

I.T.S ENGINEERING COLLEGE GREATER NOIDA (A NAAC Accredited Engineering College)

Department of Computer Science & Engineering

Mapping of CO with PO & PSO

Session 2023-24

Department of Computer Science & Engineering

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I.T.S ENGINEERING COLLEGE GREATER NOIDA

(A NAAC Accredited Engineering College)

Department of Computer Science & Engineering Semester wise Subject List

		3 rd Semester
S No.	Subject Code	Subject Name
1	BAS 303	Math IV
2	BAS 301	Universal Human Values
3	BCS 301	Data Structure
4	BCS 302	Computer Organization and Architecture
5	BCS 303	Discrete Structure & Theory of Logic
6	BCC 302	Python Programming
7	BCS 353	Web Designing Workshop Lab
8	BCS 351	Data Structure Using C Lab
9	BCS 352	Computer Organization & Architecture Lab
10	BCC 351	Mini Project & Internship

		5 th Semester
S No.	Subject Code	Subject Name
1	KCS 055	Machine Learning Techniques
2	KCS 501	Database Management System
3	KCS 502	Compiler Design
4	KCS 503	Design and Analysis of Algorithm
5	KCS 052	Web Technology
6	KNC 501	Constitution of India, Law and Engineering
7	KCS 551	Database Management System Lab
8	KCS 552	Compiler Design Lab
9	KCS 553	Design and Analysis of Algorithm Lab
10	KCS 554	Mini Project & Internship
11	KNC 501	Constitution of India/Essence of Indian traditional knowledge

		7 th Semester
S No.	Subject Code	Subject Name
1	KCS 713	Cloud Computing
2	KCS 071	Artificial Intelligence
3	KHU 701	Rural Development: Administration and Planning
4	KOE 074	Renewable Energy Resources
5	KCS 751	Artificial Intelligence Lab
6	KCS 752	Mini Project + Internship
7	KCS 753	Project

2nd Year

(2022-2026 BATCH)

Session:- 2023-24 Semester:- 3rd

S.No.	Subject	Code
1	Math IV	BAS 303
2	Universal Human Values	BAS 301
3	Data Structure	BCS 301
4	Computer Organization and Architecture	BCS 302
5	Discrete Structure & Theory of Logic	BCS 303
6	Python Programming	BCC 302
7	Web Designing Workshop Lab	BCS 353
8	Data Structure Using C Lab	BCS 351
9	Computer Organization & Architecture Lab	BCS 352
10	Mini Project & Internship	BCC 351

THEORY At the end of course students will be able to															
BAS 302	At the end of course, students will be able to CO1 learn the idea of partial differentiation and types of partial differential equations														
	CO1	learn the idea of partial differentiation and types of partial differential equations learn the idea of classification of second partial differential equations, wave, heat equation and transmission lines													
	CO2	learn the ide	ea of classific	ation of seco	nd partial d	ifferential equ	ıations, w	ave, heat e	quation ar	nd transm	ission line	S			
	CO3	learn the ba	sic ideas of	statistics inclu	ding meas	ures of centra	l tendend	y, correlation	on, regress	sion and t	heir prope	rties.			
	CO4	learn the basic ideas of statistics including measures of central tendency, correlation, regression and their properties. learn the idea s of probability and random variables and various discrete and continuous probability distributions and their properties.													
	CO5	learn the sta	learn the statistical methods of studying data samples, hypothesis testing and statistical quality control, control charts and their properties.												
Maths IV	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	3	2	-	-	-	-	-	-	-	-	-	2	1	2
	CO2	3	3	2	-	-	-	-	-	-	-	-	2	1	2
	CO3	3	3	2	3	2	-	-	-	-	-	-	2	2	2
	CO4	3	3	1	1	1	-	-	-	-	-	-	1	1	1
	CO5 3 3 2 3 3 2 2 - - - - 2 2											3			

