

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, GHAZIABADMEERUT ROAD, GHAZIABAD – 201206

Website: www.kiet.edu



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Index

		3 rd Semester
S No.	Subject Code	Subject Name
1	KAS302	Mathametics IV
2	KAS301	Technical Communication
3	KCS301	Data Structure
4	KCS302	Computer Organization and Architecture
5	KCS303	Discrete Structures & Theory of Logic
6	KNC301	Computer System Security
7	KCS351	Data Structures Using C Lab
8	KCS352	Computer Organization Lab
9	KCS353	Discrete Structure & Logic Lab
10	KCS 354	Mini Project & Skill Development

		5 th Semester
S No.	Subject Code	Subject Name
1	RAS 502	Industrial Sociology
2	RAS501	Managerial Economics
3	RCS 501	Database Management Systems
4	RCS 502	Design And Analysis Of Algorithm
5	RIT 053	Object Oriented Techniques
6	RCS 503	Principle of Programming Language
7	RCS 551	Database Management Systems Lab
8	RCS 552	Design and Analysis of Algorithm Lab
9	RCS 553	Principle of Programming Language Lab
10	RIT554	Object Oriented Techniques Lab

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	7 th Semester												
S No.	Subject Code	Subject Name											
1	RCS071	Application of Soft Computing											
2	RCS075	Cloud Computing											
3	RIT701	Cryptography & Network Security											
4	RCS702	Artificial Intelligence											
5	ROE074	Understanding the human being Comprehensively Human Aspiration audits fulfillment											
6	RIT751	Cryptography & Network Security Lab											
7	RCS752	Artificial Intelligence Lab											

CO PO and Mapping of CO PO 2nd Year

(20182022 BATCH)

Session: 201920 Semester: 3rd Theory

Mathematics IV	CO1: F equatio	Remem ons	ber the	concep	t of par	tial diff	erentia	l equati	ion and	to solv	e partia	l differe	ential	
(KAS 302)	CO2: A partial	Analyze differei	the contial equ	ncept of uations	f partia	l differe	ential e	quation	s to eva	aluate tl	ne probl	ems co	ncernec	l with
	CO3: U	Jnderst	and the	concep	ot of co	rrelatio	n, mom	ents, sl	cewnes	s and k	urtosis a	and cur	ve fittin	g.
	CO4: F	Remem	ber the	concep	t of pro	bability	v to eva	luate p	robabil	ity distr	ibution	S		
	CO5: Apply the concept of hypothesis testing and statistical quality control to create control charts.													
CO \ PO Manning	PO1	PO2	PO3	PO4	PO5	PO6	Р	Р	Р	PO	PO	PO	PS	PS
ee (1 e mapping	101	102	100	101	100	100	0 7	0 8	0 9	1 0	1 1	12	01	02
CO1	3	3	2	3	2	3	2						1	1
CO2	3	3	3	3	2	3	1				1	3	1	1
CO3	3 3 2 2 3 1 1 3 2 1													
CO4	3	3	3	2	3	3	2				2	3	2	1
CO5	3	3	3	3	3	3	1				1	3	2	1

TECHNICAL	CO1: 5	Students	s will b	e enabl	ed to u	ndersta	nd the	nature a	und obje	ective o	f Techr	ical Co	mmuni	cation
COMMUNICATION (VAS201)	relevar	nt for th	e work	place a	is Engi	neers.								
(KASSUI)	CO2: 5	Students	s will u	tilize th	e techr	nical wr	iting fo	or the p	urposes	of Tec	hnical (Commu	nicatior	1 and
	its exp	osure ir	n variou	ıs dime	nsions.									
	CO3: 5	Students	s would	l imbib	e inputs	s by pre	esentati	on skill	s to enh	nance co	onfiden	ce in fa	ce of di	verse
	audien	ce			-	• •								
	CO4: 7	Fechnic	al com	munica	tion ski	lls will	create	a vast l	knowho	w of th	e applie	cation o	f the lea	arning
	to pror	note the	eir tech	nical co	mpeter	nce.								C
	CO5: Technical communication skills will create a vast knowhow of the application of the learning													
	to pror	to promote their technical competence.												
	-						Р	Р	Р	PO	PO	PO	PS	PS
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	0	0	Ο	1	1	12	01	O2
							7	8	9	0	1			
CO1	1	1	1	2	2	1	1	2	1	3	2	2	-	-
CO2	1 1 1 2 2 2 2 1 3 3 3													
CO3	1 1 1 1 2 3 1 1 2 3 2 3													
CO4	1	1	1	1	2	3	2	2	3	3	3	3	-	-
CO5	1	1	1	1	2	2	1	1	2	3	3	2	-	-

