

(An Autonomous Institution affiliated to Bharathiar University) (Reaccredited with "A" Grade by NAAC, ISO 9001:2015& 14001:2004 Certified Recognized by UGC with 2(f) &12(B), Under Star College Scheme by DBT,Govt. of India) Nehru Gardens, Thirumalayampalayam, Coimbatore - 641 105, Tamil Nadu.



B.Sc Information Technology

Syllabus for the Academic Year 2022-2023

Batch 2022 - 2023



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DEPARTMENT OF INFORMATION TECHNOLOGY

PROGRAMME SPECIFIC OUTCOMES (PSOs)

After the successful completion of the programme, the students are expected to

PSO1	Understand the programming concepts and methodology & the functionality of hardware and software aspects of computer systems.
PSO2	To provide the structure and development methodologies of software systems, acquire professional skills and knowledge of software design process. Familiarity and practical competence with a broad range of programming language and open source platforms.
PSO3	To apply mathematical methodologies to solve computation task, model real world problem using appropriate data structure and suitable algorithm.
PSO4	To comprehend and write effective project report in multidisciplinary environment in the context of changing technologies.
PSO5	The ability to employ modern computer languages, environments, and platforms in creating innovative career paths to be an entrepreneur, and a zest for higher studies.



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DEPARTMENT OF INFORMATION TECHNOLOGY

PROGRAMME OUTCOMES

On successful completion of the programme, the graduates will have

PO1	Critical Thinking	Develop a systematic, critical approach to problem solving at all levels and apply the domain specific knowledge to form conclusions based on quantitative information to meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO2	Usage of Technology	Equip the students to meet the industrial needs by utilizing tools and technologies for Peer Communication, Data Interpretation and Problem-Solving aspects.
PO3	Effective Communication	Develop language competence and be proficient in oral and written communication with a focus on LSRW.
PO4	Environment and Sustainability	Understand the consequential responsibilities to analyze and realize the interactions between social and environmental sustainability procedures and create processes.
PO5	Individual and Team Work	Function effectively as an individual and as a member or leader in diverse teams, and in multidisciplinary settings and manifest the best outcomes.
PO6	Ethics and Values	Acquire life skills to become a better human being and apply ethical principles and commit to professional ethics and responsibilities.
PO7	Social Interactions	Participate actively in initiatives that encourage equity and growth for all and to act with an informed awareness of local, regional, national and global needs
PO8	Life Long Learning	Engage in lifelong learning and Work on career enhancement and adapt to changing personal, professional and societal needs.



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Scheme of Examination

B. Sc., Information Technology

Programme Code - UIT

(Applicable to the students admitted during the year 2022 – 2023 onwards)

ester	art	e Code	Name of the Course	uction / week	tion of ination	Exa	amina Mark	ition s	edits
Sem	P	Cours	Name of the Course	Instru hours	Durat Exami	CIA	ESE	Total	Cre
	Ι	22U1TAM101/ 22U1HIN101 / 22U1MAL101/ 22U1FRN101	Elanthamizh Rachnathmak Hindi Kadhayum Samskaravum Le Français Fondamental - I	5	3	50	50	100	4
	II	22U2ENG101	Professional English - I	5	3	50	50	100	4
		22U3CKC101	Core Paper I: Python Programming	4	3	50	50	100	4
Ι	III	22U3CKC102	Core Paper II: Digital Fundamentals and Computer Architecture	4	3	50	50	100	4
		22U3ITP101	Core Paper III: Practical in Python Programming	4	3	50	50	100	4
		22U3MIA101	Allied Paper I: Mathematics for Computer Science	5	3	50	50	100	4
	IV	21U4ENV101	@**Ability Enhancement Compulsory Course: Environmental Studies	2	3	50	-	50	2
		22U4HVY201	Value Education: Human Values and Yoga Practice	1	-	-	-	-	-
				30				650	26
	Ι	22U1TAM202/ 22U1HIN202/ 22U1MAL202/ 22U1FRN202	Pienthamizh Sanchar Hindi Novelum Bhashapadanavum Le Français Fondamental - II	5	3	50	50	100	4
	II	22U2ENG202	Professional English - II	5	3	50	50	100	4
11		22U3CKC203	Core Paper IV: Java Programming	4	3	50	50	100	4
	Ш	22U3CKC204	Core Paper V: Data Structures	4	3	50	50	100	4
		22U3ITP202	Core Paper VI: Practical in Java Programming	4	3	50	50	100	4
		22U3MIA202	5	3	50	50	100	4	

			@Ability Enhancement						
		21U4HRC202	Compulsory Course: Human	2	3	50	-	50	2
	IV		Rights and Constitution of India						
		22U4HVY201	Value Education: Human Values and Yoga Practice	1	2	50	-	50	2
				30				700	28
-			Core Paper VII: Operating						
		22U3CKC305	Systems	6	3	50	50	100	4
	Ш	22U3ITC303	Core Paper VIII: Software Engineering	5	3	50	50	100	4
		22U3ITP303	Core Paper IX: Practical in Operating System	6	3	50	50	100	4
		22U3MIA303	Allied Paper III: Operations Research	5	3	50	50	100	4
		22U4ITZ301	Skill Based Paper I: Case Tools Lab	4	3	30	45	75	3
111	IV	22U4NM3BT1/ 22U4NM3AT1/ 22U4NM3CAF/ 22U4NM3GTS/ 22U4NM3WRT	#@Basic Tamil - I / ##Advanced Tamil - I / *NME: Consumer Affairs / Gandhian Thoughts / Women's Rights	2	3	50		50	2
		SBOEC	Skill Based Open Elective Courses – Extra Departmental Course	2	3	-	50	50	2
		22U4ITVALC	**Skill Enhancement: Value Added Course - Institute Industry Linkage	-	-	-	-	-	-
				30				575	23
		22U3ITC404	Core Paper X: Computer Networks	5	3	50	50	100	4
	Ш	22U3CKC406	Core Paper XI: RDBMS & MySQL	6	3	50	50	100	4
	111	22U3ITP404	Core Paper XII: Practical in RDBMS and MySQL	6	3	50	50	100	4
IV		22U3ITA404	Allied Paper IV: Robotics	5	3	50	50	100	4
		2211/1177/02	Skill Based Paper II: Practical	1	3	30	45	75	3
		2204112402	in Multimedia	4	5	50			
	IV.	2204112402 2204NM4BT2/ 2204NM4AT2/ 2204NM4GEN	in Multimedia #@Basic Tamil - II / ##Advanced Tamil - II / General Awareness	2	2	50)	50	2
	IV	2204112402 22U4NM4BT2/ 22U4NM4AT2/ 22U4NM4GEN VBOEC	in Multimedia #@Basic Tamil - II / ##Advanced Tamil - II / General Awareness Value Based Open Elective Courses – Intra School Course	2	2	50	50	50 50	2
	IV	2204112402 22U4NM4BT2/ 22U4NM4AT2/ 22U4NM4GEN VBOEC 22U4ITVALC	in Multimedia #@Basic Tamil - II / ##Advanced Tamil - II / General Awareness Value Based Open Elective Courses – Intra School Course **Skill Enhancement: Value Added Course - Institute Industry Linkage	4 2 2 -	2 3 -	-) 50 -	50 50 -	2 2 Grade
	IV	2204112402 22U4NM4BT2/ 22U4NM4AT2/ 22U4NM4GEN VBOEC 22U4ITVALC	in Multimedia #@Basic Tamil - II / ##Advanced Tamil - II / General Awareness Value Based Open Elective Courses – Intra School Course **Skill Enhancement: Value Added Course - Institute Industry Linkage	4 2 - 30	2 3 -	-	50	50 50 - 575	2 2 Grade 23

22U3CKC510		22U3CKC510	Core Paper XIV: Artificial Intelligence	5	3	30	45	75	3			
		22U3ITP505	Core Paper XV: PHP Programming Lab	6	3	50	50	100	4			
	111	22U3ITP506	Core Paper XVI: Practical in Web Technology	4	3	30	45	75	3			
		22U3CKE501/ 22U3CKE502 22U3CKE503/ 22U3CKE504	Discipline Specific Elective Paper - I	6	3	50	50	100	4			
		22U3ITV509	In-Plant Training	-	-	50	-	50	2			
	IV	22U4ITS503	Skill Based Paper III: Cyber Law	4	3	30	45	75	3			
				30				575	23			
		22U3CKC611	Core Paper XVII: Data Mining	6	3	50	50	100	4			
		22U3ITV610	Project and Viva-Voce	6	-	50	50	100	4			
VI	III	22U3CKE605/ 22U3CKE606/ 22U3CKE607/ 22U3CKE608	Discipline Specific Elective Paper - II	6	3	50	50	100	4			
VI		22U3ITE609/ 22U3ITE610/ 22U3ITE611/ 22U3ITE612	Discipline Specific Elective Paper - III	6	3	50	50	100	4			
	IV	22U3ITZ604	Skill Based Paper IV: Practical in Kotlin	6	3	30	45	75	3			
	V	22U5EXT601	Extension Activities	-	-	50	-	50	2			
				30				525	21			
			Total					3600	144			
Add	itional	Additional Credit (Optional II - V)										

#@Basic Tamil -Students who have not studied Tamil upto 12th standard.

##Advanced Tamil - Students who have studied Tamil language upto $12^{th} / 10^{th}$ standard and have chosen other languages under part I of the programme but would like to advance their Tamil language skills.

*NME - Students shall choose any one course out of three courses.

@ No End Semester Examinations. Only Continuous Internal Assessment (CIA).

\$Not included in CGPA calculation.

** Examination and Evaluation for Value Added Course shall be conducted by the Industry and the marks shall be submitted to the CoE section for the award of Grade.

List of Elective Papers

Elective Papers	Course Code	Name of the Course
	22U3CKE501	Blockchain Technology
	22U3CKE502	Next Generation Networks
Elective Paper I	22U3CKE503	Internet of Things
	22U3CKE504	Big Data Analytics
	22U3CKE605	Software Quality Assurance
	22U3CKE606	Information Security
Elective Paper II	22U3CKE607	Cloud Computing
	22U3CKE608	Cyber Security
	22U3ITE609	Digital Marketing
	22U3ITE610	Intellectual Property Rights and Privacy
Elective Paper III		Laws
	22U3ITE611	Information Technology for Management
	22U3ITE612	Ethical Hacking

Extra Departmental Course

S. No.	Semester	Course Code	Course Title
1	III	22U4IT3ED1	Practical in Libreoffice Suite
2	111	22U4IT3ED2	GIMP

• Students need to opt a Course other than the Course offered by their Department.

Intra School Course offered by the Department to other Department Students (within the School)

S. No	Course Code	Name of the Course
1	22U4VBOE01	Design Ecosystem
2	22U4VBOE02	Design Thinking
3	22U4VBOE03	Disaster Management
4	22U4VBOE04	Environmental Pollution and Waste Management (EMS)
5	22U4VBOE05	History of Ancient India
6	22U4VBOE06	Indian Knowledge System
7	22U4VBOE07	Principles of IPR
8	22U4VBOE08	Science, Society and Culture
9	22U4VBOE09	Community Engagement
10	22U4VBOE10	Emotional Intelligence
11	22U4VBOE11	Fundamentals of Tourism
12	22U4VBOE12	Health Education
13	22U4VBOE13	Media and Politics
14	22U4VBOE14	Positive Psychology and Work Life
15	22U4VBOE15	Professional Ethics
16	22U4VBOE16	The Science of Happiness
17	NCC	

• Students shall opt any course within their Schools.

• NCC – Students who qualify NCC B Certificate Examination need not appear for these open Electives. The Credits shall be transferred.

S. No.	Semester	Course Code	Course Title
1	Semester II - V	22UITSS01	Practical in Word Press
2		22UCKSS02	Quantitative Aptitude

Self Study Paper offered by Department of Information Technology

Chairman Board of Studies in Information Technology Nehru Arts and Science College Coimbatore

SC 2022	

]Cours	e Code		Title								
22U3C	KC305		Core Paper VII: Operating Systems								
Semest	er: III		Credits: 4	CIA	A: 50 Marks	ESE: 50 Marks					
Course	Objectiv	ve	To understand the import manage resources of Com	tance of puter a	of Operating System and Peripherals.	s, its funct	ionalities to				
Course	Categor	y	Employability								
Develop	oment No	eeds	Global								
Course	Descript	tion	This course examines the and implementation. The convenient, and efficient hardware of the computer	e impo ne ope interf on wh	rtant problems in op erating system pro face between user p ich they run.	perating sys vides an rograms ar	stem design established, nd the bare				
Course	Outcom	es			Teaching Methods	Assessme	nt Methods				
CO 1	Recog systen	nize t	he basic concepts of Operat	ting	Lecture	Unit Test					
CO 2	Under schedu	stand uling (the concepts of processes a of process.	nd	Tutorial	;nment					
CO 3	Explai deadlo	in the ock an	techniques of managing the d memory	e	Video Lecture	Seminar					
CO 4	Illustr Page I	ate the Replac	e Segmentation of Paging as cement policies.	nd	Case Studies Unit Test						
CO 5	Apply	vario	us file system implementation	ion	Class Projects	Quiz					
Offered	by In	forma	ation Technology								
Course	Content				Instructional Ho	urs / Week	x : 6				
Unit			Description			Text Book	Chapters				
Ι	Introduc and the Processi systems System	ction: Comp ing sy – Re – Moo	Abstract views of an OS- outer System – Classes of C stems – Multiprogramming al Time Operating System dern Operating systems	– Goal Operati ; syster – Dist	ls of an OS – OS ing System: Batch ns – Time sharing tributed Operating	1	1,2				
~					Instruction	al Hours	18				
Suggest	ed Lear	ning l	Viethods : Unit Test	X 7'			02 Hrs				
п	Processo view of Transitio Schedul Techniq - Preemp	es and f Pro ons – ing ues o ptive :	Programs – Programmer ocess – Controlling Proc - Process Control Block Concepts and Termino f scheduling – Non-Preemp scheduling policies.	of Process – OS – Process State ocess Scheduling: – Fundamental cheduling policies	1,2	3,4					
					Instruction	al Hours	18				
Suggest	ed Lear	ning I	Methods : Assignment				02 Hrs				

		ck: D	efinitio	on –		ocks ii	n Reso	ource	Allocati	on –			
	Handli	ng dea	adlocks	s – L	Deadloo	ck Det	tection	and	Resoluti	on -			
Ш	Deadlo	ock F	Prevent	ion	– De	eadlock	K AV	oidan	nce. Me	mory	1		11
	Manag	ement:	Statio	c and	dynar	nic M	emory	Allo	ocation –	The	1		
	Memor	ry Allo	ocation	Mod	el – r	euse c	of Men	nory	– Contig	guous			
	Memor	ry alloc	cation -	- Non-	Contig	uous N	Aemory	/ Allo	ocation.				
									Instr	uction	al Hour	S	18
Suggeste	d Lea	rning I	Metho	ds : Se	minar							02	Hrs
	Paging	– Se	egment	ation	– Seg	menta	tion w	ith l	Paging. V	/irtual			
TX 7	Memor	y: Ba	sics –	Dem	and Pa	aging	– Ove	rviev	w of Pag	ing –	1		15
IV	Deman	d Pag	ing p	elimir	naries	– Pag	ge repl	acem	nent polic	cies –	1		15
Virtual Memory using segmentation													
Instructional											al Hour	S	18
Suggeste	d Lea	rning I	Metho	ds : U	nit Te	st						02	Hrs
	Lavers	of the	Input	Outpu	t Cont	rol Sv	stem (I	OCS) – Overv	view			
	of I/O	Orga	nizatio	n – 1	Disk S	Schedu	ling. F	File s	systems:	File			
V	System	and	IOCS -	– Files	s and	File O	peratio	ns –	Fundame	ental	1		7
•	File or	ganizat	ions –	direct	orv Str	uctures	s - Cas	e stu	dy on LIN	IIX	1		
	OS UN	VIX OS	S And	roid O	S (Self	-study)	e sta	ay on Lin	011			
US, UNIA US, Allufold US (Sell-Sludy)											al Hour	5	18
Suggested Learning Mathods • Ouiz									111501	uction	ii iiouii	02	Hrs
Duggebte	a Lea	· ······ · · · · · · · · · · · · · · ·			u12					Tote	al Hour	<u> </u>	Hrs
			1 D		amdhe	are On	eratina	Svet	eme A	roncent	Rased A	nnroac	h^{nd}
Text Bo	oks		Edition	$\sin 200$)6	лс, ор	crating	Byst		oncept	Duscu A	pproac	II, <i>2</i>
			1. W	illiam	Stallin	igs, Oj	perating	g Sys	stems Inte	ernals a	nd Desig	gn Prin	ciples,
D f	D		Sever	nth Ed	ition, F	Pearson	Educa	tion 1	Inc. 2012.				•
Referen	ce Bool	KS	2. Ab	raham	Silber	chatz.	Peter H	Baer (Galvin, G	reg Gas	gne, Ope	rating S	vstem
			Conc	epts, S	eventh	Editio	on, Pear	rson l	Education	2009.		U	5
Web. UI	RLs		https:	//www	v.tutori	alspoii	nt.com/	opera	ating syst	em/os	overviev	v.htm	
				Т	ools fo	or Asse	essmen	t (50	Marks)				
CT.	-			G		C	ase Stu	dv			Semina	m	
CIA	1	CL	AII	C .	IA III	A	Analysi	is	Assignment		r	То	tal
8	3		8		10		8		8		8		50
						Ma	pping						
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO	8 PSO1	PSO2	PSO3	PSO4	PSO
CO1	Н	Н	М	M	M	L	M	M	Н	M	Н	Н	ь Н
CO2	H	H	H	M	I.	Н	L	H	M	H	H	H	H
CO3	Н	Н	Н	H	н	M	н	н	Н	<u>н</u>	M	н	н
CO3	11	11 \/	11	11 []	11 \\{\	T	11 N/	11	11 М	<u>т</u>		11 \/	11 11
0.04	<u>п</u>	IVI	П	<u>н</u>	IVI		IVI					IVI	
CO5		H	Μ	Μ	H	H	H	H	Μ	Μ	Μ	M	M
H-High;	M-Mee	dium; I	L-Low										
		Course	e desig	ned by	y					Verifi	ed by		

2022

Course	e Code			r	Fitle					
22U3I	ТС303		Core Paper	VIII:	Software Engi	neeri	ng			
Semes	ter: III		Credits: 4	CIA	: 50 Marks		ESE: 50	Marks		
		1								
Course	Objectiv	ve	To gain knowledge about Testing.	t basio	c concepts of	Softv	ware Engir	neering and		
Course	Categor	'y	Employability and Entrepre	eneurs	hip					
Develop	pment N	eeds	Global							
Course Description The Software Engineering course syllabus is desig about Computer Programming, Web Development Management, etc.							ed to impart knowledge Data Structures, Project			
Course Outcomes Teaching Metho						hods	Assessme	nt Methods		
CO 1	Able to and dif	o unde ferent	erstand the nature of the soft types of process models	ware	Video Lect	ure	Assi	ignment		
CO 2	Gains stage d	know eveloj	vledge about the requiren pment of the software	Brainstorm	ing	.ng Seminar				
CO 3	Analyz designs	e the s of th	different types of architec e software	Lectures / V Lessons	ideo	(Quiz			
CO 4	Setting and Ev the soft	the c aluat tware	ontext on Software Develop es different testing strategie	ment es of	Jigsaw		Just A Pres	A Minute entation		
CO 5	Unders automa	tand tion	the testing types and	test	Flipped Classroor	n	Group	Discussion		
Offered	l by In	form	ation Technology		1					
Course	Content	,			Instructio	onal	Hours / W	eek :5		
Unit			Description				Text Book	Chapters		
I	Introdue Software Generic	ction t - The view o	to Software Engineering: Eve e changing nature of Softwa of Process- A Layered Technolo	olving are- So ogy	role of software of tware Myths.	e – A	1	1		
	Software	e Proc ental I	cess Models: Prescriptive models Process Models- Evolutionary P	els- Th rocess	ne Waterfall Models.	del	1	3		
					Instru	ction	al Hours	15		
Suggest	ted Lear	ning I	Methods : Assignment					02 Hrs		
п	Require Initiatin	ement g the	ts Engineering: Requiremente e Requirements Engineerie Puilding the Apolysis Mod	ents E ing F	ngineering Tas Process- Elicit	sks- ting	1	7		
11	Buildin Oriented	g the	Analysis Model: Scenario- lelling.	Based	l Modelling- F	low	1 6			
	0.11011100		B.		Instru	ction	al Hours	15		
Suggest	ted Lear	ning I	Methods : Seminar					02 Hrs		

	Design Creatin	Engine g an	ering: [Archite	Design Concepts ectural Design	-The design mod Representing	lel. the System in	1	9	
	Context	- Def	ining A	Archetypes- Re	efining the Ai	chitecture into	1	10	
III	Modelli Designi	ing Constant	ompone ss-Based	nt-Level Desig Components.	gn: What is a	Component –	1	11	
	User Ir Design	iterface steps.	e Desigr	n: User Interfac	e Analysis and I	Design-Interface	1	12	
	•					Instruction	al Hours	15	
Sugges	sted Lear	ning N	Method	s: Ouiz				02 Hrs	
IV	Softwa project Verific Structu	re De – Qua ation a	velopm ality, Q and Vali	ent Life Cycl uality Assuran idation. White Black-Box Te	e models: Phance, Quality con- Box Testing: sting: How to	ses of Software ntrol – Testing, Static Testing – do Black-Box	2	2,3,4	
	Testing	proce	dures.						
		, p1000				Tu stars of an		15	
Suggo	stad I aar	mina I	Asthod	a . Inst A Min	uto Drogontotion	Instruction	al Hours		
Sugges		ming r	vietnou	S : Just A Min		1	1	02 Hrs	
V	VIntegration Testing: Integration Testing as Type of Testing – Integration Testing as a Phase of Testing – Scenario Testing – Defect Bash. System and Acceptance Testing: System Testing Overview – Functional versus Non-functional Testing – Functional testing - Non- functional Testing – Acceptance Testing. Performance Testing: Methodology of Performance Testing – tools for Performance Testing. Regression Testing: Regression Testing Overview – Types of Degrees of Testing Test Automation2								
Instructional Ucure 15									
						Instruction	al Hours	15	
Sugges	sted Lear	rning N	Method	s : Group Disc	ussion	Instruction	al Hours	15 02 Hrs	
Sugges	sted Lean Conten	rning N nporai	Method ry Issue	s : Group Disc	ussion	Instruction	al Hours	15 02 Hrs	
Sugges	sted Lean Conten	rning M nporan o Wo	Method ry Issue	s : Group Disc es: on Software To	ussion	Instruction	al Hours	15 02 Hrs	
Sugges	sted Lean Conten	rning M nporat D Wo D Sen	Method ry Issue orkshop ninar or	s: Group Disc s: on Software To Various Softv	ussion ools. vare Models.	Instruction	al Hours	15 02 Hrs	
Sugges	sted Lean Conten	rning M nporar o Wo o Sen o Gue	Method ry Issue orkshop ninar or est Lect	s: Group Disc s: on Software To Various Softv ure on Softwar	ussion ools. vare Models. re development	Instruction	al Hours	15 02 Hrs	
Sugges	Conten	rning M nporar o Wo o Sen o Gue	Method ry Issue orkshop ninar or est Lect	s : Group Disc s: on Software To Narious Softw ure on Softwar	ussion ools. vare Models. re development	Instruction: Lifecycle Tot:	al Hours	15 02 Hrs 75 Hrs	
Sugges VI Text B	sted Lean Conten	rning M nporar 5 Wo 5 Sen 5 Gue	Method ry Issue orkshop ninar or est Lect 1. R Seve 2. S Prin	s: Group Disc on Software To Various Softw ure on Softwar oger S Pressma enth Edition, M Srinivasan De ciples and Prac	ussion ools. vare Models. e development an, Software En IcGraw Hill, Int esikan, Gopala	Instruction Lifecycle Tot agineering a Pract cernational Editio swamy Ramesh , 2006.	al Hours al Hours titioner's n, 2013 n, "Softw	1502 Hrs75 HrsApproach,vareTesting	
Sugges VI Text B Refere	sted Lean Conten Conten	rning M nporar o Wo o Sen o Gue	Method ry Issue orkshop ninar or est Lect 1. R Seve 2. S Prin 1. R Publ 2. W Tata	s : Group Disc on Software To a Various Softw ure on Software oger S Pressma enth Edition, M Srinivasan De ciples and Prac ichard Fairley lishing Compar Vaman S. Jawao McGraw Hill	ussion ools. vare Models. e development an, Software En IcGraw Hill, Int esikan, Gopala etices", Pearson, , Software Eng ny Limited,2010 dekar, Software Publishing Con	Instruction Lifecycle Tot gineering a Pract ernational Editio swamy Ramesh , 2006. gineering Concep) Engineering - Ph pany Limited, 20	al Hours al Hours al Hours titioner's n, 2013 n, "Softw ots, Tata pots, Tata pots, Tata	15 02 Hrs 75 Hrs Approach, vare Testing McGraw-Hill and Practice,	
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Sugges VI Text B Refere Web. U	sted Lean Conten Gooks Fooks Ence Bool URLs	rning M nporar o Wo o Sen o Gua	Method ry Issue orkshop ninar or est Lect 1. R Seve 2. S Prin 1. R Publ 2. W Tata https:/	s : Group Disc on Software To a Various Softw ure on Software oger S Pressma enth Edition, M Srinivasan De ciples and Prac ichard Fairley lishing Compar Vaman S. Jawad McGraw Hill //www.tutorials Tools for A CIA III	ussion ools. vare Models. e development an, Software En IcGraw Hill, Int esikan, Gopala etices", Pearson, , Software Eng ny Limited,2010 dekar, Software Publishing Con spoint.com/softw Assessment (50 Case Study Analysis	Instruction Lifecycle Tota agineering a Pract cernational Editio swamy Ramesh , 2006. gineering Concep) Engineering Concep) Engineering - Propany Limited, 20 ware_engineering Marks) Assignment	al Hours al Hours al Hours titioner's n, 2013 n, "Softw ots, Tata ots, Tata vinciples a 011 /index.htm Quiz	15 02 Hrs 02 Hrs 75 Hrs Approach, vare Testing McGraw-Hill and Practice, n	

