

KIET GROUP OF INSTITUTIONS, GHAZIABAD Department of Information Technology (NBA Accredited)



(An ISO – 9001: 2008 Certified & 'A' Grade accredited Institution by NAAC)



13 KM STONE, GHAZIABAD-MEERUT ROAD, GHAZIABAD – 201206

Website: www.kiet.edu



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Index

		3 rd Semester
S No.	Subject Code	Subject Name
1	RAS301	Mathematics-III
2	RVE301	Universal Human Values & Professional Ethics
3	REC301	Digital Logic Design
4	RCS301	Discrete Structures & Theory of Logic
5	RCS302	Computer Organization and Architecture
6	RCS305	Data Structures
7	REC351	Digital Logic Design Lab
8	RCS351	Discrete Structure & Logic Lab
9	RCS352	Computer Organization Lab
10	RCS355	Data Structures Using C/ Java Lab

		5 th Semester
S No.	Subject Code	Subject Name
1	RAS501	Managerial Economics
2	RUC501	Cyber Security
3	RCS-501	Database Management Systems
4	RCS-502	Design and Analysis of Algorithm
5	RCS-503	Principles of Programming Languages
6	RIT-053	Object Oriented Techniques
7	RCS-551	Database Management Systems Lab
8	RCS-552	Design and Analysis of Algorithm Lab
9	RCS-553	Principles of Programming Languages Lab
10	RIT-554	Object Oriented Techniques Lab

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		7 th Semester
S No.	Subject Code	Subject Name
1	NIT-701	Cryptography & Network Security
2	NCS-702	Artificial Intelligence
3	NCS-071	Software Testing and Audit
4	NCS-075	Android Operating System
5	NOE-077	Software Project Management
6	NIT-751	Cryptography & Network Security Lab
7	NCS-752	Project
8	NCS-753	Industrial Training

CO PO and Mapping of CO PO 2nd Year

(2017-2021 BATCH)

Session:- 2018-19 Semester:- 3rd Theory

	CO1	: To	study	the a	nalyt	ic fu	nctior	n and	evaluat	the the	derivati	ive and	integr	al of		
		com	plex	value	d fun	ction	, also	have	the ide	ea of s	ingular	rities an	d calc	ulate		
		the 1	residu	e of c	compl	ex va	riable	e funct	ion.							
	CO2	: To e	evalua	te the	mon	nents	of dis	screte	and cor	ntinuou	s proba	ability f	unction	n. Fit		
		the	data ł	oy line	ear ar	nd no	n-line	ear cur	ve and	they l	earn to	solve t	he pro	blem		
		relat	ted to	discr	ete ar	nd cor	ntinuc	ous pro	babilit	y distri	bution	function	n.			
Mathematics -III	CO3	: To	study	the	metho	od of	findi	ing th	e root	of alge	ebraic	and trai	nscend	ental		
(RAS301)		equa	ation	and to	o expl	ore th	ne ide	a for f	inding	the inte	erpolati	ng poly	nomia	1.		
	CO4	: To	diffe	rentia	te an	d int	tegrat	e the	functio	on of	two va	ariable,	also s	solve		
	ordinary differential equation of first and second order by using initial															
		conditions.														
	CO5	CO5: To evaluate the fourier integral of a function. They study the properties &														
	applications of fourier transformation, also explore the Z transform of a															
		give	n fun	ction	to fin	d the	solut	olution of difference equation.								
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	P06	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2		
CO1	3	3	2	1	3	1	1	1	1	1	1	1	3	2		
CO2	2	2	2	3	3	1	1	1	1	1	1	1	3	2		
CO3	2 2 3 3 2 1 1 1 1 1 1 1 3 2															
CO4	1 3 3 2 1 1 1 1 1 1 1 1 3 2															
CO5	2	2	2	1	1	1	1	1	1	1	1	1	3	2		
Average	2.00	2.40	2.40	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	2.00		

	CO1: Start exploring the importance of 'I' (self), get comfortable to each other, to the teacher and start finding the need and relevance of the course.													
Universal	CO	2: Star	t feelin	g lack	of und	erstand	ing of	human	value	s is the	root ca	use of	all prob	lems
Human Values & Professional	CO	3: Und	erstand	l the pł	nysical	faciliti	es are	require	d in lii	mited q	uantity			
Ethics (RVE-301)	CO	CO4: See that respect is right evaluation and only right evaluation leads to fulfillment in relationship												
	CO	O5: Differentiate between the characteristics of different order and they are able to understand his/her role in this existence.												
		understand his/her role in this existence.												
CO \ PO Mapping	PO1	D1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 PS01 PS02												
CO1	3	1	3	2	2	2	2	3	3	2	1	3	1	1
CO2	2	3	1	3	3	2	1	3	2	2	1	3	1	1
CO3	2	2	3	2	3	2	1	3	1	3	1	3	1	1
CO4	3	2	3	3	2	3	1	3	3	2	1	3	1	1
CO5	3	2	2	3	3	1	2	3	3	2	1	3	1	1
Average	2.60	2.00	2.40	2.60	2.60	2.00	1.40	3.00	2.40	2.20	1.00	3.00	1.00	1.00

