



SRM TRP ENGINEERING COLLEGE
DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

SRM TRP Engineering College,

Trichy – 621 105

Department of Artificial Intelligence and Data Science

Course Outcome and its mapping with

POs and PSOs

Regulations 2021

CO Mapping with POs I to VIII SEMESTER

SLNo.	SEM	COURSE CODE	COURSE TITLE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1	I	HS3151	Professional English I	1.60	2.20	1.80	2.20	1.50	3.00	3.00	3.00	1.60	3.00	3.00	3.00
2	I	MA3151	Matrices and Calculus	3.00	3.00	1.00	1.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	3.00
3	I	PH3151	Engineering Physics	3.00	3.00	1.60	1.20	1.80	1.00	0.00	0.00	0.00	0.00	0.00	1.00
4	I	CY3151	Engineering Chemistry	2.80	1.30	1.60	1.00	0.00	1.50	1.80	0.00	0.00	0.00	0.00	1.50
5	I	GE3151	Problem Solving and Python Programming	2.00	3.00	3.00	3.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00
6	I	GE3152	Heritage of Tamils	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
7	I	GE3171	Problem Solving and Python Programming Laboratory	2.00	3.00	3.00	3.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00
8	I	BS3171	Physics Laboratory	3.00	2.40	2.60	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	I	BS3171	Chemistry Laboratory	2.60	1.30	1.60	1.00	1.00	1.40	1.80	0.00	0.00	0.00	0.00	1.30
10	I	GE3172	English Laboratory	3.00	3.00	3.00	3.00	1.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
11	II	HS3252	Professional English II	3.00	3.00	3.00	3.00	2.75	3.00	3.00	3.00	2.20	3.00	3.00	3.00
12	II	MA3251	Statistics and Numerical Methods	3.00	3.00	1.00	1.00	1.00	0.00	0.00	0.00	2.00	0.00	2.00	3.00
13	II	PH3256	Physics for Information Science	3.00	1.30	2.00	1.30	2.30	1.00	1.30	0.00	0.00	0.00	0.00	2.00
14	II	BE3251	Basic Electrical, Electronics and Instrumentation Engineering	2.00	1.80	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	2.00
15	II	GE3251	Engineering Graphics	3.00	1.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	3.00	0.00	2.00
16	II	GE3252	Data Structures Design	2.00	2.00	1.00	2.00	2.00	1.00	1.00	0.00	1.00	1.00	1.00	2.00
17	II	AD3251	Tamil and Technology	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
18	II	GE3271	Engineering Practices Laboratory	3.00	2.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	2.00
19	II	AD3271	Data Structures Design Laboratory	2.00	2.00	2.00	1.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00
20	II	GE3272	Communication Laboratory/Foreign Language	2.40	2.80	3.00	3.00	1.80	3.00	3.00	3.00	3.00	3.00	3.00	3.00
21	III	MA3354	Discrete Mathematics	1.00	3.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
22	III	CS3351	Digital Principles and Computer Organization	3.00	3.00	3.00	3.00	1.80	1.60	1.00	1.00	1.00	1.00	1.60	2.60
23	III	AD3391	Database Design and Management	2.00	2.00	2.00	2.00	1.00	0.00	0.00	0.00	2.00	2.00	1.00	1.00
24	III	AD3351	Design and Analysis of Algorithms	3.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00

SLNo.	SEM	COURSE CODE	COURSE TITLE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
25	III	AD3301	Data Exploration and Visualization	2.00	1.00	2.00	2.00	1.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00
26	III	AL3391	Artificial Intelligence	2.00	1.00	2.00	2.00	1.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00
27	III	AD3381	Database Design and Management Laboratory	2.00	2.00	2.00	2.00	1.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00
28	III	AD3311	Artificial Intelligence Laboratory	2.00	1.00	2.00	2.00	1.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00
29	III	GE3361	Professional Development	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30	IV	MA3391	Probability and Statistics	3.00	3.00	1.00	1.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00
31	IV	AL3452	Operating Systems	2.00	2.00	2.00	2.00	1.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00
32	IV	AL3451	Machine Learning	2.00	2.00	3.00	2.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00
33	IV	AD3491	Fundamentals of Data Science and Analytics	1.00	1.00	2.00	2.00	2.00	0.00	0.00	0.00	3.00	2.00	2.00	2.00
34	IV	CS3591	Computer Networks	2.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00	1.00
35	IV	GE3451	Environmental Sciences and Sustainability	2.80	1.80	1.00	1.00	0.00	2.20	2.40	0.00	0.00	0.00	0.00	1.80
36	IV	AD3411	Data Science and Analytics Laboratory	2.00	2.00	1.00	2.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00
37	IV	AD3461	Machine Learning Laboratory	2.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00
38	V	AD3501	Deep Learning	2.80	2.40	2.00	2.40	2.20	0.00	0.00	0.00	1.60	2.40	1.40	2.40
39	V	CW3551	Data and Information Security	2.40	2.60	2.40	2.20	1.50	0.00	0.00	0.00	1.40	2.20	1.20	2.20
40	V	CS3551	Distributed Computing	1.80	2.40	1.80	2.40	2.00	0.00	0.00	0.00	2.60	2.20	2.20	1.60
41	V	CCS334	Big Data Analytics	2.80	3.00	2.80	2.80	2.80	0.00	0.00	0.00	2.20	1.80	2.60	2.00
42	V	CCS336	Cloud Services Management	1.80	1.80	2.00	1.80	2.20	0.00	0.00	0.00	1.80	2.40	2.20	1.40
43	V	CCS352	Multimedia and Animation	3.00	2.80	3.00	2.80	3.00	2.00	0.00	0.00	3.00	2.80	2.20	2.60
44	V	MX3084	Disaster Risk Reduction and Management	3.00	3.00	3.00	3.00	0.00	0.00	2.00	2.00	0.00	0.00	2.00	0.00
45	V	AD3511	Deep Learning Laboratory	2.60	2.60	1.60	2.00	1.40	0.00	0.00	0.00	2.00	2.40	2.20	1.60
46	VI	AD3512	Summer internship	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
47	VI	CS3691	Embedded Systems and IoT	2.60	2.00	3.00	2.40	1.50	0.00	0.00	0.00	1.00	2.20	2.20	2.40
48	VI	OIE351	Introduction to Industrial Engineering	2.20	2.00	2.50	1.30	1.00	0.00	0.00	2.00	0.00	0.00	1.00	1.00

CO Mapping with PSOs I to VIII SEMESTER

S. No.	SEM	COURSE CODE	COURSE TITLE	PSO1	PSO2
1	I	HS3151	Professional English I	0.0	0.0
2	I	MA3151	Matrices and Calculus	0.0	0.0
3	I	PH3151	Engineering Physics	0.0	0.0
4	I	CY3151	Engineering Chemistry	0.0	0.0
5	I	GE3151	Problem Solving and Python Programming	3.0	3.0
6	I	GE3152	Heritage of Tamils	0.0	0.0
7	I	GE3171	Problem Solving and Python Programming Laboratory	3.0	3.0
8	I	BS3171	Physics and Laboratory	0.0	0.0
9	I	BS3171	Chemistry Laboratory	0.0	0.0
10	I	GE3172	English Laboratory	0.0	0.0
11	II	HS3252	Professional English II	0.0	0.0
12	II	MA3251	Statistics and Numerical Methods	0.0	0.0
13	II	PH3256	Physics for Information Science	0.0	0.0
14	II	BE3251	Basic Electrical and Electronics Engineering	0.0	0.0
15	II	GE3251	Engineering Graphics	2.0	2.0
16	II	GE3252	Data Structures Design	2.0	2.0
17	II	AD3251	Tamil and Technology	0.0	0.0
18	II	GE3271	Engineering Practices Laboratory	2.0	1.0
19	II	AD3271	Data Structures Design Laboratory	2.0	2.0
20	II	GE3272	Communication Laboratory/Foreign Language	0.0	0.0
21	III	MA3354	Discrete Mathematics	0.0	0.0
22	III	CS3351	Digital Principles and Computer Organization	1.4	2.6
23	III	AD3391	Database Design and Management	2.0	2.0