BAS 301					At	the end o	f course	, students	will be ab	le to						
	CO1		and the signifi of value educ												ent and	
	CO2	Distingui	sh between tl	he Self and	the Body	, understan	d the mea	aning of Hai	rmony in the	Self the C	o-existence	of Self and E	Body.			
	CO3		and the value heir role in er			•	ed on trus	t, respect a	nd other nat	urally acce	ptable feelin	gs in human	-human re	lationships	s and	
	CO4	Understand the harmony in nature and existence, and work out their mutually fulfilling participation in the nature.														
Universal	CO5	Distingui	Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.													
Human Values	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
, 5255	CO1	-	-	-	-	-	3	3	3	3	3	3	3	-	-	
	CO2	-	-	-	-	-	3	3	3	3	3	3	3	-	-	
	CO3	-	-	-	-	-	3	3	3	3	3	3	3	-	-	
	CO4	-	-	-	-	-	3	3	3	3	3	3	3	-	-	
	CO5	-	-	-	-	-	3	3	3	3	3	3	3	-	-	

BCS 301					At the e	nd of cours	se, stud	ents will	be abl	le to					
	CO1	Describe he applications	ow arrays, linko s.	ed lists, stack	s, queues	s, trees, and g	graphs a	re repres	ented in	memor	y, used by t	the algori	thms and	their commo	on
	CO2	Discuss th	ne computatio	nal efficienc	y of the	e sorting ar	nd sear	ching alg	orithms.						
	CO3	Implementa	ation of Trees a	and Graphs a	nd perforr	m various ope	erations	on these	data str	ucture.					
	CO4 Understanding the concept of recursion, application of recursion and its implementation and removal of recursion.														
Data	CO5	Identify the	Identify the alternative implementations of data structures with respect to its performance to solve a real-world problem.												
Structure	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	3	2	1	-	3	-	-	-	-	1	-	3	2	3
	CO2	3	3	2	-	3	-	-	-	-	1	-	3	2	3
	CO3	3	3	2	-	3	-	-	-	-	1	-	3	2	3
	CO4	3	3	2	-	3	-	-	-	-	1	-	3	2	3
	CO5	3	3	3	-	2	-	-	-	-	1	-	3	2	3

BCS 302	At the end of course, students will be able to Co1 Study of the basic structure and operation of a digital computer system.															
	CO1	Study of th	e basic structu	ire and opera	ation of a d	igital comput	er syster	n.								
	CO2	Analysis of	the design of	arithmetic &	logic unit a	and understa	nding of t	he fixed po	int and	floating	-point ari	thmetic o	perations	i.		
	CO3	Implementa	ation of contro	l unit techniq	ues and th	e concept of	Pipelinin	g.								
	CO4	Understand	nderstanding the hierarchical memory system, cache memories and virtual memory.													
Computer	CO5	Understand	nderstanding the different ways of communicating with I/O devices and standard I/O interfaces.													
Organization and	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
Architecture	CO1	2	2	1	1	-	-	-	-	-	-	-	1	2	-	
	CO2	3	3	3	2	2	-	1	-	-	-	-	3	2	1	
	CO3	3	3	3	3	2	1	1	-	-	-	-	3	2	-	
	CO4	3	3	3	3	2	1	1	-	-	-	-	3	3	1	
	CO5	3	3	3	3	2	1	1	-	-	-	-	3	3	-	

BCS 303					At	the end of o	course,	students	will be al	ble to					
	CO1	Acquire Kn	owledge of se	ts and relation	ns for solv	ing the probl	ems of P	OSET and	d lattices.						
	CO2	Apply fund	amental conce	epts of function	ons and Bo	olean algebr	a for solv	ing the pr	oblems of I	ogical ab	ilities.				
	CO3	Employ the	rules of prop	ositions and _l	oredicate lo	ogic to solve	the comp	lex and lo	gical probl	ems.					
	CO4	Explore the concepts of group theory and their applications for solving the advance technological problems.													
Discrete	te CO5 Illustrate the principles and concepts of graph theory for solving problems related to computer science.														
Strcuture and Theory of	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Logic	CO1	3	2	-	-	2	-	-	-	-	-	-	-	1	-
	CO2	2	-	-	-	-	-	-	-	-	-	-	-	1	-
	CO3	3	2	2	1	2	-	-	1	-	-	-	1	2	-
	CO4	3	1	2	2	2	2	-	1	-	-	-	1	1	1
	CO5	2	3	3	-	2	-	-	-	-	-	-	2	2	2

