation ilitation of people one layer depletion and waste products act – Water (Prevent inservation Act – mess. ON AND THE EN nations – Popule ealth – Human rig - Role of Information Self-Study 15 Elience, Wadsworth ael Begon, Essention	ated to energy – ttlement and rehabi- ning, acid rain, oz on – Consumerism trol of Pollution) A Act – Forest Con- ation – Public aware MAN POPULATI variation among nment and human h velfare programme- studies. Tutorial 0 , Environmental So , Harper J and Mich	Total problems relaanagement – Resetange, global warmasteland reclamatiorevention and Contildlife Protectionvironmental legislarNIT VHUNopulation growth,ogramme – Environomen and Child wiman health – Case sLecture30ext bookMiller T.G. Jr.Townsend C.,K, 2003eference Books

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	GA1	GA2	GA3	GA4	GA5	GA6	GA7	GA8	GA9	GA10
CO1	2						2		2	2
CO2	1						2			2
CO3	2	1	2				3		2	3
CO4	2	2	2				2			3
CO5	2				3	3				2
	9	3	4		3	3	9		4	12
Scaled value	2	1	1		1	1	2		1	3

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XAM203					L	Т	P	SS	С				
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			VECTOR GRAPHICS										
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2.8	0.2	0.2 0				1	3	1	8				
PREI	REQU	ISITE	C: Nil										
COURSE OUTCOMES						IN	LEVEL						
After the completion of the course, students will be able to													
Understa		dersta	und and recognize the vector Graphic Design	Cognitive		Understand							
	concepts and its usage.				_			Remember					
CO2 <i>Remember</i> the color models and object shapes and <i>Apply</i> it to <i>produce</i> own shapes and color design						e	Remember Apply		er				
	1 Sycholilotoi			Set									
	Un	dorst	and the principles of paths drawing tools and Apply	Cognitive		`	Understand						
CO3	$\frac{0}{11}$	it to <i>develop</i> various styles in graphic design		Psv	sychomotor		Apply						
	111		top various styles in graphic design.	rsyc			Set						
	Un	Understand the layers concepts and develop various designs				cognitive		Understand					
by applying filters.						sychomotor Apply							
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CO5	Remem	<i>iber</i> the	basic	S OI	vecto	r graj	pnicsa	ind a	aeveloj	p the	Cogi	nitive	Receiving
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UN	ITI	INTE	RODI	UCTI	ON								21
About In	mages – '	Types of	Imag	es, Ve	ector I	mage	s, and	Rast	ter Ima	iges –	Resolu	tion in In	nages –
Creating	g a new c	locument	t – To	ol bo	x - Fo	oregro	und a	nd b	ackgro	ound c	olor- (Graph To	ols – Opening
an existi	ing docu	ment – Sa	aving	docur	nents	– Pla	ce Co	mma	nd.				
UN	IT II	COL	OR N	AODI	ELS								21
About c	olors – C	Color Mo	dels –	- Selec	cting (Object	ts - C	orrec	cting N	listake	es – Ba	asic Shap	es – Grouping
of Obje	cts – Tra	ansforma	tion 7	Fools	– Arr	angin	g Obj	jects	– Brii	ng to	Front,	Bring Fo	orward, Send
Backwa	rd, Send	to Back	, Pale	ette –	Live	Colo	r, Sw	atch	es Pale	ette,	Stroke	Palette,	Transparency
Palette,	Gradient	Palette,	Brush	les Pal	lette								
UN	IT III	PAT	HS A	ND D	RAW	/ING	TOO	LS					21
Path $-A$	Anchor P	oints – I	Direct	ion Li	ines- 1	Direct	tion P	oints	s – Dra	awing	Tools	-Pen too	ol, Pencil tool,
Paintbru	ish tool,	Smooth t	tool, I	Path e	rase to	ool, S	Symbo	olism	n Tools	s –Slio	ce Scal	ling – Gra	aphic Styles –
Text too	ol –Warpi	ing text ,	charac	cter st	yles,	parag	raph s	tyles	5				1
UN	IT IV	LAY	ERS	AND	FILT	ERS							21
Layers -	– Layers	Panel-C	reatin	ig Ne	w lay	er, Re	eleasir	ng O	bjects	to Se	parate	Layers,	Consolidating
Layers a	and Grou	ps - Loc	k/Unl	ock L	ayers	– Cor	npour	nd Pa	ths –C	lippin	g Mas	k –Filters	& Effects
UN	IT V	ILLU	JSTR	ATO	R FO	R WI	EB						21
Illustrate	or for We	eb – Savi	ng foi	r the v	veb –	Impo	rting /	Expo	orting,	scala	ble Ve	ctor Grap	hics –
Shock V	Vave File	es – Linki	ing O	bjects	to UI	RLs fo	or Inte	rnet	Web P	ages -	- Slice	s-Creatin	g
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		CO3	2	2	3	2	2	3	3	3	0		

3-High Relation, 2-Medium Relation, 1-Low Relation, 0-No Relation

CO5

AVG

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			COU	KSE OUTCOME	5		DOI	MAI	N	L	EVE	L		
After	r the	comple	etion of th	e course, students	will be a	ble to								
CO 1	1 <i>k</i>	Recogn	ize the co	ncept of Photograp	ohy.		Cogn	itive		Re	mem	ber		
CO2		Know a	n art using	g different type of	photogra	iphy.	Cogn Psych	itive 10m0	otor	Apply				
CO	3 ^E	Examine various digital image and processing. Cognitive Psychomotor Appl												
CO ²	4 <i>L</i>	Describ	cribe the various methods of image retouching Cognitive Rem											
CO	5 ¹	Design	a photo st	ory for visualizati	on.		Cogn Affec	itive		An	alyze	;		
I	UNI	Affective Affective 9+1 of Photography Aparture Shutter Speed ISO Palancing Exposure Speed Med												
Basic	cs of	Photos	raphy - A	perture - Shutter S	Speed – I	SO - Balanci	ng Exp	osui	e - 5	Scen	e Mo	des		
- Exp Dept	posur h of :	e Com field -	pensation Half Press	– Histogram - RO Focus - Composi	GB/CMY tion (Rul	K Color Mo e of Thirds).	del - B	asic	Wh	ite B	aland	ce -		
Lab:	Rule	of Th	irds Comp	osition						r —				
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Lab.		IV		AL RETOLICHI	NG & IN	ACE ENH	ANCE	MF	NT	[9_	<u>_12</u>		
Imag		$\mathbf{P} = \mathbf{P}$	esolution	- Selection tools	and tech	niques - Hi	story -		touc	hing	tool	<u> </u>		
Laye	ers –	Phote	o mounti	ng - techniques	– Incor	poration of	text i	into	pict	ture.	Dig	;ital		
Mani	ipula	tion: A	Applying	selective effects	to image	es and filters	s with	mas	ks a	ind o	differ	ent		
digita	al da	rkroom	effects.											
Lab:	Imag	ges Ret	ouching											
U	JNIT	V	РНОТ	O STORY VISUA	ALIZAT	ION					9-	⊦12		
Visu	aliza	tion -	Concept d	levelopment - Cre	ativity -	One line sto	ry - Co	omp	ositi	on -	Cam	era		
Move	emer	ts - Sh	ot - Scene	e - Atmosphere and	d Mood -	Light and C	olor							
Lab:	: Stop	o motic	on animati	on				1						
	LE	CTUR	RE	TUTORIA	L	PRACTI	CAL		Т	OTA	AL			
		45		15		45				105				

REFERENCES:		
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- 2. Miller 2008 "Digital Story telling" Focal Press (Elsevier)
- 3. Julian Calder, John C Carrett "The 35 mm Photographer's hand book", Marshall edition London,1999
- 4. John Cant Antine and Julia Valice "The Thames –" Hudson manual of Professional Photography", Thames- Hudson, 1983.
- 5. Tom Ang- "Digital Photography", Mitchell Beazley, Octupus Publishing group Ltd London. UK 2001.
- 6. Anchell.S, 2015, "Digital Photo Assignments", First Edition, Focal Press, France.

B.Sc.				PO	-			PS 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	50
A&M	1	2	3	4	5	6	7	1	2
CO1	3	2	1	0	1	1	1	1	1
CO2	2	2	3	2	1	2	2	1	1
CO3	1	1	2	1	2	1	1	1	1
CO4	1	1	2	1	2	3	1	1	1
CO5	1	1	2	1	2	2	1	1	1
AVG	2	1	2	1	2	2	1	1	1

							L	Т	Р	SS	С
XA	M20	05					3	0	1	2	6
2				BASICS OF CLAY MOD	ELING		•	v	-	-	U
С	Р	Α					L	Т	Р	SS	Н
4	0	0					3	0	2	2	7
PREI	REO	UISI	TE: Nil				U	v		-	<u> </u>
			COU	RSE OUTCOMES		DO	MAI	[N	L	EVE	Ĺ
After	the o	comp	letion of the	course, students will be able	e to						
	Re	cogn	ize how the	study of clay relates to anim	ation						
CO1	dis	sciplin	nes.			Cogn	itive		Rer	nemb	er
CO2	Re an	<i>late</i> k d prod	cnowledge o cess.	of the character design in clay	/ materials	Cogn Psycł	itive nome	otor	Ana	alyze	
CO3InterpretInspectorCO3InterpretCognitive											nd
CO4	Es	tablis	h using cla	y modeling to build basic sha	ipes.	Cogn	itive		Cre	ate	
CO5	Ap	ply te	echniques fo	or working in stop motion an	imation.	Cogn	itive		Ap	ply	
UNIT	ГΙ		INTRO	DUCTION							15
Clay a	anim	ation	: concepts a	nd types – clay tools – Arma	ture – clay mo	odeling	proc	ess.			
UNIT	ΓII		BASIC	SHAPES IN CLAY							15
Geom	natric	cal sh	apes in clay	- Background in clay- Vehi	cles in clay – I	Buildin	gs in	clay	<i>.</i>		
UNIT	Г III		CHARA	ACTER DESIGNING IN C	LAY						15
Mode	el sh	eet o	f character-	Humana body parts in cla	y – Animal r	nodels	in c	clay	– Fr	uits a	ind
veget	ables	s - co	mplete hum	an figure in clay model.					T		
UNIT	ΓIV		CLAY A	ANIMATION							15
Carto	on d	esign	ing in clay -	- Hair style in clay – Face ma	ask in clay – ca	ase stu	dy m	akin	g a		
indoo	or/out	tdoor	with enviro	nment & characters in clay.					1		
UNIT	ΓV		STOP N	AOTION ANIMATION							15
Maki	ng of	f film	using stop	motion technique - Adding v	isual & Sound	Effect	s - D	igita	l Edi	ting	
	LE	CTU	RE	TUTORIAL	PRACT	ICAL			TO	ГAL	
45 0 30									7	5	
REFERENCES:											
1.	Th	e Ad	vanced art o	of stop motion animation by I	Ken.A.Priebe b	by ceng	gage	learn	ing		
2.	A	sculp	tor's Guide	to Tools and Materials Secor	d edition by B	Bruner l	F. Ba	rrie			
E-RI	ESO	URC	ES								
1.	htt	p://th	evirtualinsti	ructor.com/blog/sculpting-m	aterials-for-be	ginners	,				
$\begin{vmatrix} 2 \\ 2 \end{vmatrix}$	htt	p://w	ww.chalksti	reet.com/clay-modeling-and-	pottery-for-be	ginners	s/	/ 1·	г	A .	c
3.	eb	00K -	Clay Mode	lling for Beginners: An Esse	ntial Guide to	Getting	g Sta	rted	in the	e Art o)İ
1	Sc	ulptir	ig Clay								

Sculpting Clay

B.Sc.				PO				PSO		
A&M	1	2	3	4	5	6	7	1	2	
CO1	3	2	3	2	2	2	1	2	2	
CO2	3	2	3	2	2	1	1	2	2	
CO3	3	2	2	2	1	1	1	2	2	
CO4	3	2	2	3	1	1	1	2	3	
CO5	3	2	2	2	1	1	1	2	3	
AVG	3	2	2	2	1	1	1	2	2	

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

							L	Т	Р	SS	C	
	XUM206						0	0	0	0	0	
			DISA	STER MANAC	EMENT					L		
С	Р	Α					L	Т	P	SS	Η	
2.75	0	0.25					2	0	0	1	3	
PREREC	QUISTE: 2	XES202										
Course (Dutcomes					Dom	ain		Leve	1		
CO1	Underst	and and	Recognize th	e concepts of dis	aster	Cogr	nitiv	e	Unde Reme	erstanc ember	1	
CO2	<i>Recogni</i> disaster	ze and d	<i>escribe</i> the ca	uses and effects	of	Cogr	nitiv	e	Unde Reme	erstance ember	1	
CO3	Describe	the vari	ous approach	es of risk reduction	ion	Cogr	nitiv	e	Rem	ember		
CO4	<i>Demons</i> develop	<i>trate</i> the nent	inter-relation	ship between dis	saster and	Cogr	nitiv	e	Unde	erstanc	1	
CO5	Discuss	hazard a	nd vulnerabil	ity profile of Ind	ia and	Cogr Affe	nitiv	e	Rem	ember		
LINIT - I				O DISASTERS		Anc		/	Resp		6	
Concept	s and define	nitions-]	Disaster, Haz	ard, Vulnerabilit	y, Resilienc	e, Ris	ks				0	
UNIT -	II I	DISAST	ERS: CLASS	SIFICATION, O	CAUSES, I	MPAG	CTS				6	
Differential impacts- in terms of caste, class, gender, age, location, disability Global trends in												
disasters	, urban di	sasters, p	bandemics, co	mplex emergence	cies, Climat	e chan	ge	•				
UNIT -	III A	APPROA	ACHES TO I	DISASTER RIS	K REDUC	TION	1				6	
Disaster	cycle - it	ts analys	is, Phases, C	Culture of safety	, prevention	n, miti	igati	on a	nd pre	pared	ness	
commun	ity based	l DRR,	Structural-	nonstructural n	neasures, 1	oles	and	resp	onsibi	ilities	of-	
commun	ity, Pancl	hayati R	aj Institution	ns/Urban Local	Bodies (PF	RIs/UL	.Bs),	stat	es, Ce	entre,	and	
other sta	ke-holder	s.										
UNIT -	IV I I	NTER-I)EVEL(RELATIONS	SHIP BETWEE	N DISAST	ERS A	ANI)			6	
Factors	affecting	Vulnera	bilities. diffe	rential impacts.	impact of	Devel	opm	ent r	project	s sucl	n as	
dams, e	mbankme	nts, cha	inges in La	nd-use etc. Clin	nate Chan	ge Ad	lapta	tion	. Rele	evance	e of	
indigeno	us knowle	edge, app	propriate tech	nology and local	resources	0	1					
UNIT -	V I	DISAST	ER RISK M	ANAGEMENT	IN INDIA						6	
Hazard a	and Vulne	rability ₁	profile of Indi	ia Components o	f Disaster F	Relief:	Wat	er, F	Food, S	anitat	ion,	
Shelter,	Health,	Waste	Management	Institutional a	rrangement	s (Mi	tigat	ion,	Resp	onse	and	
Prepared	lness, DM	Act and	Policy, Othe	r related policies	, plans, pro	gramn	nes a	nd le	egislat	ion).		
The proj	ect / field	work to	understand vi	ulnerabilities wo	rk on reduc	tion of	f dis	aster	risk a	nd bu	ild a	
cultural	safety.											
LEC	TURE	TU	TORIAL	PRACTICA	L SE	LF-ST	TUD	Y	Т	OTAI		
	30		0	0		15			45			
TEXT B	BOOKS:											
6. 0	Coppola F	Damo	n, "Introduct	ion to Internation	onal Disast	er Ma	inag	emer	nt, Bu	tterwo	orth-	
	leinemani	n, 2015		· · · · · · · · · · ·	. 1 –	1 1						
7. k	. N. Shas	tri, "Disa	aster Manage	ment in India", P	innacle Teo	chnolo	gy, 2	2012	1 1 4		,	
8. 0	Jupta Ani	IK, Sree	eja S. Nair, "J	Environmental K	nowledge	for Dis	saste	r Kis	sk Mai	nagem	ient,	
	$\mathbf{NIDNI}, \mathbf{Ne}$	w Delhi,	2011	tora" Infalana D	ublichie - C	0010						
9. L	ndharia	Davis, 1	natural Disas	Dispeter Disco	uonsning, 2		Tata	Inc	tituta	of	voi al	
10. A		J, VUII	$\frac{1}{2}$	Disaster Discol	use, JIC	DIVI,	rata	ms	inute	01 20	icial	
2	ciences v	orking l	r aper 110. 8, 2	.000								

REFERENCES:

- 3. Alexander David, Introduction in 'Confronting Catastrophe', Oxford University Press, 2000
- 4. Carter, Nick 1991. Disaster Management: A Disaster Manager's Handbook. Asian Development Bank, Manila Philippines.

E- RESOURCES:

- 5. NIDM Publications at http://nidm.gov.in- Official Website of National Institute of Disaster Management (NIDM), Ministry of Home Affairs,
- 6. http://cwc.gov.in , http://ekdrm.net , http://www.emdat.be ,
- 7. http://www.nws.noaa.gov, http://pubs.usgs.gov, http://nidm.gov.ini
- 8. http://www.imd.gov.in

Mapping of CO with GA												
COs	GA1	GA2	GA3	GA4	GA5	GA6	GA7	GA8	GA9	GA1	GA11	GA12
CO1	1					3	2	1				1
CO2	1					3	2	1				1
CO3	1					3	2	1				1
CO4	1					3	2	1				1
CO5	1					3	2	1				1
Total	5					15	10	5				5
Scaled value	1					3	2	1				1

v	A N/3	A1			L	Τ	P	SS	С			
Λ	ANIJ	01										
C	D	٨										
U	1	A			2	0	0	2	4			
1.8	1.2	0										
PRE	REQ	UISI	TE: Principles of Animation									
			COURSE OUTCOMES	D	OMAI	N	L	EVE	Ĺ			
After	r the o	comple	etion of the course, students will be able to									
CO	1 <i>Id</i> aj	<i>lentify</i> oplicat	and <i>describe</i> the Multimedia components and its ions	Cog	gnitive		Und	nd				
CO	$2 \begin{vmatrix} U \\ f \\$	n derst ormats.	and the various digital audio technologies and file	Cog Psy	gnitive chomo	tor	lerstar licatio	nd on				
CO.	3 G ai	ain a v nd alte	vorking knowledge and <i>develop</i> their skills in editing ring text contents.	Cog	gnitive		Und App	lerstar licatio	nd on			
CO	4 Understand the Computer Animation Fundamentals and Cognitive Psychomot							Understan Analyze Set				

CO5	Students project wl	can <i>draw</i> and <i>develo</i> nich include costing.	p plans to accompli	ish the	Cognitive Psychomotor	Understand Create Set
UN	I TIN	INTRODUCTION				6+6
Definit	ion - Classi	fication - Multimedia	Application - Multime	edia Hard	ware – Multin	nedia Software
- CDRO	OM - DVD					
UN	II TI	MULTIMEDIA AU	DIO			6+6
Multim	edia Audio	: Digital Medium -	Digital Audio Techn	ology - l	Sound Cards	- Recording -
Editing	- Mp3 - M	idi Fundamentals - W	orking With Midi - A	udio File	Formats - Add	ding Sound To
Multim	edia Projec	t				
UN	IT III	MULTIMEDIA TEX	XT			6+6
Mm Te	ext: Text In	Multimedia - Multim	edia Graphics: Color	ing - Dig	ital Imaging F	undamentals -
Develo	pment And	Editing - File Formats	- Scanning And Digi	tal Photog	graphy	
UN	IT IV	MULTIMEDIA AN	IMATION			6+6
Multim	edia Anim	ation: Computer Anim	nation Fundamentals -	- Kinemat	ics - Morphin	g - Animation
S/W To	ools and Te	chniques.				
Multim	edia Video	: How Video Works -	Broadcast Video Star	ndards - I	Digital Video F	Fundamentals -
Digital	Video Proc	luction And Editing Te	echniques - File Forma	ats		
UN	NIT V	STAGES OF MULT	TIMEDIA PROJECT	Γ		6+6
Multim	edia Projec	t: Stages Of Project -	Multimedia Skills - D	Design Co	ncept - Author	ing - Planning
And Co	osting - Mu	timedia Team.				
LEC	CTURE	TUTORIAL	PRACTICAL	SELF S	ГUDY	TOTAL
	30	0	0	30)	60
	50					
REFE	RENCE BO	DOKS:				
REFE 1. Mult	RENCE BO	DOKS: gic - S.Gokul revised a	nd updated second ed	ition - BP	B	
REFEI 1. Mult 2. Multi	RENCE BO	DOKS: gic - S.Gokul revised a ng it Work –TayVaughe	nd updated second ed n 6th edition - TMH	ition - BP	В	

1. https://showwithmedia.com/ebook/

https://users.dimi.uniud.it/~antonio.dangelo/MMS/materials/Fundamentals_of_Multimedia.pdf
 https://users.ece.utexas.edu/~ryerraballi/MSB/Contents.html

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

B.Sc.				PSO					
A&M	1	2	3	4	5	6	7	1	2
CO1	3	2	1	0	1	1	1	1	1
CO2	2	2	3	2	1	2	2	1	1
CO3	1	1	2	1	2	1	1	1	1
CO4	1	1	2	1	2	3	1	1	1
CO5	1	1	2	1	2	2	1	1	1
AVG	2	1	2	1	2	2	1	1	1

X	XAM302LTPSSOther backtersSector311											
С	Р	A	CHARACTER & EN	VIRONMENT SK	ETCHI	NG	<u> </u>	1 T 1	1 P 3	SS 1	H 8	
2.8	0.2	0					<u> </u>	-	5	-	0	
PRE	CREQ	UISI	TE: Foundation of Art									
			COURSE OUTCO	MES		DOM	IAIN		LF	EVEL		
Afte	r the c	comple	etion of the course, studer	nts will be able to								
CO1	l R e	cogni	ze the significance of Pen	ncil Drawing.	0	Cognit	ive	R	emer	nber		
CO2	E Ex Pe	press ncil di	the different ways of lin awing.	ne drawing perspect	ive in	Cognit	ive	U	Understand			
CO3	B En	nploy	the understanding of the	lights in Pencil draw	^{ving.} C	Cognit	ive	A	pply			
CO4	Ut the	A	pply									
COS	CO5Design and Draw the drawings using different types of pencils.Cognitive pencils.Cognitive pencils.											
UNI	pencils. Psychomotor Se UNIT I HISTORY OF PENCIL DRAWING Se											
And UNI Line Poin Zero Isom	Overl T II s-Flat tillism Poin netric	Lines Lines n. Bas It Pers Perspe	Accent Lines , Contor ic Perspectives in Drawi spective,One Point perspective ,Atmospheric Persp	E ur Lines, Scumble/S ing- An Introduction pective ,Two Point pective. Basic Drawi	Scribblin n on Pers Perspec ing Shape	g ,Cro specti ctive , es	oss Ha ves - I Three-	tch Linea Poin	Line ar pea t pea	12+ ,Smu rspect rspect	9+3 dge ive, ive,	
UNI	T III		LIGHTING							12+	9+3	
Basi Simp - Th Edge	c Eler ple Sh e Hig	nents adow hlight	of Light, Shadows, and S box, Kinds and Quality of or Full Light, The Cast	Shading - Light, Sha of Light, Hard Light Shadow, The Halft	adows an t, Soft lig tone The	d Sha ght. Ba Refle	dow B asic El ected L	ox. (emei ight,	Const nts of , The	tructin f Shac e Shac	ng a ling low	
UNI	TIV		SHADING							12+	9+3	
Diffe Shac	erent ling.A	Shadii dd To	ng Techniques - Regular nes and Values -Tips on	Shading, Irregular Tones and Values, F	Shading Examples	, Circ s on S	ular Sl hading	nadir	ng, d	irectio	onal	
UNI	ΤV		FINISHING TOUCHE	ES						12+	9+3	
Eras with Faste	ing an Penci er	d Dus ils in (ting , Mixed Media Appl Dil Painting, Pen and Ink	lications -Watercolo C Drawing, Wall Pai	r Pencils inting ,Ca	, Oil (artoon	Colore Draw	d Per ing ,	ncils, Tips	Draw s to D	/ing raw	
L	ECT	URE	TUTORIAL	PRACTICAL	SELF	STU	DY		TO	ГAL		
	45		15	45		15			12	20		
REF	ERE	NCES	:									

- 1. Pencil Drawing A Beginner's Guide (e-book) http://nicheempires.com.
- 2. Basic Drawing Techniques by Richard Box Pub: Winsor & Newton, (U.S.A)
- 3. The Complete Book of drawing techniques -a professional guide for the artist by Peter Stanyer.
- 4. Still Life by Sanjay Shelar, Jyotsana Prakashan(India).Pub.
- 5. Drawing and Anatomy by Victor Perard, Kingsport Press Pub(U.K).

WEB REFERENCE

- 1. https://in.pinterest.com/explore/environment-sketch
- 2. www.craftsy.com / Online Classes/Art & Photo.

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

B.Sc.				PO				PS	50
Aam	1	2	3	4	5	6	7	1	2
CO1	3	2	3	2	2	1	2	1	2
CO2	2	3	2	2	1	2	0	1	1
CO3	2	2	3	1	2	1	1	2	3
CO4	3	2	1	3	1	2	2	1	1
CO5	2	1	3	2	0	1	1	2	3
AVG	2	2	3	2	1	1	1	1	2

v	A M3	03			L	Τ	P	SS	С
Λ	ANIS	03	AUDIO AND VIDEO EDITINC		3	0	1	0	4
C	D	٨			L	Τ	P	SS	Η
C	1	A			3	0	2	0	5
2.8	0.2	0							
PRE	REQ	UISI	E: Computer Fundamentals						
			COURSE OUTCOMES	D	OMAI	N	L	EVE	L
Afte	r the c	comple	etion of the course, students will be able to						
C	01	Rec	<i>cognize</i> the basics and objectives of editing.	Cog	gnitive		Ren	nembe	er
C	02	Dis	cuss the various types of editing.	Cog	gnitive		Und	lerstar	nd
C	03	Exp	plain 2D and 3D graphics.	Cog	gnitive		App	oly	
C	04	Cla	ssify various elements of audio.	Cog	gnitive		Ana	lyze	
C	05	Des	cribe the procedure for format conversion.	Cog Psy	gnitive chomo	tor	Pers	spectiv	ve
UNIT I INTRODUCTION								ļ	9+6

Concept and Objectives of Editing, Software and tools, Continuity and Jerk Enter and Exit in Frame, Title, Credits and Sounds. Sound editing, mixing sound, laying sound tracks, syncing sound and picture. Capturing video. Editing techniques for News, Documentary and Fiction and Ad Film. Lab

- 1. Touring in to software
- 2. Setting up a project
- 3. Workspace

UNIT II ELEMENTS OF THE EDITING

Picture transitions and their use, Elements of the editing, motivation, information, shot composition sound, camera angle, continuity. Types of the editings, action edit, and screen position edit, form edit, dynamic edit. Do's and don'ts of editing. Voice over and sound bytes, dubbing and mixing of sound. Computer hardware for editing.

Lab

- 1. Settings, Preferences and Managing Assets
- 2. Creating Videos
- 3. Creating Audios

UNIT III ON LINE EDITING

On line editing in a multi-camera TV programme production. TV Graphics and Animation: Theory and Practice Elements of 2D Graphic Elements of 3D Graphics. 3D Modeling. 3D Animation. Special effects creation, Environmental special effects Lighting camera and texturing. Introduction to virtual sets. Film Analysis: The Editor's point of view Extensive sound recording, video editing, graphics and animation practical's. Participation in production exercises.

Lab

1. Adding Transitions

2. Exporting frames, clips and sequences

3. Applying Effects, Color Correction, and Opacity

UNIT IV INTRODUCTION TO SOUND

Sound, Digital sound files, different sound formats, midi and digital audio, creating digital audio files, sound producing, sound extracting, Advantages and disadvantages of midi and digital, choosing between midi and Digital audio. Linking files: Sound for the World Wide Web, adding the sound to your multimedia project, production tips, audio recording, keeping track of your sound, testing and evaluation.

Lab

- 1. Adding audio effects
- 2. Editing and mixing audio
- 3. Adding video effects

UNIT V RECORD CLIPS AND EDITING

Sound recording, editing digital recording, trimming, splicing and assembly, volume adjustments, format conversion, re sampling or downloading, fade-ins and fade - outs, equalization, time stretching, digital signal processing, reverting sound, making midi audio, audio file formats. **Lab**

- 1. Creating Dynamic titles
- 2. Applying specialized editing tool
- 3. Integrating software with other applications

LECTURE	TUTORIAL	PRACTICAL	SELF STUDY	TOTAL						
45	0	30	00	75						
REFERENCES:										
1. Editing Today:	1. Editing Today: Smith, Ron F. and O'Connell, L.M, Published 2003, Blackwell Publishing									

9+6

9+6

9+6

9+6

- 2. Nonlinear Editing: Media Mannel; Morris, Patrick, Published 1999 Focal Press.
- 3. Basic Elements of Filmmaking II Handbook, UW-Milwaukee Department of Film, 2004 Rob Danielson.
- 4. Audio system guide Video and film production by Chris Lyons, A shure Educational Publication

WEB REFERENCE

- 1. Filmmaking Guide by Tom Barrance ref:www.intofilm.org
- 2. <u>http://www.amazon.in/Digital-Audio-Editing-Correcting-Enhancing/dp/0415829585</u>
- 3. http://www.apress.com/9781484216477
- 4. http://www.amazon.com/Editing-Digital-Video-Complete-Technical/dp/0071406352
- 5. http://www.amazon.com/Audio-Video-Editing-Books/b?ie=UTF8andnode=15375301
- 6. http://www.amazon.in/The-Technique-Film-Video-Editing/dp/0240813979
- 7. https://opensource.com/resources/ebook/video-editing

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

B.Sc.				PSO					
A&M	1	2	3	4	5	6	7	1	2
CO1	3	1	2	2	2	1	1	1	1
CO2	2	1	2	1	2	1	1	2	1
CO3	1	1	1	1	1	1	1	3	1
CO4	1	0	1	1	2	1	1	1	1
CO5	1	1	2	1	1	2	3	2	1
AVG	2	1	2	1	2	1	1	2	1

X	AM3	04			T	P	SS	C	
			ΣΕΛΝΙΝΙΑΤΙΟΝ	3	I	I	1	0	
С	Р	Α	2D ANIMATION	L	Т	Р	SS	Н	
Ũ	-			3	1	3	1	7+1	
2.6	0.2	0.2							
PRE	REQ	UISIT	E: Principles of Animation						
			COURSE OUTCOMES	DOMAI	N	L	EVE	L	
After	the c	omple	tion of the course, students will be able to						
CO1	Re	cogniz	<i>e</i> the significance of 2D Animation.	ognitive]	Remember			
CO	Su	mmar	<i>ize</i> the knowledge on animation software and C	ognitive	1	Unde	rstan	d	
	det det	t <i>ect</i> ab	out the animation software.	sychomo	tor 1	Perce	ption	l	
CO	Ma	nipul	ate the symbols and text to animate, and identify C	ognitive	1	Appli	icatio	n	
	and	d teste	d the animated symbols and text.	ffective]	Recei	ving		
CO4	Kn	ow ab	out the action script used in animation software.	ognitive	1	Unde	rstan	d	
CO5	5 De	sign a	nd test the animation in web.	Cognitive Create			e		