S. No.	SEM	COURSE CODE	COURSE TITLE	PSO1	PSO2
24	III	AD3351	Design and Analysis of Algorithms	2.0	2.0
25	III	AD3301	Data Exploration and Visualization	2.0	2.0
26	III	AL3391	Artificial Intelligence	2.0	2.0
27	III	AD3381	Database Design and Management Laboratory	2.0	2.0
28	III	AD3311	Artificial Intelligence Laboratory	2.0	2.0
29	III	GE3361	Professional Development	2.0	2.0
30	IV	MA3391	Probability and Statistics	0.0	0.0
31	IV	AL3452	Operating Systems	2.0	1.0
32	IV	AL3451	Machine Learning	2.0	2.0
33	IV	AD3491	Fundamentals of Data Science and Analytics	3.0	2.0
34	IV	CS3591	Computer Networks	2.0	2.0
35	IV	GE3451	Environmental Sciences and Sustainability	0.0	0.0
36	IV	AD3411	Data Science and Analytics Laboratory	2.0	2.0
37	IV	AD3461	Machine Learning Laboratory	2.0	2.0
38	V	AD3501	Deep Learning	2.0	1.8
39	V	CW3551	Data and Information Security	1.8	2.0
40	V	CS3551	Distributed Computing	2.0	1.8
41	V	CCS334	Big Data Analytics	2.2	2.8
42	V	CCS336	Cloud Services Management	1.8	1.8
43	V	CCS352	Multimedia and Animation	3.0	2.4
44	V	MX3084	Disaster Risk Reduction and Management	2.0	0.0
45	VI	AD3511	Deep Learning Laboratory	2.4	2.8
46	VI	AD3512	Summer internship	3.0	2.0
47	VI	CS3691	Embedded Systems and IoT	2.2	1.6

S. No.	SEM	COURSE CODE	COURSE TITLE	PSO1	PSO2
48	VI	OIE351	Introduction to Industrial Engineering	2.0	1.0
49	VI	CCS335	Cloud Computing	1.6	1.8
50	VI	CCS341	Data Warehousing	2.0	2.0
51	VI	CCS354	Network Security	2.2	1.4
52	VI	CCS340	Cyber Security	2.0	2.2
53	VII	MX3089	Industrial Safety	3.0	3.0
54	VII	GE3791	Human Values and Ethics	2.0	2.0
55	VII	GE3751	Principles of Management	1.5	1.0
56	VII	OIE352	Resource Management Techniques	3.0	2.0
57	VII	OIE354	Quality Engineering	0.0	0.0
58	VII	OHS352	Project Report Writing	0.0	0.0
59	VII	AD3811	Project Work / Internship	0.0	0.0

Course Code / Course Name	HS3151/ Professional English I
Semester	I
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		BTL'S
CO1	Use appropriate words in a professional context	K1
CO2	Gain understanding of basic grammatical structures and use them in right context	K3
CO3	Read and infer the denotative and connotative meanings of technical texts	K2
CO4	Read and Interpret information presented in tables, charts, and other graphic forms	K4
CO5	Write definitions, descriptions, narrations and essays on various topics.	K6

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	1	1	1	1	3	3	3	1	3	0	3
CO2	1	1	1	1	1	3	3	3	1	3	0	3
CO3	2	3	2	3	2	3	3	3	2	3	3	3
CO4	2	3	2	3	2	3	3	3	2	3	3	3
CO5	2	3	3	3	0	3	3	3	2	3	0	3
CO PO Mapping	1.60	2.20	1.80	2.20	1.50	3.00	3.00	3.00	1.60	3.00	3.00	3.00

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.0	0.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	MA3151/Matrices and Calculus
Semester	I
Regulation	R2021

Course code	Course Outcome	
Students will be able to		BTL'S
CO1	Use the matrix algebra methods for solving practical problems.	K4
CO2	Apply differential calculus tools in solving various application problems.	K3
CO3	Able to use differential calculus ideas on several variable functions.	K3
CO4	Apply different methods of integration in solving practical problems.	K3
CO5	Apply multiple integral ideas in solving areas, volumes and other practical problems.	K3

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	1	1	0	0	0	0	2	0	2	3
CO2	3	3	1	1	0	0	0	0	2	0	2	3
CO3	3	3	1	1	0	0	0	0	2	0	2	3
CO4	3	3	1	1	0	0	0	0	2	0	2	3
CO5	3	3	1	1	0	0	0	0	2	0	2	3
CO PO Mapping	3.00	3.00	1.00	1.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	3.00

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.0	0.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	PH3151/Engineering Physics
Semester	I
Regulation	R2021

Course code	Course Outcome	
Students will be able to		BTL'S
CO1	Understand the importance of mechanics.	K2
CO2	Express their knowledge in electromagnetic waves.	K3
CO3	Demonstrate a strong foundational knowledge in oscillations, optics and lasers	K1
CO4	Understand the importance of quantum physics.	K2
CO5	Comprehend and apply quantum mechanical principles towards the formation of energy bands.	K3

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	1	1	1	0	0	0	0	0	0
CO2	3	3	2	1	2	1	0	0	0	0	0	0
CO3	3	3	2	2	2	1	0	0	0	0	0	1
CO4	3	3	1	1	2	1	0	0	0	0	0	0
CO5	3	3	1	1	2	1	0	0	0	0	0	0
CO PO Mapping	3.00	3.00	1.60	1.20	1.80	1.00	0.00	0.00	0.00	0.00	0.00	1.00

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.00	0.00

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	CY3151/Engineering Chemistry
Semester	I
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		BTL'S
CO1	To infer the quality of water from quality parameter data and propose suitable treatment methodologies to treat water.	K2
CO2	To identify and apply basic concepts of nanoscience and nanotechnology in designing the synthesis of nano materials for engineering and technology applications.	K3
CO3	To apply the knowledge of phase rule and composites for material selection requirements.	K3
CO4	To recommend suitable fuels for engineering processes and applications.	K4
CO5	To recognize different forms of energy resources and apply them for suitable applications in energy sectors.	K1

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	1	0	1	1	0	0	0	0	1
CO2	2	0	0	1	0	2	2	0	0	0	0	0
CO3	3	1	0	0	0	0	0	0	0	0	0	0
CO4	3	1	1	0	0	1	2	0	0	0	0	0
CO5	3	1	2	1	0	2	2	0	0	0	0	2
CO PO Mapping	2.80	1.30	1.60	1.00	0.00	1.50	1.80	0.00	0.00	0.00	0.00	1.50

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.0	0.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	GE3151/Problem Solving and Python Programming
Semester	I
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Develop algorithmic solutions to simple computational problems.	K6
CO2	Develop and execute simple Python programs.	K6
CO3	Write simple Python programs using conditionals and looping for solving problems	K1
CO4	Decompose a Python program into functions.	K2
CO5	Represent compound data using Python lists, tuples, dictionaries etc.	K1
CO6	Read and write data from/to files in Python programs.	K1

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	2	0	0	0	0	0	2	2
CO2	3	3	3	3	2	0	0	0	0	0	2	2
CO3	3	3	3	3	2	0	0	0	0	0	2	0
CO4	2	2	0	2	2	0	0	0	0	0	1	0
CO5	1	2	0	0	1	0	0	0	0	0	1	0
CO6	2	2	0	0	2	0	0	0	0	0	1	0
CO PO Mapping	2.00	3.00	3.00	3.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00

Course Code	PSO1	PSO2
CO1	3	3
CO2	3	0
CO3	3	0
CO4	3	0
CO5	2	0
CO6	2	0
CO PO Mapping	3.0	3.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	GE3152/தமிழர் மரபு/Heritage of Tamils
Semester	I
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Discuss the Tamil language and literature.	K2
CO2	Explain about the modern art sculpture.	K2
CO3	Illustrate the folk and martial arts.	K3
CO4	Describe the Thinaï concepts of Tamil	K1
CO5	Summarize the contribution of Tamil in Indian culture.	K5
CO6	Define the role of siddha medicine.	K1

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	0	0	0	0	0	3	3	2	0	2	0	2
CO2	0	0	0	0	0	3	3	2	0	2	0	2
CO3	0	0	0	0	0	3	3	2	0	2	0	2
CO4	0	0	0	0	0	3	3	2	0	2	0	2
CO5	0	0	0	0	0	3	3	2	0	2	0	2
CO6	0	0	0	0	0	3	3	2	0	2	0	2
CO PO Mapping	0.00	0.00	0.00	0.00	0.00	3.00	3.00	2.00	0.00	2.00	0.00	2.00

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO6	0	0
CO PO Mapping	0.00	0.00

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	GE3171/Problem Solving and Python Programming Laboratory
Semester	I
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Develop algorithmic solutions to simple computational problems	K6
CO2	Develop and execute simple Python programs.	K6
CO3	Implement programs in Python using conditionals and loops for solving problems.	K3
CO4	Deploy functions to decompose a Python program.	K3
CO5	Process compound data using Python data structures.	K5
CO6	Utilize Python packages in developing software applications.	K3

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	2	0	0	0	0	0	2	2
CO2	3	3	3	3	2	0	0	0	0	0	2	2
CO3	3	3	3	3	2	0	0	0	0	0	2	0
CO4	2	2	0	2	2	0	0	0	0	0	1	0
CO5	1	2	0	0	1	0	0	0	0	0	1	0
CO6	2	2	0	0	2	0	0	0	0	0	1	0
CO PO Mapping	2.00	3.00	3.00	3.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00