Data Structures (KCS 301)	CO1: repres CO2:	Unders sentatio Descri	stand the ns in m be the c	e comp emory concept	blexity of recu	of algor eir com rsion a	ithms b mon ap nd imp	by Desc oplicati lement	ribing ons. various	various s data st	data str	ructures s like st	and the	eue,
	CO3:	Study a	and Ap	ply vari	ious sea	urching	and so	rting al	gorithn	ns. ns on di	fferent	data str	uctures.	
	CO4: sortin	Analyz g by co	the a mparin	lgorithr g their	nic imp compu	lement tational	ation of efficie	f nonliı ncy.	near dat	a struct	tures su	ch as se	earching	; and
	CO5: world	CO5: Evaluate the alternate data structures algorithm with respect to its performance to solve a real world problem.												
CO \ PO Mapping	PO1	PO1 PO2 PO3 PO4 PO5 PO6 O O O 1 1 12 O1 O2												
CO1	2	2	2	2	1							2		
CO2	2	2	2	2	2							1		
CO3	3 2 2 1 1 1 1 2 1													
CO4	3	3	2	3					1		1	1	2	1
CO5	3	3	2	3	1				1		2	2	2	2

	CO1:]	Describe	e the ba	asic orga	nization	and op	eration	of the c	compon	ents of a	digital o	computer	system.	
Computer Organization	CO2: 1 arithm	Illustrate etic and	e variou logic u	ıs arithn ınit.	netic and	l logica	l operat	ions on	differe	nt types	of numb	ers to de	sign an	
and Architecture	CO3: . technie	Analyze ques.	the pe	rforman	ce issue	s of the	process	or and	classify	the cont	rol unit	impleme	ntation	
(KCS 302)	CO4: (technic	O4: Categorize the hierarchical memory system and examine the virtual memory implementation chniques.												
	CO5: (among	2O5: Compare the different I/O data transfer techniques, and describe the different ways of communication mong I/O devices and standard I/O interfaces												
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	1	1								3	3	3
CO2	3	2	2	1								3	3	3
CO3	3 2 2 1 3 3 3													
CO4														
CO5	3	2	2	1								2	3	3

	CO1: conce	Knowle pts sucł	edge of 1 as sets	logical : , relatio	notatior ns, func	to defi tions, a	ne and integ	reason t gers	he fund	amental	mathema	tical			
Disorato	CO2:	Discuss	s variou	s structu	ires and	l proper	ties of r	nodern	algebra						
Disciete	CO3:	Employ	their lo	ogical a	bility su	ich as re	easoning	g able to	o setup i	nathema	tical mod	el of real	life prot	olem	
Structure	by ap	plying a	dvance	d counti	ing and	comput	ing tech	nniques	like ger	nerating f	unction a	ind recuri	ence rela	ation.	
Theory of Logic (KCS303															
	CO4:	CO4: Demonstrate problems in different areas of computer science using trees and graphs.													
	CO5: Design solution with the help of induction hypotheses, simple induction proofs and														
	recurr	recurrences.													
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	3	1	2	2	1	2	1	1	1	1	2	2	3	3	
CO2	2	2	1	1	2	1	1	1	1	1	1	2	3	2	
CO3	2	2	2	3	2	1	2	1	1	1	1	2	2	2	
CO4	3	3	3	3	3	3	2	1	1	1	1	3	3	3	
CO5	2	1	1	2	3	2	2	1	1	1	2	2	3	2	