BCC 302				At	the end	d of course,	student	s will b	e able	to						
	CO1	Interpret	the fundamen	tals of Pytho	n synta	x and seman	tics									
	CO2	Express pa	oficiency in t	he handling	of string	gs and functi	ons									
	СОЗ	Discover t	he methods to	utilize the d	lata stru	ctures like li	sts, dicti	onaries	s, tuple	s and s	ets.					
	Acquire the knowledge of file handling operations and adherence to coding standards.															
	CO5	Develop P	Develop Python-based projects by inculcating creativity and originality in problem-solving													
Python Programming	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
1 Togramming	CO1	-	-	-	-	3	-	-	-	-	-	-	1	-	-	
	CO2	-	-	-	-	3	-	-	-	-	-	-	2	-	-	
	CO3	3	3	-	-	3	-	-	-	-	-	-	2	-	2	
	CO4	3	3	-	-	3	-	-	-	-	-	-	2	-	2	
	CO5	3	3	3	-	3	2	-	-	-	-	-	3	3	3	

Practical

BCS 353					At th	e end of co	urse, st	udents wi	ll be able	to						
	CO1	To unders	tand the conc	ept of layout	and struct	ure of html										
	CO2	To apply the	ne integration	of CSS in ht	ml pages t	o format and	l make W	/ebpages a	ttractive.							
CO3 Apply the JS concept to process and validate the data of web page on client Machine.																
Wed	CO4	Design the	Design the website by interlinking a number of webpages with the application of html CSS and JavaScript.													
Designing Workshop	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
Lab	CO1	3	3	3	3	3	1	1	1	1	1	2	3	3	3	
	CO2	3	3	3	3	3	1	1	1	1	1	2	3	3	3	
	CO3	3	3	3	3	3	1	1	1	1	1	2	3	3	3	
	CO4	3	3	3	3	3	1	1	1	1	1	2	3	3	3	

BCS 351															
	CO1	Practice var	rious Sorting ar	nd Searching	Algorith	ms.									
	CO2	Analyze the	recursive impl	ementation of	f differer	nt sorting and	searchi	ng algo	rithms.						
	СОЗ	Exercise va	rious data Stru	cture operation	ns usin	g static and d	ynamic	memory	/ alloca	tion.					
Data	CO4	Demonstrat	Demonstrate various operations like traversal, insertion, deletion on tree data structure.												
Structure	CO5	Illustrate and implement practical applications based on graphs and shortest paths.													
Using C	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Lab	CO1	3	3	3	-	2	-	-	-	-	1	1	2	1	2
	CO2	3	3	3	-	2	-	-	-	-	1	1	2	1	3
	CO3	3	2	3	-	2	-	-	-	-	1	1	2	1	3
	CO4	3 3 3 - 2 1 1 2 2									2				
	CO5	3	3	3	-	2	-	-	-	-	1	1	3	2	2

BCS 352					At the er	nd of cours	e, stud	ents w	ill be a	ble to					
	CO1	Examine th	ne output of t	the basic log	gic gates i	for different	t combi	ination	s of inp	outs.					
	CO2	Simulate th	ne combinati	onal circuits	s for bina	ry arithmeti	c (such	as ado	lers, su	btractors,	and mult	iplier) aı	nd code o	converter.	
	CO3	Simulate c	ombinationa	l circuits for	r encoder	s/decoders a	and sele	ection (devices	multiple	xers/demu	ltiplexe	rs using l	logic gates	3.
Computer	 Simulate combinational circuits for encoders/decoders and selection devices multiplexers/demultiplexers using logic gates. Simulate the basic building block of the sequential circuits (i.e., SR and D Flip Flops) using logic gates. Simulate the 2-bit Arithmetic Logic Unit using logic gates. 														
Organization															
and	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Architecture	CO1	2	2	2	1	1	-	-	-	1	1	-	-	-	-
Lab	CO2	3	3	3	2	1	-	-	-	1	1	-	1	-	_
	CO3	2	3	3	2	1	-	-	-	1	1	-	1	1	1
	CO4	2	3	3	2	1	-	-	-	1	1	-	1	2	1
	CO5	2	3	3	2	1	-	-	-	1	1	-	1	2	1