B. Sc., Information Technology

						Ma	pping						
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO 5
CO1	Н	Н	Μ	Μ	М	L	М	Μ	Н	Н	М	Н	Η
CO2	Н	Н	Н	Μ	Μ	Н	L	Н	Н	Μ	Н	Н	М
CO3	Н	Н	Н	Н	Η	Μ	Н	Н	М	Н	Н	Н	М
CO4	Н	Μ	Н	Н	Μ	Μ	М	Μ	Н	Н	Μ	Н	Н
CO5	Н	Н	Μ	Μ	Н	Н	Н	Н	Н	Н	Н	Μ	Н
H-High;	M-Mee	dium; l	L-Low										
		Cours	e desig	gned by	y					Verifie	d by		

2022

Course	Code			Title							
22U3I	ГР303		Core Paper IX	: Practical i	n Operat	ing Syste	em				
Semest	er: III		Credits: 4	CIA: 50	Marks	ES	E: 50 Marks				
			I		I						
Course	Objectiv	'e	To know about the basics of shell Script programming language								
Course	Categor	y	Employability, Skill Development								
Develop	ment Ne	eeds	Global								
Course 3	Descript	tion	This course examines the important techniques in operating system design and implementation.								
Course	Outcom	es			Teac Met	hing hods	Assessment Methods				
CO 1	Unders	tandin	ng the shell programming co	ncept	Witt	llous	Withous				
CO 2	To rev	view	the file concept in the	e working							
	environ	ment	different management tech		Demon	stration	Laboratory				
C03	To Apr	$\frac{10}{10}$ soc	cket communication in Prog	ram	Me	thod	Experiments				
CO 5	Able	to ap	pply various scripting c	oncept in	-						
Offered	program	ns	- 4 T h								
Offered	by In	torma	ation Technology								
Course	Content			Instru	ctional H	ours / W	eek:6				
Progra mme			E	Description							
1	Write	a shel	l script to stimulate the file of	commands: 1	rm, cp, cat	t, mv, cm	p, wc, split, diff.				
	Write	a shel	l script to show the followin	ig system co	nfiguratio	n :					
	a. curr	ently	logged user and his log nam	e							
2	b. curi workir	rent sing dire	hell, home directory, Oper ectory	ating System	m type, c	urrent Pa	th setting, current				
	c. show	v curr	ently logged number of user	rs, show all a	available s	shells					
	d. show	w CPU	U information like processor	type, speed							
	e. show	v men	nory information								
3	Write	a Shel	ll Script to implement the fo	llowing: pip	es, Redire	ection and	l tee commands.				
4	Write getting	a shel g user	Il script for displaying curre choice.	ent date, use	r name, fi	le listing	and directories by				
5	Write	a shel	l script to implement the filt	er command	ls.						
6	Write	a shel	l script to remove the files w	which has file	e size as z	ero bytes					
7	Write	a shel	l script to find the sum of th	e individual	digits of a	a given nu	umber.				
8	Write line ar	a shel gumer	ll script to find the greatest nts.	among the g	given set o	of numbe	ers using command				

9	9 Write a shell script for palindrome checking.													
10 Write a shell script to print the multiplication table of the given argument using for loop.														
									Inst	ructional	l Hours	s g	90	
				То	ols for	Assess	sment	(50 Ma	rks)					
Applica of Log	ApplicationProgramProgramof LogicCreativityDebuggingTest					est 1	Tes	st 2	Observ Note B	ation Book	Total			
8			8		8		10	10	10 6 50		50			
						Ma	pping							
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	Н	Μ	Н	Μ	М	Μ	Н	Н	Η	Н	Μ	Η	Н	
CO2	Н	М	Н	Μ	М	Н	Н	М	М	Н	Н	Μ	Н	
CO3	М	М	М	Η	М	М	М	L	Н	Н	Μ	Η	Μ	
CO4	Н	Μ	Н	Μ	М	Μ	М	L	М	М	Н	Μ	Н	
CO5	Н	М	Н	Μ	М	Μ	Н	Н	Н	Μ	Μ	Η	Μ	
H-High;	M-Mec	lium; I	L-Low											
		Course	e desig	ned by	7					Verifie	d by			

Course	e Code		r	Fitle				
22U3M	IA303		Allied Paper III :	Operations Res	earch			
Semeste	er: III		Credits : 4 CLA	A: 50 Marks	ESE:	50 Mai	rks	
		1	(Common to all UG Pro	grammes)				
Course	Objectiv	ve	On successful completion of the mathematical applications in intervironment	he course the idustries, decisi	student on mak	s to le king for	arn various r real time	
Course	Categor	y	Skill Development					
Develop	oment N	eeds	Global					
Course	Descript	tion	Operations research is an analytic Decision-making that is useful in	cal approach of p the management	oroblem of orga	-solving nization	skill and s.	
Course	Outcom	es		Teaching Me	thods	Assess Metho	ment ds	
CO 1	Classif advanta	y diffe ages in	erent OR models and knowing their decision making environment	ing /	As	signment		
CO 2	Recogn assignm solution	nize nent p n.	and formulate transportation, problems and derive their optimal	Peer Teach Lecture	ing / S	U	Unit Test	
CO 3	Gain replace	know] ment	edge about Game theory and models.	Lectures / Tu	torial	S	Seminar	
CO 4	Outlini	ng the	Queuing Theory concepts.	Group learn Lecture	ing / S	As	signment	
CO 5	Constru schedu	uct Ne ling th	etwork models (PERT & CPM) for the project.	Video Lectu Lecture	ires /		Quiz	
Offered	by Ma	athen	atics					
Course	Content	;		Instructio	nal Hou	ırs / We	ek : 5	
Unit			Description		Tex	t Book	Chapters	
T	Linear using G	progra raphic	amming – Mathematical Formulat al Method-Canonical and Standard	ion-Solving LP form of LPP .	P	1	2, 3	
	Simplex	K Meth	od - Big-M Method, Principles of I	Duality.		1	4, 5	
I				Instru	ctional	Hours	15	
Suggest	ted Lear	ning I	Methods : Problem Solving Pract	ice	1		02 Hrs	
п	Transp solution Corner Method MODI N	ortati Is – Rule, - U Metho	on Problems: Introduction – Initia Balanced Transportation Problem Least Cost Method , Vogel's Inbalanced Transportation Problem d (Non Degeneracy).	l Basic Feasible : North West Approximation n- Optimality –		1	10	
	Assignr method Assignn	nent – Ma nent p	Problem: Introduction – Hungar aximization in Assignment probler roblem- Travelling salesman proble	ian Assignment n - Unbalanced m.		1	11	
~				Instru	ctional	Hours	15	
Suggest	ed Lear	ning I	Aethods : Seminar				02 Hrs	

	Ga	me Th	eory: (Conce	pt of Pi	ire an	d Mixe	ed Stra	ategies –	Solvin	g 2 x					
	2 r	natrix v	with an	d with	hout sa	ddle p	ooint -	n x 2	2 & 2 x n	n gam	es by	1		17		
	Gr	aphical	Metho	d - Do	minan	ce Pro	perty.			-	•					
111	Re	placem	ent m	odels:	Eleme	entary	Repla	ceme	nt Model	s - Pr	resent					
	Va	lue - R	ate of	Retur	n - De	precia	tion -	Indivi	idual Rep	lacem	ent –	1		18		
	Gr	oup Re	placem	ent.					1							
			-						Ins	structi	onal	Hour	s	15		
Suggest	ed Lea	rning N	Aethod	ls : Gi	roup D	iscuss	sion)2 Hrs		
88000	Oueui	ng The	orv (D	eriva	tions n	ot inc	luded)	: Intr	oduction	– Elei	nents					
	of Out		vstem	$-\Omega n$	eratino	Chara	acterist	ics of	² Oueuinc	svste	ms –	1		20		
TT 7	Drobak	raing D	otribut	opo iona ir		ng Su	actoma	Dirth	n dooth nr		1115	1				
IV	1100a	mity D	Istilout		I Queu	ing Sy	stems .	- Ditu	i ucatii pi	00035.						
	Classif	fication	of Qu	euing	Model	s: Sir	ngle Se	rver -	- finite a	nd infi	nite	1		20		
	popula	tion mo	odels. (Mode	l I , Mo	del II	& Mod	lel III) – Proble	ems on	ly.	1				
									Ins	structi	onal	Hour	:S	15		
Suggest	ed Lea	rning N	Method	ls : ht	tps://yo	outu.b	oe/xGk	pXk-	AnWU)2 Hrs		
				0				р.	• •	C	1					
	Network Scneduling: Critical Path Method – Principles of Network															
X 7	Constr	uction:	Forwa	ard Pa	ss - Ba	ckwar	d Pass	comp	outations -	– Туре	es of	1				
V	Floats	- Practi	cal Pro	blems	s in Net	WORK1	ng Met	hods.	C			1		21		
	PERI		al Path	1 - Protection Prote	obabilit	y or c	omplet	10n 01	r project-	Differe	ence					
	between PERT and CPM.															
	Instructional Hours												s	15		
Suggest	ed Lea	rning I	Aethod	ls : Pr	oblem	Solvi	ng Pra	ctice)2 Hrs		
88		0					8]	fotal	Hour	`s ´	75 Hrs		
			1.	Kanti	Swarur	, P.K.	. Gupta	, Mar	n Mohan,	Opera	ations	Rese	arch,	S.		
Text Bo	oks		C	hand &	& Sons	1997	1	, 	,	•			,			
			1	Hamd	$\frac{1}{v} \wedge T_{a}$	ha ()	noratio	ne De	soorch	An in	tradu	ction	Dron	tice		
			1 1		y A Ta India D		$\Gamma D Q_{+h}$		on 2009		uuu		, I ICII			
Referen	ce Boo	ks	п			VI.L	1 D, 8th		011, 2008.			••	nliantiana			
			2	J. K. S	sharma.	Oper	rations	Kese	earch The	eory a	nd Ap	plica	tions,			
			M	acMil	lan Ind	ia Ltd	., 2008.									
Web II	RLs		1. <u>htt</u>	<u>os://yo</u>	utu.be/	<u>4U3B</u>	5lr-Mc	<u>M.(Ir</u>	ntroductio	n to C	R)					
			2. <u>http</u>	<u>s://wv</u>	<u>vw.you</u>	tube.c	om/wa	tch?v:	=2AOhC	WhwC	<u>)Ko</u> (F	PERT	conce	epts)		
				T	ools fo	r Asse	essmen	t (50]	Marks)							
CIA I		CIA I	I	Mod	lel		Semina	ar	Assignm	ent]	Period	lical		Total		
										(Quizz	es				
8			3		10		8		8			3		50		
						M	apping	<u>ו</u> ז								
CO\PO	PO1	PO2	PO3	PO4	PO5	P06	P07	P08	PSO1	PSO	2 PS	03	PSO4	PSO5		
CO1	101		1.50	1.01	1.50	100	107	100	1501	1001			2001	1.00		
CO2																
CO3							1									
CO4																
C05																
H-High	M-Me	dium• I	-Low				1	1		1				l		
		Course	e desig	ned by	y					Ver	ified b	у				

BCA /B.Sc. (CS/CS(DS)/IT/DCFS/AIML)

NASC	2022
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Course	Code			Title							
22U4I7	FZ301		Skill Base	d Paper I: (Case Tools L	ab					
Semest	er: III		Credits: 3	CIA: 30 I	Marks	ES	E: 45 Marks				
Course	Objectiv	ve 🛛	1. To enable the students t	o get better u	understanding	g and]	knowledge				
			in the field of CASE tools.								
			2. To gain practical knowl	edge on devo	eloping case t	ools					
Course	Catagon		3. To develop UML diagra	ams for the re	eal time probl	lems					
Develop		y 	Clabel								
Develop	ment Ne	eas	Global	<u>.</u>		£ (1					
Course	Descript	10n	systems development life	cvcle proce	automation c	of the	entire information				
tools, such as modelling, methodology and automatic code generation.											
Course	Outcom	es			Teaching	g	Assessment				
	Drepa	o the	Problem Statement and R	equirement	wiethous	5	Wiethous				
CO 1	Specif	ic the	n for the given Problem.								
CO 2	Create	ERD	And DFD for the specific	ation using							
	CASE	TOO	DLs.								
CO 3	Design	n a So	oftware using USE CASE a	and activity	Demonstra Method	tion	Laboratory Experiments				
	Diagra	ams			·	4	Experiments				
CO 4	Gener CASE	ate C Tool	code from the Class diag	gram using							
CO 5	Analy	ze the	e architecture of the softwar	e using the							
0.05	Comp	onent	and DeploymentDiagram								
Offered	by In	forma	ation Technology								
Course	Content			Instru	ctional Hour	s / W	eek:4				
Progra			Ι	Description							
For the	Followi	ng Re	al time Systems (Any 3)								
a)	Payroll I	Proces	ssing System								
b)	Student	MIS									
c)	Library	Mana	gement System								
d)	Hostel N	lanag	ement System								
e)	ATM M	anage	ment System								
(1) (1)	Stock M	Mana	agement System								
b)	Online 7	licket	Reservation System								
i)	Platform	Assi	gnment System								
j)	E-Mail (Client	Management System								
1	Write	the c	omplete problem statement								

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2	Write the software requirement specification document
3	Draw the entity relationship diagram
4	Design DFD for real time problem
5	Draw use-case diagrams
6	Draw the activity diagram for the given application
7	Construct state chart and sequence diagram for use-case
8	Assign objects in sequence diagram to classes and generate the class diagram and convert into JAVA/VB CODE
9	Draw the Component Level Diagram
10	Draw the Deployment Diagram
	Instructional Hours 75

		Tools for Assess						mou	i uctiona	i iioui	3	10	
		Tools for AssessProgramProgram					sment	(30 Ma	rks)				
Applica of Log	tion gic	Pros Crea	gram ativity	Pro Deb	ogram ouggin	g T	'est 1	Test 2 Observation Note Book			То	Total	
5			5		5		6	6		3		30	
						Ma	pping						
CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO 5
CO1	Η	Н	L	ram ivityProgram DebuggingivityDebugging55PO3PO4PO5PO3PO4PO5LMHLMHLMHLMHLMHLMHLLMHLLMHLSeigned by		L	М	Η	Н	Н	Н	М	М
CO2	Н	Н	L	М	Н	L	М	Н	Н	Н	Н	М	М
CO3	Н	Η	L	Program Debugging 5 PO4 PO5 P M H L M H L M H L M H L M H L M H L M H L		L	М	Η	Н	Н	Н	Н	Н
CO4	Н	Н	L	M H L M H L		L	М	Н	Н	Н	Н	Н	Н
CO5	Н	Н	L M H L M L M H L M				М	Н	Н	Н	Н	Н	Н
H-High;	M-Mec	lium; I	ium; L-Low										
		Cours	e desig	ned by	y					Verifie	d by		

Course	e Code]	ſitle		
22U3I	TC404		Core Pape	r X: (Computer Netwo	orks	
Semest	ter: IV		Credits: 4	CIA	: 50 Marks	ESE: 50	Marks
Course	Objectiv	/e	To inculcate knowledge of Wireless, Broadband and B	on Ne luetoc	tworking concep oth.	ots and techno	ologies like
Course	Categor	у	Employment and Skill Dev	elopm	ent		
Develop	pment Ne	eeds					
Course	Descript	tion	To learn the fundamenta function and operation and network technologies.	ls of how t	networking sys hose fundamenta	stems, their and the stems, the stems, the stems are reflected at a stem stem stems and stems and stems are stems at a stem stems at a stem stem stem stems at a stem stem stem stem stem stem stem stem	architecture, d in current
Course	Outcom	es			Teaching Metho	ods Assessme	nt Methods
CO 1	Unders softwar	tand e and	about network hardwuses of computer networks	vare,	Flipped Classroom	Just a	a Minute entation
CO 2	Unders Media, Comm	tand W unicat	Guided Transmission Vireless Transmission, ion Satellites	and	Video Lecture	es Se	eminar
CO 3	Unders elemen algorith	tand tary o nms	error detection and correc data link protocol and Rou	tion, uting	Brainstormin	g Ass	ignment
CO 4	Unders applica	tand tion la	and Identify the application ayer and network security	ns of	Interactive Lecture	Poster I	Presentation
CO 5	Unders layer ar	tand nd cry	the importance of application prography	tions	Lecture / Clas Projects	SS (Quiz
Offered	l by Inf	forma	ation Technology			L	
Course	Content				Instructional	Hours / Week	x:5
Unit			Description			Text Book	Chapters
Ι	Uses of Applicat Hardwa Metropo Internety Issues Connect Services Model - and TCF	f cor tions are: H blitan works for ionles to F The 7 P/IP R	 nputer networks: Busines Mobile Users - and S Personal Area Networks - W Area Networks - W Network software: Protoc the Layers - Conne Service - Service Primitive Protocols - Reference Model – A eference Models. 	ss Ap bocial Local 7ide col Hi ction- 7es - t els: T A Com	plications- Hon Issues. Networ Area Networks Area Network erarchies - Desig Oriented Versu he Relationship he OSI Reference parison of the OS	ne :k 	1
		_			Instructi	ional Hours	18
Suggest	ted Learı	ning I	Methods: Just a Minute Prese	entatic	n		02 Hrs

	Physical Layer - Guided Transmission Media : Magnetic Media – Twisted Pair – Coaxial Cable – Fiber Optics. Wireless		
П	Transmission: Electromagnetic Spectrum – Radio Transmission –	1	2
	Microwave Transmission – Infrared and Millimeter Waves – Light	-	-
	Waves. Communication Satellites : Geostationary - Medium-Earth Orbit - Low Farth, orbit Satellites - Satellites versus Fiber		
	<u>Instruction</u>	l Hours	18
Sugges	ted Learning Methods : Seminar	i iiouis	02 Hrs
	Data link Layer: Services Provided to the Network Layer –		· »
	Framing- Error Control - Flow Control. Error detection and		
	Correction: Error-Correcting Codes - Error-Detecting Codes.		
	Elementary data link Protocols: A Utopian Simplex		
III	Protocol- A Simplex Stop-and-Wait Protocol for an Error-	1	3
	Free Channel- A Simplex Stop-and-Wait Protocol for a Noisy		
	Channel. Sliding Window Protocols: One-Bit sliding window		
	protocol – A protocol using Go-Back-N – A Protocol using		
	Selective Repeat.		
	Instructiona	d Hours	18
Sugges	ted Learning Methods : Assignment		02 Hrs
	Network layer: Routing algorithm-The Optimality Principle,		
	Shortest Path Algorithm, Flooding, Distance Vector Routing, Link		
	State Routing, Hierarchical Routing, Broadcast Routing,		
	Multicast Routing, Anycast Routing, Routing for Mobile Hosts, Bouting in Ad Hog Networks, Transport Javan Floments of		
	transport protocols. Addressing Connection Establishment		
IV	Connection Release Error Control and Flow Control	1	5.6
- '	Multiplexing, Crash Recovery The Internet Transport	-	5,0
	Protocols UDP : Introduction to UDP. TCP- Introduction to TCP,		
	The TCP Service Model, The TCP Protocol, The TCP Segment		
	Header, TCP Connection Establishment, TCP Connection		
	Release, TCP Connection Management Modeling, TCP Sliding		
	Window, TCPTimerManagement, TCP Congestion Control.	1.11	10
Suggos	Instructiona tod Learning Mathods · Poster Presentation	I Hours	18 02 Hrs
Sugges	Application layer: DNS - The Domain Name System The		02 111 5
	DNS Name Space, Domain Resource Records, Name Servers,		
	Electronic mail-Architecture and Services, The User Agent,		
\mathbf{V}	Message Formats, Message Transfer, Final Delivery, Network	1	7,8
	Security: Cryptography-Introduction to Cryptography,		
	Substitution Ciphers, TranspositionCiphers, One-Time Pads,		
	I wo Fundamental Cryptographic Principles.	l Houng	10
Sugges	ted Learning Methods · Ouiz	n nours	10 02 Hrs
Jugges	Tota	d Hours	75 Hrs
	1 Androw S. Tononhoum, Commuter Natural- 4th E	dition DI	
Text B	ooks	union, PHI	L

			1.	Ach	yut Go	dbole,	Data (Commu	nication	and Ne	tworks, 2	2007,T	MH.	
Reference	e Bool	ks	2.	Uyle	ess Bla	ck, Co	mpute	r Netwo	orks: Pro	otocols,	Standard	s, and		
			Inter	faces, 2	2nd ed.	,PHI								
Web. UF	RLs		www	.w3scł	nools.c	om//co	mpute	r_netw	orks.htn	nl				
				Т	ools fo	or Asse	essmen	t (50 N	larks)					
CIA I CIA II CIA III Class Participation Assignment Quiz													otal	
8 8 10										8	8		50	
						pping								
CO \ PO	PO1	PO2	PO3	PO4	PO4 PO5 PO6 PO7 PO8 PSO1 PSO2 PSO3 PSO 4									
CO1	Η	М	М	Η	Н	Н	Μ	Н	Μ	Н	Н	М	М	
CO2	М	М	Н	М	Μ	Н	Μ	М	Н	Η	М	М	М	
CO3	М	L	L	Η	Μ	L	М	L	Μ	Η	Н	Н	Н	
CO4	М	М	М	L	L	Н	М	L	Н	Μ	Н	Н	Μ	
CO5	Н	L	М	Η	Μ	Μ	L	Η	Н	Μ	Н	Н	Μ	
H-High;	M-Mee	dium; l	L-Low											
		Cours	e desig	ned by	y					Verifie	d by			

Course	e Code			r	Fitle		
22U3C	KC406		Core Paper	XI: F	RDBMS and MyS	SQL	
Semes	ter: IV		Credits: 4	CIA	: 50 Marks	ESE: 50	Marks
					L.		
Course	Objectiv	/e	To inculcate fundamental kr students to writing SQL que	nowle ries u	edge in RDBMS c sing MySQL.	oncepts and o	designed for
Course	Categor	у	Skill Development				
Develop	pment N	eeds	Global				
Course	Descript	tion	The course gives introduction databases using database p structures, modelling, and database	on to progra ataba	the fundamentals mming technique se access.	of MySQL ar es emphasizi	nd relational ng database
Course	Outcom	es			Teaching Metho	ls Assessme	ent Methods
CO 1	List and relation	l expla al data	in the fundamental concepts of a base system	a	Lecture / Flipped Classroom	Ass	ignment
CO 2	Explain model, o database	the ba entity- e desig	usic concepts of relational data relationship model and relationa gn	ıl	Constructivist Approach/ Tutorial	Se	eminar
CO 3	Improv	e the	database design by normaliza	tion	Lectures / Vide Lessons	0	Quiz
CO 4	Unders MySQI	tandir 	ng of SQL syntax used with		Tutorial / Case Studies	Program	n Execution
CO 5	Explain program	the ba	sic functions of MySQL databas	se	Lecture / Class Projects	Program	n Execution
Offered	l by	Infor	mation Technology				
Course	Content				Instructional H	Iours / Weel	x : 6
Unit			Description	·		Text Book	Chapters
I	Introdu Data M System Databas and Log	etion lanage - DB e Arc ical D	: Introduction to DBMS – Internet-File-based data mana MS - Components of a DBI hitecture and Design- Data A Data Independence	nform igeme MS- Abstra	nation-Data and ent – Database Database User- ction - Physical	1	1, 2
C	17	• • • •			Instructio	onal Hours	15
Suggest Video l	ectures	ning r	vietnoas :				02 Hrs
П	Data M Models- – E-R M Entity – Model – Relation List-E-R	odels: Hiera Iodel - Rela Con ships & diag	: Data Models-Introduction-C rchical Model - Network Mod tionship (E-R) Modeling: In aponents of an E-R Model-Re , E-R conventions- Composite rams, E-R Modeling Symbols	Conce del-R ntrodu elation e Enti	eptual, Physical elational Model action – E-R nships- tties - Entity	1	3, 4