	CO1: mitig	To dis ate suc	cover s h threat	oftware ts	e bugs t	hat pos	se cybe	r securi	ity threa	ats and to	o explain	how to	fix the bug	s to
	CO2:	To dis	cover c	yber-at	tack sc	enarios	to web	brows	sers and	l web sei	vers and	l to expla	in how to	mitigate
Computer System	CO3: explo	To dis	cover a l to exp	nd exp lain mi	lain mo tigatior	bile so techni	ftware	bugs po	osing c	yber secu	irity thre	ats, expl	ain and rec	create
Security (KNC301)	CO4: wide	To arti web, a	iculate	the urg	ent nee various	d for cy threat s	yber sec	curity in os.	n critica	al compu	iter syste	ems, netv	vorks, and	world
	CO5: To articulate the well-knowncyber-attack incidents, explain the attack scenarios, and explain mitigation techniques													n
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	2	3	3	3	3	2	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3	3	3	3	3
CO3	3 3 3 2 3 3 3 3 3 3 3 3 3 3 3													
CO4	3 3 2 2 3 3 3 3 3 3 3 3 3 3 3													
CO5	3	3	2	2	3	3	3	3	2	3	3	3	3	3

Practical

Data	CO1:	Implem	ent var	ious Sor	ting and	Search	ing Algo	rithms.								
Structures	CO2:	Analyze	e the re	cursive i	mplemei	ntation	of differ	ent sort	ing and	searching	g algorith	nms.				
Using C Lab	CO3:	Implem	ent var	ious data	a structur	es usin	g static a	and dyn	amic me	emory all	ocation.					
(KCS 351)	CO4:	Demon	strate v	arious op	perations	like tra	aversal, i	insertio	n, deleti	on on tre	e data str	ucture.				
	CO5:	5: Design and implement practical applications based on graphs and shortest paths.														
CO\PO	PO1	PO2	POZ PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 PSO1 PSO2													
Mapping													1301	1302		
CO1	2	2	3	2					1	1		3				
CO2	2	2	3	2					1	1		3				
CO3	3	2	3	2					1	1		3	2			
CO4	3	3	3	2					1	1		3	2	2		
CO5	3	3	3	2					1	1		2	3	2		

Computer	CO1:I	Examine	the ou	tput of t	he basic	logic g	ates for a	lifferer	nt combi	nations o	of input.				
Organization															
Lab	CO2:	Design a	and sim	ulate the	e combir	national	circuits	for bin	ary arith	nmetic (s	uch as a	dders, su	btracto	rs, and	
(KCS 352)	multip	lier) and	l code c	onverter	r										
	CO3:	Design a	and sim	ulate co	mbinatio	onal cir	cuits for	encode	ers/decod	ders and	selection	devices	5		
	multip	lexers/d	emultip	lexers u	sing logi	ic gates									
	CO4:	O4: Design and simulate the basic building block of the sequential circuits (i.e. SR and D Flip Flops)													
	using l	sing logic gates.													
	CO5:	O5: Design and simulate the 2bit Arithmetic Logic Unit using logic gates.													
					_	-				-					
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	2	2	2	1					1	1		3	2	2	
CO2	3	3	3	2					1	1		3	3	3	
CO3	3	3	3	2					1	1		3	3	3	
CO4	3	3	3	2					1	1		3	3	3	
C05	3	3	3	2					1	1		3	3	3	