UNIT I	INTRODUCTION 7	FO 2D ANIMATION		12 +9
Basic Animatio	n - Principles of Anim	ation - Animation Typ	bes – 2D Animation –	Understanding
- Animation wo	rkflow - 2D animation	software's – Introduci	tion to animation softw	vare
Lah				, ur e.
1 Installing sof	tware			
2 Create	animation software fi	le		
		nc. 7 D		12+0
UNII II Understanding	GETTING STAKII	2 D Deconizing shout the T	Vimalina vaina of ta	
	about the Timeline $-C$	organizing about the T	Interine – using of too	ols pallel –preview
the animated m	ovie - modify the cont	ent and stage – saving	g your movie– publish	ing your movie –-
understanding s	trokes and fills - creating	ng with shapes – editii	ng snapes – working	
with graphics.				
Lab:				
1. Working with	i timeline.			
2. Publish	the movie.			
3. Workin	g with shapes.			
4. Workin	g with graphics.			
UNIT III	MANIPULATING S	SYMBOLS AND AN	IMATE	12+9
Create the Sym	ools – Editing and man	aging symbols – chan	ge the size, position ar	nd color effects
with instances -	- applying filter with sp	pecial effects – Animat	tion – Animating posit	ion-changing the
pacing and timi	ng – Animating transpa	arency – filter – transfe	ormation – changing th	ne path of the
motion – nested	animation – testing th	e animation.		_
Lab: 1. Workin	g with symbols.			
2. Apply s	pecial effects in movie	8.		
3. Create a	and manipulate the anim	mation.		
4. Testing	the animation			
in resuling				
UNIT IV	ACTION SCRIPT			12+9
	WORKING WITH	AUDIO, VIDEO AN	D CONTROLLING	10.0
UNIT V	FLASH CONTENT	AND PUBLISH FLA	ASH DOCUMENT	12+9
Import sound fi	les – edit sound files -	- audio and video enc	oding options – use c	ie points – embed
video– Load an	d display external file	s – Control the movie	clip timeline – test de	1
the document				ocument – publish
I HIC AUCUITETIL -	publish project for we	b – Test project with r	nobile interactions – of	ocument – publish other 2d animation
tools.	publish project for we	b –Test project with r	nobile interactions – o	ocument – publish other 2d animation
tools.	publish project for we	b –Test project with r	nobile interactions – o	ocument – publish other 2d animation
tools. Lab: 1. Manipu	publish project for we lating audio and video	b –Test project with r files	nobile interactions – o	ocument – publish other 2d animation
tools. Lab: 1. Manipu 2. Embed video 3. Manipu	publish project for we lating audio and video	eb –Test project with r files	nobile interactions – o	ocument – publish other 2d animation
tools. Lab: 1. Manipu 2. Embed video 3. Manipu 4. Test do	publish project for we lating audio and video lating content	b –Test project with r files	nobile interactions – o	ocument – publish other 2d animation
tools. Lab: 1. Manipu 2. Embed video 3. Manipu 4. Test do	publish project for we lating audio and video lating content cument.	b –Test project with r files	nobile interactions – o	TOTAL
tools. Lab: 1. Manipu 2. Embed video 3. Manipu 4. Test do LECTURE 45	publish project for we lating audio and video lating content cument.	b –Test project with r files PRACTICAL 45	SELF STUDY	ocument – publish other 2d animation TOTAL 120
tools. Lab: 1. Manipu 2. Embed video 3. Manipu 4. Test do LECTURE 45	publish project for we lating audio and video lating content cument. TUTORIAL 15	b –Test project with r files PRACTICAL 45	SELF STUDY 15	TOTAL 120
tools. Lab: 1. Manipu 2. Embed video 3. Manipu 4. Test do LECTURE 45	publish project for we lating audio and video lating content cument. TUTORIAL 15	b –Test project with r files PRACTICAL 45	self study SELF STUDY 15	TOTAL 120
tools. Lab: 1. Manipu 2. Embed video 3. Manipu 4. Test do LECTURE 45 REFERENCE	publish project for we lating audio and video lating content cument. TUTORIAL 15 S:	b –Test project with r files PRACTICAL 45	self study SELF STUDY 15	TOTAL 120
tools. Lab: 1. Manipu 2. Embed video 3. Manipu 4. Test do LECTURE 45 REFERENCE	publish project for we lating audio and video lating content cument. TUTORIAL 15 S: mation (How to Draw	b –Test project with r files PRACTICAL 45 and Paint sories) by P	SELF STUDY 15	TOTAL 120
tools. Lab: 1. Manipu 2. Embed video 3. Manipu 4. Test do LECTURE 45 REFERENCE 1. Cartoon An 2. Adoba Elad	publish project for we lating audio and video lating content cument. TUTORIAL 15 S: mation (How to Draw	b –Test project with r files PRACTICAL 45 and Paint series) by P	SELF STUDY 15 reston Blair. adaba gustama	TOTAL 120
tools. Lab: 1. Manipu 2. Embed video 3. Manipu 4. Test do LECTURE 45 REFERENCE: 1. Cartoon An 2. Adobe Flasi 2. Days set is	publish project for we lating audio and video lating content cument. TUTORIAL 15 S: mation (How to Draw h Professional CS6 Cla	b –Test project with r files PRACTICAL 45 and Paint series) by P ssroom in a Book, by	SELF STUDY 15 reston Blair. adobe systems u publishing 2002	TOTAL 120
tools. Lab: 1. Manipu 2. Embed video 3. Manipu 4. Test do LECTURE 45 REFERENCE 1. Cartoon An 2. Adobe Flasl 3. Doug sahlin 4. Pagag has	publish project for we lating audio and video lating content cument. TUTORIAL 15 S: imation (How to Draw h Professional CS6 Cla , Flash MX Action script 2.25	b –Test project with r files PRACTICAL 45 and Paint series) by P ssroom in a Book, by ipt for designers, Wile	SELF STUDY 15 reston Blair. adobe systems y publishing, 2002. Wiley publishing, 2002.	TOTAL 120
tools. Lab: 1. Manipu 2. Embed video 3. Manipu 4. Test do LECTURE 45 REFERENCE 1. Cartoon An 2. Adobe Flasl 3. Doug sahlin 4. Roger braur	publish project for we lating audio and video lating content cument. TUTORIAL 15 S: imation (How to Draw n Professional CS6 Cla , Flash MX Action script 3.0 NOE	b –Test project with r files PRACTICAL 45 and Paint series) by P ssroom in a Book, by ipt for designers, Wile) Bible, Second editior	SELF STUDY 15 reston Blair. adobe systems y publishing, 2002. n, Wiley publishing ind	TOTAL 120
tools. Lab: 1. Manipu 2. Embed video 3. Manipu 4. Test do LECTURE 45 REFERENCE 1. Cartoon An 2. Adobe Flasl 3. Doug sahlin 4. Roger braur WEB REFERI	publish project for we elating audio and video lating content cument. TUTORIAL 15 S: imation (How to Draw a Professional CS6 Cla , Flash MX Action script 3.0 ENCE	b –Test project with r files PRACTICAL 45 and Paint series) by P ssroom in a Book, by ipt for designers, Wile Bible, Second editior	SELF STUDY 15 reston Blair. adobe systems y publishing, 2002. n, Wiley publishing ind	TOTAL 120
tools. Lab: 1. Manipu 2. Embed video 3. Manipu 4. Test do LECTURE 45 REFERENCE 1. Cartoon An 2. Adobe Flasl 3. Doug sahlin 4. Roger braur WEB REFERI 1. www.w3sch	publish project for we lating audio and video lating content cument. TUTORIAL 15 S: imation (How to Draw n Professional CS6 Cla , Flash MX Action scri- istein, Action script 3.0 ENCE ools.com	b –Test project with r files PRACTICAL 45 and Paint series) by P ssroom in a Book, by ipt for designers, Wile) Bible, Second editior	SELF STUDY 15 reston Blair. adobe systems y publishing, 2002. n, Wiley publishing ind	TOTAL 120

B.Sc.			PSO						
A &M	1	2	3	4	5	6	7	1	2
CO1	3	3	2	1	2	2	1	1	0
CO2	1	2	3	2	2	3	3	3	0
CO3	2	2	3	2	2	3	3	3	0
CO4	1	3	3	2	1	3	3	3	0
CO5	2	1	3	2	3	2	3	1	0
AVG	2	3	3	2	2	3	3	2	0

X	AM3	06						L	T 0	P 0	SS	C 1
				DIGITAL	MATTE PAINTIN	G		L	т Т	P	SS	H
С	Р	Α						1	0	0	0	1
1.5	1.5	0									I	
PRE	REQ	UISIT	TE:	Photoshop, Photogr	aphy, and concept sk	etching	for env	vironn	nents			
COU	JRSE	OUT	CO	MES:								
				Course Outcon	nes		Do	main]	Level	
After	the c	omple	tior	n of the course, stude	ents will be able to							
CO1	: Des	cribe a	and	Show the various to	ools for digital matte		Cogni	tive	F	Reme	mber	•
paint	ing						Psych	omoto	or S	Set		
CO2	: App	ply the	pri	nciples, techniques	of digital matte paint	ing	Cogni	tive	A	Apply	/	
and c	create	variou	is ef	ffects			Psych	omoto	or (Drgin	ation	
CO3	: Crea	ate fan	cifu	and realistic new v	vorld		Cogni	tive	(Drgin	ation	
~							Psych	omoto	or			
SYL		US:	1				<u> </u>	. 1	C			
1. E	sasic p	princip	Cla	of Digital matte pair	nting & Simple exerc	use user	ig main	tools	Irom	L		
ר ד	notos	nop -()		ne, Grading 1001, S	election, Brushed, Al	ipna, La	lyers, C	nanne	eis,			
2	Tansi	United	hni	que for DMP + Sky	ranlacement Light	ina						
2. C 3 T)ay to	night	tect	hnique		ing.						
3. L 4 F	xtract	tion an	nd c	omposition techniqu	IES							
5. T)estru	ction to	ech	niques								
6. C	reate	a Snov	w C	Covered, Coastal, Mo	ountain Town Matte	Painting	Ţ					
7. U	Jse Ph	otogra	aphy	v to Create a Scenic	Matte Painting From	a Sket	, ch in Pł	notosh	op			
8. C	Create	a Mou	inta	in Fortress Using M	atte Painting Technic	ques in	Photosl	hop	Ľ			
9. C	Create	an epi	c fa	antasy digital matte	ainting	•		1				
10. C	Creatir	ıg a De	eva	stating Tidal Wave i	n Photoshop							
L	ECTU	URE		TUTORIAL	PRACTICAL	SEL	F STU	DY		TO	TAL	
	15			0	0		0			1	5	

References:

David B. Mattingly , "The Digital Matte Painting", First Edition, Wiley Publishing Inc.,
 2011

- 3. Derek Stenning, Charlie Bowater ,"Beginner's Guide to Digital Painting in Photoshop: Characters (A Beginner's Guide)", First Edition, 3DTotalPublishing, 2015
- 4. Derek Stenning, Charlie Bowater ,"Digital Painting Techniques: Practical Techniques of Digital Art Masters (Digital Art Masters Series)", First Edition, 3DTotalPublishing, 2009

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

B.Sc.			PSO						
A&M	1	2	3	4	5	6	7	1	2
CO1	2	2	3	2	2	1	1	1	2
CO2	2	2	3	2	2	1	1	1	2
CO3	2	1	2	1	1	1	1	1	2
AVG	2	2	2	2	2	1	1	1	2

3-High Relation, 2-Medium Relation, 1-Low Relation, 0-No Relation

x	AM4	01			L	Τ	P	SS	С
			SCRIPT WRITING AND STORY BOAR	D	3	1	1	1	6
С	Р	Α	DESIGNING		L	Т	Р	SS	Н
C	-				3	1	3	1	7+1
2.8	0.2	0							
PRF	EREQ	QUIS	TE : Character & Environment Sketching						
	N	LEVEL							
Afte	r the	comp	letion of the course, students will be able to						
CO	l Re	cogn	<i>ize</i> the significance of Script writing.	Cog	nitive		Ren	nem	ber
CO2 <i>Express</i> the different ways of Story preparation in Cognitive U									
CO3	B En	<i>nploy</i> ard d	the understanding of the Writing skills in Story esigning.	Cog	nitive		Apply		
CO4	$\begin{bmatrix} Ut \\ ma \end{bmatrix}$	<i>ilize</i> aking	the various advertising methods effectively in the realistic shooting spot.	Cog	nitive		App	oly	
CO	. De	sign	and Draw the story board writing using	Cog	nitive		Cre	ate	
	dif	feren	t types of subjects.	Psyc	homo	tor	Set		
UNI	ΤI		SCRIPT					1	12+9
Scri	pt: co	ncep	t, forms and utility, Basic principles of writing a	ı scrip	ot -Im	porta	ance	of s	cript
writi	ing.								
Lab	:	Scri	ot for a short film						
UNI	TII		STORY					1	12+9
Writ Lab	er an	d Pro Stoi	ducer- Researching the script -Story Development y Board for a comic story	,Plot	s in so	ript.			

Descriptive writing ,Analytical writing -Writing fiction - Writing script for video programmes, Concept of Shooting Script. Lab: Script - film review UNIT IV ADVERTISING											
programmes, Concept of Shooting Script. Lab: Script - film review UNIT IV ADVERTISING											
Lab:Script - film reviewUNIT IVADVERTISING1											
UNIT IV ADVERTISING 1											
UNIT IV ADVERTISING 12+9 Script writing for theatre. Script writing for Advertising -Script writing for planetarium											
Script writing for theatre, Script writing for Advertising -Script writing for planetarium.											
Lab: Script and story board for a given situation											
UNIT V STORY BOARD	2+9										
Introduction to Storyboard- Parts of storyboard Advantages of storyboarding											
Interactive Storyboarding -Designing of Storyboard exercise.											
Lab: Screen play											
LECTURE TUTORIAL PRACTICAL SELF STUDY TOTAL											
45 15 45 15 120											
REFERENCES											
1. Chawdhary, Nirmalkumar, How to write film screenplay, Kanishka publish	iers,										
distributers, New Delhi- 110002,- 2009,ISBN 978-81-8457-112-7.											
2. Rubenstein, Paul Max, Martin Jo Maloney, Writing For the Media, Film Televis	ion,										
Video and Radio, Prentive Hall,- Englewood Clifts, New Jersey 07632, 1988, ISBN	[: 0-										
13- 971508-7-01											
3. Whitaker, Harold, John Halas, Updated by Tom Sito, Timing for Animation, Focal F	ress										
Elsevier, New York & Singapore, 2009 ISBN: 978-0-240-52160-2.											
WEB REFERENCE											
1. https://www.acini.net.au/education/school-program-and-resources/script-storyboard/											
2. https://www.storydoardinal.com/articles/I/overview-and-introduction-to-films-											
commercials-and-annihilations											

B.Sc.				PO)			PS	50
A&M	1	2	3	4	5	6	7	1	2
CO1	3	2	3	2	2	1	2	1	2
CO2	2	3	2	2	1	2	0	1	1
CO3	2	2	3	1	2	1	1	2	3
CO4	3	2	1	3	1	2	2	1	1
CO5	2	1	3	2	0	1	1	2	3
AVG	2	2	2	2	1	1	1	1	2

CPA3.000PREREQUISCOURSE OUAfter the comCO1:RecoCO2:SelectSceneCO3:ExanoptimCO4:ClassCO5:Anal	COMPOSITING TECHNIQUES SITE: Audio and Video editing UTCOMES: Course Outcomes pletion of the course, students will be able to ognize the basic concepts of logical effects ct the various pyrotechniques to create an effective mine various color correction and image mization wife the various uproal effects	3 L 3 Dor Cogni	0 T 0 mair itive	1 P 2	2 SS 2 Le	6 H 5+2 evel
CPA 3.0 00PREREQUISCOURSE OUCOURSE OUSelect scenteCO2:Select scenteCO2:Select scenteCO3:Exam optimCO4:Class ClassCO5:Anal	SITE: Audio and Video editing UTCOMES: Course Outcomes pletion of the course, students will be able to ognize the basic concepts of logical effects ct the various pyrotechniques to create an effective e. mine various color correction and image mization	L 3 Dor Cogn Cogn	T 0 mair itive	P 2	SS 2 La Rema	H 5+2 evel
3.0 0 0 PREREQUIS COURSE OU After the com CO1: Reco CO2: Selec scene CO3: Exan optim CO4: Class CO5: Anal	SITE: Audio and Video editing UTCOMES: Course Outcomes pletion of the course, students will be able to ognize the basic concepts of logical effects ct the various pyrotechniques to create an effective e. mine various color correction and image mization	Don Cogni Cogni	mair	1	Le	evel
After the com COURSE OU COURSE OU CO1: Reco CO2: Select scene CO3: Exan optim CO4: Class CO5: Anal	SITE: Audio and Video editing UTCOMES: Course Outcomes pletion of the course, students will be able to ognize the basic concepts of logical effects ct the various pyrotechniques to create an effective e. mine various color correction and image mization	Dor Cogn Cogn	mair itive	1	Le	evel
After the com COURSE OU After the com CO1: Reco CO2: Select scene Scene CO3: Exan optim CO4: Class CO5: Anal	UTCOMES: Course Outcomes pletion of the course, students will be able to ognize the basic concepts of logical effects ct the various pyrotechniques to create an effective ne. mine various color correction and image mization wife the various uproal effects	Dor Cogn Cogn	mair itive	1	Le	evel
After the com CO1: Reco CO2: Selec scene CO3: Exan optim CO4: Class CO5: Anal	Course Outcomes appletion of the course, students will be able to ognize the basic concepts of logical effects ct the various pyrotechniques to create an effective ee. mine various color correction and image mization wife the various uproal effects	Don Cogn Cogn	mair itive itive	1	Le	evel
After the com CO1: Reco CO2: Select scene CO3: Exan optim CO4: Class CO5: Anal	appletion of the course, students will be able to ognize the basic concepts of logical effects ct the various pyrotechniques to create an effective the various color correction and image mization wife the various uproal effects	Cogni Cogni	itive itive		Remo	
CO1: Reco CO2: Select scene CO3: Exan optim CO4: Class CO5: Anal	<i>ognize</i> the basic concepts of logical effects <i>ct</i> the various pyrotechniques to create an effective e. <i>mine</i> various color correction and image mization	Cogni Cogni	itive itive		Reme	
CO2: Select scene CO3: Exan optim CO4: Class CO5: Anal	<i>ct</i> the various pyrotechniques to create an effective le. <i>mine</i> various color correction and image mization	Cogn	itive			ember
CO3: Examoptin CO4: Class CO5: Anal	e. <i>mine</i> various color correction and image mization wife the various, upreal effects	Cogn	itive		A1	
CO3: Exan optim CO4: Class CO5: Anal	<i>mine</i> various color correction and image mization	Com			Аррі	У
CO4: Class CO5: Anal	wife the verieus unreal offects	Cogn	itive		Appl	у
CO5: Anal	SUV THE VALIOUS UTILEAL EFFECTS	Cogn	itive		Unde	erstand
ettec	<i>lyze</i> a right motion tracking tools to produce an	Cogn	itive		Anal	yze
	INTRODUCTION					9+6
Composite in	After Effects-A Basic Composite-Get Settings Right	-The I	Iser	Inte	rface	Use It
Animation: It UNIT II Color Correc Channels-Cur Match Colors Brush and Ro Cloning-Avoi	2's All About Relationships-Accurate Motion Blur-Tin COLOR CORRECTION Ction-Color Correction and Image Optimization rves: Gamma and Contrast-Hue/Saturation: Color s-Beyond the Ordinary, Even Beyond After Effects- R efine Edge-Articulated Mattes-Refined Mattes: Fea id Roto and Paint	-Level -Level and In totosco thered	nd R s: I ntens oping , Tr	etin Histo ity- g an acke	ogram Comp d Pain ed-Pai	9+6 s and ositors t-Roto nt and
UNIT III	CAMERA AND OPTICS					9+6
The Camera a Tells the Stor and the Envir Smoke-Wind	and Optics-The Unreal After Effects Camera-3D and ry-Don't Forget Grain-Real Cameras Distort Reality ronment-Particulate Matter-Sky Replacement-Fog, S and Ambience-Precipitation	CINE 7-Train moke,	MA Yo and	4D- ur E Mi	The C Eye- C st-Bill	Camera Climate Lowing
UNIT IV	PYROTECHNICS					9+6
Pyrotechnics: Explosions-A Film Even St Management	Heat, Fire, Explosions-Firearms-Energy Effe dvanced Color Options and HDR-What Is High D till Exist?-Linear HDR Compositing: Life like-Linea and LUTs-Beyond Theory into Practice	ects-He Dynami r LDR	eat ic R Cor	Dis ango npo	tortion e, and siting,	n-Fire- Does Color
UNIT V	EFFECTIVE MOTION TRACKING					9+6
Effective Mot Smooth Move Useful-Camer Combine Lay and Variable With or With	tion Tracking-Track a Scene with the 3D Camera Tra- re-The Point Tracker: Still Useful-Mocha AE Planar ra Integration- Selections: The Key to Compositing-J vers-Edges on Camera -Transparency and How to W Mask Feather-Mask Modes and Combinations-Au- hout Selections: Blending Modes-Share a Selection	cker-W Track Beyond Vork w nimate with	Varp ker: d A vith 1 d M Trae	Sta Also Ove It-M Iask ck I	bilizer o Still or B: H lask C s-Corr Mattes	VFX: Quite Iow to pptions posite -Right

LECTURE	TUTORIAL	PRACTICAL	SELF STUDY	TOTAL
45	0	30	30	105
REFERENCES				
1. Mark Christia After Effects [®]	nsen Visual Effe	ects and Compositi	ingSTUDIO TECH	NIQUES Adobe®
WEB REFERENCE	CES			
1. <u>www.slide</u>	eshare.net.			
2. www.prok	to.com			

o <u>f Course O</u> u	ıtcome	s (CC) wit	h Progi	amme	e Outc	omes (I	20):	
B.Sc				PO				PS	50
A&M	1	2	3	4	5	6	7	1	2
CO1	1	0	2	1	2	1	2	3	2
CO2	1	1	2	1	1	1	2	1	1
CO3	1	0	1	1	1	1	1	1	1
CO4	1	1	2	1	2	1	1	1	1
CO5	1	1	2	1	2	2	2	1	3
Average	2	1	3	2	3	2	3	2	3

XA	AM4	03		L 3	Т 0	P 1	SS 0	6 C 4	
С	Р	Α	3D ANIMATION	L	Т	Р	SS	ын	
U	•	11		3	0	2	0	5	
2.8	0.2	0							
PRF	ERE()UIS	ITE: 2D Animation						
			COURSE OUTCOMES	D	OM	IAI	N	LEVEL	
Afte	r the	comp	pletion of the course, students will be able to						
CO	1 R	ecogi	<i>nize</i> the significance of 3D animation basics	Co	gnit	ive		Remember	
00	COI Recognize the significance of 3D animation basics. Psychomotor								
CO2Observe and Express the knowledge on using differentCognitiveU									
CO2 Observe and Express the knowledge on using different Cognitive modeling techniques in designing 3D animation. Psychomotor									
	I	iston	and <i>Fmnlov</i> the animated objects and manipulate	Co	gnit	ive		Apply	
CO	$3 \mid \frac{L}{ri}$	ogina	the objects	Psy	cho	mot	or	Perception	
	11	gging	, the objects.	Af	fecti	ve		Response	
	17	tilizo	texturing methods to <i>improve</i> the designing	Co	gnit	ive		Apply	
CO	$4 \begin{vmatrix} 0 \\ c^{\dagger} \end{vmatrix}$	uuize	ter for the realistic applications	Psy	/cho	mot	or	Mechanism	
	CI	larac	ter for the realistic applications.	Af	fecti	ve		Respond	
CO		esign	and <i>Establish</i> the lighting, shadow and camera for	Co	gnit	ive		Create	
		sing c	lynamics.	Psy	cho	omot	or	Originate	
l	UNIT	ľ	INTRODUCTION					9+6	
User	Inte	rface	- Creating, Manipulating and viewing objects- view	ing 3	BD s	cene	e –Co	omponents	

and attributes				
Lab: 1.Making	g a logo using Object	ts		
2. Desigr	an Ice-cream Cone			
UNIT II	MODELING			9+6
Polygonal Mod	eling – Modeling a p	oolygonal mesh – N	URBS Modeling – r	evolving a curve to
create a surface	– Lofting screen to	create surface – Su	bdivision surfaces –	Modeling a
subdivision sur	face			
Lab: 1. Use m	odeling methods for	designing		
UNIT III	RIGGING AND	ANIMATION		9+6
Key frames and	l graph editor - set di	riven key – path an	imation – Non linear	animation – Inverse
cinematics				
Lab: 1. Create	simple animation			
2. Rigging	g Simple Character			
UNIT IV	CHARACTER S	ET UP AND TEX	TURING	9+6
Skeleton and ki	nematics - smooth s	kinning – cluster a	nd blend shape defor	mers - UV texture
napping				
Lab: 1. Applyi	ng texturing to the O	bjects		
2. Using f	luid dynamics			
UNIT V	RENDERING AN	ND DYNAMICS		9+6
Rendering a sce	ene – shading surface	es – lights shadows	and cameras - Globa	al Illumination –
caustics- Partic	les emitter and fields	- Rigid bodies and	d dynamics.	
Lab: 1. Design	ing simple animatior	n using particles an	d dynamics	
LECTURE	TUTORIAL	PRACTICAL	SELF STUDY	TOTAL
45	0	30	0	75
REFERENCE	S:			
I. Getting star	ted with Maya, Auto	odesk Maya 2011		
2. The Animat	or's Survival Kit: A	Manual of Method	a Dringinlag and For	-1 - 1 - 1 - 1
		Manual of Method	s, i merpies, and i of	mulas for Classical,
Computer,	Games, Stop Motion	, and Internet Anin	nators by Richard Wi	lliams
Computer, 0 3. <u>Oliver Villa</u>	Games, Stop Motion	, and Internet Anin : A Hands-On Guid	ators by Richard Wi le to Creating 3D An	lliams imated Characters",
Computer, 0 3. <u>Oliver Villa</u> Second Edi	Games, Stop Motion , "Learning Blender tion, Addition Wesle	, and Internet Anin : A Hands-On Guidey Learning, 2014.	ators by Richard Wi le to Creating 3D An	imated Characters",
Computer, 0 3. <u>Oliver Villa</u> Second Edi WEB REFER	Games, Stop Motion , "Learning Blender tion, Addition Wesle ENCES:	, and Internet Anin : A Hands-On Guid ey Learning, 2014.	ators by Richard Wi le to Creating 3D An	imated Characters",
Computer, 0 3. <u>Oliver Villa</u> Second Edi WEB REFER 1. <u>www.cr</u>	Games, Stop Motion , "Learning Blender tion, Addition Wesle ENCES: eativebloq.com/3d-ti	, and Internet Anin : A Hands-On Guid by Learning, 2014.	ators by Richard Wi le to Creating 3D An	imated Characters",
Computer, 0 3. <u>Oliver Villa</u> Second Edi WEB REFER 1. <u>www.cr</u> 2. <u>www.cc</u>	Games, Stop Motion , "Learning Blender tion, Addition Wesle ENCES: eativebloq.com/3d-ti schools.org/cdhs/sit	, and Internet Anin : A Hands-On Guid ey Learning, 2014. ips/maya-tutorials- e/default.asp.	ators by Richard Wi le to Creating 3D An	imated Characters",

4. www.blenderartists.org

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

B.Sc.				РО				P	SO
A&M	1	2	3	4	5	6	7	1	2
CO1	2	2	2	1	2	1	1	2	1
CO2	1	1	1	2	2	2	1	1	1
CO3	1	2	2	2	1	1	2	1	1

CO4	1	2	1	2	2	1	1	2	1
CO5	2	1	3	2	2	1	1	2	1
AVG	1	2	2	2	2	1	1	2	1

v	лла	04		L	Т	P	SS	С	
Δ		.		$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1	0	4		
C	р	•	FUNDAMENTALS OF CINEMATOGRAPHY	L	Т	Р	SS	Н	
C	•	Α		3	0	2	0	5	
2.0	0.6	0.4					•		
PRF	ERE(UIS	TE: Audio and Video Editing						
			COURSE OUTCOMES	DO	MAI	N	LEV	EL	
Afte	r the	comp	letion of the course, students will be able to						
CO	1 D	escril	be and Express basic concepts in photography.	Cogn	itive		Remen Unders	nber stand	
CO2Identify and Interpret fundamentals of cinematography.CognitiveRemember Understand									
CO3Compose and Formulate various photographs and videosPsychomotor Affective									
CO4 Identify and Explain the responsibilities of crew members in a camera department. Cognitive									
CO5Initiate and Organize a screen play and shoot a shortPsychomotorfilmAffective									
UN	TI		FUNDAMENTALS OF CINEMATOGRAPHY	7			018411	9+6	
What	at is o	cinem	atography - Persistence of vision – Frame rate – In	termi	ttent r	nech	anism –	reflex	
view	finde	er – V	iewing screens – Film magazine – Film and digital	came	ra lay	out. '	What is	film –	
histo	ory –	Photo	graphic process - colour negative film - grain and g	raines	ss.				
Lab	:Sh	ootin	g at various frame rates.						
UN	TI		LENSES AND DIGITAL CAMERA					9+6	
Len	ses :	Apert	ure and f – numbers – depth of field – how depth of	f field	work	s - I	Depth of	focus	
- lei	ns cai	re - (Cameras using film – Essential components – Cam	iera ty	ypes -	-How	view c	amera	
wor	ks −F	low d	irect viewfinder camera works –How reflex camer	a wor	ks -	Digi	tal Can	iera –	
over	view	how	images are captured –film verses digital imaging rou	ites –	CCD	limit	s to you	ir final	
prin	l size	-Stol	ang exposed shots on memory cards disk – point and	1 SHOC	ot low	ena	camera	– mgn	
Lah	• Sh	na sile	g with various lens and focal lengths						
UN	T III		LIGHTING PRINCIPLES AND FILM PROC	ESST	NG			9+6	
Lig	nting	nrin	ciples and equipments- Basic characteristics of light	phting	<u> </u>	hting	, equipr	nent –	
Prac	tical	lighti	ing problems - Film Processing – Equipments	and	gener	ral	prepara	tion –	
Proc	essin	g bla	ck and white negatives –Processing chromomeric –	Digit	tal im	age	manipu	lation	
Hard	lware	e -sof	tware programs – learning the ropes –working on pie	ctures	•	0	•		
Lab	:Sh	ooting	g indoor and outdoor with various lighting techni	ques					
UNI	TIV		COLOUR TEMPERATURE AND CAMERA	FILT	ERS			9+6	
Wha	t is	colou	temperature - filters and mired shift values - the	e colo	our te	mper	ature m	eter –	
colo	ur fil	m – c	correction lamp – white balance - Filters – Colour	comp	ensat	ion f	ilters –	colour	

correction filters	s – skin tone warm	er –colour effects	– various kinds o	f filters.	
Lab: Shooting	with various white	e balances in came	era and using filter	S.	
UNIT V	PRINCIPLES A	AND OPERATIC	DNS		9+6
Director of pho	tography- Camer	a Operator – Firs	t Assistant Came	ra man ·	– Second Assistant
Camera man –	Loader - SD or	HD video produc	ction- Second A	ssistant	Camera man -
Clapper loader-	focus puller - cre	w protocol - Cho	osing and orderin	g expen	dable – Preparation
of camera equip	oment - Preparation	on of camera truck	k – Preparation of	f dark ro	oom – Production –
Magazine – slat	e – Post productio	n – wrapping equ	ipments.		
Lab: Using var	rious shots, angles	and camera move	ments and create	an adver	tisement.
LECTURE	TUTORIAL	PRACTICAL	SELF STUDY		TOTAL
45	0	30	0		75
	•		•		
REFERENCES	S:				
1. Michale Lar	ngford "Basic Ph	otography",Focal	PressOxford Auc	kland Bo	oston Johannesburg
Melbourne I	New Delhi (UNIT	: I, II and III)			
2. David E Ell	kins, "The Cam	era Assistant's M	anual "Focal Pre	ssOxfor	d Auckland Boston
Johannesbur	rg Melbourne New	Delhi (UNIT: I	V and V)		
3. David Samu	elson,2009, "Mot	ion Picture Camer	ra Techniques"		
4. Verne Carls	on,2003 ,"The Pro	fessional Lighting	g Handbook"		
5. Blain Brown	n,2003,"The Filmr	nakers Pocket Ref	erence"		
WEB REFERE	ENCES:				
1. https://www	.learnaboutfilm.co	m/film-language/	picture/		
2. https://www	.premiumbeat.con	n/blog/cinematogr	aphy-manual-the-	ultimate	-guide-to-
becoming-a-	-director-of-photos	eraphy/	1 /		0
3. https://www	v.viterbo.edu/sites/	default/files/2019	02/Basic%20Film	making%	%20Concepts 0.pdf

B.Sc.				PO				PSO	
A&M	1	2	3	4	5	6	7	1	2
CO1	2	2	3	2	2	1	1	1	2
CO2	2	2	3	2	2	1	1	1	2
CO3	2	1	2	1	1	1	1	1	2
CO4	1	1	1	2	1	2	2	1	2
CO5	3	2	2	3	3	1	1	1	2
AVG	2	2	2	2	2	1	1	1	2

•7		0.6				L	Т	P	SS	С
X	AM4	06				L T P SS 0 0 0 1 L T P SS	1	1		
C	р		O	NLINE CONTENT CREAT	ION	L	Т	Р	SS	Н
C	r	A				1	0	0	0	1
1.5	1.5	0								
PRF	E RE(QUIS	ITE:							
CO	URSI	E OU	TCOMES	:		-				
			0	Course Outcomes			Dom	ain	L	evel
Afte	er the	comp	oletion of the	ne course, students will be abl	e to	-				
CO: wor	1: De dpres	scrib s	e and Show	w the various steps in blog cre	ation using	Co Ps	ogniti vchor	ve motor	Und	erstand
CO	2: Ai	oply t	he princip	es, techniques to develop colo	or schemes	Co	ogniti	ve		
for t	olog c	reation	on and Styl	ing for Print		Ps	ycho	motor	App	ly
CO.	<u>3: Cr</u>	eatec	omprehens	sive list ofdesign articles and	Adding a	Co	gniti	ve	C	
Favi	icon i	n blo	gs	C	U	Ps	ycho	motor	Crea	te
SYI	LAF	BUS:	-				•			
Intro	oduct	ion to	Blogging,	First Steps With WordPress,	WordPress S	Sema	antics	- Lea	rning t	he
Jarg	on, N	lew T	o WordPre	ess - Where to Start, Using Im	ages, Wrapp	ing '	Text .	Aroun	d Imag	ges,
Con	nmen	ts in V	WordPress,	, Finding WordPress Help, Po	st Formats, I	link	ing to	o Posts	, Page	s, and
Cate	egorie	s, Us	ing Smilie	s, Links Manager, WordPress	Feeds, Custo	omiz	zing F	Feeds,	How to	o Use
Grav	vatars	in W	vordPress,	Writing Code in Your Posts, I	Using Passwo	ord I	Protec	ction.		
Dev	eloni	nσ a (Colour Sch	eme Designing Headers CSS	Horizontal	Mer	шs Г)vnam	ic Mer	111
Hig	hlight	ing (Good Navi	pation Links. Next and Previo	us Links. Sty	vling	$\frac{100}{100}$ for l	Print.	Design	ing
You	r Pos	t Met	a Data Sec	tion. Separating Categories in	vour Post M	leta	Data	Sectio	n.	
Cus	tomiz	ing th	ne Read M	ore. Formatting Date and Tim	e. Styling Li	sts v	vith C	ISS D	esigni	ng
Hea	dings	. Play	ing With F	Fonts, Using Images, Fun Cha	racter Entitie	es. C	lompi	ehens	ive list	of
desi	gn ar	ticles.	Adding a	Favicon.		-, -	r -			
	LE	CTU	RE	TUTORIAL	PRACT	ICA	L		TOT	AL
		15		0	0				15	,
REI	FERF	ENCE	ES:					1		
1. N	lichae	el Dav	vid - Word	Press Search Engine Optimiza	ation – PACF	KT r	oublis	her. 2	015	
						·r		- , -	-	

B.Sc.		РО							PSO		
A&M	1	2	3	4	5	6	7	1	2		
CO1	2	2	3	2	2	1	1	1	2		
CO2	2	2	3	2	2	1	1	1	2		
CO3	2	1	2	1	1	1	1	1	2		
AVG	2	2	2	2	2	1	1	1	2		

					L	Т	Р	C	
XA	M 4	501			3	0	1	4	
		[WEB DESIGN						
С	Р	Α			L	Т	Р	Η	
3	1	0			3	0	2	5	
PRER	REQU	ISITE:	Nil						
			COURSE OUTCOMES	DOMAI	N	L	EVE	L	
After t	he co	mpletion	n of the course, students will be able to			1			
CO1	Rec	<i>ognize</i> t	he significance of Web Technology.	Cognitive Psychomot	ognitive sychomotor		Remember		
CO2 <i>Express</i> the knowledge on HTML, CSS and JavaScript in Web Design.CognitiveUnderstan								ind	
CO3 <i>Employ</i> the understanding of the Client side scripts and actively <i>participate</i> in teams for the creation of web pages.Cognitive AffectiveApply Respond									
CO4	Util app	Cognitive		App	oly				
CO5	Des	Cognitive Psychomot	or	Cre Set	ate				
UNIT	Ι	I	NTRODUCTION TO WEB TECHNOLOGY				9+6		
Lab: 1 2. Dov	. Usag vnload	ge of Mi ling Ter	crosoft Interdev. nplates.						
UNIT	II	Η	ITML				9+6		
HTMI and In Lab:1	2 Basi put ta . Forn es fra	cs – HT gs. natting t	ML Editor – HTML CSS – Links – Images – Tables – ags, ordered list and unordered list.	Lists - Fram	ies -]	HTM	L for	ms	
UNIT	Ш	,	SS				9+6		
CSS I	Basics	s - Text	s and Fonts – Links, Lists and Tables – Backgrou	nd, Border	and (Outli	ne –		
Positi	on – I	Dimens	ion and Display.						
Lab: 1 2	.Font, 2. Bac	color a kground	nd style and Links						
UNIT	IV	J	AVASCRIPT				9+6		
Java S Condit Lab:1	cript l tional .Form	Basics – and Loc Validat	Functions – Objects – Events – Scope – Strings – Nur oping Statements – Forms.	nbers – Date	e – Ai	rays	_		
	L. L00 V	ping and v	VEB APPLICATIONS				9+6		
Free V	Vebsit	e Creati	on – Getting Server Space - Case Studies: College We	bsite – Blog	Crea	tion -	- Onl	ine	
Educa	tion –	Career	Guidance.	0					