BCC 351					At th	e end of co	urse, st	udents v	vill be abl	e to					
	CO1	Develop	ing a technica	al artifact requ	uiring nev	v technical s	kills and	effectively	/ utilizing a	new softw	are tool to	complete a t	task		
	CO2	Writing r	equirements of	documentatio	on, select	ing appropri	ate techn	ologies, i	dentifying fo	or systems	5.				
	CO3	Demons	trating unders	standing of pr	ofession	al customs 8	practice	s and wo	rking with p	rofessiona	al standards	5.			
	CO4	Improvir	g problem-so	lving, critical	thinking	skills and rep	ort writir	ng							
MINI	CO5		professional n, developing				ehaving _l	orofession	nally, behav	ring ethica	lly, listening	effectively,	participat	ting as a m	ember
PROJECT & INTERNSHIP	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PS O2
	CO1	-	-	2	-	2	-	-	-	-	-	-	2		3
	CO2	-	2	-	-	-	-	-	-	-	-	-	-	2	2
	CO3	-	-	-	-	-	2	-	2	-	-	-	-	2	2
	CO4	-		3	-		-	-	-	-	-		-	-	-
	CO5	-	-	-	-	-	-	-	3	3	3	3		2	2

3rd Year

(2021-2025 BATCH)

Session:- 2023-24 Semester:- 5th

S.No.	Subject	Code
1	Machine Learning Techniques	KCS 055
2	Database Management System	KCS 501
3	Compiler Design	KCS 502
4	Design and Analysis of Algorithm	KCS 503
5	Web Technology	KCS 052
6	Constitution of India / Essence of Indian Traditional Knowledge	KNC 501
7	Database Management System Lab	KCS 551
8	Compiler Design Lab	KCS 552
9	Design and Analysis of Algorithm Lab	KCS 553
10	Mini Project & Internship	KCS 554

Theory

KCS 055					A	t the end	of course	, student	s will be	able to					
	CO1	Unde	rstand four	ndational con	cepts of ma	chine learni	ng approa	ches.							
	CO2	Apply	regression	n techniques	like Linear I	Regression	and Logist	ic Regress	sion to solv	e real- wor	ld problems.				
	CO3	Analy	ze the perf	ormance of E	Bayesian Le	arning meth	ods on va	rious data	sets.						
	CO4	Evaluate and compare various techniques like Support Vector Machines, Decision Trees, and Instance Based Learning on different datasets.													
Machine	CO5	Mode	I the solution	on of real-life	problems u	sing Deep l	_earning te	chniques,	Genetic A	lgorithms a	nd Reinforce	ement Learr	ning.		
Learning	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Techniques	CO1	1	-	-	1	3	-	-	-	-	-	-	1	-	-
	CO2	3	1	1	1	3	-	-	-	3	-	1	2	1	1
	CO3	3	3	2	2	3	-	-	-	3	-	1	2	1	2
	CO4	3	PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 PSO1 PSO2 - 1 1 1 1 1 3 3 1 1 2 1 1 2 3 2 3 3 3 3 3 - 1 2 2 3 3 3 3 3 - 1 2 2 3 3 3 3 3 - 1 2 3 3 3 3 3 3 1 3 3												3
	CO5	3	3	3	3	3	-	-	-	3	3	2	3	3	3

KCS 501					At	the end o	f course, s	students	will be ablo	e to					
	CO1	Apply I	knowledg	e of databas	e for real life a	applications									
	CO2	Apply	query pro	cessing tech	niques to auto	omate the r	eal time pro	blems of c	latabases.						
	СОЗ	Identify	and solv	e the redund	dancy problem	n in databas	se tables us	ing norma	lization.						
	Understand the concepts of transactions, their processing so they will familiar with broad range of database management issues incintegrity, security											including d	ata		
Database	CO5	Design	, develop	and implem	ent a small da	atabase pro	ject using c	latabase to	ools.						
Managemen t System	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
t System	CO1	3	3	2	3	2	-	-	-	-	-	-	3	3	1
	CO2	3	3	2	3	2	-	-	-	-	-	-	3	3	1
	CO3	3	3	2	3	2	-	-	-	-	-	-	3	3	1
	CO4	3	3	2	3	2	-	-	-	-	-	-	3	3	1
	CO5	3	3	2	3	2	-	-	-	-	-	-	3	3	1