Discrete	CO1:	Implei	mentati	on of va	arious S	et oper	ations.							
Structure	CO2:	Implei	mentati	on of va	arious b	asic Ma	apple co	ommand	ds.					
and Logic Lab	CO3: script	Implei	mentati	on of In	ductior	n, Recu	rsive Te	chnique	es and e	expected	value pro	blem usi	ng Mapp	ole
(KCS353)	CO4: Implementation of practical applications based on graph and shortest paths.													
	CO5:	CO5: Implementation of programming problems on binary search.												
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	3	2	2	1	1	1	1	1	2	3	3
CO2	3	3	3	3	2	2	1	1	1	1	1	2	3	3
CO3	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$													
CO4	3 3 2 2 3 2 1 1 1 1 2 3 3													
C05	3	2	2	2	3	2	2	1	1	1	1	2	3	3

Mini Project &	CO1:	Analyze	e and u	nderstan	d the real	l life pr	oblem a	nd appl	y their k	nowledg	e to get p	program	ming		
Skill	soluti	ons.													
Development	CO2:	Engage	in the o	creative	design pi	ocess t	hrough t	he inte	gration a	nd appli	cation of	diverse	techni	cal	
(KCS 354)	know	ledge an	d expe	rtise to n	neet custo	omer n	eeds and	addres	s social i	issues.					
	CO3:	Use the	variou	s tools a	nd techni	ques, c	oding pr	actices	for deve	loping re	eal life so	olutions	to the		
	probl	bblem. D4: Write the power point presentation about what they are doing in the project.													
	CO4:	D4: Write the power point presentation about what they are doing in the project.													
	CO5:	O4: Write the power point presentation about what they are doing in the project. O5: Find out the errors in software solutions and in implementations.													
CO \ PO Mapping	PO1	D5: Find out the errors in software solutions and in implementations.D1PO2PO3PO4PO5PO6PO7PO8PO9PO10PO11PO12PS01PS02PS01PS02PS03PS04PS04PS04PS04PS04PS04PS04													
CO1	3	3	3	3	3	2						2		2	
CO2	3	3	3	3	2	2			2	2	2	2	2	1	
CO3	2	2	3	3	3	2			1	1	1	2	2	2	
CO4	2	1	1	3	2	1			2	3	1	1			
CO5	2	2	2	3	3	1			1	1	1	1	1	2	

CO PO and Mapping of CO PO 3rd Year

(20172021 BATCH)

Session: 201920 Semester: 5th

Theory

	CO1:	To pr	ovide s	tudent	s with	an ove	rview (of indu	strial s	ociology	and va	rious the	eories of	f
	orgar	nization	1 struct	ure.										
	CO2:	To ga	in an ii	nsight	into de	velopn	nent an	d cons	equenc	es of in	dustriali	zation al	long wi	th
	produ	active s	structu	re.										
Sociology	CO3:	To ge	t the st	udents	acqua	inted w	vith bas	sic indu	ıstrial ı	olicies	in India	and how	Science	e
(RAS502)	& tec	hnolog	gy is sh	aping	out the	busine	ess woi	rld.	-	-				
	CO4:	To ha	ve a ba	sic un	derstar	ding o	f conte	mpora	ry issu	es in ind	lustries l	ike griev	vance,	
	indus	strial di	sputes	, collec	ctive ba	argaini	ng etc.	with th	neir res	olution				
	CO5:	CO5: To enable student in visualizing future in industry with reference to Cultural issues, onsumer society and sociological concerns.												
	consu	CO5: To enable student in visualizing future in industry with reference to Cultural issues, consumer society and sociological concerns.												
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	1	1	3	1	2	2	1	2	1	2	1	1	1
CO2	1	2	1	2	1	2	2	1	1	1	2	2	1	1
CO3	1	2	1	2	1	2	2	2	1	1	3	1	1	1
CO4	1	1	1	2	1	3	3	1	3	1	1	2	1	1
CO5	1	2	1	3	1	3	3	2	1	1	1	1	1	1