					Instructio	nal Hours	15			
Sugges	ted Lear	ning Met	thods: 02 Hrs							
ш	Data Integr Norm Secon Codd	Integrity ity C alization d Normal Normal F	, Constraints Constrains - - Keys-Relati I form(2NF) - Form (BCNF)	and Normalization Normalization-Key ionships-First Norr Third Normal Forr	on: Introduction- /s-Relationships- mal Form(1NF)- m(3NF)- Boyce-	1	7,9			
	0044		01111 (2 01 (1)		Instructio	nal Hours	15			
Sugges	ted Lear	ning Met	hods : Develo	on small program	nes using tuples		02 Hrs			
IV	MySC Creati Types Trunca - Sele partice BY – 2	pL: Intro ng a Dat in in ate - Usin cting Part ular Rows LIMIT.	oduction to M abase - Selec MySQL-Usin g Update-Ove ticular Colum s-Using GRO	MySQL - Identifi ting Database-Creating INSERT-Using erview of SELECT n - Using WHERE UPBY Clause -HA	er in MySQL ating Tables-Dat DELETE-Usin - Simple Querie Clause to Selec VING - ORDEI	a g s 2 et R	4, 5			
					Instructio	nal Hours	15			
Sugges	ted Lear	ning Met	thods : Apply	y the programs in	the Python Soft	ware	02 Hrs			
V	MySQI Multiple My Se Functio PL/SQI Trigger	L Queries e table-U QL-Contr n-Date an L Conce s	and Function nderstanding fol Flow fund Id Time Funct pts : Curson	ns: Using Joins to the different Join T unctions-String Fi tions rs, Stored Proced	Run Queries ove Types-Operator i unctions-Numeri ures, Database	r n c 2	7, 8			
					Instructio	nal Hours	15			
Sugges	ted Lear	ning Met	hods : Labor	atory practice			02 Hrs			
					Te	otal Hours	90 Hrs			
Text B	ooks		 Alexis Manager Vijay Ni Luke W Educatio Unit I: S Unit II: Unit III Unit III Unit IV: Unit V: 	Leon and Mathement Systems', cole Imprints Priva Velling and Laura on, First Edition,200 Sections: 1.1 to 1.4, Sections: 3.1 to 3.7 : Sections: 7.1 to 7.3 Sections: 7.1 to 7.3	ws Leon 'Fund the Limited, Chen Thomson ,'My 06 , 2.1 to 2.4 (Chap 7, 4.1 to 4.10 (Ch 3, 9.1, 9.5 to 9.1 9, 5.1 to 5.6 (Chap 7, 8.1 to 5.5 (Chap	damentals nai, 2006. SQL Tutor oter 1 and 2) apter 3 and 2 (Chapter 7 oter 4 and 5) oter 7 and 8)	of database ial, Pearson 4) (and 9)			
Refere	nce Book	s	 Abrahan System (C.J.Date Database Hugh E. MySQL 	n Silberschatz , Her Concepts', Tata Mc e, A.Kannan and S.S e Systems", Eight I Williams, Saied M ',O'Reilly Media, Ir	hry F.Korth and S Graw Hill,Sixth Swamynathan, "A Edition, Pearson I.M. Tahaghoghi he ,Second Editio	S.Sudarshan Edition,201 An Introduct Education, 2 ,'Learning on ,2006	,'Database 3. ion to 2006.			
web. (JKLS	W	ww.mysqi.cor	for A gaage and (E	() Montra					
~-	A T		Tools	10r Assessment (5	VIARKS)	Ouiz	T · · ·			
CI	A I			Assignment	Sellinar	Quiz	Total			
		X	1 111	<u>م</u>	<u>a</u>	2	ער			

B.Sc., Information Technology

						Ma	pping						
CO \ PO	PO1	PO 2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO 4	PSO 5
CO1	Н	Н	L	М	Н	L	М	Н	Н	Н	Н	Μ	М
CO2	Н	Н	L	М	Н	L	М	Н	Н	Н	Н	М	М
CO3	Н	Н	L	М	Н	L	М	Н	Н	Н	Н	Н	Н
CO4	Н	Н	L	М	Н	L	М	Н	Н	Н	Н	Н	Н
CO5	Н	Н	L	М	Н	L	М	Н	Н	Н	Н	Н	Н
H-High;	M-Med	lium; l	L-Low										
	(Cours	e desig	ned by	y					Verifie	d by		

2022

Course	Code			Title							
22U3IT	'P404		Core Paper XII: F	Practical in	RDBMS	and My	SQL				
Semeste	er: IV		Credits: 4	CIA: 50	Marks	ES	E: 50 Marks				
			Title Core Paper XII: Practical in RDBMS and MySQL Credits: 4 CIA: 50 Marks ESE: 50 Marks To make the students to understand Relational Database Management System concepts using Oracle and able to do the various operations on Tables. Image: Colspan="2">Core Paper XII: Practical in RDBMS and MySQL To make the students to understand Relational Database Management System concepts using Oracle and able to do the various operations on Tables. Image: Colspan="2">Comployability, Skill Development Global Image: Colspan="2">Image: Colspan="2">Teaching Methods Ne course focuses on the basic concepts of relational database scheme and analyses the relational data model with optimal and feasible solutions. Teaching Methods Assessment Methods ansform an information model into base schema and to use a data tage and/or utilities to implement tion using SQL and PL/SQL. Demonstration Method processes of Database Development tion using SQL and PL/SQL. Demonstration Method Laboratory Experiments ational data model with optimal and tas Image: Superiments Image: Superiments Image: Superiments ational data model with optimal and tas Image: Superiments Image: Superiments Image: Superiments Instructional Hours / Week : 6 Image: Superiment Superiments Image: Superiments Image: Superiments Image: Superim								
Course (Objectiv	ve	To make the students to System concepts using O Tables.	o understan racle and a	d Relatio able to do	nal Data the vari	base Management ous operations on				
Course (Categor	y	Employability, Skill Develo	opment							
Develop	ment Ne	eeds	Global								
Course I	Descript	ion	The course focuses on the lit analyses the relational da	basic conce	pts of rela	tional da	tabase scheme and				
Course (Outcom	es	it analyses the relational da		Teac Metl	hing hods	Assessment Methods				
CO 1	Remem a relation definition the scheme	iber to onal d on lan ema u	o transform an information m atabase schema and to use a guage and/or utilities to imp sing a RDBMS.	odel into data lement							
CO 2	Underst and Ad	tand ti minis	he processes of Database De tration using SQL and PL/SQ	velopment QL.	Demon Me	stration	Laboratory Experiments				
CO 3	Apply t skills at	he Prond	ogramming and Software En hniques using SQL.	gineering			1				
CO 4	Analyze feasible	System concepts using Oracle and able to do the various operations o rables. egory Employability, Skill Development nt Needs Global cription The course focuses on the basic concepts of relational database scheme and it analyses the relational data model with optimal and feasible solutions. it analyses the relational data model with optimal and feasible solutions. Assessment member to transform an information model into elational database schema and to use a data finition language and/or utilities to implement e schema using a RDBMS. Demonstration adderstand the processes of Database Development d Administration using SQL. Demonstration pills and techniques using SQL. Demonstration aluate the Optimal Solutions Demonstration aluate the Optimal Solutions Demonstration using SQL and PL/SQL. information Technology Instructional Hours / Week : 6 Terate a table for Employee database bevelopment, demonstrate the Optimal Solutions. reform various queries using any one Comparison, Logical, Set, Sorting and following fields ame, Designation, Gender, Age, Date of Joining and Salary. Insert at least ten rows an areform various queries using any one Comparison, Logical, Set, Sorting and Groupin perators. reate tables for library management system which demonstrate the use of primary key an reign key. Master table should have the following fields: Cacon, Title, Author a									
CO 5	Evaluat	the the	Optimal Solutions								
Offered	by Ini	torma	ation Technology	T (/ ***					
Course	ontent			Instru	ctional H	ours / W	eek:6				
mme			D	escription							
1	Create Name, perform operato	a table Desig n vari ors.	e for Employee details with Em- mation, Gender, Age, Date of ous queries using any one	ployee Num f Joining ar Comparison	nber as prir nd Salary. 1, Logical,	nary key a Insert at Set, Sor	and following fields: least ten rows and ting and Grouping				
2	Create foreign Transac Return Return	ators. te tables for library management system which demonstrate the use of primary key and gn key. Master table should have the following fields: Accno, Title, Author and Rate. saction table should have the following fields: User id, Accno, Date of Issue and Date of rn. Create a Report(Select verb) with fields Accno, Title, Date of Issue for the given Date of rn with column formats.									
3	Write a which (Alter) block.	tith with could formats. Fite a PL/SQL to update the rate field by 20% more than the current rate in inventory table has the following fields: Prono, ProName and Rate. After updating the table a new field lter) called for Number of item and place for values for the new field without using PL/SQL bock.									
4	Write a	Write a PL/SQL program to check whether given string is palindrome or not									
5	Write a	n PL/S	QL program to find factorial of	numbers us	ing functio	n and proc	cedure.				
6	Create	a PL/S	SQL Program to perform updati	on using var	rious trigge	ers.					

7	Create invent tables	e a dat ory ma	abase t anagem	rigger ent sys	to impl tem for	lemer che	nt on mast cking data	ter and validity	transac y. Assur	tion table me the ne	es which ecessary	are ba fields fo	sed on or both
8	Write and ar	a PL/S nother f	SQL to for —Fa	split th ail). Us	e stude e cursor	ent ta r for	ble into tw handling re	vo table ecords c	s based of studer	on result nt table.	t (One ta	ble for	—Pass
9	Write	a PL/S	QL to r	aise the	e excep	tions	in Bank A	ccount	Manage	ement tab	le		
10	Write	a PL/S	SQL to	handl	e pack	age							
11	Write	Write a PL/SQL Cursor for referencing fields in a record											
12	Write	Write a PL/SQL trigger for entering mark in the student table											
									Instr	ructional	l Hours	5	90
				То	ols for	Ass	sessment (50 Ma	rks)				
Applica of Log	tion gic	Prog Crea	gram tivity	Pr Del	ogram Du <u>gg</u> in	g	Test 1	Tes	t 2	Observ Note B	ation look	То	tal
8			8		8		10	10		6		50	
						N	Iapping						
													PSO

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	5
CO1	Н	Н	L	М	Н	L	М	Н	Н	Н	Н	М	М
CO2	Н	Н	L	Μ	Н	L	М	Н	Н	Н	Н	М	М
CO3	Н	Н	L	Μ	Н	L	Μ	Н	Н	Н	Н	Н	Н
CO4	Н	Н	L	М	Н	L	М	Н	Н	Н	Н	Н	Н
CO5	Н	Н	L	Μ	Н	L	М	Н	Н	Н	Н	Н	Н
H-High;	M-Mea	lium; I	L-Low										
		Cours	e desig	ned by	y					Verifie	d by		

B.Sc., Information Technology

Course	e Code]	Fitle									
22U3I	ГА404		Allied Paper IV: Robotics Credits: 4 CIA: 50 Marks ESE: 50 Marks											
Semest	ter: IV		Credits: 4	CIA	: 50 Marks		ESE: 50	Marks						
Course	Objectiv	ve	To gain knowledge abo environment.	ut Ro	bots and its	appli	cations in	real time						
Course	Categor	·у	Skill Development											
Develop	oment N	eeds	Global											
Course	Descrip	tion	This course covers a va understand the fundamen robots	tals of	of multidiscip f designing, b	linary uildin	topics n ig, and pi	ecessary to ogramming						
Course	Outcom	es			Teaching Met	hods	Assessme	nt Methods						
CO 1	Under	stand	the basics of robot's family	tree	Video Lectu	ires	Assi	gnment						
CO 2	Descr	ibing	the robots in real time		Tutorial		Poster F	resentation						
CO 3	Appli	cation	s of robots		Lectures / V: Lessons	ideo	(Quiz						
CO 4	Corre	lating	the robots with the society	Tutorial / C Studies	ase	Group	Discussion							
CO 5	5 Analyze the biological foundations of the reactive paradigmLecture / Class Projects							minar						
Offered	l by In	forma	ation Technology											
Course	Content	;			Instructiona	l Hou	ırs / Week	x : 5						
Unit			Description				Text Book	Chapters						
Ι	The Ro Autom Robots Anator Arms Robot Slave to	bot F ation S - Mc ny of and F Schoo Andr	Family Tree: The First Robot – Machine Tools – Indus odern Fictional Robots a Robot: The Human Body Hands – Moving Around – ol Teaching Robots to be Rol roids	ts – Co trial R – and Senso bots –	mputers – Fact cobots – Fictic a Robot's Bod rs – The Brai From Master-	tory onal ly – n –	1	1,2						
Suggost	od Loom	ning I	Mathada + Vidaa laaturas a	n tha	Instruction Instruction	ctiona	al Hours	9 02 Hrs						
Suggest	eu Leaf	inng I	victious . viuco iectures o	m ule	UASIUS UL KODO	i ran		02 mrs						
п	Robots Systems Hazardo Line Ma Robots Works? expert s compute	at Wo s – Ser ous Er ainten – Meo Artif system er for	ork Today: Factory Robots rvice Industry – Robot Deliv nvironments – TOMCAT L ance – Coal Mining – Secu dicine and Health – Why ar icial Intelligence: What doe ns – Uncertainty – Talking AI.	- Flex yery Sy ive Elourity Ro ren't the es the g to in	ible Manufactu stems – Workin ectric Transmis obots – Underv ere more Robo human brain d telligent syster	uring ng in ssion water ots at lo? – ns –	1	3,4						
					Instru	ctiona	al Hours	9						
Suggest	ed Lear	ning I	Methods : Poster Presenta	tion				02 Hrs						

III	Intelli – Hov – Plat – Bet Sensit Micro Robo the M	gent an w Sman nning – ter Rol ng – 7 pro bots ts for 1 lars mi	nd Adv rt shoul - Intell bot Boo Felepre s Robo Explori ssion.	anced d Rob igent 7 dies – sence ts in Sj ng the	Robot ots be? Feachin Advar – Bra pace: F e Mars	s: Are P – Arting and aced To inless, Robots Surfac	there In ificially Learn ele ope but Ir on the ce – Sp	ntellige y Intelli ing – I eration ntellige U.S.Sp bace Ro	ent Robo igent Ro ntrospec – Adva nt Robo bace Stat bbots Be	ots? bbots ction nced ots – tion eyond	1		5,6
									Instr	uctiona	l Hours	s	9
Suggest	ed Lea	rning l	Metho	ls:Q	uiz							02	Hrs
IV	Robots "Three People Living	, Socie laws in th Robot	ety – an of Ro e Wor s? – Ro	nd you botics kplace obots u	: Worl : Revi ?" – F p Clos	king Sa sited - Robotic e – Bu	afely w – Will s and ilding	vith Ro Robo U.S. a Robo	bots – 7 ts Repla Industry t	Гhe ace	2		7
					•		Ŭ		Instr	uctiona	l Hours	S	9
Suggest	ed Lea	rning l	Metho	ds :G	roup l	Discus	sion					02	Hrs
V	Biolog why Ex Theory Coordi – Inn Percep Functio Neisser and Sc insight	ical Fo xplore nation hate F tion in ons of r: Two heme T s to Ro	oundati the Bio aat are and Co Releasin Beha Perce Perce Theory	ons of ologica Anima ontrol ong M viors - eption ptual S – Pri	the F I Scier I Beha of Beh Iechan – Acti – Gi System nciples	teactiv ntist Agaviors aviors isms on – I bson: as Schos and	e Para gency : – Refl –Conc Percept Ecolog ema Ti Issues	digm: and Co ective current tion Cy gical A heory - in Tran	Overvie mputati Behavio Behav ycle – 7 Approac – Behav nsferring	w – onal rs – riors Fwo h – riors g	2		3
	Insights to Robots Instructional Ho												
Suggest	Instruction												Hrs
		0								Tota	l Hours	s 75	Hrs
Text Bo Referen	ooks ice Bool	ks	1. 2. 1.	Ellen 7 Univer Robin. King-s Contro	Thro, " rsities I R. Mu sun Fu	Robot Press, 2 urphy, ' u, C.S sing, V	ics the 2000. "Introd Geor íision a	Marria	age of C to AI Ro e, Ralp Illigence	Compute obotics" h Gong 2", Third	rs and M , PHI,20 gzalez, Edition	Machine 007 "Robot , 1987.	es", ics:
Web, U	RLs		www	.builti	n.com/	robotic	cs						
			1	Т	ools fo	r Asse	essmen	t (50 N	(arke)				
CIA	I	CI	A II	C	IA III	Pa	Clas	s ation	Assig	nment	Quiz	To	tal
	8		8		10		8	6		8	8		50
						Ma	pping						
CO	PO1	PO	PO	PO	PO	PO	PO7	PO	PSO	PSO2	PSO	PSO	PSO
PO CO1	11	2 M	3	4	5	6	M	8	1	N/	3	4	5
	H U	M	н u	M	н u	H M	M U	H M	H M	M H	H T	н u	H I
CO2 CO3	H	H	M	H	M	IVI I.	M	IVI	H	H	M	H	H L
CO4	M	H	L	M	H	H	M	H	M	M	H	M	H
CO5	M	M	H	Н	M	Н	M	M	M	M	M	М	M
H-High;	M-Me	dium; l	L-Low		•	·	•	<u> </u>	·	·			·
				11	17					Vorific	d by		
		Cours	e desig	ned by	y					v et me	uby		
		Cours	e desig	ned by	y					v ci iik	u by		

Course Code		Title											
21U4IT 22U4IT	Z301 / Z402		Skill Based Paper II: Practical in Multimedia										
Semester: IV			Credits: 3	CIA: 3	0 Marks	ES	ESE: 45 Marks						
Course Objective			To enable the students to know the fundamental tool of image editing software and make them to apply in real world business.										
Course	Categor	y	Employability, Skill Development										
Develop	ment Ne	eeds	Global										
Course l	Descript	ion	This course examines the c	lifferent t	ools and scri	pting tec	hniques	n GIMP					
Course	Outcom	es			Teac Met	hing hods	Assessn Method	nent ls					
CO 1	Unders	tand t	he basics of GIMP										
CO 2	To tran	sform	a photograph to drawing		— Demor	stration	Lah	oratory					
CO 3	To wor	k with	n tools		— Me	thod	Exp	eriments					
CO 4	To wor	k with		-									
CU 5	10 WOR		tion Technology										
Ottered by Information Technology													
Course	Content			Inst	ructional H	ours / W	eek:4						
Progra mme		Description											
1	Create	Sun l	Flower										
2	Anima	te Pla	ne flying in the Clouds										
3	Create	Plast	ic Surgery for the Nose										
4	Create	See-t	hrough text.										
5	Create	a We	b Page										
6	Conve	rt Bla	ck and White Photo to Color	r Photo									
7	Design	Design a visiting card containing at least one Graphic and text information.											
8	Create	an an	imation to represent the gro	wing Mo	on.								
9	Create	Create an animation to indicate a ball Bouncing on steps											
10	Simula	Simulate movement of a cloud											
11	Displa	y the	background given (filename	: Tulip.jp	g) through y	our name	2						
12	Create Welco change	an an me * e to a	imation with the following f letters should appear one by different color after.	features. one * the	fill color of	the text	should						
					Instru	ctional H	Iours	60					

Tools for Assessment (30 Marks)													
Application of Logic		Program Creativity		Pro Deb	Program Debugging		'est 1	Test 2		Observation Note Book		Total	
5			5		5		6	6		3		30	
						Ma	pping						
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	Н	Η	Η	L	Η	Η	Η	Η	Η	S	Н	Н	Μ
CO2	Μ	Μ	Μ	М	Н	Μ	Μ	Μ	Н	Η	Н	Μ	М
CO3	Н	Μ	Μ	Н	Μ	М	L	Η	Н	S	Η	Η	Η
CO4	L	Η	L	М	Н	Н	Н	Μ	Н	Μ	S	Η	Н
CO5	Μ	Μ	Н	Η	Μ	Η	Μ	Η	Η	М	Η	Η	S
H-High; M-Medium; L-Low													
Course designed by								Verified by					

Course Code			Т	itle							
22U3CKC509		Core Paper XIII: PHP Programming									
Semester: V		Credits: 4	Credits: 4 CIA: 50 Marks								
Course	Objective	To acquire fundamental know	owledge f	or web developm	ent using F	PHP.					
Course	Category	Employability/Skill Develo	opment								
Develop	ment Needs	Global/National /Local/Reg	gional								
Course Description To understand the concepts of PHP Programming and develop web											
Course	Outcomes			Teaching Methods	Assessme	ent Methods					
CO 1	Recognize t	he basic development concepts of	of PHP	Lecture	Grou	up Discussion					
CO 2	Write a sim	ple program using conditional sta	atements	Tutorial		Quiz					
CO 3	Understand	the concepts of functions and arr	rays	Video Lessons		Seminar					
CO 4	Use of Funct	ions, Classes and files		Demonstration		Seminar					
CO 5	Construct a modifying r	simple database program for add	ling and	Video Lessons	Assignment						
Offered	by Compu	iter Science									
Course Content Instructional Hours / Week : 5											
Unit		Description			Text Book	Chapters					
I	I Introducing PHP – Basic development Concepts-Creating first PHP Scripts. Using Variable and Operators - Storing Data in variable – 1 Understanding Data types –Setting and checking variables Data types.										
L. L				Instruction	al Hours	15					
Suggest	ed Learning	Methods:Group Discussion				03 Hrs					
IIUsing Constants-Manipulating variables with operators. Controlling Program Flow: Writing Simple Programs. Conditional Statements- Writing more complex Conditional Statements – Repeating Action with Loops						2,3					
		al Hours	15								
Suggest		03 Hrs									
III	4										
	al Hours	15									
Suggest	ed Learning	Methods :Seminar				03 Hrs					
IV	Using Fu Creating C Files –Writ	5, 6									
				Instruction	al Hours	15					

Suggested Learning Methods : Seminar												03	Hrs		
	Workin	ng with	Datab	ase ar	nd SQI	L: Intro	oducing	, Databa	ase and	SQL -					
V	Using N	AySQL	- Addir	7,28											
	working	g with se	essions.	Worki	ing wit	h XMI									
Instructional Hours													15		
Suggested Learning Methods : Assignment												03	Hrs		
			1							Tota	al Hours	75	Hrs		
			1. \	Vikram	Vaswai	ni, PHP	A Begi	nner's (Guide, T	'ata McGr	aw-Hill Put	olishing	Company		
Text B	ooks		I	Limited, 1 st Edition, New Delhi, 2010.											
			2. J	ulie C.	Meloni	<u>, PHP,</u>	MYSQ	L and A	Apache,	Pearson E	ducation,20	09			
			1. 5	Steven.	Holznei	r, The I	PHP Co	omplete	Referen	ce, Tata N	IcGraw-Hil	1			
Refere	nce Bool	KS		ublish	ing Cor	npany I	Limited	, 1 ^{er} edit	10n New	Delhi, 20	10. 	· C			
			2. 2	2. Steven Holzer, Spring in to PHP5 , Tata McGraw-Hill Publishing Company											
			1	httr			ew Del	$\frac{111}{201}$	0. hn/nhn	intro as	n				
Web. I	JRLs		 <u>https://www.wJschools.com/php/php/http.//dev.htm</u> https://www.tutorialspoint.com/php/indev.htm 												
				• <u>IIU</u>		· ····uu	Jiansp		<u> </u>	<u>inuca.nu</u>	<u></u>				
]	Fools f	or Ass	essmer	nt (50 N	Marks)						
CIAI			T	CIA III Class Assignment Semin				Semina	Total						
						Parti	cipatio	on	1100151	r		50			
	8		8	1	0		8	5	8		8	50			
	_					N	Iappin	g	•						
CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	Н	М	Н	Μ	Μ	Н	Μ	Н	Μ	Н	Μ	М	Н		
CO2	М	М	Н	Н	Н	Н	М	Н	М	Н	Н	Н	Н		
CO3	М	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н		
CO4	М	Н	Н	Н	Н	S	Н	Н	Н	Н	Н	Н	S		
CO5 H H H M H S F						Н	Н	Н	Н	М	Н	S			
H-High	; M-Med	lium; L	-Low												
	Course designed by									Verifi	ed by				