	CO1 CO2	: Unde	rstand lyze a	the fun	damen sign tl	tal kno he cor	owledg	e of dig	gital lo	gic and	l its bas h are	ic elem used f	ents. For gei	neral	
Digital Logic Design (REC301)	CO3	: Unde	erstand	the t	basics	of seq	uential	logic	and	its app	licatior	in re	gisters	and	
	CO4	: Analy	yze & c	lesign	the syn	chrono	ous and	async	hronou	is sequ	ential c	ircuits.			
	CO5	: Unde	erstand	how d	ata is s	tored in	n the m	nemory	, basic M PA	conce	ot of log	gic fam	ilies, a	nd	
CO \ PO Manning	PO1	implementation of the circuits using ROM, PAL, PLA, CPLD, and FPGA.													
	2	2	2	2	2	1	2	1	1	1 010	1	1012	1	1502	
	5	2	2	2	2	1	2	1	1	1	1	1	1	1	
CO2	3	3	3	2	2	1	1	1	2	2	1	1	2	2	
CO3	3	3	2	1	1	1	1	1	1	1	1	1	1	1	
CO4	3 3 3 3 2 2 1 1 1 1 1 1 2 2														
CO5	3	3 3 3 2 2 2 1 1 1 1 1													
Average	3.00	2.80	2.60	2.20	1.80	1.40	1.40	1.00	1.20	1.20	1.00	1.00	1.40	1.40	

	CO1: Know the concept of Set Theory, Relations, Functions and Mathematical Induction.													ion.
Discrete	CO2	: Know	the co	oncept	of Gro	up and	proper	ty of F	Ring an	d Field	s.			
Structures &	CO3	: Know	the co	oncept	of POS	SET, la	ttice ar	nd basi	c part o	of Bool	ean alg	ebra.		
(RCS301)	CO4	: Know	the Pr	roposit	ion Log	gic, Pro	edicate	Calcul	lus and	l use of	Quant	ifiers.		
	CO5	D5: Know the concept of Recurrence Relation and basic concept of graph theory and its applications like: Utilities problems, electrical circuit, and Bridge problem.												
	a	applications like: Utilities problems, electrical circuit, and Bridge problem.												
CO \ PO Mapping	PO1	PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 PS01 PS02												
CO1	3	3	3	2	1	3	1	1	1	2	1	3	3	3
CO2	3	3	3	3	1	1	1	1	1	3	2	3	3	2
CO3	3	3	3	3	1	1	1	1	1	3	2	3	2	2
CO4	3	3	2	2	1	1	1	1	1	2	1	2	3	3
CO5	3 3 3 1 2 1 1 1 3 1 3 3 2													
Average	3.00	3.00	2.80	2.60	1.00	1.60	1.00	1.00	1.00	2.60	1.40	2.80	2.80	2.40

	CO1: Know the concept of computer organization and fixed- & floating-point arithmetic operations using various algorithm													etic	
Computer Organization	CO2	: know	the co	ncept o	of instr	uction	execut	ion and	1 micro	oprogra	mming	5			
and	CO3	: know	the co	ncept o	of cach	e mem	ory, m	apping	functi	ons and	l replac	ement	algorit	hm	
(RCS302)	CO4	CO4: know the concept of input output devices and register transfer language.													
	CO5	5: Know the concept of pipelining and nonlinear pipelining.													
CO \ PO Mapping	PO1	PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 PS01 PS02													
CO1	3	3	1	2	1	2	1	1	1	1	1	3	3	3	
CO2	3	3	1	2	1	2	1	1	1	1	1	3	3	3	
CO3	3	3	1	2	2	2	1	1	1	1	1	3	3	3	
CO4	3	3 3 1 2 3 2 1 1 1 1 3 3													
CO5	3 3 1 2 1 2 1 1 1 1 1 3 3														
Average	3.00	3.00	1.00	2.00	1.60	2.00	1.00	1.00	1.00	1.00	1.00	3.00	3.00	3.00	

	CO1: Apply the knowledge of various data structures and its operations														
	C	02: Aj	oply sta	andard	algorit	hms fo	or searc	hing a	nd sort	ing					
Data Structures	C	03: Ai	nalyze	efficie	ncy of	differe	nt algo	rithms	using	time an	id space	e compl	lexity		
(RC5303)	C	04: Ex	plore t	the con	cept, a	pplicat	tion and	d imple	ementa	tion of	recursi	on.			
	C	05: In	npleme	nt suita	able da	ita stru	cture w	ith res	pect to	o its per	rformar	nce to n	nodel a	a real-	
world problem										n	1				
CO \ PO Mapping	PO1	01 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 PS01 PS02													
CO1	3		2	2	2							3			
CO2	2	2	2	1							1	1			
CO3	3	2	2	3							1	2	3		
CO4	3		2	3	2		1	1			1	1	2		
CO5	3	3 2 2 1 2 3 3													
Average	2.80	2.00	2.00	2.00	2.00		1.00	1.00			1.00	1.80	2.67	3.00	