	CO1:	Able	to expl	ain the	meani	ing and	l defini	tion of	manag	gerial ec	onomics	s, deman	d and		
	suppl	ly. Eluo	cidate o	on the	charact	teristic	s and s	cope of	f mana	gerial ec	conomic	s.			
	CO2:	Able	to expl	ain the	charae	cteristi	cs of de	emand	foreca	sting, pe	rformar	ice meas	ures an	d	
	comp	outation	ı of ma	aterial	varianc	es brea	ak ever	ı analy	sis.						
Managerial	CO3:	Able	to desc	ribe th	e vario	ous form	ns of c	ost and	l return	is to scal	le.				
Economics															
(RAS501)	CO4:	Able	to appr	aise m	arket s	tructur	es and	propos	se man	agement	decisio	ns based	on		
	featu	res of a	lifferei	nt marl	ket stru	ctures.									
	CO5:	CO5: Able to analyse features of Indian Economy and various concepts of National Income.													
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	2	2	1	3	2	3	3	2	3	3	1	2	1	1	
CO2	2	2	1	3	2	3	1	2	3	2	1	2	1	1	
CO3	3	2	1	3	2	3	2	2	3	3	1	2	1	1	
CO4	2	2	2	3	2	3	2	2	3	2	1	2	1	1	
CO5	2	1	1	2	1	1	2	2	1	1	2	1	1	1	

	CO1: relation	Under onship	stand tl diagrai	he data n.	base m	anagen	nent sys	stem an	d imple	ement co	onceptual	l model u	ising en	tity
Detabase	CO2:	Apply	query	process	sing tec	hnique	s to aut	omate	the real	time pr	oblems c	of databa	ses.	
Database Monogoment	CO3:	Identif	fy and s	solve th	e redui	ndancy	proble	m in da	tabase	tables us	sing norr	nalizatio	n.	
System	CO4: datab	Under ases.	stand tl	he conc	epts of	transa	ctions a	ind also	o under	stand the	e need of	distribut	ted	
(KCS 501)	CO5: devel	Sases. Understand the concept of concurrency control and finally apply the knowledge to lop a small Database system.												
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
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	2	3	3
CO4	3	2	3	3	2	2	2	1	3	2	2	2	3	3
CO5	2	2	3	3	2	2	2	2	2	2	2	2	3	3

	CO1: A worstca	Argue t ase run	he corr ning ti	ectnes mes of	s of alg algori	gorithm thms u	ns using sing as	g induc ymptot	tive pr	oofs and ysis.	l invaria	nts. Ana	lyze			
	CO2: I	Describ	e the d	ividea	ndconq	uer pa	radigm	and ex	xplain v	when an	algorith	mic desi	ign situati	on calls		
Design	for it. F	Recite a	algorith	nms tha	at empl	oy this	paradi	gm. Sy	ynthesi	ze divid	eand con	nquer alg	gorithms.	Derive		
Analysis &	and sol	ve recu	irrence	es desci	ribing t	he per	forman	ce of d	lividea	nd conq	uer algo	rithms				
Algorithm																
(RCS 502)	CO3: I	Describ	e the d	ynami	c progr	ammir	ig and	greedy	paradi	gm and	explain	when an	l			
	algorit	nmic d	esign s	ituation	n calls	for it							_			
	CO4: E	CO4: Explain the major graph algorithms and their analyses. Employ graphs to model engineering problems, when appropriate.														
	engine	engineering problems, when appropriate.														
	CO5: E	engineering problems, when appropriate. CO5: Explain what competitive analysis is and to which situations it applies. Perform														
	compet	titive a	nalysis													
CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2		
Mapping																
CO1		3		2								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			