LECTURE	TUTORIAL	PRACTICAL	TOTAL
45	-	30	75
REFERENCES:			
5. AchyutS.Godbole, Atul	Kahate, "Web Technologies T	CP/IP To Internet Application	on Architectures",
First Edition, Tata McC	Fraw-Hill Publishing Company	Limited, 2003.	
6. N.P. Gopalan, J.Akilan	deswari, "Web Technology: A	Developer's Perspective",	Second Edition, PHI
Learning Private Limite	ed, 2014.	- •	

- 7. Thomas A. Powell, "HTML & CSS: The Complete Reference", Fifth Edition, Tata McGraw Hill Education Private Limited, New Delhi, 2010.
- 8. Thomas A. Powell, Fritz Schneider, "JavaScript: The Complete Reference", Second Edition, Tata McGraw Hill Education Private Limited, New Delhi, 2008.
- 9. <u>www.w3schools.com</u>
- 10. www.tutorialspoint.com

B.Sc.			Р	0				PSO	
A&M	1	2	3	4	5	6	7	1	2
CO1	2	0	1	0	1	0	1	0	0
CO2	2	2	1	1	0	1	1	0	0
CO3	1	2	1	2	1	1	2	0	0
CO4	0	1	2	2	1	0	1	0	0
CO5	1	2	2	3	2	1	1	0	0
AVG	1	1	1	2	1	1	1	0	0

										L	Т	Р	С
XA	M ⁴	502A			3D M(DFI	IINC			3	0	1	4
					JD MC	DEL							
С	Р	Α								L	Т	Р	Η
3	1	0								3	0	2	5
PRE	EREG	QUISIT	E: 3D A	Animation									
			(COURSE	OUTCOME	S			DOMAI	N	L	EVEI	Ĺ
Afte	r the	complet	tion of tl	he course, s	tudents will be	e able to							
COI	l	U ndersta	<i>ind</i> the	definition	ofComputer	Based	Animation	and	Cognitive		Under	rstand	1
	Modeling. Experiment with the geometrical 2D and 3D shapes. Psychomotor Remember							mber					

	r		
	Understand and Annly 2D modeling in simple objects with lines		Understand
CO2	and connect with compound objects	Cognitive	Remember
	and connect with compound objects.		Apply
CO2	Design 2D modeling with 2d phicets	Cognitive	Apply
COS	Design 3D modering with 3d objects.	Psychomotor	Respond
COA	<i>Identify</i> different types of lighting and cameras and Apply in real	<u>Carritian</u>	Remember
CO4	world application.	Cognitive	Apply
	Creating and Applying standard materials, adding material details	Cognitive	Create
C05	with maps, creating compound materials.	Psychomotor	organization
UNIT	I COMPUTER-BASED ANIMATION	-	9+6
Definit	ion of Computer-based Animation, Basic Types of Animation: Real Tim	me,Non-real-time	е,
Definit	ion of Modeling, Creation of 3D objects. Exploring the Max Interfac	ce, Controlling &	Configuring the
Viewp	orts, Customizing the Max Interface & Setting Preferences, Working v	with Files, Import	ing & Exporting,
Selecti	ng Objects & Setting Object Properties, Duplicating Objects, Creatin	g & Editing Stan	dard Primitive &
extend	ed Primitives objects. Transforming objects. Pivoting, aligning etc.	0 0	
Lab:			
1.	Introduction to 3D Studio Max.		
2.	Exploring the Max Interface		
3	Creating & Editing Standard Primitive Objects		
UNIT	II 2D SPLINES & SHAPES& COMPOUND OBJECT		9+6
Unders	standing 2D Splines& shape. Extrude & Bevel 2D object to 3D. Under	standing Loft & 1	errain. Modeling
simple	objects with splines. Understanding morph scatter conform conn	ect compound of	piects blobmesh
Boolea	n Pro-boolean& pro-cutter compound object	••••	, jee , ereemes,
Lah	in , i to booleance pro earter compound object.		
1	2D Splings Shapes & Compound Objects		
1.	2D Sprines, Shapes & Compound Objects.		
2.	Convert 2D to 2D object using outmude, heaved, left, termoin etc.		
J.	Convert 2D to 5D object using extrude, bever, fort, terrain etc.		0.6
UNII	ing with Delygong using the graphite working with VDefe De	vilding simple s	9+0 Duilding
Model	ing with Folygons, using the graphite, working with AReis, bu		t 1°C
compl	ex scenes with XRefs, using assets tracking, deforming surface	es & using the r	nesh modifiers,
model	ing with patches & NURBS		
Lahi			
Lad:			
1	3D Modeling		
1.	Modeling with polygon objects		
2. 2	Duilding Simple & Complex Scene		
3.	Building Simple & Complex Scene		
UNIT	IV LIGHTING & CAMERA		9+6
	ting & Anning Cameras, camera motion blur, camera deput of field,	camera tracking,	using basic lights
	ting reconfiques, working with advanced lighting, Light Tracing, I	kadiosity, video	post, mental ray
lighting	g etc.		
Lab:			
1.	Lighting & Camera		
2.	Configuring & Aiming Cameras		
3.	Using Camera Motion Blur & Depth of Field		
UNIT	V TEXTURING		9+6
Using	the material editor & the material explorer, creating & applying st	andard materials,	adding material
details	with maps, creating compound materials & material modifiers, unw	rapping UVs &	mapping texture,

using atmospheric & render effects etc.

Lab:

- 1. Texturing with Max
- 2. Using Material Editor
- 3. Create & Apply standard material
- 4. Material Modifier

LECTURE	TUTORIAL	PRACTICAL	TOTAL
45	-	30	60

REFERENCES:

- 1. TedBoardman, 3d'sMax5Fundamentals, Techmedia"2004,
- 2. Michele Busquet, Modeling, Animate with 3d'smax6, "Many world, 2006.
- 3. Michael E. Mortenson, 3D Modeling, Animation, and Rendering, Create space, 2010.
- 4. Boris Kulagin, "3ds Max 8 from Modeling to Animation, BPB,2006.
- 5. Michael G., 3D Modeling and Animation, IRM Publishing, 2005
- 6. Lance Flavell, Beginning Blender: Open Source 3D Modeling, Animation, and Game Design, Apress, 2010.

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

B.Sc.				РО				PS	50
A&M	1	2	3	4	5	6	7	1	2
CO1	2	2	2	2	2	1	1	2	2
CO2	2	3	3	3	3	1	1	3	2
CO3	2	3	3	3	3	1	1	3	2
CO4	2	3	3	3	3	1	1	3	2
CO5	2	3	3	3	3	1	1	3	2
AVG	2	3	3	3	3	1	1	3	2

					L	L	Г	U
XA	M5(03A	SCRIPT WRITING AND STO	RY	3	0	1	4
С	Р	Α	BOARD DESIGNING		L	Т	Р	Η
3	1	0			3	0	2	5
PRER	REQU	UISITE:N	Nil COURSE OUTCOMES	DOMA	[N	I	LEVE	EL
After	the co	mpletior	n of the course, students will be able to			l		
CO1	Rec	<i>ognize</i> t	he significance of Script writing.	Cognitive		Ren	nemb	er
CO2	2 <i>Express</i> the different ways of Story preparation in Script. Cognitive Und							nd

REFE	ERENCES:							
	45			•	30		75	
	LECTURE		TUT	ORIAL	PRACT	ICAL	TOTAL	1
Lusi	Screen play							
Lah:		aung -D	Signing of Su	Jybbard CACION				
Interac	tive Storybo	arding _De	signing of Sto	orvhoard evercio				
UNIT	$\frac{\mathbf{V}}{\mathbf{v}}$	vboard-	Parts of story	board Advant	ages of storyboard	dina		9+6
	.	STORY	BOARD					0 (
Lau:	Script and st	ory boar	d for a given s	situation				
Lahi								
Script	writing for th	eatre, Scr	ipt writing for	Advertising -Se	cript writing for p	lanetarium.	-	
UNIT	IV	ADVER	TISING					9+6
Lab: S	Script - film ı	review						
program	mmes, Conce	ept of Sho	oting Script.					
Descri	ptive writing	,Analytic	al writing -Wr	iting fiction - W	/riting script for v	video		710
UNIT	ш	WRITH	NG					0+6
Lab:	Story Board	l for a co	omic story					
Writer	and Produce	r- Researc	thing the scrip	t -Story Develo	pment,Plots in sc	eript.		
UNIT	Π	STORY						9+6
S	cript for a sh	ort film						
Lab:	concept, ion	ins and an	inty, Dusic prin	neiples of when	ig a seript impor	unce of script w	ming.	
UNIT Script:	I concept for	SCRIP	[lity Basic priv	nciples of writin	a script -Impor	tance of script w	riting	9+6
05	subjects.					Psychomotor	Set	
CO5	<i>Design</i> and	Draw the	story board	writing using di	fferent types of	Cognitive	Create	
CO4	<i>Utilize</i> the realistic sho	various a	dvertising met	thods effectivel	y in making the	Cognitive	Apply	
CO3	<i>Employ</i> the designing.	e understa	anding of the	Writing skills	in Story board	Cognitive	Apply	

- Chawdhary, Nirmalkumar, How to write film screenplay, Kanishka publishers, distributers, New Delhi- 110002, – 2009, ISBN 978-81-8457-112-7.
- Rubenstein, Paul Max, Martin Jo Maloney, Writing For the Media, Film Television, Video And Radio, Prentive Hall, – Englewood Clifts, New Jersey 07632, 1988, ISBN: 0-13-971508-7-01
- 3. Whitaker, Harold, John Halas, Updated by Tom Sito, Timing for Animation, Focal Press Elsevier, New York & Singapore, 2009 ISBN: 978-0-240-52160-2.

B.Sc.	РО							PSO		
A&M	1	2	3	4	5	6	7	8	1	2
CO1	3	2	3	2	2	1	2	1	1	2
CO2	2	3	2	2	1	2	0	0	1	1
CO3	2	2	3	1	2	1	1	2	2	3
CO4	3	2	1	3	1	2	2	1	1	1
CO5	2	1	3	2	0	1	1	2	2	3
AVG	2	2	2	2	1	1	1	1	1	2

					L	Т	Р	С
XA	M5	04B			3	1	0	4
			MEDIA TECHNOLOGIES					
С	Р	Α			L	Т	Р	Η
4	0	0			3	1	0	4
PRER	REQU	J ISITE	: Nil					
			COURSE OUTCOMES	DOMAI	N	L	EVE	Ľ
After	the co	ompletio	on of the course, students will be able to					
CO1	Ree tec	c <i>ognize</i> hnically	the concept of media production and the process and know-how.	Cognitive		Ren	nemb	er
CO2	<i>Illu</i> var	<i>istrate a</i> ious me	and communicate ideas in the form of production in dia.	Cognitive		Ana	lysis	
CO3	Cre	e ate and	communicate ideas visually in the form of media.	Cognitive		Crea	ate	
CO4	Un inte	<i>derstan</i> ernet me	<i>d</i> the basic of production in print, radio, television and edia.	Cognitive		Und	lersta	nd
CO5	Ex	<i>amine</i> t	he basic knowledge about media production.	Cognitive		App	oly	

UNIT I	INTRODUCTION		12
Various types of me	dia - Paper, Television, Radio and Internet -	- History of media.	
UNIT II	PRINT MEDIA		12
Print media professi business cards, book	onal designing tools for News paper, magaz covers- Image and text effects.	zine, brochures, advertisem	ents, booklets,
UNIT III	RADIO MEDIA		12
How radio broadcas interviews, discussio	ting works, radio studio, radio programme f ons, writing for radio, editing for radio.	formats, radio play docume	ntary, news,
UNIT IV	TELEVISION MEDIA		12
Television production principles.	on process, Electronic news gathering, basic	steps of production, script	writing and editing
UNIT V	INTERNET MEDIA		12
Internet – e-books, e	e-magazines, portals, web advertisements.	PRACTICAL	TOTAL
45	15	-	60
REFERENCES:			
1. Charles convo	nor, Designing for Print, Second Edition	John Wiley & Sons	
	m and Robert B.Musburger, Introductio	n to Media Production: 7	The path to digital
2. Gorham Kinde	Û,		1 0
2. Gorham Kinde production, Els	sevier publication 2009		
 Gorham Kinde production, El: Lynnee Schafe 	sevier publication 2009 r Gross, Electronic Media Introduction,	McGraw Hill, 2009	1 0
 Gorham Kinde production, El Lynnee Schafe https://en.wiki 	sevier publication 2009 r Gross, Electronic Media Introduction, pedia.org/wiki/Media_(communication)	McGraw Hill, 2009	1 0

B.Sc.		РО						PSO		
A&M	1	2	3	4	5	6	7	1	2	
CO1	3	2	3	2	1	1	2	1	2	
CO2	2	2	2	1	1	1	2	1	2	
CO3	2	1	2	1	1	1	2	1	1	
CO4	3	2	3	2	1	1	2	1	2	
CO5	2	2	2	1	1	1	2	1	2	

									L	Т	Р	С
XΔ	М	601							0	0	2	2
111 .	TAT.	001	DIG	TAL 1	[ELEV]	ISION	PRODU	CTION	•	U	-	-
C	р	Δ	_						Т	Т	р	н
1	1		_							1	1	11
				~					U	U	-	-
PKF	ĽK	EQUI	SILE: (Compositir	ıg							
COI	UR	SE OI	JTCON	IES:								
			(Course O	utcomes			Domai	n		Leve	1
After	the	complet	ion of the	course, stu	dents will b	be able to	1					
CO1:	:	Recogn	ze about t	he digital i	nedia.			Cognitive		Rer	nemb	er
CO2:	:	Summa	<i>rize</i> the sh	ooting pro	gress			Cognitive		Uno	lersta	nd
CO3:	:	Identify	the editin	g and shar	ing in movi	es.		Cognitive		Uno	lersta	nd
CO4	•	Imnlem	enting the	advanced	in movies			Cognitive		Un	lersta	nd
C05	•	Exnorin	nenting th	e movie m	aker tools to	o create t	he quality in	Coginave			-01500	
003.	•	movies	iening ur		unoi 10013 II	s create t	ne quanty m	Cognitive		Cre	ate	
T	TNT		INTDO		T							10
Digite	JINI ol n	II podia L	INTROI	via creatio	n Droprod	luction	Planning sto	ry corint Dr	aduat	ion	Shoe	$\frac{14}{14}$
progr	ai 11 'ess	- Post n	oduction.	- introduct	ion to Movi	ie maker	Flammig - Sto	ry script - riv	Juuci	1011 –	Shot	ung
Lah	.035	1 Ost p	outenon	muouue								
1.1	Inst	alling me	ovie make	r								
U	NI	r II	SHOOT	ING PRO	GRESS							12
Direc	ctor	– Assista	ant Produc	er – Produ	ction Mana	iger – bas	sic camera wor	k - three way	shoc	oting	– ligh	ting
– trail	ler j	oreparati	on. – orga	nize your o	clips	-		-		Ũ	Ũ	Ū
Lab												
1.	Caj	pture vid	eo from de	evice.								
2.0	Org	anize the	videos fr	om the mo	vie maker					1		
	Nľ	<u>` III</u> .	EDITIN	G AND S	HARING		7 1 . 1 . 1			1.		12
Addii	ng -	- arrangi	1g – splitti	ing – trimr	ning – comb	$p_{1} = 1$	Edit audio traci	ks – Narration	n reco	ording	g – Ac	Ijust
- Sav	/e y	our movi	e – snarin	g								
	ç	Solitting	videos									
2		Adding a	udio									
3	. I	Finish vo	ur movie									
U	NIT	IV	ADVAN	CED IN N	IOVIE							12
Work	cing	with stil	l images –	- Adding s	ound effect	– video t	ransition – Vid	eo Effects				
Lab												
	Ţ	Video tro	neition									
2	•	/ideo eff	ects									
		Γ	PLAYIN	IG MOVI	ES							12
Plavi	ngv	vith mov	ies – auda	city - creation	ting movie	with qua	lity sound effect	cts – creating	skins	for v	videos	 5.
Lab:	0			.,	<i>a i i</i>		J					
1	. (Create sk	in for vide	eos.								
2	. /	Audacity	for narrat	ion for qua	lity sound.							
	L	ECTUR	E	ГТ	UTORIAL		PRAC	FICAL	TOTAL			
		-			-		6	0		6	60	_
-												

REFERENCES:

- 1. Digital Television Production, Jeremy orleber, 2002, Arnold publishing.
- 2. Television production Handbook, Herbert zettl, 11 edition, Wordsworth, cengage learning 2006.
- 3. Microsoft windows movie maker handbook, John M'Chalak, Seth McEvoy.

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

B.Sc.	РО							PSO	
A&M	1	2	3	4	5	6	7	1	2
CO1	2	1	1	1	1	2	1	1	1
CO2	3	2	2	2	2	2	2	2	1
CO3	2	2	2	2	3	2	2	2	1
CO4	3	2	2	2	2	2	2	3	1
CO5	3	3	3	3	3	3	3	3	1
AVG	3	2	2	2	2	2	2	2	1

XAM 602 3D ANIMATION				L 3	Т 0	Р 1	C 4	
C 3	P 1	A 0	3D ANIMATION		L 3	Т 0	P 2	Н 5
PRER	REQU	ISITE:	2D Animation		1			
COURSE OUTCOMES DOMA				ĨN	L	EVE	L	
After t	the co	mpletior	of the course, students will be able to			1		
CO1 <i>Recognize</i> the significance of 3D animation basics.Cogn Psych					ve Remember motor Perception			er on
CO2	CO2 <i>Observe</i> and <i>Express</i> the knowledge on using different modeling techniques in designing 3D animation.					Understand Perception		nd on
CO3 Listen and Employ the animated objects and manipulate rigging the objects.					or	Apply Perception Response		on e
CO4	CO4 Utilize texturing methods to improve the designing character for the realistic applications. Cog					App Mea Res	oly chani pond	sm
CO5Design and Establish the lighting, shadow and camera for shading the surface and improve the performance by using dynamics.Cogn Psyc				Cognitive Psychomot	or	Crea Orig	ate ginate	,
U	NIT I	[]	INTRODUCTION				9+6	
User I attribu Lab: 1.Mak	nterfao ites ting a l	ce – Cre logo usin	ating, Manipulating and viewing objects- viewing 3D s	cene –Comp	onent	ts and	[

2. Design an Ice-cream Cone

UNIT II MODELING

Polygonal Modeling – Modeling a polygonal mesh – NURBS Modeling – revolving a curve to create a surface – Lofting screen to create surface – Subdivision surfaces – Modeling a subdivision surface **Lab:**

9+6

9+6

9+6

1. Use modeling methods for designing

UNIT III RIGGING AND ANIMATION

Key frames and graph editor - set driven key – path animation – Non linear animation – Inverse kinematics **Lab:**

1. Create simple animation

2. Rigging Simple CharacterUNIT IVCHARACTER SET UP AND TEXTURING

UNIT IVCHARACTER SET UP AND TEXTURING9+6Skeleton and kinematics – smooth skinning – cluster and blend shape deformers - UV texture mappingLab:

1. Applying texturing to the Objects

2. Using fluid dynamics

UNIT V RENDERING AND DYNAMICS

Rendering a scene – shading surfaces – lights shadows and cameras – Global Illumination – caustics-Particles emitter and fields - Rigid bodies and dynamics.

Lab:

1. Designing simple animation using particles and dynamics

LECTURE	TUTORIAL	PRACTICAL	TOTAL
45	-	30	75

REFERENCES:

- 1. Getting started with Maya, Autodesk Maya 2011
- 2. The Animator's Survival Kit: A Manual of Methods, Principles, and Formulas for Classical, Computer, Games, Stop Motion, and Internet Animators by Richard Williams
- 3. <u>Oliver Villa</u>, "Learning Blender: A Hands-On Guide to Creating 3D Animated Characters", Second Edition, Addition Wesley Learning, 2014.
- 4. www.creativebloq.com/3d-tips/maya-tutorials-1232745
- 5. <u>www.cdschools.org/cdhs/site/default.asp</u>.
- 6. www.animationmentor.com/tutorials/free-maya-basic-animation-tutorials.html
- 7. <u>www.blenderartists.org</u>.

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

B.Sc.	РО						PSO		
A&M	1	2	3	4	5	6	7	1	2
CO1	2	2	2	1	2	1	1	2	1
CO2	1	1	1	2	2	2	1	1	1
CO3	1	2	2	2	1	1	2	1	1

CO4	1	2	1	2	2	1	1	2	1
CO5	2	1	3	2	2	1	1	2	1
AVG	1	2	2	2	2	1	1	2	1

XA	M6 (134			L 3	T 0	Р 1	C 4		
		JJII	FILM MAKING		U	v	-			
С	Р	A	0		L	Т	Р	H		
3	1	0			3	0	2	5		
PRER	REQU	ISITE:	2D Animation, 3D Animation							
	COURSE OUTCOMES DOMAIN LEVEL									
After t	After the completion of the course, students will be able to									
CO1 Observe the basics of Animation and Perceive the process of Film Aking.					or	Ren Perc	nemb ceptio	er on		
CO2	CO2 <i>Interpret</i> the knowledge on Pre Production activity.					Und	lersta	nd		
CO3	Employ the understanding of Production activity			Cognitive		App	oly			
CO4Utilize the awareness of Post Production activity and Achieve the good quality in the Pre Production, Production and PostCogni PsycheProduction of Film Making.Cogni				Cognitive Psychomot	Apply Set					
CO5	CO5Contribute more actions in Designing the Animated Movie.Cognitive Affective					Create Respond				
UNIT	I		ANIMATION BASICS – I	·				9+6		
Additi Ping-P Lab: 1.Mak 2. Crea	ouncir onal P ong B ing a l ate a E	ig Ball - Pointers Ball – Bo Motion = Bouncing	- Generic Walks – Personality Walks – Generic Runs – for Runs – Head-on Runs – Quadruped Walks – Weigh owling Ball – Comparing the three versions. tween and shape tween using Simple Objects g ball.	Key Generic t – Standard	Rubb	Stage er Ba	es — 111 —			
UNIT	II		ANIMATION BASICS – II					9+6		
Anticij Facial Breako Lab: 1.Anti 2. Crea	 Anticipation – The Benefits of Anticipation – Anticipations are for everything - Dialog – Body Language – Facial Animation - Lip Synching – Two-Character Dialog – Final Project – Staggers – Successive Breakouts of Joints – Eye Blinks – Eyebrows. Lab: Anticipation method using Simple Character. Create a Character design and dialog. 									
UNIT	Ш		ANIMATED FILM PRODUCTION – I					9+6		

Production Challenge – Exploring Ideas, Storytelling and Scriptwriting – Concept Art, Viz Dev	
and Camera Maps – Character Design – Thumbnails – Storyboards.	

Lab:

1. Storyboard drawings.

2. Create a Concept art.

UNIT IV	ANIMATED FILM PRODUCTION – II	

Filmmaking Techniques – Audio Record – Animatic and Bacher Boards – Backgrounds and Environment Layouts – Color Script – Audio Breakdown – Block in Key Poses - Placement and Timing.

9+6

Lab:

1. Create a background layout and designing .

2. Create a Animatics Drawing.

UNIT V ANIMATED FILM PRODUCTION – III	9+6
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Two-Dimensional In-Betweening – Rolling, Flipping and Pencil Testing – Clean-up – Scanning – Background and Environments – Coloring – Compositing – Rendering – Final Edit.

Lab:

1. Walk Cycle in Simple Character.

2. Advertisement or Story in 2d animation. (30 seconds duration)

LECTURE	TUTORIAL	PRACTICAL	TOTAL
45	-	30	75

REFERENCES:

- 1. Tony White, How to make animated films, Focal Press, Elesvier, 2009.
- 2. Kit Laybourne, The Animation Book: A complete guide to animated film making from flipbooks to sound cartoons to 3D animation, Crown Publishing Group, 1998.
- 3. Mark Simon, Producing Independent 2D Character Animation: Making and Selling a Short Film, Focal Press, Elesvier, 2003.
- 4. https://en.wikibooks.org/wiki/Movie_Making_Manual

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

B.Sc.		РО							PSO	
A&M	[1	2	3	4	5	6	7	1	2	
CO1	1	0	3	0	1	1	2	3	0	
CO2	1	2	0	1	1	0	1	0	2	
CO3	1	2	0	2	1	0	1	0	2	
CO4	1	2	0	1	3	1	1	0	2	
CO5	2	3	2	2	3	2	1	1	0	
AVG	1	2	1	1	2	1	1	1	1	

XANGOAD		()			L	Т	P	C
XAM604B		łR	TEVTUDINIC AND SHADING				1	4
С	Р	Α	IEATURING AND SHADIN	G	L	Т	Р	н
3	1	0			3	0	2	5
DDED								
PKEK	EQUIS	011E:	Rigging, Lighting & Rendering and 3D Animation			1		
COURSE OUTCOMES DOMAI						N LEVEL		
After t	he com	pletior	of the course, students will be able to			•		
CO1 <i>Recognize</i> the significance of Light colour.Cognitive						Remember		
CO2	Expre	ess the	different ways light types for shading	Cognitive		Understand		
CO3	CO3 <i>Employ</i> the understanding of the lights and shadows.					Apply		
CO4	Utilize the various texturing methods. Cog					Apply		
CO5Design and Draw the 3D ProjectionsCogni Psych				Cognitive Psychomot	e Create otor Set			
UNIT	I	U	NDERSTANDING LIGHTING, COLOR, AND CO	OMPOSITI	ON			9+6
Under	standing	g the A	rt of Lighting- 1-Point Lighting, 2 -Point Lighting, 3	-Point Light	ing,	Unde	rstan	ding
Color	and Cor	nposit	ion- Color Theory, Checking Color Calibration, Colo	r Temperatu	re, S	etting	g a W	'hite
Point,	Applyır	ng the	Golden Mean, Rule of Thirds.					
1.Intro	duction	about	Maya, Photoshop					
2.Crea	te a sim	ple m	odel using maya					
	т			7				0.0
Maya	III APPLYING THE CORRECT MAYA LIGHT TYPE 9+6 10 Light Types Using Spot Lights Directional Lights Ambient Lights Doint Lights Using Amos							
Volum Fog, C Ex: 1.Crea 2.Appl	te a text	Tutoria Tutoria Ture us ure to	king and Unlinking Lights, Light Fog and Light Gl al: Lighting an Interior. ing photoshop a model	ow, Enviror	nmen	t and	l Vol	ume
UNIT	III	С	REATING HIGH-QUALITY SHADOWS					9+6
Rende	ring De	pth M	aps, Understanding Depth Maps, Refining Depth M	aps ,Solving	g Lig	tht G	ap Ei	rors
,Comp	aring S	hadow	s, Raytracing Shadows, Linking and Unlinking Shado	ows, Creatin	g Eff	ects !	Shad	ows,
Toon System Chapter Tutorial: Lighting a Flickering Fire Pit with Shadows								
Ex:	ystelli.	Chapt	er ruoriai. Eignung a Flickering Flic Fli with Sliatov	w 5.				
1.Create a soda bottle model and apply texture								

UNIT IV	APPLYING THE CORRECT MATERIAL AND 2D TEXTURE	9+0
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Reviewing Shading Models and Materials-Lambert ,Shading with Phong ,Shading with Blinn , Shading with Phong E , Shading with the Anisotropic Material ,Shading with a Shading Map , Shading with a Surface Shader , Shading with Use Background.Reviewing 2D Textures-Applying Cloth , Applying Water , Applying Perlin Noise , Applying Ramps, Bitmaps, and Square Textures.Mastering Extra Map Options , Setting the Filter Type ,Shifting Color with Invert and Color Remap , Stacking Materials and Textures , Mastering the Blinn Material -Re-Creating Wood , Re-Creating Metal , Re-Creating Plastic.Chapter Tutorial: Re-Creating Copper with Basic Texturing Techniques.

Ex:

UNIT V

1. Unwrap a text and apply a texture, shading.

2. Unwrap human hand and add texture.

APPLYING 3D TEXTURES AND PROJECTIONS

9+6

Exploring 3D Textures- Applying Random Textures, Natural Textures, Granular Textures, Abstract Textures, and Environment Textures. 2D Texture Projection Options, Placing Placement Boxes and Projection Icons, Convert To File Texture Tool, Chapter Tutorial: Creating Skin with Procedural Textures.

Ex:

1.Unwrap human Head and whole human body then add texture, shading.

2, Create a model house unwrap and apply texture & shading.

LECTURE	TUTORIAL	PRACTICAL	TOTAL
45	-	30	75

REFERENCES:

1. Lee Lanier "Advanced Maya Texturing and Lighting" Autodesk Maya Press, Second Edition, United Kingdom.

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

B.Sc.	РО							PSO	
A&M	1	2	3	4	5	6	7	1	2
CO1	3	2	3	2	2	1	2	1	2
CO2	2	3	2	2	1	2	0	1	1
CO3	2	2	3	1	2	1	1	2	3
CO4	3	2	1	3	1	2	2	1	1
CO5	2	1	3	2	0	1	1	2	3
AVG	2	2	3	2	1	1	1	1	2
B.Sc (Artificial Intelligence)

	se Code			L	Т	Ρ	С	
Cours	se Name	அடிப்படைத் தமிழ்-	I	3	0	0	3	
Prer	equisite			L	Т	Ρ	Н	
C	:P:A	3:0:0		3	0	0	3	
		COURSE OUTC	OMES	DOM	MAIN		LEVEL	
After	the comp	letion of the course, stu	dents will be able to					
CO1	உயிர் வகைப்	எழுத்துக்கள் - மெய்யெ(படுத்தி நினைவூட்டல்.	ழத்துகள்	Cognit	ive	Re	member	
co2 உடல் உறுப்புப் பெயர்கள் - எளிய சொற்களை தொகுத்துக் கூறுதல் Cognitive						Re	member	
соз	ତ୍ରୁର୍ଶା ଓଡ	பறுபாடுளைப் புரிந்து கெ	ாள்ளும் திறன் பெறல்	Cognit	ive	Ur	derstand	
CO4	CO4 தமிழில் உரையாடல் - இயற்கையை வருணித்தல். Cognitive					Ар	ply	
CO5	அறநெ)க் கருத்துக்களை வகை	கப்படுத்தும் திறன் பெறல்.	Cognit	ive	An	Analyze	
୬ ାର(ଜ	த– 1	ଗ(ழத்துக்களின் வகைகள்				9	
உயிர் விளக்	் எழுத்து கம் அறித	க்கள் - மெய்யெழுத்துக தல்	கள் - பிரித்து எழுதுதல்	- சேர்த்து (ாழுது	தல் -	பொருள்	
ച്ചരാഗ	த– 2	எளிய தமி	ழ்ச் சொற்களை வகைப்படு	த்துதல்			9	
01000		Chantler Preda	••••••••••••••••••••••••••••••••••••••					
உடல்	் உறுப்பு	் பெயர்கள் - எளிய தட	δழ்ச் சொற்கள் வகைப்படு	த்துதல்				
உடல் அல	் உறுப்பு த– 3	் பெயர்கள் - எளிய தட ஒ	ிழ்ச் சொற்கள் வகைப்படு 1 லி வேறுபாட்டுத் திறன்	த்துதல்			9	
உடல் <u>அல</u> ஞ ஒலி (் உறுப்பு த– 3 வேறுபாடுக	் பெயர்கள் - எளிய தட ஒ 6ள் - சொல் வகைகள்	மிழ்ச் சொற்கள் வகைப்படு ற லி வேறுபாட்டுத் திறன்	த்துதல்			9	
உடல் <u>அலகு</u> ஒலி (் உறுப்பு த– 3 வேறுபாடுக க– 4	் பெயர்கள் - எளிய தட ஒ 6ள் - சொல் வகைகள்	ிழ்ச் சொற்கள் வகைப்படு லி வேறுபாட்டுத் திறன் உளாயாடல்	த்துதல்			9	
உடல் அலர ஒலி (அலர தமிழி	் உறுப்பு த– 3 வேறுபாடுச த– 4 ல் உரைப	் பெயர்கள் - எளிய தட ஒ 6 6 எர் - சொல் வகைகள் பாடல் - இயற்கையைப்	மிழ்ச் சொற்கள் வகைப்படு 2 லி வேறுபாட்டுத் திறன் உரையாடல் பற்றி அறிதல் - வருணனை	த்துதல் ன செய்தல்			9	
உடல் <u>அலரு</u> ஒலி (தமிழி அலரு	் உறுப்பு த— 3 வேறுபாடுச் த— 4 ல் உரைப த— 5	் பெயர்கள் - எளிய தட ஒ கள் - சொல் வகைகள் பாடல் - இயற்கையைப் அறநெறி ச்	மிழ்ச் சொற்கள் வகைப்படு ஸ ி வேறுபாட்டுத் திறன் உரையாடல் பற்றி அறிதல் - வருணை கருத்துக்களைப் பின்பற்	த்துதல் ன செய்தல் றுதல்			9	
உடல் அலர ஒலி (அலர தமிழி அலர விழாச) உறுப்பு த <u>– 3</u> வேறுபாடுச த <u>– 4</u> ல் உரைப த <u>– 5</u> க்கள் - உ	ப் பெயர்கள் - எளிய தட ஒ நள் - சொல் வகைகள் பாடல் - இயற்கையைப் அறநெறி க் கதைகள் - பில	மிழ்ச் சொற்கள் வகைப்படு லி வேறுபாட்டுத் திறன் உரையாடல் பற்றி அறிதல் - வருணனை 5 கருத்துக்களைப் பின்பற் ழையின்றிப் படித்தல், எழு	த்துதல் ன செய்தல் றுதல் துதல்			9 9 9	
உடல் <u>அலரு</u> ஒலி (<u>அலரு</u> தமிழி அலரு விழாச) உறுப்பு த <u>– 3</u> வேறுபாடுச த <u>– 4</u> ல் உரைப த <u>– 5</u> க்கள் - உ	ப் பெயர்கள் - எளிய தட ஒ நள் - சொல் வகைகள் பாடல் - இயற்கையைப் அ றநெறி க் கதைகள் - பில TUTORIAL	மிழ்ச் சொற்கள் வகைப்படு லி வேறுபாட்டுத் திறன் உரையாடல் பற்றி அறிதல் - வருணை க் கருத்துக்களைப் பின்பற் ழையின்றிப் படித்தல், எழு	த்துதல் ன செய்தல் றுதல் துதல் TC			9	

பாடநூல்கள்:

 முனைவர் கோ.பெரியண்ணன் - அடிப்படை எளிய தமிழ் இலக்கணம் -2003, வனிதா பதிப்பகம், 11, நானா தெரு, பாண்டி பஜார், தி.நகர், சென்னை - 17.

 முனைவர் ந.லெனின் - பிழையின்றித் தமிழை எழுதுக (எளியமுறை) சூன்-2020, பிருந்தா பதிப்பகம், தஞ்சாவூர் - 05.