KCS 502					At	the end of	course, s	tudents v	will be al	ole to					
	CO1					passes of tholes to meet to the contract of th							ACC, etc. St	udents will a	also be
	CO2	Underst	tand the par	ser and its t	ypes i.e. To	p-Down and	d Bottom-u	p parsers	and const	ruction of I	L, SLR, C	LR, and LA	LR parsing t	able	
	CO3	Implem	ent the com	e compiler using syntax-directed translation method and get knowledge about the synthesized and inherited attributes. vledge about run time data structure like symbol table organization and different techniques used in that. the target machine's run time environment, its instruction set for code generation and techniques used for code optimization.											
	CO4	Acquire	knowledge												
Compiler	CO5	Underst	tand the tar	get machine	's run time o	environment	, its instru	ction set fo	r code ge	neration a	nd techniq	ues used fo	r code optim	ization.	
Design	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
J	CO1	1	1	2			-	-	-	-	-	-	2	3	1
	CO2	2	2	3	2	1	-	-	-	-	-	-	3	1	3
	CO3	1	2	2	2	1	-	-	-	-	-		2	3	2
	CO4	2	2	2	2	1	-	-	-	-	-	1	3	3	2
	CO5	2	2	3	2	1	-	-	-	-	-	1	2	3	2

KCS 553					At t	the end of	course, s	tudents w	vill be ab	le to					
	CO1	Analyze	algorithm to	o solve prob	lems by itera	ative approa	ıch.								
	CO2	Analyze	algorithm to	o solve prob	lems by divi	de and cond	quer appro	ach.							
	CO3	Impleme	ent algorithn	n to solve pr	oblems by C	Greedy algor	ithm appro	ach.							
	CO4	Apply al	lgorithm to s	olve probler	ms by Dynar	mic program	ming, bacl	ktracking, b	oranch, an	d bound ap	proach.				
DAA	CO5	Impleme	ent algorithn	n to solve pr	oblems by b	ranch and b	ound appr	oach.							
LAB	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	1	1	2	2		-	-	-	-	-	-	2	1	2
	CO2	2	1	2	3	1	-	-	-	-	-	-	2	1	2
	CO3	1	2	2	1	1	-	-	-	-	-	-	2	1	2
	CO4	2	2	2	1	1	-	-	-	-	-	-	2	2	2
	CO5	2	2	2	2	1	-	-	-	-	-	-	2	2	2

KCS 052						At the en	d of cours	se, student	s will be	able to						
	CO1	Unders	tand princ	iple of Web	page des	ign and abo	ut types of	websites								
	CO2	Visualiz	e and rec	ognize the l	basic cond	ept of HTM	L and appli	cation in we	b designin	g.						
	CO3	Recogn	ize and a	oply the ele	ments of C	Creating Sty	le Sheet (C	SS).								
	CO4	Unders	tand the b	d the basic concept of Java Script and its application. pasics concept of Web Hosting and apply the concept of SEO												
Web	CO5	Introduc	ce basics													
Technolog	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
y	CO1	3	-	2	-	3	2	2	-	3	3	3	3	3	3	
	CO2	3	-	2	-	3	2	2	-	3	3	3	3	3	3	
	CO3	3	-	2	-	3	2	2	-	2	3	3	3	2	3	
	CO4	2	-	-	-	2	2	2	-	2	2	2	3	2	2	
	CO5	3	-	-	-	2	2	2	3	2	2	2	3	2	2	

