SRI SAIRAM ENGINEERING COLLEGE

2.3.4 Preparation and adherence of Academic Calendar and Teaching plans by the institution

Describe the Preparation and adherence to Academic Calendar and Teaching plans by the institution.

Every semester before the commencement of classes, the institute academic calendar is devised collaboratively by the Principal, DEANs, HODs, IQAC members and senior professors. The institutional academic calendar contains plans for curricular and co-curricular activities that include schedule of assessment, laboratory practical, end semester examination, co-curricular activities, technical events,placement training, audit schedules and extracurricular activities. Schedules of class committee meetings, PAC,DAB,BoS, AC,GB,IQAC ,MRM and result review meetings are also listed . The detailed lesson plan/teaching methodology as suited to the syllabus is prepared by each faculty before the start of the semester based on the academic calendar. The laboratory schedule is prepared by the concerned faculty and batch-wise details are specified in the laboratory schedule. Time Table of regular lectures for the semester is prepared as well and displayed on the notice board and website. Any minor changes in academic calendar which may deem fit considering the unforeseen circumstance is done by the authorities of the institution. The department's advisory board and programme assessment committee ensures the smooth adherence of the academic calendar. Based on the institute academic calendar, all the departments prepare department planner. In case of any deviations in the planner,it will be communicated to Principal with appropriate remarks and justifications

In adherence to the college academic calendar, a department planner is framed for effective conduction of activities.The department level activities are planned in advance and notified in the academic calendar. Any deviations from the planned activity are informed to the Principal and recorded in the adherence report.

Theory Courses:

- Display of Continuous Assessment dates,
- Submission of question paper for the internal examination in the prescribed pattern to Internal test cell,
- Date of exams prescribed in academic calendar is followed for conducting the internal exam

- Internal Exam marks of each courses are entered in the Edumate portal for performance analysis
- Result review meetings are conducted by Principal with faculty and HoDs

Laboratory Courses:

- Model practical exams for all laboratory courses are conducted as per the schedule prescribed in the academic calendar.
- Display of mini projects carried out by the student groups for all the laboratory courses.
- The schedule of the university practical examination is prepared by the respective department and published for student notice.

Project Courses & Live in Labs

- Project confirmation review will be carried out in the start of the semester
- Review of students' project periodically as per the project guidelines
- Display of students' project in project expo competition organized by the Institute
- Submission of report for the project carried out
- External review is carried by experts from industry and academic
- The schedule of the university project viva-voce exam is prepared by the respective department and published for student notice.

Each department conducts seminar presentations by the student based on the in-plant training undergone by them during their vacation holidays as per the academic calendar of the department. At the end of the semester, HoD verifies the conduct of activities as per the schedule and the adherence report is submitted to the Principal.

Based on the academic calendar, faculty plan for their mode of teaching. A sample format is attached. The teaching plan consists of course objectives, course outcomes, list of topics in every unit followed by the mode of instruction delivery, content beyond the syllabus topic to be covered, text books and reference books to be referred, assignment schedules,

Sri Sairam Engineering College Chennai - 44	DEPARTMENT DOCUMENTS	EOMS CODE: BBO1A
		REV NO: 02
	DEPARTMENT – IQAC	DATE: 12.09.2023

ACADEMIC CALENDAR
ODD Semester 2023-2024

S.No.	Programme	Tentative Dates			
		I Year	II Year	III Year	IV Year
01	Sairam Teachers and Academicians Refresher Training (START)		17.07.23 - 19.07.23		
02	Program Assessment Committee Meeting	07.09.23	26.07.23 - 28.07.23		
03	Department Advisory Board Meeting	23.09.23	31.07.23 - 02.08.23		
04	Uploading of Course Content in GC (LMS)	One week before the commencement of classes			
05	Commencement of Classes	21.09.23	17.08.23	10.08.23	20.07.23
06	Orientation and Bridge Course	30.08.23 to 20.09.23	-	-	-
07	Placement Training	-	-	-	24.07.23 - 31.07.23
08	Sairam SDG Inspirathon 1.0 Inauguration	-	-	-	02.08.23
09	Class Committee Meeting – I	Third week from the commencement of the semester			
10	Course Moderator and Coordinator Meeting	Twice in a month			
11	Sports Committee Meeting	Every Month – Second Week – Friday			
12	Extension and Club Activities	Every Month - Second Saturday			
13	Clubs and Cells Coordinating Committee Meeting	Every Month – Third Week – Friday			
14	Grievance and Redressal Committee Meeting	Every Month – Fourth Week – Friday			
15	Department Review Meeting	Every Month – Fourth Saturday			
16	Industrial Lecture Series/ Field Visit/Virtual IV	Every Month - Fourth Week - Saturday*			
17	Zeroth Project Review	-			07.08.23 - 12.08.23

18	Skill Enhancement Training Program (Phase I)	-	28.08.23 to 01.09.23	21.08.23 to 25.08.23	-
19	Budget Committee Meeting	26.08.23			
20	Teachers day	05.09.23			
21	Submission of Question Paper for CAT1	20.10.23	15.09.23	15.09.23	21.08.23
22	Question Paper Scrutiny for CAT I	23.10.23	18.09.23	18.09.23	23.08.23
23	Continuous Assessment Test – I	26.10.23 to 31.11.23	22.09.23 to 04.10.23	22.09.23 to 04.10.23	28.08.23 - 04.09.23
24	CAT I Valuation	26.10.23 to 06.11.23	22.09.23 to 06.10.23	22.09.23 to 06.10.23	28.08.23 - 06.09-23
25	Display of CAT I Marks in EDUMATE & Communication to Parents	13.11.23	09.10.23	09.10.23	07.09.23
26	CAT I Result Review Meeting	09.11.23	10.10.23	10.10.23	08.09.23
27	First Project Review	-	-	-	05.09.23- 09.09.23
28	Intra Departmental Academic Audit – I	06.11.23	11.09.23		
29	Class Committee Meeting – II	08.11.23 to 17.11.23	One week after completion of the CAT I		
30	Board of Studies Meeting	30.09.23	First week of September 2023		
31	Library Coordinating Committee Meeting	11.09.23			
32	Association Activities Inauguration	As per Department Calendar			
33	PTA Meeting	Eighth week after Commencement of classes			
34	IQAC Meeting I	22.09.23			
35	Academic Council Meeting	Last week of September 2023			
36	Research Advisory Board Meeting	03.10.23			
37	ISO Internal Audit - I	04.10.23 - 06.10.23			
38	AICTE - IIPC Advisory Board Meeting	11.10.23			
39	Management Review Meeting	11.12.23	12.10.23*		

40	Intra Departmental Academic Audit – II	20.10.23			
41	ISO Surveillance audit-2	Last week of Oct 2023*			
42	Planning and Monitoring Committee Meeting	28.10.23			
43	Submission of Question Paper for CAT II	27.11.23	26.10.23	26.10.23	27.09.23
44	Question Paper Scrutiny for CAT II	28.11.23	30.10.23	30.10.23	03.10.23
45	Continuous Assessment Test – II	30.11.23 to 08.12.23	02.11.23 to 13.11.23	02.11.23 to 13.11.23	05.10.23-13.10.23
46	CAT II – Valuation	30.11.23 to 11.12.23	02.11.23 to 15.11.23	02.11.23 to 15.11.23	05.10.23-16.10.23
47	Display of CAT II Marks in EDUMATE & Communication to Parents	18.12.23	17.11.23	17.11.23	17.10.23
48	Second Project Review	-			16.10.23-20.10.23
49	CAT II Result Review Meeting	14.12.23	20.11.23	20.11.23	18.10.23
50	Class Committee Meeting – III	13.12.23 to 20.12.23	One week after the completion of CAT II		
51	Technical Symposium	As per department Calendar			
52	Sports Day	Third week of November 2023			
53	Cultural Day	Fourth week of November 2023			
54	Skill Enhancement Training Program (Phase II)	-	Batch I: 27.11.23 – 01.12.23 Batch II:04.12.23 – 08.12.23 Batch III: 11.12.23 15.12.23	Batch I: 28.08.23 – 01.09.23 Batch II: 04.09.23 – 08.09.23 Batch III:11.09.23 15.09.23	-
55	Submission of Question Paper for CAT - III	02.01.24	11.12.23	11.12.23	20.11.23
56	Question Paper Scrutiny for CAT III	03.01.24	13.12.23	11.12.23	23.11.23
57	Last date for syllabus completion -theory and practical	04.01.24	15.12.23	15.12.23	27.11.23
58	AMCAT	-	L1-15.12.23	L3-14.12.23	-

59	Continuous Assessment Test – III	05.01.24 to 12.01.24	18.12.23 to 28.12.23	18.12.23 to 28.12.23	27.11.23-06.12.23
60	CAT III Valuation	05.01.24	18.12.23 to 30.12.23	18.12.23 to 30.12.23	27.11.23-08.12.23
61	Display of CAT III Marks in EDUMATE & Communication to Parents	-	30.12.23	30.12.23	09.12.23
62	Model Practical Examinations	-	29.12.23	29.12.23	08.12.23
63	CAT III Result Review Meeting	-	02.01.24	02.01.24	09.12.23
64	End Semester Meeting	-	04.01.24	04.01.24	11.12.23
65	Third Project Review	-			7.12.23-9.12.23
66	Students online feedback	Second Week of January 2024	Last week of Dec 2023	Last week of Dec 2023	Last week of Nov 2023
67	Professional Chapter Activities	As per department Calendar			
68	Alumni Meet	As per department Calendar			
69	Alumni Talk program	As per department Calendar			
70	Academic Audit (Inter Departmental) – III	17.11.23			
71	Last working day	12.01.2024	29.12.23	29.12.23	09.12.23
72	CAT I, II & III Question Paper – Quality Audit	As per the CoE Calendar			
73	Special coaching Classes	As per department calendar			
74	Submission of Attendance and eligible candidate list for End semester examination	12.01.2024	29.12.23	29.12.23	11.12.23
75	End semester Practical Examinations	18.01.24 to 25.01.24	02.01.24 to 06.01.24	02.01.24 to 06.01.24	11.12.23
76	PGPA Calculation deadline	26.01.24	07.01.24	07.01.24	12.12.23
77	End Semester Theory Exam	01.02.24 to 12.02.24	18.01.24	18.01.24	21.12.23
78	End Semester Question paper feedback in EDUMATE	Within three days after the examination			
79	Result Passing Board Meeting	As per the CoE Calendar			

80	Course Exit Survey	12.01.2024	29.12.23	29.12.23	09.12.23
81	Completed Log book submission to IQAC	Second Week of Feb 2024	Last week of Dec 2023	Last week of Dec 2023	First week of Dec 2023
82	IQAC Meeting II	07.12.23			
83	Commencement of Next Semester	15.02.24*	08.02.24*	08.02.24*	18.01.2024*
84	Governing Council Meeting	First week of January 2024			
85	ISO Internal Audit – II	Last week of Jan 2024			

* Tentative dates

PRINCIPAL

Copy to:
(i) Dean (Student Affairs)
(ii) Dean (Academics)
(iii) Controller of Examinations
(iv) Dean (TAP)
(v) Dean (Research)
(vi) Dean (Innovation)
(vii) All HoDs for circulation and implementation
(viii) IQAC

Copy submitted to Chairman.

Sri Sairam Engineering College Chennai - 44	DEPARTMENT DOCUMENTS	EOMS CODE: BBO1A
		REV NO: 00
	DEPARTMENT – IQAC	DATE: 18.01.2024

ACADEMIC CALENDAR
EVEN Semester 2023-2024

S. No.	Program	Tentative Dates			
		I Year	II Year	III Year	IV Year
1.	Commencement of Classes	19.2.2024	08.02.2024		18.01.2024
2.	Program Assessment Committee Meeting	30.01.2024 to 05.02.2024			
3.	Department Advisory Board Meeting	06.02.2024 to 15.02.2024			
4.	Board of Studies Meeting	Second week of February 2024			
5.	Skill Enhancement Course – Phase I	-	08.02.2024 to 13.02.2024	14.02.2024 to 19.02.2024	-
6.	Class Committee Meeting – I	Fifteen days after the commencement of classes			
7.	Project Review II	-	-	-	08.02.2024 to 09.02.2024
8.	Governing Council Meeting	Third week of February 2024			
9.	Sairam SDG Inspiration 1.0	-	-		20.02.2024& 21.02.2024
10.	IP Clinic Phase -1	22.02.2024-28.02.2024			
11.	AICTE - IIPC Advisory Board Meeting	23.02.2024			
12.	Blood Donation Camp	26.02.2024			
13.	EOMS Internal Audit - I	27.02.2024 to 29.02.2024			
14.	Women's Day Celebrations	08.03.2024			
15.	College day & Cultural day	12.03.2024			
16.	Sports Day	14.03.2024			
17.	Sairam SDG Innovathon 2.0	-	-	20.03.2024 & 21.03.2024	-
18.	Research Advisory Board Meeting	22.03.2024			
19.	IQAC Meeting III	23.03.2024			