Course Code	PSO1	PSO2
CO1	3	3
CO2	3	-
CO3	3	-
CO4	3	-
CO5	2	-
CO6	2	-
CO PO Mapping	3.0	3.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	BS3171/Physics Laboratory
Semester	I
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Understand the functioning of various physics laboratory equipment.	K2
CO2	Use graphical models to analyze laboratory data.	K3
CO3	Use Mathematical models as a medium for quantitative reasoning and describing physical reality.	K3
CO4	Access, process and analyze scientific information.	K4
CO5	Solve problems individually and collaboratively.	K3

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	3	1	1	0	0	0	0	0	0	0
CO2	3	3	2	1	1	0	0	0	0	0	0	0
CO3	3	2	3	1	1	0	0	0	0	0	0	0
CO4	3	3	2	1	1	0	0	0	0	0	0	0
CO5	3	2	3	1	1	0	0	0	0	0	0	0
CO PO Mapping	3.00	2.40	2.60	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.0	0.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	BS3171/ Chemistry Laboratory
Semester	I
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	To analyse the quality of water samples with respect to their acidity, alkalinity, hardness and DO.	K4
CO2	To determine the amount of metal ions through volumetric and spectroscopic techniques	K3
CO3	To analyse and determine the composition of alloys.	K4
CO4	To learn simple method of synthesis of nanoparticles.	K1
CO5	To quantitatively analyse the impurities in solution by electroanalytical techniques.	K4

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	0	1	0	0	2	2	0	0	0	0	2
CO2	3	1	2	0	0	1	2	0	0	0	0	1
CO3	3	2	1	1	0	0	1	0	0	0	0	0
CO4	2	1	2	0	0	2	2	0	0	0	0	0
CO5	2	1	2	0	1	2	2	0	0	0	0	1
CO PO Mapping	2.60	1.30	1.60	1.00	1.00	1.40	1.80	0.00	0.00	0.00	0.00	1.30

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.0	0.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	GE3172/English Laboratory
Semester	I
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Speak effectively in group discussion held in a formal /semi-formal context	K2
CO2	Discuss, analysis and present concepts and problems from various perspectives to arrive at suitable solutions	K4
CO3	Write emails, letters and effective job applications	K6
CO4	Write critical reports to convey data & information with clarity and precision	K6
CO5	Give appropriate instructions and recommendations for safe execution of talks	K2

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	1	3	3	3	3	3	3	3
CO2	3	3	3	3	1	3	3	3	3	3	3	3
CO3	3	3	3	3	1	3	3	3	3	3	3	3
CO4	3	3	3	3	1	3	3	3	3	3	3	3
CO5	3	3	3	3	1	3	3	3	3	3	3	3
CO PO Mapping	3.00	3.00	3.00	3.00	1.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.0	0.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	HS3252/Professional English - II
Semester	II
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Compare and contrast products and ideas in technical texts	K5
CO2	Identify and report cause and effects in events, industrial processes through technical texts	K3
CO3	Analyse problems in order to arrive at feasible solutions and communicate them in the written format	K4
CO4	Present their ideas and opinions in a planned and logical manner	K2
CO5	Draft effective resumes in the context of job search	K6

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	2	3	3	3
CO2	3	3	3	3	3	3	3	3	2	3	3	3
CO3	3	3	3	3	3	3	3	3	2	3	3	3
CO4	3	3	3	3	2	3	3	3	2	3	3	3
CO5	0	0	0	0	0	0	0	0	3	3	3	3
CO PO Mapping	3.00	3.00	3.00	3.00	2.75	3.00	3.00	3.00	2.20	3.00	3.00	3.00

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.0	0.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	MA3251/Statistics and Numerical Methods
Semester	II
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Apply the concept of testing of hypothesis for small and large samples in real life problems	K3
CO2	Apply the basic concepts of classifications of design of experiments in the field of agriculture.	K5
CO3	Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.	K3
CO4	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.	K2
CO5	Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.	K5

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	1	1	1	0	0	0	2	0	2	3
CO2	3	3	1	1	1	0	0	0	2	0	2	3
CO3	3	3	1	1	1	0	0	0	2	0	2	3
CO4	3	3	1	1	1	0	0	0	2	0	2	3
CO5	3	3	1	1	1	0	0	0	2	0	2	3
CO PO Mapping	3.00	3.00	1.00	1.00	1.00	0.00	0.00	0.00	2.00	0.00	2.00	3.00

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.0	0.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	PH3256 / PHYSICS FOR INFORMATION SCIENCE
Semester	II
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Gain knowledge on classical and quantum electron theories, and energy band structures.	K1
CO2	Acquire knowledge on basics of semiconductor physics and its applications in various devices.	K3
CO3	Get knowledge on magnetic properties of materials and their applications in data storage.	K1
CO4	Have the necessary understanding on the functioning of optical materials for electronics.	K2
CO5	Understand the basics of quantum structures and their applications and basics of quantum computing.	K2

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	1	0	0	0	0	0	0	0	0	0	0
CO2	3	1	2	0	0	0	0	0	0	0	0	0
CO3	3	0	0	1	2	1	1	0	0	0	0	0
CO4	3	0	2	1	3	0	1	0	0	0	0	0
CO5	3	2	2	2	2	1	2	0	0	0	0	2
CO PO Mapping	3.00	1.30	2.00	1.30	2.30	1.00	1.30	0.00	0.00	0.00	0.00	2.00

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.0	0.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	BE3251/Basic Electrical and Electronics Engineering
Semester	II
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Compute the electric circuit parameters for simple problems.	K2
CO2	Explain the working principle and applications of electrical machines.	K5
CO3	Analyze the characteristics of analog electronic devices.	K4
CO4	Explain the basic concepts of digital electronics.	K5
CO5	Explain the operating principles of measuring instruments.	K5

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	1	0	0	0	0	1	0	0	0	2
CO2	2	2	1	0	0	0	0	1	0	0	0	2
CO3	2	1	1	0	0	0	0	1	0	0	0	2
CO4	2	2	1	0	0	0	0	1	0	0	0	2
CO5	2	2	1	0	0	0	0	1	0	0	0	2
CO PO Mapping	2.00	1.80	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	2.00

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.0	0.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	GE3251/Engineering Graphics
Semester	II
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Use BIS conventions and specifications for engineering drawing.	K3
CO2	Construct the conic curves, involutes and cycloid.	K3
CO3	Solve practical problems involving projection of lines.	K3
CO4	Draw the orthographic, isometric and perspective projections of simple solids.	K1
CO5	Draw the development of simple solids.	K1

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	1	2	0	2	0	0	0	0	3	0	2
CO2	3	1	2	0	2	0	0	0	0	3	0	2
CO3	3	1	2	0	2	0	0	0	0	3	0	2
CO4	3	1	2	0	2	0	0	0	0	3	0	2
CO5	3	1	2	0	2	0	0	0	0	3	0	2
CO PO Mapping	3.00	1.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	3.00	0.00	2.00

Course Code	PSO1	PSO2
CO1	2	2
CO2	2	2
CO3	2	2
CO4	2	2
CO5	2	2
CO PO Mapping	2.0	2.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	GE3252/தமிழரும் ததொழில் ருட்பமும் / Tamils and Technology
Semester	II
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Explain about the weaving and pottery technology in Tamil Nadu	K5
CO2	Describe about the design and construction technology in Tamil Nadu	K2
CO3	Discuss about the manufacturing technology in Tamil Nadu.	K2
CO4	Illustrate the agriculture and irrigation technology in Tamil Nadu	K4
CO5	Define the growth of science in Tamil.	K1
CO6	Learn the contribution of the Tamils to Indian culture.	K1

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	0	0	0	0	0	3	3	2	0	2	0	2
CO2	0	0	0	0	0	3	3	2	0	2	0	2
CO3	0	0	0	0	0	3	3	2	0	2	0	2
CO4	0	0	0	0	0	3	3	2	0	2	0	2
CO5	0	0	0	0	0	3	3	2	0	2	0	2
CO6	0	0	0	0	0	3	3	2	0	2	0	2
CO PO Mapping	0.00	0.00	0.00	0.00	0.00	3.00	3.00	2.00	0.00	2.00	0.00	2.00

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO6	0	0
CO PO Mapping	0.0	0.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	AD3251 / DATA STRUCTURES DESIGN
Semester	II
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		BTL'S
CO1	Explain abstract data types	K2
CO2	Design, implement, and analyse linear data structures, such as lists, queues, and stacks, according to the needs of different applications	K6
CO3	Design, implement, and analyse efficient tree structures to meet requirements such as searching, indexing, and sorting	K6
CO4	Model problems as graph problems and implement efficient graph algorithms to solve them	K3