Practical

	CO1: Implement the basic elements of digital logic.													
	C	O2: In o	npleme peratic	ent vari ons are	ious da perfori	ita repi ned by	resenta v comp	tions a uters.	nd exp	olain ho	ow aritl	nmetic	and log	gical
Digital Logic Design Lab (PEC351)	C	O3: In	pleme	nt the l	pasic el	ement	s of sec	quentia	l circu	its.				
(NEC331)	С	CO4: Implement digital circuit design optimization methods using random logic gates, multiplexers and decoders.												
	C	O5: In	pleme	nt the o	concep	t of reg	gisters,	counte	rs and	progra	mmable	e logic :	arrays.	
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	1	3	2	2	1	1	1	1	1	1	2	2	2
CO2	1	1	3	2	2	1	1	1	1	1	1	2	2	2
CO3	1	1	3	2	2	1	1	1	1	1	1	2	2	2
CO4	1	1 1 3 2 2 1 1 1 1 1 2 2 2												
CO5	1	1	3	2	2	1	1	1	1	1	1	2	2	2
Average	1.00	1.00	3.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00

	CO1: Knowledge of logical notation to define and reason the fundamental mathematical concepts such as sets, relations, functions, and integers.													
	CO2	: Discu	iss vari	ious str	ructure	s and p	oroperti	es of n	nodern	algebr	a.			
Discrete Structure & Logic Lab (RCS351)	CO3	: Empl real-l gener	loy the ife pro rating f	ir logic blem unctio	cal abil by app n and r	ity suc olying ecurrei	h as re advanc nce rela	easonin ced con ation.	g able unting	to setu and co	p math omputi	ematic ng tech	al mod	el of like
	CO4	: Demo	onstrate	e probl	ems in	differe	ent area	us of co	ompute	r scien	ce usin	g trees	and gra	aphs.
	CO5	CO5: Design solution with the help of induction hypotheses, simple induction proofs and recurrences.												
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	1	2	1	3	1	1	2	1	2	2	3	3
CO2	3	2	1	1	2	1	2	1	2	2	1	2	3	3
CO3	2	1	3	3	3	2	1	1	1	3	1	1	3	3
CO4	3	2 1 3 1 2 2 1 1 3 1 3 3 3 1 3 1 2 2 2 1 1 2 1 1 3 3												
CO5	3	1	3	3	2	2	1	1	1	2	2	2	3	3
Average	2.80	1.20	2.20	2.00	2.00	2.00	1.40	1.00	1.40	2.00	1.40	1.60	3.00	3.00

	CO1: Implement the basic logic gates.														
Computer	(CO2: n	Design nultipli	vario er, dec	ous co oder ar	ombina nd mul	tional tiplexe	circuit r using	ts suc logic	h as gates.	adders,	code	conve	erter,	
Organization	(CO3: Iı	nplem	ent the	basic l	ouildin	g block	c of the	e seque	ntial ci	rcuits (i.e. Flip	Flop)		
Lab (RC5552)	(CO4: D	Design	the 8-b	it Arith	nmetic	Logic	Unit.							
	(CO5: Design of data path and control unit of the computer using register transfer language description.													
CO \ PO Mapping	PO1	O1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 PS01 PS02													
CO1	3	3	2	2	2	2	1	1	1	2	2	1	2	2	
CO2	2	3	2	1	2	1	1	2	2	2	1	2	3	3	
CO3	3	3	3	2	3	2	2	2	3	2	1	2	3	3	
CO4	3	3 3 3 2 2 2 3 3 2 3 3													
CO5	3 3 3 2 3 2 2 3 3 1 2 2 3 3														
Average	2.80	3.00	2.60	1.80	2.40	1.80	1.60	2.20	2.40	1.80	1.80	1.80	2.80	2.80	