Course Code			Title										
22U3CKC510			Core Paper XIV	: Artificial Intellig	ence	ce							
Semester: V			Credits: 3 CI	A: 30 Marks	ESE: 45	Marks							
Course Objective			To understand how Artificial Intelligence used as a Problem Solving technique in real world.										
Course	Categor	у	Employability, Entrepreneurshi	0									
Develop	ment No	eeds	Global										
Course	Descript	tion	The Artificial Intelligence courabout networks, algorithms, and capable of human-like solutions	rse syllabus is aim d programming sk	aimed to impart knowledge skills to create algorithms								
Course	Outcom	es		Teaching Methods	Assessme	nt Methods							
CO 1	Knowle Intellig	edge a ence	about overview of Artificial	Lecture / Flipped Classroom	Ass	ignment							
CO 2	Gain K method	nowle ls	edge about Problem Solving	Construct visit Approach/ Tutorial	Se	Seminar							
CO 3	Apply I problem	Know n	ledge and reasoning to the	Lectures / Vide Lessons	0	Quiz							
CO 4	Analyz constru	e how cting	to use reasoning methods by plans	Tutorial / Case Studies	Program	n Execution							
CO 5	Evaluat using L	te met earni	thods of Knowledge Generation ng	Lecture / Class Projects	Lecture / Class Projects Program								
Offered	by I	nforn	nation Technology										
Course	Content			Instructional H	lours / Weel	x : 5							
Unit			Description		Text Book	Chapters							
II Introduction: What is AI? - The foundation of AI - AI Problems. Intelligent Agent: Introduction-How Agent should1 22													
Suggest	onal Hours	18											
Suggest	Problem	n So	lving hv searching. Problem	Solving Agents		02 Hrs							
II	Formula	ting es- Ga	Problems-Examples: 8 queens ame Playing: Minim ax-Alpha-Be	problem. Search ta Pruning.	1	3,5							
			· · ·	Instructio	onal Hours	18							
Suggested Learning Methods : Seminar02 Hrs													
	Kno	wledge	and	Reaso	ning:	A I	Knowled	ge b	ased a	.gent-			
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III	Rep	resentat	ion, R	easoning	g and	Logic	.Proposi	tional	l Logic-	Very	1	(5,7
	sim	ole Logi	c- Intr	oductior	n toFi	rst Ord	ler Logic						
									Instr	uction	al Hours		18
Suggest	ed Lea	arning 1	Metho	ds : Qui	Z							02	Hrs
IV	Pla Pla Pla	nning: nning – nning A	A sim Basic Igorith	ple plan Repres m- Exa	nning sentat mple.	agent ion of	 From Planning 	Prob g– A	lemsolv partial	ing to Order	1		11
									Instr	uction	al Hours		18
Suggest	ed Lea	arning 1	Metho	ds:Pro	ogram	Exect	ition					02	Hrs
V	Learr Learn	ing: A ing – Le	Gene earning	eral moo from D	del o Decisio	f Lear on Tree	rning Ag es.	gent -	– Induc	ctive	1		18
L									Instr	uction	al Hours		18
Suggested Learning Methods : Program Execution Total Hours													Hrs
										Tota	al Hours	75	Hrs
Text Bo	oks		1. St Aj 2.Ela 3rd I	uart J.R oproach aine Ric Edition,	ussell , Pren h, Ke Tata-	, Peter tice Ha evin K McGra	Norvig, all Incorj night, Sl w, 2009	Artif porati nivasa	icial Int on. ankar B	elligeno . Nair,	e – A Mod Artificial I	lern Intelli	gence,
Referen	ce Bo	oks	1.De Intel	epak l ligence,	Khem McG	ani, raw H	A First	t continuit	urse in Pvt Ltd,	n Arti 2013.	ficial		
Web. U	RLs												
				То	ols fo	or Asse	essment	(30 M	larks)			_	
CIA	I	CIA I	I C	IA III		Cl Partic	ass ipation		Assign	ment	Semi nar	Т	otal
4		4		7		5			5		5		30
						Ma	pping						
CO \ PO	PO 1	PO2	PO3	PO4	PO 5	PO6	PO7	P 08	PSO1	PSO2	PSO3	PS O4	PSO 5
CO1	Н	Μ	H	Μ	Н	Μ	L	L	Н	Н	Н	Μ	Н
CO2	Η	M	Н	M	Н	Μ	M	Μ	Н	Μ	Н	Н	Η
CO3	H	M	M	H	M	M	H	H	H	H	M	H	H
CO4	H	M	H	M	H	M	L		H	H	M	H	H
C05				M	Н	M	H	M	H	Н	H	М	Н
H-High;	M-Me	edium; I	L-LOW										
		Cours	e desig	ned by						Verifi	ed by		

Course	urse Code Title									
22U3ITH	P505	Core Paper XV: PHP P	rogramn	ning Lab						
Semester: V		Credits: 4	C	IA: 50 Marks	ESE:50 Marks					
Course Obj	ective	To acquire fundamental	l knowled	lge web developm	ent using PHP.					
Course Cate	egory	Skill Development /En	nployabil	ity						
Developmen	t Needs	Global/Local								
Course Desc	cription	To development skill	set in Ma	achine Learningan	and apply the concepts					
Course Out	comes			Teaching Metho	ds Assessment					
CO 1	Develop functions	the program for control structu	ire and	Program Demonstration	Program Creativity					
CO 2	Impleme	nt the concepts of string and A	s of string and Arrays Program Demonstration							
CO 3Create a simple database program for student informationProgram DemonstrationApplication of Logic										
CO 4Develop simple program to import Gen bank and finding of mutationsProgram DemonstrationProgram Development										
CO 5	Create a p Fragments	rogram for Concatenating DNA s Transcription		Program Demonstration	Program Development					
Offered by	Comp	uter Science(Data Science)								
Course Con	tent		Ins	tructional Hours	/ Week : 6					
		Program	List							
1. Write	a PHP prog	gram to illustrate Conditional and	Looping	Statements.						
2. Write	a PHP prog	gram to demonstrate Array Functi	ons, string	g, numeric and date	functions.					
3. Write	a PHP prog	gram to create user defined function	ons.							
4. Write	a PHP prog	gram for file creation and file mar	nipulation.							
5. Write	a PHP prog	gram for creating sessions.								
6. Write	a PHP prog	gram for creating cookies								
7. Create	e a Simple a	application using forms in PHP								
8. Write	a PHP prog	gram for creating tables with cons	straints and	d demonstrate table	join.					
9. Write rows	9. Write a PHP program for Database connectivity, Create, Insertion, Updating and Deleting rows in MySQL tables									

10.	Write a	PHP	p ro	ogram	for so	rting and	l searc	ching a	dat	ta.					
11.	Write a set oper	PHP rators	Pro S.	ogram	to illu	istrate the	e usag	ge of su	ıbqı	ueries,	aggrega	ate func	tions,		
12.	Write a appropri	PHP riates	pro to f	ogram format	to cre the o	ate a sim utput.	ple w	veb pag	e. V	/alidat	e the In	put and	apply		
			S	olving	g Case	studies	and]	Progra	m o	develo	pment			10	hrs
												Tota	l Hou	rs 90	Hrs
	Tools for Assessment (50 Marks)														
Laboratory Performance- Application of Logic Laboratory Performance- Program Creativity Performance- Program Creativity Performance- Program Chapter Laboratory Performance- Program Creativity Performance- Program Chapter Performance- Program Debugging Observation Note Book												DUUK	Total		
	8			8		8		1	10		10		6	5	0
							Ma	apping							
CO \ PO	PO1	РО	02	PO 3	PO4	PO5	POe	5 PO	7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	Н	S		Н	Н	М	Н	S		Н	Н	S	Н	Н	М
CO2	Н	S		Н	Н	М	Н	S		Η	Н	S	Н	Н	М
CO3	Н	S		Н	Н	Н	H	S		Н	Н	S	Н	Н	Н
CO4	Н	S		Н	H	Н	H	S		H	H	S	H	H	H
CO5	Н	S		Н	Н	Н	Н	S		Η	Н	S	Н	Н	Н
H-High	ı; M-Me	edium	1; L	-Low											
		Co	ours	se desi	gned	by						Verifie	d by		
						-									

Course	Code		Title										
22U3I1	P506		Core Paper XV	I: Practical	in Web 🛛	Fechnolo	gy						
Semest	er: V		Credits: 3	CIA: 30 I	Marks	ES	E: 45 Marks						
Course (Objectiv	'e	Students will acquire the requirements and functio	skill to choo nality of the	se the tec web site.	hnology t	to use based on the						
Course	Categor	y	Employability, Skill Deve	lopment									
Develop	ment Ne	eds	Global										
Course l	Descript	ion	This course supports e development, support, and and systems integration se	exploration I management rvices.	in career	rs related ware, soft	l to the design, tware, multimedia,						
Course (Outcom	es			Teac Metl	hing hods	Assessment Methods						
CO 1	To de static a	velop and dy	an ability to design and ynamic	implement									
CO 2	To de frames techno	evelop s, sc ology I	HTML pages with the pripting languages, and like DHTML,XML.	e help of evolving	Demon Me	stration thod	Laboratory Experiments						
CO 3	Able to	o wor	k with CSS										
CO 4 CO 5	Analyz Able t	ze difi o desi	gn web site	ML									
Offered	by Inf	forma	ntion Technology		L								
Course (Content			Instru	ctional H	ours / W	eek : 4						
Progra mme			Ι	Description									
1	Create charac	Web ters.	Page and apply backgrou	ind color, te	xt color,	horizonta	l rules andspecial						
2	Create	Web	Page and include images w	ith different	alignment	t and wrag	pped text						
3	Create	tables	s and format tables using ba	sic table tag	s and diffe	erent attri	butes.						
4	Create	a frar	neset that divides browser w	window into	horizonta	l and vert	icalframesets.						
5	Create	Web	Page and apply style rules	using CSS.									
6	Create	Web	Page including control stru	ctures using	JavaScrip	t.							
7	Develo	op and	l demonstrate the usage of i	nline and ext	ternal styl	e sheet us	sing CSS.						
8	Write text fie numbe should	an H ld in r is ou show	TML page including any re the range of 0 to 999 and at of range, it should show ' "not a number" message in	equired Javas shows it in out of range the result b	Script that a another " and if it ox.	takes a r text field is not a r	number from one l in words. If the number, it						
9	Write button words separat	an HT . Once and li ted wi	FML page that has one inp e the user clicks the submit nes in the text entered using ith a white space and lines a	but, which ca button, it sh g an alert me ure separated	an take m ould show ssage. Wo with new	ulti-line t the num ords are line char	text and a submit ber of characters, acter.						

12	repetition of image with background-repeat property 4) Define style for links as a: link, a:active a:hover a:visited 5) Add customized cursors for links 6)Work with layers
	Design a web page using CSS which includes the following: 1) Use different font styles 2) Set background image for both the page and single elements on page 3) Control the
11	(should not be less than 6 characters) 3. E-mail(should not contain invalid addresses)
	Write a java script to validate the following fields in a registration page 1. Name (should
	customize the properties of the font of the capital (colour, bold and font size).
10	user selects a country, its capital should be printed next to the list. Add CSS to
	Write an HTML page that contains a selection box with a list of 5 countries. When the

				То	ols for	Asses	sment	(30 Ma	arks)			I	
Applica of Log	tion gic	Prog Crea	gram tivity	Pr Deb	ogram ouggin	g T	'est 1	Tes	st 2	Observ Note H	ation Book	То	tal
5			5		5		6	6		3		30	
						Ma	pping						
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO 5
CO1	Н	Μ	H M H M				Н	М	Н	М	Н	Н	Н
CO2	Н	Μ	Н	Μ	Н	Μ	Μ	Μ	Н	М	Н	Η	Μ
CO3	Н	Μ	Μ	Н	М	М	Н	Η	Μ	Н	Н	Μ	Н
CO4	Η	Μ	Н	Μ	Н	М	L	L	М	Μ	Н	Η	Μ
CO5	Η	Н	М	Μ	М	L	Η	Η	Η	Μ	Н	Н	Η
H-High;	M-Mec	lium; I	L-Low										
		Course	e desig	ned by	7					Verifie	d by		

Cou	rse Code	Title									
22U 3	BCKE501	Elective	Paper I : B	lock Chain Techn	ology						
Sem	ester: V	Credits: 4	CIA: 50	Marks	ESE:50 N	Iarks					
Course	Objective	To understand the Block technology Techniques.	chain tech	nology and expla	in about the	Block chain					
Course	Category	Employability/Skill Deve	elopment								
Develop	ment Needs	Global/National /Local/R	egional								
Course	Description	To understand the concep	ots of Block	chain technology	and its Tech	niques.					
Course	Outcomes	-		Teaching Methods	Assessmen	t Methods					
CO 1	Understand chain Techn	emerging abstract models for E ology.	Block	Poster Presentation	Group	Discussion					
CO 2	Identify majo existing betw domain.	or research challenges and technic een theory and practice in crypto	Just a Minute Presentation	Group	Discussion						
CO 3	It provides c of Block cha ledgers, how achieved, an	onceptual understanding of the in as a method of securing dist consensus on their contents is d the new applications that the	Video Lectures	As	signment						
CO 4	Apply hyper implement t	ledger Fabric and Etheric plat he Block chain Application.	adger Fabric and Etheric platform to Block chain Application.DemonstrationSeminar								
CO 5	Understand th	ne role of Block chain technology		Video Lessons	S	eminar					
Offered	by Compu	ter Science									
Course	Content			Instructio	nal Hours / `	Week:6					
Unit		Description			Text Book	Chapters					
Ι	INTRODUC Block chain- Blockchain 2 Distributed Cryptocurren Cryptographic pointer and M	TION TO BLOCKCHAIN Public Ledgers, Blockchain .0, Smart Contracts,Block in Consensus, The Chain an cy to Blockchain 2.0 - Permiss c -Hash Function, Properties lerkle tree	as Public a Blockch nd the L sioned Mod s of a ha	Ledgers -Bitcoin ain, Transactions ongest Chain lel of Block chain sh function-Hash	1	1					
				Instructi	onal Hours	15					
Suggest	ed Learning I	Viethods : Video Lectures or D CRYPTO CURRENCY	n Introduct	tion to blockchaiı	1	03 Hrs					
п	A basic crypto currency, Creation of coins, Payments and double spending, FORTH - the precursor for Bitcoin scripting, Bitcoin Scripts , Bitcoin P2P Network, Transaction in Bitcoin Network, Block Mining, Block propagation and block relay, Consensus introduction, Distributed consensus in open environments-Consensus in a Bitcoin network										
Suggest	od I comina I	Mathada Widaa Lasturas on L	ntroduction	Instructi	onal Hours	15 03 Um					
Suggest	BITCOIN C	ONSENSUS	ntroduction	r to bitcom scriptin		US HIS					
ш	Bitcoin Con PoW, Attack Burn - Proc	sensus, Proof of Work (PoW s on PoW ,monopoly problem of of Elapsed Time - Bitcoin	sh PoW , Bitcoir of Stake- Proof o Mining Difficulty								

	Mining	g Pool-	Permis	sionec	l mod	el and	use	cases,	Design	issues for	r 1		3
	Permis	sioned	Block	chains	, Exec	ute co	ontract	s- Cons	sensus r	nodels for	r 4		
	Paxos	sioned	DIOCK	cnam-	DISITIO	uted c	onsens	sus in c	losed ef	wironmen	L		
	1 0703									Instructi	onal Hours		15
Suggest	ed Lear	ning M	lethod	s:Gro	up Dis	cussio	n					03	3 Hrs
	DISTR	IBUTI	ED CO	NSEN	ISUS								
	RAFT	Consen	sus-By	zantin	e gener	al prol	olem, l	Byzantiı	ne fault	olerant	1		5
IV	system	-Agreer	nent Pi	otocol	, Lamp	ort- Sl	nostak	-Pease I	BFT Alg	orithm-	-		5
	BFT ov	ver Asy	nchron	ous sys	stems,	Practic	al Byz	antine l	Fault To	lerance			1.5
Cucanat			[_4hd							Instructi	onal Hours	03	15 2 Uma
Suggesu	BI OC	mng м к снл		PPI IC		SCUSSIC NG	DII					U	n rs
v	Internet	t of Thi	nos-M	edical	Record	l Mana	gemer	t Syster	n-Block	chain in			
,	Govern	ment a	nd Blo	ck		. Ivituitu	gemer	le Byster	II DIOCK		1		7
	chain S	ecurity	-Block	chain U	Use Ca	ses –Fi	inance						
•										Instructi	onal Hours		15
Suggest	ed Lear	ning M	lethod	s : Apj	ply the	techn	iques	with rea	al time (data		03	3 Hrs
			—	_						T	otal Hours	90) Hrs
			1	. Basl	hir, Im	ran , N	laster	ing Blo	ckchain	: Deeper i	nsights into		
				dec	entrali	zation	, cryp	tograph	iy, Bitco	oin, and p	opular Block	chai	n
				Irai	newor: Un	KS,201 it T• S4	1.	$\cdot 11$ to	1.6 (Ch	onter 1)			
Text Bo	oks				Un	it II: S	Section	s: 2.1 tc	2.5 (Cl	apter 2)			
Unit II: Sections: 2.1 to 2.5 (Chapter 2) Unit III: Sections: 3.1 to 3.8 (Chapter 3)													
					Un	it IV: S	Section	ns: 5.1 t	o 5.4, 5.	8 (Chapter	r 5)		
					Un	it V: S	ection	s: 7.1 to	7.5 (Ch	apter 7)			
			1	Arvi	nd Nar	ayanan	, Josep	h Bonne	au, Edwa	ard Felten,	Andrew Mille	er, and	l Steven
				Gold	lteder.	Bitcoi	in an	d cryp	tocurrer	ncy techn	ologies:A co	ompre	hensive
Referen	ce Book	KS	2	Iose	nh Ro	nneau	et al		y Piess, 2 Research	2010. nersneci	tives and ch	allen	ges for
			2	Bitc	oin an	nd crv	ot ai, ptocui	rencv.	IEEE S	vmposium	on security	and F	Privacy.
				201	5.		-	,	~,	,р	· · · · · · · · · · · · · · · · · · ·		,
Web. Ul	RLs		1	. https:	://www	v.inves	topedia	a.com					
					Tools f	for Ass	sessme	ent (50]	Marks)				
0	CIA I		CIA II	CI	A III	Dor	Class	tion	Assign	ment	Seminar	Т	otal
	8		8		10	I al	8		5	2	8	5	0
	0	I	0			N	Mappi	ng		<u> </u>			•
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PS O4	PSO5
CO1	М	М	М	М	М	Μ	M	M	М	М	М	M	М
CO2	M	M	Μ	Μ	Μ	M	M	M	M	M	M	Μ	M
CO3	М	Н	Н	Н	Н	Μ	Н	Н	М	Н	Н	Н	Н
CO4	Μ	Н	Н	Н	Н	Μ	Н	Н	М	Н	Н	Н	Н
CO5	Н	Н	Н	Н	Н	Н	Н	Η	Н	Н	Н	Н	Н
H-High;	M-Med	lium; L	-Low										
		Course	desig	ned by	,					Verifi	ed by		

Course Code Title									
22U3C	CKE502	Disciplin Elective Paper I: Next G	e Specific Generation Netv	vorks					
Semes	ster: V	Credits: 4 CIA: 5	50 Marks	ESE: 50 N	Marks				
		(Common to B. Sc. CS / DCFS /	IT / BCA)						
Course Objecti	ve	To learn the technical, economic and s networks. Analyse the evolution of technol NGN framework catering services of end u	ervice advantag logies of 4G and ser with QoS pro	es of next beyond, to ovisioning.	generation explore the				
Course Categor	ry	Skill Development /Employability/Entrepre	eneurship						
Develop Needs	oment	Global							
Course	tion	Description about Course category and Dev	velopment Needs						
Descrip		Course Outcomes	Teaching Methods	Assessmen	t Methods				
CO 1	Describe domain i	the issues and challenges of wireless n future generation network design	Smart Board	Assignme	nt				
CO 2	Explain t	he evolution of technologies of 4G and	Video Lessons	Seminar					
CO 3	Explore t	he LTE concepts and technologies	Smart Board	Seminar					
CO 4	CO 4 Outline the process of integrating SDN with LTE Case study Assignments Gr								
CO 5Explain the NGN architectures, management and standardizationsFishbowl TechniquesAssignment									
Offered	l by Cor	nputer Applications							
Course	Content		Instructional H	Iours / Wee	ek : 6				
Unit		Description		Text Book	Chapters				
_	INTRO motivatio	DUCTION: Evolution of public mobi ons for IP based services, Wireless IP netwo	le services - ork architecture	3	1, 2				
1	-3GPP generatio	packet data network architecture. Introdu on networks - Changes, Opportunities an opies Next Generation Society future Trend	nd Challenges,	2	1				
	Teennon	sgies, Next Generation Society, future frend	Instructio	nal Hours	18				
		Report Present	tation		2				
II	LTE - I History o Architeo Logical, Multiple	Introduction: Architectural Review of UM of Mobile Telecommunication Systems, Need eture of LTE Air Interface: Air Interface Transport and Physical Channels, The H Antenna Transmission, Resource Element M	ITS and GSM, d for LTE. Protocol Stack, Resource Grid, Japping.	5	1, 6				
		Instru	ictional Hours		18				
		Report Present	tation	1	2				
III	SDMN-J SDN fo Ubiquito restructu benefits.	LTE INTEGRATION: SDN paradigm and r wireless-challenges, Leveraging SDN for bus connectivity-mobile cloud-cooperative ce ring mobile networks to SDN-SDN/L7	nd applications, for 5G network ellular network- TE integration	4	3, 4, 5, 6				
		Inst	ructional Hours	6	18				
		Gro	oup Discussion		2				