பார்வை நூல்கள்:

1. தமிழ்நாடு அரசு வெளியிட்டுள்ள தமிழ்ப் பாட நூல்கள், வகுப்பு - 6, 7, 8.

	COURSE CODEXGE102LTPSS								C
C:P:A - 3:0:0 Domain Level COURSE OUTCOMES: Domain Level CO1 Recall the basic grammar and using it in proper context Cognitive Remembering CO2 Explain the process of listening and speaking Cognitive Creating CO3 Adapt important methods of reading Cognitive Understanding CO4 Demonstrate the basic writing skills Cognitive Understanding SYLLABUS HOURS UNIT I Grammar Important methods of correctness and attitude to error correction 9 UNIT II Listening and Speaking Uniferent products and fluency in speaking vi. Intelligibility in speaking 9 UNIT III Basics of Reading Intelligibility in speaking 9 vii. Introduction to reading skills viii. Introducing different types of texts – narrative, descriptive, extrapolative 9 UNIT IV Basics of Writing Important and converting sympthese setc.) 9 UNIT IV Basics of Writing different types of letters (personal notes, notices, complaints, appreciation, conveying sympthese setc.) 9 Iven sentence without affecting the structure xii. Reorganizing jumbled sentences into a coherent paragraph xiii. Drafting different types of letters (per	COUI	RSE NAME	English - I	3	0	0	0	3	3
COURSE OUTCOMES: Domain Level COI Recall the basic grammar and using it in proper context Cognitive Remembering CO2 Explain the process of listening and speaking Cognitive Understanding CO3 Adapt important methods of reading Cognitive Creating CO4 Demonstrate the basic writing skills Cognitive Understanding SYLLABUS Grammar Image: Coursection Polyana SYLLABUS Istening and Speaking Image: Coursection 9 UNIT I Istening and Speaking vi. Intelligibility in speaking 9 UNIT III Basics of Reading Image: Coursection 9 VINT III Basics of Reading Image: Coursection 9 UNIT III Basics of Writing 9 9 ix. Introduction to reading skills viii. Introducing different types of texts – narrative, descriptive, extrapolative 9 9 ix. Introduction to writing skills x. Aspects of cohesion and coherence xi. Expanding a given sentence without affecting the structure xii. Reorganizing jumbled sentences into a coherent paragraph xiii. Drafting different types of letters (personal notes, notices, complaint, appreciation, conveying sympathies etc.) 36 Text books <td< th=""><th>C:P:A</th><th>- 3:0:0</th><th></th><th>1</th><th></th><th></th><th></th><th></th><th></th></td<>	C:P:A	- 3:0:0		1					
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COde Demonstrate the basic writing skills Cognitive Understanding SYLLABUS Image: Construct the basic writing skills Image: Construct the	CO3	Adapt importat	nt methods of reading	Co	gniti	ve	Cr	eating	g
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UNIT I Grammar Image: Construct of Construction of Constructin of Construction of	SYLL	ABUS						HOU	RS
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9. Swan, Michael. (1980). Practical English Usage. Oxford, OUP

10. Walter and Swan (1997). How English Works. Oxford, OUP

				T	able 1	l: Maj	pping	of Co	s with	POs	:			
	PO1	Р	РО	PO4	PO5	PO6	PO7	PO8	PO9	PO1	PO11	PO12	PSO1	PSO2
		02	3							0				
CO1	2	0	0	0	0	0	2	0	1	0	0	0	0	0
CO2	2	0	0	0	0	0	2	0	1	0	0	0	0	0
CO3	1	0	0	0	0	0	1	0	1	0	0	0	0	0
CO4	2	0	0	0	0	0	1	0	1	0	0	0	0	0
Total	7	0	0	0	0	0	6	0	4	0	0	0	0	0
Scale	2	0	0	0	0	0	2	0	1	0	0	0	0	0
d														
Value														
	1	0	0	0	0	0	1	0	1	0	0	0	0	0

1-5= 1, 6-10 = 2, 11-15= 3

0-No Relation, 1- Low Relation, 2 – Medium Relation, 3- High Relation Table 2: Mapping of COs with GAs:

	GA	GA1	GA1									
	1	2	3	4	5	6	7	8	9	0	1	2
CO1	0	0	0	0	0	0	0	1	1	2	0	0
CO2	0	0	0	0	0	0	0	0	0	2	0	0
CO3	0	0	0	0	0	0	0	0	0	1	0	0
CO4	0	0	0	0	0	0	0	0	0	0	1	0
Tota l	0	0	0	0	0	0	0	1	1	5	2	0
Scal e	0	0	0	0	0	0	0	1	1	1	1	0

1-5=1, 6-10 = 2, 11-15=3

0-No Relation, 1- Low Relation, 2 – Medium Relation, 3- High Relation

XAI103-PROGRAMMING METHODOLOGIES

Sub	Codo			L		Т	SS	С
Sub	BROCRAMMING METHODOLOGIES							5
X A	T 103	I KOGKANIMING METHODO		L		Т	SS	Η
AA	1105			4		1	0	5
COURS	E OUTCO	MES	DOMAIN			LF	EVEL	1
CO1	Recognize	the importance of developing simple	Cognitive		Re	mem	ber	
	algorithms	and flow charts to solve a problem.	Psychomotor		Perception			
CO2	<i>Identify</i> t	he needs problem solving skills	Cognitive		Un	ders	tand	
	coupled wi	th top down design principles.	Psychomotor		Per	rcept	ion	
CO3	Domonstr	Cognitive		٨n		Darcar	ntion	
	algorithms	coupled with iterative methods	Psychomotor		Ap Do		, ercel	JUOII
algorithms coupled with iterative methods.			Affective		ĸe	CEIVE	5	

CO4	<i>Illustrate</i> developm	Illustrate the concept of Structures application development.Cognitive Psychomotor AffectiveApply Mechanism Respond							
CO5	<i>Develop</i> use of program	and <i>Establish</i> search pointers. recursiv	ning techniques and ve techniques in	Cognitive Psychomotor	Create Origination				
UNIT I	IN	TRODUCTION T	O PROGRAMMIN	G	12+3				
Introduc	tion to Pr	ogramming, Progra	m Concept, Charact	teristics of Progra	amming, Stages in				
Program Methodo Variable	Developi blogies, Ir	nent, Algorithms, I ntroduction to C+- gnments, Input and	Notations, Design, 1 Programming - 1 Output, Selection an	Flowcharts, Type Basic Program S d Repetition State	s of Programming Structure In C++, ements.				
UNIT I	I FU	INCTIONS	-	-	12+3				
Top-Dov Function Reference	wn Desigr 1 Overload 2e Paramet	n, Predefined Func ding, Functions wi ers, Recursion.	tions, Programmer th Default Argume	-defined Function ents, Call -By-Va	n, Local Variable, alue and Call-By-				
UNIT II	I AF	RRAYS			12+3				
Introduct Arrays, A	tion to A Arrays in I	rrays, Declaration Functions, Multi-Di	and Referring Arra mensional Arrays.	ys, Arrays in Mo	emory, Initializing				
UNIT I	V ST	RUCTURES			12+3				
Structure	es - Meml	per Accessing, Poir	nters to Structures, S	Structures and Fu	nctions, Arrays of				
	es, Unions								
Structure	/ FT	I FS AND SFARC	'HING ALGORITH	IMS	12+3				
Structure UNIT V Declarat Function Linear S	ion and I n, Strings earch, Bin	nitialization, Readin and Structure, Stan ary Search. Use of f	ng and Writing Stri dard String Library iles for data input an	ings, Arrays of S Functions. Searc d output. merging	Strings, String and hing Algorithms - g and copy files.				
Structure UNIT V Declarat Function Linear S	ion and I n, Strings earch, Bin	nitialization, Readin and Structure, Stan ary Search. Use of f	ng and Writing Stri dard String Library iles for data input an	ings, Arrays of S Functions. Searc d output. merging	Strings, String and hing Algorithms - and copy files.				
Structure UNIT V Declarat Function Linear S	ion and I n, Strings earch, Bin	nitialization, Readin and Structure, Stan ary Search. Use of f TUTORIAL 15	and Writing Stridard String Library iles for data input an PRACTICAL	ings, Arrays of S Functions. Searc d output. merging SELF STUDY	Strings, String and hing Algorithms - and copy files. TOTAL 75				
Structure UNIT V Declarat Function Linear S LECT 6 TEXT B	ion and I n, Strings earch, Bin FURE 0 300KS	nitialization, Readin and Structure, Stan ary Search. Use of f TUTORIAL 15	ng and Writing Stri dard String Library ïles for data input an PRACTICAL 0	ings, Arrays of S Functions. Searc ad output. merging SELF STUDY 0	Strings, String and hing Algorithms - and copy files. TOTAL 75				
Structured UNIT V Declarat Function Linear S LECT 6 TEXT B 1. P 2 2. P J	ion and I n, Strings earch, Bin FURE 0 BOOKS Problem So 2015. Programmi ones & Ba	nitialization, Readinand Structure, Stanary Search. Use of f TUTORIAL 15 olving and Program ng and problem solv and problem solv and problem solv	and Writing Stridard String Library iles for data input an PRACTICAL 0 Design in C, J. R. Having with C++: brief 0.	ings, Arrays of S Functions. Searc ad output. merging SELF STUDY 0 anly and E. B. Kot edition, N. Dale a	Strings, String and hing Algorithms - and copy files. TOTAL 75 ffman, Pearson, nd C. Weems,				
Structure UNIT V Declarat Function Linear S LEC 6 TEXT B 1. P 2 2. P J REFER	ion and I n, Strings earch, Bin FURE 0 BOOKS Problem So 2015. Programmi ones & Ba ENCES	nitialization, Readinand Structure, Stanary Search. Use of f TUTORIAL 15 olving and Program ng and problem solv ntlett Learning, 2010	and Writing Stridard String Library iles for data input an PRACTICAL 0 Design in C, J. R. Having with C++: brief 0.	ings, Arrays of S Functions. Searc id output. merging SELF STUDY 0 anly and E. B. Kor edition, N. Dale a	Strings, String and hing Algorithms - and copy files. TOTAL 75 ffman, Pearson, nd C. Weems,				
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Structured UNIT V Declarat Function Linear S LECT 6 TEXT B 1. P 2 2. P J REFER 1. Ba E. REFER 1. Ba E. A E. A LECT 1. Ba E. A A LECT 1. Ba E. A A A A A A A A A A A A A	ion and I i, Strings earch, Bin FURE 0 BOOKS Problem So 2015. Programmi ones & Ba ENCES rian W. K ducation In ho A.V. J. Igorithms' ERENCES //www.con //cse02-iiit	Initialization, Readinand Structure, Stanary Search. Use of f TUTORIAL 15 Initialization, Readinant Structure, Stanary Search. Use of f TUTORIAL 15 Initialization, Readinant Structure, Stanary Search. Use of f Image: Stand Structure, Stanary Search. Use of f Image: Stand Structure, Stanary Search. Use of f Image: Stand Structure, Stanary Search. Use of f Image: Standard Structure, Stanary Search. Use of f Image: Standard Structure, Stanary Search. Use Stanary Search. Use Stanary Stana	and Writing Stridard String Library iles for data input an PRACTICAL 0 Design in C, J. R. Having with C++: brief 0. s M. Ritchie, "The O 0. Ullman., 2001. "The Delhi. Second Edit: c/basictut/index.html ideo.php?courseId=1	ings, Arrays of S Functions. Searce id output. merging SELF STUDY 0 anly and E. B. Kor edition, N. Dale a C Programming L he Design and An ion. 106104128	Algorithms - and copy files. TOTAL 75 ffman, Pearson, anguage", Pearson alysis of Computer				

Table 1: Mapping of Cos with POs.

R So AT		РО							
D.SC AI	1	2	3	4	5	6	7	1	2
CO1	2	2	2	2				2	1
CO2	1			2				2	
CO3	1		2	1					
CO4	2	1	2	3				2	1
CO5	2		1	3				2	
Total	8	3	7	11				8	2
Scaled	2	1	2	3				2	1
Value	2	1	2	5				2	1

2	XAI 10	4	ALCERDA CALCULUS AND	-	L	T 1	SS	C								
C	D	•	ALGEDRA, CALCULUS AND	ŀ	4 I	і Т	0	<u>ј</u>								
C	r	A	ANALI IICAL GEOMETRI	Ļ	L	1	22	п								
4	0	0		4 1			0	5								
PRERE	QUIST	TES	Basics of Mathematics													
COUR	LEV	/EL														
CO1	E	valuate	the derivatives of given functions	Cog	gniti	ve	Und	lerstand								
CO2	C	alculate	the definite and indefinite integrals using	Cog	gniti	ve	Und	lerstand,								
	V	arious te	chniques.				Ren	nember								
CO3	A	pply bas	sic operations on matrices to find the inverse of	Cog	gniti	ve	Und	lerstand,								
	a	matrix					App	oly								
CO4	S	olve pi	oblems using Binomial, exponential and	Cog	gniti	ve	Und	lerstand								
	10	garithm	ic series expansions.													
CO5	C	alculate	the distance between two points and explain	Cog	gniti	ve	Und	erstand								
	se	ection fo	rmulae, slope form and intercept form.													
UNIT	I – DIF	FEREN	TIAL CALCULUS					12+3								
Deriva	tive of	a func	tion - Various formulae - Product and quoti	ent r	ule	of d	iffere	entiation –								
Differe	entiatio	n of fi	unction of function (chain rule) - Trigonom	metri	ic f	uncti	ons	– Inverse								
trigono	ometric	function	ons – Exponential function – Logarithmic	fui	nctic	ons	– Lo	ogarithmic								
differe	ntiatior	n - Highe	er derivatives – Successive differentiation – Leib	onitz	theo	rem.										
UNIT	II - IN	TEGR	AL CALCULUS					12+3								
Consta	nt of ir	ntegratio	n – Indefinite integral – Elementary integral for	nulae	e - N	Meth	ods of	f								
integra	tion –	Integrati	on by substitution - Integration by parts – Integr	ation	thro	ough	partia	al								
fraction	ns – Co	oncept of	f definite integral – Properties of definite integra	1.												
UNIT	III – N	IATRIC	CES AND DETERMINANTS					12+3								
Definition and types of matrices – Matrix Operation – Determinants – Solution of system of linear																
equation	ons by I	Matrix n	nethod.													
UNIT	IV - S	ERIES						12+3								
Binom	ial theo	orem for	a rational index - Exponential and Logarithmic	serie	es - s	Sum	natio	n of the								
above	series.		_													
UNIT	V - TV	NO-DIN	MENSIONAL ANALYTICAL GEOMETRY				VNIT V - TWO-DIMENSIONAL ANALYTICAL GEOMETRY12+3									

Cartesian coordinate system – Introduction to polar coordinates – Distance between two points – Section formulae – Area of triangle – Locus and its equations – Straight line: Equation of a straight line parallel to an axis – slope form –normal form – Intercept form through two point – condition of concurrency of three lines.

LECTURE	TUTORIAL	SELF STUDY	PRACTICAL	TOTAL
60	15	15	0	75+15

TEXT BOOKS

3. T. K. ManicavachagomPillay, T. Natarajan, K. S. Ganapathy, Algebra, Volume I, S.Vishvanathan Printers and Publishers Pvt., Ltd, Chennai 2004.

4. S.Naravanan, T.K.ManicavachagamPillay, S.Vishvanathan, Calculus volume I & IIPrinters and Publishers Pvt., Ltd, Chennai 1991.

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1. P.Kandasamy&K.Thilagavathi, B.Sc Mathematics for branch I – Vol I &Vol II, S.Chand& Co, 2004.

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www.nptel.ac.in

Advanced Engineering Mathematics, Prof. PratimaPanigrahi, Department of Mathematics, Indian Institute of Technology, Kharagpur.

Mapping of COs with POs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	3						2		
CO2	3						2		
CO3	3						2		
CO4	3						2		
CO5	3						2		
Total	15						10		
Scaled	3						2		
Value									

$1-5 \rightarrow 1, 6-10 \rightarrow 2, 11-15 \rightarrow 3$

0 – No Relation, 1 – Low Relation, 2- Medium Relation, 3- High Relation

Z	XAI 10)5			L	Т	SS	С		
			ρριναιρί ές σε στατιστι	PRINCIPLES OF STATISTICS 3 L						
С	Р	Α	TRINCH LES OF STATIST							
3				3						
COUI	COURSE OUTCOMES DOMAIN						LEVEL			
CO1	Un	derstan	<i>d</i> the nature and types of data	Cognitive		Knov	Knowledge			
						Com	preher	nsion		
CO2	Bu	<i>ild</i> Data	collection strategy using scraping	g Cognitive U			Understand			
				Psychomotor Perc						
CO3	Bu	ild Statis	tical Models using Knime and Jasp	Cognitive Applicatio				n		
				Psychomo	tor	Eval	uation			

CO4	Design H	Ivnothesis and nerf	orm Hypothesis	Cognitive	Application				
001	testing	spontesis ana perj	or in Hypothesis	Psychomotor	Synthesis				
					Evaluation				
CO5	Develop	Estimation tools to a	model Uncertainty	Psychomotor	Comprehension				
	1			Affective	Application				
					Evaluation				
UNIT I	FO	UNDATIONS OF S	TATISTICS – HAN	DLING DATA	9+3				
What is S	Statistics – I	Role of Statistics in N	Aodern Day Applicati	ons – Building Block	s of Statistics– What				
is Data a	analysis – I	Process of Data Ana	lysis - Significance	of Statistics in Data	analysis- Nature of				
Variabili	ty – What	t is Data – Types	of Data – Data (Collection Methods	- Observation and				
Experime	entation – S	craping Web data –	Statistical Procedures	in Datacollection - In	ntroduction to Knime				
- Installa	tion of Knii	me – Understanding I	KnimeEnvironment –	Extracting data from	internet using Knime				
- Explora	$\mathbf{I} = \mathbf{D} \mathbf{I}$	SCRIPTIVE STAT	ISTICS		0+3				
What is	Descriptiv	e Statistics Graph	ical Methods for De	ecribing Data Ba	r Charte Die Charte				
- Stem	and Leaf	Display – Frequer	ncal Methods for De	Histogram – Work	ring with Bivariate				
– Steffi Numeric	allu Leai al Data _ l	Numerical methods	for describing data	- Measuring Centr	ng with Divariate				
– Mode	– Measur	ing Spread – Vari	ance – Standard De	viation – Quantile	e wiedlin wiedlah				
variable	s = Ouantil	$ e - O_{ij} $ antile nlots	– Summarizing a da	taset – Rox plots –	- Interpreting center				
and varia	ability – Cl	hebyshey's Rule – 1	Empirical rule - Sun	marizing Biyariate	Data – Covariance				
– Correl	ation – Pea	arson Correlation –	Kendall Rank Corre	lation – Spearman	Correlation - Linear				
Regressi	ion – Nonli	inear relationship a	nd transformation	Spontine Spontine					
UNIT I	II INI	FERENTIAL STAT	ISTICS		9+3				
What is	Inferentia	1 Statistics – Term	inology in inferent	ial Statistics – Sar	nple –Population –				
Statistic	– Point Es	stimation – Interval	Estimation – Norm	al distribution The	ory – Checking for				
Normali	ty and Nor	rmalizing transform	ation – Chi-squared	l Distribution – stu	dent t distribution -				
Classica	l central li	mit theory – Bernou	ılli trials – Sampling	g – What is samplin	ng – Significance of				
Samplin	g in statist	ics - Random Sam	pling – Monte Carl	lo Sampling techni	que – one sample t				
test – T	'est of sign	nificance - Confid	lence Interval Estin	nation – Interpreta	tion of Confidence				
Interval	 Bayesian 	n Statistics							
UNIT I	V HY	POTHESIS TESTI	NG		9+3				
What is	a Hypothes	sis – Terminology i	n Hypothesis Testin	g - Formation of Hy	pothesis				
– Test I	Procedures	- Errors in Hypo	thesis testing - Ne	yman-Pearson Len	1ma – Hypothesis				
testing u	ising a sing	gle sample – Hypor	thesis tests for a pop	pulation mean – P	value – Hypothesis				
testing u	ising t test	– One tailed and tw	vo tailed hypothesis	test – Paired and U	Jnpaired test – Test				
of Varia	ince – Chi	square test for uni	variate data – Test	for Homogeneity a	ind independence –				
Introduc	tion to An	alysis of Variance	– One way Analys	is of Variance – K	ruskal Wallis Rank				
Sum Tes	st – Two w	ay ANOVA – ANC	OVA vs T Test – MA	ANOVA – ANOVA	Vs MANOVA				
LINIT V	V Dro	bability			0+3				
Fundam	entals of P	robability – Axiom	s of Probability - C	onsequences of Av	J_{\pm}				
Function	1 - Prior ar	nd Posterior Distrib	1 1 1 1 1 1 1 1 1 1	Distributi Function	1 - Ioint Prohability				
– Condit	tional Prob	ability – independe	nce – Baves Theore	m = Sampling usin	g Gibbs sampling –				
Bayesian Networks – Stochastic Process – Simple Random Walk – Markov Chains – What is									
Markov chain - Applications of Markov chains - Computing Markov Chains - Markov Chain									
Monte C	Carlo sampl	ling – Path forward	1	C a					
LEC	TURE	TUTORIAL	PRACTICAL	SELF STUDY	TOTAL				
4	15	15	0	0	60				
TEXT F	BOOKS								
Applied 9	Statistics Ar	nd Probability For En	gineers – By Douglas	Montgomerv					
- Ppilea (Statistics / II	ia i roouonity i or En	Sincers By Douglus	intoingoinoi y					

REFERENCES

- 1. Introduction to Data Mining, Tan, Steinbach and Vipin Kumar, Pearson Education, 2016
- 2. Wasserman, L. (2004). All of Statistics: A concise course in statistical inference

E-REFERENCES

1. Casella, G. and Berger, R.L. (2002). Statistical Inference, 2nded

B.Sc AI		РО)
	1	2	3	4	5	6	7	1	2
CO1	2	2	2	2	1			2	1
CO2	1	2	2	2	1			2	
CO3	1		2	1	2				
CO4	2	1	2	3	1			2	1
CO5	2		1	3				2	
Total	8	5	9	11	5			8	2
Scaled	2	1	2	3	1			2	1
Value									

Table 1: Mapping of Cos with POs.

 $1 - 5 \Box 1, \qquad 6 - 10 \Box 2, \qquad 11 - 15 \Box 3$

0-No relation 1-Low relation 2-Medium relation 3-Strong relation

Course Code	XAI 106	L	Т	Р	С
Course Name	PROGRAMMING METHODOLOGIE LAB	0	0	1	2
C:P:A	0:1.5:0.5	L	Т	P	Η
		0	0	3	3

- 1. Given the problem statement, students are required to formulate problem, develop flowchart/algorithm, write code, execute and test it. Students should be given assignments on following:
 - **a.** To learn elementary techniques involving arithmetic operators and mathematical expressions, appropriate use of selection (if, switch, conditional operators) and control structures.
- 2. Given the problem statement, students are required to formulate problem, develop flowchart/algorithm, write code, execute and test it. Students should be given assignments on following :
- 3. Learn how to use functions and parameter passing in functions, writing recursive programs.
- 4. Write Programs to learn the use of strings and string handling operations.
- 5. Problems which can effectively demonstrate use of Arrays. Structures and Union.
- 6. Write programs using pointers
- 7. Write programs to use files for data input and output.
- **8.** .Write programs to implement search algorithms.

B.Sc AI		РО						PSO	
	1	2	3	4	5	6	7	1	2
CO1	1	1	1	2	1			2	1
CO2	1	2	2	2	1			2	
CO3	1		1	1	2				
CO4	2	1	2	3	1			2	1
CO5	2		1	3				2	
Total	8	5	9	11	5			8	2
Scaled	2	1	2	3	1			2	1
Value									

 $1 - 5 \Box 1$, $6 - 10 \Box 2$, $11 - 15 \Box 3$

0-No relation 1-Low relation 2-Medium relation 3-Strong relation

Course Code	XAI 107	L	Т	Р	C
Course Name	Principles of Statistics Lab	0	0	1	2
C:P:A	0:1.5:0.5	L	Т	P	Η
		0	0	2	2

- 1. Fundamentals of Knime
- 2. Web scraping in Knime
- 3. Exploratory Data analysis in Knime
- 4.Nuances of JASP
- 5. Building statistical models in JASP
- 6. Descriptive Statistics in JASP
- 7. Data Visualization in Knime
- 8. Building a Linear Regression Model
- 9. Identifying correlation between data in knime
- 10. Implementation of Student t test
- 11. Confidence Interval estimation
- 12.Sampling in Knime
- 13. Hypothesis Test using student t test
- 14. Implementation of Paired Hypothesis test
- 15. Contingency Tables in JASP
- 16. Implementation of Chi square test for Independence
- 17. Implementation of Analysis of Variance in JASP
- 18. Implementation of MANOVA in JASP
- 19. Implementation of Bayesian Model in Knime
- 20. Bayesian Parameter estimation in JASP

COUR	RSE CODE	XUMA001		L	Τ	Р	SS	С	
COUF	RSE NAME	HUMAN ETHICS, VALUES, RI	GHTS	2	Δ	Δ	1	0	
		AND GENDER EQUALITY	ζ	4	U	U	I	U	
PRER	EQUISITES	-		L	Т	Р	SS	Η	
C:P:A		1.5:0:0.5		2	0	0	1	3	
COUF	RSE OUTCOMES		Domain		Lev	vel			
CO1	<i>Relate</i> and <i>Inter</i> relationships	rpret the human ethics and human	Cognitive	e	Rer	nem	ber		
CO2	<i>Explain</i> and <i>Applain</i> against women	ly gender issues, equality and violence	Cognitive U1 A1			Understanding, Applying			
CO3	<i>Classify</i> and <i>Dev</i> their violations	elop the identify of human rights and	Cognitive	e	Ana Rec	alyzi ceivi	ng ng		
			Affective						
CO4	<i>Classify</i> and <i>Dis</i> report on violation	essect necessity of human rights and ns.	Cognitive	2	Un An	derst alyze	anding e	5,	
CO5	<i>List</i> and resp ebrotherhood, figh	Cognitive	e	Ren Res	nem spon	ber, 1			
and good governance. Affective									
UNIT	UNIT IHUMAN ETHICS AND VALUES6+3								
Human	n Ethics and values	- Understanding of oneself and others-	motives a	ind n	leeds	- So	cial se	rvice,	
Social	Justice, Dignity an	a worth, Harmony in human relationshi	p: Family a	and S	socie	ety, I	tegrii	y and	
Time	Co-operation Corr	mitment Sympathy and Empathy Self	-respect S	elf-C	onfi	denc	re cha	racter	
buildir	and Personality.	initiation, sympathy and Empathy, sen	Tespeet, D		201111	uene	, ena	iuctei	
UNIT	IIGENDER EQU	ALITY					6+3	3	
Gende	r Equality - Gender	r Vs Sex, Concepts, definition, Gender	equity, equ	ality	, and	l em	power	ment.	
Status	of Women in Ind	ia Social, Economic, Education, Healt	h, Employ	men	t, H	DI, (GDI, (GEM.	
Contri	butions of Dr.B.R.	Ambetkar, ThanthaiPeriyar and Phule to	Women E	Empo	ower	ment			
UNIT	IIIWOMEN ISSU	JES AND CHALLENGES					6+3	3	
Wome	n Issues and Cha	llenges- Female Infanticide, Female	teticide, V	'iolei	nce	agan	nst wo	omen,	
Measu	res $-\Delta cts$ related	to women: Political Right Property	Rights a	on, nd I	Vial	rage	Educ	ation	
Medic	al Termination of P	Pregnancy Act. and Dowry Prohibition A	ct.	iiu i	vigin	.5 10	Luut	ation,	
UNIT	IV HUMAN	N RIGHTS					6+3	3	
Humai	n Rights Movemen	t in India – The preamble to the Const	itution of 1	India	ı, Hu	man	Right	ts and	
Duties	, Universal Declar	ration of Human Rights (UDHR), Civ	il, Politica	l, Eo	cono	mic,	Socia	l and	
Cultur	al Rights, Rights a	gainst torture, Discrimination and forc	ed Labor,	Rigł	nts a	nd p	rotecti	on of	
children and elderly. National Human Rights Commission and other statutory Commissions,									
Creation of Human Rights Literacy and Awareness Intellectual Property Rights (IPR). National Delicy on occupational sofety, occupational health and working any incompany									
Introductional safety, occupational nearth and working environment. UNIT V COOD COVERNANCE AND ADDDESSING SOCIAL ISSUES									
Good	Governance - Der	mocracy People's Participation Trans	sparency in	n 20	vern	ance	and	, audit	
Corruption, Impact of corruption on society, whom to make corruption complaints. fight against									
corrun	tion and related is	sues. Fairness in criminal justice adm	inistration	. Go	vern	men	t svste	em of	
p				, 50					

LECT	JRE	TUTORIAL	SELF STUDY	PRACTICAL	TOTAL
	30	0	15	0	45
Textbo	ok		·		
1.	Aftab A, (l	Ed.), Human Right	ts in India: Issues an	d Challenges, (New	v Delhi: Raj Publications,
	2012).				
2.	Mani. V.	S., Human Rights	s in India: An Over	view (New Delhi:	Institute for the World
	Congress o	on Human Rights,	1998).		
3.	Singh, B.	P. Sehgal, (ed) H	uman Rights in Indi	a: Problems and F	Perspectives (New Delhi:
	Deep and I	Deep, 1999).			
4.	Veeramani	, K. (ed) Periyar o	on Women Right, (C	hennai: Emerald Pu	iblishers, 1996)
5.	Veeramani	, K. (ed) Periyar	Feminism, (Periyar)	Maniammai Univer	sity, Vallam, Thanjavur:
	2010).				
Refere	ice Books				
1. Baj	va, G.S. a	nd Bajwa, D.K.	Human Rights in I	ndia: Implementati	on and Violations (New
Del	ni: D.K. Pu	ublications, 1996).	-	-	
2. Cha	trath, K. J.	S., (ed.), Educati	on for Human Right	s and Democracy (Shimala: Indian Institute
of A	dvanced S	tudies, 1998).			
3. Jaga	deesan. I	P. Marriage and	Social legislation	s in Tamil Nadu	ı, Chennai: Elachiapen
Pub	lications, 1	.990).			
4. Kat	shal, Rach	na, Women and H	uman Rights in India	a (New Delhi: Kave	eri Books, 2000)
E-Refe	rence				
1. http	://planning	commission.nic.in	a/aboutus/committee/	wrkgrp12/wg_occu	ıp_safety.p
0 1	://cvc.nic.i	n/welcome html			
2. <u>http</u>					
2. <u>http</u> 3. <u>http</u>	s://www.tr	ansparency.org/			

				L	Т	Р	SS	С
X	GE2	02		2	1	0	0	3
			ENGLISH II					
С	Р	Α		L	Т	P	SS	Η
1.5	0	0.5		2	1	0	0	4
PRE	REQ	UISIT	'E: Nil	•				•
COL	JRSE	OUT	COMES	DOMAIN			LEVEL	
On t	On the successful completion of this course students would be able to							
CO1		Reca	l the basic grammar and using it in proper context	Cognitive			Rememberi ng	
CO2	CO2 <i>Explain</i> the process of listening and speaking						Understandi ng	
CO3	5	Adap	t important methods of reading	Cogn	itive		Creatin	ng
CO4	•	Demo	onstrate the basic writing skills	Cogn	itive		Unders ng	standi

	Advanced Readi	ησ			6					
i Reading texts of a	different genres	and of varving lev	ngth ii Different st	rategies of comprehension	n					
iii Reading and int	erpreting non-li	nguistic texts iv	Reading and under	rstanding incomplete text	s I					
(Cloze of varying le	noths and gans.	distorted texts)	Reading and under	istunding meonipiete text	5					
UNIT II A	Advanced Writi	ng			6					
v. Analysing a topic	e for an essay or	a report vi. Editir	ng the drafts arrived	1 at and preparing the fina	1					
draft vii. Re-draft a piece of text with a different perspective (Manipulation exercise) viii.										
Summarise a piece of	of prose or poetr	y ix. Using phrase	es, idioms and punc	tuation appropriately						
UNIT III F	Principles of con	nmunication and	communicative c	ompetence	6					
x. Introduction to co	mmunication –	principles and pro	cess xi. Types of c	ommunication – verbal						
and non-verbal xii.	Identifying and c	vercoming proble	ems of communicat	ion						
xiii. Communicative	e competence									
UNIT IV (Cross Cultural (Communication			6					
xiv. Cross-cultural c	communication									
	TUTORIA									
LECTURE	L	SELF STUDY	PRACTICAL	TOTAL						
30	0	30	0	60	_					
REFERENCES:			1							
1) Bailey, Stephen (2003). Academi	c Writing. Londo	n and New York, R	Routledge.						
		e	,	C						
2) Department of Er	nglish, Delhi Uni	versity (2006). F	luency in English H	Part II. New Delhi, OUP						
		1. 01.111 A D	1011 A	1' (1'11 N X 1						
3) Grellet, F (1981).	Developing Rea	ading Skills: A Pr	actical Guide to Re	ading Skills. New York,						
CUP										
(1) Hedge T (2005)	Writing Lond	on OUP								
+) fieuge, f. (2003)	. writing. Lond	511, 001								
5) Kumar, S and Pu	shp Lata (2015).	Communication	Skills. New Delhi,	OUP						
$() \mathbf{L}_{\mathbf{r}} = \mathbf{C} (2010)$	T :		. Combridge CUI	`						
6) Lazar, G. (2010). Literature and Language Teaching. Cambridge, CUP										
7) Nuttall, C (1996). Teaching Reading Skills in a Foreign Language. London, Macmillan										
8) Raman, Meenaks Practice. New Delhi	8) Raman, Meenakshi and Sangeeta Sharma (2011). Technical Communication: Principles and Practice. New Delhi, OUP									