20.	Project Review - Final	-			25.03.2024 to 28.03.2024
21.	Submission of Question Paper for CAT-I	20.03.2024	13.03.2024	20.03.2024	08.02.2024
22.	Question Paper Scrutiny for CAT-I	22.03.2024	15.03.2024	22.03.2024	09.02.2024
23.	Continuous Assessment Test – I	25.03.2024-28.03.2024	19.03.2024-22.03.2024	25.03.2024-28.03.2024	12.02.2024-13.02.24
24.	CAT-I Central Valuation	25.03.2024-28.03.2024	19.03.2024-22.03.2024	25.03.2024-28.03.2024	12.02.2024-13.02.24
25.	Display of CAT I Marks in EDUMATE & Communication to Parents	01.04.2024	25.03.2024	01.04.2024	14.02.24
26.	CAT-I Result Review Meeting	02.04.2024	26.03.2024	02.04.2024	15.02.24
27.	Class Committee Meeting – II	One week after completion of the CAT-I			
28.	Library Coordinating Committee Meeting	02.04.2024			
29.	Intra Departmental Academic Audit – I	15.04.2024 -19.04.2023			
30.	Academic audit (External)	Third week of April 2024			
31.	Project Expo	Second week of April 2024*			
32.	Finance Committee Meeting	Third week of April 2024			
33.	Budget Committee Meeting	Second Week of April 2024			
34.	Graduation Day	Last Week of April 2024			
35.	Saíram SDG Solveathon 3.0	-	18.04.2024 & 19.04.2024	-	-
36.	Skill Enhancement Course – Phase II	-	13.05.2024-17.05.2024	01.04.2024-05.04.2024	-
		-	20.05.2024-24.05.2024	08.04.2024-15.04.2024	-
		-	27.05.2024-31.05.2024	22.04.2024-26.04.2024	-
37.	AMCAT for II year	-	23.04.2024	-	-
38.	Saíram SDG Ideathon 4.0	08.05.2024 & 09.05.2024	-	-	-
39.	AMCAT for III year			14.05.2024	
40.	Submission of Question Paper for CAT II	19.04.2024	19.04.2024	24.04.2024	13.03.2024
41.	Question Paper Scrutiny for CAT II	22.04.2024	22.04.2024	26.04.2024	15.03.2024
42.	CAT II	24.04.2024-29.04.2024	24.04.2024-29.04.2024	30.04.2024-06.05.2024	18.03.2024-19.03.2024
43.	CAT II - Valuation	24.04.2024-03.05.2024	24.04.2024-03.05.2024	30.04.2024-08.05.2024	18.03.2024-19.03.2024

44.	Display of CAT II Marks in EDUMATE & Communication to Parents	06.05.2024	06.05.2024	09.05.2024	20.03.2024
45.	CAT II Result Review Meeting	07.05.2024	07.05.2024	10.05.2024	21.03.2024
46	End Semester Meeting	13.05.2024			25.03.2024
47.	Class Committee Meeting – III	One week after completion of the CAT-II			
48.	IP Clinic Phase -2	12.06.2024-18.06.2024			
49.	Submission of Question Paper for CAT - III	22.05.2024	29.05.2024	22.05.2024	10.04.2024
50.	Question Paper Scrutiny for CAT III	24.05.2024	31.05.2024	24.05.2024	12.04.2024
51.	CAT III	28.05.2024-31.05.2024	03.06.2024-06.06.2024	28.05.2024-31.05.2024	15.04.2024-16.04.2024
52.	CAT III Central Valuation	28.05.2024-03.06.2024	03.06.2024-06.06.2024	28.05.2024-03.06.2024	15.04.2024-17.04.2024
53.	Display of CAT III Marks in EDUMATE & Communication to Parents	04.06.2024	07.06.2024	04.06.2024	18.04.2024
54.	CAT III Result Review Meeting	08.06.2024			19.04.2024
55.	Model Practical Examinations	As per department Calendar			
56.	Students online feedback	31.05.2024	06.06.2024	31.05.2024	16.04.2024
57.	Last date for syllabus completion - theory and practical	31.05.2024	06.06.2024	31.05.2024	16.04.2024
58.	Submission of Attendance and eligible candidate list for End semester examination	31.05.2024	06.06.2024	31.05.2024	16.04.2024
59.	End semester Practical Examinations	01.06.2024 - 06.06.2024	07.06.2024-12.06.2024	01.06.2024-06.06.2024	17.04.2024-24.04.2024
60.	Last working day	06.06.2024	12.06.2024	06.06.2024	24.04.2024
61.	End Semester Theory Exam	13.06.2024	20.06.2024	13.06.2024	25.04.2024
62.	End Semester Question paper feedback in EDUMATE	Within three days after the examination			
63.	Result Passing Board Meeting	As per the CoE Calendar			
64.	EOMS Internal Audit - II	22.05.2024 to 24.05.2024			
65.	Management Review Meeting	last week of June 2024			
66.	EOMS Surveillance Audit I	Second week of July 2024*			
67.	Grievance and Redressal Committee Meeting	Every Month – Fourth Week – Friday			
68.	Industrial Lecture Series/ Field Visit/Virtual IV	As per department Calendar			
69.	Clubs and Cells Coordinating Committee Meeting	As per club and cells Calendar			
70.	Alumni Talk Series	As per department Calendar			

71.	AICTE IDEA Lab meeting	Every Month-Last week- Friday	
72	Association Activities	As per department Calendar	
73	Professional Chapter Activities	As per department Calendar	
74	Stock Verification Audit	Last week of July 2024	
75	IQAC MEETING IV	Last week of July 2024	
76	Commencement of Odd Semester 2024 - 2025	-	11.07.2024

PRINCIPAL

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(v) Dean (Research)
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(vii) All HoDs for circulation and implementation

SRI SAI RAM ENGINEERING COLLEGE CHENNAI -44	INDIVIDUAL DOCUMENT LESSON PLAN	EOMS CODE: BB01A Format No:LP01
	ARTIFICIAL INTELLIGENCE AND DATA SCIENCE	Issue No.: 01 Date:
	Name/Designation/Department of the faculty: D.Madhivadhani / Assistant Professor /AI&DS	

20AIPC502 / FUNDAMENTAL OF MACHINE LEARNING TECHNIQUES

ACADEMIC YEAR: SEMESTER: ODD/ EVEN

BATCH:		BRANCH		Year/ Sem: II/ III Date of commencement of the Semester:

Prerequisites

Course Outcomes:

1. Explain the types of Machine Learning with example applications.
2. Illustrate descriptive, predictive and prescriptive models with case study.
3. Apply the suitable classification algorithm for a given problem.
4. Apply an appropriate regression modeling technique and improve the performance of the technique for a given problem.
5. Apply suitable clustering algorithm model for a given problem.
6. Implement different types of Machine Learning models with suitable use case.

S.No.	Topics to be covered	Planned No. of periods	Resources (T1)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT I TITLE: INTRODUCTION MACHINE LEARNING				
1	Introduction to Machine Learning	1	T1	BLACK BOARD		
2	Types of Machine Learning	1	T1	BLACK BOARD		
3	Supervised – Unsupervised	1	T1	BLACK BOARD		
4	Reinforcement Learning Types	1	T1	PPT		
5	Applications of Machine Learning Techniques with Case Study	1	T1	BLACK BOARD	ASSIGNMENT 1	
6	Banking and Finance	1	T1	PPT		
7	Healthcare	1	T1	PPT		
8	Insurance	1	T1	BLACK BOARD		
9	Issues in Machine Learning	1	T1	BLACK BOARD		
10	Content Beyond the syllabus	-				
Total Number of Periods: 9						

S.No.	Topics to be covered	Planned No. of periods	Resources (T1,W1)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT II PREDICTIVE AND DESCRIPTIVE LEARNING MODELS				
1	Basic Types of Data in Machine Learning	1	T1	BLACK BOARD		
2	Exploring Structure Data – Numerical Data – Categorical Data	1	T1	BLACK BOARD		
3	Data Quality and Remediation	1	T1	BLACK BOARD		
4	Data Preprocessing	1	T1	BLACK BOARD		
5	Descriptive Models – Predictive Models – Prescriptive Models	1	T1	PPT		
6	Applications of Descriptive, Predictive and Prescriptive Models	1	T1	BLACK BOARD		
7	Training the Models	1	T1	PPT		
8	Evaluating the Performance of the Model	1	T1	PPT		
9	Improving the Performance of the Model	1	W1	ONLINE		
10	Content Beyond the syllabus	-			ASSIGNMENT 2	
Total Number of Periods: 9						

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, W2)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT III CLASSIFICATION ALGORITHM				
1	Introduction to Feature Engineering	1	T1	BLACK BOARD		
2	Feature Construction – Feature Extraction	1	T1	BLACK BOARD		
3	Feature Subset Selection	1	T1	PPT		
4	Classification Learning Models and Steps	1	T1	PPT		
5	Classification Algorithms	1	T1	BLACK BOARD		
6	KNN	1	T1	BLACK BOARD		
7	Decision Tree	1	T1	BLACK BOARD		
8	Random Forest Model	1	T1	BLACK BOARD		
9	Support Vector Machine	1	T1	PPT		
10	Content Beyond the syllabus		W2	ONLINE	ASSIGNMENT 3	
Total Number of Periods: 9						

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT IV TITLE: REGRESSION MODELLING				
1	Introduction Regression Modelling	1	T1	BLACK BOARD		
2	Mathematical Model for Linear Regression	1	T1	BLACK BOARD		
3	Simple Linear regression – Multiple Linear Regression	1	T1	BLACK BOARD		
4	Improving Accuracy of Linear Regression Model	1	T1	PPT		
5	Polynomial Regression -Logistic Regression	1	T1	BLACK BOARD		
6	Maximum Likelihood Estimation	1	T1	PPT		
7	Ridge Regression	1	T1	PPT		
8	Lasso Regression	1	T1	BLACK BOARD		
9	Elastic Net Regression Modelling	1	W3	ONLINE		
10	Content Beyond the syllabus					
Total Number of Periods: 9						

S.No.	Topics to be covered	Planned No. of periods	Resources (T1,W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT V TITLE: CLUSTERING ALGORITHM AND OTHER TYPES OF LEARNING				
1	Introduction to Clustering – Different Types of Clustering Techniques		T1	BLACK BOARD		
2	Partitioning Methods – K – Medoids: Object Based Technique		T1	BLACK BOARD		
3	Hierarchical Clustering		T1	BLACK BOARD		
4	Density Based Methods		T1	PPT		
5	Pattern Using Association Rules – Association Rule		T1	PPT		
6	Apriori Algorithm for Association Rule Learning – Build the Apriori Principle Rules		T1	PPT		
7	Other Types of Learning – Representation learning		T1	ONLINE		
8	Active Learning – Instance Based Learning		T1	BLACK BOARD		
9	Association Rules Learning – Ensemble Learning		W3	ONLINE		
10	Content Beyond the syllabus	-				
Total Number of Periods: 9						

Swagata Sarkar

Signature of the Head of the Department

T-Text Book
R-Reference Book
W-Web resources

Teaching methods/ Teaching Aids (Sample):Lecture with Demonstration
Lecture with Discussion
Tutorial

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SRI SAIRAM ENGINEERING COLLEGE CHENNAI -44	**INDIVIDUAL DOCUMENT** **LESSON PLAN**	**EOMS CODE:** BB01A Format No:LP01 Issue No.: 01 Date: 01.11.2022
	ELECTRICAL AND ELECTRONICS ENGINEERING	
	Name/Designation/Department of the faculty:Mr. D. ARULSELVAM	

SYNCHRONOUS INDUCTION MACHINES / 20EEPC401

ACADEMIC YEAR:2023-2024 SEMESTER: EVEN

BATCH: 2022-2026		**BRANCH**	**EEE**	**Year/Sem : II/IV** **Date of commencement of the Semester: 08.02.2024**

Course Outcomes:

CO Number	CO Statement	Knowledge level
1	Describe the construction, principle, EMF equation, regulation methods, two reaction theory and parallel operation of synchronous generators.	K2
2	Explain the principle of operation, torque developed, characteristics, hunting, and starting methods of synchronous motors and its applications as synchronous condensers.	K2
3	Illustrate about the construction, principle of operation and compute the performance characteristics, Torque equations of three phase Induction machine.	K3
4	Describe the starting, speed control and braking methods of three phase Induction motors.	K2
5	Discuss about the construction, principle of operation,starting methods and performance characteristics of single phase Induction motors.	K2

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT I: SYNCHRONOUS GENERATOR				
1	Constructional details – Types of rotors - emf equation	1	T1	Lecture with Discussion (Chalk and Board& PPT)	SAIL ASSIGNMENTS -2 CAT-I	
2	Armature reaction	1	T1			
3	Voltage regulation EMF PROBLEMS	1	T1			
4	Voltage regulation MMF PROBLEMS	1	T1			
5	Voltage regulation ZPF& PROBLEMS	2	T1			
6	Voltage regulation ASA & PROBLEMS	1	T1			
7	Two reaction theory –slip test	1	T1			
8	Synchronizing and parallel operation	1	T1			
Total Number of Periods: 9						

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
	UNIT II: SYNCHRONOUS MOTOR			Lecture with Discussion (Chalk and Board & PPT)	CAT I,II & SAIL APP TEST	
1	Principle of operation	1	T1			
2	Starting methods	1	T1			
3	V and Inverted V curves	2	T1			
4	Current loci for constant power input, constant excitation and constant power developed	1	T1			
5	Power input and power developed equations.	1	T1			
6	Hunting	1	T1			
7	Damper windings	1	T1			
8	synchronous condenser.	1	T1			
Total Number of Periods: 9						

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
	UNIT III THREE PHASE INDUCTION MOTORS					
1	Constructional details	1		Lecture with Discussion (Chalk and Board & PPT)	CAT I,II & SAIL APP TEST	
2	Types of rotors	1				
3	Principle of operation	1				
4	Slip	1				
5	Torque Equation	1				
6	Condition for maximum torque					
7	Torque-Slip characteristics	1				
8	Equivalent circuit	1				
9	Losses and efficiency					
10	No load and blocked rotor tests	2				
Total Number of Periods: 9						

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT IV : STARTING AND SPEED CONTROL OF THREE PHASE INDUCTION MOTOR				
1	Need for starting – Types of starters – DOL, Rotor resistance,	1	T1	Lecture with Discussion (Chalk and Board & PPT)	CAT III & SAIL APP TEST	
2	Autotransformer and Star- delta starters	2	T1			
3	Speed control – Voltage control, Frequency control and pole changing	2	T1			
4	Cascaded connection-V/f control	1	T2			
5	Slip power recovery scheme	1	T1,R4			
6	Braking of three phase induction motor: Plugging, dynamic braking and regenerative braking.	2				
Total Number of Periods: 9						

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT V : SINGLE PHASE INDUCTION MOTOR				
1	Constructional details of single phase induction motor – Double field revolving theory and operation	2	T1	Lecture with Discussion (Chalk and Board & PPT)	CAT III & SAIL APP TEST	
2	Double field revolving theory and operation	2	T1			
3	Equivalent circuit – No load and blocked rotor test	2	T1			
4	Starting methods of single-phase induction motors – Capacitor-start capacitor run Induction motor-Shaded pole induction motor	3	T1			
Total Number of Periods: 9						