IV	NGN requiren service equipm fixed, n	ARCH ments, stratu ent fu nobile	HITEC NGN um, se nction. , cable	TURE func rvice/ NGN and int	: Evol tional conter entities ernet e	lution archit nt lay s, Netw volutic	towar ecture- er and ork ar	rds N - Tra d cus nd Sen ards N	GN-Tech nsport st stomer te vice evol IGN.	nology tratum, erminal ution -	1		1, 3, 4, 6
								Ins	tructiona	l Hour	5		18
								G	roup Dis	cussion			2
V	NGN requires Accour Service and GS alliance	MAN ments atting, and c SI-NG and N	AGEN on Ma perforn control N relea	IENT nagem nance, manag ises, E	AND ent-Cu devic ement- TSI-NO	STA stomer e and End-t GN co	NDAI , third infor oEndQ ncept	RDIZ party matio oS an and r	ATION: y, Configu n manag nd securit eleases, N	NGN aration, ement. y. ITU NGMN	1 2		3,7,8 4
								Ins	structiona	al Hour	S		18
									Video Pr	resentat	ion		2
									Tot	al Hou	ſS		90
Text B Refer Boo Web. 1	ence ks URLs	1. J and 2. T and 3. Tec Arc 4. J Mo Jun 5. "An Con 1. " Zea http://ile	ingmin I poten Thomas I Mana Jyh-Ch hnolog hitectus Madhus bile N e 2015. Christ n Intro nmuni Next-C dally H os://ww Broadh	g Li S tials" Plavy gemer eng C ies - res and sangaL Vetwor oducti cation Genera Hakima w.acac oand_p	Salina, Wiley, k, — N t, Wile then, N " IP-Ba l Protoc iyanag tyanag rks Cox on to s". tion V tion V chaou lemia.e	Pascal Januar ext ge ey & II Nationa ased I cols. e, And b Direc LTE, Vireles Ichi. du/383	Salina y 2008 nerati EEE Pr al Tsi Next-C drei G eyond ctor, LTF ss Te	a "Ne 3. fon Ta ress Pi ng H Gener aurtov. L LT Chris E-Adv chnol	xt Gener elecommu ublication ua Unive ation W , Mika Y , Mika Y E Netw Cox canced, S ogies", N	ration M unication (s, 2010) ersity, 7 ireless (lianttila cork A Commu Sae, Vo Naveen TE LT	Network on Netwo Fao Zha Networ a, ''Soft rchitect unication olte and Chilam E Advan	s-persp orks, So ang, Te ks", Sy ware D ure'', s Ltd, s Ltd, l 4G 1 kurti	ectives ervices lcordia ystems, Defined Wiley, UK, Mobile Sherali r_Mob
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						Ma	pping						
CO/PO	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO	8 PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	H	M	M	M	L	M	H	H	H	H	M	M
CO2 CO3	н ц	н и	M	M	M	L I	M		н и	H U	H U	М Ц	М Ц
CO3	H	H	M	M	M	L	M	H H	H	H	H	H	H
C05	H	Н	M	M	M	L	M	H	H	Н	H	Н	H
H-High;	M-Med	ium; I	L-Low		. I				I	ı			
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Cou	Course Code Title									
22U 3	3CKE503	Electiv	e Paper - I	: Internet	t of Thiı	ngs				
Sem	ester: V	Credits: 4	CIA: 50	Marks		ESE:50 M	larks			
Course	Objective	To understand the Data an Technology, Understand S Design.	d Knowled tate of the	lge Manage Art – IoT A	ment an Architect	d use of De ure and Rea	vices in IoT Il World IoT			
Course	Category	Employability/Skill Devel	opment							
Develop	ment Needs	Global/National /Local/Re	gional							
Course	Description	To understand the concept	s of IOT							
Course	Outcomes			Teachi Metho	ing ods	Assessment	t Methods			
CO 1	Understa context.	nd the vision of IoT from a glo	obal	Social M	Iedia	Group	Discussion			
CO 2	Understa	nd the Market perspective of I	oT.	Brainstor	ming		Quiz			
CO 3	Understa Manager	nd Use of Devices, Gateways and the formation of the second s	and Data	Video Leo	ctures	Ass	signment			
CO 4	Build sta	te of the art architecture in IoT		Demonstr	ation	Ass	signment			
CO 5	Applicat Building Constrai	ion of IoT in Industrial and Co Automation and Real World I nts.	mmercial Design	Discussion	1	S	eminar			
Offered	by Compu	ter Science								
G	C 4									
Course	Content			Inst	truction	al Hours / V	Week:6			
Unit		Description		Inst	truction	al Hours / Text Book	Week : 6 Chapters			
Unit I	M2M to Id towards Io Characteristi	Description DT -The Vision-Introduction, T-the global context, A us cs.	From M2 e case ex	Inst M to IoT, cample, Di	M2M ffering	al Hours / Text Book	Week : 6 Chapters 2			
Unit I	M2M to Id towards Io7 Characteristi	Description OT -The Vision-Introduction, T-the global context, A us cs.	From M2 e case ex	Inst M to IoT, cample, Di Ins	M2M ffering	al Hours / Text Book 1 nal Hours	Week : 6 Chapters 2 15			
Course Unit I Suggest	M2M to Id towards Io7 Characteristi ed Learning I M2M to Io7	Description oT -The Vision-Introduction, T-the global context, A us cs. Methods : Group Discussion	From M2 e case ex	Inst M to IoT, cample, Di Ins	M2M ffering struction	al Hours / Text Book 1 nal Hours	Week : 6 Chapters 2 15 03 Hrs			
Unit I Suggest II	M2M to Io towards IoT Characteristi ed Learning M M2M to IoT M2M Value for IoT, Th information m M2M to Io' Main design outline, stand	Description oT-The Vision-Introduction, T-the global context, A us cs. Methods : Group Discussion T – A Market Perspective– In Chains, IoT Value Chains, An ne international driven glob monopolies. F-An Architectural Overvie principles and needed capa lards considerations.	From M2 e case ex troduction, emerging i al value o w– Buildir bilities, Ar	Inst M to IoT, cample, Di Ins Some Defin industrial str chain and ng an archit n IoT archi	M2M ffering struction nitions, ructure global tecture, itecture	al Hours / Text Book 1 nal Hours	Week : 6 Chapters 2 15 03 Hrs 3-4			
Unit I Suggest II	M2M to Id towards IoT Characteristi ed Learning M M2M to IoT M2M Value for IoT, Th information m M2M to Io' Main design outline, stand	Description oT-The Vision-Introduction, T-the global context, A us cs. Methods : Group Discussion Y – A Market Perspective– In Chains, IoT Value Chains, An the international driven glob monopolies. F-An Architectural Overvie principles and needed capa lards considerations.	From M2 e case ex troduction, emerging i al value o w– Buildir bilities, Ar	Inst M to IoT, cample, Di Ins Some Defin industrial str chain and ng an archit n IoT archi Ins	M2M ffering struction nitions, ructure global tecture, itecture	al Hours / Text Book 1 nal Hours 1 1 1 nal Hours	Week : 6 Chapters 2 15 03 Hrs 3-4			
Unit I Suggest II Suggest	M2M to Id towards IoT Characteristi ed Learning M M2M to IoT M2M Value for IoT, Th information m M2M to Io' Main design outline, stand	Description T-The Vision-Introduction, T-the global context, A us cs. Methods : Group Discussion T – A Market Perspective– In Chains, IoT Value Chains, An the international driven glob monopolies. T-An Architectural Overvie principles and needed capa lards considerations. Methods : Quiz	From M2 e case ex troduction, emerging i al value o w– Buildir bilities, Ar	Inst M to IoT, kample, Di Ins Some Defin industrial str chain and ng an archit n IoT archi Ins	M2M ffering struction nitions, ructure global tecture, itecture	al Hours / V Text Book 1 nal Hours 1 1	Week : 6 Chapters 2 15 03 Hrs 3-4 15 03 Hrs			
Unit I Suggest II Suggest III	M2M to Id towards IoT Characteristi ed Learning M M2M to IoT M2M Value for IoT, Th information m M2M to Io Main design outline, stand ed Learning M M2M and Local and wi	Description oT-The Vision-Introduction, T-the global context, A us cs. Methods : Group Discussion T – A Market Perspective– In Chains, IoT Value Chains, An ne international driven glob monopolies. F-An Architectural Overvie principles and needed capa lards considerations. Methods : Quiz IoT Technology Fundamen de area networking, Data man	From M2 e case ex troduction, emerging i al value o w– Buildir bilities, Ar tals- Devic agement.	Inst M to IoT, kample, Di Ins Some Defin industrial str chain and ng an archit n IoT archi Ins es and gat	M2M ffering struction nitions, ructure global tecture, itecture struction	al Hours / Text Book 1 nal Hours 1 nal Hours 1 1	Chapters 2 15 03 Hrs 3-4 15 03 Hrs 5			
Unit I Suggest II Suggest III	M2M to le towards IoT Characteristi ed Learning M M2M to IoT M2M Value for IoT, Th information m M2M to Io Main design outline, stand ed Learning M M2M and Local and wi	Description T-The Vision-Introduction, T-the global context, A us cs. Methods : Group Discussion ' – A Market Perspective– In Chains, IoT Value Chains, An ne international driven glob monopolies. F-An Architectural Overvie principles and needed capa lards considerations. Methods : Quiz IoT Technology Fundamen de area networking, Data mana	From M2 e case ex troduction, emerging i al value o w– Buildir bilities, Ar tals- Devic agement.	Inst M to IoT, kample, Di Ins Some Defin industrial str chain and ng an archit n IoT archi Ins es and gat Ins	M2M M2M ffering struction nitions, ructure global tecture, itecture struction eways, struction	al Hours / V Text Book 1 al Hours 1 al Hours 1 al Hours	Chapters 2 15 03 Hrs 3-4 15 03 Hrs 5 15 05 FF			
Unit I Suggest II Suggest III Suggest	M2M to Id towards IoT Characteristi ed Learning I M2M to IoT M2M Value for IoT, Th information 1 M2M to Io' Main design outline, stand ed Learning I M2M and Local and wi	Description oT-The Vision-Introduction, T-the global context, A us cs. Methods : Group Discussion T-A Market Perspective- In Chains, IoT Value Chains, An ne international driven glob nonopolies. T-An Architectural Overvie principles and needed capa lards considerations. Methods : Quiz IoT Technology Fundamen de area networking, Data mana Methods : Assignment pageage in IoT. Everything as	From M2 e case ex troduction, emerging i al value o w– Buildir bilities, Ar tals- Devic agement.	Inst M to IoT, kample, Di Ins Some Defin industrial str chain and ag an archit n IoT archi Ins es and gat VaaS) M2	M2M ffering struction nitions, ructure global tecture, itecture struction struction	al Hours / V Text Book 1 1 nal Hours 1 nal Hours 1 nal Hours	Week : 6 Chapters 2 15 03 Hrs 3-4 15 03 Hrs 5 15 03 Hrs			

Instructional Hours													15	
Suggest	ed Lear	ning M	[ethods	s : As	signme	ent						03	B Hrs	
	IoT A	rchited	ture-S	tate o	of the	Art -	- Introd	uction,	State	of the a	rt.		~ ¬	
V	Archit	tecture	Refer	ence	Mode	- Intro	duction	, Refe	erence N	Aodel a	nd I	(D- /	
	archite	cture, I	oT refe	rence	Model	•								
										Instruc	tional Hours		15	
Suggest	ed Lear	ning M	lethod	s : Sen	ninar							03	8 Hrs	
			1								Total Hours	90) Hrs	
			1.	Jan	Holle	r, Vla	asiosTs	iatsis,	Cather	ine Mu	lligan, Stefar	n Av	vesand,	
T 4 D -	- 1			Stam	atisKa	rnousk	os, Da	vid Bo	oyle, " F	rom Ma	chine-to-Mac	hine	to the	
Text Bo	OKS			Inter	net	of	Things	: In	troduct	ion to	a New	Ag	e of	
Intelligence", Academic Press, 2014.														
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			1.	A nni	roach)	» VD	10 - 10	nucept	Janga,	inter net	of Things (A	1141	ius-011-	
Referen	Reference Books Approach)", VPT, 2014.													
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				App	roach		mecun	g Ever	yunng	, Apress	Publications, 2	015		
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			1	,	Tools f	for Ass	sessmei	nt (50]	Marks)					
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					AIII	Par	ticipat	ion	Assign	iment	Semmar	10	otal	
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CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PS O4	PSO5	
CO1	Μ	Μ	М	Μ	Μ	Μ	М	М	Μ	М	М	Μ	М	
CO2	Μ	Μ	М	Μ	Μ	Μ	Μ	М	Μ	М	М	Μ	Μ	
CO3	M	H	Н	Н	Н	Μ	H	Н	M	Н	H	Η	H	
CO4	M	H	H	H	H	M	H	H	M	H	H	H	H	
CO5		H	H	Н	H	H	Н	H	H	H	H	Η	Н	
H-High;	M-Med	lium; L·	Low											
		Course	desig	ned by						Veri	fied by			
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Cou	rse Code		Т	itle							
22U3	3CKE504	Elective	Paper I	: Big Data	a Analyti	ics					
Sem	ester: V	Credits: 4	CIA: 50	Marks		ESE:50 M	larks				
Course	Objective	To provide an overview of an big data like Hadoop, NoSql principles in achieving big da	i exciting Map-Re ita analyt	growing fi duce and le ics.	ield of bi earn func	g data analy lamental tec	tics, analyse hniques and				
Course	Category	Employability/Skill Develop	ment								
Develop	ment Needs	Global/National /Local/Regio	Global/National /Local/Regional								
Course	Description	To understand the concepts of	To understand the concepts of Big Data								
Course	Outcomes			Teach Metho	ing ods	Assessment	Methods				
CO 1	Know ab	out the big data analytics		Jigsaw		Group	Discussion				
CO 2	Tools in	big data analytics using Hadoop		Inquiry Ba	ased		Quiz				
CO 3	Data mo	lel in big data analytics using No	Sql	Demonstr	ration	Ass	signment				
CO 4	Understa Program	nding and Know about Map Red ming	uce	Video Le	ctures	Ass	ignment				
CO 5	Gain mo	re knowledge about Hadoop strea	aming	Flipped	26	S	eminar				
	, Compu	ter Science, Computer Technol	logy, Inf	ormation 7	rechnolo	ology and BCA					
Offered	by Depart	ments	87			00					
Course	Content			Ins	truction	al Hours / V	Week:6				
Unit		Description				Text Book	Chapters				
Ι	INTRODUC characteristic approach, Bi	TION TO BIG DATA : Introdu s, types of Big Data, Tradition gdata Challenges, Case Study of	ction to I nal vs. H Big Data	Big Data, B Big Data b Solutions.	ig Data ousiness	1	1				
				Ins	struction	nal Hours	15				
Suggest	ed Learning N	Methods : Group Discussion					15				
	HADOOP:	· · · · · · · · · · · · · · · · · · ·					03 Hrs				
		oop – W	hy not RD	BMS –		03 Hrs					
	RDBMS ver	ntroducing Hadoop – why Had sus Hadoop – History of Hado	oop – W op – Ha	'hy not RD doop Over	BMS – view –		03 Hrs				
II	RDBMS ver Hadoop Dis	ntroducing Hadoop – why Had sus Hadoop – History of Hado tributed File System (HDFS)	oop – W op – Ha – Proce	'hy not RD doop Over essing Dat	BMS – rview – ca with	2	03 Hrs 2				
II	RDBMS ver Hadoop Dis Hadoop – M	ntroducing Hadoop – why Had sus Hadoop – History of Hado tributed File System (HDFS) anaging Resources and Applicati	oop – W op – Ha – Proce	hy not RD doop Over essing Dat Hadoop Y	BMS – tview – ta with TARN –	2	03 Hrs 2				
II	RDBMS ver Hadoop Dis Hadoop – M Interacting w	ntroducing Hadoop – why Had sus Hadoop – History of Hado tributed File System (HDFS) anaging Resources and Applicati ith Hadoop Ecosystem	oop – W op – Ha – Proce ons with	hy not RD doop Over essing Dat Hadoop Y	BMS – view – a with ARN –	2	03 Hrs 2				
II	RDBMS ver Hadoop Dis Hadoop – M Interacting w	ntroducing Hadoop – Why Had sus Hadoop – History of Hado tributed File System (HDFS) anaging Resources and Applicati ith Hadoop Ecosystem	oop – W op – Ha – Proce ons with	hy not RD doop Over essing Dat Hadoop Y Ins	BMS – view – a with ARN – struction	2 nal Hours	03 Hrs 2 15				
II Suggest	RDBMS ver Hadoop Dis Hadoop – M Interacting w	ntroducing Hadoop – Why Had sus Hadoop – History of Hado tributed File System (HDFS) anaging Resources and Applicati ith Hadoop Ecosystem	oop – W op – Ha – Proce	hy not RD doop Over essing Dat Hadoop Y Ins	BMS – view – a with ARN – struction	2 nal Hours	10 03 Hrs 2 15 03 Hrs				
II Suggest	RDBMS ver Hadoop Dis Hadoop – M Interacting w ed Learning M NoSQL DA'	ntroducing Hadoop – Why Had sus Hadoop – History of Hado tributed File System (HDFS) anaging Resources and Applicati ith Hadoop Ecosystem Methods : Quiz TA MODEL: Introduction to N	oop – W op – Ha – Proce ons with	hy not RD doop Over essing Dat Hadoop Y Ins NoSQL B	BMS – view – a with ARN – struction	2 nal Hours	10 03 Hrs 2 15 03 Hrs				
II Suggest	RDBMS ver Hadoop Dis Hadoop – M Interacting w ed Learning M NoSQL DA Drivers – No	ntroducing Hadoop – Why Had sus Hadoop – History of Hado tributed File System (HDFS) anaging Resources and Applicati ith Hadoop Ecosystem Methods : Quiz TA MODEL: Introduction to N oSQL Data Architectural Pattern	oop – W op – Ha – Proce lons with oSQL – ns – Var	hy not RD doop Over essing Dat Hadoop Y Ins NoSQL B iations of 1	BMS – view – a with ARN – struction susiness NoSQL	2 nal Hours	10 03 Hrs 2 15 03 Hrs				
II Suggest III	RDBMS ver Hadoop Dis Hadoop – M Interacting w ed Learning M NoSQL DA' Drivers – No Architectural of NoSQL	ntroducing Hadoop – Why Had sus Hadoop – History of Hado tributed File System (HDFS) anaging Resources and Applicati ith Hadoop Ecosystem Methods : Quiz TA MODEL: Introduction to N oSQL Data Architectural Pattern Patterns – Using NoSQL to Ma	oop – W op – Ha – Proce ons with oSQL – ns – Var nage Big	hy not RD doop Over essing Dat Hadoop Y Ins NoSQL B iations of 1 data – Cas	BMS – view – a with ARN – struction susiness NoSQL se study	2 nal Hours	10 03 Hrs 2 15 03 Hrs 3				
II Suggest III	RDBMS ver Hadoop Dis Hadoop – M Interacting w ed Learning M NoSQL DA' Drivers – No Architectural of NoSQL	ntroducing Hadoop – Why Had sus Hadoop – History of Hado tributed File System (HDFS) anaging Resources and Applicati ith Hadoop Ecosystem Methods : Quiz TA MODEL: Introduction to N oSQL Data Architectural Pattern Patterns – Using NoSQL to Ma	oop – W op – Ha – Proce ons with oSQL – ns – Var nage Big	hy not RD doop Over essing Dat Hadoop Y Ins NoSQL B iations of I data – Cas	BMS – view – a with ARN – struction susiness NoSQL se study	2 nal Hours 1	103 Hrs 03 Hrs 2 15 03 Hrs 3				
II Suggest III	RDBMS ver Hadoop Dis Hadoop – M Interacting w ed Learning M NoSQL DA' Drivers – No Architectural of NoSQL	Attends : Assignment	oop – W op – Ha – Proce ons with oSQL – ns – Var nage Big	hy not RD doop Over essing Dat Hadoop Y Ins NoSQL B iations of 1 data – Cas	BMS – view – a with ARN – struction susiness NoSQL se study struction	2 nal Hours 1 nal Hours	03 Hrs 2 15 03 Hrs				
II Suggest III Suggest	RDBMS ver Hadoop Dis Hadoop – M Interacting w ed Learning M NoSQL DA' Drivers – No Architectural of NoSQL ed Learning M MAP REDI	ntroducing Hadoop – Why Had sus Hadoop – History of Hado tributed File System (HDFS) anaging Resources and Applicati ith Hadoop Ecosystem Methods : Quiz TA MODEL: Introduction to N oSQL Data Architectural Pattern Patterns – Using NoSQL to Ma Methods : Assignment (CE Programming: Introduction	oop – W op – Ha – Proce ons with oSQL – ns – Var nage Big	hy not RD doop Over essing Dat Hadoop Y Ins NoSQL B iations of I data – Cas Ins	BMS – view – a with ARN – struction susiness NoSQL se study struction	2 nal Hours 1 nal Hours	13 03 Hrs 2 15 03 Hrs				

										Instructi	onal Hours		15	
Suggeste	Suggested Learning Methods: Assignment Hadoop streaming with R: Understanding the basics of Hadoop													
V Hadoop streaming with R: Understanding the basics of Hadoop streaming – How to run Hadoop streaming with R – Understanding a MapReduce application – Understanding how to code and run a Map-Reduce application – how to explore the output of Map Reduce application 3													4	
	Instructional Hours													
Suggested Learning Methods: Seminar													8 Hrs	
			-]	Fotal Hours	90) Hrs	
1. Radha Shankarmani, M Vijayalakshmi, "Big Analytics",WileyPublications,first Edition 2016													Data	
Text Bo	oks		2	. See	ma Ac	charya,	Subha	ashini	Chellap	pan, "Big	g Data and	Ana	lytics",	
Wiley Publication, first edition. Reprint in 2016 3. Vignesh Prajapati, "Data analytics with R and Hadoop", C 2013, Packt Publishing.													right ©	
2013, Fack Fublishing. 1. Michael Minelli, Michelle Chambers, and AmbigaDhiraj, "Big Data and the second														
Analytics: Emerging Business Intelligence and Analytic Trends for														
Referen	ce Book	KS		Tod	lay's B	usines	ses", W	/iley, 2	013	0	·			
			2	. Bill	Franks	s, Tam	ing, "T ł	ie Big	Data Ti	idal Wav	e: Finding O	pport	unities	
				In H	Huge D)ata St	reams	With A	Advance	ed Analyt	ics", Wiley			
Web. UI	RLs		1	. http)://ww	w.tech	target.	com/se	archda	tamanage	ement/definiti	ion/H	adoop	
				,	Tools f	for Ass	sessmei	nt (50 I	Marks)					
C	CIA I		CIA II	CI	A III	Par	Class ticipat	ion	Assign	iment	Seminar	То	otal	
	8		8		10		8		8	8	8	5	0	
						Ν	Mappin	ıg						
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PS O4	PSO5	
C01	M	Μ	Μ	Μ	Μ	Μ	M	Μ	M	M	М	Μ	М	
CO2	M	M	H	H	H	M	M	H	H	H	H	H	H	
CO3	H	M	H	H	H	H	M	H	H	H	<u>H</u>	H	H	
CO4	H	H	H	H	H	H	H	H	H	H	H	H	H	
<u>CO5</u>		H	H T	Н	H	H	Н	H	H	H	H	H	Н	
H-H1gh;	M-Med	lıum; L	-Low											
		Course	e desigi	ned by	•					Verifi	ied by			

NASC	2022
NASC	

Course	rse Code Title										
22U4I	ГS503		Skill Based	Paper III: Cybe	er Law						
Semes	ter: V		Credits: 3	CIA: 30 Marks		ESE: 45 1	Marks				
		L			1						
Course	Objectiv	ve	To know about the various typ applicability.	To know about the various types of Cyber Crimes, Cyber Laws and its applicability.							
Course	Categor	·у	Employability, Entrepreneursl	nip							
Develop	ment N	eeds	Global	Global							
Course	Descrip	tion	Cyber Law is a specialisation rectifies legal issues related to Law deal with criminal act defamation conducted on the i	n in the field of o the World W tivities such as nternet.	of law ide We s fraud	which loo b. The fiel l, theft, fo	ks into and ld of Cyber orgery, and				
Course	Outcom	ies		Teachin Methoo	ng ds	Assessme	nt Methods				
CO 1	Learn t	he va	rious types of cybercrimes	Lectur Flippe Classro	re / ed oom	Assi	gnment				
CO 2	Demon and the	istrate app	the various types of cyber laws licability	Construct Approa Tutori	t visit ich/ ial	Se	minar				
CO 3	Classif Essenti	ication	n of civil, criminal cases and ments of criminal law	Lectures / Lesso	Video ns		Quiz				
CO 4	Determ	nine th	e sections of Indian Evidence a	ct Tutorial / Studie	Case es	Assi	gnment				
CO 5	Know	about	the Indian Evidence Act	Flippe Classro	ed om	Se	minar				
Offered	by I	[nforn	nation Technology								
Course	Content	ţ		Instruction	nal Ho	urs / Week	: 4				
Unit			Description			Text Book	Chapters				
I	Introduction to Cyberspace, Cybercrime and Cyber Law:The World Wide Web, Web Centric Business, e-Business Architecture, Models of e-Business, e-Commerce, Threats to virtual world. IT Act 2000 - Objectives, Applicability, Non- applicability, Definitions, Amendments and Limitations. Cyber Crimes- Cyber Squatting, Cyber Espionage, Cyber Warfare, Cyber Terrorism, Cyber Defamation. Social Media-Online Safety for women and children, Misuse of Private information.1										
Suggest	ad Laar	nina	Mathada . Assignment	Instr	uction	al Hours	18				
Suggest	ed Lear	ning I	vietnous : Assignment				02 Hrs				

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4	U	Ζ	4

II	Regulatory Fr Information T Electronic H Governance. (Tribunal. (Ru Security, Acc Contracts and	amework of Information and Technology Act 2000 - echnology Act 2000, Digital Signature, E-Signature, Records, Electronic Evidence and Electronic Controller, Certifying Authority and Cyber Appellate les announced under the Act), Network and Network cess and Unauthorized Access, Data Security, E E Forms.	1 al Hours	3,4, 5, 9 18
Sugges	ted Learning N	Methods • Seminar		02 Hrs
III	Offences and Act 2008 – cyber- crimes 66F, 67, 67A penalties, pur Spam, Virus, Human right investigating	Penalties Information Technology (Amendment) Objective, Applicability and Jurisdiction; Various under Sections 43 (a) to (j), 43A, 65, 66, 66A to , 67B, 70, 70A, 70B, 80 etc. along with respective hishment and fines, Penal Provisions for Phishing, Worms, Malware, Hacking, Trespass and Stalking; is in cyberspace, International Co-operation in cybercrimes.	1	6,7,8
		Instruction	al Hours	18
Sugges	ted Learning N	Methods : Quiz		02 Hrs
IV	Classification law- Constitu Procedure Co and non-baila Judicial Magi	- civil, criminal cases-Essential elements of criminal ation and hierarchy of criminal courts. Criminal de. Cognizable and non-cognizable offences. Bailable able offences. Sentences which the court of Chief strate may pass.	1	8, 14, 15
		Instruction	al Hours	18
Sugges	ted Learning N	Methods : Assignment		02 Hrs
V	Indian Eviden Expert witne witnesses. Sec 138, 141. Se Secondary Ev	ce Act – Evidence and rules of relevancy in brief. ess. Cross examination and re-examination of ctions 32, 45, 46, 47, 57, 58, 60, 73, 135, 136,137, ection 293 in the code of criminal procedure. idence Section 65-B.	1	13, 17
		Instruction	al Hours	18
Sugges	ted Learning N	Methods : Seminar		02 Hrs
		Tot	al Hours	75 Hrs
Text B	ooks	 Karnika Seth; "Computers, Internet and New Tec Nexis Butters worth Wadhwa, 2012. VikasVashishth.; "Law and practice of intellectual Jonathan Rosenoer; "Cyber Law: The Law of Intern New York, 1997. Sreenivasulu N.S; "Law Relating to Intellectual Publishing, 2013 Pavan Duggal; "Cyber Law – The Indian Person 	hnology L al property net", Sprin al Property ective". Sa	aws", Lexis in India"3. ger- Verlag, r", Patridge akshar Law
		Publications.	centre , Da	