XAI 203- DATA STRUCTURES

XAI 203			DATA STRUCTURES	DATA STRUCTURES				C 4
С	Р	Α			L	Т	SS	Н
3	1	0		3	1		4	
PRF	ERE	QUIS	TE: Computer Programming					
Course Outcomes					1	Leve	el	
After the completion of the course, students will be able to						•		
CO	CO1 <i>Explains</i> the concept of data structures and with the				Cognitive Understan			d

	manner in	n which these data	structures can best	be Psychomot	o Apply						
	implemen	ted; become accusto	med to the description	on r							
	of algorith	ms in both functiona	and procedural style	es							
	Choose T	o have a knowledge	of complexity of ba	sic							
CO2	operations	like insert, delete,	, search on these d	ata Cognitive	Remember						
	structures										
	A 1 *1*/	1 1, ,	11	L Cognitive	A 1						
CO3	Ability to	choose a data struc	cture to suitably mo	Psychomot	o Apply						
	any data u	sed in computer appl	lications	r	Set						
	Design r	programs using va	arious data structu	res ~ · ·							
CO4	including hash tables. Binary Cognitive Analyze										
	and general search trees, heaps, graphs etc.										
	Ability to	assess efficiency tra	deoffs among differe	ent							
	data struc	ture implementations	s. Implement and know	OW							
CO5	the applie	rations of algorithm	ns for sorting natte	Cognitive	Create						
	matching	etc	ins for sorting, path								
UNIT	I Indeching	INTRODUCTION			0+3						
Basic of	oncents A	Introduction	on Introduction Pac	reive algorithm	Data Abstraction						
Dasic C	nonco onaly	igonum specification	Linoor data structure	Singly Linko	d Lists Operations						
Conoct	anoting oir	sis, Linear and Noir	Operations for Circle	only linked lie	to Doubly Linked						
Listo (Departure Chi	Depresentation of si	ngla two dimension	larraya aparaa	is, Doubly Linked						
Lists- V		Representation of si	ligie, two dimensiona	ii allays, sparse	mances-array and						
	representati				0.2						
		LINEAK DATA SI		A 1' /'	<u> </u>						
Stack-	Operations	s, Array and Link	ed implementations	, Applications-	Infix to Postifix						
Conver	sion, Postii	x Expression Evalua	uton, Recursion Impl	ementation, Que	eue- Definition and						
Operati	ions, Array	and Linked imple	mentations, Circular	Queues - inse	ruon and Deletion						
Operat	ions, Deque	ue (Double Elided Q	ueue).		0.2						
UNII					<u> </u>						
Trees,	Representa	tion of frees, Bir	hary tree, Properties	S OF Binary I	rees, Binary Tree						
Repres	entations- A	Array and Linked Re	presentations, Binary	Tree Traversal	s, Inreaded Binary						
Trees,	Priority Que	eue-Implementation,	Heap- Definition, In	sertion, Deletion							
UNIT		GRAPHS		1 0 1 0	9+3						
Graphs	, Graph AD	T, Graph Representa	itions, Graph Travers	als, Searching, S	tatic						
Hashin	g- Introduct	tion, Hash tables, H	Hash functions, Over	flow Handling.	Sorting Methods,						
Compa	rison of Soi	ting Methods.									
UNIT	V	ALGORITHM	DESIGN TECHNIQ	UES	9+3						
Search	Trees- Bina	ary Search Trees, AV	L Trees- Definition a	and Examples.R	ed-Black and Splay						
Trees,	Compariso	n of Search Trees,	Pattern Matching,A	lgorithm- The	Knuth-Morris-Pratt						
Algorit	hm, Tries (e	examples).									
LECTURE TUTORIAL PRACTICAL SELF-STUDY TOTAL											
	45	15	45		60+45						
REFE	RENCES:			I							
1. Fundamentals of Data structures in C, 2nd Edition. E. Horowitz, S. Sahni and Susan											
An	derson-Free	d, Universities Press	·								
2. Dat	a structures	and Algorithm Anal	vsis in C. 2nd edition	. M. A. Weiss I	Pearson						
3. Lin	schutz: Sch	aum's outline series	Data structures Tata	McGraw-Hill							
1	www.tutori	alspoint com									
2	www.nntel										
	TT VY VY THULLIN	· · · · · · · · · · · · · · · · · · ·									

Slides, Multiple Choice Link: 4. Lecture Questions, Animations http://highered.mheducation.com/sites/0072967757/student_view0/index.html 5. Lecture Slides : <u>http://www.mhhe.com/engcs/compsci/forouzan/</u>

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO 1	3	3	2	2	2	1	2
CO 2	3	3	2	2	2	1	2
CO 3	3	2	2	2	2	1	2
CO 4	3	3	2	2	2	1	2
CO 5	3	2	2	2	2	1	2
Total	15	13	10	10	10	5	10
Course	3	3	2	2	2	1	1

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

COU	JRSE CODE	XBC204	L	Т	P	SS	C
COU	JRSE NAME	DISCRETE MATHEMATICS	3	1	0	2	6
PRE	CREQUISTE	NIL	L	Т	Р	SS	Н
	C:P:A	3:0:0	3	1	0	2	6
Course	Outcome		Domaiı	1	Lev	vel	
CO1	Define the prop	perties and laws of sets, relations and	Cogniti	R, .	Ар		
	functions and Ap						
	venDiagram.						
CO2	Applythe concep	ts of logic and to find the normal forms.	Cogniti	ve	U, .	Ap	
	<i>Explain</i> the tauto	ologies and					
GOA	Contradiction.		<u>a</u>		* *		
CO3	Apply the co	unting principle permutation and	Cogniti	ve	U, .	Ар	
	combination and	to solve the problem. Explain the					
<u>CO4</u>	Eurolation the tax	ipie.	Comit		TT	A	
C04	partially ordered	sets.	Cogniti	ve	υ,	Ар	
CO5	Apply the prope	erties of semi groups and groups and	Cogniti	ve	U,	Ap	
	Explain any set	with binary operation as a semigroup	C			•	
	and group with e	xamples.					
UNIT I						12	
Set not	ations – Basic de	finitions and set operations - Venn dia	agram –	Algeb	oraic	laws	of set
theory -	- D Morgan's law	v. Relations: Properties of relations – Ty	pes of re	elation	1s –	Equiv	alence
classes.	Functions: Defin	nition – Domain – Range and types	of funct	ion-	Class	sificat	ion of
functior	1.					-	
UNIT I	Ι					12	
Stateme	ents - Normal form	ns – CNF – DNF – PCNF - PDN – Tautol	logies - C	ontra	dictio	ons.	
UNIT I	Π					12	
Countin	ng principles – Th	e Pigeonhole principle – Counting – Per	rmutation	s and	Cor	nbinat	tions –

Combinatori	ial argun	nents –	Counta	ble and	uncoui	ntable s	ets.			
UNIT IV										12
Lattices as p	artially	ordered	l set – T	ypes of	flattices	s – Latti	ces as a	algebrai	ic system.	
UNIT V										12
Binary opera	ations –	Semi g	roups -	Groups	– Exan	nples ar	nd elem	entary p	properties.	·
LECTU	RE	7	TUTOR	IAL]	PRACT	TICAL	SEI	LF STUDY	TOTAL
45			15			0			30	60 + 30
TEXT BOC	DK				~					
1. Ralph	I. P. Gru	maldı, '	[•] Discre	te and	Combin		Mathen	hatics:	An Applied I	ntroduction",
Fourt	h Editioi	n, Pears	son Edu	cation .	Asia, Do	elhi, 20	02. J Dian	nata Ci	matures D	
2. Kenne Mothe	eth Lev	asseur	and A	Alan L	of Moor	Applie	d Disc	rete St	ructures, De	apartment of
		Scienc	es, Uni	versity	of Mass	sachuse	us Low	en, ver	SION 2.0, 201	3.
1 Kenner	CES th H Roy	son "D	isorata	Mathan	antice a	nd its A	nnlicati	on" Fi	fth adition T	ata McGraw
Hill Pr	ul 11.Ros iblishing	$r_{\rm comp}$	any nyt	I the N	ew Dell	hi 2003	ppneau	011,11	ini cunion, i	
2 Dr M I	K Venka	itarama	n Drl	N Sridh	aranN (Thandra	Isekarar	n "Dis	screte Mathe	matics" the
Nation	al Publi	shing C	lompan	v. 2003		enunure	.sekui ui	I, DI		induces, the
3. Veerai	an T.	Discre	te Ma	themati	cs wit	h Grar	h The	orv ar	nd Combinat	torics". 10th
edition		cGraw	Hill Co	mpanie	es.2010.	r				,
E REFERE	NCES			I	,					
1. www	.nptel.ac	.in								
2. Grap	h Theor	y A NF	TEL C	ourse S	.A. Cho	udum.				
3. Grap	h Theor	ry by l	Prof. L.	Sunil	Chand	ran Cor	nputer	Science	e and Auton	nation Indian
Instit	tute of S	cience,	Bangal	ore.						
-			Ma	pping	of CO's	s with l	PO's:			
		PO1	PO2	PO3	PO4	PO5	PO6	PO7		
	004	2							1	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	1				1	
CO2	3	1	1			1	
CO3	3		1			1	
CO4	3					1	1
CO5	3					1	1

3-Strong Correlation, 2-Medium Correlation, 1-Low Correlation, 0-No Correlation

XAI205- PYTHON PROGRAMMING

X	XAI205		L 3	T 0	P 1	SS	C 4	
			PythonProgramming	PythonProgramming				
С	Р	Α		L	Τ	P	SS	Η
3	1	0		3	0	3		6
PRE	REQI	JISI	TE: Computer Programming	•				
Course Outcomes Domain				in	Le	vel		
After the completion of the course, students will be able to								

	Understand Nuances and paradigms of		Knowledge
CO1	Programming	Cognitive	
			Comprehension
	Understand Object Oriented Programming		Knowledge
CO2	methods	Cognitive	
			Comprehension
	Build Graphical User Interface using Tkinter	Cognitive	Application
CO3			
		Psychomotor	Synthesis
	Build and Deployweb appsusing Flask	Cognitive	Application
CO4			
		Psychomotor	Synthesis
	Develop2-dimensionalGamesusingPygame	Cognitive	Application
CO5			
		Psychomotor	Synthesis
UNIT I	FundamentalsofPython		3

Introduction to Programming - What is Computing? - Various Programming Paradigms -What is a Programming Language? - Compilers Vs Interpreters - Introduction to PythonProgramming - Why Python Programming language - Applications of Python Programminglanguage - Essential Tools for Python Developer - Installation of Anaconda Environment -HandlingofJupyterNotebooks-FundamentalsofPythonProgramming-Variables&Assignments-Multipleassignmentconcept-PrintingStringsinPython-Executingsequenceof statements User Input - Representing Data In Python - I - Numerical Types - HandlingArraysInpython-ArrayManipulation-ListsinPython-ListManipulation-StringsinPythonRepresenting Datain Python-II-Tuples-Sets& Frozensets–Dictionarie

UNITII	ControlStructureandFunctionalprogramming	3	
ControlFlowinPython-FlowinPython-FlowinPython-FlowinPython-FlowinPython-FlowinPython-FlowinPython-FlowinPython-FlowinPython-FlowinPython-FlowinPython-FlowinPython-FlowinPython-FlowinPyth	nditionalStatements-Ifstatements-RulesofIndentation		
- Ifelsestatement-El	ifStatement-NestedIfstatement-RuleBasedExpertSystems-Control	Flow	in

Python - Loops - When to use loops - For loop - While loop - Breakand continue statement -Functions and Functional Programming-I - UnderstandFunction execution - Create simple functions in Python - Functional Programmingtools-FunctionsandFunctionalProgramming-II-Lambdafunctions-Mapandfilters

Iterators, generators - Modules and Packages - Working with existing Packages inPython

UNITIII	ObjectOrientedProgramming	3
ObjectOrientedApproach-	TerminologyinObjectOrientedProgramming-Introduction to C	Classes and
Objects - Working with	h Custom classes - Parent Class VsChildClass-Attributesa	ndMethods-
Encapsulation-Inheritance	andPolymorphism	

Controlling Attribute access- Functors - Class Descriptors- Multiple Inheritance-Metaclasses-AlgorithmsinPython-WhatisanAlgorithm?-AlgorithmVsProblems

How to write an Algorithm - - Introduction to Search algorithms - Fundamentals of Graph theory-RepresentingProblemsasagraph- Graphtraversal UNITIV 3

PythonApplications–GraphicalUserInterface

Introduction to Graphical User Interface – I - What is a Graphical User Interface?-IntroductiontoTkinter-FundamentaloperationsinTkinter-Creatingsimpleinterfaces in python using Tkinter – Build GUI using Tkinter - Building a Dialog styleprogram - Building a Main window style interface - Advanced Functions in Tkinter -Create a student data management system - Developing a Forward Kinematic ModelGUIinpython

UNITV	GameAndWebDevelopmentinPython						
GameDevelopmentinPyth	GameDevelopmentinPython-IntroductiontoGamedevelopment-GamedevelopmentPipeline-						
Gameframeworksandlibra	riesinpytl	non-Fundamentalsof Pygame	- BuildingGameswith	Pygame - Event			
types,Informationandqueu	ie - Pyga	ame modules - Web servic	es in Python - Intro	duction to web			
development		-Various	pythonframeworksforv	vebdevelopment-			
RESTfulAPIservicespIntre	oductiont	oFlask-ImplementingaFlaskW	Vebservice-				
BuildingaFlaskApplication	n-Handliı	ngJSONfiles-Encodinginform	ationinJSON-Setting	upservices-			
Buildapersonalprofileinfla	ısk						
LECTURE		TUTORIAL	PRACTICAL	Totalhours			

LECTURE	TUTORIAL	PRACTICAL	Totalhours
15	0		60

TEXTBOOKS:

Campbell, Gries, Montojo, and Wilson, Practical Programming: An Introduction to

ComputerScienceUsingPython.ThePragmaticBookshelf,2009

REFERENCES:

MarkNewmann:ComputationalPhysicswithPython,2ndEd.(2012)

J.M.Stewart:PythonforScientists,CambridgeUniv.Press(2014)

E-REFERENCES:

Guttag, John. Introduction to Computation and Programming Using Python: With

ApplicationtoUnderstandingDataSecondEdition.MITPress,2016.ISBN:9780262529624

		Ma	apping	of CO'	s with]	PO's:	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	1		1	2	1	
CO2	3	1	1	1		1	
CO3	3		1		2	1	
CO4	3			1		1	1
CO5	3	1	1		2	1	1
	15	3	3	3	6	5	2

3-Strong Correlation, 2-Medium Correlation, 1-Low Correlation, 0-No Correlation

XAI 206- DATA STRUCTURES LAB

					L	Τ	P	SS	C
X	AI 20	6					3		3
			DATA STRUCTURES LAB						
С	Р	Α			L	Т	P	SS	Η
0	1	0					3	Ζ	3
PRE	CREQ	UISI	TE: Computer Programming						
Course Outcomes		utcoi	nes	Domaiı	1	Lev	vel		

UNIT	I INTRODUCTION	9+3+9
Lab		
Write 1	program that uses functions to perform the following:	
1)	Creation of list of elements where the size of the list, elements to be inserted are dynamically given as input.	l and deleted
2)	Implement the operations, insertion, deletion at a given position in the list a an element in the list	and search for
3)	To display the elements in forward / reverse order	
4)	Write a program that demonstrates the application of stack operations (Eg: i to postfix conversion)	nfix expression
5)	Write a program to implement queue data structure and basic operations on deletion, find length) and code at least one application using queues	it (Insertion,
6)	Write a program that uses well defined functions to Create a binary tree of e Traverse a Binary tree in preorder, inorder and postorder.	elements and
7)	Write program that implements linear and binary search methods of searchin element in a list.	ng for an
8)	Write and trace programs to understand the various phases of sorting eleme methods.	entsusing the
0)	a) Insertion Sort b) Quicksort c) Bubble sort	e from the tree
10)	Represent suitably a graph data structure and demonstrate operations of trav	versals on it.

Course Code	XAI207	L	Т	Р	С	
Course Name	PYTHON PROGRAMMING LAB	0	0	4	2	
C:P:A	0:1.5:0.5	L	Т	Р	Н	
		0	0	4	4	
					60	
1.Handling Jupyte	r notebooks					
2.Data types in Py	thon – I					
3.Data Types in Py	ython - II					
4.Executing Condi	itional Statements in Python					
5.Executing For lo	op and its variants in Python					
6.Executing While	e loop in python					
7.Building an Exp	ert System in Python					
8.Functional Progr	amming in Python					
9.Creating Module	es in Python					
10.Handling XML	files in Python					
11.Modelling an E	Expert system with Classes					
12.Implementation	n of Binary Search in Python					
13.Implementation	n of Bubble sort in python					
14.Implementation	n of Breadth First Search					
15.Implementation of Depth First Search in Python						
16.Working with Bellman-Ford Algorithm in Python						
17.Fundamentals of Tkinter						
18.Building a simple Calculator using Tkinter						
19.Building a stud	ent information system using Tkinter					

XAI207- PYTHON PROGRAMMING LAB

20.Fundamentals of Pygame

21.Build a simple snake game in python22.Creating a star ship meteors game in Pygame

23.Fundamentals of Flask

24.Build a student Digital Profile using FLASK

V	ГТЛЛГА О	0.2		L	Т	Р	SS	С			
Λ	UMAU	02	ENVIRONMENTAL STUDIES	0	0	0	0	0			
C	Р	A	ENVIRONMENTAL STUDIES	L	Т	Р	SS	Н			
1.5	0	0.5		2	0	0	1	3			
PREF	REQUIS	SITE :	Nil								
Course Outcomes Domain							Level				
After the completion of the course, students will be able to											
CO1	Descri explai	i <i>be</i> the <i>n</i> anthr	Cognitiv	e	Remer Under	nber stand					
CO2	<i>Illustr</i> and na ecolog	<i>ate</i> the atural gical ba	e significance of ecosystem, biodiversity geo bio chemical cycles for maintaining ance.	Cognitiv	e	Under	stand				
CO3	<i>Identij</i> of m pheno:	fy the ajor p menon	facts, consequences, preventive measures pollutions and <i>recognize</i> the disaster	Cognitiv Affective	e e	Remen Receiv	nber ving				
CO4	<i>Explan</i> and <i>pro</i> sustair	<i>in</i> th <i>ictice</i> the the set of t	e socio-economic, policy dynamics he control measures of global issues for evelopment.	Cognitiv	e	Under	stand				
CO5	the in welfar toward	npact o e prog ls envir	f population and the concept of various rams, and <i>apply</i> themodern technology onmental protection.	Cognitiv	e	Under Apply	stand				
UNIT	I	INT AN	TRODUCTION TO ENVIRONMENTAL D ENERGY	STUDII	ES			6			
Defini exploi forests water, Use a studie effects – Ene of alte man in of natu	Definition, scope and importance – Need for public awareness – Forest resources: Use and over- exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people – Water resources: Use and over-utilization of surface and ground water, flood, drought, conflicts over water, dams-benefits and problems – Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies – Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies – Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies – Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification – Role of an individual in conservation of natural resources – Equitable use of resources for sustainable lifestyles.										
UNIT	' II	EC	OSYSTEMS AND BIODIVERSITY					6			
Conce decom	ept of an apposers	n ecosy – Energ	stem – Structure and function of an ecosyst gy flow in the ecosystem – Ecological succ	tem – Pro ession – I	ducer Food c	s, consu chains, f	umers food	and webs			

and ecological pyramids – Introduction, types, characteristic features, structure and function of the (a) Forest ecosystem (b) Grassland ecosystem (c) Desert ecosystem (d) Aquatic ecosystem (ponds, streams, lakes, rivers, oceans, estuaries) – Introduction to Biodiversity – Definition: genetic, species and ecosystem diversity - Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

UNIT IIIENVIRONMENTAL POLLUTION6

Definition – Causes, effects and control measures of: (a) Air pollution (b) Water pollution (c) Soil pollution (d) Marine pollution (e) Noise pollution (f) Thermal pollution (g) Nuclear hazards – Solid waste management: Causes, effects and control measures of urban and industrial wastes – Role of an individual in prevention of pollution – Pollution case studies – Disaster management: flood, earthquake, cyclone and landslide.

UNIT IV SOCIAL ISSUES AND THE ENVIRONMENT

Urban problems related to energy – Water conservation, rain water harvesting, watershed management – Resettlement and rehabilitation of people; its problems and concerns, climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, Wasteland reclamation – Consumerism and waste products – Environment Protection Act – Air (Prevention and Control of Pollution) Act – Water (Prevention and control of Pollution) Act – Wildlife Protection Act – Forest Conservation Act – Issues involved in enforcement of environmental legislation – Public awareness.

UNIT V HUMAN POPULATION AND THE ENVIRONMENT

6

6

Population growth, variation among nations – Population explosion – Family welfare programme – Environment and human health – Human rights – Value education - HIV / AIDS – Women and Child welfare programme– Role of Information Technology in Environment and human health – Case studies.

Lecture	Tutorial	Self-Study	Practical	Total
30	0	15	0	45

Text book

- 1. Miller T.G. Jr., Environmental Science, Wadsworth Publishing Co, USA, 2000.
- 2. <u>Townsend C., Harper J and Michael Begon, Essentials of Ecology, Blackwell Science,</u> <u>UK, 2003</u>

Reference Books

- 1. <u>Trivedi R.K and P.K.Goel, Introduction to Air pollution, Techno Science Publications,</u> <u>India, 2003.</u>
- 2. Disaster mitigation, Preparedness, Recovery and Response, SBS Publishers & Distributors Pvt. Ltd, New Delhi, 2006.
- 3. Introduction to International disaster management, Butterworth Heinemann, 2006.
- 4. <u>Gilbert M.Masters, Introduction to Environmental Engineering and Science, Pearson</u> Education Pvt., Ltd., Second Edition, New Delhi, 2004.
- 5. <u>Trivedi R.K., Handbook of Environmental Laws, Rules, Guidelines, Compliances and</u> <u>Standards, Vol. I and II, Enviro Media, India, 2009.</u>
- 6. <u>Cunningham, W.P.Cooper, T.H.Gorhani, Environmental Encyclopedia, Jaico Publ.</u>, <u>House, Mumbai, 2001.</u>
- 7. <u>S.K.Dhameja, Environmental Engineering and Management, S.K.Kataria and Sons,</u> <u>New Delhi, 2012.</u>

- 8. Sahni, Disaster Risk Reduction in South Asia, PHI Learning, New Delhi, 2003.
- 9. Sundar, Disaster Management, Sarup& Sons, New Delhi, 2007.
- 10. G.K.Ghosh, Disaster Management, A.P.H.Publishers, New Delhi, 2006.

E-references

- 1. <u>http://www.e-booksdirectory.com/details.php?ebook=10526</u>
- 2. <u>https://www.free-ebooks.net/ebook/Introduction-to-Environmental-Science</u>
- 3. <u>https://www.free-ebooks.net/ebook/What-is-Biodiversity</u>
- 4. <u>https://www.learner.org/courses/envsci/unit/unit_vis.php?unit=4</u>
- 5. <u>http://bookboon.com/en/pollution-prevention-and-control-ebook</u>
- 6. <u>http://www.e-booksdirectory.com/details.php?ebook=8557</u>
- 7. <u>http://www.e-booksdirectory.com/details.php?ebook=6804</u>

M.Sc (Computer Science)

COU	RSE CO)DE	YCS101		L	Т	Р	С		
COU	RSE NA	ME	ADVANCED OPERATING SYS	ГЕМЅ	4	1	0	5		
С	Р	Α			L	Т	P	H		
3	0.5	0.5			4	1	0	5		
PRER	REQUIS	SITE	Operating Systems							
COURSE OUTCOMES:										
Cours	se outco	L	Level							
CO1	Gen oper	eralize f ating sys	he functions, types, advanced concepts in tem, and the process concepts.	Cognitive	U	Understand				
CO2	Ana reco	lyze dea very of d	dlock situations, the reason for deadlock, eadlocks and how to avoid deadlocks.	Cognitive Psychomotor	A Se	.nalyz et	ze			
CO3	Illus oper distr	trate a ating sy ibuted sy	nd analyze the concepts of distributed stems, issues and file system coding in stem.	Cognitive	А	nalyz	æ			
CO4	Dist desc time	inguish ribe abo operatin	he need of Real time operating system and ut security issues and applications of real g system.	Cognitive Affective	U O	nders rgani	stand zation	l		
CO5	Exp syste	lain the em and i	information about the Linux operating DS architecture, layers and their functions	Cognitive Psychomotor	U O	nders rgina	stand tion			
Unit I	PROC	ESS SY	NCHRONIZATION :				12 H	lours		
Overv opera Conce proble	view - ting sys ept of a ems.Pro	Introduc tems – 7 a process cess dea	tion – Functions of an operatingsystem – Types of advancedoperating systems. Synchr – Concurrent processes – The critical section dlocks: Introduction – preliminaries – models	Design approace onization mecha ion problem – G s of deadlocks	ches - inisms Other	- Wł s: Inti sync	ny adv oduct hroniz	/ance ion – ation		
Unit I	I DIST	RIBUTI	ED OPERATING SYSTEMS				12 H	lours		
Issues – Communication Primitives – Lamport'sLogical Clocks – Deadlock handling strategies – Issues in deadlock detection and resolution-distributed file systems –design issues – Case studies – The Sun Network File System-Coda.										
Unit III REAL TIME OPERATING SYSTEMS12 Hours								lours		
Intro – Saf	duction fety and	– Applio Reliabil	ations of Real Time Systems– Basic Model of ty - Real TimeTask Scheduling	of Real Time Sy	stem -	– Cha	racter	istics		

Unit IV OPERATING S	YSTEMS FOR HANDHI	ELD SYSTEMS	12 Hours					
Requirements - Technol	ologyOverview – Handhe	eld Operating Systems -	Palm OS - Android -					
Architecture of android –Securing handheld systems								
Unit - VLINUX AND IOS LINUX SYSTEM12Hours								
Introduction Momenty Management Process Scheduling Scheduling Delicy, Managing I/O devices								
Accessing Files iOS: Arc	bitectureand SDK Framew	vork Media Laver Service	- Managing I/O devices -					
- File System		ork - Media Layer - Service	es Layer - Core OS Layer					
HOURS	LECTURE	TUTORIAL	TOTAL					
noeks	45	15	60					
TEXT BOOKS		10	00					
1 MukeshSinghal	and Niranian G Shivarat	ri "Advanced Concepts i	in Operating Systems –					
Distributed Da	atabase and Multiproce	essor Operating Systems	s' Tata McGraw-Hill					
Publishers 2011	and maniproce	soon operating systems						
2 Rajib Mall "Rea	al-Time Systems: Theory	and Practice" Pearson F	ducation IndiaPublishers					
Second Edition	2008		deation menu donshers,					
3 Daniel P Boyet&	Marco Cesati "Understa	nding the Linux kernel"	O"ReillyPublishers 3rd					
edition 2005	Whiteo Cesuit, Chiefsta	inding the Emax Kerner,	o Remyr donishers ,5rd					
REFERENCES								
1 Neil Smyth "iPh	one iOS 4 Development Es	ssentials – Xcode" Pavload	media Publishers Fourth					
Edition 2011			incula i donshens, i curti					
2 YoonSeokPyo H	anCheol Cho RyuWoon Ju	ung TaeHoon Lim "ROS	Robot ProgrammingFrom					
the basic concept	to practical programming a	nd robot application" ROB	SOTICS Co. Ltd. 2017					
3 Pramod Chandra	P Bhatt "An Introduction	To Operating Systems Co	ncent And Practice" PHI					
publishers Third	edition 2013	To operating systems, con	heept mid maerice, min					
4 Andrew S Taner	baum "Modern Operating	System" Prentice-Hall Inc	Third edition 2008					
5. AnisKoubaa "Ro	bot Operating System (RC	S) The Complete Reference	ce (Volume 1)" Springer					
Publishers First F	5. AnisKoubaa, "Kobot Operating System (KOS) The Complete Reference (Volume 1)", Springer Publishers, First Edition 2016							
i donishcis, i list i	2011011,2010							
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1. https://onlinecourses.nptel.ac.in/noc21_cs44

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

M Sc CS	РО								PSO		
	1	2	3	4	5	6	7	1	2		
CO1	2	1	1	1	1	1	3	1	0		
CO2	2	1	1	1	1	1	1	1	0		
CO3	2	2	1	1	2	2	2	1	0		
CO4	2	1	1	1	0	1	1	1	0		
CO5	1	1	1	1	1	1	2	1	0		
Average	2	1	1	1	1	1	3	1	2		

COUR	SE CC	DDE		YCS102					Р	С
COUR	SE NA	ME		INTERNE	Γ OF THINGS		3	1	0	4
С	Р	Α					L	Т	Р	Η
2.5	0.3	0.2	~ ~ ~		· ·		3	1	0	4
PRER	EQUIS	SITE	Sensors,	Wireless Commun	ication					
COUR	RSE OL		ES:			Domoin	1			
Course		mes:				Domain	1	Level		
CO1	CO1 Define the basics of IoT and its characteristics Cognitive Remember									
CO2	CO2Generalize the building blocks of IoT from physical and logical contextCognitive PsychomotorUnderstand Perception									
CO3	App proto	ly the flocols of 1	functionalit loT	ty of various arc	hitectures and	Cognitive Affective	A	Apply Receiv	ve	
CO4	Illus of Th	trate the	e importan	ce of Web of Thi	ngs and Cloud	Cognitive PsychomotorA ective	ff M F	Apply Mecha Respor	nism nd	
CO5	Ana l analy	lyze the yze the r	applicatior eal-world c	ns of IoT in variou lesign constraints	is domains and	Cognitive	A	Analyz	ze	
Unit I	INTRO	DUCT	ION TO I	NTERNET OF T	HINGS				12 H	Iours
enviro Unit II IoT en NFC,Z Embed	abling igbee, ded sys	health & HNOLO technolo GSM, G stems.	zlife style a GIES FOI ogies-M2M PRS, Blue	and industry R IoT I, – IEEE 802.15 tooth- Cloud com	.4, WSN- senso puting, Big Data	ors, actuators, Wa analytics, Corr	/SN muni	protoc	12 H cols, H n prote	Iours (FID, pcols,
Unit II	I IoT	PROTO	COLS						12 H	Iours
IoT Ac	cess Te	echnolog	ies: Physic	cal and MAC layer	s. topology and	Security of IEEI	E 802	2.15.4	802.1	5.4g.
802.15 Constra Lossy Applica	.4e, 19 ained N Netwo ation L	01.2a, 8 Jetworks rks – 2 ayer Pro	02.11ah an – Optimiz Application tocols: Co	nd LoRaWAN – zing IP for IoT: Fr Transport Meth AP and MQTT	Network Layer: com 6LoWPAN lods: Superviso	IP versions, Control to 6Lo, Routing ry Control and	onstra g over Dat	ained r Low a Ac	Node Powe quisiti	s and r and on –
Unit I	V DESI	IGN AN	D DEVEL	OPMENT					12 H	Iours
Design	Metho	odology	- Embedo	led computing lo	gic – Microcor	ntroller-Arduino	- Bo	oard	details	Node
MCU-	ESP82	66- Pin (configurati	on-interfacing. Int	troduction to pyt	thon- python pac	kage	for lo	<u>T.</u>	.
Unit V	10 1	APPLIC	AHONS						12 H	iours
Home Automation -Smart Lighting -Smart Appliances - Intrusion Detection - Smoke/Gas Detectors - Smart cities. Case Studies: e.g. sensor body-area-network.										
	HOURS LECTURE TUTORIAL TOTAL									
45 15 60										
 TEXT BOOKS ArshdeepBahga, Vijay Madisetti, "Internet of Things – A hands-on approach", Universities Press, 2017 David Hanes, Gonzalo Salgueiro, Patrick Grossetete, Rob Barton and Jerome Henry, —IoT Fundamentals: Networking Technologies, Protocols and Use Cases for Internet of Things, Cisco Press, 2017 										

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1. Olivier Hersent, David Boswarthick, Omar Elloumi, —The Internet of Things – Key applications and Protocols, Wiley, 2012

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- 1. https://nptel.ac.in/courses/106105166/
- 2. https://nptel.ac.in/courses/108108098/
- 3. https://www.arduino.cc/.

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

M Sc CS	РО							P	PSO		
M.SC C5	1	2	3	4	5	6	7	1	2		
CO1	2	1	1	1	1	1	3	1	0		
CO2	2	1	1	1	1	1	1	1	0		
CO3	2	2	1	1	2	2	2	1	0		
CO4	2	1	1	1	0	1	1	1	0		
CO5	1	1	1	1	1	1	2	1	0		
Average	2	1	1	1	1	1	3	1	2		

COUI	RSE CC	DDE	YCS103		L	Т	Р	C	
COUI	RSE NA	ME	ADVANCED COMPUTER ARCHITEC	TURE	3	1	0	4	
С	Р	Α			L	Т	Р	H	
2.5	0.3	0.2		3	1	0	4		
PRER	REQUIS	SITE	Computer Architecture						
COU	RSE OU	JTCOM	ES:						
Cours	e outco	mes:		Domain	Ι	Level			
CO1	Defi the s	ne the vatate of co	rious models of parallel computer and tell omputing	Cognitive Psychomotor	F F	Remen Percep	nber tion		
CO2	Und inter	erstand connect	the working principles of system architectures and know about Paralleling	Cognitive Psychomotor	U S	Understand Set			
CO3	Ana hiera	lyseprocurchy of	essor Technologiesandunderstand the memory.	Cognitive Psychomotor	Æ	Analyz Percep	tion		
CO4	Devi knov	se theN v its con	Aultiprocessor System interconnects and nection mechanism	Cognitive Affective	H (Evaluate Organization			
CO5	CO5Design and illustrate Models and ArraysCognitive						Create		
Unit I	PARA	LLEL C	COMPUTER MODELS				12 H	lours	
The st	ate of co	omputing	g - Multiprocessors and multicomputers – Mu	ltivector and SI	MD c	ompu	ters.		