KNC501					At	the end	of course,	students	will be al	ble to						
	CO1										ntify the roc by digging			e of the		
	CO2	To enable	the studer	nts to under	stand the i	mportance	of our surr	oundings a	nd encoura	age the stu	dents to co	ntribute tow	ards susta	inable devel	lopment.	
	CO3	To sensiti	ze students	e students towards issues related to 'Indian' culture, tradition and its composite character. students with latest intellectual property rights and innovation environment with related regulatory framework students with Indian Knowledge System, Indian perspective of modern scientific world-view and basic principles of Yoga and holistic												
	CO4	To acquai	nt students													
GO.	CO5	To acquai health car		with India	n Knowledg	je System,	Indian pers	spective of	modern sc	ientific wor	ld-view and	l basic prin	ciples of Yo	oga and holis	stic	
COI	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
	CO1	2	-	-	-	-	-	-	-	-	-	-	-	3	2	
	CO2	3	-	-	-	-	-	-	-	-	-	-	-	3	3	
	CO3	2	-	-	-	-	-	-	-	-	-	-	-	2	3	
	CO4	3	-	-	-	-	-	-	-	-	-	-	-	3	3	
	CO5	3	-	-	-	-	-	-	-	-	-	-	-	3	3	

Practical

KCS 551					A	t the end	of course	, students	will be a	ble to					
	CO1	Unders	tand and a	pply MYS0	QL/Oracle	l0g for crea	ting table	s, views, in	dexes, seq	uences and	other datab	ase objects.	•		
	CO2	Design a	nd impleme	nt a database s	chema for con	npany data ba	se, banking o	lata base, libra	ry informati	on system, pay	yroll processin	g system, stud	ent informatio	n system.	
	СОЗ	Apply th	ne concept	of SQL ba	sed on Case	e Study usii	ng DDL, I	OML							
	CO4	Apply th	ne concept	entity integrity, referential integrity, key constraints, and domain constraints on database.											
	CO5	Demon	strate enti	ty integrity,	referential	integrity, k	ey constra	aints, and do	omain con	straints on	database.				
DBMS LAB	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	2	-	-	-	2	-	-	-	2	1	-	2	2	-
	CO2	3	3	2	2	3	-	1	-	2	2	3	3	-	3
	СОЗ	3	2	2	1	2	-	-	-	1	1	-	2	-	2
	CO4	3	2	2	1	2	-	-	-	1	1	-	2	-	2
	CO5	2	-	-	2	3	-	-	-	1	1	-	2	-	2

KCS 552					A	t the end	of course	, students	will be a	ble to					
	CO1	Basic u	nderstand	ing about to	okens & reg	ular expres	sions for le	exical analy	sis.						
	CO2	Design	Lexical ar	nalyzer for g	jiven langua	age using C	and LEX	and YACC	programm	ing languaç	ge.				
	CO3	Design	and analy	ze top dowi	n and bottor	m-up parse	rs.								
	CO4	Genera	te the inte	e the intermediate code e machine code from the intermediate code forms											
	CO5	Genera	te machin												
COMPILER LAB	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
LAD	CO1	3	1	3	2	3	-	-	-	-	-	-	-	1	1
	CO2	3	2	3	2	3	-	-	-	-	-	-	-	1	2
	CO3	3	2	3	2	3	-	-	-	-	-	-	-	1	2
	CO4	3	1	3	1	3	-	-	-	-	-	-	-	1	2
	CO5	3	1	3	1	3	-	-	-	-	-	-	-	1	2

KCS 553					A	At the end	of course	, students	s will be a	ble to					
	CO1	Analyze	e algorithm	to solve pro	blems by ite	erative appr	oach.								
	CO2	Analyze	e algorithm	to solve pro	blems by di	vide and co	nquer appr	oach.							
	соз	Implem	ent algorith	m to solve p	oroblems by	Greedy alg	orithm app	roach.							
	CO4	Apply a	lgorithm to	solve proble	ems by Dyn	amic progra	amming, ba	cktracking,	branch, an	d bound ap	proach.				
	CO5	Implem	ent algorith	m to solve p	oroblems by	branch and	d bound app	oroach.							
DAA LAB	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	1	3	2	2	1	-	-	-	-	-	-	3	1	1
	CO2	2	3	2	3	2	-	-	-	-	-	-	2	1	2
	соз	3	2	2	1	2	-	-	-	-	-	-	2	1	2
	CO4	2	2	2	1	2	-	-	-	-	-	-	2	2	2
	CO5	2	2	2	2	1	-	-	-	-	-	-	2	2	2