	CC	01: Int	erpret a	and con	mpute	asymp	totic no	otation	of alg	orithm	and an	alyze c	onsum	ption of
		res	ources.											
	CC	02: Ex	emplify	y and i	mplem	ent sta	ck, qu	eue and	d list A	ADT, ti	ee, and	graph	to mar	nage the
Data Structures		me	mory u	ising st	atic an	d dyna	mic all	ocation	ns.					
Using C/ Java Lab (RCS355)	CC	03: Imj	plemen	t binar	y searc	h tree	to desig	gn appl	licatio	ns like	express	ion tree	es.	
Lub (Re5555)	CC	04: Ide	ntify, 1	nodel,	solve	and de	velop o	code fo	or real	life pro	oblems	like sh	ortest p	oath and
		MS	ST											
	CC	CO5: Implementation of programming problems on tree traversal.												
CO \ PO Mapping	PO1	O1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 PS01 PS02												
CO1	2	3	3	2	2	1					2	3		
CO2	2	3	3	2	1	1					1	3		
CO3	3	2	3	2	1	1					2	2	3	
CO4	3	2	3	2	3	2					1	3	3	3
CO5	2	3	3	2	3	2					1	2	2	2
Average	2.40	2.60	3.00	2.00	2.00	1.40					1.40	2.60	2.67	2.50

CO PO and Mapping of CO PO 3rd Year (2016-2020 BATCH)

Session:- 2018-19 Semester:- 5th

Theory

	CC	01: To	unders	tand th	e mear	ning of	econo	mics in	engin	eering	perspec	ctive			
Managerial	CC	D2: To de	under cision	stand	the con	ncept (of dem	and ar	nd its	implica	ition in	taking	; mana	gerial	
Economics	CC	03: To	know t	he var	ious m	ethods	of dem	nand fo	recasti	ng & p	roducti	on func	ction		
(KA5501)	CC	04: To	analyz	e the n	narket a	and var	rious m	arket c	onditio	ons.					
	CC	CO5: To understand the calculation and measurement of national income & inflation in present business scenario													
CO \ PO Mapping	PO1	O1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 PS01 PS01													
CO1	3	1	1	1	1	2	1	1	1	1	1	1	1	2	
CO2	1	2	2	1	1	2	1	1	1	1	3	1	2	2	
CO3	1	1	3	1	1	2	1	1	1	1	3	1	1	2	
CO4	1	3	1	1	1	1	1	1	1	1	2	1	2	1	
CO5	1	1	1	1	1	3	1	2	1	1	1	1	2	2	
Average	1.40	1.60	1.60	1.00	1.00	2.00	1.00	1.20	1.00	1.00	2.00	1.00	1.60	1.80	

	CC	01: Lea	arn abo	ut info	rmatio	n syste	ems, its	s types,	threat	s, secu	rity iss	ues rela	ted to	it and	
		alse	o about	cyber	securit	y and i	risk ass	sociated	d to it .						
	CC	02: Le	arn abo	out Ap	plicatio	on secu	urity, I	Data se	curity	and ty	pes of	securit	y Thre	ats in	
		net	work.												
	CC	03: Ur	nderstar	nd the	impor	tance of	of secu	ire info	ormatio	on syst	em and	d risk	manag	ement	
(RUC501)		issu	ues ind	ifferent	t applic	ations									
(Recever)	CC	04: De	esign s	ecurity	proce	dures,	polici	es and	imple	ment o	cryptog	raphy	in thei	r live	
		pro	jects .	and al	so lear	rn abo	ut mo	dern c	opyrig	ht, pat	ent lav	v, skil	ls of e	ethics,	
		cył	percrim	e and I	T ACT	Γ.									
	CC	CO5: Understand modern copyright, patent law, skills of ethics, cybercrime, and IT ACT so that they can protect their inventions by making use of these Laws.													
		CO5: Understand modern copyright, patent law, skills of ethics, cybercrime, and IT ACT so that they can protect their inventions by making use of these Laws.													
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	3	3	2	3	3	3	3	2	2	2	2	2	3	3	
CO2	3	3	2	3	2	3	3	2	2	2	2	2	3	3	
CO3	3	3	3	3	2	3	3	3	2	2	2	3	3	3	
CO4	3	2	3	2	2	3	2	3	2	2	2	2	3	3	
CO5	3	3	2	2	3	3	3	3	2	2	2	2	3	3	
Average	3.00	2.80	2.40	2.60	2.40	3.00	2.80	2.60	2.00	2.00	2.00	2.20	3.00	3.00	

	C	01: U	ndersta	and the	e datab	ase ma	anagen	nent sy	stem a	and im	plemen	t conce	ptual 1	model	
		us	ing ent	tity rela	ationsh	ip diag	rams.								
	C	O2: A	pply o	query	proces	sing to	echniqu	ies to	auton	nate th	e real	time]	probler	ns of	
Database Mana ann an t		da	itabases	s.											
Systems	C	O3: Id	entify a	and sol	ve the	redund	ancy p	roblem	n in dat	abase t	ables u	sing no	rmaliza	ation.	
(RCS501)	C	04: U	Jnderst	and th	ie con	cepts	of tra	nsactio	ns an	d also	under	stand t	he ne	ed of	
		di	stribute	ed data	bases.										
	C	CO5: Understand the concept of concurrency control and finally apply the knowledge to develop a small Database system.													
		develop a small Database system.													
CO \ PO Mapping	PO1	develop a small Database system.01PO2PO3PO4PO5PO6PO7PO8PO9PO10PO11PO12PS01PS02													
CO1	3	3	3	3	2	1	1	2	2	2	3	2	2	2	
CO2	3	3	3	3	2	1	1	1	2	2	3	2	2	2	
CO3	3	3	3	3	2	1	1	1	2	2	2	1	3	3	
CO4	3	2	3	3	2	2	2	1	3	2	2	2	3	3	
CO5	2	2	3	3	2	2	1	2	2	2	1	2	3	3	
Average	2.80	2.60	3.00	3.00	2.00	1.40	1.20	1.40	2.20	2.00	2.20	1.80	2.60	2.60	