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	1	2	2	1	1	0	1	2	1	3
CO2	1	2	1	2	2	0	0	0	1	1	1	2
CO3	2	3	1	2	3	0	0	0	1	1	1	2
CO4	2	1	0	1	1	0	0	0	2	1	1	2
CO5	1	2	1	2	2	1	1	0	1	2	1	3
CO PO Mapping	2.00	2.00	1.00	2.00	2.00	1.00	1.00	0.00	1.00	1.00	1.00	2.00

Course Code	PSO1	PSO2
CO1	2	1
CO2	2	2
CO3	2	1
CO4	2	3
CO5	2	2
CO PO Mapping	2.0	2.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	GE3271/Engineering Practices Laboratory
Semester	II
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Draw pipe line plan; lay and connect various pipe fittings used in common household plumbing work; Saw; plan; make joints in wood materials used in common household wood work.	K1
CO2	Wire various electrical joints in common household electrical wire work.	K5
CO3	Weld various joints in steel plates using arc welding work; Machine various simple processes like turning, drilling, tapping in parts; Assemble simple mechanical assembly of common household equipment's; Make a tray out of metal sheet using sheet metal work.	K2
CO4	Solder and test simple electronic circuits; Assemble and test simple electronic components on PCB.	K3

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	0	0	1	1	1	0	0	0	0	2
CO2	3	2	0	0	1	1	1	0	0	0	0	2
CO3	3	2	0	0	1	1	1	0	0	0	0	2
CO4	3	2	0	0	1	1	1	0	0	0	0	2
CO PO Mapping	3.00	2.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	2.00

Course Code	PSO1	PSO2
CO1	2	1
CO2	2	1
CO3	2	1
CO4	2	1
CO PO Mapping	2.0	1.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	AD3271 / DATA STRUCTURES DESIGN LABORATORY
Semester	II
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Implement ADTs as Python classes	K3
CO2	Design, implement, and analyse linear data structures, such as lists, queues, and stacks, according to the needs of different applications	K6
CO3	Design, implement, and analyse efficient tree structures to meet requirements such as searching, indexing, and sorting	K6
CO4	Model problems as graph problems and implement efficient graph algorithms to solve them	K3

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	1	0	0	0	0	1	3	3	3
CO2	3	2	2	3	1	0	0	0	3	1	3	2
CO3	3	2	1	3	1	0	0	0	2	1	1	1
CO4	2	3	1	3	0	0	0	0	2	3	2	3
CO5	1	2	3	1	1	0	0	0	2	1	3	1
CO PO Mapping	2.00	2.00	2.00	2.00	1.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00

Course Code	PSO1	PSO2
CO1	1	3
CO2	1	3
CO3	3	2
CO4	3	3
CO5	1	3
CO PO Mapping	2.0	3.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	GE3272/ COMMUNICATION LABORATORY
Semester	II
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Speak effectively in group discussions held in a formal/semi-formal contexts.	K2
CO2	Discuss, analyse and present concepts and problems from various perspectives to arrive at suitable solutions	K4
CO3	Write emails, letters and effective job applications.	K6
CO4	Write critical reports to convey data and information with clarity and precision	K6
CO5	Give appropriate instructions and recommendations for safe execution of tasks	K2

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	3	3	1	3	3	3	3	3	3	3
CO2	2	3	3	3	1	3	3	3	3	3	3	3
CO3	2	2	3	3	1	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3	3
CO PO Mapping	2.40	2.80	3.00	3.00	1.80	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.0	0.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	MA3354/Discrete Mathematics
Semester	III
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Have knowledge of the concepts needed to test the logic of a program.	K1
CO2	Have an understanding in identifying structures on many levels.	K2
CO3	Be aware of a class of functions which transform a finite set into another finite set which relates to input and output functions in computer science.	K4
CO4	Be aware of the counting principles.	K2
CO5	Be exposed to concepts and properties of algebraic structures such as groups, rings and fields.	K2

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	0	0	0	0	0	0	0	0	2
CO2	3	3	0	0	0	0	0	0	0	0	0	0
CO3	0	3	2	0	0	2	0	0	0	3	0	0
CO4	0	2	2	2	0	0	0	0	0	0	0	0
CO5	0	2	2	2	0	0	0	0	0	2	0	0
CO PO Mapping	1.00	3.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.0	0.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	CS3351/ Digital Principles and Computer Organization
Semester	III
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Design various combinational digital circuits using logic gates	K6
CO2	Design sequential circuits and analyze the design procedures	K6
CO3	State the fundamentals of computer systems and analyze the execution of an instruction	K4
CO4	Analyze different types of control design and identify hazards	K4
CO5	Identify the characteristics of various memory systems and I/O communication.	K4

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	2	1	1	1	1	2	3
CO2	3	3	3	3	2	1	1	1	1	1	2	3
CO3	3	3	3	3	2	2	1	1	1	1	2	3
CO4	3	3	3	3	1	1	1	1	1	1	1	2
CO5	3	3	3	3	1	2	1	1	1	1	1	2
CO PO Mapping	3.00	3.00	3.00	3.00	1.80	1.60	1.00	1.00	1.00	1.00	1.60	2.60

Course Code	PSO1	PSO2
CO1	2	3
CO2	1	2
CO3	2	3
CO4	1	3
CO5	1	2
CO PO Mapping	1.4	2.6

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	AD3391/ DATABASE DESIGN AND MANAGEMENT
Semester	III
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Define the data science process.	K1
CO2	Understand different types of data description for data science process	K2
CO3	Gain Knowledge on relationships between data.	K2
CO4	Use the python Libraries for Data Warehousing	K3
CO5	Apply visualization Libraries in Python to interpret and explore data.	K3

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	3	3	0	0	0	0	3	1	2	1
CO2	2	3	1	3	1	0	0	0	1	2	2	1
CO3	2	2	2	1	1	0	0	0	2	3	1	2
CO4	2	2	3	1	0	0	0	0	1	2	1	2
CO5	3	1	3	2	1	0	0	0	1	3	1	1
CO PO Mapping	2.00	2.00	2.00	2.00	1.00	0.00	0.00	0.00	2.00	2.00	1.00	1.00

Course Code	PSO1	PSO2
CO1	2	3
CO2	3	3
CO3	1	1
CO4	2	2
CO5	2	1
CO PO Mapping	2.0	2.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course	AD3351 / DESIGN AND ANALYSIS OF ALGORITHMS
Semester	III
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Analyze the efficiency of recursive and non-recursive algorithms mathematically	K4
CO2	Analyze the efficiency of brute force, divide and conquer, decrease and conquer, Transform and conquer algorithmic techniques	K4
CO3	Implement and analyze the problems using dynamic programming and greedy algorithmic techniques	K4
CO4	Solve the problems using iterative improvement techniques for optimization.	K3
CO5	Compute the limitations of algorithmic power and solve the problems using backtracking and branch and bound techniques.	K2

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	1	1	0	0	0	1	1	2	2
CO2	2	1	1	3	2	0	0	0	2	2	1	2
CO3	3	2	1	2	2	0	0	0	2	1	1	2
CO4	3	2	3	2	2	0	0	0	3	3	3	2
CO5	3	1	2	3	3	0	0	0	2	2	2	2
CO PO Mapping	3.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00

Course Code	PSO1	PSO2
CO1	3	2
CO2	2	2
CO3	1	3
CO4	2	1
CO5	3	1
CO PO Mapping	2.0	2.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course	AD3301 / DATA EXPLORATION AND VISUALIZATION
Semester	III
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Understand the fundamentals of exploratory data analysis.	K2
CO2	Implement the data visualization using Matplotlib.	K5
CO3	Perform univariate data exploration and analysis.	K4
CO4	Apply bivariate data exploration and analysis.	K3
CO5	Use Data exploration and visualization techniques for multivariate and time series data.	K3

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	1	3	3	0	0	0	0	2	3	3	3
CO2	2	2	2	1	1	0	0	0	3	2	3	1
CO3	2	1	2	1	1	0	0	0	3	2	1	2
CO4	2	2	2	1	-	0	0	0	1	2	1	3
CO5	3	1	1	2	1	0	0	0	3	2	1	2
CO PO Mapping	2.00	1.00	2.00	2.00	1.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00

Course Code	PSO1	PSO2
CO1	2	2
CO2	3	1
CO3	2	2
CO4	1	3
CO5	2	2
CO PO Mapping	2.0	2.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	AL3391 / ARTIFICIAL INTELLIGENCE
Semester	III
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Make use of the python libraries for data science	K3
CO2	Make use of the basic Statistical and Probability measures for data science.	K3
CO3	Perform descriptive analytics on the benchmark data sets.	K4
CO4	Perform correlation and regression analytics on standard data sets	K4
CO5	Present and interpret data using visualization packages in Python	K2