KCS 554					A	At the end	of course	, student:	s will be a	ble to						
	CO1	Develo	Developing a technical artifact requiring new technical skills and effectively utilizing a new software tool to complete a task													
	CO2	Writing	Vriting requirements documentation, selecting appropriate technologies, identifying for systems.													
	СОЗ	Demon	emonstrating understanding of professional customs & practices and working with professional standards.													
	CO4	Improvi	nproving problem-solving, critical thinking skills and report writing													
MINI	CO5		arning professional skills like exercising leadership, behaving professionally, behaving ethically, listening effectively, participating as a member of a am, developing appropriate workplace attitudes													
PROJEC	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
T LAB	CO1	-	-	2	-	2	-	-	-	-	-	-	2		3	
	CO2	-	2	-	-	-	-	-	-	-	-	-	-	2	2	
	CO3	-	-	-	-	-	2	-	2	-	-	-	-	2	2	
	CO4	-	-	3	-	-	-	-	-	-	-	-	-	-	-	
	CO5	-	-	-	-	-	-	-	3	3	3	3		2	2	

4th Year

(2020-2024 BATCH)

Session:- 2023-24 Semester:- 7th

S.No.	Subject	Code
1	Cloud Computing (Elective -V)	KCS 713
2	Artificial Intelligence (Elective -IV)	KCS 071
	Rural Development: Administration and Planning (HSMC)	KHU 701
4	Renewable Energy Resources (Open Elective-II)	KOE 074
5	Artificial Intelligence Lab (Elective Lab)	KCS 751
6	Mini Project + Internship	KCS 752
7	Project	KCS 753

Theory

THEORY																
KCS713		At the end of course, students will be able to														
	CO1	Unders	Understand the fundamental of cloud computing and demonstrate characteristics of cloud computing.													
	CO2	Descri	escribe the concept of virtualization and implement their mechanism with service-oriented architecture. scuss cloud architecture and Organize cloud data in Public, Private and Hybrid Clouds on cloud storage.													
	СОЗ	Discus														
	CO4	Exami	amine the cloud data by Resource provisioning methods and implement global security on it.													
	CO5	Analyz	nalyze the virtual box and use programming environment for Google app engine.													
Cloud Computing	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
	CO1	2	-	1	-	-	-	-	-	2	2	-	1	2	1	
	CO2	2	1	3	-	-	-	-	-	2	1	-	1	2	1	
	СОЗ	3	2	2	-	-	-	-	-	2	2	-	1	2	1	
	CO4	1	1 2 1 2 1 - 1 1													
	CO5	2	2	1	-	_	-	-	-	2	1	-	1	1	1	

KCS071	At the end of course, students will be able to														
	CO1	Understand the basics of the theory and practice of Artificial Intelligence as a discipline and about intelligent agents.													
	CO2 Understand search techniques and gaming theory.														
	СОЗ	Learn to apply knowledge representation techniques and problem-solving strategies to common AI applications.													
	CO4	Awar	ware of techniques used for classification and clustering. ware of basics of pattern recognition and steps required for it												
A 4000 0 T	CO5	Awar													
Artificial Intelligence	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
intenigence	CO1	2	-	1	1	3	2	2	2	2	3	3	3	1	2
	CO2	2	-	1	1	3	2	2	2	2	2	3	3	2	2
	СОЗ	2	-	-	1	2	1	2	1	2	2	2	2	2	1
	CO4	2	2 1 2 1 2 1 2 2 2 1 1												
	CO5	2	-	-	1	2	1	2	3	2	2	2	1	1	1

KHU701						At the en	d of cours	e, student	ts will be	able to						
	CO1	Unders	Understand the definitions, concepts and components of Rural Development													
	CO2	Unders	tand impor	tance, struc	cture, sign	ificance, re	sources of	Indian rura	l economy.							
	СОЗ	Clear ic	lear idea about the area development programmes and its impact.													
	CO4	Acquire	quire knowledge about rural entrepreneurship.													
Rural	CO5	Unders	nderstand about the using of different methods for human resource planning													
Development	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
•	CO1	1	1	-	-	-	3	-	2	3	-	-	2	-	-	
	CO2	-	1	-	-	-	3	-	1	1	-	-	1	-	-	
	CO3	-	1	-	-	-	3	-	1	2	-	-	2	-	-	
CO4 - 2 3 1 2 2 -											-	2	-	-		
	CO5	1	2	-	-	1	3	2	2	2	-	2	3	-	-	