	CO	l: Ana	lyze ru	nning t	ime of	algorit	thms u	sing as	ympto	tic metl	nods.				
Design and	CO	2: Ana	lyze ad	vanced	l data s	tructur	e algoi	rithms	to calc	ulate th	eir con	nplexiti	es		
Analysis of Algorithm	CO.	3: Cre Gree	ate so edy Ap	lutions proach	of O	ptimiz	ation	probler	ns usi	ng Dy	namic	Progra	umming	g and	
(RCS502)	CO	4: App	ly back	trackir	ng and	branch	& bou	ind app	oroache	es for fi	nding e	efficien	t soluti	ons	
	CO	O5: Understand the concepts of NP Completeness and find alternate solutions using Randomized and Approximation Algorithms.													
CO \ PO Mapping	PO1	PO1PO2PO3PO4PO5PO6PO7PO8PO9PO10PO11PO12PS01PS02													
CO1		3		2				1				3		1	
CO2		3		3	2							2	1	1	
CO3	3	1	3		2				1	1	1	2	1	2	
CO4	2								1		1	1			
CO5				1	2				1	1		1	1		
Average	2.50	2.33	3.00	2.00	2.00			1.00	1.00	1.00	1.00	1.80	1.00	1.33	

	CC	01: Ur har	nderstan dware	nd the concep	use of the	of mat use of	hemati gramn	cal, th	eoretic devel	al con	nputer t of lang	science guages.	e, softv	vare,	
	CC	02: Un	derstan	d the b	oasic pr	rinciple	es behin	nd the j	prograi	nming	langua	ge deve	elopme	nt.	
Principles of Programming Languages	CC	03: Un wit	derstar h the ti	nd the aditior	langua nal prog	ige des gramm	scriptio ing lan	n, lang guages	guage 5.	proper	ties and	l able	to corr	elate	
(RCS503)	CC	04: Us par	se the adigm	knowl and lai	edge 1 1guage	to solv	ve real	life]	probler	ns wit	h relev	ant pr	ogram	ming	
	CC	CO5: Analyze and apply the knowledge for identifying the local and global impact of computing on individuals, organizations and society.													
CO \ PO Mapping	PO1	computing on individuals, organizations and society.O1PO2PO3PO4PO5PO6PO7PO8PO9PO10PO11PO12PS01PS02													
CO1	3	3	2	1	1	1	1	1	1	1	1	2	2	2	
CO2	3	3	3	2	1	1	1	1	1	1	1	3	2	2	
CO3	3	3	2	2	2	1	1	1	1	1	1	3	3	3	
CO4	2	3	2	2	2	1	1	1	1	1	1	3	3	3	
CO5	3	3	3	3	1	1	3	3	2	2	2	3	3	3	
Average	2.80	3.00	2.40	2.00	1.40	1.00	1.40	1.40	1.20	1.20	1.20	2.80	2.60	2.60	

		CO1:	Unde	rstand	the a	applica	tion d	levelop	ment	and a	analyze	the i	insights	s of	
			progra	mming	to imp	lemen	t applic	cation							
		CO2:	Under	stand,	analyz	e and	apply	the ro	le of o	overall	model	ling co	ncepts	(i.e.	
Object Oriented Techniques			System	i, struc	tural)										
(RIT053)		CO3:	Unders	tand, a	inalyze	and ap	oply oo	ps con	cepts (i.e. abs	tractior	, inher	itance)		
		CO4:	Unders	tand, a	inalyze	and ap	oply oo	ps con	cepts (i.e. abs	tractior	, inher	itance)		
		CO5: Understand the methods, class and objects concepts in C++.													
CO \ PO Mapping	PO1	1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 PS01 PS02													
CO1	3	2	1	1	1	1	1	2	1	1	1	3	2	2	
CO2	3	2	3	1	1	1	1	1	1	1	1	1	2	2	
CO3	3	1	2	1	2	1	1	1	2	1	1	1	2	2	
CO4	3	1	2	1	2	1	1	1	2	1	1	1	2	2	
CO5	3	1	2	1	2	1	1	1	2	1	1	2	2	2	
Average	3.00	1.40	2.00	1.00	1.60	1.00	1.00	1.20	1.60	1.00	1.00	1.60	2.00	2.00	