	CO1: appli	Under cation	stand t	he appl	lication	develo	opment	and an	alyze t	he insigl	nts of pro	ogrammi	ing to imp	olement	
Object Oriented	CO2:	Under	stand,	analyze	e and a	pply th	e role c	of overa	all mod	elling co	oncepts (i.e. Syste	em,		
Techniques	CO3:	Under	stand,	analyze	e and a	pply oc	ps con	cepts (i	i.e. abst	traction,	inherita	nce).			
(RIT E13)	CO4:	CO4: Understand the concepts of C++ CO5: Understand the methods, class and objects concepts in C++													
CO\PO	PO1	CO5: Understand the methods, class and objects concepts in C++PO1PO2PO3PO4PO5PO6PO7PO8PO9PO10PO11PO12PS01PS02													
Mapping	2	2	1	1	1	1	1	2	1	1	1	2	2	2	
01	3	Z	1	1	1	1	1	Z	1	1	1	3	3	3	
CO2	3	2	3	1	1	1	1	1	1	1	1	1	3	3	
CO3	3	1	2	1	1	1	1	1	2	1	1	1	3	3	
CO4	3	1	2	1	2	1	1	1	2	1	1	1	3	3	
CO5	3	1	1	1	2	1	1	1	2	1	1	2	3	3	

	CO1: hardy	Underware co	rstand oncepts	the uses and u	e of ma se of g	themat ramma	tical, thurs for o	neoretio develo	cal con	nputer so of langu	cience,so ages.	oftware,		
Duta dalar d	CO2:	Under	rstand	the bas	sic prin	ciples	behind	the pr	ogram	ning lar	iguage d	levelopr	nent.	
Principles of Programming	CO3	Under	rstand	the lan	guage	descrip	ption, l	anguag	ge prop	erties ar	nd able t	o correla	ate with t	he
I logi amming	tradit	ional p	orogran	nming	langua	ıge								
(RCS 503)	CO4	Use th	ie kno	wledge	e to sol	ve real	life pr	oblem	s with 1	elevant	program	nming p	aradigm a	and
(Reb 505)	langu	guage.												
	CO5: comp	uage. : Analyze and apply the knowledge for identifying the local and global impact of puting on individuals,organization, and society.												
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
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

Practical

Detahan	CO1:	Use th	le case	tools fo	or creat	tion of	ER Dia	ıgram.						
Database	CO2:	Create	e and m	odify t	he data	abase ai	nd appl	ly diffe	rent co	nstraints	using D	DL com	mands.	
Management	CO3:	Use of	f DML	comm	ands									
System Lab	CO4:	Displa	ıy data	from n	nultiple	e tables	using	joins ar	ıd appl	y differe	nt functi	ons of S	QL.	
(RCS 551)	CO5:	5: Implement cursor, trigger, procedures and functions using PL/SQL.												
CO \ PO Mapping	PO1	D5: Implement cursor, trigger, procedures and functions using PL/SQL.D1PO2PO3PO4PO5PO6PO7PO8PO9PO10PO11PO12PS01PS02												
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

Design and Analysis of	CO1: runtii	Designe and	n new memo	algorit ory den	hms, p nands.	rove th	em cor	rect, a	nd anal	yze thei	r asymp	totic and	l absolut	e	
Algorithm Lab	CO2:	Find a	un algo	rithm t	o solve	e the pi	oblem	(create	e) and p	prove the	at the alg	gorithm	solves th	e	
(RC5552)	CO3: know	Under many	rstand t	the mat	themat nportar	ical cri nt prob	terion the termination of terminatio of ter	for dec at do r	iding v not adn	whether a nit any e	an algor	ithm is e algorithr	fficient, ns.	and	
	CO4:	CO4: Apply classical sorting, searching, optimization and graph algorithms.													
	CO5: recur	Under sion, d	rstand ividear	basic te ndconq	echniqu uer, an	ues for d gree	design dy.	ing alg	orithm	s, incluc	ling the	techniqu	les of		
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
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	

	CO1:	: Able	to und	erstand	l vario	us cono	cepts o	f progr	ammir	ng parad	igm.			
Principles of	CO2	: Study	functi	onal p	rogran	ming	paradig	gm usir	ng SMI	Ĺ				
Programming	CO3	: Able	to imp	lement	basic	arithm	etic op	eration	is in SN	ML				
(RCS553)	CO4	: Able	to imp	lement	basic	list ope	eration	s in SN	ΛL					
(Re5555)	CO5	5: Able to comprehend and implement logic programming examples.												
CO \ PO Mapping	PO1	PO1PO2PO3PO4PO5PO6PO7PO8PO9PO10PO11PO12PS01PS02												
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