HOD/EEE

T-Text Book
R-Reference Book
W-Web resources

SRI SAIRAM ENGINEERING COLLEGE CHENNAI -44	INDIVIDUAL DOCUMENT LESSON PLAN	EOMS CODE: BB01A Format No:LP01 Issue No.: 01 Date: 27.6.2024
	ARTIFICIAL INTELLIGENCE AND DATA SCIENCE	
	Name/Designation/Department of the faculty: Ms. Tamizhmalar D / Assistant Professor / AI-DS	

20AIPC502-DEEP LEARNING ACADEMIC YEAR: 2024-2025 SEMESTER: ODD				
BATCH:2022-2026		BRANCH	AI-DS	Year/Sem : III/ V/A Date of commencement of the Semester: 27.06.2024

Prerequisites

- **Knowledge of Basic Electronics**
- **Computer Networks**

Course Outcomes:

1. Demonstrate the basic concepts, fundamental learning techniques and layers. (K2)
2. Analyze and Evaluate in the context of a case study, the advantages and disadvantages of deep learning neural network architectures and other approaches. (K3)
3. Design convolutional networks for handwriting and object classification from images or video. (K4)
4. Design recurrent neural networks for sequence modeling. (K4)
5. Apply and evaluate deep learning on real data sets. (K3)
6. Build, train and apply fully connected deep neural networks. (K4)

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Remarks
		UNIT I : INTRODUCTION TO DEEP LEARNING & NEURAL NETWORKS			
1	Historical context and motivation for deep learning	1	T1	Lecture with discussion	
2	Fundamentals of Neural Networks	1	T1	Lecture with discussion	
3	Comparison of Biological and Artificial Neurons	1	T1	Lecture with discussion	
4	Model of Artificial Neuron	1	T1	Lecture with discussion	
5	Perceptron	1	T1	Lecture with discussion	
6	Feed forward neural networks	1	T1	Lecture with discussion	
7	Deep networks - Regularizing a deep network	1	T1	Lecture with discussion	
8	Model Exploration	1	T1	Lecture with discussion	
9	Model of Artificial Neuron	1	T1	Lecture with discussion	
Total Number of Periods: 9					

S. No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Remarks
		UNIT II : DEEP LEARNING ARCHITECTURES			
1	Machine Learning and Deep Learning	1	R1	Lecture with discussion	
2	Representation Learning	1	R1	Lecture with discussion	
3	Width and Depth of Neural Networks	1	R1	Lecture with discussion Tutorial	
4	Activation Functions: RELU	1	R1	Lecture with discussion	
5	LRELU – ERELU	1	R1	Lecture with discussion	
6	Unsupervised Training of Neural Networks	1	R1	Lecture with discussion	
7	Restricted Boltzmann Machines	1	R1	Lecture with discussion Tutorial	
8	Auto Encoders	1	R1	Lecture with discussion	
9	Deep Learning Applications	1	R1	Lecture with discussion	
Total Number of Periods: 9					

S. No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Remarks
		UNIT III : DEEP LEARNING ARCHITECTURES			
1	Introduction to convolution neural networks	1	T1	Lecture with discussion	
2	stacking, striding and pooling	1	R2	Lecture with discussion	
3	Applications like image, and text classification	1	R2	Lecture with discussion	
4	Motivation, Layers	1	T1	Lecture with discussion	
5	Filters, Parameter sharing	1	T1	Lecture with discussion	
6	Regularization	1	T1	Lecture with discussion	
7	Popular CNN Architectures: ResNet	1	R2	Lecture with discussion	
8	AlexNet	1	R2	Lecture with discussion	
9	Applications	1	T1	Lecture with discussion	
Total Number of Periods: 9					

S. No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Remarks
		UNIT IV : SEQUENCE MODELING: RECURRENT NETS			
1	Unfolding computational graphs	1	T1	Lecture with Discussion	
2	Recurrent Neural Networks (RNNs)	1	T1	Lecture, Demonstration	
3	Types of RNN	1	T1	Lecture, Demonstration	
4	Bidirectional RNNs	1	T1	Lecture, Demonstration	
5	Architecture of RNN	1	T1	Lecture, Demonstration	
6	Encoder - Decoder	1	T1	Lecture, Demonstration	
7	Encoder -Decoder sequence to sequence architectures	1	T1	Lecture, Demonstration	
8	Deep Recurrent Networks	1	T1	Lecture, Demonstration	
9	Applications	1	T1	Lecture, Demonstration	
Total Number of Periods: 9					

S. No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Remarks
		UNIT V : ADVANCED DEEP LEARNING TECHNIQUES			
1	Deep Belief Networks	1	T1	Lecture with Case Studies	
2	Deep Boltzman Machine	1	T1	Lecture with Case Studies	
3	Deep Associative Memory networks	1	T1	Lecture with Case Studies	
4	Generative Neural Networks	1	T1	Lecture with Case Studies	
5	Generative Neural Networks Architecture	1	T1	Lecture with Case Studies	
6	Deep fake Technology	1	T1	Lecture with discussion	
7	Case Study on designing deep learning solutions for identifying fake finger prints	1	T1	Lecture with Case Studies	
8	Case Study on designing deep learning solutions for identifying fake finger images	1	T1	Lecture with Case Studies	
9	Case Study on designing deep learning solutions for identifying fake finger videos	1	T1	Lecture with Case Studies	
Total Number of Periods: 9					

Signature of the Head of the Department

SRI SAIRAM ENGINEERING COLLEGE CHENNAI -44	INDIVIDUAL DOCUMENT LESSON PLAN	EOMS CODE: BB01A Format No:LP01 Issue No.: 01 Date: 01.11.2022
	COMPUTER SCIENCE AND BUSINESS SYSTEMS	
	Name/Designation/Department of the faculty: Ms. N. SIVARANJANI / ASSISTANT PROFESSOR /CSBS	

COMPUTER ORGANIZATION & ARCHITECTURE / 20CBPC302

ACADEMIC YEAR: 2023-2024 SEMESTER: ODD

BATCH:	2021-2025	BRANCH	CSBS	Year/Sem : II / III Date of commencement of the Semester:

Prerequisites

Course Outcomes:

1. Understand the physical and logical features of digital computers and express the data representation (K2)
2. Describe system architecture and identify instruction sets. (K2)
3. Illustrate the logic design of Arithmetic and control units. (K3)
4. Identify the mechanism of control units and distinguish hazards in pipelining to enhance system performance. (K1)
5. Describe and identify the standard I/O interface and peripheral devices. (K2) 6 Choose the appropriate memory mapping procedure and design. (K3)

	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT I TITLE: BASIC STRUCTURE OF A COMPUTER SYSTEM				
1	Revision of Basics in Boolean Logic and Combinational/Sequential Circuits	01	T1	Lecture with Discussion		
2	Functional Blocks of a Computer: CPU - Memory - Input-Output Subsystems - Control Unit	01	T1	Lecture with Discussion		
3	Instruction Set Architecture of a CPU: Registers	01	T1	Lecture with Discussion	Assignment	
4	Instruction Execution Cycle	01	T1	Lecture with Discussion		
5	RTL	01	T1	Lecture with Discussion		
6	Interpretation of Instructions	01	T1	Lecture with Discussion		
7	Addressing Modes	01	T1	Lecture with Discussion	Assignment	
8	Instruction Set	01	T1	Lecture with Discussion		
9	Outlining Instruction Sets of some common CPUs.	01	T1	Lecture with Discussion		
Total Number of Periods:			09			

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT II TITLE : ARITHMETIC FOR COMPUTERS				
1	Data Representation: Signed Number Representation - Fixed and Floating Point Representations - Character Representation	01	T1	Lecture with Discussion		
2	Computer Arithmetic: Integer Addition and Subtraction	01	T1	Lecture with Discussion		
3	Ripple Carry Adder	01	T1	Lecture with Discussion		
4	Carry Look-Ahead Adder	01	T1	Lecture with Discussion	Assignment	
5	Multiplication – Shift-and-Add	01	T1	Lecture with Discussion		
6	Booth Multiplier -Carry Save Multiplier	01	T1	Lecture with Discussion		
7	Division Restoring and Non-Restoring Techniques	01	T1	Lecture with Discussion		
8	Floating Point Arithmetic	01	T1	Lecture with Discussion		
9	IEEE 754 Format	01	T1	Lecture with Discussion	Assignment	
Total Number of Periods:			09			

l.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT III TITLE: PROCESSOR, CONTROL UNIT AND PARALLELISM				
1	Introduction to X86 Architecture	01	T1	Lecture with Discussion		
2	CPU Control Unit Design: Hardwired and Micro-Programmed Design Approaches	01	T1	Lecture with Discussion		
3	Design of a Simple Hypothetical CPU	01	T1	Lecture with Discussion	Assignment	
4	Pipelining: Basic Concepts of Pipelining	01	T1	Lecture with Discussion		
5	Throughput and Speedup	01	T1	Lecture with Discussion		
6	Pipeline Hazards	01	T1	Lecture with Discussion		
7	Parallel Processors: Introduction to Parallel Processors	01	T1	Lecture with Discussion		
8	Concurrent Access to Memory	01	T1	Lecture with Discussion		
9	Cache Coherency	01	T1	Lecture with Discussion	Assignment	
Total Number of Periods:			09			

l.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT IV TITLE: I/O SYSTEMS				
1	Peripheral Devices and their Characteristics	01	T1	Lecture with Discussion		
2	Input-Output Subsystems	01	T1	Lecture with Discussion		
3	I/O Device Interface - I/O Transfers	01	T1	Lecture with Discussion		
4	Program Controlled- Interrupt Driven and DMA	01	T1	Lecture with Discussion	Assignment	
5	Privileged and Non-Privileged Instructions	01	T1	Lecture with Discussion		
6	Software Interrupts and Exceptions	01	T1	Lecture with Discussion		
7	Programs and Processes	01	T1	Lecture with Discussion		
8	Role of Interrupts in Process State Transitions	01	T1	Lecture with Discussion		
9	I/O Device Interfaces – SCII – USB	01	T1	Lecture with Discussion	Assignment	
Total Number of Periods:			09			

l.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT V TITLE: MEMORY				
1	Memory System Design: Semiconductor Memory Technologies	01	T1	Lecture with Discussion		
2	Memory Organization	01	T1	Lecture with Discussion		
3	Memory Organization: Memory Interleaving	01	T1	Lecture with Discussion		
4	Concept of Hierarchical memory Organization	01	T1	Lecture with Discussion	Assignment	
5	Cache Memory	01	T1	Lecture with Discussion		
6	Cache Size Vs. Block Size	01	T1	Lecture with Discussion		
7	Mapping Functions	01	T1	Lecture with Discussion		
8	Replacement Algorithms	01	T1	Lecture with Discussion		
9	Write Policies	01	T1	Lecture with Discussion	Assignment	
Total Number of Periods:			09			

Signature of the Head of the Department

T-Text Book
R-Reference Book
W-Web resources

Teaching methods/ Teaching Aids (Sample): Lecture with Demonstration
Lecture with Discussion
Tutorial

SRI SAIRAM ENGINEERING COLLEGE CHENNAI -44	INDIVIDUAL DOCUMENT LESSON PLAN	EOMS CODE: BB01A Format No:LP01 Issue No.: 01 Date: 01.11.2022
	DEPARTMENT OF ELECTRONICS AND INSTRUMENTATION ENGINEERING	
	Name/Designation/Department of the faculty: PREMKUMAR R /ASSO.PROF/ EIE	

20EIPC301- ELECTRICAL AND ELECTRONIC MEASUREMENTS

2023-24 , II YEAR, III SEMESTER

BATCH:	2022-26	BRANCH	EIE	Year/Sem : II / III Date of commencement of the Semester: 17.08.2023

Prerequisites

To provide knowledge in the specific area of electrical measuring instruments.

Course Outcomes:

1. Interpret the Voltage, current measurement and design bridge circuits for the measurement of resistance, inductance and capacitance.

2. Elaborate and measure electrical quantities such as power and energy.

3. Discuss and measure the current and voltage levels using different potentiometric method and Instrument transformers.

4. Introduce about the functioning concept of different analog and digital instruments and the concept of frequency and time period measurements.