Practical

	CC	01: Use	e the ca	ise tool	s for ci	reation	of ER	Diagra	ams.						
Database Management	CC	D2: Cre DN	eate an IL com	d mod nmands	lify the s.	e datab	ase an	d appl	y diffe	erent co	onstrair	nts usir	ig DD	L and	
Systems Lab	CC	03: Dis	play da	ata fror	n multi	iple tab	oles usi	ng joir	is and	apply d	ifferen	t functi	ons of	SQL.	
(RCS551)	CC	04: Imp	olemen	t curso	r, trigg	er, pro	cedure	s and f	unction	ns using	g PL/S	QL.			
	CC	CO5: Finally create and implement the package in PL/SQL.													
CO \ PO Mapping	PO1	O1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 PS01 PS02													
CO1	3	3	2	2	3	1	2	1	2	2	3	3	2	2	
CO2	3	3	2	2	3	1	1	1	2	1	2	3	3	3	
CO3	3	2	2	2	2	2	1	1	2	1	2	2	3	3	
CO4	2	2	3	2	2	2	1	1	2	1	2	2	3	3	
CO5	2	2	3	2	2	2	2	1	2	2	3	2	3	3	
Average	2.60	2.40	2.40	2.00	2.40	1.60	1.40	1.00	2.00	1.40	2.40	2.40	2.80	2.80	

	C	O1: Im	pleme	nt algo	rithm t	o solve	e proble	ems by	iterati	ve appi	roach				
Design and	C	O2: Im	pleme	nt algo	rithm t	o solve	e proble	ems by	divide	e and co	onquer	approa	ch		
Analysis of	C	O3: Im	pleme	nt algo	rithm t	o solve	e proble	ems by	Greed	ly algor	rithm a	pproach	1		
(RCS552)	C	O4: In bra	pleme anch ai	nt algo 1d bou	orithm t nd appr	to solv roach	e probl	lems by	y Dyna	amic pr	ogram	ming, b	oacktra	cking,	
	C	CO5: Implement algorithm to solve problems by branch and bound approach													
CO \ PO Mapping	PO1	PO2PO3PO4PO5PO6PO7PO8PO9PO10PO11PO12PS01PS02													
CO1		3		2								3	1		
CO2		3		3	2							2	1		
CO3	3		3		2						2	2	1	2	
CO4	2										2	2	1	1	
CO5					2							2	1	1	
Average	2.50	3.00	3.00	2.50	2.00						2.00	2.20	1.00	1.33	

	CO1	: Able	to und	erstand	l variou	is conc	epts of	progra	ammin	g parad	ligm				
Principles of	CO2	: Study	y functi	onal p	rogram	ming p	oaradig	m usin	g SMI						
Programming Languages Lab	CO3	: Able	to imp	lement	basic a	arithme	etic ope	eration	s in SN	1L					
(RCS553)	CO4	: Able	to imp	lement	basic l	list ope	rations	in SM	IL						
	CO5	D5: Able to comprehend and implement logic programming examples.													
CO \ PO Mapping	PO1	O1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 PS01 PS02													
CO1	3	2	2	1	1	1	1	1	1	1	1	3	1	1	
CO2	3	3	2	1	1	1	1	1	1	1	1	3	2	2	
CO3	3	3	2	2	1	1	1	1	1	1	1	3	2	1	
CO4	3	3	2	1	1	1	1	1	1	1	1	3	2	1	
CO5	3	3	3	3	1	1	1	1	2	2	2	3	2	2	
Average	3.00	2.80	2.20	1.60	1.00	1.00	1.00	1.00	1.20	1.20	1.20	3.00	1.80	1.40	

	C	01: U	Unders	tand t	the ap	plicati	on de	evelopr	nent	and a	nalyze	the i	nsights	s of	
		pr	ogram	ming to	o imple	ement a	pplicat	ion							
Object Oriented	C	02: U	nderst	and, a	nalyze	and a	pply t	he role	e of c	overall	modell	ing co	ncepts	(i.e.	
Techniques Lab		Sy	/stem,	structu	ral)										
(RIT554)	C	03: Ui	ndersta	nd, ana	alyze a	nd app	ly oops	s conce	pts (i.e	e. abstra	action,	inherita	ince)		
	C	04: Ui	ndersta	nd, ana	alyze a	nd app	ly oops	s conce	pts (i.e	e. abstra	action,	inherita	nce)		
	C	CO5: Understand the methods, class and objects concepts in C++.													
CO \ PO Mapping	PO1	D1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 PS01 PS02													
CO1	3	2	1	1	1	1	1	2	1	1	1	3	2	2	
CO2	3	2	3	1	1	1	1	1	1	1	1	1	2	2	
CO3	3	1	2	1	2	1	1	1	2	1	1	1	2	2	
CO4	3	1	2	1	2	1	1	1	2	1	1	1	2	2	
CO5	3	1	2	1	2	1	1	1	2	1	1	2	2	2	
Average	3.00	1.40	2.00	1.00	1.60	1.00	1.00	1.20	1.60	1.00	1.00	1.60	2.00	2.00	