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	1	3	3	0	0	0	0	2	3	3	1
CO2	2	2	1	1	1	0	0	0	2	2	3	1
CO3	2	1	2	1	-	0	0	0	2	1	1	3
CO4	2	1	2	2	-	0	0	0	2	1	2	2
CO5	3	2	2	1	1	0	0	0	3	2	1	2
CO PO Mapping	2.00	1.00	2.00	2.00	1.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00

Course Code	PSO1	PSO2
CO1	2	1
CO2	3	2
CO3	1	2
CO4	1	3
CO5	2	2
CO PO Mapping	2.0	2.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	AD3381 / DATABASE DESIGN AND MANAGEMENT LABORATORY
Semester	III
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Understand the database development life cycle	K2
CO2	Design relational database using conceptual-to-relational mapping, Normalization	K6
CO3	Apply SQL for creation, manipulation and retrieval of data	K4
CO4	Develop a database applications for real-time problems	K6
CO5	Design and query object-relational databases	K6

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	1	3	3	0	0	0	0	1	1	1	3
CO2	2	2	1	3	1	0	0	0	3	2	3	1
CO3	2	1	3	1	-	0	0	0	3	3	1	1
CO4	2	2	3	1	-	0	0	0	2	3	2	1
CO5	3	3	1	3	1	0	0	0	1	3	2	3
CO PO Mapping	2.00	2.00	2.00	2.00	1.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00

Course Code	PSO1	PSO2
CO1	2	2
CO2	1	1
CO3	2	1
CO4	2	1
CO5	3	3
CO PO Mapping	2.0	2.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	AD3311 / ARTIFICIAL INTELLIGENCE LABORATORY
Semester	III
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Design and implement search strategies	K3
CO2	Implement game playing and CSP techniques	K3
CO3	Develop logical reasoning systems	K4
CO4	Develop probabilistic reasoning systems	K4

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	1	3	3	0	0	0	0	1	1	2	1
CO2	1	2	3	3	2	0	0	0	3	2	3	3
CO3	3	1	3	3	1	0	0	0	1	3	1	2
CO4	2	1	1	1	1	0	0	0	2	3	1	2
CO PO Mapping	2.00	1.00	2.00	2.00	1.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00

Course Code	PSO1	PSO2
CO1	3	2
CO2	3	3
CO3	1	1
CO4	2	2
CO5	3	3
CO PO Mapping	2.0	2.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	GE3361/Professional Development\$
Semester	III
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Use MS Word to create quality documents, by structuring and organizing content for their day to day technical and academic requirements	K6
CO2	Use MS EXCEL to perform data operations and analytics, record, retrieve data as per requirements and visualize data for ease of understanding	K6
CO3	Use MS PowerPoint to create high quality academic presentations by including common tables, charts, graphs, interlinking other elements, and using media objects	K6

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	0	0	0	0	3	0	0	0	0	2	0	2
CO2	0	0	0	0	3	0	0	0	0	2	0	2
CO3	0	0	0	0	3	0	0	0	0	2	0	2
CO PO Mapping	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00

Course Code	PSO1	PSO2
CO1	0	3
CO2	0	3
CO3	0	3
CO PO Mapping	0.00	3.00

1	Slight	2	Moderate	3	Substantial
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Course Code / Course	MA3391 / PROBABILITY AND STATISTICS
Semester	IV
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon.	K2
CO2	Understand the basic concepts of one and two dimensional random variables and apply in engineering applications.	K2
CO3	Apply the concept of testing of hypothesis for small and large samples in real life problems.	K3
CO4	Apply the basic concepts of classifications of design of experiments in the field of agriculture and statistical quality control.	K3
CO5	Have the notion of sampling distributions and statistical techniques used in engineering and management problems.	K2

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	0	0	0	0	0	0	2	0	0	2
CO2	3	3	0	0	0	0	0	0	2	0	0	2
CO3	3	3	0	0	0	0	0	0	2	0	0	2
CO4	3	3	3	2	0	0	0	0	2	0	0	2
CO5	3	3	2	2	0	0	0	0	2	0	0	2
CO PO Mapping	3.00	3.00	1.00	1.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.00	0.00

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	AL3452 / OPERATING SYSTEMS
Semester	IV
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Analyze various scheduling algorithms and process synchronization.	K4
CO2	Explain deadlock, prevention and avoidance algorithms.	K2
CO3	Compare and contrast various memory management schemes.	K2
CO4	Explain the functionality of file systems I/O systems, and Virtualization	K2
CO5	Compare iOS and Android Operating Systems.	K2

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	1	1	1	0	0	0	0	1	1	1	2
CO2	2	3	1	3	1	0	0	0	3	2	2	3
CO3	2	2	3	3	2	0	0	0	3	1	1	2
CO4	2	2	1	2	1	0	0	0	1	3	2	1
CO5	2	3	3	2	1	0	0	0	3	1	2	1
CO PO Mapping	2.00	2.00	2.00	2.00	1.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00

Course Code	PSO1	PSO2
CO1	2	1
CO2	3	3
CO3	1	1
CO4	1	1
CO5	3	1
CO PO Mapping	2.0	1.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	AL3451 / MACHINE LEARNING
Semester	IV
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Explain the basic concepts of machine learning.	K2
CO2	Construct supervised learning models.	K5
CO3	Construct unsupervised learning algorithms.	K5
CO4	Evaluate and compare different models	K5

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	1	2	1	0	0	0	0	3	3	2	2
CO2	1	3	3	1	2	0	0	0	2	2	2	1
CO3	2	1	3	3	2	0	0	0	1	1	1	1
CO4	2	3	3	2	1	0	0	0	3	2	3	2
CO5	1	1	3	3	1	0	0	0	3	1	1	3
CO PO Mapping	2.00	2.00	3.00	2.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00

Course Code	PSO1	PSO2
CO1	2	2
CO2	3	1
CO3	1	2
CO4	1	2
CO5	3	3
CO PO Mapping	2.0	2.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	AD3491/ FUNDAMENTALS OF DATA SCIENCE AND ANALYTICS
Semester	IV
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Explain the data analytics pipeline	K2
CO2	Describe and visualize data	K2
CO3	Perform statistical inferences from data	K5
CO4	Analyze the variance in the data	K4
CO5	Build models for predictive analytics	K4

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	1	2	1	-	-	-	-	3	1	3	2
CO2	1	1	2	2	2	-	-	-	2	2	3	2
CO3	1	1	3	1	1	-	-	-	2	3	1	1
CO4	2	3	1	3	1	-	-	-	3	3	3	3
CO5	2	1	1	1	2	-	-	-	3	3	1	3
CO PO Mapping	1.00	1.00	2.00	2.00	2.00	0.00	0.00	0.00	3.00	2.00	2.00	2.00

Course Code	PSO1	PSO2
CO1	0	1
CO2	0	1
CO3	0	1
CO4	0	0
CO5	0	0
CO PO Mapping	0.00	1.00

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	CS3591 / COMPUTER NETWORKS
Semester	IV
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Explain the basic layers and its functions in computer networks.	K2
CO2	Understand the basics of how data flows from one node to another.	K2
CO3	Analyze routing algorithms.	K4
CO4	Describe protocols for various functions in the network.	K2
CO5	Analyze the working of various application layer protocols.	K4

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	1	2	3	-	-	-	-	1	1	3	1
CO2	3	2	1	2	2	-	-	-	2	2	2	1
CO3	2	2	3	2	1	-	-	-	3	3	1	2
CO4	1	3	1	3	1	-	-	-	1	2	1	1
CO5	3	3	1	1	2	-	-	-	2	2	2	2
CO PO Mapping	2.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00	1.00

Course Code	PSO1	PSO2
CO1	3	2
CO2	3	2
CO3	1	1
CO4	1	3
CO5	2	2
CO PO Mapping	2.0	2.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	GE3451/Environmental Sciences and Sustainability
Semester	IV
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	To recognize and understand the functions of environment, ecosystems and biodiversity and their conservation	K2
CO2	To identify the causes, effects of environmental pollution and natural disasters and contribute to the preventive measures in the society	K4
CO3	To identify and apply the understanding of renewable and non-renewable resources and contribute to the sustainable measures to preserve them for future generations	K3
CO4	To recognize the different goals of sustainable development and apply them for suitable technological advancement and societal development.	K3
CO5	To demonstrate the knowledge of sustainability practices and identify green materials, energy cycles and the role of sustainable urbanization	K3