Unit II PROGRAM ANI	D NETWORK PROPER	TIES	12 Hours					
Conditions of parallelism interconnect architectures.	– Program partitioning an	id scheduling – program fl	ow mechanisms – system					
Unit III PROCESSORS	AND MEMORY HIERA	RCHY	12 Hours					
Advanced processor Tech Nonlinear pipeline Proces	nnology – Super scalar an sors.	d vector processors – Lin	ear Pipeline Processors –					
Unit IV MULTIPROCE	SSORS AND MULTICO	MPUTER	12 Hours					
The Connection Machine	CM 5 – Fine-Grain Multico	omputers.	10 H					
Unit V SOF I WARE FO	K PAKALLEL PKOGKA	AMMING	12 Hours					
- Parallel Programming Models – Parallel Languages and Compilers – Dependence Analysis of Data Arrays.								
HOURS LECTURE TUTORIAL TOTAL								
HOURS	LECTURE	TUTORIAL	TOTAL					
HOURS	LECTURE 45	TUTORIAL 15	TOTAL 60					
HOURS TEXT BOOKS 1. Kai Hwang, "Ad 1993.	LECTURE 45 vanced Computer Archited	TUTORIAL 15 cture "McGraw-Hill Intern	TOTAL 60 ational Edn., Singapore ,					
HOURS TEXT BOOKS 1. Kai Hwang, "Ad 1993. REFERENCES	LECTURE 45 vanced Computer Archited	TUTORIAL 15 cture "McGraw-Hill Intern	TOTAL 60 ational Edn., Singapore ,					
HOURS TEXT BOOKS 1. Kai Hwang, "Ad 1993. REFERENCES 1. Kai Hwang and F International Editi 2. Michael J.Quinn, Singapore, 1994.	LECTURE 45 vanced Computer Archited aye A.Briggs, "Computer ions, Singapore , 1985. "Parallel Computing, The	TUTORIAL 15 cture "McGraw-Hill Intern Architecture and Parallel Parallel Paratice", McGraw cory and Practice", McGraw	TOTAL 60 ational Edn., Singapore , rocessing'', McGraw- Hill w-Hill International Edn.,					
HOURS TEXT BOOKS 1. Kai Hwang, "Ad 1993. REFERENCES 1. Kai Hwang and F International Editi 2. Michael J.Quinn, Singapore, 1994. E-REFERENCES	LECTURE 45 vanced Computer Archited aye A.Briggs, "Computer ions, Singapore , 1985. "Parallel Computing, The	TUTORIAL 15 cture "McGraw-Hill Intern Architecture and Parallel Parallel Paratice", McGraw wory and Practice", McGraw	TOTAL 60 ational Edn., Singapore , rocessing", McGraw- Hill w-Hill International Edn.,					

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

M Sc CS	РО							PSO		
M.SC CB	1	2	3	4	5	6	7	1	2	
CO1	2	1	1	1	1	1	3	1	0	
CO2	2	1	1	1	1	1	1	1	0	
CO3	2	2	1	1	2	2	2	1	0	
CO4	2	1	1	1	0	1	1	1	0	
CO5	1	1	1	1	1	1	2	1	0	
Average	2	1	1	1	1	1	3	1	2	

COURSE CODEYCS104L						Т	P	С				
COUR	SE NA	ME	ADVANCED DATABASE MANAGEMI	ENT SYSTEMS	3	1	1	5				
С	Р	Α			L	Т	Р	Н				
3	0.7	0.3			3	1	2	6				
PRER	EQUIS	SITE	Database Management System									
COUR	SE OU	JTCOM	ES:									
Course	e outco	mes:	Do	omain		Lev	rel					
CO1	Desc	ribe pur	pose of database in relational models Co	ognitive		Ren	RememberPer					
and designing of schema Psychomotor							ception					
CO2	Illus	trate fu	unctioning of various SQLqueries and Co	ognitive		Ana	lysel	Percep				
001	spec	ial funct	ions Ps	sychomotor		tion						
			Co	ognitive								
CO3	Ana	lyse vario	bus security issues and find the apt Ps	sychomotor		Ana	lyse	Percep				
000	reco	verabilit	y method Af	ffective		tion	Rece	vive				
				ognitive		Und	lersta	and				
CO4	Und	erstand	and Explain the characteristics of Psy	sychomotor		Set						
001	distributed database Affective							l				
	T.J	4:6	d Fundain Nach fan Data A. 1. 1. 1.				1					
CO5	Duci	uly and	Explain Need for Data Analysisin Co	ognitive		Cre	ate					
	Dusi	ness me	eingence									
Unit I	INTR(DDUCT	ION				12	Hours				
Purpos	e of Da	itabase S	ystems -View of Data -Database Languages -	Data Storage and Q	uery	ving-	Frans	action				
Manag	ement	-Storag	e Management –Data Mining and Informat	tion Retrieval -Sp	ecial	ity I	Datab	ases -				
Databa	se Use	rs and A	dministrators–Relational Databases: Introduc	ction to the Relation	nal N	Iode	l-Str	ucture				
of Rel	ational	Databa	ses-Database Schema -Keys-Schema Diagra	ams - Relational	Que	ry La	angu	ages -				
Relatio	onal Op	erations				1		. 11				
	cercise:	Creatin	g table with and without constraints, insertin	ng/Deleting/updatin	g red	cords	in a	table,				
Saving		\mathbf{N}	SOL				12	Uouna				
Constr	ADVA	OI CRE	SQL EATE INDEX SOL functions The GROUP B	V statementThe H	AVI	NG	14. Jauce	SOI				
special	functio		alias- SOL join – Sub queries- Recursive qu	ueries-Data control	n v Π lanσ	1190C	Viev	vs and				
assertic	n- PL/	SOL - a l	basic introduction-Triggers- Event condition a	action model-Funct	ions	and r	roce	dures-				
Embed	ded SC	L and d	vnamic SOL- The java way to access RDBMS	S: JDBC- SOLJ	ions	und r	1000	aures				
Lab Ex	ercise:	Altering	a table, dropping/truncating, renaming, Back	ting up/restoring a d	latab	ase						
Unit II	I TRA	NSACT	ION PROCESSING AND SECURITY:	01 0			12	Hours				
Definir	ng a t	ransactio	on in DBMS-Defining a concurrent trans	action in DBMS-	Ser	ializ	abilit	y and				
Recove	erability	/- Enha	nced lock-based and timestamp based conce	epts-Multiple gram	larit	y-Mı	ilti v	version				
scheme	es-optir	nistic co	oncurrency control techniques-Deadlock hand	dling-Recovery in	DBN	AS-w	rite	Ahead				
logging	g proto	col-Adv	anced recovery techniques-Use of SQL in	recovery -RAID.	Data	sec	urity	: Data				
securit	y issue	s Discre	tionary access control- Mandatory access co	ontrol- Role based	acce	ss co	ntrol	- SQL				
injectio	on Stati	stical da	tabases- Introduction to flow control					-				
Lab Exercise:For a set of relation schemas, creating a table and perform simple queries with aggregate							regate					
functions, data function, math functions												
Unit IV DISTRIBUTED DBMS 12 Hour							Hours					
The Ev	volutior	n of Dist	tributed Database Management Systems -DD	BMS Advantages	and	Disac	lvant	ages -				
Distributed Processing and Databases - Characteristics of Distributed DBMS -DDBMS Components -						ients -						
Levels of Data and Process Distribution -Distribution Transparency -Transaction Transparency-Distributed												
Databa	se Desi	ign - Cli	ent/Server vs. DDBMS.									
Lab Ex	erciseE	mbed P	I/SQL in a high level host language such as C/	/Java								
Unit V	BUSI	NESS IN	NTELLIGENCE AND DATA WAREHOUS	SE			12	Hours				

The Need for Data Analysis -Business Intelligence and Architecture -Data Warehouse-OLAP -Star Schemas -Implementing a Data Warehouse -SQL Extensions for OLAP. Database Connectivity - Internet Databases. Security and authorization: Access control- Discretionary access control-Mandatory access control – security for internet applications-Issues related to security-case study Lab Exercise: Creating connection with database

creating co	meetion with dutuouse		
HOURS	LECTURE	TUTORIAL	TOTAL
	45	15	60

TEXT BOOKS

- 1. RiniChakrabarti, ShilbadraDasgupta, Subhash K. Shinde," Advanced Database Management System", KLSI, Dreamtech press, 2014.
- 2. Raghu Ramakrishnan, Johannes Gehrke, "Database Management Systems", McGraw Hill, Third Edition 2004.

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2. https://onlinecourses.nptel.ac.in/noc21_cs04

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

M.Sc CS		РО							
M.SC C 5	1	2	3	4	5	6	7	1	2
CO1	2	1	1	1	1	1	3	1	0
CO2	2	1	1	1	1	1	1	1	0
CO3	2	2	1	1	2	2	2	1	0
CO4	2	1	1	1	0	1	1	1	0
CO5	1	1	1	1	1	1	2	1	0
Average	2	1	1	1	1	1	3	1	2

COUI	RSE CC	DE	YCS105		L	Т	Р	С
COU	RSE NA	ME	WEB TECHNOLOGIES		3	1	1	5
С	Р	Α			L	Т	Р	Η
3	0.5	0.5			3	1	2	6
PRER	REQUIS	SITE	Python Programming					
COU	RSE OU	TCOM	ES:					
Cours	se outco	mes:		Domain	Level			
COI	Defi	ne the	technologies used in Web design and	Cognitive	Remember			
COI	deve	lopment		Psychomotor	Set			
	Disc	uss va	rious techniques Python for Web	Cognitive	Uno	lerstar	nd	
CO2	techr	nologies		Psychomotor	Guided Response			ise

600				
CO3	Explain and app	oly Django for Web technolog	gies Cognitive Psychomo	Apply tor Mechanism
CO4	Illustrate Flutter	and to examine application	Cognitive Affective	Apply Receive
	Design and Des	velon on application with	data basa Cognitiva	Create
CO5	using Sqlite	etop an application with the	Affective	Response
Unit I	 Web Technologie	8		12 Hours
Introdu	ction to Web Te	chnologies – The Internet	- WWW- Frontend	Vs Backend Development
Techno	logies - Program	ming Languages And Fram	eworks - Data bases -	- Future of web technology -
Python	for web developm	ent - A roadmap for web deve	elopment with Python	
Lab Ex	ercises :	T T	J	
Creating	g a web site . Crea	ting a home page		
Unit II	Pvthon	8 1 10		12 Hours
Introduc	ction to Python – y	variables –data types –numbe	ers – casting –string -h	poolean – operators – array –
control	structures – Input	output – functions		
Lab Ex	ercises :			
Working	g with forms. Gen	eric List and detail view		
Unit III	Diango			12 Hours
Diango	Introduction Ins	tallation Project Apache	configuration virtual	Anvironment set un admir
Interfac	Diango ann	Diango module Diango y	view Diango templat	e Diango forms Diango
sessions	e – Django app –	Django module – Django v	lew –Django tempiat	e – Django Torms – Djange
Lob Fv	arcisos :			
Working	a with cossions of			
Unit IN	g with sessions, co	OKIES		
				12 Hours
	tion Installation	Architecture of flutter f	remework Introduc	tion to Dart programming
Introduc widget	ction – Installation	n – Architecture of flutter f	ramework - Introduc	tion to Dart programming –
Introduc widget -	ction – Installation – Layout –Gesture	n – Architecture of flutter f - state management – anima	ramework - Introduc tion – data base conce	tion to Dart programming – pts
Introduc widget - Lab Exe Working	ction – Installation - Layout –Gesture ercises g with Mobile / W	n – Architecture of flutter f - state management – anima	ramework - Introduc tion – data base conce	tion to Dart programming – pts
Introduc widget - Lab Exc Working	ction – Installation - Layout –Gesture ercises g with Mobile / W	n – Architecture of flutter f - state management – anima eb App	ramework - Introduc tion – data base conce	tion to Dart programming – pts
Introduc widget - Lab Exe Working Unit V	ction – Installation - Layout –Gesture ercises g with Mobile / W SQlite	n – Architecture of flutter f - state management – anima eb App	ramework - Introduc tion – data base conce	tion to Dart programming – pts 12 Hours
Introduc widget - Lab Exe Working Unit V Introduc delete - Lab exe Working	ction – Installation – Layout –Gesture ercises g with Mobile / W SQlite ction – Installation order by – group l ercises: g with database co	n – Architecture of flutter f - state management – anima eb App n – commands – data type –c by – having – Sqlite –Python nnectivity	ramework - Introduc tion – data base conce reate –attach- detach	12 Hours tion to Dart programming – pts 12 Hours – insert – drop – update –
Introduc widget - Lab Exe Working Unit V Introduc delete – Lab exe Working	ction – Installation – Layout –Gesture ercises g with Mobile / W SQlite ction – Installation order by – group l ercises: g with database co HOURS	 Architecture of flutter f state management – anima eb App – commands – data type –c by – having – Sqlite –Python nnectivity LECTURE 	Tramework - Introduc tion – data base concep reate –attach- detach	12 Hours tion to Dart programming – pts 12 Hours – insert – drop – update – TOTAL
Introduc widget - Lab Exe Working Unit V Introduc delete – Lab exe Working	ction – Installation – Layout –Gesture ercises g with Mobile / W SQlite ction – Installation order by – group le ercises: g with database co HOURS	n – Architecture of flutter f - state management – anima eb App a – commands – data type –c by – having – Sqlite –Python nnectivity <u>LECTURE</u> 45	framework - Introduc tion – data base concej reate –attach- detach <u>TUTORIAL</u> 15	I2 Hours tion to Dart programming – pts 12 Hours – insert – drop – update – TOTAL 60
Introduc widget - Lab Exe Working Unit V Introduc delete – Lab exe Working TEXT I 1. 2.	ction – Installation - Layout –Gesture ercises g with Mobile / W SQlite ction – Installation order by – group lercises: g with database co HOURS BOOKS "Web Enabled Cc CGI", Ivan Bayro Python Programm Applications – Sh	n – Architecture of flutter f - state management – anima <u>eb App</u> n – commands – data type –c by – having – Sqlite –Python <u>nnectivity</u> <u>LECTURE</u> <u>45</u> ommercial Application Develorss, BPB Publication. ning a Modular Approach eetalTaneja, Naveen Kumar -	reate –attach- detach TUTORIAL 15 opment Using HTML, with Graphics, Data - Pearson Publication,	I2 Hours tion to Dart programming – pts 12 Hours – insert – drop – update – TOTAL 60 DHTML, JavaScript, Perl abase, Mobile, and Web 2018
Introduce widget - Lab Exe Working Unit V Introduce delete – Lab exe Working TEXT I 1. 2. REFER	ction – Installation - Layout –Gesture ercises g with Mobile / W SQlite ction – Installation order by – group ercises: g with database co HOURS BOOKS "Web Enabled Cc CGI", Ivan Bayro Python Programm Applications – Sh RENCES Reserve Theorem	n – Architecture of flutter f - state management – anima eb App a – commands – data type –c by – having – Sqlite –Python nnectivity LECTURE 45 ommercial Application Develo ss, BPB Publication. ning a Modular Approach eetalTaneja, Naveen Kumar –	reate –attach- detach TUTORIAL 15 opment Using HTML, with Graphics, Data - Pearson Publication,	I2 Hours tion to Dart programming – pts 12 Hours – insert – drop – update – TOTAL 60 DHTML, JavaScript, Perl abase, Mobile, and Web 2018
Introduce widget - Lab Exe Working Unit V Introduce delete – Lab exe Working TEXT I 1. 2. REFER 1. 2	ction – Installation - Layout –Gesture ercises g with Mobile / W SQlite ction – Installation order by – group le ercises: g with database co HOURS BOOKS "Web Enabled Cc CGI", Ivan Bayro Python Programm Applications – Sh RENCES ReemaThareja"Py	n – Architecture of flutter f - state management – anima eb App a – commands – data type –c by – having – Sqlite –Python nnectivity LECTURE 45 ommercial Application Develo ss, BPB Publication. ning a Modular Approach eetalTaneja, Naveen Kumar -	reate –attach- detach TUTORIAL 15 opment Using HTML, with Graphics, Data - Pearson Publication,	I2 Hours tion to Dart programming – pts 12 Hours – insert – drop – update – TOTAL 60 DHTML, JavaScript, Perl abase, Mobile, and Web 2018
Introduce widget - Lab Exe Working Unit V Introduce delete – Lab exe Working TEXT I 1. 2. REFER 1. 2.	tion – Installation - Layout –Gesture ercises g with Mobile / W SQlite ction – Installation order by – group le ercises: g with database co HOURS "Web Enabled Co CGI", Ivan Bayro Python Programm Applications – Sh RENCES ReemaThareja"Py Lambert – Cengag	n – Architecture of flutter f - state management – anima eb App n – commands – data type –c by – having – Sqlite –Python nnectivity LECTURE 45 ommercial Application Develor ss, BPB Publication. ning a Modular Approach eetalTaneja, Naveen Kumar - thon Programming ", Oxford ge "Fundamentals of Python I "Problem Solving wing Deth	reate – attach- detach TUTORIAL 15 opment Using HTML, with Graphics, Data - Pearson Publication, I University Press, 201 Programming", Publicator	I2 Hours tion to Dart programming – pts 12 Hours – insert – drop – update – TOTAL 60 DHTML, JavaScript, Perl abase, Mobile, and Web 2018 7 ations, 2017 upation Ltd
Introduce widget - Lab Exe Working Unit V Introduce delete - Lab exe Working TEXT I 1. 2. REFER 1. 2. 3.	ction – Installation - Layout –Gesture ercises g with Mobile / W SQlite ction – Installation order by – group le ercises: g with database co HOURS BOOKS "Web Enabled Co CGI", Ivan Bayro Python Programm Applications – Sh RENCES ReemaThareja"Py Lambert – Cengag E. Balagurusamy	n – Architecture of flutter f - state management – anima eb App n – commands – data type – c by – having – Sqlite –Python nnectivity LECTURE 45 ommercial Application Develor ss, BPB Publication. ning a Modular Approach eetalTaneja, Naveen Kumar - thon Programming ", Oxford ge "Fundamentals of Python I "Problem Solving using Pyth	reate –attach- detach TUTORIAL 15 opment Using HTML, with Graphics, Data - Pearson Publication, I University Press, 201 Programming", Publica on ", McGraw Hill Edu	I2 Hours tion to Dart programming – pts 12 Hours – insert – drop – update – TOTAL 60 DHTML, JavaScript, Perl abase, Mobile, and Web 2018 7 ations, 2017 ucation Ltd.
Introduce widget - Lab Exe Working Unit V Introduce delete – Lab exe Working TEXT I 1. 2. REFER 1. 2. 3. E-REFI	tion – Installation - Layout –Gesture ercises g with Mobile / W SQlite Ction – Installation order by – group legeneses: g with database co HOURS BOOKS "Web Enabled Co CGI", Ivan Bayro Python Program Applications – Sh RENCES ReemaThareja"Py Lambert – Cengaş E. Balagurusamy	n – Architecture of flutter f - state management – anima eb App a – commands – data type –c by – having – Sqlite –Python nnectivity LECTURE 45 ommercial Application Develo ss, BPB Publication. ning a Modular Approach eetalTaneja, Naveen Kumar - rthon Programming ", Oxford ge "Fundamentals of Python I "Problem Solving using Pyth	reate – attach- detach TUTORIAL 15 opment Using HTML, with Graphics, Data - Pearson Publication, I University Press, 201 Programming'', Publica on '', McGraw Hill Ed	I2 Hours tion to Dart programming – pts 12 Hours – insert – drop – update – TOTAL 60 DHTML, JavaScript, Perl abase, Mobile, and Web 2018 7 ations, 2017 ucation Ltd.
Introduce widget - Lab Exe Working Unit V Introduce delete – Lab exe Working TEXT I 1. 2. REFER 1. 2. 3. E-REFI	tion – Installation - Layout –Gesture ercises g with Mobile / W SQlite ction – Installation order by – group le ercises: g with database co HOURS BOOKS "Web Enabled Cc CGI", Ivan Bayro Python Programm Applications – Sh RENCES ReemaThareja"Py Lambert – Cengag E. Balagurusamy ERENCES https://www.good	n – Architecture of flutter f - state management – anima eb App a – commands – data type –c by – having – Sqlite –Python nnectivity LECTURE 45 ommercial Application Develo ss, BPB Publication. ning a Modular Approach eetalTaneja, Naveen Kumar - thon Programming ", Oxford ge "Fundamentals of Python I "Problem Solving using Pyth core.co.uk/blog/web-technolo	reate –attach- detach TUTORIAL 15 opment Using HTML, with Graphics, Data - Pearson Publication, I University Press, 201 Programming", Publica on ", McGraw Hill Edi	I2 Hours tion to Dart programming – pts 12 Hours – insert – drop – update – TOTAL 60 DHTML, JavaScript, Perl abase, Mobile, and Web 2018 7 ations, 2017 ucation Ltd.
Introduce widget - Lab Exe Working Unit V Introduce delete – Lab exe Working TEXT I 1. 2. REFER 1. 2. 3. E-REFI 1. 2.	tion – Installation - Layout –Gesture ercises g with Mobile / W SQlite ction – Installation order by – group le ercises: g with database co HOURS BOOKS "Web Enabled Cc CGI", Ivan Bayro Python Programm Applications – Sh RENCES ReemaThareja"Py Lambert – Cengag E. Balagurusamy ERENCES https://www.good https://www.educa	n – Architecture of flutter f - state management – anima eb App n – commands – data type –c by – having – Sqlite –Python nnectivity LECTURE 45 ommercial Application Develor ss, BPB Publication. ning a Modular Approach eetalTaneja, Naveen Kumar - rthon Programming ", Oxford ge "Fundamentals of Python I "Problem Solving using Pyth core.co.uk/blog/web-technolo ative.io/blog/web-development	reate –attach- detach TUTORIAL 15 opment Using HTML, with Graphics, Data - Pearson Publication, I University Press, 201 Programming", Publica on ", McGraw Hill Ed ogies/ nt-in-python#suited	I2 Hours tion to Dart programming – pts 12 Hours – insert – drop – update – TOTAL 60 DHTML, JavaScript, Perl abase, Mobile, and Web 2018 7 ations, 2017 ucation Ltd.

- 4. geeksforgeeks.org/python-programming-language
- https://www.javatpoint.com/django-tutorial
 https://www.tutorialspoint.com/flutter/
- 7. https://www.tutorialspoint.com/sqlite/index.htm

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

M.Sc CS				PO				P	PSO		
M.SC C5	1	2	3	4	5	6	7	1	2		
CO1	2	1	1	1	1	1	3	1	0		
CO2	2	1	1	1	1	1	1	1	0		
CO3	2	2	1	1	2	2	2	1	0		
CO4	2	1	1	1	0	1	1	1	0		
CO5	1	1	1	1	1	1	2	1	0		
Average	2	1	1	1	1	1	3	1	2		

COU	RSE CO	ODE	YCS201		L	Т	Р	С			
COU	RSE NA	AME	VIRTUAL AND AUGMENTED R	EALITY	4	1	0	5			
С	Р	Α			L	Т	Р	H			
3	0.5	0.5			4	1	0	5			
PRER	REQUI	SITE	Nil								
COU	RSE O	UTCOM	ES:								
Cours	se outco	omes:		Domain	L	Level					
CO1	To envi	recall ronment	theoverview of virtual reality and its	Cognitive	R	emen	nber				
	Тоц	Cognitive	U	nders	tand						
CO2	ofne	cessary l	Psychomotor	S	et						
coz	То	illustrat	evirtual reality environment and virtual	Cognitive	A	pply					
005	real	ity databa	ase	Affective	R	Receive					
COA	То	discuss	3D interaction Techniques and the 3D	Cognitive	A	Analyze					
004	Mar	ipulatior	n Tasks	Psychomotor	0	Origination					
COF	To	lesign an	d construct visualization techniques	Cognitive	C	Create					
05				Affective	R	Respond					
Unit I	[Virtu	al Realit	y And Virtual Environments				12 H	lours			
The h	nistorica	al develo	opment of VR: Scientific landmarks Com	puter Graphics,	Real	-time	com	puter			
graphi	ics, Flig	ht simula	ation, Virtual environments, Requirements for	r VR, benefits of	f Virtu	al rea	lity.				
Hardw	vare tec	hnologie	s for 3d user interfaces: Visual Displays Audi	itory							
Displa	ays, Haj	otic Disp	lays, Choosing Output Devices for 3D User In	nterfaces.				-			
Unit I	<u>I 3D U</u>	ser Inter	face Input Hardware			1 D	12 H	lours			
Input	device		istics, Desktop input devices, Tracking Dev	ices, 3D Mice,	Specia	al Pui	pose	Input			
Device	es, Dire	ct Huma	n Input, Home - Brewed Input Devices, Choo	sing Input Devi	ces foi	: 3D I	nterfa	ces.			
Unit I	Unit III Software Technologies 12 Hours										
Databa	ase - V	World S	pace, World Coordinate, World Environm	ent, Objects -	Geom	etry,	Posit	ion /			
Orient	Orientation, Hierarchy, Bounding Volume, Scripts and other attributes, VR Environment - VR Database,										
Tessel	lated I	Jata, LO	Ds, Cullers and Occluders, Lights and Ca	meras, Scripts,	Intera	iction	- Sii	mple,			
Feedb	ack, Gr	aphical C	Jser Interface, Control Panel, 2D Controls, Ha	ardware Control	s, Koo	m / S	tage /	Area			

Descriptions, World Authoring and Playback, VR toolkits, Available software in the market

Unit IV 3D Interaction Techniques	12 Hours				
3D Manipulation Tasks, Manipulation Techniques And Input Devices, Interaction T	Techniques For 3D				
Manipulation, Deign Guidelines - 3D Travel Tasks, Travel Techniques, Design Guide	elines - Theoretical				
Foundations Of Wayfinding, User CenteredWayfinding Support, Environment C	enteredWayfinding				
Support, Evaluating Wayfinding Aids, Design Guidelines - System Control, Classi	fication, Graphical				
Ienus, Voice Commands, Gestrual Commands, Tools, Mutimodal System Control Techniques, Design					
Guidelines, Case Study: Mixing System Control Methods, Symbolic Input Task	s, Symbolic Input				
Techniques, Design Guidelines, Beyond Text And Number Entry.					
DESIGNING AND DEVELOPING 3D USER INTERFACES: Strategies ForDesignin	g And				
Developing Guidelines AndEvaluation	-				
VIRTUAL REALITY APPLICATIONS: Engineering, Architecture, Education, Medic	ine,				
Entertainment, Science, Training					
Unit V Augmented Reality	12 Hours				

Unit V Augmented Reality

Augmented and Mixed Reality, Taxonomy, technology and features of augmented reality, difference between AR and VR, Challenges with AR, AR systems and functionality, Augmented reality methods, visualization techniques for augmented reality, wireless displays in educational augmented reality applications, mobile projection interfaces, marker-less tracking for augmented reality, enhancing interactivity in AR environments, evaluating AR systems.

HOURS	LECTURE	TUTORIAL	TOTAL
	45	15	60
B 0 0 1 1 0			

TEXT BOOKS

- 1. Alan B Craig, William R Sherman and Jeffrey D Will, "Developing Virtual Reality Applications: Foundations of Effective Design", Morgan Kaufmann, 2017.
- 2. Gerard Jounghyun Kim, "Designing Virtual Systems: The Structured Approach", 2015.
- 3. Doug A Bowman, Ernest Kuijff, Joseph J LaViola, Jr and Ivan Poupyrev, "3D User Interfaces, Theory and Practice", Addison Wesley, USA, 2015.
- 4. Oliver Bimber and Ramesh Raskar, "Spatial Augmented Reality: Meging Real and Virtual Worlds", 2015.
- 5. Burdea, Grigore C and Philippe Coiffet, "Virtual Reality Technology", Wiley Interscience, India, 2013.

REFERENCES

- 1. John Vince, "Virtual Reality Systems", Addison Wesley, 1995.
- 2. Howard Rheingold, "Virtual Reality: The Revolutionary Technology and how it Promises to Transform Society", Simon and Schuster, 1991.
- William R Sherman and Alan B Craig, "Understanding Virtual Reality: Interface, Application 3. and Design (The Morgan Kaufmann Series in Computer Graphics)". Morgan Kaufmann Publishers, San Francisco, CA, 2002
- 4. Alan B. Craig, Understanding Augmented Reality, Concepts and Applications, Morgan Kaufmann, 2013

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1. https://www.goodcore.co.uk/blog/Augmented reality/

2. https://www.educative.io/blog/Augmented/development-in-python#suited

M Sc CS	РО								PSO		
M.SC C 5	1	2	3	4	5	6	7	1	2		
CO1	2	1	1	1	1	1	3	1	0		
CO2	2	1	1	1	1	1	1	1	0		
CO3	2	2	1	1	2	2	2	1	0		
CO4	2	1	1	1	0	1	1	1	0		
CO5	1	1	1	1	1	1	2	1	0		
Average	2	1	1	1	1	1	3	1	2		

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

COUR	RSE CC	DE	YCS202		L	Т	P	С		
COUF	RSE NA	ME	ADVANCED JAVA PROGRAM	MNG	3	1	1	5		
С	Р	Α			L	Т	Р	H		
3	0.5	0.5			3	1	2	6		
PRER	EQUIS	SITE	Java, Object Oriented Programming Concep	ots						
COUF	RSE OU	JTCOM	ES:							
Cours	e outco	mes:		Domain	L	evel				
CO1	To Com	unders ponents.	standthe Applications using Swing	Cognitive Psychomotor	U Pe	Understand Perception				
CO2	Illus invo	U Pe	nderst ercepti	and on						
CO3	Crea	C O R	Create Orgination Receive							
CO4	Outl Mod	ine the Ja el	avaScript language & the Document Object	Cognitive Psychomotor Affective	A Pe R	Analyze Perception Respond				
CO5	App XMI	raise the 2 Schem	e Well-Formed XML with different types of as	Cognitive Psychomotor	E	valuate	e			
Unit I	INTRO	DUCT	ION				12 H	Iours		
 Java Swing - Features - Classes and Packages - MVC architecture - Swing basic components - Buttons - Labels - List - Combo box - Menu Simple AWT application using Swing Components. Lab Exercise: 1. Create a Frame using AWT implement mouseClicked(), mouseEntered() and mouseExited() events.Frame should become visible when mouse enters it 2. Using AWT, create buttons, change background colors. 										
Unit II RMI										
Remot Databa Lab Ex	Remote Method Invocation and JDBC- RMI overview - RMI architecture - Example demonstrating RMI. Database Handling: Accessing Database using JDBC Lab Exercise: Create a program to execute Select Query using JDBC and implement RMI server									
Unit I	II JAV			12 Hours						

<u> </u>				
Java Script	s: JavaScript lar	iguage syntax, Built In I	Functions, HTML Forms, H	TML DOM, XML: XML
Lob Everci	, ANL schemes,	and Extensible Style Lan	display a String create a Ch) AJAA eck boxes
Lab Exercit	CRVLET AND J	SP	display a sunig, create a Ch	12. Hours
Servlet: In	troduction to ser	vlet - Developing and D	eploying Servlets - Handlin	g Request and Response -
Reading Se	ervlet Parameters	- Cookies - Session Trac	king. Java Server Pages: Ba	sic JSP Architecture - Life
Cycle of JS	SP - JSP Tags and	1 Expressions – Directive	es- JSP applications. Java Cro	eating and using JavaBean
component	s –Setting and re	trieving JavaBean compo	nents – Java Server Faces Aj	pplication
Lab Exerci	se:Develop remo	te interface and impleme	nt your Java/RMI server and	create your server
Unit V HI	BERNATE, SPF	RING, STRUTS		12 Hours
Introductio	n to Hibernate	– Advantages – Ar	chitecture _Spring Framew	vork -Struts Framework
Introductio	n to Struts- Struts	Architecture	entecture –spring Framew	Vork -Struts Trainework.
introductio		, Themteetare.		
	HOURS	LECTURE	TUTORIAL	TOTAL
		45	15	60
1. He 2. Jin	rbert Schildt - JA n Keogh, "The Co	VA 2 (The Complete Re omplete Reference J2EE,	eference)- Ninth Edition, TM Tata McGraw-Hill, 2002.	IH, 2014
RE 1. Bri Pu	EFERENCES an Cole, Rober blishers, second e	t Eckstein, James Ellic	tt, Marc Loy, David Woo	od, Java Swing, O'Reilly
2. Pat	trick Naughton, "	The Java Hand Book, Ta	ta McGraw Hill, 2017.	
3. Ko	gentSolutionss, J	ava Server Programming	Java Ee5 Black Book,Dream	ntech Press, 2018
E-REFER	ENCES.			
1. htt	ps://www.tutorial	spoint.com/javascript		

- 2. https://www.tutorialspoint.com/java_xml
- 3. https://www.tutorialspoint.com/ajax
- 4. https://www.w3schools.com/

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

M.Sc CS	РО								PSO	
M.SC CS	1	2	3	4	5	6	7	1	2	
CO1	2	1	1	1	1	1	3	1	0	
CO2	2	1	1	1	1	1	1	1	0	
CO3	2	2	1	1	2	2	2	1	0	
CO4	2	1	1	1	0	1	1	1	0	
CO5	1	1	1	1	1	1	2	1	0	
Average	2	1	1	1	1	1	3	1	2	

COURS	SE CO	DE	YCS203	YCS203 L T P C						
COURS	SE NA	ME	MACHINE LEARNING		3	1	1	5		
С	P	Α			L	Т	Р	H		
3	0.5	0.5			3	1	2	6		
PRERE	QUIS	ITE	Artificial Intelligence, Fuzzy Logics							
COURS	<u>SE OU</u>	TCOM	ES:	Domain	T	ovol				
Course	Idon	illes:	avalain the chiestives of artificial	Cognitivo			han			
	Intell	igence	explain the objectives of artificial	Psychomotor	R S	et	ber			
CO2	Sum	marize	variousmachine learning models	Cognitive Psychomotor	U P	Underst ercept	tand ion			
CO3	Appl Mode	ythe lea els	arning objective into Distance Based	Cognitive Psychomotor Affective	A C R	Apply Drigina Receive	tion e			
CO4	Class	sify the t	Cognitive Psychomotor Affective	A P R	analyze ercept lespon	e ion d				
CO5	Anal	yzing the	e idea about Reinforcement Learning	Cognitive Psychomotor	A N	analyze /lechar	e nism			
Unit I	FOUN	DATIO	NS OF LEARNING				12	Hours		
reinforce theory o Unit II Linear c	ement f gene LINE lassifi	- theor ralizatio AR MC cation -	y of learning – feasibility of learning – erron n – generalization bound –bias and variance – DELS univariate linear regression – multivariate linear	or and noise – t – learning curve	rainir — reg	ng vers	sus tes 12 d regr	ting – Hours ession		
- Logist	tic reg	ression -	- perceptrons - multilayer neural networks	- learning neur	al net	works	struct	ures –		
Unit III	DIST	ANCE-	BASED MODELS	ver munig – regu			12	Hours		
Nearest d trees – forests –	neight - locali - boost	oor mode ty sensition	els – K-means – clustering around medoids – tive hashing – non - parametric regression – e eta learning.	silhouettes – hie ensemble learnin	erarch g – ba	iical cl agging	ustering and ra	ig – k- andom		
Unit IV	TRE	EAND	RULE MODELS				12	Hours		
Decision clusterin associat	n trees ng tree ion rul	– learn s – lear e mining	ing decision trees – ranking and probabilit ning ordered rule lists – learning unordered g – first -order rule learning	y estimation tre l rule lists – des	es – scripti	Regres	ssion t le lear	rees – ning –		
Unit V	REIN	FORCE	MENT LEARNING				12	Hours		
Passive difference Generali robot co Lab Exe 1. 2. 3. 4.	reinfo ce lear ization ntrol. rrcise : Impler Impler Write Build	rcement rning – in rein ment an nent and a progra artificial	learning – direct utility estimation – adapt active reinforcement learning – exploration forcement learning – policy search – applica d demonstrate the FIND-S algorithm d demonstrate the candidate-Elimination algo m to demonstrate the working of the decisior Neural network by implementing the back p	ive dynamic pro – learning an a ations in game p rithm n tree based ID3 propagation algor	ogram action layin algor ithm	ming - 1 utilit g – ap	– temp y func plicati	ooral - tion – ons in		
5.	Write	a progra	m to implement the naïve Bayesian classifier	for a set of train	ning d	ata.				

- 6. Assuming a set of documents that need to be classified, use the naïve Bayesian Classifier model to perform this task. Built in java classes /API can be used to write the programs.Calculate the accuracy, precision and recall for data set
- 7. Write a program to construct a Bayesian network considering medical data
- 8. Apply EM algorithm to cluster a set of data stored in a file.

HOURS	LECTURE	TUTORIAL	TOTAL
	45	15	60

TEXT BOOKS

- 1. Elaine Rich and Kevin Knight, "Artificial Intelligence", Tata McGraw Hill Publication, 2nd Edition, 2011
- 2. Y. S. Abu Mostafa, M. Magdon-Ismail, and H.-T. Lin, "Learning from Data", AMLBook Publishers, 2017.
- **3.** P. Flach, "Machine Learning: The art and science of algorithms that make sense of data", Cambridge University Press, 2012.

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- 1. K. P. Murphy, "Machine Learning: A probabilistic perspective", MIT Press, 2012.
- 2. C. M. Bishop, "Pattern Recognition and Machine Learning", Springer, 2007.
- 3. D. Barber, "Bayesian Reasoning and Machine Learning", Cambridge University Press, 2012..