Referen	ce Boo	oks	1. 1 Ltd 2. Cyl Pub 3. V Lav 4. 7 5. 7	Harish C , 2012. Nina Go perCrime Dications Vakul Sh Vakul Sh v Publish The Paten The India	hande odbole s, C ,2011 arma; ing C it Act. n Evie	er; "Cy e and omput "Infor Co., Ind , 1970 dence	vber La SunitE er For rmation ia, 2011	Belapor Belapor rensics Techr 1. 72.	d IT Pr e; "Cy and nology:	otectio ber Se Legal Law a	n", PHI Le ecurity: Un Perspectiv nd Practice	earnir derst es", ", Un	ng Pvt. anding Wiley iversal
Web. UI	RLs			TT .	1.0	•		(20)					
CIA	I	CIA I	I	CIA III Class Participati			ass ipation		larks) Assign	ment	Semi nar	Total	
4		4		7		5		5			5		30
						Ma	pping						
CO \ PO	PO 1	PO2	PO3	PO4	PO 5	PO6	PO7	P 08	PSO1	PSO2	PSO3	PS O4	PSO 5
CO1	Η	Μ	Η	М	Η	Μ	L	L	Н	Н	Н	Μ	Н
CO2	Η	M	Η	M	Н	Μ	M	Μ	Н	Μ	H	Η	Н
CO3	H	M	M	H	M	M	H	H	H	H	M	H	H
CO4	H	M	H	M	H	M	L		H	H	M	H	H
CO5		M		M	H	Μ	H	Μ	Н	Н	H	Μ	H
H-Hign;	IVI-IVI(eaium; I	L-L0\	V									
	Course designed by Verified by												

Course	e Code		Title											
22U3C	KC611		Core Paper XVII: Data Mining											
Semes	ter: VI		Credits: 4 CIA	A: 50 Marks	ESE: 50	Marks								
		1	(Common to all UG F	Programmes)										
Course	Objectiv	ve	To enable the students to expl	ore data using da	a mining techniques to									
Course	Categor	y	Employability and Entrepreneurs	ship										
Develo	pment No	eeds												
Course	Durse Description Data mining identifies patterns and relationships in the large databases th can help solve business problems through data analysis. Data mining techniques and tools enable enterprises to predict future trends and mal more-informed business decisions.													
Course	Outcom	es		Teaching Metho	ls Assessme	ent Methods								
CO 1	Know Associ	basic ation	concept of Data Mining and its Rules	Lecture / Flipped Classroom	Ass	ignment								
CO 2	Unders	stand	the different types of Clustering		Se	eminar								
CO 3	Apply and cre	the le eating	arnt method in splitting the data Decision Tree	Lectures / Vide Lessons	0	Quiz								
CO 4	Analys Mining	se vari g and	ious type of Mining like Web Text Mining	Tutorial / Case Studies	Program	n Execution								
CO 5	Assess Where	know the c	vledge of What, When and lata applied	Lecture / Class Projects	³ Program	n Execution								
Offered	by In	forma	ation Technology											
Course	Content			Instructional I	Iours / Weel	x : 6								
Unit			Description		Text Book	Chapters								
I	Data Mining: Introduction - Data Mining Definition - KDD VsData Mining - DBMS Vs Data Mining - Data MiningTechniques - Data Mining Application Areas. AssociationRules: Overview - Methods to Discover Association rules -Apriori Algorithm - Partition Algorithm - Pincer-SearchAlgorithm													
0				Instructi	onal Hours	18								
Suggest Video l	ted Lear	ning I on the	viethods: basics of data mining and assoc	iation rules		02 Hrs								
П	Clustering Techniques: Introduction - Clustering Paradigms – Partitioning Algorithm – k-means -Medoid Algorithm – CLARA 1 5 - CLARANS – Hierarchical Clustering – DBSCAN – BIRCH – 1 5 CURE. - - -													

Instructional Hours													18	
Suggested Learning Methods : Application of Online simulation tool on clustering techniques													Hrs	
clusteri	ng tech	niques	5									02	1115	
	Decis	sion T	ree: O	verviev	v - Tr	ee Cor	nstructi	on Prir	iciple –	Best	1		6	
111	Split		tting C	riteria Docisi	- Deci	ision T	ree Co	nstruct	10n – C Pro sort		1		0	
	- ID.	-CII	AID –	Decisi		e Colls		li witii .	Instr	ng. uctiona	Hour	c .	12	
Suggest	ed Lea	rning]	Metho	ds :					msu	uctiona	liittui	0 2	Hrs	
	Web I	Mining	: Web	Cont	ent Mi	ining -	- Web	Struct	ure Mir	ning –			1115	
	Web U	sage N	fining.	com							1		0	
IV	IV Text Mining: Unstructured Text - Episode Rule Discovery for													
Texts – Hierarchy of Categories – Text Clustering.														
Instructional Hours												s		
Suggest	ed Lea	rning I	Metho	ds :								02	Hrs	
	Tem	poral	Data I	Aining	g: Intro	ductio	n - Ter	nporal	Associa	tion				
V Rule – Sequence Mining – GSP Algorithm.SpatialMining: 1													3,17	
Spatial Mining Tasks – Spatial Clustering – Spatial Trends.														
Instructional Hours												s	12	
Suggest	ed Lea	rning 1	Metho	ds :								02	02 Hrs	
					• •		1		W D	Tota	Hour	<u>s 90</u>	Hrs	
Text Bo	oks		$\begin{bmatrix} I. D \\ D \end{bmatrix}$	ata Mi	ning 1	echnic	ques by	y Arun	K Pur	ari, Pub	lished	by Univ	versity	
			Press	India	Private	e Limit	ed.				~			
	_	_	1. In	sight in	nto Da	ta Mir	ing Th	leory a	nd Prac	tice by	Soman,	Diwak	ar and	
Referen	ice Boo	ks	Ajay	, Publis	shed by	y Prent	ice Ha	l of Inc	dia Priva	ate India	•			
Web. U	RLs		www	.javatp	oint.co	om/dat	a_mini	ng						
				Т	ools fo	or Asse	essmen	t (50 M	larks)					
CIA	I	CI	A II	C	IA III	As	signm	ent	Semina	ır (Quiz	То	tal	
	8		8		10		8		8		8		50	
						Ma	pping							
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO 5	
C01	Н	Η	Μ	М	Μ	L	Μ	M	Н	Н	М	Н	М	
CO2	Η	Η	Н	Μ	L	Н	L	Н	Н	Μ	М	Н	Н	
CO3	S	Н	Н	Н	Н	Μ	Η	Н	Μ	Н	Н	Μ	Μ	
CO4	H	M	H	H	M	L	M	M	H	H	H	H	H	
CO5	<u>H</u>	<u> H</u>	M	M	H	Н	Н	H	H	Н	Н	M	Н	
S - Stroi	ng; H-H	$\frac{1}{2}$	-Medi	um; L-	Low.					X 7 • 6*	11			
		Cours	e desig	gned by	y		Verified by							
Name and Department Name and BoS Chairman SEA											SEAL			

Course Code		Title								
22U3ITV610	I	Project & Viva-Voce								
Semester: VI	Credits: 4	Credits: 4 CIA :50 Marks ESE:50 Mark								
Course Objective	To give project based learning they learned.	To give project based learning which makes the students to apply practically what they learned.								
Course Category	Employability / Skill Develo	Employability / Skill Development								
Development Nee	ls Global	Global								
Course Description	n									
Course Outcomes		Teaching Methods Assessment Metho								
Offered by Info	rmation Technology									
Course Content		Instructional Hours	s / Week : 6							

GUIDELINES FOR PREPARATION OF PROJECT REPORT

1. ARRANGEMENT OF CONTENTS

The sequence in which the project report material should be arranged and bound is as follows:

- 1. Cover Page & Title Page
- 2. Bonafide Certificate
- 3. Abstract
- 4. Table of Contents
- 5. List of Tables
- 6. List of Figures
- 7. List of Symbols, Abbreviations
- 8. Chapters
- 9. Appendices
- 10. References

The table and figures shall be introduced in the appropriate places.

2. PAGE DIMENSION AND SIZE OF THE PROJECT REPORT

(a) The size of the project report for undergraduate and post graduate degree should contain a minimum of 40 and 60 pages of content respectively. The pages will be counted from the first page of Chapter I. The dimension of the project report should be in A4size. The project report should be bound using flexible cover of thick art paper. The cover should be **printed in black**

letters and the text for printing should be identical.

(b) Page Numbering - All page numbers (whether it is in Roman or Arabic numbers) should be typed without punctuation on the central bottom of each page. The preliminary pages of the reports (such as Title page, Acknowledgement, Table of Contents, etc.) should be numbered in lower case Roman numerals. The title page will be numbered as (i) but this should not be typed. The page immediately following the title page shall be numbered as (ii) and it should appear at the top right hand corner as already specified. Pages of main text, starting with Chapter 1 should be consecutively numbered using Arabic numerals.

3. PREPARATION FORMAT

Cover Page & Title Page – A specimen copy of the Cover page & Title page of the project report are given in **Appendix 1.**

Bonafide Certificate – The Bonafide Certificate shall be in **double line spacing using Font Style Times New Roman and Font Size 14**, as per the format in **Appendix 2**.

The certificate shall carry the supervisor's signature and shall be followed by the supervisor's name, academic designation (not any other responsibilities of administrative nature) and Department where the supervisor has guided the student. The term **"SUPERVISOR"** must be typed in capital letters between the supervisor's name and academic designation.

Abstract – Abstract should be one page synopsis of the project report typed double line spacing, Font Style Times New Roman and Font Size 13.

Table of Contents – The table of contents should list all material following it as well as the Abstract which precedes it. The Title page and Bonafide Certificate will not find a place among the items listed in the Table of Contents. **One and a half** spacing should be adopted for typing the matter under this head.

List of Tables – The list should use exactly the same captions as they appear above the tables in the text. **One and a half** spacing should be adopted for typing the matter under this head.

List of Figures – The list should use exactly the same captions as they appear below the figures in the text. **One and a half** spacing should be adopted for typing the matter under this head.

Table and figures - By the word Table, is meant tabulated numerical data in the body of the project report as well as in the appendices. All other non- verbal materials used in the body of the project work and appendices such as charts, graphs, maps, photographs and diagrams

may be designated as figures.

List of Symbols, Abbreviations– One and a half spacing should be adopted for typing the matter under this head. Standard symbols, abbreviations etc. should be used.

Chapters – The chapters may be broadly divided into 3 parts

- (i) Introductory chapter
- (ii) Chapters developing the main theme of the project work
- (iii) Conclusions and scope

The introductory chapter will have sections covering a general introduction and importance of the research project.

The main text will be divided into several chapters and each chapter may be further divided into several divisions and sub-divisions.

- ♦ Each chapter should be given an appropriate title.
- Tables and figures in a chapter should be placed in the immediate vicinity of the reference where they are cited.

Appendices – Appendices are provided to give supplementary information, which if included in the main text may serve as a distraction.

- Appendices should be numbered using Arabic numerals, e.g. Appendix 1, Appendix 2,etc.
- Appendices, Tables and References appearing in appendices should be numbered and referred at appropriate places just as in the case of Chapters.
- Appendices shall carry the title of the work reported and the same title shall be made in the contents page also.

List of References –The listing of references should be typed 4 spaces below the heading "REFERENCES" in alphabetical order in single spacing left justified. The reference material should be listed in the alphabetical order of the first author. The name of the author / authors should be immediately followed by the year and other details.

(i) If more than one paper by the same first author and same year of publications, the year of citation will be followed by a, b etc to differentiate them.

(ii) While citing the paper in the text, the name of the first author and year alone must be cited. e.g Samson (2004) or Jeyaraj (2007a). The reference numbers should not be used in the text of

the paper

(ii) A paper, a monograph or a book may be designated by the name of the first author

followed by the year of publication, placed inside brackets at the appropriate places in the thesis.

4. TYPING INSTRUCTIONS

The impression on the typed copies should be black in colour.

One and a half spacing should be used for typing the general text. The general text shall be typed in the **Font style "Times New Roman" and Font size 13.**

APPENDIX 1

TITLE <1.5 line spacing>

a project report submitted by

<Italic>

NAME OF THE STUDENT (REGISTER NUMBER)

in partial fulfilment for the award of the degree

<Italic><1.5 line spacing>

in

NAME OF THE PROGRAMME

under the supervision of <Italic>

NAME OF THE SUPERVISOR



NAME OF THE DEPARTMENT

NEHRU ARTS AND SCIENCE COLLEGE

(An Autonomous Institution affiliated to Bharathiar University) (Reaccredited with "A" Grade by NAAC, ISO 9001:2015 & 14001:2004 Certified Recognized by UGC with 2(f) &12(B), Under Star College Scheme by DBT, Govt. of India) Nehru Gardens, Thirumalayampalayam, Coimbatore - 641 105, Tamil Nadu.

MONTH & YEAR

APPENDIX 2

(A typical specimen of Bonafide Certificate)

BONAFIDE CERTIFICATE

This is to certify that the project report entitled "..... TITLE OF THE PROJECT " is the bonafide work of "..... NAME OF THE CANDIDATE(S) WITH REGISTER NUMBER...... " who carried out the project work under my supervision.

<<Signature of the Head of the Department>>
SIGNATURE
<<Name>><<size-16>

<<Signature of the Supervisor>>

SIGNATURE

SUPERVISOR

<<Name>> <<size-16>

HEAD OF THE DEPARTMENT

<<Academic Designation>> </Pre>

<<Academic Designation>> <<Department>>

Submitted for the Viva Voce held on

Internal Examiner

External Examiner

EVALUATION PROCESS

Review - I has to be conducted during the Last week of December

Review - II has to be conducted during the Last week of January

Review - III has to be conducted during the Last week of February

Document, Preparation and Implementation has to be done during the First week of March

Viva-Voce examination will be conducted at the end of the semester by both Internal (Respective Guides) and External Examiners, after duly verifying the Project Report available in the College.

									Ι	nstructiona	l Hours	5) 0
						M	lapping	5					
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO 5
CO1	Η	H	Μ	Μ	H	М	L	L	H	Н	H	Н	M
CO2	Η	H	Μ	Μ	H	H	H	Η	H	Μ	М	Н	H
CO3	Η	М	Μ	H	Μ	М	H	Η	H	Н	М	Н	H
CO4	Η	H	H	Μ	H	Μ	L	L	M	Н	H	Μ	H
CO5	Н	М	Н	Μ	Н	М	Η	М	Н	Н	Н	Н	Μ
H-High; I	M-Med	lium; L	L-Low					<u> </u>					
		Course	e desig	ned by	y					Verified	by		

Cours	se Cod	e		Title						
22 U	3CKE	605	Elective Pap	er II - Softwar	e Quality	Assurance				
Sen	nester:	VI	Credits: 4	CIA:50 Marl	kS	ESE: 50 Marks				
Course (Objecti	ive	To describe Quality Assumption the quality models.	To describe Quality Assurance, understand quality components and apply the quality models.						
Course (Catego	ry	Employability / Skill Deve	lopment						
Develop	ment N	leeds	Global							
Course l	Descrip	otion	Develop Problem Solving Global needs.	Develop Problem Solving Skills to solve the computer based problems at Global needs.						
Course (Outcon	nes		Teaching	Methods	Assessment Methods				
CO 1	Know Quali	vledge ity As	e about the concept, factors, of surance	Video I	Lecture	Assignment				
CO 2	Unde: Assur	rstanc rance	l various components of Qual	ty Case I	Based	Group Discussion				
CO 3	Analy Assur	yze Te rance	esting process in Quality	Lectures Less	/ Video ons	Seminar				
CO 4	CO 4Analyze various Software Quality metricsTutorial / Case StudiesQuiz									
CO 5	Interp Softw	oret th vare Q	e various on Standards for Juality.	Lecture Proje	/ Class ects	Quiz				
Offered	by C	Comp	uter Application							

Course Content

Instructional Hours / Week : 6

Unit	Description	Text Book	Chapters
	What is Software Quality?: What is software?-Software error, faults and failures-Classification of the causes of software errors-Software Quality Definition and objectives – software quality assurance and software engineering.		
I	Software Quality factors: Need for comprehensive software quality requirements – classification of software requirements into software quality factors – product operation software quality factors- product revision software quality factors – product transition software quality factors.	1	2,3
	Instruction	al Hours	18
Suggest	ted Learning Methods : Assignment		02 Hrs
п	Components of SQA system : SQA system and architecture – Pre-project components – software project life cycle components – Infrastructure components for error prevention and improvement – Management SQA components – SQA standards, system certification and assessment components – Organizing for SQA – the human components.	1	4
	Instruction	al Hours	18
Suggest	ted Learning Methods : Group Discussion	1	02 Hrs
III	 Software Testing – Strategies: Definition and objectives- software testing strategies – software test classifications – White box testing – Black box testing. Software Testing – Implementation: Testing process – Test-case Design – Automated testing – Alpha – beta site testing programs. 	1	9,10

Instructional Hours												s 1	18
Suggested Learning Methods : Seminar												02	Hrs
	Softwa	are Q	uality 1	Metric	s: Obj	ective	es of c	quality	measure	ment –			
	Classif	icatio	on of s	oftwar	e qua	lity n	netrics	s – P	rocess n	netrics-			
IV	Produc	t me	trics- Ir	nplem	entatio	n of S	Softw	are Qu	uality me	trics –	1	2	1,22
	Cost o	of So	ftware	Quality	y metr	rics-Cl	lassica	al moo	lel of So	oftware			
Quality.													
Instructional Hour													18
Suggested Learning Methods : Quiz												02	Hrs
Quality Management Standards: scope –Main standards of											2		
V	softwa	re qu	lality r	nanage	ement	- 18	SO 91	000-3	- certii	ication		2	3
	accord	ing to	S ISO 9	2000-3	stand	ard –	Capa	bility	Maturity	model	2	2	ł
	princip	oles, s	tructure	and pr	ocesse	s area	- R00	otsrap		ogy.			10
Suggest	ad I aar	mina	Mathad						Inst	uction	al Hours	<u> </u>	1ð Hma
Suggest	eu Lear	ming	Method	is : Qu	IIZ					Tot	al Hauna		
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Text Bo	oks		2 Claur	iciiiau io V I	onorte	and <i>j</i>	A lain	A pril	-101.,2004 "Softwar		ity Accu	ronco"	IEEE
			2. Clauv Press w	ilev 2	118			Apin,	Soltwal	e Quai	ity Assul	ance,	ILLL
			1 Ster	hen	H K	an "	'Metr	ics a	nd Moo	lels ir	Softwa	are O	uality
			Engine	ering"	$2^{nd} E$	dition.	IVICUI	105 U					uunity
Referen	ce Bool	(S	Pearson	. 2003	, -	antion	,						
			2. Kshi	asagai	· Naik	and P	rivada	arshi T	ripathy ()	Eds). "S	Software	Testin	g and
			Ouality	Assu	rance:	Theo	rv an	d Prac	tice". Jol	ın Wile	v. 2008		8
Web. U	RLs		<u>vww.ia</u>	vatpoi	nt.com	/softw	vare-a	ualitv-	assurance	;	,		
			J	То	ols for	Asses	smen	t (50 N	(arks)				
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CO1	Н	Η	Н	L	М	M	L	Μ	M	Н	Н	М	М
CO2	М	M	М	М	Н	M	M	M	Н	Н	Н	М	Н
CO3	Н	L	M	Н	M	M	L	Н	M	Н	H	M	M
CO4	M	Н	L	M	L	L	Н	M	H	M	H	H	M
CO5	M	M	<u>H</u>	Н	М	Н	M	Н	Н	Н	М	Н	Н
H-High;	M-Mec	lium;	L-Low										
	(Cour	se desig	ned by	y					Verifi	ed by		
			0								-		

Cour	rse Code	Title								
22U3	CKE606	Elective Pa	aper	II : Information	a Security					
Ser	nester: VI	Credits: 4	CIA	:50 Marks	ESE:	50 Marks				
Course	Objective	To enable the students to Security in the local and Glo	Information							
Course	Category	Employability / Skill Develo	pme	nt						
Develop	ment Needs	Global								
Course DescriptionDevelop Problem Solving Skills to solve the comp Global needs.						problems at				
Course	Outcomes			Teaching Methods	Assessm	ent Methods				
CO 1	Understand Security	l the basics of Information	Lecture / Flipped Classroom	Ass	signment					
CO 2	Identify the issues in In	e legal, ethical and professional formation Security		Construct vis Approach/ Tutorial	it S	eminar				
CO 3	Understand	the Risk Management Strategy	Lectures / Vid Lessons	eo Group	Discussion					
CO 4	Assess the provide Inf	technologies which are essentia formation Security	Tutorial / Cas Studies	se	Quiz					
CO 5	Understand Maintenan	l the Information Security ce model.		Lecture / Clas Projects	Poster	Presentation				
Offered	by Comp	uter Application	T							
Course	Content		Iı	nstructional Ho	urs / Week :	6				
Unit		Description			Text Book	Chapters				
I	Introduction Information NSTISSC S Securing the SDLC-The S	n to Information security Security?-Critical Characteric ecurity Model-Components of a le Components-Balancing Sec Security SDLC.	t y: istics an In urity	History-What of Informatio formation Syster and Access-Th	is n, 1 n, 1	1				
~				Instruct	ional Hours	18				
Suggest	ed Learning	Methods : Assignment	inco	Nacda Threat	e l	02 Hrs				
п	IIIntroduction-Business Needs-Threats- Attacks.IILegal, Ethical and Professional Issues: Introduction-Laws and ethics-types of law-international laws and legal bodies-Ethics and information security.									
9				Instruct	ional Hours	18				
Suggest	ed Learning	Methods : Seminar		Idontificing -	nd	02 Hrs				
III	Assessing R	isk- Assessing- Control strategi	ies- s	electing strategy	. 1	4				

Instructional Hours													18
Suggested Learning Methods : Group Discussion													
IV	Planni Bluepr Contin	ng for int for uity s docun	Secur Secur strategi penting	ity: In ity-Sec es, R result	ntroduo curity e isk ap s.	ction-In educati opetite,	nforma on-trai Man	tion S ning a ageme	ecurity H and awar ent disc	Policy- reness- ussion	1	5	
	points,	uocun	ienting	,105410	5.				Instr	uctiona	1 Hours	2	18
Suggeste	d Lear	ming N	Aethod	ls : O	niz				Instr	uctionu	11001	02	Hrs
Implementing Information Security: Introduction- Project													
V management for information security-Technical and non-technical aspects of implementation. Information Security Maintenance: Introduction- Security management models-Maintenance model. 1),12
Instructional Hours													18
Suggested Learning Methods : Poster Presentation													Hrs
										Tota	l Hours	s 90	Hrs
Text Books1. Michael E. Whitman and Herbert J. Mattord, "Principles of Information Security", Second Edition, Thomson Publishers.													•
Referen	ce Booł	KS	2	Infor Infor . V.K Rev: . Mar Pra	<i>mation</i> . Pachg ised ed k S. M c tices"	securi ghare, ' lition, erkow, , Secon	ty and ("Cryp Prentic , "Info nd Edit	Cyber I tograf ce-Hal rmatic ion, P	Laws", 20 ohy and l of India on Secur earson E	014, Dro Inform Pvt.Lto rity: Pr ducatio	eam Tec. ation Se d. inciples n.	<i>h Press</i> ecurity' and	', 2nd
Web. UI	RLs		www	.javatp	oint.co	om/info	ormatio	on-sect	urity				
				Тос	ols for	Assess	sment	(50 M	arks)				
CIA	Ι	CI	A II	C	IA III	As	signm	ent	Semina	ar	Ouiz	Total	
8			8		10		8		8		8	5	0
						Mai	oping						
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PSO1	PSO2	PSO3	PSO4	PSO 5
C01	Н	Н	Н	L	М	М	L	Μ	М	Н	Н	М	М
CO2	М	М	М	М	Н	М	М	Μ	Н	Н	Н	М	Н
CO3	Н	L	Μ	Н	М	М	L	Η	М	Н	Н	М	Μ
CO4	Μ	Н	L	М	L	L	Н	М	Н	Μ	Н	Н	Μ
CO5	Μ	Μ	Н	Н	М	Н	М	Η	Н	Н	Μ	Н	Н
H-High;	M-Mec	lium; L	L-Low										
Course designed by Verified										ed by			
			8								J		