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	1	0	0	0	2	3	0	0	0	0	2
CO2	3	2	0	0	0	3	3	0	0	0	0	2
CO3	3	0	1	0	0	2	2	0	0	0	0	2
CO4	3	2	1	1	0	2	2	0	0	0	0	2
CO5	3	2	1	0	0	2	2	0	0	0	0	1
CO PO Mapping	2.80	1.80	1.00	1.00	0.00	2.20	2.40	0.00	0.00	0.00	0.00	1.80

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.0	0.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	AD3411 / DATA SCIENCE AND ANALYTICS LABORATORY
Semester	IV
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Write python programs to handle data using Numpy and Pandas	K6
CO2	Perform descriptive analytics	K4
CO3	Perform data exploration using Matplotlib	K4
CO4	Perform inferential data analytics	K4
CO5	Build models of predictive analytics	K4

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	2	3	0	0	0	0	2	2	3	3
CO2	1	2	1	2	2	0	0	0	1	2	3	1
CO3	2	2	2	2	2	0	0	0	3	1	1	2
CO4	2	3	1	3	2	0	0	0	2	3	1	2
CO5	3	1	1	1	2	0	0	0	1	2	2	3
CO PO Mapping	2.00	2.00	1.00	2.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00

Course Code	PSO1	PSO2
CO1	3	2
CO2	3	2
CO3	2	3
CO4	2	1
CO5	2	2
CO PO Mapping	2.0	2.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	AD3461 / MACHINE LEARNING LABORATORY
Semester	IV
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Apply suitable algorithms for selecting the appropriate features for analysis.	K3
CO2	Implement supervised machine learning algorithms on standard datasets and evaluate the performance.	K3
CO3	Apply unsupervised machine learning algorithms on standard datasets and evaluate the performance.	K3
CO4	Build the graph based learning models for standard data sets.	K2
CO5	Assess and compare the performance of different ML algorithms and select the suitable one based on the application.	K2

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	2	1	0	0	0	0	1	2	3	3
CO2	2	1	1	3	2	0	0	0	3	2	3	2
CO3	2	2	1	1	2	0	0	0	1	1	1	1
CO4	2	2	3	3	2	0	0	0	1	2	1	1
CO5	2	2	3	1	2	0	0	0	3	1	1	1
CO PO Mapping	2.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00

Course Code	PSO1	PSO2
CO1	3	2
CO2	3	1
CO3	2	3
CO4	1	2
CO5	2	1
CO PO Mapping	2.0	2.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	AD3501/ DEEP LEARNING
Semester	V
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Explain the basics in deep neural networks	K2
CO2	Apply Convolution Neural Network for image processing	K3
CO3	Apply Recurrent Neural Network and its variants for text analysis	K3
CO4	Apply model evaluation for various applications	K3
CO5	Apply autoencoders and generative models for suitable applications	K3

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	3	1	-	-	-	2	3	1	2
CO2	2	2	2	3	3	-	-	-	1	2	2	3
CO3	3	3	3	3	3	-	-	-	2	1	1	2
CO4	3	3	1	1	1	-	-	-	1	3	1	3
CO5	3	2	2	2	3	-	-	-	2	3	2	2
CO PO Mapping	2.80	2.40	2.00	2.40	2.20	0.00	0.00	0.00	1.60	2.40	1.40	2.40

Course Code	PSO1	PSO2
CO1	3	3
CO2	1	1
CO3	2	1
CO4	2	1
CO5	2	3
CO PO Mapping	2.00	1.80

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	CW3551/ DATA AND INFORMATION SECURITY
Semester	V
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Understand the basics of data and information security	K2
CO2	Understand the legal, ethical and professional issues in information security	K2
CO3	Understand the various authentication schemes to simulate different applications.	K2
CO4	Understand various security practices and system security standards	K2
CO5	Understand the Web security protocols for E-Commerce applications	K2

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	3	1	0	0	0	0	1	3	1	2
CO2	1	3	3	3	2	0	0	0	1	2	2	2
CO3	2	3	3	3	1	0	0	0	1	3	1	2
CO4	3	3	1	1	1	0	0	0	3	1	1	3
CO5	3	2	2	3	2	0	0	0	1	2	1	2
CO PO Mapping	2.40	2.60	2.40	2.20	1.50	0.00	0.00	0.00	1.40	2.20	1.20	2.20

Course Code	PSO1	PSO2
CO1	3	1
CO2	1	2
CO3	1	2
CO4	2	3
CO5	2	2
CO PO Mapping	1.8	2.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	CCS334 / BIG DATA ANALYTICS
Semester	V
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		BTL'S
CO1	Describe big data and use cases from selected business domains.	K2
CO2	Explain NoSQL big data management.	K2
CO3	Install, configure, and run Hadoop and HDFS.	K1
CO4	Perform map-reduce analytics using Hadoop.	K3
CO5	Use Hadoop-related tools such as HBase, Cassandra, Pig, and Hive for big data analytics.	K3

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	0	0	0	2	2	3	1
CO2	3	3	2	3	2	0	0	0	2	2	3	3
CO3	3	3	3	2	3	0	0	0	2	2	1	2
CO4	2	3	3	3	3	0	0	0	2	2	3	2
CO5	3	3	3	3	3	0	0	0	3	1	3	2
CO PO Mapping	2.80	3.00	2.80	2.80	2.80	0.00	0.00	0.00	2.20	1.80	2.60	2.00

Course Code	PSO1	PSO2
CO1	1	3
CO2	2	3
CO3	2	3
CO4	3	3
CO5	3	2
CO PO Mapping	2.2	2.8

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	CCS336/ CLOUD SERVICES MANAGEMENT
Semester	V
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Exhibit cloud-design skills to build and automate business solutions using cloud technologies	K3
CO2	Possess Strong theoretical foundation leading to excellence and excitement towards adoption of cloud-based services	K2
CO3	Solve the real world problems using Cloud services and technologies	K3

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	1	1	1	0	0	0	2	1	3	2
CO2	3	1	2	3	2	0	0	0	1	2	3	1
CO3	1	1	3	1	3	0	0	0	3	3	1	1
CO4	1	1	1	2	3	0	0	0	2	3	3	1
CO5	1	3	3	2	2	0	0	0	1	3	1	2
CO PO Mapping	1.80	1.80	2.00	1.80	2.20	0.00	0.00	0.00	1.80	2.40	2.20	1.40

Course Code	PSO1	PSO2
CO1	2	1
CO2	2	2
CO3	3	2
CO4	1	1
CO5	1	3
CO PO Mapping	1.8	1.8

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	CCS334/ BIG DATA ANALYTICS
Semester	V
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Describe big data and use cases from selected business domains..	K2
CO2	Explain NoSQL big data management	K5
CO3	Install, configure, and run Hadoop and HDFS.	K2
CO4	Perform map0reduce analytics using Hadoop.	K3
CO5	Use Hadoop related tools such as HBase, Cassandra, Pig, and Hive for big data analytics.	K3

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	0	0	0	2	2	3	1
CO2	3	3	2	3	2	0	0	0	2	2	3	3
CO3	3	3	3	2	3	0	0	0	2	2	1	2
CO4	2	3	3	3	3	0	0	0	2	2	3	2
CO5	3	3	3	3	3	0	0	0	3	1	3	2
CO PO Mapping	2.80	3.00	2.80	2.80	2.80	0.00	0.00	0.00	2.20	1.80	2.60	2.00

Course Code	PSO1	PSO2
CO1	1	3
CO2	2	3
CO3	2	3
CO4	3	3
CO5	3	2
CO PO Mapping	2.2	2.8

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	CCS336/ CLOUD SERVICES MANAGEMENT
Semester	VI
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Exhibit cloud design skills to build and automate business solutions using cloud technologies.	K4
CO2	Possess Strong theoretical foundation leading to excellence and excitement towards adoption of cloud based services	K5
CO2	Exhibit cloud design skills to build and automate business solutions using cloud technologies	K4
CO2	Possess Strong theoretical foundation leading to excellence and excitement towards adoption of cloud based services	K5
CO3	Solve the real world problems using Cloud services and technologies	K3

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	1	1	1	0	0	0	2	1	3	2
CO2	3	1	2	3	2	0	0	0	1	2	3	1
CO3	1	1	3	1	3	0	0	0	3	3	1	1
CO4	1	1	1	2	3	0	0	0	2	3	3	1
CO5	1	3	3	2	2	0	0	0	1	3	1	2
CO PO Mapping	1.80	1.80	2.00	1.80	2.20	0.00	0.00	0.00	1.80	2.40	2.20	1.40