CO PO and Mapping of CO PO 4th Year

(2015-2019 BATCH)

Session:- 2018-19 Semester:- 7th

Theory

	CO1:	Under attack	rstand s and E	the bas DES) ar	sic con nd prin	cepts (ciples u	(includi used in	ing Cla crypto	assical graphy	encryp	tion/de	ecryptic	on, sec	urity
Cryptography & Network	CO2:	Distin	guish v	various	numer	ic tech	niques	used in	n Crypt	ograph	у.			
Security	CO3:	Apply	the co	ncepts	of MA	C, hasł	n functi	ions an	d digita	al signa	iture			
(NI1701)	CO4:	Apply	the co	ncept c	of key r	nanage	ement, o	distribu	tion ar	nd its ap	oplicati	on.		
	CO5:	O5: Evaluate the security methods and implement at system level												
CO \ PO Mapping	PO1	D1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 PS01 PS02												
CO1	3	PO1 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 PS01 PS02 1 2 3 3 1 3 3 1 1 2 3 3												
CO2	3	3	2	2	3	3	3	1	1	1	1	2	3	3
CO3	3	3	2	2	3	3	3	2	1	1	1	2	3	3
CO4	3	1	1	1	3	1	3	1	1	1	1	2	3	3
CO5	3	3	2	2	3	3	3	2	1	1	1	2	3	3
Average	3.00	2.20	1.80	2.00	3.00	2.20	3.00	1.80	1.00	1.00	1.00	2.00	3.00	3.00

	CC	01: Un dise	derstar cipline	nd the and ab	basics out int	of the elligen	theory t agent	y and s.	practic	e of A	rtificia	l Intell	igence	as a
	CC	CO2: Understand search techniques and gaming theory.												
Artificial Intelligence (NCS702)	CC	 CO3: Learn to apply knowledge representation techniques and problem-solving strategies to common AI applications. CO4: Aware of basics of machine learning like supervised, unsupervised learning, decision tree and learning with complete and hidden data. 											lving	
	CC												ning,	
	CC	CO5: Aware of the basics of pattern recognition and steps required for it.												
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	3	2	2	1	1	1	1	1	2	3
CO2	3	3	3	3	3	2	2	1	1	1	1	1	2	3
CO3	3	3	3	3	3	2	2	1	1	1	1	1	2	3
CO4	3	3	3	3	3	2	2	1	1	1	1	1	2	3
CO5	3	3	3	3	3	2	2	1	1	1	1	1	2	3
Average	3.00	3.00	3.00	3.00	3.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	2.00	3.00

	CC	01: Lea	arn the	basic	s of so	oftware	e testin	g, its	objecti	ves, va	alidatio	n and	verifica	ation
		app	roach.											
	CC	02: Lea	rn hov	v to ap	ply va	rious fi	unction	al and	structu	iral tes	ting me	ethods (on soft	ware
Software		pro	duct.											
Testing and	CC	CO3: Understand the process of Test Selection for Regression Testing and thus minimization of test cases.												thus
Audit (NCS071)														
	CO4: Identify the scope of software test automation for testing the real-life projects.													
CO5: Learn about object oriented and web application testing that will he										l help i	lp in testing of			
		real-life projects.												
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	3	2	3	3	3	1	1	3	2	2	2
CO2	3	3	3	2	3	3	3	3	2	3	3	2	2	2
CO3	3	3	3	3	3	1	3	3	2	2	2	3	3	3
CO4	3	3	2	3	3	2	3	3	1	1	3	2	3	3
CO5	3	3	3	2	3	2	3	3	2	2	3	3	3	3
Average	3.00	3.00	2.60	2.60	2.80	2.20	3.00	3.00	1.60	1.80	2.80	2.40	2.60	2.60

	CO1	: Unde	erstand	the ba	asic co	ncepts	of Ar	ndroid	Opera	ting Sy	stems	and ho	w And	droid
		applie	cations	works	•									
	CO2	: Desig	gn and	devel	op use	ful An	droid	applica	tions	with co	ompelli	ng use	r inter	faces
Android		(UI) ł	oy usin	g vario	ous con	cepts.								
Operating System	CO3	: Unde	rstand	how ar	ndroid	multim	edia aj	oplicati	ons w	orks an	d how	to deve	lop it.	
(NCS075)	CO4	CO4: Understand the Android's communication APIs for SMS, telephony, and network management.CO5: Understanding and knowledge about the touch screens functionalities and how to												work
	CO5													
	capture touch events.													
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	2	2	2	2	3	1	1	1	1	2	2	1
CO2	2	2	3	2	2	2	1	1	2	2	1	1	2	2
CO3	2	2	3	1	2	3	2	2	1	2	1	2	3	3
CO4	3	2	2	2	3	3	2	3	2	3	2	2	3	2
CO5	3	3	2	2	3	3	2	2	2	2	2	2	2	2
Average	2.40	2.20	2.40	1.80	2.40	2.60	2.00	1.80	1.60	2.00	1.40	1.80	2.40	2.00