5. Illustrate and analyze the various display and recording devices.

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
	UNIT I : MEASUREMENT OF ELECTRICAL PARAMETERS					
1	Types of ammeters and voltmeters: PMMC Instruments, Moving Iron Instruments, Dynamometer type Instruments	2	R3	Lecture with Discussion		
2	Extension of meters	1	R3	Lecture with Discussion		
3	Resistance measurement: Wheatstone bridge, Kelvin double bridge and Direct Deflection method-Megger	2	R3	Lecture with Discussion		
4	Measurement of Inductance: Maxwell-Wein Bridge, Hay's bridge and Anderson Bridge	2	R3	Lecture with Discussion		
5	Measurement of Capacitance: Schering Bridge	2	R3	Lecture with Discussion	A1	
6	Content Beyond the syllabus – Bridge Measurement Calculation	1		Lecture with Demonstration		
	Total Number of Periods: 10					

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT II POWER AND ENERGY MEASUREMENTS				
1	Electro-dynamic type wattmeter: Theory and its errors	2	R3	Lecture with Discussion		
2	LPF wattmeter – Phantom loading	2	R3	Lecture with Discussion	A2	
3	Single phase Induction type energy meter: Theory and Adjustments	2	R3	Lecture with Discussion		
4	Calibration of wattmeter and Energy meters	2	R3	Lecture with Discussion		
5	Smart energy meters	1	R3	Lecture with Discussion		

6	Content Beyond the syllabus					
Total Number of Periods: 9						
l.No.	**Topics to be covered**	**Planned No. of periods**	**Resources (T1, T2, R1, R2, W1, W2, W3)**	**Teaching Methods/Teaching Aids planned**	**Assignment/Tests planned**	**Remarks**
		UNIT III POTENTIOMETERS AND INSTRUMENT TRANSFORMERS				
1	D.C. Potentiometers: Student type potentiometer, Precision potentiometer	3	R3	Lecture with Discussion		
2	A.C. Potentiometers: Polar and coordinate types – Applications	3	R3	Lecture with Discussion		
3	Instrument Transformer: Construction and theory of Current Transformers and Potential Transformers	3	R3	Lecture with Discussion	A3	
4	Content Beyond the syllabus					
Total Number of Periods: 9						
l.No.	**Topics to be covered**	**Planned No. of periods**	**Resources (T1, T2, R1, R2, W1, W2, W3)**	**Teaching Methods/Teaching Aids planned**	**Assignment/Tests planned**	**Remarks**
		UNIT IV ANALOG AND DIGITAL INSTRUMENTS				
1	Wave analyzers	2	R3	Lecture with Discussion		
2	Signal and function generators	2	R3	Lecture with Discussion	A4	
3	Q meter – Digital Voltmeter and Multimeter	1	R3	Lecture with Discussion		
4	Microprocessor based DMM with auto ranging and self diagnostic features	1	R3	Lecture with Discussion		
5	Frequency and time period measurement	2	R3	Lecture with Discussion		
6	Digital LCR meter	1	R3	Lecture with Discussion	A5	
7	Content Beyond the syllabus – Digital Measurements	1		Lecture with Demonstration		
Total Number of Periods: 10						

l.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT V DISPLAY AND RECORDING DEVICE				
1	Cathode ray oscilloscope: Classification, Sampling and storage scope	2	R3	Lecture with Discussion		
2	Seven Segment display	1	R3	Lecture with Discussion	A6	
3	Light Emitting Diode display, LCD	2	R3	Lecture with Discussion	A7	
4	X-Y recorders —Digital Data Recording	1	R3	Lecture with Discussion		
5	Digital memory waveform recorder	1	R3	Lecture with Discussion		
6	Data loggers, IOT enabled recorder	1	R3	Lecture with Discussion	A8	
7	Content Beyond the syllabus –Display Demonstration	1	R3	Lecture with Demonstration		
Total Number of Periods: 9						

HOD/EIE
(Dr.K.Renganathan)

Signature of the Head of the Department

T-Text Book
R-Reference Book
W-Web resources

Teaching methods/ Teaching Aids (Sample):

Lecture with Demonstration
Lecture with Discussion
Tutorial

SRI SAIRAM ENGINEERING COLLEGE CHENNAI -44	INDIVIDUAL DOCUMENT LESSON PLAN	EOMS CODE: BB01A Format No:LP01 Issue No.: 01 Date: 22.07.2023
	DEPARTMENT OF ELECTRONICS AND INSTRUMENTATION ENGINEERING	
	Name/Designation/Department of the faculty:Ms.K.SRIVIDYA/Associate Professor/EIE	

MICROPROCESSOR AND MICROCONTROLLER /20EIPC502

ACADEMIC YEAR:2024-25 **SEMESTER: ODD**

BATCH:	2021-25	BRANCH	EIE	Year/Sem :III/V-A sec Date of commencement of the Semester:10.07.2024

Prerequisites

Basic digital circuits, flip flops, registers, programming skills

Course Outcomes:

1. Describe the architecture of 8085 processor with its internal features, instruction set and Timing Diagram (K2).
2. Illustrate the architecture of 8051 microcontroller with its internal features, instruction set and its programming concepts (K2).
3. Illustrate various interfacing peripherals and programming using 8085 processor and 8051 controller (K2).
4. Apply the programming concepts of microcontroller for developing simple programming exercises and applications (K3).
5. Discuss the architecture of various advanced processor and Embedded system overview (K2).

Sl.No	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/ Tests planned	Remarks
		UNIT I TITLE: 8085 PROCESSOR				
1	Hardware Architecture	2	T2	Black board ,PPT & Video	SAIL Assignment-1	
2	Instruction set	4	T2	Black board		
3	Programming concepts	1	T2	Tutorial		
4	Basic programs using 8085 Microprocessor	1	T2	Black board		
5	Timing Diagram	3	T2	Black board ,PPT & Video	SAIL Assignment-2	
6	Interrupts	1	T2	Black board		
7	Stack	1	T2	Black board		
8	Content Beyond the syllabus	1	T2	Video		
Total Number of Periods:14						

Sl.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT II TITLE: 8051 MICRO CONTROLLER				
1	Hardware Architecture, pinouts	1	T1	Black board ,PPT & Video	CAT-1	
2	Memory organization	1	T1	Lecture with Discussion		
3	I/O ports and data transfer concepts	1	T1	Black board ,PPT & Video		
4	Interrupts	1	T1	Lecture with Discussion	SAIL Assignment-3 & 4	
5	Instruction set-	3	T1	Tutorial		
6	Programming concepts	2	T1	Lecture with Demonstration		
7	Comparison to Programming concepts with 8085.	1	T1	Tutorial		
8	Content Beyond the syllabus-Real time application using 8051 microcontroller	1	T1	Black board ,PPT & Video		
Total Number of Periods:11						

Sl.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT III TITLE: PERIPHERAL INTERFACING				
1	Study on need, Architecture, configuration and interfacing, with ICs: 8255,	2	T2	Black board ,PPT & Video	SAIL Assignment 5 & 6	
2	Study on need, Architecture, configuration and interfacing, with ICs 8259,.	1	T2	Black board		
3	Study on need, Architecture, configuration and interfacing, with ICs 8254,	1	T2	Black board		
4	Study on need, Architecture, configuration and interfacing, with ICs8279,	2	T2	Black board		
5	A/D and D/A converters	1	T2	Black board		
6	Interfacing with 8085	1	T2	Black board ,PPT & Video		
7	Interfacing with 8051	1	T2	Black board ,PPT & Video		
8	Content Beyond the syllabus-	1	T2		CAT-2	
Total Number of Periods:10						

Sl.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT IV TITLE: MICRO CONTROLLER PROGRAMMING & APPLICATIONS				
1	Simple programming exercises	2	T1	Black board ,PPT & Video		
2	Keyboard and display interface	2	T1	Lecture with Demonstration		
3	Control of servo motor	1	T1	Black board ,PPT & Video	SAIL Assignment-7	
4	Stepper motor control	1	T1	Lecture with Demonstration		
5	Application to automation systems.	2	T1	Black board ,PPT		
6	Content Beyond the syllabus	1	T1	Black board ,PPT	SAIL Assignment-8	
Total Number of Periods: 9						

Sl.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT V TITLE: ADVANCED PROCESSOR				
1	Introduction to computer architecture and organization	2	R2	Black board ,PPT & Video		
2	Architecture of 16 bit microprocessors	1	R2	PPT & Video	SAIL Assignment-9	
3	Architecture of 32-bit microprocessors	1	R2	PPT & Video		
4	Architecture of 64- bit microprocessors	1	R2	PPT & Video		
5	CISC/RISC design philosophy,	1	R2	PPT & Video		
6	Bus configurations, CPU module.	1	R2	PPT & Video		
7	Embedded system overview.	1	R2	PPT & Video	SAIL Assignment-10	
8	Content Beyond the syllabus	1	R2	PPT & Video	CAT-3	
Total Number of Periods:9						

K. Rengarajan

Signature of the Head of the Department

T-Text Book
R-Reference Book

Teaching methods/ Teaching Aids (Sample):Lecture with Demonstration
Lecture with Discussion

SRI SAIRAM ENGINEERING COLLEGE CHENNAI -44	INDIVIDUAL DOCUMENT LESSON PLAN	EOMS CODE: BB01A Format No:LP01 Issue No.: 01 Date: 01.11.2022
	DEPARTMENT OF ELECTRONICS AND INSTRUMENTATION ENGINEERING	
	Name/Designation/Department of the faculty: Dr. S.SUBHA / ASSOCIATE PROFESSOR/ EIE	

20 ICEL703 - INDUSTRIAL INTERNET OF THINGS

ACADEMIC YEAR: 2023-2024 SEMESTER: ODD

BATCH:	2020-2024	BRANCH	EIE	Year/Sem : IV/VII Date of commencement of the Semester:10.8.23

Prerequisites

1. **Basic knowledge in computer networks (Preferred)**

Course Outcomes:

1. **Implement the concept of IIoT in industries (K3)**
2. **Understand and apply various technologies of IIoT (K1)**
3. **Implement existing industrial set up with Industry 4.0 standards (K3)**
4. **Apply Industry 4.0 standards to industrial applications (K3)**
5. **Apply modern IIoT technologies with industrial process (K3)**

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S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment /Tests planned	Remarks
		UNIT I INTRODUCTION to IoT				
1	1.1 Introduction	1	T1	Lecture with Discussion	Nptel Assignment 2	
2	1.2 Sensing & actuation	1	T1	Lecture with Discussion		
3	1.3 Communication	1	T1	Lecture with Discussion		
4	1.4 Networking	1	T1	Lecture with Discussion		
5	1.5 Industry 4.0: Globalization and Emerging Issues	1	T1	Lecture with Discussion		
6	1.6 The Fourth Revolution	1	T1	Lecture with Discussion		
7	1.7 LEAN Production Systems	1	T1	Lecture with Discussion		
8	1.8 Smart and Connected Business Perspective	1	T1	Lecture with Discussion		
9	1.9 Smart Factories	1	T1	Lecture with Discussion		
Total Number of Periods: 9						

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT II IoT TECHNOLOGIES				
1	2.1 Industry 4.0: Cyber Physical Systems and Next Generation Sensors	1	T1	Lecture with Discussion	Nptel Assignment -3	
2	2.2 Collaborative Platform and Product Lifecycle Management	1	T1	Lecture with Discussion		
3	2.3 Augmented Reality and Virtual Reality	1	T1	Lecture with Discussion		
4	2.4 Artificial Intelligence	1	T1	Lecture with Discussion & Tutorial		
5	2.5Big Data and Advanced Analysis	1	T1	Lecture with Discussion & Tutorial		
6	2.6 Cyber security in Industry 4.0	1	T1	Lecture with Discussion		
7	2.7 Basics of Industrial IoT: Industrial Processes	1	T1	Lecture with Discussion		
8	2.8 Industrial Sensing & Actuation	1	T1	Lecture with Discussion		
9	2.9 Industrial Internet Systems	1	T1	Lecture with Discussion		
Total Number of Periods: 9						

l.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT III INDUSTRIAL IoT LAYERS				
1	3.1 IIoT-Introduction	1	T1	Lecture with Discussion	Nptel Assignment - 2	
2	3.2 Industrial IoT: Business Model and Reference Architecture	1	T1	Lecture with Discussion		
3	3.3 IIoT-Business Models	1	T1	Lecture with Discussion		
4	3.4 IIoT Reference Architecture	1	T1	Lecture with Discussion		
5	3.5 Industrial IoT- Layers	1	T1	Lecture with Discussion		
6	3.6 IIoT Sensing	1	T1	Lecture with Discussion		
7	3.7 IIoT Processing- IIoT Communication	1	T1	Lecture with Discussion		
8	3.8 Industrial IoT- Layers: IIoT Communication	1	T1	Lecture with Discussion		
9	3.9 IIoT Networking	1	T1	Lecture with Discussion		
Total Number of Periods: 9						

l.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment /Tests planned	Remarks
		UNIT IV INDUSTRIAL IIoT PROGRAMMING				
1	4.1 Industrial IoT: Big Data Analytics	1	T1 , W1	Lecture with Discussion	Nptel Assignment - 2	
2	4.2 Software Defined networks	1	T1 , W1	Lecture with Discussion		
3	4.3 IIoT Analytics - Introduction	1	T1 , W1	Lecture with Discussion		
4	4.4 Machine Learning and Data Science	1	T1 , W1	Lecture with Discussion		
5	4.5 R and Julia Programming	1	T1 , W1	Lecture with Discussion		
6	4.6 Data Management with Hadoop	2	T1 , W1	Lecture with Discussion		
7	4.7 Industrial IoT: Big Data Analytics	1	T1 , W1	Lecture with Discussion		
8	4.8 Software Defined Networks	1	T1 , W1	Lecture with Discussion		
9	4.9 SDN in IIoT	1	T1 , W1	Lecture with Discussion		
	Total Number of Periods: 10					

l.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment /Tests planned	Remarks
		UNIT V IIoT APPLICATIONS				
1	5.1Industrial IoT- Application Domains	1	T3 , W1	Lecture with Discussion	Nptel Assignment - 3	
2	5.2 Healthcare, Power Plants	1	T3 , W1	Lecture with Discussion		
3	5.3Inventory Management & Quality Control	1	T3 , W1	Lecture with Discussion		
4	5.4 Plant Safety and Security(Including AR and VR safety applications)	1	T3 , W1	Lecture with Discussion		
5	5.5 Facility Management	1	T3 , W1	Lecture with Discussion		
6	5.6Industrial IoT- Application Domains	2	T1 , W1	Lecture with Discussion		
7	5.7 Oil, chemical and pharmaceutical industry	1	T1 , W1	Lecture with Discussion		
8	5.8 Applications of UAVs in Industries	1	T1 , W1	Lecture with Discussion		
9	5.9 Case studies	1	T1 , W1	Lecture with Discussion		
Total Number of Periods: 9						

Signature of the Faculty

Signature of the Head of the Department

T-TextBook
R-Reference Book
W-Web resources

Teaching methods/ Teaching Aids (Sample):Lecture with Demonstration
Lecture with Discussion
Tutorial

T-TextBook

T1	Alasdair Gilchrist, “Industry 4.0, Industrial Internet of Things”, Apress,2017.
T2	Sabina Jeschke, Christian Brecher, Houbing Song, Danda B. Rawat, “Industrial Internet of Things: Cyber Manufacturing Systems”, Springer,2017.