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1.https://nptel.ac.in/courses/106/106/106106139/

2.https://nptel.ac.in/courses/106/105/106105152/

-											
M Sc CS	РО							P	PSO		
WI.DC CD	1	2	3	4	5	6	7	1	2		
CO1	2	1	1	1	1	1	3	1	0		
CO2	2	1	1	1	1	1	1	1	0		
CO3	2	2	1	1	2	2	2	1	0		
CO4	2	1	1	1	0	1	1	1	0		
CO5	1	1	1	1	1	1	2	1	0		
Average	2	1	1	1	1	1	3	1	2		

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

							T.	Т	Р	С	
Cou	ırse (Code		YCS204C			3	1	0	4	
Cou	irse N	Jame					5	1	v		
C	P	A	ARTIFICIAL INTELLIGENCE						Р	н	
2.8	0	0.2							0	4	
PREREOUISITE: Nil											
COURSE OUTCOMES DOMAIN								Ι	EVE	EL	
CO1 Analyse AI problems and Space Search Cognitive								Remember			
CO2	Dis	cuss vai	rious se	earch techniques		Cognitive			erstan	d	
CO3	Ap	ply Logi	ic and r	relationships		Cognitive r	•	Appl	y		
<u> </u>						Affective		Rece	eive		
CO4	Illu	strates t	he kno	wledge based on rules		Cognitive		Anal	yze		
COF	Dec				• •	Affective		Kesp	ond	4	
005	Des	scribes e	expert s	system and various perception	18	Cognitive		Unde	erstan	u	
U	NIT I	[] Ir	ntrodu	ction:					9+3		
AI Pr	oblen	ns - Al t	echnia	ues - Criteria for success. Pro	oblems, Probl	em Spaces.	Sea	urch: State space			
search	h - Pr	oduction	1 Syste	ms		em opwees,	200			space	
UN	I TIN	I H	euristi	c Search techniques:					9+3		
Gener	rate a	ind Test	: - Hill	Climbing- Best-First - Me	ans-end analy	sis. Knowl	edg	e repi	resen	tation	
issues	s: Re	presenta	ations	and mappings -Approaches	to Knowled	lge represe	ntat	ions	-Issu	es in	
Know	ledge	e represe	entation	ns - Frame Problem.		U					
UN	II TI	II U	sing P	redicate logic:					9+3		
Repre	esenti	ng simp	ole fact	s in logic - Representing In	stance and Is	a relations	ship	s - C	ompı	ıtable	
functi	ions a	nd pred	icates -	Resolution.							
UN	IT I	V R	eprese	nting knowledge using rule	s:				9+3		
Proce	dural	Vs Dec	clarativ	e knowledge – Logic progra	mming - Forv	ward Vs Ba	ickv	vard r	easor	ning -	
Match	hing -	Contro	l know	ledge.							
UN	VIT V	/ G	ame p	laying					9+3		
The n	ninim	ax searc	ch proc	edure – Expert System - Perc	ception and Ac	ction	-				
	LEC	TURE		TUTORIAL	PRACT	ICAL	TOTAL				
	45 15 -						60				
TEXT BOOKS:											
1. Elaine Rich and Kevin Knight," Artificial Intelligence", Tata McGraw Hill Publishers											
company Pvt Ltd, Second Edition, 1991.											
REFERENCES:											
1. S. Kajasekaran and G.A.V. Pai, "Neural Networks, Fuzzy Logic and Genetic Algorithms", PHI,											
2003.	Emer	eo Pty I		I, July 2008.		1 4	1.	<i>.</i> .	», A	1	
2. Ah	mar,	Abbas,	Grid	Computing - A Practical Gui	ae to technolo	bgy and Ap	plic	ations	5°, Cl	arles	
River media, 2003.											

 Vojislav Kecman, "Learning & Soft Computing Support Vector Machines, Neural Networks, and Fuzzy Logic Models", Pearson Education, New Delhi,2006

M.Sc.	РО							PSO	
	1	2	3	4	5	6	7	1	2
CO1	3	2	1	1	0	1	0	1	1
CO2	0	1	3	2	0	2	0	2	2
CO3	1	2	3	0	0	2	0	2	2
CO4	1	2	3	1	0	2	0	1	2
CO5	0	3	0	1	0	2	0	1	2
Average	1	2	2	1	0	2	0	1	2

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

Course Code			YCS205C	L	Т	Р	С			
Course Name			PERVASIVE COMPUTING	3	1	0	4			
	n			Ŧ	T	n				
<u>C</u>	P 03	A 0.2		L 3	T 1	P				
PRERE	PREREOUISITE: Computer Networks									
COURSE OUTCOMES:										
Course	L	Level								
will be a										
CO1:	Unde	e rstand t	he basics of pervasive computing	Cognitive Psychomotor	R S	Remember Set				
CO2	Appl mach	y the policy the policy of the	ervasive computing techniques for human faces.	Cognitive Psychomotor	U P	Understand Perception				
CO3	Desig WMI	gn web- L.	based applications using XML, WAP and	Cognitive Psychomotor Affective	A O R	Apply Origination Receive				
CO4	Appl based	y the pe l applica	ervasive computing techniques for speech- tions.	Cognitive Psychomotor Affective	A P R	Apply Perception Respond				
CO5	Desc	<i>ribe</i> the	PDA characteristics and standards.	Cognitive Psychomotor	Annalyze Mechanism					
Unit - I	Pervas	sive Cor	nputing:			12 Hours				
Past, Pro Airline c	Past, Present and Future - Pervasive Computing Market – mBusiness – Application examples: Retail, Airline check-in and booking – Health care – Car information system – E-mail access via WAP and voice.									
Unit –IIDevice Technology: 12 H						Iours				
Hardwar	re – Hu	ıman Ma	achine Interfaces – Biometrics – Operating Sy	stems – Java for	Perva	sive d	levice	s.		
Unit –II	Unit –IIIDevice Connectivity						12 Hours			
Protocols – Security – Device Management - Web Application Concepts: WWW architecture – Protocols – Transcoding - Client Authentication via Internet.										
Unit - IVWAP and Beyond							12 Hours			
Components of the WAP architecture – WAP infrastructure – WAP security issues – WML – WAP push – Products – i-Mode - Voice Technology: Basics of Speech recognition- Voice Standards – Speech applications – Speech and Pervasive Computing.										
Unit – V PDA						12 Hours				
Device Categories – PDA operation Systems – Device Characteristics – Software Components - Standards – Mobile Applications - PDA Browsers - Pervasive Web Application architecture: Background –										
HOURS	LECTURE	TUTORIAL	TOTAL							
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	45	15	60							
TEXT BOOKS 1. Pervasive Comp JochenBurkhardt, Education, 2006.	uting, Technology and Horst Henn, Stefan Hepj	Architecture of Mobile per, Thomas Schaech &	Internet Applications, Klaus Rindtorff, Pearson							
REFERENCES 1 Fundamentals of N	Aobile and Pervasive Comp	uting Frank Adelstein San	deen KS Gunta-Golden							

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

MSo				PO				PS	50
WI.SC.	1	2	3	4	5	6	7	1	2
CO1	3	2	1	1	0	1	0	1	1
CO2	0	1	3	2	0	2	0	2	2
CO3	1	2	3	0	0	2	0	2	2
CO4	1	2	3	1	0	2	0	1	2
CO5	0	3	0	1	0	2	0	1	2
Average	1	2	2	1	0	2	0	1	2

COU	RSE C	ODE	YCS301		L	Т	Р	C
COUH	RSE NA	AME	DEEP LEARNING		4	1	0	5
С	Р	Α			L	Т	P	Η
3	0.5	0.5			4	1	0	5
PRER	EQUI	SITE						
COUH	RSE O	UTCOM	ES:					
Cours	e outc	omes:		Domain	L	evel		
CO1	Des com	cribe putationa	the mathematical, statistical and al challenges of building neural networks	Cognitive Psychomotor	R S	emen et	nber	
CO2	Unc	lerstand	dimensionality reduction techniques	Cognitive Psychomotor	U P	Inders	stand tion	
CO3	Ma time	nipulate applicat	deep learning techniques to support real- ions	Cognitive Psychomotor Affective	A C R	pply rigina eceiv	ation e	
CO4	Ana deej	l yze optin blearning	mization and generalization techniques in	Cognitive Psychomotor Affective	A P R	Analyze Perception Respond		
CO5	Illu	strate ne	Cognitive Psychomotor	A N	.nalyz Iecha	æ nism		
Unit I	INTR	ODUCT	ION				12 H	lours

Introduction to machine	1		• • • • •
	learning- Linear models (SVMs and Perceptrons, log	gistic regression)- Intro to
Neural Nets: What a sha	llow network computes- T	raining a network: loss fui	nctions, back propagation
and stochastic gradient de	scent- Neural networks as u	universal function approxim	nates
Unit II DEEP NETWOR	RKS		12 Hours
History of Deep Lear	rning- A Probabilistic T	Theory of Deep Learning	g- Backpropagation and
regularization, batch	normalization- VC Din	nension and Neural N	lets-Deep Vs Shallow
NetworksConvolutional N	Networks- Generative Adve	rsarial Networks (GAN), Se	emi-supervised Learning
Unit III DIMENTIONA	LITY REDUCTION		12 Hours
Linear (PCA, LDA) and	d manifolds, metric learnir	ng - Auto encoders and din	mensionality reduction in
networks - Introduction	to Convnet - Architectures	s – AlexNet, VGG, Incept	ion, ResNet - Training a
Convnet: weights initializ	ation, batch normalization,	hyperparameter optimization	on.
Unit IV OPTIMIZATIO	N AND GENERALIZAT	ION	12 Hours
Optimization in deep	learning- Non-convex	optimization for deep	o networks- Stochastic
OptimizationGeneralizatio	on in neural networks- S	patial Transformer Netwo	rks- Recurrent networks,
LSTM - Recurrent Neur	ral Network Language M	odels- Word-Level RNNs	& Deep Reinforcement
Learning - Computational	& Artificial Neuroscience		-
Unit V CASE STUDY A	ND APPLICATIONS		12 Hours
Imagenet- Detection-A	udio WaveNet-Natural	Language Processing	Word2Vec - Joint
Imagenet- Detection-A DetectionBioInformatics-	udio WaveNet-Natural Face Recognition- Scene U	Language Processing Jnderstanding- Gathering Ir	Word2Vec - Joint nage Captions
Imagenet- Detection-A DetectionBioInformatics- HOURS	udio WaveNet-Natural Face Recognition- Scene U LECTURE	Language Processing Inderstanding- Gathering Ir TUTORIAL	Word2Vec - Joint nage Captions TOTAL
Imagenet- Detection-A DetectionBioInformatics- HOURS	udio WaveNet-Natural Face Recognition- Scene U LECTURE 45	Language Processing Jnderstanding- Gathering Ir TUTORIAL 15	Word2Vec - Joint nage Captions TOTAL 60
Imagenet- Detection-A DetectionBioInformatics- HOURS TEXT BOOKS	udio WaveNet-Natural Face Recognition- Scene U LECTURE 45	Language Processing Inderstanding- Gathering Ir TUTORIAL 15	Word2Vec - Joint nage Captions TOTAL 60
Imagenet- Detection-A DetectionBioInformatics- HOURS TEXT BOOKS 1. CosmaRohillaShall	udio WaveNet-Natural Face Recognition- Scene U LECTURE 45	Language Processing Inderstanding- Gathering Ir TUTORIAL 15 is from an Elementary Poin	Word2Vec - Joint nage Captions TOTAL 60 t of View, 2015.
Imagenet- Detection-A DetectionBioInformatics- HOURS TEXT BOOKS 1. CosmaRohillaShal 2. Deng & Yu, Deep	udio WaveNet-Natural Face Recognition- Scene U LECTURE 45 lizi, Advanced Data Analys Learning: Methods and Ap	Language Processing Inderstanding- Gathering Ir TUTORIAL 15 is from an Elementary Poin plications, Now Publishers	Word2Vec - Joint nage Captions TOTAL 60 tt of View, 2015. , 2013.
TEXT BOOKS 1. CosmaRohillaShal 2. Deng & Yu, Deep 3. Ian Goodfellow, Y	udio WaveNet-Natural Face Recognition- Scene U LECTURE 45 lizi, Advanced Data Analys Learning: Methods and Ap oshuaBengio, Aaron Courv	Language Processing Inderstanding- Gathering Ir TUTORIAL 15 is from an Elementary Poin oplications, Now Publishers ville, Deep Learning, MIT F	Word2Vec - Joint nage Captions TOTAL 60 tt of View, 2015. , 2013. Press, 2016.
TEXT BOOKS 1. CosmaRohillaShal 2. Deng & Yu, Deep 3. Ian Goodfellow, Y 4. Michael Nielsen, N	udio WaveNet-Natural Face Recognition- Scene U LECTURE 45 lizi, Advanced Data Analys Learning: Methods and Ap YoshuaBengio, Aaron Courv Neural Networks and Deep	Language Processing Inderstanding- Gathering Ir TUTORIAL 15 is from an Elementary Poin plications, Now Publishers ville, Deep Learning, MIT F Learning, Determination Pr	Word2Vec - Joint nage Captions TOTAL 60 tt of View, 2015. , 2013. Press, 2016. ress, 2015.
TEXT BOOKS 1. CosmaRohillaShal 2. Deng & Yu, Deep 3. Ian Goodfellow, Y 4. Michael Nielsen, N REFERENCES	udio WaveNet-Natural Face Recognition- Scene U LECTURE 45 lizi, Advanced Data Analys Learning: Methods and Ap YoshuaBengio, Aaron Courv Neural Networks and Deep	Language Processing Inderstanding- Gathering Ir TUTORIAL 15 is from an Elementary Poin oplications, Now Publishers ville, Deep Learning, MIT F Learning, Determination Pr	Word2Vec - Joint mage Captions TOTAL 60 tt of View, 2015. , 2013. Press, 2016. ress, 2015.
Imagenet- Detection-A DetectionBioInformatics- HOURS TEXT BOOKS 1. CosmaRohillaShal 2. Deng & Yu, Deep 3. Ian Goodfellow, Y 4. Michael Nielsen, N REFERENCES 1. K. P. Murphy, "M	udio WaveNet-Natural Face Recognition- Scene U LECTURE 45 dizi, Advanced Data Analys Learning: Methods and Ap YoshuaBengio, Aaron Courv Neural Networks and Deep fachine Learning: A probab	Language Processing Inderstanding- Gathering Ir TUTORIAL 15 is from an Elementary Poin oplications, Now Publishers ville, Deep Learning, MIT F Learning, Determination Pr	Word2Vec - Joint mage Captions TOTAL 60 tt of View, 2015. , 2013. Press, 2016. ress, 2015. ress, 2012.
Imagenet- Detection-A DetectionBioInformatics- HOURS TEXT BOOKS 1. CosmaRohillaShal 2. Deng & Yu, Deep 3. Ian Goodfellow, Y 4. Michael Nielsen, N REFERENCES 1. K. P. Murphy, "M 2. C. M. Bishop, "Pa	udio WaveNet-Natural Face Recognition-Scene U LECTURE 45 dizi, Advanced Data Analys Learning: Methods and Ap oshuaBengio, Aaron Courv Neural Networks and Deep Methods and Mac fachine Learning: A probab attern Recognition and Mac	Language Processing Inderstanding- Gathering Ir TUTORIAL 15 is from an Elementary Poin oplications, Now Publishers ville, Deep Learning, MIT F Learning, Determination Pr bilistic perspective", MIT Pr chine Learning", Springer, 2	Word2Vec - Joint mage Captions TOTAL 60 tt of View, 2015. , 2013. Press, 2016. ress, 2015. ress, 2012.
Imagenet- DetectionA DetectionBioInformatics- HOURS TEXT BOOKS 1. CosmaRohillaShal 2. Deng & Yu, Deep 3. Ian Goodfellow, Y 4. Michael Nielsen, N REFERENCES 1. K. P. Murphy, "N 2. C. M. Bishop, "Page	udio WaveNet-Natural Face Recognition- Scene U LECTURE 45 dizi, Advanced Data Analys Learning: Methods and Ap YoshuaBengio, Aaron Courve Neural Networks and Deep fachine Learning: A probability attern Recognition and Mac	Language Processing Inderstanding- Gathering Ir TUTORIAL 15 is from an Elementary Poin oplications, Now Publishers ville, Deep Learning, MIT F Learning, Determination Pr bilistic perspective", MIT Pr chine Learning", Springer, 2	Word2Vec - Joint mage Captions TOTAL 60 tt of View, 2015. , 2013. Press, 2016. ress, 2015. ress, 2012.
Imagenet- Detection-A DetectionBioInformatics- HOURS TEXT BOOKS 1. CosmaRohillaShal 2. Deng & Yu, Deep 3. Ian Goodfellow, Y 4. Michael Nielsen, N REFERENCES 1. K. P. Murphy, "M 2. C. M. Bishop, "Pa 3. D. Barber, "Bayes"	udio WaveNet-Natural Face Recognition-Scene U LECTURE 45 dizi, Advanced Data Analys Learning: Methods and Ap JoshuaBengio, Aaron Courv Neural Networks and Deep Methods and Machine fachine Learning: A probability attern Recognition and Machine sian Reasoning and	Language Processing Inderstanding- Gathering Ir TUTORIAL 15 is from an Elementary Poin oplications, Now Publishers ville, Deep Learning, MIT F Learning, Determination Pr bilistic perspective", MIT Pr chine Learning", Springer, 2 the Learning", Cambridge Un	Word2Vec - Joint mage Captions TOTAL 60 tt of View, 2015. , 2013. Press, 2016. ress, 2015. ress, 2012. 2007. niversity Press,2012
Imagenet- Detection-A DetectionBioInformatics- HOURS TEXT BOOKS 1. CosmaRohillaShal 2. Deng & Yu, Deep 3. Ian Goodfellow, Y 4. Michael Nielsen, N REFERENCES 1. K. P. Murphy, "M 2. C. M. Bishop, "Pa 3. D. Barber, "Bayes	udio WaveNet-Natural Face Recognition-Scene U LECTURE 45 dizi, Advanced Data Analys Learning: Methods and Ap JoshuaBengio, Aaron Courv Neural Networks and Deep fachine Learning: A probab attern Recognition and Machin Sian Reasoning and Machin	Language Processing Inderstanding- Gathering Ir TUTORIAL 15 is from an Elementary Poin oplications, Now Publishers ville, Deep Learning, MIT F Learning, Determination Pr bilistic perspective", MIT Pr chine Learning", Springer, 2 ne Learning", Cambridge Un	Word2Vec - Joint mage Captions TOTAL 60 tt of View, 2015. , 2013. Press, 2016. ress, 2015. ress, 2012. 2007. niversity Press,2012

https://onlinecourses.nptel.ac.in/noc20_cs62

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

ing of Course v	or Course Outcomes (CO) with riogramme Outcomes (ro											
M Sc CS	РО							P	PSO			
	1	2	3	4	5	6	7	1	2			
CO1	2	1	1	1	1	1	3	1	0			
CO2	2	1	1	1	1	1	1	1	0			
CO3	2	2	1	1	2	2	2	1	0			
CO4	2	1	1	1	0	1	1	1	0			
CO5	1	1	1	1	1	1	2	1	0			
Average	2	1	1	1	1	1	3	1	2			

COURS	SE CO)DE	YCS302 L T P									
COURS	SE NA	ME	WIRELESS NETWORKS		3	1	1	5				
C	Р	Δ			T.	Т	Р	н				
3	0.5	0.5			3	1	2	6				
PRERE	EQUIS	SITE	Computer Networks		-			-				
COURS	SE OU	JTCOM	ES:									
Course	outco	mes:		Domain	I	level						
CO1	Defi proto sens tech	ne the ocols, wi or syste nology.	basic WSN technology and supporting th emphasis place on standardization basic ems and provide a survey of sensor	Cognitive Psychomotor	R P	Remember Perception						
CO2	Illus phys	Cognitive Psychomotor	L P	Underst ercept	and ion							
CO3	Exa mair	mine key 1 design i	y routing protocols for sensor networks and issues.	Cognitive Psychomotor Affective	A P R	Apply Percepti Receive	ion					
CO4	Ana and	lyse tran design re	sport layer protocols for sensor networks, equirements.	Cognitive Psychomotor	A N	analyse Aechan	e ism					
CO5	Rep mide	resent t lleware,	he Sensor management, sensor network operating systems.	CognitivePsych omotor	n U P	Understand Perception						
Unit I V	Wirele	ess Netwo	orks			12 Hours						
Introduc	ction	Evolutio	n of wireless networks – Challenges - Transr	nission fundame	ntals:	Analo	g and	digital				
data tra	nsmiss	sion - Tr	ansmission media - Modulation techniques f	or wireless syste	ms - 1	Multip	le acce	ess for				
wireless	s syste	ms - Per	tormance increasing techniques for wireless i	networks			10 1	T				
Unit II Introdu	wire	to Wire	l less I ANS WI AN Equipment Topologie	. Technologies	IFEI	F 802 1		AN				
Archite 802.11	cture a Standa	and Servi ards.	ices - Physical Layer - MAC Sub Layer -MAC	AC Management	Sub	Layer,	Other	IEEE				
Unit II	[Wire	eless Per	sonal Area Networks				12	Hours				
Introdu	uction	- Blueto	ooth: Architecture - Protocol Stack - Physica	l Connection – N	lac n	nechan	ism – I	Frame				
format - Compor	– Con nents -	nection r - Networ	nanagement –Low Rate and High Rate WPA k topologies – PHY – MAC	N, Zig Bee Tec	hnolo	gy IEF	EE 802	2.15.4:				
Unit IV	' Ad-h	oc Wire	less Networks				12 I	Hours				
Introduce protoco protoco Hierarcl	ction- ls, Re ls: D hical r	Characte servation SR, AO outing pr	eristics of Adhoc Networks - Classifications Mechanism - Table driven Routing protoco DV,TORA –Routing Protocol with Effi rotocols – CBRP, FSR.	s of MAC Proto ols: DSDV, WR cient Flooding	cols: P - C Mec	Conne n Den hanisn	ection nand re n: OL	Based outing SR -				
Unit V	Wirel	ess Sens	or Networks				12	Hours				
Introduction - Challenges for wireless sensor networks - Comparison of sensor network with ad-hoc network - Single node architecture: Hardware components - Energy consumption of sensor nodes - Network architecture: Sensor network scenarios - Design principles – Operating systems. Lab Exercise: 1. 802.11 Association and Channels 2. Wireless fidelity 3. Multi-hop routing-TCP Performance												
4.	Dyna	mic Ad-ł	noc Routing									

υ.	Data throughput			
7.	Rate Control			
8.	Back pressure Scho	eduling		
9.	MAC Contention V	Window and RTS		
10.	. 802.11 fairness and	d comparison.		
	HOURS	LECTURE	TUTORIAL	TOTAL
		45	15	60
EXT	BOOKS			
1.	Nicopolitidis P, "W	Vireless Networks", John	Wiley and Sons, New York,	2010.
2.	Vijay K Garg, Wi	reless Communication a	nd Networking, Morgan Kauf	mann Publishers 2010.
3.	Siva Ram Murthy Prentice Hall, 2012	C.,Manoj B S, "Ad I	Hoc Wireless Networks: Ard	chitectures and Protocols"
	,	2.		
FFF	RENCES	2.		
REFE] 1.	RENCES Holger Karl and A Willey Publication	ndreas Willig, "Protoco , 2011.	l and Architecture for Wirele	ess Sensor Networks", John
REFE 1. 2.	RENCES Holger Karl and A Willey Publication KavehPahlavan, "F	andreas Willig, "Protoco , 2011. Principles of wireless net	l and Architecture for Wirele works", Prentice-Hall of Indi	ess Sensor Networks", Johr a, 2013.
REFE 1. 2. 2. 2.	RENCES Holger Karl and A Willey Publication KavehPahlavan, "F FERENCES	andreas Willig, "Protoco , 2011. Principles of wireless net	l and Architecture for Wirele works", Prentice-Hall of Indi	ess Sensor Networks", Johr a, 2013.
REFE 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	RENCES Holger Karl and A Willey Publication KavehPahlavan, "F FERENCES	andreas Willig, "Protoco , 2011. Principles of wireless net	l and Architecture for Wirele works", Prentice-Hall of Indi- https://www.te.c	ess Sensor Networks", John a, 2013. com/usa-
REFE 1. 2. C-REF 1.	RENCES Holger Karl and A Willey Publication KavehPahlavan, "H FERENCES en/industries/senso	andreas Willig, "Protoco , 2011. Principles of wireless net pr-solutions/insights/sens	l and Architecture for Wirele works", Prentice-Hall of Indi- https://www.te.c ors-sleep-apnea-whitepaper.h	ess Sensor Networks", Johr a, 2013. com/usa- ttml
EFE : 1. 2. C-REF 1. 2.	RENCES Holger Karl and A Willey Publication KavehPahlavan, "F FERENCES en/industries/senso	andreas Willig, "Protoco , 2011. Principles of wireless net	l and Architecture for Wirele works", Prentice-Hall of Indi- https://www.te.c ors-sleep-apnea-whitepaper.h	ess Sensor Networks", John a, 2013. com/usa- ttml etooth.com/blog/smart-
REFE: 1. 2. C-REF 1. 2.	RENCES Holger Karl and A Willey Publication KavehPahlavan, "F FERENCES en/industries/senso	andreas Willig, "Protoco , 2011. Principles of wireless net pr-solutions/insights/sens	l and Architecture for Wirele works", Prentice-Hall of Indi- https://www.te.c ors-sleep-apnea-whitepaper.h https://www.blu	ess Sensor Networks", Johr a, 2013. com/usa- ttml etooth.com/blog/smart-
REFE 1. 2. 2. 2. 2. 1. 2. 3.	RENCES Holger Karl and A Willey Publication KavehPahlavan, "F FERENCES en/industries/senso building-use-cases,	Andreas Willig, "Protoco , 2011. Principles of wireless net or-solutions/insights/sens	l and Architecture for Wirele works", Prentice-Hall of Indi- https://www.te.c ors-sleep-apnea-whitepaper.h https://www.blu	ess Sensor Networks", Johr a, 2013. com/usa- ttml etooth.com/blog/smart- ce.com/wp-
REFE . 1. 2. C-REF 1. 2. 3.	RENCES Holger Karl and A Willey Publication KavehPahlavan, "H FERENCES en/industries/senso building-use-cases, content/uploads/20	Andreas Willig, "Protoco , 2011. Principles of wireless net or-solutions/insights/sens / 019/03/Case-Study_VAS	l and Architecture for Wirele works", Prentice-Hall of Indi- https://www.te.c ors-sleep-apnea-whitepaper.h https://www.blu https://wballianc T-Networks-Mobile-DataOff	ess Sensor Networks", John a, 2013. com/usa- ttml etooth.com/blog/smart- ce.com/wp- load.pdf
REFE 1. 2. C-REF 1. 2. 3. 4.	RENCES Holger Karl and A Willey Publication KavehPahlavan, "H FERENCES en/industries/senso building-use-cases, content/uploads/20 studies	andreas Willig, "Protoco , 2011. Principles of wireless net or-solutions/insights/sens / 019/03/Case-Study_VAS	l and Architecture for Wirele works", Prentice-Hall of India https://www.te.c ors-sleep-apnea-whitepaper.h https://www.blu https://wballianc T-Networks-Mobile-DataOff https://www.pos	ess Sensor Networks", John a, 2013. com/usa- ttml etooth.com/blog/smart- ce.com/wp- load.pdf

M Sc CS				РО				P	SO
	1	2	3	4	5	6	7	1	2
CO1	2	1	1	1	1	1	3	1	0
CO2	2	1	1	1	1	1	1	1	0
CO3	2	2	1	1	2	2	2	1	0
CO4	2	1	1	1	0	1	1	1	0
CO5	1	1	1	1	1	1	2	1	0
Average	2	1	1	1	1	1	3	1	2

COUR	RSE CO	DDE	YCS303 L T P C								
COU	RSE NA	ME	BIG DATA AND ANALY	FICS	3	1	1	5			
C	<u>P</u>	A				T	P 2	H			
J DDFD		U.5 SITE	Data Mining and Data warehousing		3	1	2	0			
	SE OI	TCOM	ES.								
Cours	e outco	mes:		Domain	Leve	1					
CO1	Desc	eribe the	building blocks of Big Data.	Cognitive Psychomotor	Reme Set	embe	er				
CO2	Understand the fundamentals of various big data Cognitive analysis techniques and its various applications. Understand Perception										
CO3	<i>Expl</i> its ty	<i>ain</i> the pes and	Difference between SQL and NoSQL and various NoSQL databases.	Cognitive Psychomotor Affective	Appl Origi Rece	y natic ive	n				
CO4	Clas	<i>sify</i> the c	omponents of Hadoop and its architecture.	Cognitive Psychomotor Affective	Anal Perce Resp	yze eptioi ond	1				
CO5	Pres asso appl	<i>cribe</i> the ciated wications.	e HADOOP and Map Reduce technologies ith big data analytics Explore on Big Data	Cognitive Psychomotor	Creat Mech	e nanis	m				
Unit I	INTR	ODUCI	TON TO BIG DATA				12 H	Iours			
Data, Source Need o UNIT Overvi	Characters of dates of dates of dates of dates of dates of the second se	teristics ta, Work ata, Chal B DATA business	of data and Types of digital data: Unstructing with unstructured data, Evolution and D lenges of big data, Data environment versus ANALYTICS intelligence, Data science and Analytics, N ig data analytics. Classification of analytics	ctured, Semi-struct befinition of big data big data environmen Meaning and Chara	ured a a, Cha nt. cterist	ind S racte	Struct ristic 12 H f big	tured, s and Iours g data			
Import	ance of	big data	analytics, Basic terminologies in big data en	vironment.	big	uata	anai	ytics,			
Unit I	II BIG	DATA	FECHNOLOGIES AND DATABASES				12 H	Iours			
Introdu NoSQI needs, Cassar	action t L, Over Charac ndra	o NoSQ view of cteristics	L, Uses, Features and Types, Need, Advant NewSQL, Comparing SQL, NoSQL and New of MongoDB, Introduction of apache case	tages, Disadvantage wSQL, Introduction sandra and its need	es and to Mo ds, Ch	App ongol aract	licati DB a eristi	on of nd its cs of			
Unit I	V HAI	DOOP F	OUNDATION FOR ANALYTICS				12 H	Iours			
Histor	y, Need	is, Featurs Is Hadoo	ares, Key advantage and Versions of Hadoon	loop, Essential of Hadoop architectur	Hadoo	op ec	cosys	tems,			
Unit V	HAD	DOP MA	AP REDUCE AND YARN FRAMEWORK	K	05.		12 H	Iours			
Introdu Compo serializ Lab ex 1. 2. 3. 4.	Introduction to Map Reduce, Processing data with Hadoop using Map Reduce, Introduction to YARN, Components, Need and Challenges of YARN, Dissecting YARN, Map Reduce application, Data serialization and Working with common serialization formats, Big data serialization formats. Lab exercise: 1. File management task in Hadoop 2. Word count Map reduce program to understand Map reduce Paradigm 3. Map reduce program to analyze time-temperature statistics and generate report 4. Implement Matrix multiplication with Hadoop Map reduce										
5.	Hive	database	s, tables, views functions and indexes								

HOURS	LECTURE	TUTORIAL	TOTAL
	45	15	60
TEXT BOOKS SeemaAcharya and Subha	shiniChellappan, "Big Dat	a and Analytics", Wiley Ind	lia Pvt. Ltd., 2016
RFFFRFNCFS			
1. "Big Data" by J Publications,	udith Hurwitz, Alan Nu 2014.	gent, Dr. Fern Halper and	l Marcia Kaufman, Wiley
2. Minelli, M., Cha intelligence a 9781118-1476	mbers, M., &Dhiraj, A. nd analytic trends for toda 50-354995.	(2013). Big data, big an ay's businesses. John Wiley	alytics: emerging business &Sons.Michael, ISBN no:
 Sadalage, P. J., & polyglot persi 	& Fowler, M. (2013). Nossence. Pearson Education.	SQL distilled: a brief guide ISBN no: 13:978-0-321-82	e to the emerging world of 662-6.
4. "Big Data Impera SoumendraM Business Med	atives : Enterprise Big Da ohanty, MadhuJagadeesh a ia New York, 2013.	ta Warehouse, BI Impleme and HarshaSrivatsa, Apress	entations and Analytics" by Media, Springer Science +
5. "Hadoop: The def	initive Guide", Tom White	e, O'Reilly Media, 2010.	
6. Tom White, (201 491-90163-2	2). Hadoop: The Definitiv 4.	e Guide, (Third Edition), (O'Reilley. ISBN no: 978-1-
7. Eric Sammer, (20	12). Hadoop Operations, (H	First Edition) O'Reilley., ISI	3N no: 978- 1149327057
8. Alan Gates, (2011). Programming Pig, (First	Edition),O'Reilley. ISBN n	o: 978-1- 449-302641.
9. Alex Holmes, (20	12). Hadoop in Practice, M	lanning Publ. ISBN no: 978	1617292224.
10. ECapriolo, D War	npler, and JRutherglen, (20	012), Programming Hive, O	'Reilley.
E-REFERENCES			
1.Hadoop: I2.Hadoop: h3.Hive: http://4.http:///pia	http://hadoop.apache.org/, ttps://www.edureka.co/blo os://cwiki.apache.org/conflu g.apache.org/docs/r0.7.0/tu	g/hadoop-tutorial uence/display/Hive/Home Piglatin: torial.html	

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

M Sc CS				PO				P	SO
M.SC CS	1	2	3	4	5	6	7	1	2
CO1	2	1	1	1	1	1	3	1	0
CO2	2	1	1	1	1	1	1	1	0
CO3	2	2	1	1	2	2	2	1	0
CO4	2	1	1	1	0	1	1	1	0
CO5	1	1	1	1	1	1	2	1	0
Average	2	1	1	1	1	1	3	1	2