KOE074						At the end	d of cours	se, studen	ts will be	able to					
	CO1	Unders	Understanding of renewable energy sources												
	CO2	Knowle	dge of wor	king princip	le of vario	ous energy	systems								
	соз	Capabi	lity to carry	out basic o	design of r	enewable e	energy syst	ems							
	CO4	Capability to carry out basic design of renewable energy systems Capability to Examine basic design of renewable energy systems													
Renewable	aar .														
Energy	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Sources	CO1	3	-	1	-	-	-	-	-	2	2	-	1	2	1
	CO2	3	1	3	-	-	-	-	-	2	1	-	1	2	1
	СОЗ	3	2	2	-	-	-	-	-	1	2	-	1	1	1
	CO4 3 2 1 1 1 1 - 1 1												1	1	
	CO5	3	2	1	-	-	-	-	-	2	1	-	1	1	1

Practical

KCS 751					At	the end o	f course,	students	s will be a	ble to					
	CO1	Demonstr	rate the fea	tures of the	PROLOG	programm	ning langua	age, includ	ling basic s	syntax, sele	ection and s	search			
	CO2	strategies	gies of PROLOG. re syntax, semantics and natural deduction proof system of propositional and predicate logic. ment the recursion and sequences using prolog programming. In various real-life problems using PROLOG programming language skills.												
	соз	Explore s													
	CO4	Implemer													
	CO5	Design va													
AI LAB	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	3	2	1	1	3	1	-	-	-	-	-	-	-	-
	CO2	3	3	2	2	3	2	-	-	-	-	-	2	-	2
	соз	3	3	2	2	3	2	-	-	-	-	-	2	3	2
	CO4	3	3	3	3	3	2	-	-	2	-	2	2	3	3
	CO5	3	2	1	1	3	1	-	-	-	-	-	-	-	-

KCS 752					At	the end o	f course,	students	will be a	ble to						
	CO1	Developin	Developing a technical artifact requiring new technical skills and effectively utilizing a new software tool to complete a task													
	CO2	Writing red	quirements	documenta	ation, selec	ting appro	priate tech	nologies,	identifying	for system:	S.					
	CO3	Demonstra	emonstrating understanding of professional customs & practices and working with professional standards.													
	CO4 Improving problem-solving, critical thinking skills and report writing															
MINI	CO5		arning professional skills like exercising leadership, behaving professionally, behaving ethically, listening effectively, participating as a member of eam, developing appropriate workplace attitudes													
PROJECT & INTERNSHIP	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
21 (2 22 21) 2 2 2 2 2	CO1	-	-	2	-	2	-	-	-	-	-	-	2		3	
	CO2	-	2	-	-	-	-	-	-	-	-	-	-	2	2	
	CO3	-	-	-	-	-	2	-	2	-	-	-	-	2	2	
	CO4	3												-		
	CO5	-	-	-	-	-	-	-	3	3	3	3		2	2	

KCS 753		At the end of course, students will be able to														
	CO1	Indepen	Independently carry out literature survey in identified domain, and consolidate it to formulate a problem statement													
	CO2	Apply ide	Apply identified knowledge to solve a complex engineering problem and design a solution, implement and test the proposed solution													
	СОЗ		Use synthesis/modeling to simulate and solve a problem or apply appropriate method of analysis to draw valid conclusions and present, demonstrate, execute final version of project													
	CO4	Incorpor	Incorporate the social, environmental and ethical issues effectively into solution of an engineering problem													
	CO5	Contribu	Contribute effectively as a team member or leader to manage the project timeline													
DDO IECE	CO6	Write pe	Write pertinent project reports and make effective project Presentations													
PROJECT	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
	CO1	_	3	_	_	_	_	_	_	_	_	_	3	3	3	
	CO2	3	_	3	_	_	_	_	_	_	_	_	_	3	3	
	СОЗ	_	_	_	3	3	_	_	_	_	_	_	_	3	3	
	CO4	_	_	_	_	_	3	3	3	_	_	_	_	_	_	
	CO5	_	_	_	_	_	_	_	_	3	_	3	_	_	_	
	CO6 3										_					