R-Reference Book

R1	Giacomo Veneri, Antonio Capasso, “Hands-On Industrial Internet of Things: Create a powerful Industrial IoT infrastructure using Industry 4.0”, Kindle edition, 2018.
R2	Sravani Bhattacharjee, Practical Industrial Internet of Things Security: A practitioner's guide to securing connected industries, Kindle edition.
R3	R. Anandan, Suseendran Gopalakrishnan, Souvik Pal, Noor Zaman,“Industrial Internet of Things (IIoT): Intelligent Analytics for Predictive Maintenance”, Scrivener Publishing-Wiley, 2022.
R4	Sudip Misra, Chandana Roy and Anandarup Mukherjee, “Introduction to Industrial Internet of Things and Industry 4.0”, CRC Press-Taylor & Francis group, 2021.
R5	Alena Traukina, Jayant Thomas, Prashant Tyagi, Kishore Reddipalli,“Industrial Internet Application Development”, Packt Publishing,2018.

W-Web resources

W1 : https://onlinecourses.nptel.ac.in/noc23_cs82/

SRI SAIRAM ENGINEERING COLLEGE, CHENNAI – 44

DEPARTMENT OF ELECTRONICS AND INSTRUMENTATION ENGINEERING

LABORATORY SCHEDULE [PLAN&ACTUAL]

Lab Name : Microprocessor and Microcontroller Laboratory Sem/Yr: V/III

Lab Code : 20EIPL501 Batch:2021-2025 Academic Year:2023-24(ODD)

Lab Handling Staff : K. Thirupura Sundari/Dr.S.Subha

S. No	Batch	Experiment No.	Date (Plan)	Date (Actual)	Remarks
		BATCH-I			
1	B1	INTRODUCTION AND FIRST CYCLE OF EXPERIMENTS	11.08.23	11.08.23	
2	B1	FIRST CYCLE OF EXPERIMENTS	18.08.23	18.08.23	
3	B1	FIRST CYCLE OF EXPERIMENTS	01.09.23	01.09.23	
4	B1	FIRST CYCLE OF EXPERIMENTS	08.09.23	19.09.23	SWAPPED BATCHES
5	B1	FIRST CYCLE OF EXPERIMENTS	22.09.23	06.10.23	
6	B1	SECOND CYCLE OF EXPERIMENTS	29.09.23	13.10.23	
7	B1	SECOND CYCLE EXPERIMENTS	06.10.23	20.10.23	
8	B1	SECOND CYCLE EXPERIMENTS	13.10.23	17.11.23	
9	B1	SECOND CYCLE EXPERIMENTS	20.10.23	24.11.23	
10	B1	SECOND CYCLE EXPERIMENTS	03.11.23	1.12.23	
11	B1	SIMULATION USING EMULATORS	10.11.23	1.12.23	
12	B1	SIMULATION USING EMULATORS	17.11.23	15.12.23	
13	B1	SIMULATION USING EMULATORS	24.11.23	15.12.23	
14	B1	TEST-I	01.12.23	24.11.23	
15	B1	TEST-II	08.12.23	22.12.23	
16	B1	TEST-III	15.12.23	04.01.24	

17	B1	REVISION	22.12.23	04.01.24	
18	B1	REVISION	29.12.23	04.01.24	
		BATCH-II			
1	B2	FIRST CYCLE OF EXPERIMENTS	29.08.23	29.08.23	
2	B2	FIRST CYCLE OF EXPERIMENTS	19.9.23	08.09.23	
3	B2	FIRST CYCLE OF EXPERIMENTS	26.9.23	22.09.23	
4	B2	FIRST CYCLE OF EXPERIMENTS	03.10.23	29.09.23	
5	B2	FIRST CYCLE OF EXPERIMENTS	07.10.23	10.10.23	
6	B2	SECOND CYCLE OF EXPERIMENTS	10.10.23	17.10.23	
7	B2	SECOND CYCLE EXPERIMENTS	17.10.23	31.10.23	
8	B2	SECOND CYCLE EXPERIMENTS	31.10.23	10.11.23	
9	B2	SECOND CYCLE EXPERIMENTS	07.11.23	21.11.23	
10	B2	SECOND CYCLE EXPERIMENTS	14.11.23	28.11.23	EXTENDED DIWALI HOLIDAY
11	B2	SIMULATION USING EMULATORS	21.11.23	28.11.23	
12	B2	SIMULATION USING EMULATORS	28.11.23	5.12.23	
13	B2	SIMULATION USING EMULATORS	05.12.23	12.12.23	
14	B2	TEST-I	12.12.23	21.11.23	
15	B2	TEST-II	19.12.23	19.12.23	
16	B2	TEST-III	26.12.23	04.01.24	

Staff Incharge

Head of the Department

SRI SAIRAM ENGINEERING COLLEGE CHENNAI -44	INDIVIDUAL DOCUMENT LESSON PLAN	**EOMS CODE:** BB01A Format No:LP01
	DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING	Issue No.: 01 Date: 01.11.2022
	Name/Designation/Department of the faculty: Mrs.VASANTHI A / AP/ CSE	

COMPUTER ORGANIZATION AND ARCHITECTURE - 20ITPC303

ACADEMIC YEAR: 2023 - 2024 SEMESTER: ODD

BATCH:	**2020-2024**	**BRANCH**	**CSE**	**Year/Sem :II/III** **Date of commencement of the Semester:**

Prerequisites

Digital Logic Design, Students who have not taken Digital Systems will need to do additional background reading on combinational circuits and assembler programming.

Course Outcomes:

1. Understand the physical and logical aspects of Computer System (K2)
2. Analyze the various parameters of the processor to improve system performance. (K4)
3. Evaluate the fixed and floating point arithmetic operations. (K5)
4. Design data path and control unit of computer system (K6)
5. Understand parallel processing architectures with pipelining and avoidance of hazards (K2)
6. Define the various components of computer system hardware (K1)

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT I TITLE: BASIC STRUCTURE OF A COMPUTER SYSTEM				
1	Functional Units	1	T1	Lecture with Discussion		
2	Basic Operational Concepts , Performance	1	T1	Lecture with Discussion		
3	Instructions: Language of the Computer	1	T1	Lecture with Discussion	Online Quiz	
4	Operations and operands	1	T1	Lecture with Discussion		
5	Instruction representation , Logical operations	1	T1	Lecture with Discussion	Assignment I	
6	Decision making	1	T1	Lecture with Discussion		
7	MIPS Addressing	1	T1	Lecture with Discussion	Online Quiz	
Total Number of Periods: 7						

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/ Tests planned	Remarks
		UNIT II TITLE: ARITHMETIC OPERATIONS IN PROCESSORS				
1	Addition and Subtraction	2	T1	Lecture with Discussion	Online Quiz	
2	Multiplication	2	T1	Lecture with Discussion		
3	Division	2	T1	Lecture with Discussion	CAT 1	
4	Floating Point Representation	1	T1	Lecture with Discussion	Online Quiz	
5	Floating Point Operations	2	T1	Lecture with Discussion		
6	Subword Parallelism	2	T1	Lecture with Discussion		
Total Number of Periods: 11						

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT III TITLE: PROCESSOR AND CONTROL UNIT				
1	A Basic MIPS implementation	1	T1	Lecture with Discussion		
2	Building a Datapath	2	T1	Lecture with Discussion	Online Quiz	
3	Control Implementation Scheme –	2	T1	Lecture with Discussion		
4	Pipelining	1	T1	Lecture with Discussion	Assignment II	
5	Pipelined Datapath and Control	2	T1	Lecture with Discussion		
6	Handling Data Hazards & Control Hazards	2	T1	Lecture with Discussion	Online Quiz	
7	Exceptions	1	T1	Lecture with Discussion		
Total Number of Periods: 11						

l.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT IV TITLE: PARALLELISM				
1	Parallel Processing Challenges	1	T1	Lecture with Discussion		
2	Flynn's classiication	1	T1	Lecture with Discussion		
3	SISD, MIMD, SIMD, SPM and Vector Architectures	1	T1	Lecture with Discussion	Online Quiz	
4	Hardware multithreading	1	T1	Lecture with Discussion	CAT II	
5	Multi-core processors and other Shared Memory Multiprocessors	1	T1	Lecture with Discussion		
6	Introduction to Graphics Processing Units, Clusters, Warehouse Scale Computers and other Message	1	T1	Lecture with Discussion	Online Quiz	
7	Passing Multiprocessors	1	T1	Lecture with Discussion		
Total Number of Periods: 7						

l.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT V TITLE: MEMORY AND I/O SYSTEMS				
1	Memory Hierarchy , memory technologies	2	T1	Lecture with Discussion	Assignment III	
2	Cache Memory, Measuring and Improving Cache Performance	2	T1	Lecture with Discussion		
3	Virtual Memory, TLB's	1	T1	Lecture with Discussion	Online Quiz	
4	Accessing I/O Devices ,Interrupts	1	T1	Lecture with Discussion		
5	Direct Memory Access ,Bus structure	1	T1	Lecture with Discussion	Online Quiz	
6	Bus Operation ,Arbitration, Interface circuits ,USB.	2	T1	Lecture with Discussion	CAT III	
Total Number of Periods: 9						

HOD/CSE

T-Text Book
R-Reference Book
W-Web resources

Teaching methods/ Teaching Aids (Sample):Lecture with Demonstration
Lecture with Discussion
Tutorial

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SRI SAIRAM ENGINEERING COLLEGE CHENNAI -44	**INDIVIDUAL DOCUMENT** **LESSON PLAN**	**EOMS CODE:** BB01A Format No:LP01 Issue No.: 01 Date: 01.11.2022
	ELECTRONICS AND COMMUNICATION ENGINEERING	
	Name/Designation/Department of the faculty: G. SUDHA / Associate Professor / ECE	

WIRELESS COMMUNICATION / 20ECPC603

ACADEMIC YEAR:SEMESTER: EVEN

BATCH: 2020 - 2024		**BRANCH**	**ECE**	**Year / Sem : III / VI** **Date of commencement of the Semester: 19.01.2023**

Prerequisites

1. Be familiar with the characteristics of wireless channels.

2. Be familiar with the analog and digital modulation techniques

Course Outcomes:

1. Explain the different path loss models for Large and small scale propagation to design the Link Budget for wireless Channel in different scenarios. (K2)
2. Describe the multiple access Techniques that includes TDMA, FDMA, CDMA, OFDMA to derive the capacities of the systems. (K2)
3. Explain the cellular system with hand off strategies and the techniques to improve its capacity. (K2)
4. Explain the operation of transmitter and receiver pertaining to various signaling schemes used in Fading Channels to analyze the bit error probability. (K2)
5. Compare and interpret the different multipath mitigation techniques like Diversity, equalization with their performance. (K2)
6. Design the MIMO system with transmit and receive diversity and elucidate its performance using Channel State Information. (K3)

S. No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		CO1: Explain the different path loss models for Large and small scale propagation to design the Link Budget for wireless Channel in different scenarios				
1	Large scale path loss – Path loss models	1	T1	Lecture with Discussion	CAT - I / ASSIGNMENT 1	
2	Free space model	1	T1	Lecture with Discussion, Tutorial		
3	Two-Ray models	1	T1			
4	Link Budget design	2	T2			
5	Small scale fading	1	T1	Lecture with Discussion		
6	Parameters of mobile multipath channels – Time dispersion parameters, Coherence bandwidth, Doppler spread & Coherence time	2	T1	Lecture with Discussion, Tutorial		
7	Fading due to Multipath time delay spread – Flat fading, Frequency selective fading	1	T1			
8	Fading due to Doppler spread – Fast fading, Slow fading		T1			
Total Number of Periods:		9				

S. No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		CO2: Describe the multiple access Techniques that includes TDMA, FDMA, CDMA, OFDMA to derive the capacities of the systems				
1	Multiple Access techniques - FDMA, TDMA, CDMA,	2	T1	Lecture with Discussion, Tutorial	CAT - I / ASSIGNMENT 1	
2	Capacity calculation	2	T1			
3	OFDM principle - Cyclic prefix	1	T1	Lecture with Discussion		
4	OFDM principle - Windowing, PAPR	1	T1			
Total Number of Periods:		6				

S. No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		CO3: Explain the cellular system with hand off strategies and the techniques to improve its capacity				
1	Cellular concept- Frequency reuse	1	T1	Lecture with Discussion, Tutorial	CAT - 2 / ASSIGNMENT 2	
2	Channel assignment	1	T1	Lecture with Discussion		
3	Handoff	1	T1			
4	Interference & system capacity	1	T1	Lecture with Discussion, Tutorial		
5	Trunking and Grade of service	1	T1			
6	Coverage and capacity improvement		T1			
7	Content Beyond the syllabus - Derivation for Cluster Size N	1	T1	Lecture with Discussion		
Total Number of Periods:		6				

S. No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		CO4: Explain the operation of transmitter and receiver pertaining to various signaling schemes used in Fading Channels to analyze the bit error probability				
1	Structure of a wireless communication link	1	T1	Lecture with Discussion	CAT - 2 / ASSIGNMENT 2	
2	Principles of Offset-QPSK	2	T1			
3	Pi /4-DQPSK	1	T1			
4	Minimum Shift Keying	1	T1			
5	Gaussian Minimum Shift Keying	1	T1			
6	Error performance in fading channels	1	T1			
Total Number of Periods:		7				

l.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		CO5: Compare and interpret the different multipath mitigation techniques like Diversity, equalization with their performance				
1	Equalization – Adaptive equalization	1	T1	Lecture with Discussion	CAT - 3 / ASSIGNMENT 3	
2	Linear and Non-Linear equalization	1	T1			
3	Zero forcing and LMS Algorithms	1	T1			
4	Diversity – Micro and Macro diversity	2	T1, T2, R1			
5	Diversity combining techniques	2	T1, T2, R1	Lecture with Discussion, Tutorial		
6	Error probability in fading channels with diversity reception	1	T1, T2, R1	Lecture with Discussion		
7	Rake receiver	1	T1, T2, R1			
Total Number of Periods:		9				

l.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		CO6: Design the MIMO system with transmit and receive diversity and elucidate its performance using Channel State Information				
1	MIMO systems Transmitter	1	T2, R1	Lecture with Discussion	CAT - 3 / ASSIGNMENT 3	
2	MIMO systems Receiver	1	T2, R1			
3	Spatial multiplexing - System model	1	T2, R1			
4	Pre-coding	1	T2, R1			
5	Beam forming	1	T2, R1			
6	Transmitter diversity, receiver diversity	2	T2, R1			
7	Channel state information - Capacity in fading and non-fading channels	2	T2, R1			
8	Content Beyond the syllabus – SVD of channel matrix	2	T2, R1	Lecture with Discussion, Tutorial		
Total Number of Periods:		11				

Signature of the Head of the Department

T-Text Book
R-Reference Book
W-Web resources

Teaching methods/ Teaching Aids (Sample): Lecture with Demonstration
Lecture with Discussion
Tutorial

T1: Rappaport,T.S., "Wireless communications", Pearson Education, Second Edition, 2010.
T2: Andreas.F. Molisch, "Wireless Communications", John Wiley – India, 2006.
R1: Andrea Goldsmith, "Wireless Communication", Cambridge University Press, 2011.
R2: Van Nee, R. and Ramji Prasad, "OFDM for Wireless Multimedia Communications", Artech House, 2000.
R3: David Tse and Pramod Viswanath, "Fundamentals of Wireless Communication", Cambridge University Press, 2005.
R4: Upena Dalal, "Wireless Communication", Oxford University Press, 2009.