	CO1:	The fu	ındame	ental of	softwa	ire proj	ect ma	nagem	ent and	softwa	are proj	ject pla	nning.	
	CO2:	CO2: The different ways to improve costing and estimation of projects.												
Software Project Management	CO3: The Work break down structure and also able to draw the Network diagra PERT, CPM, and Gantt Charts.											igram 1	ike	
(NOE77)	CO4:	CO4: About Various kind of Testing, Test cases, test principles, strategies and also software quality standards.											ılso	
	CO5: About risk associated with software projects and how to deal with risk manage process.											anagem	ient	
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	2	1	1	3	1	1	2	1	2	3	3	3
CO2	3	3	3	1	3	3	1	1	1	1	3	2	3	3
CO3	3	3	3	1	3	2	1	1	1	1	2	3	3	3
CO4	2	3	3	1	2	1	1	1	1	1	2	3	3	3
CO5	2	2	2	1	2	1	2	2	1	1	3	3	3	3
Average	2.40	2.60	2.60	1.00	2.20	2.00	1.20	1.20	1.20	1.00	2.40	2.80	3.00	3.00

Practical

	CO1	: Learr	n the in	pleme	ntation	of clas	ssical e	ncrypti	ion tech	nniques	5.			
Cryptography &	CO2	: Learr	n the in	pleme	ntation	of mat	themati	ical the	orems.					
Network Security Lab (NIT751)	CO3	CO3: Learn the implementation of asymmetric encryption technique and key exchange algorithm. CO4: Learn implementation of message authentication and digital signature.												ge
(111751)	CO4													
	CO5	CO5: Learn application of Elliptic Curve Cryptography.												
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	2	2	1	3	3	1	1	2	2	3	3
CO2	3	3	3	2	2	1	2	1	1	1	2	2	3	3
CO3	3	3	3	2	2	1	3	3	1	1	2	2	3	3
CO4	3	3	3	2	2	1	3	3	1	1	2	2	3	3
CO5	3	3	3	2	2	1	3	2	1	1	2	2	3	3
Average	3.00	3.00	3.00	2.00	2.00	1.00	2.80	2.40	1.00	1.00	2.00	2.00	3.00	3.00

	CO1	: Selec	ct and s	summa	rize all	aspect	s of the	e real-li	fe proł	olem th	rough	survey.		
	CO2	: Apply	y acqui	red kn	owledg	ge to de	evelop	a work	ting mo	odel an	d plan	differe	nt phas	ses
Project (NCS752)	CO3: Analyze outcome of each phase using various tools, techniques, and coding practices.											ng		
()	CO4	CO4: Justify/defend opinions, validity of ideas or quality of work based on a set of criteria.											of	
	CO5: Test the working model and modify related phases accordingly. Finally integrate all phases												ate	
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	3	2	1	1	3	3	3	3	3	3
CO2	3	3	3	3	2	2	1	1	3	2	3	3	3	3
CO3	3	3	3	3	2	2	1	1	3	2	3	3	3	3
CO4	3	3	3	3	2	2	1	1	3	2	2	3	3	3
CO5	3	3	3	3	2	2	1	1	3	2	1	2	3	3
Average	3.00	3.00	3.00	3.00	2.20	2.00	1.00	1.00	3.00	2.20	2.40	2.80	3.00	3.00

	CO1	: An kno	alyze wledge	and un to get	ndersta progra	nd the mming	real-l solutio	ife pro	oblem	in ind	ustry	and ap	ply th	eir
Industrial	strial social issues.									of ess				
(NCS753)	CO3	CO3: Use and apply the various tools and techniques, coding practices for developing real life solution to the problemCO4: Write the report about what are industry person doing in project.												
	CO4													
	CO5	CO5: Find out the errors in software solutions of real- life projects and implementations.												
CO \ PO Mapping	PO1	PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 PS01 J									PSO2			
CO1	3	3	3	3	3	2	1	1	3	3	3	3	3	3
CO2	3	3	3	3	2	2	1	1	3	2	3	3	3	3
CO3	2	2	3	3	3	2	1	1	3	2	3	3	3	3
CO4	2	1	1	3	2	1	1	1	3	3	3	3	3	3
CO5	3	3	2	3	3	1	1	1	3	3	3	3	3	3
Average	2.60	2.40	2.40	3.00	2.60	1.60	1.00	1.00	3.00	2.60	3.00	3.00	3.00	3.00