Object	CO1:	Underst	and the	applica	tion dev	velopme	ent and a	analyze	the insi	ghts of p	rogramm	ing to in	plement	
Oriented	applic	ation.												
Techniques	CO2:	Underst	and, an	alyze aı	id apply	the rol	e of ove	erall mo	delling	concepts	(i.e. Syst	tem, stru	ctural).	
Lab	CO3:	Underst	tand, an	alyze ar	nd apply	oops c	oncepts	(i.e. ab	straction	n, inherit	ance).			
(RIT-554)	CO4:	CO4: Understand the concepts of C++.												
	CO5:	CO4: Understand the concepts of C++. CO5: Understand the methods, class and objects concepts in C++.												
CO\PO	PO1PO2PO3PO4PO5PO6PO7PO8PO9PO10PO11PO12PS01PS02													
Mapping														
CO1	3	2	1	1	1	1	1	2	1	1	1	3	3	3
CO2	3	2	3	1	1	1	1	1	1	1	1	1	3	3
CO3	3	1	2	1	1	1	1	1	2	1	1	1	3	3
CO4	3	1	2	1	2	1	1	1	2	1	1	1	3	3
CO5	3	1	1	1	2	1	1	1	2	1	1	2	3	3

CO PO and Mapping of CO PO 4th Year

(20162020 BATCH)

Session: 2019-20 Semester: 7th

Theory

	CO1:	Recog	nize th	e feasil	bility o	f apply	ing a s	oft con	nputing	method	ology fo	or a parti	cular prot	olem.	
Application of	CO2: and in	Know mplem	the content	ncepts soft con	and tec	hnique g-based	s of so 1 soluti	ft comp ons for	outing a	and foste orld pro	er their a blems.	bilities i	n designi	ng	
Computing	CO3: soluti	 3: Apply neural networks to pattern classification and regression problems and compare tions by various soft computing approaches for a given problem. 4: Apply fuzzy logic and reasoning to handle uncertainty and solve engineering problems. 													
(KCSU/1)	CO4:	CO4: Apply fuzzy logic and reasoning to handle uncertainty and solve engineering problems. CO5: Apply genetic algorithms to combinatorial optimization problems.													
	CO5:														
CO \ PO Mapping	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	3	3	3	2	3	3	2	1	1	1	1	3	2	3	
CO2	3	3	3	3	3	3	2	1	1	1	1	3	2	3	
CO3	3	3	3	3	3	3	2	1	1	1	1	3	2	3	
CO4	3	3	3	3	3	3	2	1	1	1	1	3	2	3	
CO5	3	3	3	3	3	3	2	1	1	1	1	3	2	3	

CO1: Learn basic concepts of Cloud Computing in addition parallel and distributed computing.														
	CO2:	Under	stand t	he imp	ortance	of diff	erent C	Cloud e	nabling	g techno	logies.			
Cloud	CO3:	CO3: Understand layered cloud architecture design and challenges.												
Computing	CO4:	CO4: Learn basic concepts of resource management and security in cloud.												
(KCS075)	CO5: web S	CO5: Analyze components openstack, Google Cloud platform, Hadoop, Virtual Box and Amazon web Service.												
CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Mapping														
CO1	2	1	1	1	2	1	1	2	1	1	1	2	1	2
CO2	2	2	2	2	2	1	1	2	2	2	2	2	1	3
CO3	2	2	2	2	2	1	1	2	2	2	2	2	1	3
CO4	2	2	2	2	2	2	2	2	2	2	2	2	1	3
CO5	3	3	3	2	3	2	2	2	2	2	2	2	2	3

	CO1: attacl	CO1: Understand the basic concepts (including Classical encryption/decryption, security attacks and DES) and principles used in cryptography.													
	CO2:	CO2: Apply the number theory in cryptography.													
Cryptography	CO3:	CO3: Understand the concepts of MAC, hash function and digital signature.													
and Network	CO4:	CO4: Analyse the concept of key management, distribution and its application.													
Security	CO5:	CO5: Assess the security issues and their implementation at IP and system level.													
(RIT-701)															
CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
Mapping															
CO1	3	1	2	1	3	1	3	3	1	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	