Course Code	PSO1	PSO2
CO1	2	1
CO2	2	2
CO3	3	2
CO4	1	1
CO5	1	3
CO PO Mapping	2.0	1.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	CCS352/ MULTIMEDIA AND ANIMATION
Semester	V
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Get the bigger picture of the context of Multimedia and its applications	K2
CO2	Use the different types of media elements of different formats on content pages	K3
CO3	Author 2D and 3D creative and interactive presentations for different target multimedia applications.	K6
CO4	Use different standard animation techniques for 2D, 2 1/2 D, 3D applications	K3
CO5	Understand the complexity of multimedia applications in the context of cloud, security, big data streaming, social networking, CBIR etc.,	K2
CO1	Get the bigger picture of the context of Multimedia and its applications	K2

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	3	2	3	0	0	0	3	2	1	2
CO2	3	3	3	3	3	0	0	0	3	3	2	2
CO3	3	3	3	3	3	0	0	0	3	3	2	3
CO4	3	3	3	3	3	2	0	0	3	3	3	3
CO5	3	3	3	3	3	2	0	0	3	3	3	3
CO PO Mapping	3.00	2.80	3.00	2.80	3.00	2.00	0.00	0.00	3.00	2.80	2.20	2.60

Course Code	PSO1	PSO2
CO1	3	2
CO2	3	2
CO3	3	2
CO4	3	3
CO5	3	3
CO PO Mapping	3.0	2.4

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	MX3084 / DISASTER RISK REDUCTION AND MANAGEMENT
Semester	VI
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	To impart knowledge on the concepts of Disaster, Vulnerability and Disaster Risk reduction(DRR)	K1
CO2	To enhance understanding on Hazards, Vulnerability and Disaster Risk Assessment prevention and risk reduction	K6
CO3	To develop disaster response skills by adopting relevant tools and technology	K6
CO4	Enhance awareness of institutional processes for Disaster response in the country	K6
CO5	Develop rudimentary ability to respond to their surroundings with potential Disaster response in areas where they live, with due sensitivity	K6

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	3	0	0	2	2	0	0	2	0
CO2	3	3	3	3	0	0	2	1	0	0	2	0
CO3	3	3	3	3	0	0	2	2	0	0	0	0
CO4	3	3	2	3	0	0	2	1	0	0	2	0
CO5	3	3	2	3	0	0	2	2	0	0	2	0
CO PO Mapping	3.00	3.00	2.00	3.00	0.00	0.00	2.00	2.00	0.00	0.00	2.00	0.00

Course Code	PSO1	PSO2
CO1	2	0
CO2	2	0
CO3	2	0
CO4	2	0
CO5	3	0
CO PO Mapping	2.0	0.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	AD3511 /DEEP LEARNING LABORATORY
Semester	VI
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Apply deep neural network for simple problems (K3)	K3
CO2	Apply Convolution Neural Network for image processing (K3)	K3
CO3	Apply Recurrent Neural Network and its variants for text analysis (K3)	K3
CO4	Apply generative models for data augmentation (K3)	K3
CO5	Develop real-world solutions using suitable deep neural networks (K4)	K6

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	1	1	0	0	0	3	2	3	2
CO2	1	3	2	2	2	0	0	0	3	2	2	2
CO3	3	2	1	2	1	0	0	0	2	3	1	1
CO4	3	3	1	2	1	0	0	0	1	3	2	2
CO5	3	3	3	3	2	0	0	0	1	2	3	1
CO PO Mapping	2.60	2.60	1.60	2.00	1.40	0.00	0.00	0.00	2.00	2.40	2.20	1.60

Course Code	PSO1	PSO2
CO1	3	3
CO2	1	3
CO3	2	3
CO4	3	2
CO5	3	3
CO PO Mapping	2.4	2.8

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	AD3512/ SUMMER INTERNSHIP
Semester	VI
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Understand the organogram of the industry and appreciate the skill enhancement	K2
CO2	Write an effective mini-project or internship report	K6
CO3	Deliver an effective presentation	K6
CO4	Inculcate non-plagiarism and teamwork ethics	K5
CO5	Understand the organogram of the industry and appreciate the skill enhancement	K2

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	0	0	3	3	3	0	3
CO2	1	3	3	3	3	0	0	3	3	3	0	3
CO3	1	3	3	3	3	0	0	3	3	3	0	3
CO4	1	3	3	3	3	0	0	3	3	3	0	3
CO5	1	3	3	3	3	0	0	3	3	3	0	3
CO PO Mapping	1.50	3.00	3.00	3.00	3.00	0.00	0.00	3.00	3.00	3.00	0.00	3.00

Course Code	PSO1	PSO2
CO1	3	3
CO2	1	3
CO3	1	3
CO4	1	3
CO5	1	3
CO PO Mapping	1.50	3.00

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	EMBEDDED SYSTEMS AND IOT
Semester	VI
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Explain the architecture of embedded processors.	K2
CO2	Write embedded C programs.	K6
CO3	Design simple embedded applications.	K6
CO4	Compare the communication models in IOT	K2
CO5	Design IoT applications using Arduino/Raspberry Pi /open platform.	K6

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	1	1	3	1	-	-	-	3	1	2	3
CO2	2	3	1	3	2	-	-	-	1	2	3	1
CO3	2	2	3	2	3	-	-	-	1	3	1	1
CO4	2	2	2	1	1	-	-	-	1	3	1	1
CO5	3	2	1	1	3	-	-	-	3	2	3	2
CO PO Mapping	2.40	2.00	1.60	2.00	2.00	0.00	0.00	0.00	1.80	2.20	2.00	1.60

Course Code	PSO1	PSO2
CO1	2	1
CO2	1	1
CO3	2	1
CO4	2	2
CO5	1	3
CO PO Mapping	1.6	1.6

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	INTRODUCTION TO INDUSTRIAL ENGINEERING
Semester	VI
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Ability To define the concepts of productivity and productivity measurement approaches.	K4
CO2	Ability to evaluate appropriate location models for various facility types and design various facility layouts	K4
CO3	Ability To conduct a method study and time study to improve the efficiency of the system.	K4
CO4	Ability to Control the quality of processes using control charts in manufacturing/service industries.	K4
CO5	Ability to define the Planning strategies and Material Requirement Plan.	K4

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	0	0	0	0	0	0	0	0	0	0	1
CO2	2	2	3	2	0	0	0	0	0	0	0	0
CO3	2	2	2	1	1	0	0	2	0	0	1	0
CO4	2	2	3	1	1	0	0	0	0	0	0	0
CO5	1	2	2	0	0	0	0	0	0	0	0	1
CO PO Mapping	2.20	2.00	2.50	1.30	1.00	0.00	0.00	2.00	0.00	0.00	1.00	1.00

Course Code	PSO1	PSO2
CO1	0	1
CO2	0	0
CO3	2	0
CO4	0	0
CO5	0	0
CO PO Mapping	2.0	1.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	CCS335 / CLOUD COMPUTING
Semester	VI
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Understand the design challenges in the cloud.	K2
CO2	Apply the concept of virtualization and its types.	K3
CO3	Experiment with virtualization of hardware resources and Docker.	K6
CO4	Develop and deploy services on the cloud and set up a cloud environment.	K6
CO5	Explain security challenges in the cloud environment.	K2

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	1	1	-	-	-	2	3	1	3
CO2	3	1	2	2	1	-	-	-	1	2	1	3
CO3	2	3	2	3	1	-	-	-	3	1	1	3
CO4	1	2	3	3	3	-	-	-	3	3	1	2
CO5	2	3	3	1	3	-	-	-	2	2	1	2
CO PO Mapping	2.20	2.20	2.20	2.00	1.80	0.00	0.00	0.00	2.20	2.20	1.00	2.60

Course Code	PSO1	PSO2
CO1	3	2
CO2	2	2
CO3	1	2
CO4	2	2
CO5	1	1
CO PO Mapping	1.8	1.8

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	CCS341 / DATA WAREHOUSING
Semester	VI
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Design data warehouse architecture for various Problems	K6
CO2	Apply the OLAP Technology	K3
CO3	Analyse the partitioning strategy	K4
CO4	Critically analyze the differentiation of various schema for given problem	K4
CO5	Frame roles of process manager & system manager	K1

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	2	2	0	0	0	3	0	0	3
CO2	3	2	2	2	3	0	0	0	2	0	2	2
CO3	3	3	3	3	0	0	0	0	0	0	0	3
CO4	3	3	3	3	0	0	0	0	0	0	0	3
CO5	3	2	2	2	0	2	0	0	0	0	2	2
CO PO Mapping	3.00	2.60	2.60	1.20	2.50	1.00	0.00	0.00	2.50	0.00	2.00	2.60

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.0	0.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	CCS354 / NETWORK SECURITY
Semester	VI
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Classify the encryption techniques	K2
CO2	Illustrate the key management technique and authentication.	K3
CO3	Evaluate the security techniques applied to network and transport layer	K5
CO4	Discuss the application layer security standards.	K2
CO5	Apply security practices for real time applications.	K3