Cou	Course Code Title							
220	J3CKE607	Elective Pa	aper – I	I: Cloud Com	puting			
Sei	mester: VI	Credits: 4	CIA:50	Marks	ESE:	50 Marks		
Course	Objective	To develop algorithmic solut Python	ions to s	simple computat	ional probl	ems using		
Course	Category	Employability / Skill Develop	pment					
Develop	pment Needs	Global						
Course	Description	Develop Problem Solving Sl Global needs.	kills to	solve the comp	outer based problems a			
Course	Outcomes		Те	aching Methods	Assessme	nt Methods		
CO 1	To make the Computing	e students to understand the Clo and types,	oud	Interactive Lecture	Poster I	Presentation		
CO 2	To understa	nd the cloud architecture		Constructivist Approach/ Tutorial	Ass	ignment		
CO 3	To identify the applications of abstraction &Lectures / VidVirtualizationLessons				Se	eminar		
CO 4	To apply clo	Γο apply cloud computing in real-time. Tutorial / Case Studies				e Study		
CO 5	CO 5To make the students to understand the Cloud Computing and types,Lecture / Class Projects				Cas	e Study		
Offered	by Compu	iter Application	•	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				
Course	Content		Instr	uctional Hours	/ Week : 6	ó		
Unit		Description	1		Text Book	Chapters		
Ι	Defining Clo Types – Exa Disadvantage Standards. Assessing the The laws of Behavioral fa	bud Computing: Defining Clou amining the Characteristics of es of cloud computing – Asses e Value Proposition: Measurin f cloudonomics – Cloud co actors relating to cloud adoption	ud Comp f Cloud sing the ng the C omputing n.	puting – Cloud Computing – Role of Open loud's Value – g obstacles –	1	1,2		
~				Instruction	al Hours	18		
Suggest Video k	ted Learning . ectures about	Methods : the basics of Cloud Computiv	nσ			02 Hrs		
II	Understanding Cloud Architecture : Exploring the Cloud Computing Stack - Connecting to the Cloud.Understanding Services and Applications by Type : Defining Infrastructure as a Service (IaaS) – Defining Platform as a Service (PaaS) – Defining Software as a Service (SaaS) – Defining Identity as a Service (IdaaS) – Defining Compliance as a Service (CaaS).					3,4		
2	Instructional Hours							
Suggest	ted Learning	Methods : Practice using Mod	lels	4°		02 Hrs		
Suggested Learning Methods : Practice using Models III Understanding Abstraction and Virtualization: Using III Virtualization Technologies – Load Balancing and Virtualization – Understanding Machine Imaging					1	5,7		

	Porting Explor Applica	Appli ing Pla ation F	cations a tform ramew	s. 1 as a S orks.	Service	e: Defi	ning So	ervice	es – Using	g PaaS			
									Instr	uctiona	l Hours	s 1	18
Suggested Learning Methods : Develop small programmes using visualiz tools											tion	02	Hrs
IVUsing Google Web Services: Exploring Google Applications – Surveying the Google Application Portfolio – Exploring the Google Toolkit – Working with the Google App Engine.IVUsing Amazon Web Services : Understanding Amazon Web Services – Amazon Web Service Components and Services – Working with the Elastic Compute Cloud (EC2) - Working with Amazon Storage Systems – Understanding Amazon Database Services.													3,9
I									Instr	uctiona	l Hours	3	18
Suggeste	d Lear	ning N	Aethod	ls : A	oply tł	ie cono	cept of	web	services			02	Hrs
Suggested Learning Methods : Apply the concept of web services Using Microsoft: Cloud Services – Exploring Microsoft Cloud Services – Defining the Windows Azure Platform – Using Windows Live. Understanding Cloud: Security – Securing the Cloud – Securing												10	,12
	Data	LStabil	isining i		y and I	resent			Instr	uctions	1 Hours	, 1	18
Suggeste	d I oor	ning N	Aethor	اد ، رور	n stud	N7			111501	uctiona		, 02	Hrs
Duggesie	u Ltai	iiiig ii	icinot	13 · Ca	st stuu	y				Tota	1 Hours	2 90	Hrs
Text Boo	oks		1	. Barr ,Inc.	ie So , 2011	sinsky,	"Clou	d Co	omputing	g Bible	", Wile	y Publ	ishing
Reference	ce Book	KS	1. 2.	. Ray 2015 . Arsh Han	J Rafa 5. ideep, i ds-on	els, "C Bahga Appro	C loud (and Vi ach" ,	Comp jai M 2014	outing: Fi Iadisetti, '	rom Beg "Cloud	ginning Compu	to End [®] ting: A	",
Web. UF	RLs		Cloue	d.ibm.c	com								
				Тос	ols for	Assess	sment	(50 N	(farks)				
CIA	Ι	CL	A II	C	IA III	As	signm	ent	Semina	ar	Quiz	То	tal
8			8		10		8		8		8	5	0
						Maj	pping						
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO	8 PSO1	PSO2	PSO3	PSO4	PSO 5
CO1	Н	Н	Н	L	М	М	L	Μ	М	Н	Н	М	М
CO2	М	М	М	М	Н	М	М	Μ	Н	Н	Н	Μ	Н
CO3	Н	L	М	Н	М	М	L	Н	М	Н	Н	Μ	М
CO4	М	Н	L	М	L	L	Н	M	Н	М	Н	Н	М
CO5	М	М	Н	Н	М	Н	М	Η	Н	Н	Μ	Н	Н
H-High;	M-Med	lium; L	L-Low										
Course designed by Verif									Verifie	fied by			

Cour	rse Code	Title									
22U	3CKE608	Electiv	e Pap	per II - Cyber Secu	ırity						
Sem	ester: VI	Credits: 4	CIA	A:50 Marks	ESE:	50 Marks					
Course	Objective	To make the students to u significance in current scen	To make the students to understand Cryptography, Cyber crime and its significance in current scenario of IT and information security.								
Course	Category	Employability / Skill Devel	Employability / Skill Development								
Develop	oment Needs	Global	Global								
Course	Description	Develop Problem Solving S Global needs.	Skills	to solve the comp	outer based problems at						
Course OutcomesTeaching Methods						nt Methods					
CO 1 Remember the information and various representation				Lecture / Flipped Classroom	Just – A Pres	A – Minute entation					
CO 2	Understand networks a	the concept of computer nd overview of internet		Constructivist Approach/ Tutorial	Poster I	Presentation					
CO 3	Understand communica modulation	the information storage, data ation and data a techniques		Lectures / Video Lessons	Ass	ignment					
CO 4	Understand Cryptograp Security	the knowledge about the hy, Cyber Crime and Informat	ion	Tutorial / Case Studies	Se	eminar					
CO 5	Understand Security Fr	the importance of Informatior amework	1	Lecture / Class Projects		Quiz					
Offered	by Comp	iter Application			I						
Course	Content		I	nstructional Hour	s / Week : 6	j					
Unit		Description			Text Book	Chapters					
Ι	Information and its Representation: What is information – Quality - of Information - Value of Information - Information Processing - Information Processing cycle in computers - information - Representation and codes - Number Representation - Binary - Representation of Positive integers - Signed Binary Integers - Positive Binary Fractions - signed 1 Binary Fractions - Representing Fractions in Binary - Representation of Alphanumeric - Data - Current Trends in Information Technology - semiconductor - Technology - Information storage - Networking - Applications of - IT - IT Applications in Business - Modelling and Simulation										
~				Instruction	al Hours	18					
Suggest	ed Learning	Methods : Video lectures ab	out t	he basics of Cyber	Security	02 Hrs					

П	Computer Networks and Internet: A – computer Network – Basic networkin Internet - Internet Protocols - Internet Reference versus TCP/IP Model - OSI m	An overvie ng compo protocol ty nodel layers	ew - What is nents - what is ypes - OSI s - TCP/IP.	1	2		
			Instruction	al Hours	18		
Suggest	ted Learning Methods : Practice using F	'low Chart	ts		02 Hrs		
III	Information storage and communication purpose of storage - Types of storage Dec Internal file structure - External file struc Data communication - an overview - what signals - Basic - Data Communication Techniques.	ion: Inforn evices - Fil ucture and at is data c ion Model	mation storage - le organization - file extension - communication - l - Modulation	1	3		
			Instruction	al Hours	18		
Suggest	ted Learning Methods : Develop small p	rogramme	es on internal fil	le	02 Hrs		
structu	ire				02 HIS		
IV	Cryptography Systems: Introduction Types-Symmetric Cryptography - Asy Cryptography-Hash Functions-Why thre – Public key Algorithms – RSA Public Signature – Diffie – Hellman - ElGan Law and Ethics: Introduction to cy preventive steps for Individuals - prevent and government - How to protect the com	n-Cryptogr ymmetic o e Encrypti Key Algo mal-EDCS /bercrime tive steps f nputer agai	raphy Systems or Public Key, ion Techniques? orithm – Digital A-XTR. Cyber - Prevention – for organizations inst threats.	1	5&6		
Instructional Hours							
			Instruction	al Hours			
Suggest	ted Learning Methods : Apply the Cryp	otographic	Instruction techniques in n	al Hours nodels	02 Hrs		
Suggest	ted Learning Methods : Apply the Cryp Information security Framework - I privacy - security Framework - Infor Framework – Framework for Network control Techniques- Computer Securi Access control Techniques-Bion Authentication Tokens-Token types and Embodiments and vendors-Related Auther	otographic Information synthesis Information	Instruction techniques in n n security and ystems security access. Access Access Control- Authentication- igital signature- Technologies.	al Hours nodels	02 Hrs 8 & 9		
Suggest V	ted Learning Methods : Apply the Cryp Information security Framework - I privacy - security Framework - Infor Framework – Framework for Network control Techniques- Computer Securi Access control Techniques-Bion Authentication Tokens-Token types and Embodiments and vendors-Related Auther	otographic Information rmation synthesis security ity and A metric d usage-D entication	Instruction techniques in n n security and ystems security access. Access Access Control- Authentication- igital signature- Technologies. Instruction	al Hours nodels 1 al Hours	02 Hrs 8 & 9 18		
Suggest V Suggest	ted Learning Methods : Apply the Cryp Information security Framework - I privacy - security Framework - Infor Framework – Framework for Network control Techniques- Computer Securi Access control Techniques-Bion Authentication Tokens-Token types and Embodiments and vendors-Related Auther	otographic Information synthesis Information	Instruction techniques in n n security and ystems security access. Access Access Control- Authentication- igital signature- Technologies. Instruction	al Hours nodels 1 al Hours	02 Hrs 8 & 9 18 02 Hrs		
Suggest V Suggest	ted Learning Methods : Apply the Cryp Information security Framework - I privacy - security Framework - Infor Framework – Framework for Network control Techniques- Computer Securi Access control Techniques-Bion Authentication Tokens-Token types and Embodiments and vendors-Related Author ted Learning Methods : Case Study	otographic Information rmation s ity and A metric d usage-D entication	Instruction techniques in n n security and ystems security access. Access Access Control- Authentication- igital signature- Technologies. Instruction Tot	al Hours nodels 1 al Hours al Hours	02 Hrs 8 & 9 18 02 Hrs 90 Hrs		
Suggest V Suggest Text Bo	ted Learning Methods : Apply the Cryp Information security Framework - I privacy - security Framework - Infor Framework - Framework for Network control Techniques- Computer Security Access control Techniques-Bion Authentication Tokens-Token types and Embodiments and vendors-Related Author ted Learning Methods : Case Study 0oks 1. Pankaj Agarwal, Learning Private	tographic Information rmation synthesis ity and A metric d usage-D entication "Informa Limited, F	Instruction techniques in n n security and ystems security access. Access Access Control- Authentication- igital signature- Technologies. Instruction Tot tion Security & First Edition,2010	al Hours nodels 1 al Hours al Hours Cyber La	02 Hrs 8 & 9 18 02 Hrs 90 Hrs ws", Acme		
Suggest V Suggest Text Bo Referen Web. U	ted Learning Methods : Apply the Cryp Information security Framework - Information security Framework - Information Security Framework - Information Framework - Framework for Network control Techniques- Computer Securite Access control Techniques-Bion Authentication Tokens-Token types and Embodiments and vendors-Related Authon ted Learning Methods : Case Study tearning Private 1. Pankaj Agarwal, Learning Private 1. Amy Rose, Debo Solomon, Mike C Jones & Barlett P 2. Lawrence C. Mill John Wiley & So	tographic Information rmation synchronic ity and A metric d usage-D entication "Informa Limited, F brah Arran Chapple, "I Publishers, ler, "Cybe ons, Inc	Instruction techniques in n n security and ystems security access. Access Access Control- Authentication- igital signature- Technologies. Instruction Tot tion Security & First Edition,2010 d, Kristin E. Ohl Information Sec 2005. r Security for D	al Hours nodels 1 al Hours al Hours Cyber La) im, Malloy urity Illun	02 Hrs 8 & 9 18 02 Hrs 90 Hrs ws", Acme , Michael G. hinated",		
Suggest V Suggest Text Bo Referen Web. U	ted Learning Methods : Apply the Cryp Information security Framework - Information security Framework - Information Security Framework - Information Security Framework - Information Techniques- Computer Security Access control Techniques-Bion Authentication Tokens-Token types and Embodiments and vendors-Related Authented Authented Security Security Security Security Security Security Access Control Techniques-Bion Authentication Tokens-Token types and Embodiments and vendors-Related Authented Authented Security Secure Security Security Security Security Security Security	otographic Information rmation synchronized ity and A metric d usage-D entication "Informa Limited, F orah Arran Chapple, "I Publishers, ler, "Cybe ons, Inc ment (50 N	Instruction techniques in n n security and ystems security access. Access Access Control- Authentication- igital signature- Technologies. Instruction Tot tion Security & First Edition,2010 d, Kristin E. Ohl Information Sec 2005. r Security for D	al Hours nodels 1 al Hours al Hours Cyber La im, Malloy urity Illun pummies",	02 Hrs 8 & 9 18 02 Hrs 90 Hrs ws", Acme , Michael G. inated",		
Suggest V Suggest Text Bo Referen Web. U	ted Learning Methods : Apply the Cryp Information security Framework - Information security Framework - Information Security Framework - Information Techniques- Computer Security Framework - Framework for Network control Techniques- Computer Security Access control Techniques-Bion Authentication Tokens-Token types and Embodiments and vendors-Related Auther ted Learning Methods : Case Study ooks 1. Pankaj Agarwal, Learning Private 1. Amy Rose, Debo Solomon, Mike O Jones & Barlett P 2. Lawrence C. Mill John Wiley & So JRLs	otographic Information rmation synchronic ity and A metric d usage-D entication "Informa Limited, F orah Arrand Chapple, "I Publishers, ler, "Cybe ons, Inc ment (50 N signment	Instruction techniques in n n security and ystems security access. Access Access Control- Authentication- igital signature- Technologies. Instruction Tot tion Security & First Edition,2010 d, Kristin E. Ohl Information Sec 2005. r Security for D Marks) Seminar	al Hours nodels 1 al Hours al Hours Cyber La) im, Malloy urity Illun pummies",	02 Hrs 8 & 9 18 02 Hrs 90 Hrs ws", Acme , Michael G. inated",		
Suggest V Suggest Text Bo Referen Web. U	ted Learning Methods : Apply the Cryp Information security Framework - Information security Framework - Information Security Framework - Information Security Framework - Information Techniques- Computer Security Access control Techniques-Bion Authentication Tokens-Token types and Embodiments and vendors-Related Authon ted Learning Methods : Case Study ted Learning Private 1. Amy Rose, Debo Solomon, Mike C John Wiley & So JRLs Tools for Assess 8 10	otographic Information rmation synchronomic ity and A metric d usage-D entication d usage-D entication "Informa Limited, F orah Arran Chapple, "I Publishers, ler, "Cybe ons, Inc ment (50 N signment 8	Instruction techniques in n n security and ystems security access. Access Access Control- Authentication- igital signature- Technologies. Instruction Tot tion Security & First Edition,2010 d, Kristin E. Ohl Information Sec 2005. r Security for D Marks) Seminar 8	al Hours nodels 1 al Hours al Hours cyber La im, Malloy urity Illun pummies", Quiz 8	02 Hrs 8 & 9 18 02 Hrs 90 Hrs 90 Hrs ws", Acme , Michael G. hinated", 50		

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO 5
CO1	Н	Н	Н	L	Μ	Μ	L	Μ	М	Н	Н	М	М
CO2	М	Μ	Μ	Μ	Н	Μ	М	Μ	Н	Н	Н	М	Н
CO3	Н	L	Μ	Н	Μ	Μ	L	Н	М	Н	Н	М	М
CO4	М	Н	L	Μ	L	L	Н	Μ	Н	М	Н	Н	М
CO5	М	М	Н	Н	М	Н	М	Н	Н	Н	М	Н	Н
H-High;	M-Med	lium; L	L-Low										
		Course	e desig	ned by	7			Verified by					

Course	Code		Title										
22U 3	BITE609		Discipline Specific Elec	tive Paper III: D	igital	Marketi	ng						
Sem	ester: VI		Credits: 4 Cl	IA: 50 Marks		ESE: 50	Marks						
		1											
Course	Objectiv	e	• To identify core concepts of society, acquire knowledge of on marketing decision-making.	marketing, role of social, legal, ethic	f marketing in business and cal and technological forces								
Course	Category	7	Employability and Entrepreneu	rship									
Develop	oment Ne	eds											
Course	Descripti	ion	ormati	cs databa	se and tools.								
Course	Outcome	Teaching Methe	ods	Assessme	ent Methods								
CO 1	Ability based promot	to on tion c	develop marketing strategies product, price, place and objectives.	Flipped Classroom		Group	Discussion						
CO 2	Ability commu promot effectiv	to c to c tional tional	create an integrated marketing tions plan which includes strategies and measures of s.	Video Lectu	re	Assignment							
CO 3	Ability market for spe	to ing 1 cific	communicate the unique nixes and selling propositions product offerings.	Problem Solv	ing	Se	eminar						
CO 4	Ability a pro present	to co fession to to co	onstruct written sales plans and onal interactive oral sales	Tutorial / Ca Studies	se		Quiz						
CO 5	Ability that sociolo consun	to f incon incon ogical ners.	formulate marketing strategies rporate psychological and factors which influence	Video Lecture			ip Test						
Offered	by I	Г											
Course	Content			Instruction	al Ho	ours / We	ek : 6						
Unit			Description		Te	xt Book	Chapters						
I	Introduce Introduce – Key t Digital The Bu Digital	Introduction to think – Digital Marketing Strategy – Introduction – Key terms and Concepts – What is Marketing – What is Digital Marketing - Understanding Marketing Strategy – The Building Blocks of Marketing Strategy – Crafting a Digital Marketing Strategy – Case Study1											
	0			Instruct	tional	Hours	18						
Suggest	ed Learn	ing I	Methods : Video Lectures				02 Hrs						
п	Market Research – Introduction – Key terms and Concepts – the Importance of Market Research – Key Concepts in Market Research – Online Research Methodologies – 1 3 Justifying the Cost 6 Research – tools for the trade Advertages and Challenges 1 3												
	JI KUSUA		tools for the trade – Auvalitages	Instruct	tional	Hours	18						
NASC 2022

Suggest	ed Lea	rning N	Method	s :Grou	p Discus	ssion					02 H	Irs
ш	Conte Conce Block Tools	ent Mar epts – cs – Cor for the 7	rketing Definin ntent Cr Trade –	Strategy g Conte eation – Advanta	 Intro Intro Mark Content ages and 	oductio keting Chanr Challe	n – Ke – Strate nel Distr enges	y Terms egic Build ibution –	and ling	1		
								Instru	ctiona	l Hours	18	}
Suggest	ed Lea	rning N	Method	s : Wor	ked exar	nples					02 H	Irs
IV	User E – Und Mobile – Case	Experier erstand e UX – Study	nce Desi ing UX Step –b	ign – Int design by-step g	troductio – Core guide to	n – Ke princ UX des	ey Term iples of sign –To	s and Con UX desi polsof the	cepts ign – trade	1		
								Instru	ctiona	l Hours	18	}
Suggest	ed Lea	rning N	Method	s : Prob	olem Bas	sed Le	arning				02 H	Irs
V	Web conce Deve Case study	develoj epts – elopmer	pment a Web nt – Ste	ind Desi design ep-by-sto	gn – Intr – Web ep guide	Deve to bu	ion – Ke lopmen iilding	ey terms a t – Mob a website	ind pile	1		
	j							Instru	ctiona	l Hours	18	3
Suggest	ed Lea	rning N	Method	s : Labo	oratory p	practic	e				02 H	Irs
				~ 1					Tota	l Hours	90 H	Irs
Text Bo	oks		I. Rot world,	5 th Editio	, E- Mar on,2017.	keting	the Ess	ential gui	de to n	narketing	g in a dig	çıtal
Referen	ce Boo	ks	Dig	gital Ma	rketing, V	Vandar	na Ahuja	a, 2015, 1s	st Editi	on		
Web. U	RLs		ww	w.simpl	ilearn.co	om						
				Too	ls for As	sessme	ent (50]	Marks)				
CIA	I	CIA I	I CLA	A III	Assign	ment	S	Seminar		Quiz	Tot	al
8		8	1	10	8			8		8	50	1
					\mathbf{N}	Iappin	g					
CO \ PO	PO 1	PO2	PO3	PO4	PO 5 PO	5 PO '	7 PO8	PSO1	PSO2	PSO3	PSO 4	PSO 5
CO1	Н	Μ	Н	М	М	Н	Μ	LH	Μ	Н	Н	Н
CO2	Н	М	Н	Н	М	М	Н	MM	Н	Н	S	Н
CO3	Н	М	Н	М	М	Η	Н	M _H	Н	М	Н	Н
CO4	H	Н	М	M	М	М	Н	M _H	S	Н	М	Н
CO5	H	М	Н	M	Н	Η	М	MS	Н	Н	Н	М
H-High;	M-Me	dium; I	L-Low			I		1	I	I	I	
		Course	e design	ed by					Verifi	ed by		

Course	e Code				Title				
22U3I	ГЕ610		Elective Paper III: Inte	llectua	ll Property Right	ts and	Privacy I	Laws	
Semest	ter: VI		Credits: 4	CL	A: 50 Marks]	ESE: 50 I	Marks	
		L		L					
Course	Objectiv	ve	To introduce the concepts	of Inte	ellectual Property	y right	ts and priv	vacy laws	
Course	Categor	У	Employability and Entrep	reneur	ship				
Develop	oment No	eeds	Global						
Course	Descript	tion	This course helps to under laws.	erstanc	d the different II	PR, C	opyright a	and Privacy	
Course	Outcom	es			Teaching Meth	ods	Assessme	nt Methods	
CO 1	Define intellec	that tual pr	various laws associated operty rights	with	Flipped Classroom	Group	Discussion		
CO 2	Explain IPR be	the dlicens	concept of commercialization	on of	Video Lectu	re	Assi	gnment	
CO 3	Outline internat	the	concepts of copyrights protection of copyrights	and	Problem Solv	ing	Se	minar	
CO 4	Recall laws.	the hi	story and perspective of pr	ivacy	Tutorial / Ca Studies	se	(Quiz	
CO 5	Classify privacy	y the laws	compare the various type	es of	Virtual Lab	,	Fli	p Test	
Offered	l by I	OCFS							
Course	Content				Instruction	al Ho	urs / Wee	ek : 6	
Unit			Description		·	Te	xt Book	Chapters	
I	Intellect Intellect Develop Human	t ual P ual Pro ment- Right.	roperty Overview - Concep operty. Types of Intellectual An Overview. Intellectua Role of International Institu	ot of Pro l Prope l Prop tions.	operty vis-à-vis erty- Origin and erty Rights as		1	1,2	
					Instruc	tional	l Hours	18	
Suggest	ed Lear	ning N	Methods : Video Lectures	5 · 1·	CT + 11 + 1			02 Hrs	
п	Intellectual Property Rights-Commercialization of IntellectualProperty Rights by Licensing. Determining Financial Value ofIntellectual Property Rights. Negotiating Payments Terms inIntellectual Property Transaction. Intellectual Property Rights inthe Cyber World								
0	1 -	• -			Instruc	tional	l Hours	18	
Suggest	ed Lear	ning N	Viethods : Group Discussion	n Interne	tional Prot-time	of		02 Hrs	
III	Copyri Copyri Conve	ght antion/	and Related rights- An Freaties on Copyright).	Overv	view (Internation	nal		5,7	
	Instructional Hours 18								
Suggest	ed Lear	ning N	Aethods : Worked examp	les				02 Hrs	

IV	Indiai 1957 v duratio Infring	n Copyr with its on of ogement of	r ight L amendi Copyrig of copy	aw - Ind ments, C ght, Re rights an	dian C Copyri newal nd ren	Copyrig ght wo and nedies.	iht Lav rks, O Termi	w- The Ownershi	Copyrigl p, transf of Cop	nt Act, er and yright,	1		8
									Instr	uctiona	l Hours	1	8
Suggeste	ed Lea	rning I	Metho	ds : Pro	oblen	n Base	d Lea	rning				02	Hrs
V	Privac Privac Protec	e y Laws y Issue tion.	s - His - Lega	tory and I Tools	Pers	pective e Cons	of Pı stitutic	rivacy La on. Statu	aws- Gl tes & S	obal State	1	10	,12
								Instr	uctiona	l Hours	18		
Suggeste	ed Lea	rning I	Metho	ds : Lal	oorat	actice	ce				02	Hrs	
			1						Tota	l Hours	90	Hrs	
			1.Vik	as Vash	ishth.	; "Law	and p	oractice	of intell	ectual p	roperty ir	n India'	,
Text Bo	oks		2.Sre Publi	enivasu shing, 2	lu N 2013	.S; "L	aw R	Relating	to Inte	ellectual	Property	y", Pa	tridge
3. Vakul Sharma; "Information Technology: Law and Practice", Universa Law Publishing Co., India, 2011.													versal
Referen	ce Boo	oks	1.The 2.The	e Copyr e Patent	ight A Act,	ct, 195 1970	57						
Web. Ul	RLs		Ipind	ia.gov.i	n								
				То	ols fo	r Asse	ssmei	nt (50 M	larks)				
CIA	I	CIA I	I C	IA III	A	ssignm	nent	nt Seminar Ouiz Tot					tal
8		8		10		8			8		8		50
						Ma	pping	5					
CO \ PO	PO 1	PO2	PO3	PO4	PO 5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO 4	PSO 5
CO1	Н	Н	Н	L	М	М	L	М	Н	М	Н	М	L
CO2	М	М	М	М	Н	М	Μ	М	М	L	М	Н	Н
CO3	Н	L	М	Н	М	М	L	Н	Н	L	Н	L	М
CO4	М	Н	L	Μ	L	L	Н	М	М	L	L	М	L
CO5	М	М	Н	Н	М	Н	М	Н	Н	L	М	М	Н
H-High;	M-Me	edium; I	L-Low										
		Course	e desig	ned by					Verifie	ed by			
										-			