SRI SAIRAM ENGINEERING COLLEGE CHENNAI -44	**INDIVIDUAL DOCUMENT**	**EOMS CODE:** BB01A Issue No.: 01; Ver. 02 Date: 20-09-2023
	Department of MATHEMATICS	
	Name of the faculty/Department of the faculty: Meiyanathan M / Mathematics	

INTRODUCTORY TOPICS IN STATISTICS,PROBABILITY AND CALCULUS /20BSMA103

ACADEMIC YEAR/SEMESTER: 2023-2024/ I (ODD)

BATCH:	**2023-2027**	**BRANCH**	**CSBS**	**Year/Sem : I/I** **Date of commencement of the Semester:**
NAME OF THE FACULTY	**Meiyanathan M**	**DESIGNATION**	**Associate Professor**	**Department: Mathematics**

Prerequisites

- Basic calculus.

Course Outcomes:

1. Evaluate the limit, examine the continuity and use derivatives to find extreme values of function. (K3)
2. Evaluate indefinite and definite integrals of algebraic, exponential, trigonometric and logarithmic functions and apply double and triple integrals for finding area of a region and volume of a surface. (K3)
3. Calculate the probability, conditional probability and statistical averages of events. (K3)
4. Apply standard discrete and continuous distributions in solving in real life problems. (K2)
5. Analyze statistical data using measures of central tendency, dispersion and location. (K2)

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT I TITLE:DIFFERNTIAL CALCULUS				
1	Representation of a function	2	T3,R5	BLACK BOARD		
2	Limit of a function, Continuity Limit of a function, Continuity	2	T3,R5	BLACK BOARD		
3	Derivatives, Differentiation rules	2	T3,R5	BLACK BOARD		
4	Maxima and Minima of functions of one variable	3	T3,R5	BLACK BOARD	ASSIGNMENT	
	Total Number of Periods:9					

* Planned to conduct two SAIL app test and give one assignment.

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT II TITLE:INTEGRAL CALCULUS				
1	Definite and Indefinite Integrals	1	T3,R5	BLACK BOARD		
2	Types of Integration-Integration by substitutions	2	T3,R5	BLACK BOARD		
3	Integration by parts, Bernoulli's formula	2	T3,R5	BLACK BOARD		
4	Double and triple Integrals(Cartesian Coordinates)	2	T3,R5	BLACK BOARD		
5	Applications of double and triple Integrals- Area and Volume	2	T3,R5	BLACK BOARD	ASSIGNMENT	
	Total Number of Periods:9					

* Planned to conduct two SAIL app test.

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT IIITITLE:PROBABILITY AND RANDOM VARAIBLES				
1	Concept of experiments, sample space,event	1	T1,R1	BLACK BOARD		
2	Definition of Combinatorial Probability	1	T1,R1	BLACK BOARD		
3	Conditional Probability, Baye's Theorem	2	T1,R1	BLACK BOARD		
4	Expected Values and moments : mathematical expectation and its properties	2	T1,R1	BLACK BOARD		
5	Moments(including variance)and their properties, interpretation	2	T1,R1	BLACK BOARD	ASSIGNMENT	
6	Moment generating function	1	T1,R1	BLACK BOARD		
Total Number of Periods:9						

* Planned to conduct two SAIL app test and give one assignment.

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT IV TITLE:PROBABILITY DISTRIBUTIONS				
1	Discrete &Continuous distributions	1	T1,R1	BLACK BOARD		
2	Binomial, Poisson and Geometric distributions	3	T1,R1	BLACK BOARD		
3	Uniform, Exponential distributions	2	T1,R1	BLACK BOARD		

4	Normal distribution	1	T1,R1	BLACK BOARD		
5	Chi- square distribution	1	T2,R2,R3	BLACK BOARD		
6	t, F distributions	1	T2,R2,R3	BLACK BOARD		
Total Number of Periods:9						

* Planned to conduct two SAIL app test and give one assignment.

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT V TITLE:INTRODUCTION TO STATISTICS				
1	Definition of Statistics,Basic objectives. Applications in various branches of science with examples	1	T2,R2,R3	BLACK BOARD		
2	Collection of Data:Internal and external data, Primary and secondary Data	1	T2,R2,R3	BLACK BOARD		
3	Population and sample, Representative sample	1	T2,R2,R3	BLACK BOARD		
4	Classification and tabulation of univariate data, Frequency curves.	2	T2,R2,R3	BLACK BOARD	ASSIGNMENT	
5	Descriptive measures - central tendency and dispersion	2	T2,R2,R3	BLACK BOARD		
6	Bivariate data, Summarization	1	T2,R2,R3	BLACK BOARD		
7	Marginal and conditional frequency distribution	1	T2,R2,R3	BLACK BOARD		
Total Number of Periods:9						

* Planned to conduct two SAIL app test and give one assignment.

T-Text Book ,R- Reference books, W- Web resources

Signature of the Head of the Department

TEXT BOOKS:

1. S. M. Ross, “Introduction of Probability Models”, Academic Press, N.Y.
2. A. Goon, M. Gupta and B. Dasgupta, “Fundamentals of Statistics”, Vol. I, 2013 & Vol. II, 2016, Paper Back Edition, World Press.
3. B. S. Grewal, “Higher Engineering Mathematics”, Khanna Publication, Delhi.

REFERENCES:

1. S. M. Ross, “A first course in Probability”, Prentice Hall, Eleventh Edition, 2014.
2. Richard A. Johnson, “Miller & Freund’s Probability and Statistics for Engineers, Eighth Edition, Pearson, 2013.
3. A. M. Mood, F.A. Graybill and D.C. Bose, “Introduction to the Theory of Statistics”, McGraw Hill Education, Eighth Edition, 2001.
4. Peter V. O'Neil, “Advanced Engineering Mathematics”, Thomson Learning, Seventh Edition, Cengage, 2011.
5. M. D. Greenberg, “Advanced Engineering Mathematics”, Pearson Education, Second Edition, 2002.
6. P. N. Wartikar and J. N. Wartikar, “Applied Mathematics”, Vol. I & II, Vidyarthi Prakashan.

WEB REFERENCES:

1. https://ocw.mit.edu/courses/mathematics/18-600-probability-andrandom-variables-fall-2019/lecture-notes/index.htm
2. https://ocw.mit.edu/courses/mathematics/18-02sc-multivariablecalculus-fall-2010/2.-partial-derivatives/
3. https://ocw.mit.edu/resources/res-18-001-calculus-online-textbookspring-2005/textbook/

SRI SAIRAM ENGINEERING COLLEGE CHENNAI -44	INDIVIDUAL DOCUMENT LESSON PLAN	EOMS CODE: BB01A Format No:LP01 Issue No: 01 Version 2 Date: 12.02.2024
	DEPARTMENT OF MATHEMATICS	
	J Komathi /Assistant Professor / Department of Mathematics	

20BSMA204 - DISCRETE STRUCTURES

ACADEMIC YEAR: 2023-2024 SEMESTER: II (Even)

BATCH:2023- 2027		BRANCH	AIDS/CSE/IT	Year/Sem :I / II Date of commencement of the Semester: 15.02.2024

Prerequisites:

Basic Mathematical Knowledge

Course Outcomes:

- For a given logic sentence, express it in terms of predicates, quantifiers, and logical connectives.
- For a given a problem, derive the solution using deductive logic and prove the solution based on logical inference
- For a given a mathematical problem, classify its algebraic structure
- Evaluate Boolean functions and simplify expressions using the properties of Boolean algebra
- Develop the given problem as graph networks and solve them with techniques of graph theory.

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
UNIT I RELATIONS AND FUNCTIONS						
1	Binary Relation, Partial Ordering Relation, Equivalence Relation	4	T1, R1	Chalk and board	CAT I, Assignment I , SAIL Test 2	
2	Sum and Product of functions	2	T1, R1	Chalk and board		
3	Bijective functions	3	T1, R1	Chalk and board	CAT I, Assignment I , SAIL Test 2	
4	Inverse and composite functions	3	T1, R1	Chalk and board		
Total Number of Periods: 12						

UNIT II COMBINATORICS						
1	The Principles of Mathematical Induction	1	T1, R2	Chalk and board	CAT I, Assignment II , SAIL Test 3	
2	The Well-Ordering Principle,Recursive definition	2	T2, R1	Chalk and board		
3	Basic counting techniques	2	T1, R2	Chalk and board		
4	Inclusion and exclusion , Pigeonhole principle	3	T1, R2	Chalk and board	CAT II, Assignment II , SAIL Test 4	
5	Permutation	2	T1, R2	Chalk and board		
6	Combination	2	T2, R1	Chalk and board		
Total Number of Periods: 12						

UNIT III LOGICS AND PROOFS						
1	Basic Connectives	1	T1, R1	Chalk and board	CAT II, Assignment III , SAIL Test 5	
2	Truth Tables	1	T1, R1	Chalk and board		
3	Logical Equivalence: The Laws of Logic, Logical Implication	2	T1, R1	Chalk and board		
4	Rules of Inference	2	T1, R1	Chalk and board		
5	The use of Quantifiers	2	T1, R1	Chalk and board	CAT II, Assignment III , SAIL Test 6	
6	Proof Techniques: Some Terminology,Proof Methods and Strategies	1	T1, R1	Chalk and board		
7	Forward Proof	1	T1, R1	Chalk and board		
8	Proof by Contradiction ,Proof by Contraposition	2	T1, R1	Chalk and board		
Total Number of Periods: 12						

UNIT IV ALGEBRAIC STRUCTURES						
1	Algebraic Structures with One Binary Operation:Semi Groups, Monoids	1	T1	Chalk and board	CAT- III, Assignment- IV, SAIL Test 7	
2	Groups, Permutation Groups	1	T1	Chalk and board		
3	Subgroups	1	T1	Chalk and board		
4	Normal subgroups	2	T1	Chalk and board	CAT- III, Assignment- IV, SAIL Test 8	
5	Algebraic Structures with two Binary Operation: Definition and Examples of	2	T1	Chalk and board		

	Rings and Fields					
6	Boolean Algebra,Identities of Boolean Algebra	2	T1	Chalk and board		
Total Number of Periods: 12						

UNIT V GRAPHS AND TREES						
1	Graphs and their properties	2	T2, R2	Chalk and board	CAT- III, Assignment- V, SAIL Test 9	
2	Degree, Connectivity, Path, Cycle	2	T2, R2	Chalk and board		
3	Sub Graph	2	T2, R2	Chalk and board		
4	Isomorphism	2	T2, R2	Chalk and board		
5	Eulerian and Hamiltonian Walks	2	T2, R2	Chalk and board	CAT- III, Assignment- V, SAIL Test 10	
6	Rooted Trees, Trees and Sorting	2	T2, R2	Chalk and board		
Total Number of Periods: 12						

Signature of the Head of the Department

TEXT BOOKS:

1. Kenneth H. Rosen, Discrete Mathematics and its Applications, Tata McGraw –Hill
2. Susanna S. Epp, Discrete Mathematics with Applications,4th edition, Wadsworth Publishing Co.Inc.
3. C L Liu and D P Mohapatra, Elements of Discrete Mathematics, A Computer Oriented Approach, 3rd Edition by, Tata McGraw –Hill.

REFERENCES:

1. J.P. Tremblay and R. Manohar, Discrete Mathematical Structure and Its Application to Computer Science", TMG Edition,TataMcgraw-Hill
2. Norman L. Biggs, Discrete Mathematics, 2nd Edition, Oxford University Press. Schaum's Outlines Series, Seymour Lipschutz, MarcLipson.