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	2	0	0	0	2	1	2	1
CO2	1	1	3	2	2	0	0	0	2	2	1	1
CO3	1	2	1	1	2	0	0	0	3	3	1	3
CO4	2	2	3	2	3	0	0	0	3	3	2	1
CO5	2	1	3	2	2	0	0	0	2	1	1	3
CO PO Mapping	1.80	1.80	2.40	1.80	2.20	0.00	0.00	0.00	2.40	2.00	1.40	1.80

Course Code	PSO1	PSO2
CO1	2	3
CO2	3	1
CO3	2	1
CO4	2	1
CO5	2	1
CO PO Mapping	2.2	1.4

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	CCS340 / CYBER SECURITY
Semester	VI
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Explain the basics of cyber security, cyber crime and cyber law (K2)	K2
CO2	Classify various types of attacks and learn the tools to launch the attacks (K2)	K2
CO3	Apply various tools to perform information gathering (K3)	K3
CO4	Apply intrusion techniques to detect intrusion (K3)	K3
CO5	Apply intrusion prevention techniques to prevent intrusion (K3)	K3

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	1	2	2	-	-	-	1	1	3	2
CO2	2	1	2	2	2	-	-	-	3	2	2	1
CO3	1	1	1	3	3	-	-	-	1	2	1	1
CO4	1	1	1	2	2	-	-	-	2	3	3	3
CO5	3	1	3	1	3	-	-	-	3	1	2	2
CO PO Mapping	2.00	1.40	1.60	2.00	2.40	0.00	0.00	0.00	2.00	1.80	2.20	1.80

Course Code	PSO1	PSO2
CO1	1	3
CO2	1	2
CO3	3	3
CO4	3	1
CO5	2	2
CO PO Mapping	2.0	2.2

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	MX3089 / INDUSTRIAL SAFETY
Semester	VI
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Understand the basic concept of safety.	K2
CO2	Obtain knowledge of Statutory Regulations and standards.	K2
CO3	Know about the safety Activities of the Working Place.	K1
CO4	Analyze on the impact of Occupational Exposures and their Remedies	K4
CO5	Obtain knowledge of Risk Assessment Techniques	K1

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	1	1	3	2	2	3	3	1	3
CO2	2	3	2	2	1	3	2	3	3	2	1	3
CO3	2	2	2	2	1	2	2	2	3	2	1	2
CO4	3	3	3	2	2	3	2	2	3	2	1	3
CO5	3	2	3	2	2	3	2	2	3	2	2	3
CO PO Mapping	3.00	3.00	3.00	2.00	1.00	3.00	2.00	2.00	3.00	2.00	1.00	3.00

Course Code	PSO1	PSO2
CO1	3	3
CO2	3	3
CO3	3	3
CO4	3	3
CO5	3	3
CO PO Mapping	3.0	3.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	GE3791 / HUMAN VALUES AND ETHICS
Semester	VII
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Identify the importance of democratic, secular and scientific values in harmonious functioning of social life	K4
CO2	Practice democratic and scientific values in both their personal and professional life.	K2
CO3	Find rational solutions to social problems.	K4
CO4	Behave in an ethical manner in society	K2
CO5	Practice critical thinking and the pursuit of truth.	K4

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	0	1	0	0	0	0	0	3	0	0	0	0
CO2	0	0	0	0	0	0	0	3	0	0	0	0
CO3	1	0	0	0	0	0	0	3	0	0	0	0
CO4	0	0	0	1	0	0	0	3	0	0	0	0
CO5	0	0	1	0	0	0	0	3	0	0	0	0
CO PO Mapping	1.00	1.00	1.00	1.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.0	0.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	GE3751 / PRINCIPLES OF MANAGEMENT
Semester	VII
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Upon completion of the course, students will be able to have clear understanding of managerial functions like planning, organizing, staffing, leading & controlling.	K2
CO2	Have same basic knowledge on international aspect of management.	K1
CO3	Ability to understand management concept of organizing.	K2
CO4	Ability to understand management concept of directing.	K2
CO5	Ability to understand management concept of controlling.	K2

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	0	0	0	0	1	0	0	0	0	0	0
CO2	0	1	1	0	0	0	0	0	0	0	0	0
CO3	1	0	0	2	0	0	1	0	2	0	1	1
CO4	0	1	1	1	2	0	0	1	2	0	0	0
CO5	1	0	0	0	1	1	0	0	0	3	0	1
CO PO Mapping	1.66	1.00	1.00	1.50	1.50	1.00	1.00	1.00	2.00	3.00	1.00	1.00

Course Code	PSO1	PSO2
CO1	2	1
CO2	2	1
CO3	-	-
CO4	1	1
CO5	1	-
CO PO Mapping	1.5	1.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	OIE352 / RESOURCE MANAGEMENT TECHNIQUES
Semester	VII
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Understand to formulate linear programming problems and solve LPP using simple algorithm	K2
CO2	Understand to solve networking problems	K2
CO3	Understand to formulate and solve integer programming problems	K2
CO4	Understand to solve Non Linear programming problems	K2
CO5	Understand to understand and solve project management problems	K2

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	0	3	3	2	0	0	0	0	0	0	0	0
CO2	0	3	3	2	0	0	0	0	0	0	0	0
CO3	0	3	3	2	0	0	0	0	0	0	0	0
CO4	0	3	3	2	0	0	0	0	0	0	0	0
CO5	0	3	3	2	0	0	0	0	0	0	0	0
CO PO Mapping	0.00	3.00	3.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Course Code	PSO1	PSO2
CO1	3	2
CO2	3	2
CO3	3	2
CO4	3	2
CO5	3	2
CO PO Mapping	3.0	2.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	OIE354 / QUALITY ENGINEERING
Semester	VII
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		BTL'S
CO1	Control the quality of processes using control charts for variables in manufacturing industries.	K4
CO2	Control the occurrence of defective product and the defects in manufacturing companies.	K4
CO3	Control the occurrence of defects in services.	K4
CO4	Analyzing and understanding the process capability study.	K4
CO5	Developing the acceptance sampling procedures for incoming raw material.	K6

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	3	0	3	0	0	1	2	0	0	2
CO2	0	3	3	0	3	3	0	0	3	0	0	3
CO3	3	3	3	0	3	0	0	0	3	0	0	3
CO4	3		2	0	3	0	0	0	0	0	1	0
CO5	0	2	0	0	3	0	0	0	3	0	0	3
CO PO Mapping	2.60	2.70	2.70	0.00	3.00	3.00	0.00	1.00	2.70	0.00	1.00	2.70

Course Code	PSO1	PSO2
CO1	1	0
CO2	0	2
CO3	1	0
CO4	1	0
CO5	0	0
CO PO Mapping	1.0	2.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	OHS352 / PROJECT REPORT WRITING
Semester	VII
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Write effective project reports.	K6
CO2	Use statistical tools with confidence.	K2
CO3	Explain the purpose and intension of the proposed project coherently and with clarity.	K2
CO4	Create writing texts to suit achieve the intended purpose.	K6
CO5	Master the art of writing winning proposals and projects.	K5

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	1	1	1	1	3	2	2	3	3	3	3
CO2	2	2	2	1	1	1	2	1	2	3	2	3
CO3	2	2	3	3	2	3	2	2	2	3	2	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3	3
CO PO Mapping	2.40	2.20	2.40	2.20	2.00	2.60	2.40	2.20	2.60	3.00	2.60	3.00

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.0	0.0

1	Slight	2	Moderate	3	Substantial
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Course Code / Course Name	AD3811 / PROJECT WORK / INTERNSHIP
Semester	VIII
Regulation	R2021

Course code	Course Outcome	BTL'S
Students will be able to		
CO1	Gain Domain knowledge and technical skill set required for solving industry / research problems	K1
CO2	Provide solution architecture, module level designs, algorithms	K2
CO3	Implement, test and deploy the solution for the target platform	K3
CO4	Prepare detailed technical report, demonstrate and present the work	K5

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	1	3	1	1	2	2	3	0	2
CO2	2	2	2	1	3	2	1	1	2	2	0	1
CO3	2	1	2	2	3	2	1	1	1	1	0	1
CO4	3	2	1	1	2	1	1	1	2	3	1	1
CO PO Mapping	3.00	3.00	2.00	1.00	3.00	1.00	1.00	2.00	2.00	3.00	0.00	2.00

Course Code	PSO1	PSO2
CO1	0	0
CO2	0	0
CO3	0	0
CO4	0	0
CO5	0	0
CO PO Mapping	0.0	0.0

1	Slight	2	Moderate	3	Substantial
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