Course	e Code		Title									
22U3I	ГЕ611		Elective Paper III: In	forma	tion Technology	for I	Manageme	ent				
Semest	er: VI		Credits: 4	CL	A: 50 Marks		ESE: 50	Marks				
		1										
Course	Objectiv	ve	To introduce the concepts	of Ma	nagement in Info	ormat	tion Techn	ology				
Course	Categor	у	Employability and Entrep	reneur	ship							
Develop	ment N	eeds	Global									
Course	Descrip	tion	This course helps to under	stand	the different Info	rmat	ion Techn	ology Ma				
Course	Outcom	es			Teaching Methe	ods	Assessme	nt Methods				
CO 1	Interpre Techno	et and logy f	d Understand the Inform or Organization	ation	Flipped Classroom		Group	Discussion				
CO 2	Analyse the impact of IT on the Organization Video Lecture Assignment											
CO 3	Outline the concepts of Building systems with creativityProblem SolvingSeminar											
CO 4	Examin	e the	se	Quiz								
CO 5	Classify privacy	y the laws	compare the various type	es of	Tutorial / Ca Studies	se	Fli	p Test				
Offered	by I	nforn	nation Technology									
Course	Content				Instruction	al Ho	ours / Wee	ek : 6				
Unit			Description			Te	ext Book	Chapters				
Ι	Using Informa Informa Change Unders How po Knowle Framew Based o of Chrys	Tech tion tion 7 tandin eople dge orks n IT sler	nology to Transform Technology in the Wo Technology – Transform Technology and the Manag Six Major Trends – ng Information: The Nate Interpret Information – – Information Technolog for Information Technolog - The Basics of Information	the orkplac ing (er – T Int cure of From ogy = ogy = n Syst	Organization: e – What is Organizations – the Challenge of erpreting and f Information – Information to in Perspective: A Framework ems – The Case		1	1,2				
					Instruc	tiona	al Hours	18				
Suggest	ed Lear	ning I	Methods : Video Lectures					02 Hrs				

II	The Impact Organization of Organization Issues of Info and Corpora Competitive H Environment International Impact of C International Technology Management	t of Information Technology a: Modern Organizations – Creating Net- ons – Building a T-Form Organization – brmation Technology – Information Tech- ate Strategy – Creating and Sust Edge – Integrating Technology with the – Managing Information Technolog Business and Information Technolog Globalization on Business – Key I Environment – Managing Information Internationally – Business Models	on the ew Types Strategic echnology aining a Business ology – y – The Issues in formation and IT	1	3,4
	I		Instructiona	al Hours	18
Sugges	ted Learning N	Methods :Group Discussion			02 Hrs
III	 A Systems and Designer Development Structured ver Further Development Study – Der Undertaking General Des Engineering 	Design Life Cycle – The Roles of Ma s – User-Oriented Design – The Spin – Data Collection for Analysis ar ersus Object-Oriented Design – Buildi elopments: System Analysis – Survey a termining Feasibility – Selecting ar System Analysis – Undertaking System ign Considerations – Computer-Aid	nagers, Users ral Model of ad Design – ang Systems: nd Feasibility Alternative n Designs – ed Software		5,7
			Instructiona	al Hours	18
Sugges	ted Learning N	Methods : Worked examples			02 Hrs
IV	Reengineerin What is Reen Process at Mu Lynch – Reen Change: Imp Implementation of the Organiz	g: Changing Businesses and Busines gineering? – What is a Process? – Rea- tual Benefit Life – Reengineering a Proc ngineering the Entire Firm at Oticon – I lementation – Research on Implement on Strategy – Implementing IT-Based Tra- zation – Beyond Structural Change	ss Processes: engineering a cess at Merrill Implementing nation – An cansformation	1	8
	I		Instructiona	al Hours	18
Sugges	ted Learning N	Methods : Problem Based Learning			02 Hrs
V	Organization Examples of I Systems – G Organizationa and Entertain	Support Systems : Decision-Suppor DSSs – The Promise of DSSs – Executiv broup Decision-Support Systems – Gr Il Knowledge – Multimedia for Busine ment	t Systems – e Information oupware and ss, Education	1	9, 10
			Instructiona	al Hours	18
Sugges	ted Learning N	Methods : Problem Based Learning		1.11	02 Hrs
		1 Henry C. Lucas Ir Information Tool	Tota mology for Mg	a Hours	90 Hrs 7 th
Text B		Γ . Henry C. Lucas, JI. Information Tech	mology for twic	magement,	1

B. Sc., Information Technology

Reference	ce Boo	oks	Earl, Pren	, Micha tice-Hal	iel J. l, Inc.	. Mana , 1989.	gemen	t strat	egies f	for inf	ormation	techno	ology.	
Web. UF	RLs		www	v.techtar	get.co	m								
				То	ols fo	ssmen	t (50 M	larks)						
CIA	I	CIA I	I C	IA III	A	nent	Seminar Quiz			Quiz	Total			
8	8 8 10 8							8 8 50						
						pping								
CO\PO	PO 1	PO2	PO3	PO4	PO 5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO 4	PSO 5	
CO1	Н	Н	Н	L	М	М	L	М	Н	М	Н	М	L	
CO2	М	М	М	М	Н	М	М	М	М	L	М	Н	Н	
CO3	Н	L	М	Н	М	М	L	Н	Н	L	Н	L	М	
CO4	М	Н	L	М	L	L	Н	М	М	L	L	М	L	
CO5	М	М	Н	Н	М	Н	М	Н	Н	L	М	М	Н	
H-High;	M-Me	edium; I	L-Low	7										
	Course	e desig	gned by					Verifi	ed by					

2022

	Λ	1	2
4	U	2	4

Course	Code		Title										
22U3I	ГЕ612		Elective I	Paper	III: Ethical Ha	cking	Ş						
Semest	er: VI		Credits: 4	CL	A: 50 Marks		ESE:50 N	Marks					
Course	Objectiv	/e	To help students understa prevent hacking. To make identifying vulnerabilities an	ind ho e it po nd expl	w ethical hackin ossible for stude oits of the technol	ng is nts to ogica	used as a learn the lecosystem	e process of					
Course	Categor	у	Entrepreneurship, Skill De	evelop	ment								
Develop	ment No	eeds	Global										
Course	rse Description This course helps to facilitate students, appreciate the need for understanding non-technology aspects of ethical hacking such as legal frameworks, documentation and report writing. Teaching Matheda Assessment Matheda												
Course	Outcom	es			Teaching Meth	ods	Assessme	nt Methods					
CO 1	1 Explain the importance of numerous methods of real-world information intelligence. Flipped Group Discussion												
CO 2	Differ assess penetr	entiat ment ation	e the processes of vulnerabi and ethical hacking fit testing.	ility rom	Video Lectu	re	Assi	ignment					
CO 3	Comp approj manag	rehen priate ging v	d the importance of countermeasures for ulnerabilities.	•	Problem Solv	ing	Se	eminar					
CO 4	To fam be used	niliariz d to ha	e with the methodologies that ck into a target.	can	Tutorial / Ca Studies	ise	(Quiz					
CO 5	To app can be	preciate perfor	e the wide variety of attacks the med against awireless networ	nat 'k.	Virtual Lab)	Fli	p Test					
Offered	by I	nforn	nation Technology										
Course	Content				Instruction	al H	ours / Wee	ek : 6					
Unit			Description			Te	ext Book	Chapters					
Ι	Introduction To Hacking: Terminologies, Categories of PenetrationTest, Writing Reports, Structure of a Penetration Testing Report,VulnerabilityAssessmentSummary,RiskAssessment,Image: ApplicationsBackTrackServices												
		••			Instruc	tiona	al Hours	18					
Suggest	ed Lear	ning I	Methods : Video Lectures					02 Hrs					

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II	Information Gathering, Target Enumeration And Port Scanning Techniques: Active, Passive and Sources of information gathering, Copying Websites Locally, NeoTrace, Cheops-ng, Intercepting a Response, What Web, Net craft, Basic Parameters, Code Exploit Scanner, Interacting with DNS Servers, Fierce, Zone Transfer with Host Command and Automation, DNS Cache Snooping- Attack Scenario, Automating Attacks, SNMP - Problem, Sniffing Passwords, SolarWinds Toolset, sweep, Brute Force and Dictionary- Tools	1	
	, Attack, Enumeration, Intelligence Gathering Using Shodan,		
	Target enumeration and Port Scanning Techniques.	al Hours	18
Sugges	ted Learning Methods :Online Simulation Tools	ii iiouis	02 Hrs
	Vulnerability Assessment & Network Sniffing: Introduction to		
	Vulnerability Assessment - Pros and Cons, NMap, Updation of		
	database, Testing SCADA Environments with Nmap, Nessus,		
	Sniffing: Types, Hubs versus Switches, Modes, MITM Attacks, ARP		
	Protocol Basics- working, Attacks, DoS Attacks, Dsniff tool, Using		
III	ARP Spoof to Perform MITM Attacks, Sniffing the Traffic with	1	
	Dsniff, Sniffing Pictures with Drifnet, Urlsnarf and Webspy, Sniffing	_	
	with Wireshark, Ettercap- ARP Poisoning, Hijacking Session with		
	MITM Attack, ARP Poisoning with Cain and Abel, Shifting Session		
	HTTPS Traffic Pacuirements Automating Man in the Middle		
	Attacks DNS Spoofing DHCP Spoofing		
	Instruction	al Hours	18
C	ted Learning Methods . Worked exemples		0.0 11
Sugges	teu Learning Methous : Workeu examples		02 Hrs
Sugges	Remote Exploitation : Understanding Network Protocols,		02 Hrs
Sugges	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols,		02 Hrs
Sugges	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP,		02 Hrs
Sugges	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E-		02 Hrs
IV	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links,	1	02 Hrs
IV	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB	1	02 Hrs
IV	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB Sticks, Post exploitation: Acquiring Situation Awareness, Drivilage Escalation Meintaining Access Data Mining	1	02 Hrs
IV	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB Sticks, Post exploitation: Acquiring Situation Awareness, Privilege Escalation, Maintaining Access, Data Mining, Identifying and Exploiting Further Targets Windows Exploit	1	<u> 02 Hrs </u>
IV	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB Sticks, Post exploitation: Acquiring Situation Awareness, Privilege Escalation, Maintaining Access, Data Mining, Identifying and Exploiting Further Targets, Windows Exploit DevelopmentBasics	1	<u> </u>
IV	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB Sticks, Post exploitation: Acquiring Situation Awareness, Privilege Escalation, Maintaining Access, Data Mining, Identifying and Exploiting Further Targets, Windows Exploit DevelopmentBasics.	1 al Hours	<u>02 Hrs</u> 18
IV	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB Sticks, Post exploitation: Acquiring Situation Awareness, Privilege Escalation, Maintaining Access, Data Mining, Identifying and Exploiting Further Targets, Windows Exploit DevelopmentBasics. Instructionated Learning Methods : Problem Based Learning	1 al Hours	02 Hrs 18 02 Hrs
IV	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB Sticks, Post exploitation: Acquiring Situation Awareness, Privilege Escalation, Maintaining Access, Data Mining, Identifying and Exploiting Further Targets, Windows Exploit DevelopmentBasics. Instructionated Learning Methods : Problem Based Learning Wireless Hacking :Requirements , Aircracking , Hidden	1 al Hours	02 Hrs 18 02 Hrs
IV Sugges	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB Sticks, Post exploitation: Acquiring Situation Awareness, Privilege Escalation, Maintaining Access, Data Mining, Identifying and Exploiting Further Targets, Windows Exploit DevelopmentBasics. Instructiona ted Learning Methods : Problem Based Learning Wireless Hacking :Requirements , Aircracking , Hidden SIDs Monitor Mode Monitoring Tool- Beacon Frames	1 al Hours	02 Hrs 18 02 Hrs
IV	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB Sticks, Post exploitation: Acquiring Situation Awareness, Privilege Escalation, Maintaining Access, Data Mining, Identifying and Exploiting Further Targets, Windows Exploit DevelopmentBasics. Instructionated Learning Methods : Problem Based Learning Wireless Hacking :Requirements , Aircracking , Hidden SSIDs , Monitor Mode , Monitoring Tool- Beacon Frames on Wireshark Airodump-ng, Wireless Adapter in Monitor	1 al Hours	02 Hrs 18 02 Hrs
IV	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB Sticks, Post exploitation: Acquiring Situation Awareness, Privilege Escalation, Maintaining Access, Data Mining, Identifying and Exploiting Further Targets, Windows Exploit DevelopmentBasics. Instructiona ted Learning Methods : Problem Based Learning Wireless Hacking :Requirements , Aircracking , Hidden SSIDs , Monitor Mode , Monitoring Tool- Beacon Frames on Wireshark ,Airodump-ng , Wireless Adapter in Monitor Mode Determining the Target , Creaking a WDA (WDA2)	1 al Hours	02 Hrs 18 02 Hrs
IV	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB Sticks, Post exploitation: Acquiring Situation Awareness, Privilege Escalation, Maintaining Access, Data Mining, Identifying and Exploiting Further Targets, Windows Exploit DevelopmentBasics. Instructiona ted Learning Methods : Problem Based Learning Wireless Hacking :Requirements , Aircracking , Hidden SSIDs , Monitor Mode , Monitoring Tool- Beacon Frames on Wireshark ,Airodump-ng , Wireless Adapter in Monitor Mode , Determining the Target , Cracking a WPA/WPA2	1 al Hours	02 Hrs 18 02 Hrs
IV	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB Sticks, Post exploitation: Acquiring Situation Awareness, Privilege Escalation, Maintaining Access, Data Mining, Identifying and Exploiting Further Targets, Windows Exploit DevelopmentBasics. Instructiona ted Learning Methods : Problem Based Learning Wireless Hacking :Requirements , Aircracking , Hidden SSIDs , Monitor Mode , Monitoring Tool- Beacon Frames on Wireshark ,Airodump-ng , Wireless Adapter in Monitor Mode , Determining the Target , Cracking a WPA/WPA2 Wireless Network Using Aircrack-ng , Capturing Packets	1 al Hours	02 Hrs 18 02 Hrs
IV Sugges	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB Sticks, Post exploitation: Acquiring Situation Awareness, Privilege Escalation, Maintaining Access, Data Mining, Identifying and Exploiting Further Targets, Windows Exploit DevelopmentBasics. Instructiona ted Learning Methods : Problem Based Learning Wireless Hacking :Requirements , Aircracking , Hidden SSIDs , Monitor Mode , Monitoring Tool- Beacon Frames on Wireshark ,Airodump-ng , Wireless Adapter in Monitor Mode , Determining the Target , Cracking a WPA/WPA2 Wireless Network Using Aircrack-ng , Capturing Packets and Four-Way Handshake , Web Hacking :Attacking the	1 al Hours	18 02 Hrs
IV IV Sugges	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB Sticks, Post exploitation: Acquiring Situation Awareness, Privilege Escalation, Maintaining Access, Data Mining, Identifying and Exploiting Further Targets, Windows Exploit DevelopmentBasics. Instructiona Methods : Problem Based Learning Wireless Hacking :Requirements , Aircracking , Hidden SSIDs , Monitor Mode , Monitoring Tool- Beacon Frames on Wireshark ,Airodump-ng , Wireless Adapter in Monitor Mode , Determining the Target , Cracking a WPA/WPA2 Wireless Network Using Aircrack-ng , Capturing Packets and Four-Way Handshake , Web Hacking :Attacking the Authentication , Brute Force and Dictionary Attacks , Types	1 al Hours	02 Hrs 18 02 Hrs
IV IV Sugges	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB Sticks, Post exploitation: Acquiring Situation Awareness, Privilege Escalation, Maintaining Access, Data Mining, Identifying and Exploiting Further Targets, Windows Exploit DevelopmentBasics. Instructions ted Learning Methods : Problem Based Learning Wireless Hacking :Requirements , Aircracking , Hidden SSIDs , Monitor Mode , Monitoring Tool- Beacon Frames on Wireshark ,Airodump-ng , Wireless Adapter in Monitor Mode , Determining the Target , Cracking a WPA/WPA2 Wireless Network Using Aircrack-ng , Capturing Packets and Four-Way Handshake , Web Hacking :Attacking the Authentication , Brute Force and Dictionary Attacks , Types of Authentication , Crawling Restricted Links , Testing for	1 al Hours	02 Hrs 18 02 Hrs
IV IV Sugges	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB Sticks, Post exploitation: Acquiring Situation Awareness, Privilege Escalation, Maintaining Access, Data Mining, Identifying and Exploiting Further Targets, Windows Exploit DevelopmentBasics. Instructiona ted Learning Methods : Problem Based Learning Wireless Hacking :Requirements , Aircracking , Hidden SSIDs , Monitor Mode , Monitoring Tool- Beacon Frames on Wireshark ,Airodump-ng , Wireless Adapter in Monitor Mode , Determining the Target , Cracking a WPA/WPA2 Wireless Network Using Aircrack-ng , Capturing Packets and Four-Way Handshake , Web Hacking :Attacking the Authentication , Brute Force and Dictionary Attacks , Types of Authentication , Crawling Restricted Links , Testing for the Vulnerability , Authentication Bypass with Insecure	1 al Hours	18 02 Hrs
IV IV Sugges	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB Sticks, Post exploitation: Acquiring Situation Awareness, Privilege Escalation, Maintaining Access, Data Mining, Identifying and Exploiting Further Targets, Windows Exploit DevelopmentBasics. Instructiona ted Learning Methods : Problem Based Learning Wireless Hacking :Requirements , Aircracking , Hidden SSIDs , Monitor Mode , Monitoring Tool- Beacon Frames on Wireshark ,Airodump-ng , Wireless Adapter in Monitor Mode , Determining the Target , Cracking a WPA/WPA2 Wireless Network Using Aircrack-ng , Capturing Packets and Four-Way Handshake , Web Hacking :Attacking the Authentication , Brute Force and Dictionary Attacks , Types of Authentication , Crawling Restricted Links , Testing for the Vulnerability , Authentication Bypass with Insecure Cookie Handling , SQL injection, XSS – DOM	1 al Hours	02 Hrs 18 02 Hrs
IV IV Sugges	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E- Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB Sticks, Post exploitation: Acquiring Situation Awareness, Privilege Escalation, Maintaining Access, Data Mining, Identifying and Exploiting Further Targets, Windows Exploit DevelopmentBasics. Instructiona ted Learning Methods : Problem Based Learning Wireless Hacking :Requirements , Aircracking , Hidden SSIDs , Monitor Mode , Monitoring Tool- Beacon Frames on Wireshark ,Airodump-ng , Wireless Adapter in Monitor Mode , Determining the Target , Cracking a WPA/WPA2 Wireless Network Using Aircrack-ng , Capturing Packets and Four-Way Handshake , Web Hacking :Attacking the Authentication , Brute Force and Dictionary Attacks , Types of Authentication , Crawling Restricted Links , Testing for the Vulnerability , Authentication Bypass with Insecure Cookie Handling , SQL injection, XSS – DOM based,BeEF,CSRF, Bypassing CSRF and BeEF with XSS,	1 al Hours	02 Hrs 18 02 Hrs

									Instr	uction	al Hours	1	l 8
Suggeste	ed Lea	arning l	Metho	ds : Lal	borat	ory pr	actice					02	Hrs
										Tot	al Hours	90	Hrs
Torrt Do	alra		1.	Rafa	y Bal	och ,-	Ethica	ıl Hack	ting and	d Pene	tration Te	sting (Guide,
Text Do	JKS		CRC	Press, 2	2015.								
			1.Pat	rickEng	gebret	son,—'	TheBas	sicsof	Hacking	g and 1	Penetration	n Testi	ng :
			Ethic	al Hacl	king a	and Pe	enetrati	on Tes	ting M	ade Ea	isy, Syngr	ess M	edia,
Reference	ce Bo	oks	Seco	nd Revi	sed E	dition,	2013.						
2. MichaelT. Simpson, Kent Backman, James E.Corley,- Ha											Hands	On	
Ethical Hacking and Network Defense, Cengage Learning, 2012.												2.	
Web. URLs www.simplilearn.com													
Tools for Assessment (50 Marks)													
CIA I CIA II CIA III Assignment Seminar									Quiz	То	tal		
8		8		10		8		8 8			50		
						Ma	pping						
CO \ PO	PO 1	PO2	PO3	PO4	PO 5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO 4	PSO 5
CO1	Н	Н	Н	L	М	М	L	М	Н	М	Н	М	L
CO2	М	М	М	М	Н	М	М	М	М	L	М	Н	Н
CO3	Н	L	М	Н	М	М	L	Н	Н	L	Н	L	М
CO4	Μ	Н	L	М	L	L	Н	М	М	L	L	М	L
CO5	Μ	М	Н	Н	М	Н	М	Н	Н	L	М	М	Н
H-High; M-Medium; L-Low													
		Course	e desig	gned by						Verifi	ed by		

Course	Code		Title										
22U3IT	Z604		Skill Based	Paper IV: I	Practical i	n Kotlin							
Semeste	er: VI		Credits: 3	CIA: 30	Marks	ES	E: 45 Marks						
Course (Objectiv	re	To gain knowledge in a ne source programming lang Java Virtual Machine. It which is used to build an websites on the Internet	w language f guage for ge is a mixture id run some	for JVM.It is astatically-typed open- enerating code that can run on the s of legacy Java code and Kotlincode e of the largest and most powerful								
Course (Categor	y	Employability, Skill Deve	lopment									
Develop	ment Ne	eds	Global										
Course I	Descript	ion	n The course is based on the Java experience; it shows the similarities between the two languages and focuses on what's going to be different.										
	-		between the two language	s and focuse	es on what	's going to hing	o be different.						
Course (Jutcom	es			Met	hods	Methods						
CO 1	Under	stand	the basics of Kotlin	ent.	-								
CO 2 CO 3	Under	stand	the basic Java, Java Virtual	Machine	Demor	stration	Laboratory						
CO 4	Apply	Andr	oid, Javascript		Internod Experiments								
CO 5	Create	a nev	w environment using androi	d platform									
Offered	by In	forma	tion Technology										
Course (Content			Instru	ictional H	ours / W	eek:6						
Progra mme			I	Description									
1	Kotlin	progr	am to print an Integer										
2	Kotlin	progr	am to Add two integers										
3	To def	ine A	SCII value of a character us	sing Kotlin									
4	To che	ck wł	nether a number is ODD or	EVEN using	g Kotlin								
5	To fine	d the l	argest among three number	s using Kot	lin								
6	To dis	play F	Fibonacci series using Kotlin	n									
7	To che	ck wł	nether number is Prime or n	ot									
8	To find	d Fact	orial of a number										
9	To ma	ke a s	imple Calculator using swit	ch case									
10	Kotlin	progr	am to get current working o	directory									
11	Kotlin	progr	am to get current Date/Tim	e									

12	Kotli	n progi	ram to	sort a l	Map by	y value	s						
									Inst	ructional	l Hours	s g	90
				То	ols for	Asses	sment	(50 Ma	rks)				
Applica of Lo	tion gic	Prog Crea	gram tivity	Pro Deb	ogram ouggin	'est 1	1 Test 2		Observation Note Book		Total		
5 5 5 6								6		3		3	0
						pping							
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO 5
CO1	Н	М	Н	М	Н	Н	Η	Η	Н	Н	Н	М	М
CO2	М	М	М	М	Н	М	Μ	М	Η	Н	Н	М	М
CO3	Н	М	М	Н	М	М	L	Η	Η	Н	Н	Н	Н
CO4	Н	Н	Н	L	Н	Н	Η	М	Η	Н	Н	М	Н
CO5	М	М	Н	Н	Μ	Н	Μ	Η	Η	Н	Н	М	Н
H-High;	M-Mec	lium; I	L-Low										
		Course	e desig	ned by	7					Verifie	d by		