SRI SAIRAM ENGINEERING COLLEGE CHENNAI -44	INDIVIDUAL DOCUMENT LESSON PLAN	EOMS CODE: BB01A Format No:LP01 Issue No.: 01 Date: 01.11.2022
	INSTRUMENTATION AND CONTROL ENGINEERING	
	Name/Designation/Department of the faculty: R KARTHIKEYAN/AP/ICE	

ROBOTICS AND AUTOMATION / 20EIPC701

ACADEMIC YEAR:2023-2024SEMESTER:ODD

BATCH:	2020-2024	BRANCH	ICE	Year/Sem : IV / VII Date of commencement of the Semester: 24.07.2023

Prerequisites : Basic Digital Electronics

Course Outcomes:

Upon the completion of this course the students will be able to

CO1	Ability to understand the evolution, classifications, specifications and law of robots (K2)
CO2	Describe the various components required to build a robot. (K2)
CO3	Ability to select the various end effectors and micro grippers available to design and built a robot. (K1)
CO4	Solve the kinematics, trajectory planning and dynamics of robots. (K3)
CO5	Familiarize various control schemes of Robotics control and get exposed to the case studies and design of robot machine interface. (K2)

Sl.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT I BASIC CONCEPTS				
1	1.1 DEFINITION AND ORIGIN OF ROBOTICS	2	R1	Chalk and Board/ PPT	2 Assignments through SAIL App. & CAT 1	
2	1.2 DIFFERENT TYPES OF ROBOTICS	1	R1	Chalk and Board/ PPT		
3	1.3 VARIOUS GENERATIONS OF ROBOTS	1	R1	Chalk and Board/ PPT		
4	1.4 DEGREES OF FREEDOM	1	R1	Chalk and Board/ PPT		
5	1.5 ROBOT CLASSIFICATIONS	1	R1	Chalk and Board/ PPT		
6	1.6 ROBOT SPECIFICATIONS	1	R1	Chalk and Board/ PPT		
7	1.7 ASIMOV'S LAWS OF ROBOTICS	1	R1	Chalk and Board/ PPT		
8	1.8 DYNAMIC STABILIZATION OF ROBOTS	2	R1	Chalk and Board/ PPT		
Total Number of Periods:		10				

Sl.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT II POWER SOURCES, SENSORS AND ACTUATORS				
1	2.1 HYDRAULIC, PNEUMATIC AND ELECTRIC DRIVES	1	R1	Chalk and Board/ PPT	2 Assignments through SAIL App./ CAT 1&CAT 2	
2	2.2 DESIGN AND CONTROL ISSUES	1	R1	Chalk and Board/ PPT		
3	2.3 DETERMINATION OF HP OF MOTOR AND GEARING RATIO	1	R1	Chalk and Board/ PPT		
4	2.4 VARIABLE SPEED ARRANGEMENTS	1	R1	Chalk and Board/ PPT		
5	2.5 PATH DETERMINATION	2	R1	Chalk and Board/ PPT		
6	2.6 MICRO MACHINES IN ROBOTICS	1	R1	Chalk and Board/ PPT		
7	2.7 MACHINE VISION	1	R1	Chalk and Board/ PPT		
8	2.8 RANGING - LASER – ACOUSTIC	1	R1	Chalk and Board/ PPT		
9	2.9 MAGNETIC, FIBER OPTIC AND TACTILE SENSORS.	1	R1	Chalk and Board/ PPT		
Total Number of Periods:10						

Sl.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT III MANIPULATORS AND GRIPPERS DIFFERENTIAL MOTION				
1	3.1 CONSTRUCTION OF MANIPULATORS	2	R1	Chalk and Board/ PPT	2 Assignments through SAIL App./ CAT 2	
2	3.2 MANIPULATOR DYNAMICS AND FORCE CONTROL	2	R1	Chalk and Board/ PPT		
3	3.3 ELECTRONIC MANIPULATOR CONTROL CIRCUITS	2	R1	Chalk and Board/ PPT		
4	3.4 PNEUMATIC MANIPULATOR CONTROL CIRCUITS	1	R1	Chalk and Board/ PPT		
5	3.5 END EFFECTORS	1	R1	Chalk and Board/ PPT		
6	3.6 VARIOUS TYPES OF GRIPPERS	1	R1	Chalk and Board/ PPT		
7	3.7 DESIGN CONSIDERATIONS	1	R1	Chalk and Board/ PPT		
	Total Number of Periods:	10				

Sl.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignments/Tests planned	Remarks
		UNIT IV KINEMATICS AND PATH PLANNING				
1	4.1 LINEAR AND ANGULAR VELOCITIES	1	R1	Chalk and Board/ PPT	2 Assignments through SAIL App./ CAT 3	
2	4.2 MANIPULATOR JACOBIN-PRISMATIC AND ROTARY JOINTS	1	R1	Chalk and Board/ PPT		
3	4.3 INVERSE -WRIST AND ARM SINGULARITY	2	R1	Chalk and Board/ PPT		
4	4.4 STATIC ANALYSIS	2	R1	Chalk and Board/ PPT		
5	4.5 FORCE AND MOMENT BALANCE	2	R1	Chalk and Board/ PPT		
6	4.6 SOLUTION KINEMATICS PROBLEM	1	R1	Chalk and Board/ PPT		
7	4.7 ROBOT PROGRAMMING LANGUAGES	1	R1	Chalk and Board/ PPT		
Total Number of Periods:		10				

Sl.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests Planned	Remarks
		UNIT V DYNAMICS AND CONTROL WITH APPLICATIONS				
1	5.1 LAGRANGIAN MECHANICS - 2-DOF MANIPULATOR	2	R1	Chalk and Board/ PPT	2 Assignments through SAIL App./ CAT 3	
2	5.2 LAGRANGE EULER FORMULATION- DYNAMIC MODEL	2	R1	Chalk and Board/ PPT		
3	5.3 MANIPULATOR CONTROL PROBLEM-LINEAR CONTROL SCHEMES	1	R1	Chalk and Board/ PPT		
4	5.4 PID CONTROL SCHEME	1	R1	Chalk and Board/ PPT		
5	5.5 FORCE CONTROL OF ROBOTIC MANIPULATOR	1	R1	Chalk and Board/ PPT		
6	5.6 MULTIPLE ROBOTS - MACHINE INTERFACE -	1	R1	Chalk and Board/ PPT		
7	5.7 ROBOTS IN MANUFACTURING AND NON-MANUFACTURING APPLICATIONS	1	R1	Chalk and Board/ PPT		
8	5.8 ROBOT CELL DESIGN - SELECTION OF ROBOT	1	R1	Chalk and Board/ PPT		
Total Number of Periods:		10				

TEXT BOOKS:

1	Mikell P. Grover, Mitchell Weiss, Roger N. Nagel, Nicholas G. Odrey, “Industrial Robotics - Technology, Programming and Applications, Tata Mc graw Hill Education Private Limited, 2nd Edition Paperback, 1 July 2017.
2	Saeed B Niku, “Introduction to Robotics, Analysis, Systems, Applications”, Prentice Hall, 3rd edition 2014.

REFERENCES:

1	Deb .S.R., “Robotics technology and flexible Automation”, Tata Mc graw Hill Education Private Limited, 2nd Edition Paperback, 1 July 2017.
2	Asfahl C.R., “Robots and manufacturing Automation”, John Wiley, USA. Second edition, 1992.
3	Klafter R.D., Chimielewski T.A., Negin M., “Robotic Engineering - An integrated approach”, Prentice Hall of India, New Delhi, 1994.
4	R.K.Mittal and I.J.Nagrath, “Robotics and Control”, Tata McGraw Hill, New Delhi, 4th Reprint, 2005.
5	John J. Craig, “Introduction to Robotics Mechanics and Control”, Third edition, Pearson Education, 2009.

Signature of the Head of the Department

SRI SAIRAM ENGINEERING COLLEGE CHENNAI -44	**INDIVIDUAL DOCUMENT** **LESSON PLAN** **INFORMATION TECHNOLOGY**	**EOMS CODE:** BB01A Format No:LP01 Issue No.: 01 Date: 01.2.2024
	Name/Designation/Department of the faculty:Ms. V.Valarmathi/ AP/IT **Ms. B. Kamala / Asso.Prof./IT** **Ms. Sheeba Rachel / AP/ IT**	

Cloud Computing and Virtualization /20ITPC601

ACADEMIC YEAR :2023-2024 SEMESTER: VI EVEN

BATCH	**2021-2025**	**BRANCH**	**IT**	**Year/Sem :III/VI** **Date of commencement of the Semester:8.2.24**

Prerequisites

Basics of Computer Architecture and Organization, Networking

Course Outcomes:

1. To articulate the main concepts, key technologies, strengths and limitations of cloud computing.
2. To explain enabling technologies that help in the development of the cloud.
3. To make use of cloud computing architecture to solve design challenges.
4. To explain the core issues of cloud computing such as resource management and security.
5. To install and use current cloud technologies.
6. To have knowledge on the various technologies like Hadoop, Mapreduceing and Virtualbox in cloud computing.

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
	UNIT I INTRODUCTION TO CLOUD COMPUTING					
1	Introduction	2	W	Lecture with Discussion		
2	Overview of Computing		W	Lecture with Discussion		

3	Cloud Computing (NIST Model)	2	W	Lecture with Discussion		
3	Properties, Characteristics of Cloud	2	W	Lecture with Discussion		
4	Advantages & Disadvantages of Cloud	1	W	Lecture with Discussion		
5	Applications of cloud computing	1	W	Lecture with Discussion		
6	Role of Open Standards	1	W	Lecture with Discussion	Assignment	
	Content Beyond the syllabus					
Total Number of Periods:			9			

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT II CLOUD COMPUTING ARCHITECTURE				
1	Cloud computing stack	2	W	Lecture with Discussion		
2	Service Models (XaaS)	1	W	Lecture with Discussion		
3	Infrastructure as a Service(IaaS)	2	W	Lecture with Discussion		
4	Platform as a Service(PaaS)	2	W	Lecture with Discussion		
5	Software as a Service(SaaS)	1	W	Lecture with Discussion		
6	Deployment Models	1	W	Lecture with Discussion	Assignment	
	Content Beyond the syllabus					
Total Number of Periods:			9			

l.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks

		UNIT III SERVICE RESOURCE DATA MANAGEMENT IN CLOUD COMPUTING				
1	Service Level Agreements(SLAs)	1	W	Lecture with Discussion		
2	Cloud Economics	2	W	Lecture with Discussion		
3	Resource Management in Cloud Computing	2	W	Lecture with Discussion		
4	Data Management in Cloud Computing	2	W	Lecture with Discussion		
5	Looking at Data, Scalability & Cloud Services	1	W	Lecture with Discussion		
6	Database & Data Stores in Cloud&Large Scale Data Processing	1	W	Lecture with Discussion	Assignment	
7.	Content Beyond the syllabus					
	Total Number of Periods:		9			

l.No.	**Topics to be covered**	**Planned No. of periods**	**Resources (T1, T2, R1, R2, W1, W2, W3)**	**Teaching Methods/Teaching Aids planned**	**Assignments/Tests planned**	**Remarks**
		UNIT IV CLOUD SECURITY				
1	Infrastructure Security	1	W	Lecture with Discussion		
2	Data security and Storage	2	W	Lecture with Discussion		
3	Identity and Access Management	3	W	Lecture with Discussion		
4	Access Control	2	W	Lecture with Discussion		
5	Trust, Reputation, Risk	1	W	Lecture with Discussion	Assignment	
	Content Beyond the syllabus					
	Total Number of Periods:		9			

l.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT V CLOUD TECHNOLOGIES AND ADVANCEMENTS				
1	Case Study on Open Source and Commercial Clouds	2	W	Lecture with Discussion		
2	Cloud Simulator	2	W	Lecture with Discussion		
3	Research trend in Cloud Computing	1	W	Lecture with Discussion		
4	Fog Computing & Cloud-Fog-Edge enabled Analytics	1	W	Lecture with Discussion		
5	VM Resource Allocation, Management and Monitoring	2	W	Lecture with Discussion		
6	Serverless Computing and FaaS Model	1	W	Lecture with Discussion		
	Content Beyond the syllabus					
Total Number of Periods:			9			

HOD / IT

Signature of the Head of the Department

T- TextBook
R- Reference Book
W-Web resources
Teaching methods/Teaching Aids (Sample):Lecture with DIscussion,Lecture with Discussion,Tutorial

SRI SAIRAM ENGINEERING COLLEGE CHENNAI -44	INDIVIDUAL DOCUMENT LESSON PLAN	EOMS CODE: **BB01A** Format No: LP01 Issue No.: 01 Date: 01.11.2022
	DEPARTMENT OF MECHANICAL AND AUTOMATION ENGINEERING	
	Name of the faculty: Dr. I.VIMAL KANNAN / Assistant Professor / Mechanical and Automation Engineering	

20MUPC401 – FLUID POWER AUTOMATION

ACADEMIC YEAR: 2022 – 2023 SEMESTER: EVEN – IV SEMESTER

BATCH:	2021 - 2025	BRANCH	MECH. & AUTO.	Year / Sem. : II YEAR / IV SEMESTER Date of commencement of the Semester: 23.02.23

Prerequisites

1. **Engineering Thermodynamics**
2. **Sensors in Automation**
3. **Fluid Mechanics**

Course Outcomes:

1. Understand basic automation techniques for small manufacturing set-ups. (K1)

2. Illustrate the working principles of fluid power accessories like pumps, motors. (K3)

3. Analyze pneumatic and hydraulic circuits of medium complexity. (K3)

4. Illustrate the working of control and regulation elements used in pneumatic and hydraulic circuits. (K3)

5. Demonstrate the use of electrical and electronics control in pneumatic and hydraulic circuits. (K3)

6. Analyze the benefits and challenges of Digital Hydraulics. (K3)

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignments/Tests planned	Remarks
UNIT I : INTRODUCTION TO FLUID POWER PRINCIPLES						
1	Introduction to Fluid Power Automation	1	T1	Lecture with Discussion		
2	Definition; Basics of Hydraulics – Pascal's Law	1	R1	Lecture with Discussion		
3	Principles of flow	1	R1	Lecture with Discussion		
4	Properties of fluids	1	R1	Lecture with Discussion		
5	Benefits and Impact of Automation on Manufacturing and Process Industries	1	T1	Lecture with Discussion		
6	Hydraulic & Pneumatic Comparison	1	T1	Lecture with Discussion		
7	ISO symbols for fluid power elements	1	T1	Lecture with Discussion	Assignment 1	
8	Hydraulic, pneumatics – Selection criteria	1	T1	Lecture with Discussion		
	Content Beyond the syllabus					
	Types of fluids and fluid flow and various losses in fluid flow	1				
Total Number of Periods: 09						

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
	UNIT II: FLUID POWER GENERATING/UTILIZING COMPONENTS					
1	Hydraulic pumps and motor, Introduction, types and classification.	1	T1	Lecture with Discussion		
2	Hydraulic pumps, gears, vane, piston - selection and specification - Drive characteristics.	1	T1	Lecture with Discussion		
3	Hydraulic motors - selection and specification - Drive characteristics	1	T1	Lecture with Discussion		
4	Linear actuator – Types, mounting details, cushioning	1	T1	Lecture with Discussion	CAT I	
5	Power packs – construction	1	T1	Lecture with Discussion		
6	Reservoir capacity, heat dissipation, accumulators and their types	1	T1	Lecture with Discussion		
7	Pneumatics: Properties of air - Perfect Gas Laws	1	T1	Lecture with Discussion		
8	Types of Actuators and Compressor	1	T1	Lecture with Discussion		
9	Filters, Regulator, Lubricator and Muffler	1	T1	Lecture with Discussion		
	Content Beyond the syllabus					