Cou	irse Co	de		YCS304C L T P C							
	NT						3	1	0	4	
Cou	Irse Nai	me					T		D	TT	
	P 0	A		BLUCKCHAIN MANAGEN	IENT			1	P	H	
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PREF	REQUI	SITE:	; , , , ,	• , 1 1 1•, 1• ,• •		1 .	17	1 1		c	
D	Know	ing B	lockch	ain technology and its application if	n varioi	is domains,	Kno	wled	lge of	Ē	
Decer	ntralized	1 Appl	1cation	$1s \cdot Decentralization.$		DOMA	N.T.	T	T T T T		
	KSE OU		JMES			DOMAI	IN	I	LEVI	1L	
After	the com	ipletio	on of th	le course, students will be able to	1 6						
COI	block	ss the chain	e bas	ic concepts and technology use	a Ior	Cognitive		Unc	lersta	ınd	
CO2	Descr	ribe th	ne prin	nitives of the distributed computin	ig and	Cognitive		Ren	nemł	ver	
	crypto	ograph	y relat	ed to blockchain.		coginave		Ren		/01	
CO3	Orga	nize t	he con	cepts of Bitcoin and their usage and	1	Cognitive		App	oly		
	Imple	ment l	Ethere	um block chain contract.		Affective		Org	aniza	ation	
CO4	Apply	y secu	rity fea	atures in blockchain technologies		Cognitive		App	oly		
CO5	Desig	n sma	rt cont	ract in real world applications		Cognitive		Cre	ate		
UI	NIT I								9+3	\$	
Block	Chain	:Intro	oductio	on to crypto economics - Byzanti	ine agr	eement - I	Exter	nsion	s of	BFT	
(Ripp	le, Stell	lar) - I	Blockc	hain Dynamics - Public and privat	e block	chains - Ha	ard a	and s	oft fo	orks -	
Shard	ling Side	e chair	n - Vei	fifters – trust, cost and speed - Proof	f of wor	k and other	mo	dels.s			
UN									9+3	<u>,</u>	
Smart	t Contra	cts - I	Distrib	uted Virtual Machines, Smart Conti	racts, C	Dracles - Ba	sics	of co	ntrac	t law:	
- Sma	artcontra	icts an	d then	potential Trust in Algorithms, - In	tegratic	on with exis	ting	legal	syst	ems -	
Open	Zeplin,	OpenI	∟aw- V	Vriting smart contracts.							
UN			0.1						<u>9+3</u>	,	
Crypt	ography	and have been a	Other	Technologies: Application of Cryp	tograph	iy to Block	chai func	n - L tions	sing for F	hash Proof-	
of-We	ork $-$ Pu	itting	the tec	- Digital Signatures to sign transact	olement	tations with	thei	r trad	eoff	1001-	
	$\frac{\mathbf{J}\mathbf{T}\mathbf{T}}{\mathbf{T}\mathbf{T}\mathbf{T}}$	lung		mology together examples of mig	Jenen		ther). 2	
Imple	mentati	on: Si	unnly (Chain and Identity on Blockchain -	- Block	chain inter	actio	n wit	h ev	isting	
infras	tructure	$- T_1$	rnet ir	blockchain data - Scaling Bloc	kchain	– reading	and	l wri	ting	data	
Differ	rentiate	nodes	s snat	se data and Merkle trees - Fixin	$\sigma on t$	he fly – I	ave	· 2 s	oluti	ons -	
Light	ning and	1 Ethe	reum s	state channels	- <u>5</u> 011 (Ju y ei	0	oraci	ons	
UN	NIT V								9+3	;	
Bitcoi	in - The	big n	icture	of the industry – size, growth, struc	cture. p	lavers - Bit	coin	versi	1s Ci	vpto-	
currer	ncies ve	ersus F	Blockc	hain - Distributed Ledger Technolo	ogy (D	LT) - Strate	egic	analy	vsis o	of the	
space	-Majo	r play	ers: E	Blockchain platforms, regulators. a	applicat	tion provid	ers.	etc.	- Bi	tcoin.	
Hyper	rLedger	, Ethe	reum,	Litecoin, Zcash.	••	L					
	LECT	URE		TUTORIAL P	RACT	ICAL		ТО	TAI		
	45			15	-				60		
TEX	T BOOI	KS:									
1. Blo	ockchai	n Rev	olutio	n: How the Technology BehindBi	itcoin a	and Other (Cryp	tocur	renci	ies Is	
Chang	ging the	Worle	d, Don	Tapscott and Alex Tapscott, Portfo	olio, 20	18					
REFI	ERENC	ES:		•							
1. Th	e Age	of Cr	yptocu	rrency: How Bitcoin and the Blo	ckchair	n Are Chal	leng	ing t	he C	ilobal	
Econo	omic Or	der, P	aul Vi	gna and Michael J. Casey, Picador.	2016		U	C			
				•							

2. Blockchain Technology Explained: The Ultimate Beginner's Guide AboutBlockchain Wallet, Mining, Bitcoin, Ethereum, Litecoin, Zcash, Monero, Ripple, Dash, IOTA And Smart Contracts, Alan T. Norman, CreateSpace Independent Publishing Platform, 2017

M Sc CS				PO				P	PSO		
M.SC CB	1	2	3	4	5	6	7	1	2		
CO1	2	1	1	1	1	1	3	1	0		
CO2	2	1	1	1	1	1	1	1	0		
CO3	2	2	1	1	2	2	2	1	0		
CO4	2	1	1	1	0	1	1	1	0		
CO5	1	1	1	1	1	1	2	1	0		
Average	2	1	1	1	1	1	3	1	2		

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

Course	Code	e e	YCS305B		L	Т	Р	С	
Course	Nam	e	NATURAL LANGUAGE PROCE	SSING	3	1	0	4	
С	Р	Α			L	Т	Р	H	
2.5	0.7	0.3			3	1	0	4	
PRERE	QUIS	ITE: Ni	<u> </u>	ſ					
COURS	SE OU	TCOM	ES:	Domain	L	Level			
CO1	Defi	ne the	Language Processing and vector space	Cognitive	R	Remember			
representation Psychomotor							Set		
CO2 Describes Transducers and Matrix Factorization Cognitive							tand		
Psychomotor							l Resp	onse	
CO3 Organizephonological rules and spelling errors in NLP Cognitive							Apply		
	Affective						Receiving		
CO4	CO4 Examine the correct Spelling and Pronunciation in NLP Cognitive Apply								
	Affective Responding								
CO5	Categ recog	gorize th gnition	e various models and algorithm for speech	Cognitive	A	nalyz	e		
Unit - I	INTE	RODUC	TION OF NLP				12 H	lours	
Knowle	edge in	n Speec	h and Language processing, ambiguity a	nd models and	lalgo	rithn	ı,lang	uage	
and und	lerstar	nding,br	ief history. Regular Expressions, Automa	ta,Similarity Co	ompu	tatio	n: Reg	gular	
Express	sions,p	oatterns.	FA,FormalLanguage,NFSA,Regular La	inguage and	FSA	s, R	law	Text	
Extracti	ion an	d Toke	nization, Extracting Terms from Tokens	, Vector Space	Repr	resen	tation	and	
Normal	izatio	n, Simil	arity Computation in Text.						
Unit – I	I MO	RPHOL	OGY AND FINITE-STATE TRANSDUC	ERS			12 H	lours	
Inflectio	on,De	rivation	al Morphology, Finite-State Morpholo	gical Parsing,	The	Ley	kicon	and	
Morpho	otactic	s, Morp	phological Parsing with FiniteState Tran	sducers, Com	bining	g FST	Г Lex	icon	
and Ru	les, L	exicon-	free FSTs: The Porter Stemmer, Human	Morphologica	l Proc	cessir	ng. M	atrix	
Factoriz	zation	and To	ppic Modeling: Introduction, Singular V	alue Decompo	ositior	n, No	onneg	ative	

Unit – IIICOMPUTATIONAL PHONOLOGY AND TEXT-TO-SPEECH12 HoursSpeech Sounds and Phonetic Transcription, The Phoneme and Phonological Rules, Phonological Rules and Transducers, Advanced Issues in Computational Phonology, Machine Learning of Phonological Rules, Mapping Text to Phones for TTS, Prosody in TTS. Probabilistic Models of Pronunciation and Spelling: Dealing with Spelling Errors, Spelling Error Patterns, Detecting NonWord Errors, Probabilistic Models, Applying the Bayesian method to spelling, Minimum Edit Distance, English Pronunciation Variation, The Bayesian method for pronunciation and Weighted Automata, Pronunciation in Humans.12 HoursUnit - IV N-GRAMS12 HoursCounting Words in Corpora, Simple (Unsmoothed) N-grams, Smoothing, Backoff, Deleted Interpolation, N-grams for Spelling and Pronunciation, Entropy .10 HoursUnit - V HMMS AND SPEECH RECOGNITIONSpeech Recognition Architecture, Overview of Hidden Markov Models, The Viterbi Algorithm Davisited Advanced Mathede for Deceding Accounting Processing of Speech Recognition Architecture, Overview of Hidden Markov Models, The Viterbi Algorithm							
Speech Sounds and Phonetic Transcription, The Phoneme and Phonological Rules, Phonological Rules and Transducers, Advanced Issues in Computational Phonology, Machine Learning of Phonological Rules, Mapping Text to Phones for TTS, Prosody in TTS. Probabilistic Models of Pronunciation and Spelling: Dealing with Spelling Errors, Spelling Error Patterns, Detecting NonWord Errors, Probabilistic Models, Applying the Bayesian method to spelling, Minimum Edit Distance, English Pronunciation Variation, The Bayesian method for pronunciation and Weighted Automata, Pronunciation in Humans.12 HoursUnit - IV N-GRAMS12 HoursCounting Words in Corpora, Simple (Unsmoothed) N-grams, Smoothing, Backoff, Deleted Interpolation, N-grams for Spelling and Pronunciation, Entropy .Unit - V HMMS AND SPEECH RECOGNITIONSpeech Recognition Architecture, Overview of Hidden Markov Models, The Viterbi AlgorithmSpeech Recognition Architecture, Overview of Hidden Markov Models, The Viterbi Algorithm							
Rules and Transducers, Advanced Issues in Computational Phonology, Machine Learning of Phonological Rules, Mapping Text to Phones for TTS, Prosody in TTS. Probabilistic Models of Pronunciation and Spelling: Dealing with Spelling Errors, Spelling Error Patterns, Detecting NonWord Errors, Probabilistic Models, Applying the Bayesian method to spelling, Minimum Edit Distance, English Pronunciation Variation, The Bayesian method for pronunciation and Weighted Automata, Pronunciation in Humans.Unit - IV N-GRAMS12 HoursCounting Words in Corpora, Simple (Unsmoothed) N-grams, Smoothing, Backoff, Deleted Interpolation, N-grams for Spelling and Pronunciation, Entropy .Interpolation, Protecting AlgorithmSpeech Recognition Architecture, Overview of Hidden Markov Models, The Viterbi Algorithm Devisited Advanced Matheda for Deagding Accustic Processing of Speech ComputingComputing Processing of Speech Computing							
Phonological Rules, Mapping Text to Phones for TTS, Prosody in TTS. Probabilistic Models of Pronunciation and Spelling: Dealing with Spelling Errors, Spelling Error Patterns, Detecting NonWord Errors, Probabilistic Models, Applying the Bayesian method to spelling, Minimum Edit Distance, English Pronunciation Variation, The Bayesian method for pronunciation and Weighted Automata, Pronunciation in Humans.12 HoursUnit - IV N-GRAMS12 HoursCounting Words in Corpora, Simple (Unsmoothed) N-grams, Smoothing, Backoff, Deleted Interpolation, N-grams for Spelling and Pronunciation, Entropy .10Unit - V HMMS AND SPEECH RECOGNITIONSpeech Recognition Architecture, Overview of Hidden Markov Models, The Viterbi Algorithm Devisited Advanced Methods for Deceding Acoustic Processing of Speech Converting							
Pronunciation and Spelling: Dealing with Spelling Errors, Spelling Error Patterns, Detecting NonWord Errors, Probabilistic Models, Applying the Bayesian method to spelling, Minimum Edit Distance, English Pronunciation Variation, The Bayesian method for pronunciation and Weighted Automata, Pronunciation in Humans.Unit - IV N-GRAMS12 HoursCounting Words in Corpora, Simple (Unsmoothed) N-grams, Smoothing, Backoff, Deleted Interpolation, N-grams for Spelling and Pronunciation, Entropy .Unit - V HMMS AND SPEECH RECOGNITIONSpeech Recognition Architecture, Overview of Hidden Markov Models, The Viterbi Algorithm Devisited Advanced Methods for Deceding Accurting Processing of Speech Converting							
NonWord Errors, Probabilistic Models, Applying the Bayesian method to spelling, Minimum Edit Distance, English Pronunciation Variation, The Bayesian method for pronunciation and Weighted Automata, Pronunciation in Humans.Unit - IV N-GRAMS12 HoursCounting Words in Corpora, Simple (Unsmoothed) N-grams, Smoothing, Backoff, Deleted Interpolation, N-grams for Spelling and Pronunciation, Entropy .Backoff, DeletedUnit - V HMMS AND SPEECH RECOGNITIONSpeech Recognition Architecture, Overview of Hidden Markov Models, The Viterbi Algorithm Devisited Advanced Methods for Deceding Accurting Processing of Speech Converting							
Edit Distance, English Pronunciation Variation, The Bayesian method for pronunciation and Weighted Automata, Pronunciation in Humans.Unit - IV N-GRAMS12 HoursCounting Words in Corpora, Simple (Unsmoothed) N-grams, Smoothing, Backoff, Deleted Interpolation, N-grams for Spelling and Pronunciation, Entropy .10Unit - V HMMS AND SPEECH RECOGNITIONSpeech Recognition Architecture, Overview of Hidden Markov Models, The Viterbi Algorithm Devisited Advanced Methods for Deceding Accurting Processing of Speech Converting							
Weighted Automata, Pronunciation in Humans.Unit - IV N-GRAMS12 HoursCounting Words in Corpora, Simple (Unsmoothed) N-grams, Smoothing, Backoff, DeletedInterpolation, N-grams for Spelling and Pronunciation, Entropy .Unit - V HMMS AND SPEECH RECOGNITIONSpeech Recognition Architecture, Overview of Hidden Markov Models, The Viterbi AlgorithmPrevioitedAdvancedMathedaforDecodingAccurticConverting							
Unit - IV N-GRAMS12 HoursCounting Words in Corpora, Simple (Unsmoothed) N-grams, Smoothing, Backoff, DeletedInterpolation, N-grams for Spelling and Pronunciation, Entropy .Unit - V HMMS AND SPEECH RECOGNITIONSpeech Recognition Architecture, Overview of Hidden Markov Models, The Viterbi AlgorithmDevisitedAdvancedMathedaforDevisitedAdvancedMathedaImage: Speech RecognitionComputing </td							
Counting Words in Corpora, Simple (Unsmoothed) N-grams, Smoothing, Backoff, Deleted Interpolation, N-grams for Spelling and Pronunciation, Entropy . Unit – V HMMS AND SPEECH RECOGNITION Speech Recognition Architecture, Overview of Hidden Markov Models, The Viterbi Algorithm Provisited Advanced Mathematical Advanced Methods, for Deceding Advanced Methods, for Deceding							
Interpolation, N-grams for Spelling and Pronunciation, Entropy . Unit – V HMMS AND SPEECH RECOGNITION Speech Recognition Architecture, Overview of Hidden Markov Models, The Viterbi Algorithm Provisited Advanced Methods for Deceding Accuration Processing of Speech Computing							
Unit – V HMMS AND SPEECH RECOGNITION Speech Recognition Architecture, Overview of Hidden Markov Models, The Viterbi Algorithm Deviaited Advanced Methods for Deceding Accurting Processing of Speech Conventing							
Speech Recognition Architecture, Overview of Hidden Markov Models, The Viterbi Algorithm							
Devisited Advanced Matheda for Decoding Acoustic Processing of Speech Computing							
Revisited, Advanced Methods for Decoding, Acoustic Processing of Speech, Computing							
Acoustic Probabilities, Training a Speech Recognizer, Waveform Generation for Speech							
Synthesis, Human Speech Recognition.							
HOURS LECTURE TUTORIAL TOTAL							
45 15 60							
TEXT BOOKS							
1. Daniel Jurafsky and James H.Martin Speech and Language Processing(2nd Edition), Prentice							
Hall:2 edition,2008.							
2. Machine Learning for Text by CharuC.Aggarwal,Springer,2018 edition							
3. Foundations of Statistical Natural Language Processing by Christopher D.Manning and							
HinrichSchuetze,MIT press, 1999							
REFERENCES							
1. Steven Bird, Ewan Klein and Edward Loper Natural Language Processing with							
1. Steven Bird, Ewan Klein and Edward Loper Natural Language Processing with Dython O'P ailly Media: 1 adition 2009							

Communication in Natural Language, Paperback, MIT press, 2011

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

MSa				PO				PS	50
WI.5C.	1	2	3	4	5	6	7	1	2
CO1	3	2	1	1	0	1	0	1	1
CO2	0	1	3	2	0	2	0	2	2
CO3	1	2	3	0	0	2	0	2	2
CO4	1	2	3	1	0	2	0	1	2
CO5	0	3	0	1	0	2	0	1	2
Average	1	2	2	1	0	2	0	1	2

YSE901		I	T P C 0 1 4					
	MOBILE APPLICATION DEVELOPM	ENT						
C P A		I	T P H					
2.5 0.25 0.2	5	3	0 2 5					
PREREQUISITE:	YSE303, YSE503	1						
	Course Outcomes	Domain	Level					
After the completion	of the course, students will be able to							
CO1 Recognize t	he significance of Android development	Cognitive	Remember					
CO2 Summarize	the knowledge on java, xml with android and <i>detect</i>	Cognitive	Understand					
about the ar	about the android development. Psychomotor Perception							
CO3 Manipulate	ate and utilize the layout, resources and user interface. Cognitive Application							
CO4 To be out of	ant the detahase in an desid	Affective	Keceiving					
CO4 10 know ab	out the database in android	Cognitive	Understand					
CO5 <i>Design</i> and test the android environment using exception handling, accessing the cloud data.								
UNIT I IN	TRODUCTION		9+6					
Overview of JAVA	Programming – Inheritance – Polymorphism – And	roid software l	ayers – Android					
libraries – Componen	nts of android application – Application life cycle – A	Android studio -	- android project					
structure – Android manifest file – Structure of manifest file								
Lab: 1. Installing An 2. Create a sim	droid le application							
UNIT II ANDROID SDK TOOLS AND OTHERS 9+6								
Android SDK tools	- activity – methods to remember – Fragments – view	ws – List vies a	nd list activity –					
Lab: 1. Working with 2. Working with Inter 3. Creating contact b	Lab: 1. Working with fragments2. Working with Intents and intent filters.3. Creating contact based application.							
	NDROID LAYOUI, RESOURSES AND UI		9+6					
Views – Layout – c	ustomized view – Resources – themes and style – n	naterial design	– User					
interaction – dialog	s – Activities – Toasts – menus – context menus – A	Additional men	u – pop up					
menu								
Lab:								
1. Working wi	th views							
2. Creating Dia	logs and toasts							
3. Working with	Pop-up Menu							
UNIT IV A	NDROID STORAGE, SQLite and NOTIFICATION	S	9+6					
Android storage optic	ons – File I/O – connecting to the internet – Databases	in android – co	ntent providers –					
custom content provid	der – creating notifications – actions – expandable notifi	cation – layouts	– priority					
Lab: 1. Quotes provid	ler app							
2. SQLite databa	ise app							
. 3. Implement no	tification							
UNIT V A	NDROID ADAVANCED DEVELOMENT		9+6					
Exception handling - storage – Bluetooth –	- Location based services – finding your current locat NFC – managing WiFi – Telephony and SMS.	ion using GPS	Accessing cloud					
Lab: 1. Working with	exception handling							

LECTUR	E		TU	TORI	AL			PR A	ACTI	CAL	TOTA
45				0					30		75
TEXTBOOKS											
1 Profession	nal Android	1 A nn	licatio	n Dou	alonm	ont 31	^d aditi	on ro	o moi	or wi	low publication 201
PICTURESSION	liai Alluiolu	4 App	ncano		elopin	em, 5	cuiti	011, 10		ci, wi	ley publication 201
1 Programn	ning Androi	d 1et I	Editio	1 Zim	ird Me	dniek	. Lair	d Dor	nin G	Blak	e Meike Masumi
1. 110gramm	Oreilly pu	u, 15t I blicati	ans 2	1, <u>21gt</u> 011		<u>unick</u>	<u>5, Lan</u>		<u>iiiii</u> , <u>C</u>	<u>. Diar</u>	<u>e wierke</u> , <u>wiasurin</u>
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3–High Relation, 2–Medium Relation, 1–Low Relation, 0–No Relation

Average

YSE902 CYBER SECURITY								C 3		
С	Р	Α								
3	0	0			3	0	0	3		
PRF	REC	UIS	TE: YSE403							
Course Outcomes Domain							Level			
After the completion of the course, students will be able to										
CO1 <i>Describe</i> the importance of information systems and <i>Classify</i> the Cognitive threats and attacks in networks.						Remember Understand				
CO2Describe and Defend the concepts of information security.Cognitive						Remember Understand				
CO3	Define and Defend the project activity planning and risk Cognitive management.					Ren Und	nemb lersta	er Ind		
CO4	ŀ	Predic	<i>t</i> and <i>Apply</i> the appropriate biometric system for security.	Cognitive		Understand Apply				
COS	5 I	dentif	<i>y</i> and <i>Apply</i> the perfect law and Act in real life.	Cognitive		Ren App	nemb oly	er		
UNI	ΤI		INTRODUCTION AND THREATS TO INFORMATION	ON SYSTEM	1S			9		
Histo Need Three Com	UNIT I INTRODUCTION AND THREATS TO INFORMATION SYSTEMS 9 History of Information Systems and its Importance, basics, Changing Nature of Information Systems, Need of Distributed Information Systems, Role of Internet and Web Services, Information System 9 Threats and attacks, Classification of Threats and Assessing Damages. Security in Mobile and Wireless Computing- Security Challenges in Mobile Devices ,authentication Service Security, Security Implication 9									

for organizations, Laptops Security Concepts. Brief review of Internet Protocols-TCP/IP, IPV4, IPV6. Functions of various networking components-routers, bridges, switches, hub, gateway and Modulation Techniques. UNIT II BUILDING BLOCKS OF INFORMATION SECURITY 9

UNIT IIBUILDING BLOCKS OF INFORMATION SECURITY9Basic Principlesof Information Security, Confidentiality, Integrity, Availability and other terms in
Information Security, Information Classification and their Roles. Security Threats to E Commerce,
Virtual Organization, Business Transactions on Web, E Governance and EDI, Concepts in Electronics
payment systems, E Cash, Credit/Debit Cards.

UNIT IIIPHYSICAL AND BIOMETRIC BASED SECURITY9Physical Security-Needs, Disaster and Controls, Basic Tenets of Physical Security and Physical Entry
Controls, Access Control- Biometrics, Factors in Biometrics Systems, Benefits, Criteria for selection of
biometrics application, Design Issues in Biometric Systems, Interoperability Issues, Economic and Social
Aspects, Legal Challenges.Models for Information Security- ISO 27001, SSE-CMM, Information
Security Vs Privacy.

LINIT IV	CRYPTOGRAPHY,	FIREWALLS,	NETWORK	SECURITY,	0
UNITIV	INTRUSION DETEC	TION AND VPN			9

Cryptography-Applications and its roles, Digital Signature. Firewalls –need, proxy servers, Design and Implementation Issues, Policies. Network Security- Basic Concepts, Dimensions, Perimeter for Network Protection, Network Attacks, Need of Intrusion Monitoring and Detection, Intrusion Detection. Virtual Private Networks- Need, Use of Tunneling with VPN, Authentication Mechanisms, Types of VPNs and their Usage, Security Concerns in VPN.

UNIT V LAW, LEGAL FRAMEWORK AND ETHICS

Cyber Crime, Information Security and Law, Types & overview of Cyber Crimes, Cyber Law Issues in E-Business Management, Overview of Indian IT Act, Ethical Issues in Intellectual property rights, Copy Right, Patents, Data privacy and protection, Domain Name, Software piracy, Plagiarism, Issues in ethical hacking.

0

LECTURE	TUTORIAL	PRACTICAL	TOTAL
45			45
TEXT BOOKS			

- 1. Nina S.Godbole, 2009. "Information Systems Security", John wiley & sons India Private Limited,
- 2. Mark Merkow, Jim Breithaupt, "Information Security", Pearson Education.
- 3. Yadav, D S., 2001. "Foundations of Information Technology", New Age International
- 4. publisher, Delhi.

REFERENCES:

- 1. Corey Schou, Daniel Shoemaker, 2006. "*Information Assurance for the Enterprise*", Tata McGraw Hill.
- 2. Vivek Sood, 2001. "Cyber Laws Simplified", Mc Graw Hill Education private Limited.
- 3. Steven M. Furnell, 2005 ., "Computer Insecurity", Springer Publisher.

E – REFERENCES:

- 1. https://www.cryptool.org/en/
- 2. https://www.metasploit.com/
- 3. http://sectools.org/tool/hydra/
- 4. http://www.hping.org/
- 5. http://www.winpcap.org/windump/install/
- 6. http://www.tcpdump.org/
- 7. https://www.wireshark.org/
- 8. https://ettercap.github.io/ettercap/
- $9.\ https://www.concise-courses.com/hacking-\ tools/top-ten/$
- 10. https://www.cirt.net/Nikto2
- 11. http://sqlmap.org/

M.Sc.				РО				PS	50
SE	1	2	3	4	5	6	7	1	2
CO1	2	1	1	1	1	2	1	1	1
CO2	3	2	2	2	2	2	2	2	1
CO3	2	2	2	2	3	2	2	2	1
CO4	3	2	2	2	2	2	2	3	1
CO5	3	3	3	3	3	3	3	3	1
Average	3	2	2	2	2	2	2	2	1

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

YSE903 I I P C SOFTWARE RELIABILITY 3 0 0 3 C P A A I I P E 3 0 0 3 0 0 3 PREREQUISITE: YSE206 PREVENUE P<							
COURSE OUT	rcomes:						
	Course Outcomes	Domain	Level				
After the compl	etion of the course, students will be able to						
CO1: Recogniz	Cognitive	Remember					
CO2: Express	Cognitive	Understand					
CO3: Estimate	Cognitive	Apply					
CO4: Recogniz	Cognitive	Remember					
CO5: Express	Understand						
UNIT I	UNIT I INTRODUCTION TO SOFTWARE RELIABILITY 9						
Software Reliab software reliabi Dependable sys	bility Definitions - software disasters - Errors - faults - failulity – software requirements specification - Causes of unre tems: reliable, safe, secure, maintainable, and available - S	res - differen liability in so oftware main	nt views of ftware - itenance				
UNIT II	SOFTWARE RELIABILITY IMPROVEMENT		9				
The phases of a S oftware engineer ost and schedule	oftware Project - Monitoring the development process – T ring - Structured Analysis and structured Design - Fault tole	he software l erance - Inspe	ife cycle models - ection - Software				
UNIT III	SOFTWARE QUALITY MANAGEMENT		9				
Software quali removal and to Monitoring the Reliability - T	ity modeling - Diverse approaches and sources of info olerance - Process maturity levels (CMM) - Software e quality of software - Total quality management (To he statistical approach - Software reliability metrics.	rmation - Fa e quality ass QA) - Meas	ult avoidance, urance (SQA) - suring Software				
UNIT IV	SOFTWARE RELIABILITY TECHNIQUES AND	TOOLS	9				
Data Trends - C	Complete prediction Systems - overview of some software	reliability mo	odels - The				

recalibration of the models - Analysis of model accuracy - Reliability growth models and trend analysis - Software Costs Models - Super models

9

UNIT V SOFTWARE RELIABILITY ENGINEERING PRACTICE

Testing and maintaining more reliable software –logical testing – functional testing – algorithm testing – regression testing - fault tree analysis – failure mode effects and critical analysis – reusability - case studies

LECTURE	TUTORIAL	PRACTICAL	TOTAL
45	0	0	45

TEXTBOOKS

- 1. J.D. Musa, A. Iannino and K.Okumoto, Software Reliability, Measurement, Prediction, Application, McGraw Hill, 1990.
- 2. J.D. Musa, Software Reliability Engineering, McGraw Hill, 1998.

REFERENCES:

- 1. Michael R. Lyer, Handbook of Software Reliability Engineering, McGraw Hill, 1995.Xie,
- 2. Software Reliability Modelling, World Scientific, London, 1991.

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- 1. https://users.ece.cmu.edu/~koopman/des_s99/sw_reliability/presentation.pdf
- 2. https://www.slideshare.net/AnandKumar87/software-reliability-11841804

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

M Co SE	РО									50
WI.5C. 5E	1	2	3	4	5	6	7	8	1	2
CO1	0	1	1	1	1	0	0	1	1	1
CO2	1	3	2	0	0	1	1	1	2	2
CO3	0	2	1	1	1	0	0	1	2	2
CO4	1	1	1	1	0	2	2	1	2	2
CO5	0	2	2	0	0	2	2	2	3	3
Average	0	2	2	1	0	1	1	1	2	2

YSE904			USABILITY ENGINEERING		L 3	Т 0	P 0	C 3	
С	P	Α			L	Т	Р	Η	
3	0	0		3	0	0	3		
PRE	RE(QUISIT	T E: YSE205						
			Course Outcomes	Domair	1]	Leve	1	
After	the	comple	etion of the course, students will be able to						
C01		<u>Identif</u>	y the importance of Software Reuse and its components	Cognitive	ognitive			er	
CO2		Interpr	Cognitive	Underst			ind		
CO3	CO3 Clearly Understand the concepts of Structural Patterns Cognitiv							ind	
CO4		<u>Identif</u>	y the variousBehavioral Patternsand its functions	Cognitive	itive Re			Remember	
CO5		Disting	uish the various Architectural patterns.	Cognitive	Understand				
U	U NI '	ГІ				9			
Softw	vare	reuse	success factors, Reuse driven software engineering busi	ness, Objec	t orie	ented	softv	ware	
engir	neeri	ng, app	lications and component sub systems, use case component	ts, object cor	npon	ents.			
U	UNIT II DESIGN PATTERNS								
Desig	gn P	atterns	- Introduction, Creational patterns, factory, factory meth	nod, abstract	fact	ory, s	single	eton,	
build	ler pi	rototyp	2.						
U	NIT	III	STRUCTURAL PATTERNS				9		

Structural Patterns- Adapters, bridge, composite, decorator, façade, flyweight, proxy.Behavioral Patterns – Chain of responsibility, command, interpreter.

UNIT IVBEHAVIORAL PATTERNS9Behavioral Patterns – Iterator, mediator, memento, observer, stazte, strategy, template, visitor,
other, design patterns- Whole part, master- slave, view handler, forwarder- receiver, client –
dispatcher- server, publisher – subscriber.9UNIT VARCHITECTURAL PATTERNS9

UNIT VARCHITECTURAL PATTERNS9Architectural patterns – Layers,pipes and filters, black board, broker, model - view controller
,presentation- abstraction – control, micro kernel, reflection.9LECTURETUTORIALPRACTICAL707AL

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TEXTBOOKS

45

1. Ivar jacabson, Martin Griss, Patrick Hohson – Software Reuse. Architecture, Process and Organization for Bussiness Success, ACM Press, 1997.

45

2. Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides – Design Patterns- Addison, 1995, Pearson Education.

REFERENCES:

- **1.** Frank Buschmann etc. Pattern Oriented Software Architecture Volume 1, Wiley 1996.
- 2. James W Cooper Java Design Patterns, a tutorial, Addison 2000, Pearson Education

E-REFERENCES

- 1. https://dl.acm.org/citation.cfm?id=60341
- 2. www.cs.toronto.edu/~yijun/ece450h/handouts/lecture8x4.pdf

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):

M.Sc. SE		РО								
MI.SC. SE	1	2	3	4	5	6	7	8	1	2
CO1	2	2	2	2	2	1	1	2	2	2
CO2	2	3	3	3	3	1	1	3	3	3
CO3	2	3	3	3	3	1	1	3	3	3
CO4	2	3	3	3	3	1	1	3	3	3
CO5	2	3	3	3	3	1	1	3	3	3
Average	2	3	3	3	3	1	1	3	3	3

YSE905			INTERNET OF THINGS		L 3	T 1 T	P 0	C 4
	r	A				1	ſ	n
2.5	0.5	0			3	1	0	4
PRER	EQUIS	ITE:	YSE403					
		Domair	1]	Leve	l		
After th	ne comp	letior	of the course, students will be able to					
CO1	Ident	ify th	e components of IOT and learn the basic issues, policy	Cognitive		Ren	nemb	er
	and c	halleı	ages in the Internet	Psychomot	Psychomotor			n

CO2	Design the port	able device, program the	sensors and	Cognitive	Create
CO3	Deregive the signific	cance of huilding the softwar	a aganta in tha	Cognitivo	Croata
05	real time environme	nts	e agents in the	Psychomotor	Perception
CO4	Earmulate and E	stablish the cloud based	ommunication	Cognitivo	Croata
004	through wifi/ Blueto	stabush the cloud based of	communication	Developmentor	Sot
CO5	Combine the need	lad internet resources and im	plomont in the	Cognitivo	Analyza
05	business model	led internet resources and ini	plement in the	Cognitive	Allaryze
		INTRODUC	TION		0 2
Dofiniti	n phasas Foundat	tions Policy Challenges and	IION Issues identifi	action socurity	9+3
privoov	Components in inter	not of things: Control Units	l Issues - Ideiliin	unication modul	-
Power S	Components in Interi	tion Tachnologias PEID P	luotooth Zigho	o Wifi Dflin	es –
Mobile 1	Internet Wired Com	$\frac{1}{10000000000000000000000000000000000$	iueiooiii – Zigue	c = w m = K m	AS —
		CDAMMING THE MICDO		D FOD IOT	0+2
Decise	f Songers and estus	GRAMMING THE MICKO	a principles of	A FOR IOT	y+3
computi	ng and IOT – Arduin	no/Equivalent Microcontroller	platform – Setti	ng up the board	-Programming
for IOT	- Reading from S	ensors Communication:Conne	ecting microcon	troller with mo	bile devices -
commun	ication through bluet	ooth and USB - connection wi	th the internet us	sing wifi / etherr	net
UNI	TII	IOT PROTO	COLS		9+3
Protocol	Standardization for	IoT – Efforts – M2M and WS	SN Protocols –	SCADA and RF	FID Protocols –
Issues w	ith IoT Standardization	on – Unified Data Standards –	Protocols - IEE	E 802.15.4 – BA	ACNet Protocol
- Modb	us – KNX – Zigbee A	rchitecture – Network layer –	APS layer – Sec	urity	
UN	T IV	WEB OF TH	INGS		9+3
Web of	Things versus Interr	net of Things – Two Pillars of	of the Web – A	architecture Stan	dardization for
WoT-F	Platform Middleware	for WoT – Unified Multitier	WoT Architectu	re – WoT Porta	ls and Business
Intellige	nce. Cloud of Things	: Grid/SOA and Cloud Compu	ting – Cloud M	liddleware – Clo	oud Standards –
<u> </u>		-			
Cloud P	roviders and Systems	- Mobile Cloud Computing -	The Cloud of Th	nings Architectu	re
Cloud P UN	TT V	- Mobile Cloud Computing - INTERNET OF EV	The Cloud of Th ERYTHING	nings Architectu	re 9+3
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M Sc SE	РО									50
M.SC. 5E	1	2	3	4	5	6	7	8	1	2
CO1	1	2	2	1	1	0	0	1	1	2
CO2	1	3	1	2	2	0	1	2	2	2
CO3	0	3	1	2	2	1	1	2	2	2
CO4	0	3	0	2	2	0	1	2	2	2
CO5	0	3	2	1	3	1	1	2	3	2
Average	1	2	1	2	2	1	1	2	2	2

Mapping of Course Outcomes (CO) with Programme Outcomes (PO):