	CO1: about	Unders intellig	stand th gent age	ne basic ents.	s of the	e theory	and p	ractice	of Arti	ficial Int	elligence	e as a dis	cipline a	nd
Artificial	cial CO2: Understand search techniques and gaming theory.													
Intelligence (CO3: strate	CO3: The student will learn to apply knowledge representation techniques and problem-solving strategies to common AI applications.												
RC5702)	CO4: Student should be aware of techniques used for classification and clustering.													
	CO5: Student should be aware of basics of pattern recognition and steps required for it													
CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Mapping														
CO1	3	3	2	2	2	3	2	1	1	3	3	3	3	3
CO2	3	3	3	3	2	3	2	1	1	3	3	3	3	3
CO3	3	3	3	2	2	2	3	1	1	2	3	3	3	3
CO4	3	3	3	3	3	3	2	1	1	2	2	3	3	3
CO5	3	3	3	3	2	2	2	1	1	3	2	3	3	3

	CO1 and	: Iden differe	tify ba nt asp	sic hu	man a f All-e	spirat	ions a passin	nd the	ir fulfi olutio	illment n	throug	n right u	underst	anding
UHCHAAF (ROE074)	CO2: Acquire knowledge about the role of human beings in existence, activities and potentialities of the self, awakening to activities of the Self and harmony from self to entire existence.													and f to
	CO3 coex	CO3: Analyze and apply right understanding to identify the interconnectedness and coexistence in existence.												
	CO4: Analyze and evaluate transformation in thoughts through knowledge and in expressions as humane conduct (behavior, work/participation) in the light of Resolution.													
	CO5: Demonstrate the understanding of human tradition and its component by expanding participation in a way leading to Universal human order.													
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	3	2	2	2	2	3	3	2	1	3	2	1
CO2	2	3	1	3	3	2	1	3	2	2	1	3	2	1
CO3	2	2	3	2	3	2	1	3	1	3	1	3	2	1
CO4	3	2	3	3	2	3	1	3	3	2	1	3	2	1
CO5	3	2	2	3	3	1	2	3	3	2	1	3	2	1

Practical

	CO1:	Learn	the imp	plemen	tation (of class	sical en	cryptic	on tech	niques.				
Cryptography &	CO2:	Learn	the imp	plemen	tation (of matł	nematic	al theo	rems.					
	CO3:	Learn	the imp	plemen	tation (of asyn	nmetric	encry	ption te	chnique	and key	v exchan	ge	
Network Security	algor	ithm.												
Lad (K11/51)	CO4:	CO4: Learn implementation of message authentication and digital signature.												
	CO5: Learn simulation 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

	CO1: Understand of formal logic and PROLOG language.													
	CO2:	Learn	the bas	ics of the	he PRC	DLOG I	program	nming l	languag	ge, incl	uding t	oasic sy	ntax ar	id the
Artificial														
Intelligence Lab	CO3: Understand how does prolog search a knowledge base. CO4: Understand will include the syntax, semantics, and the natural deduction proof system													
(RCS 752)													em	
		of propositional and predicate logic. CO5: Demonstrate the skills in implementing various real-life problems like family member												
	CO5:													
	and their relationship, sitting arrangement etc.													
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1	PO1	PO1	PSO	PSO
										0	1	2	1	2
CO1	3	2	2	3	2	3	2	2	3	3	3	3	3	3
CO2	3	3	3	3	1	2	1	3	3	3	3	3	3	3
CO3	3	3	3	3	3	2	2	2	1	3	3	3	3	3
CO4	3	3	2	2	1	3	3	2	2	3	3	3	3	3
CO5	3	3	3	3	2	3	1	3	3	1	1	3	3	3