Total Number of Periods: 09				

l.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
	UNIT III: FLUID POWER CONTROL ELEMENTS					
1	Direction Flow control valves – Types, Construction and Operation	1	T1	Lecture with Demonstration		
2	Direction Flow control valves – Types, Construction and Operation	1	T1	Lecture with Demonstration		
3	Pressure control valves – Types, Construction and Operation	1	T1	Lecture with Demonstration		
4	Pressure control valves – Types, Construction and Operation	1	T1	Lecture with Demonstration	Assignment 2	
5	Servo and Proportional valves	1	T1	Lecture with Demonstration		
6	Applications – Accessories: Reservoirs	1	T1	Lecture with Demonstration		
7	Pressure Switches – Applications	1	T1	Lecture with Demonstration		
8	Air control Valves	1	T1	Lecture with Demonstration		
9	Quick Exhaust Valves.	1	T1	Lecture with Demonstration	CAT II	
	Content Beyond the syllabus					
	Total Number of Periods: 09					

l.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignments/Tests planned	Remarks
	UNIT IV: CIRCUIT DESIGN					
1	Basic Hydraulic Circuits: Meter in, Meter out	1	T1	Lecture with Demonstration		
2	Bleed off circuits	1	T1	Lecture with Demonstration		
3	Intensifier circuits, Regenerative Circuit	1	T1	Lecture with Demonstration		
4	Counter balance valve circuit	1	T1	Lecture with Demonstration		
5	Sequencing circuits.	1	T1	Lecture with Demonstration		
6	Pneumatic Circuit Designing: Design of Pneumatic sequencing circuits	1	T1	Lecture with Demonstration		
7	Design of Pneumatic sequencing circuits using Cascade method	1	T1	Lecture with Demonstration		
8	Design of Pneumatic sequencing circuits using Shift register method (up to 3 cylinders)	1	T1	Lecture with Demonstration		
9	Design of Pneumatic circuits for Pick and Place applications	1	T1	Lecture with Demonstration		
	Content Beyond the syllabus					
	Total Number of Periods:	09				

l.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignments/Tests planned	Remarks
	UNIT V: ELECTRO PNEUMATICS & ELECTRONIC CONTROL OF HYDRAULIC AND PNEUMATIC CIRCUITS					
1	Design of Electro-Pneumatic Circuits using single solenoid	1	T1	Lecture with Demonstration		
2	Design of Electro-Pneumatic Circuits using double solenoid valves	1	T1	Lecture with Demonstration		
3	Design of Electro-Pneumatic Circuits with and without grouping	1	T1	Lecture with Demonstration		
4	Design of Pneumatic circuits using PLC Control	1	T1	Lecture with Demonstration		
5	PLC Control - ladder programming - up to 2 cylinders	1	T1	Lecture with Demonstration	Assignment 3	
6	PLC with applications of Timers and Counters	1	T1	Lecture with Demonstration		
7	PLC concept of Flag and latching	1	T1	Lecture with Demonstration		
8	Digital Hydraulics: Introduction	1	T1	Lecture with Demonstration		
9	Different ways to realize motion control with on/off valves	1	T1	Lecture with Demonstration		
10	Benefits and challenges of digital Hydraulics	1	T1	Lecture with Demonstration	CAT III	
	Total Number of Periods: 10					

Signature of the Head of the Department

T-Text Book
R-Reference Book

Teaching methods/ Teaching Aids (Sample): Lecture with Demonstration
Lecture with Discussion

EVEN SEMESTER

2023-2024

SRI SAI RAM ENGINEERING COLLEGE CHENNAI -44	INDIVIDUAL DOCUMENT LESSON PLAN	EOMS CODE: BB01A Format No:LP01 Issue No.: 01 Date: 01.11.2022
	DEPARTMENT OF M.TECH COMPUTER SCIENCE AND ENGINEERING	
	Name/Designation/Department of the faculty: A.SHINY/ASSISTANT PROFESSOR/M.TECH CSE	
	Universal Human Values II/ 20HSMC501 ACADEMIC YEAR:SEMESTER: EVEN	

BATCH:	2021-2026	BRANCH	M.TECH CSE	Year/Sem :III /VI Date of commencement of the Semester: 08.02.2024

Prerequisites

Course Outcomes:

1. Express the harmony of relationship among human beings, family, society, nature and existence with right understanding and right feeling.

2. Develop the responsibility of handling problems by finding holistic and sustainable solutions based on the natural acceptance for maintaining mutual human relationships.

3. Develop a holistic perspective of life based on self-exploration about self, family, society and nature/existence.

4. Elucidate critical ability for dedicative commitment towards human values, relationships and society.

5. Implement the process of verification and validation of learning in daily life.

6. Develop self-reflection, commitment and courage to act in life challenging situations.

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT I TITLE: COURSE INTRODUCTION - NEED, BASIC GUIDELINES, CONTENT AND PROCESS FOR VALUE EDUCATION				
1	Purpose, motivation and recapitulation from Universal Human Values-I	1	T1	BLACK BOARD		
2	Self-Exploration- Its content and process; 'Natural Acceptance' and Experiential Validation	2	T1	BLACK BOARD		
3	Basic Human Aspiration- Continuous Happiness and Prosperity	2	T1	BLACK BOARD		
4	Right understanding, Relationship and Physical Facility- the basic requirements for fulfillment of aspirations of every human being with their correct priority.	2	T1	PPT		
5	Understanding Happiness and Prosperity - A critical appraisal of the current scenario	1	T1	PPT		
6	Method to fulfill the above human aspirations: understanding and living in harmony at various levels.	1	T1	BLACK BOARD		
7	Content Beyond the syllabus	-				
	Total Number of Periods: 9					

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignments/Tests planned	Remarks
		UNIT II TITLE: UNDERSTANDING HARMONY IN THE HUMAN BEING - HARMONY IN SELF				
1	Understanding human being as a co-existence of the' Self' and 'Body'	1	T1	BLACK BOARD		
2	Understanding the needs of Self ('I') and 'Body' - happiness and physical facility	2	T1	BLACK BOARD		
3	Understanding the Body as an instrument of Self('I') (Self being the Doer, Seer and Enjoyer)	2	Online	PPT		
4	Understanding the characteristics and activities of Self and harmony in Self	2	T1	BLACK BOARD		
5	Understanding the harmony of Self with the Body: Sanyam and Health; correct appraisal of Physical needs, meaning of Prosperity in detail	1	Online	PPT		
6	Programs to ensure Sanyam and Health.	1	T1	BLACK BOARD		
7	Content Beyond the syllabus					
Total Number of Periods: 9						

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT III TITLE: UNDERSTANDING HARMONY IN THE FAMILY AND SOCIETY - HARMONY IN HUMAN-HUMAN RELATIONSHIP				
1	Understanding values in human-human relationship; meaning of Justice (nine universal values in relationships) and program for its fulfillment to ensure mutual happiness.	1	T1	BLACK BOARD		
2	Understanding the meaning of Trust(Foundational value); Difference between intention and competence	2	T1	BLACK BOARD		
3	Understanding the meaning of Respect, Difference between respect and differentiation; the other salient values in relationship	2	T1	BLACK BOARD		
4	Understanding the harmony in the society (society being an extension of family): Resolution, Prosperity, fearlessness (trust) and co-existence as comprehensive Human Goals	2	T1	PPT		
5	Understanding the harmony in the society (society being an extension of family): Resolution, Prosperity, fearlessness (trust) and co-existence as comprehensive Human Goals	2	T1	PPT		
6	Content Beyond the syllabus					
	Total Number of Periods: 9					

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignments/Tests planned	Remarks
		UNIT IV TITLE: UNDERSTANDING HARMONY IN THE NATURE AND EXISTENCE - WHOLE EXISTENCE AS COEXISTENCE				
1	Understanding the harmony in the Nature	2	T1	BLACK BOARD		
2	Interconnectedness and mutual fulfillment among the four orders of nature- recyclability and self- regulation in nature	3	T1	BLACK BOARD		
3	Understanding Existence as Co-existence of mutually interacting units in all-pervasive space	2	T1	BLACK BOARD		
4	Holistic perception of harmony at all levels of nature and existence.	2	T1	BLACK BOARD		
5	Content Beyond the syllabus					
	Total Number of Periods: 9					

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT V TITLE: IMPLICATIONS OF THE ABOVE HOLISTIC UNDERSTANDING OF HARMONY ON PROFESSIONAL ETHICS				
1	Natural acceptance of human values	1	T1	BLACK BOARD		
2	Definiteness of Ethical Human Conduct	2	T1	BLACK BOARD		
3	Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order	2	T1	BLACK BOARD		
4	Competence in professional ethics:	1	T1	BLACK BOARD		
5	Case studies of typical holistic technologies, management models and production systems	1	T1	BLACK BOARD		
6	Strategy for transition from the present state to Universal Human Order:	1	T1	BLACK BOARD		
7	Sum up	1	T1	BLACK BOARD		
8	Content Beyond the syllabus					
	Total Number of Periods: 9					

Signature of the Head of the Department

T-Text Book
R-Reference Book
W-Web resources

Teaching methods/ Teaching Aids (Sample): Lecture with Demonstration
Lecture with Discussion
Tutorial

SRI SAI RAM ENGINEERING COLLEGE
CHENNAI - 44
DEPARTMENT OF M.TECH CSE
LESSON PLAN FOR PRACTICAL
LESSON PLAN

Name of the Staff : G. YUVARAJ **Class : III/VI**
Subject Name : CLOUD COMPUTING LABORATORY Subject Code :20CSPL602

S.No	Name of the Experiment	Batch-I		Batch-II		Remarks
		Proposed Date of Execution	Actual Date of Execution	Proposed Date of Execution	Actual Date of Execution	
1.	Install VirtualBox/VMware Workstation with different flavors of Linux or Windows OS on top of Windows 7 or 8.	8/2/24		13/2/24		
2.	Install a C compiler in the virtual machine created using virtual box and execute simple programs.	15/2/24		19/2/24		
3.	Install Google App Engine. Create hello world app and other simple web applications using Python/Java.	22/2/24		26/2/24		
4.	Use GAE launcher to launch the Web Applications	29/2/24		4/3/24		
5.	Simulate a cloud scenario using CloudSim and run a scheduling algorithm that is not present in CloudSim.	7/3/24		11/3/24		
6.	Find a procedure to transfer the files from one Virtual Machine to another Virtual Machine.	14/3/24		18/3/24		
7.	Find a procedure to launch Virtual Machine using try stack (Online Openstack Demo Version)	21/3/24		1/4/24		
8	Install Hadoop single node cluster and run simple applications like word count.	11/4/24		8/4/24		

Prepared By: G. Yuvaraj

Approved By: HOD

SRI SAI RAM ENGINEERING COLLEGE CHENNAI -44	NDIVIDUAL DOCUMENT LESSON PLAN	EOMS CODE: BB01A Issue No.: 01; Ver. 02 Date: 01.11.2022
	M.TECH-COMPUTER SCIENCE AND ENGINEERING (5 Year Integrated)	
	Name of the faculty/Department of the faculty: MS.SHINY.A	

OPERATING SYSTEM/20CSPC401

ACADEMIC YEAR: 2023-2024 **SEMESTER:EVEN**

BATCH:	2022-2027	BRANCH	M.TECH-CSE	Year / Sem :II/IV Date of commencement of the Sem:.08.02.24
NAME OF THE FACULTY	MS.SHINY.A	DESIGNATION	AP	Department M.TECH CSE

Prerequisites

To understand the basic concepts and functions of operating systems.

Course Outcomes:

1. Understand the basic concepts and functionality of the operating system. (K2)
2. Illustrate various resource scheduling algorithms. (K3)
3. Discuss process and memory management techniques. (K2)
4. Explain File & I/O management techniques. (K2)
5. Apply various resource management algorithms (K3)
6. Demonstrate Linux system and mobile OS like ios and Android. (K3)

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignments/Tests planned	Remarks
	UNIT I TITLE: OPERATING SYSTEM OVERVIEW					
1	1.1 Computer System Overview-Basic Elements	1	R1	Lecture with Discussion		
2	1.2 Instruction Execution, interrupts	1	R1	Lecture with Discussion		
3	1.3 Memory Hierarchy, Cache Memory, Direct Memory Access	1	R1	Lecture with Discussion		
4	1.4 Multiprocessor and Multicore Organization	1	R1	Lecture with Discussion		
5	1.5 Operating system overview- objectives and functions-Evolution of Operating System	1	R1	Lecture with Discussion	ASSIGNMENT 1	
6	1.6.- Computer System Organization-Operating System Structure and Operations	1	T 1	Lecture with Discussion	ASSIGNMENT 1	
7	1.7 System Calls, System Programs-OS Generation and System Boot	1	T1	Lecture with Discussion		
	Total Number of Periods:7					

S.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT II TITLE: PROCESS MANAGEMENT				
1	2.1 Processes - Process Concept.	1	T1	Lecture with Discussion		
2	2.2 Process Scheduling		T1	Lecture with Discussion		
3	2.3 Operations on Processes, Inter- process Communication	1	T1	Lecture with Discussion		
4	2.4 CPU Scheduling - Scheduling criteria, Scheduling algorithms	1	T1	Lecture with Demonstration	ASSIGNMENT 2	
5	2.5Multiple -processor scheduling, Real time scheduling		T1	Lecture with Discussion		
6	2.6 Threads- Overview, Multithreading models, Threading issues	1	T1	Lecture with Discussion		
7	2.7 Process Synchronization - The critical-section problem, Synchronization hardware, Mutex locks	1	T1	Lecture with Demonstration		
8	2.8 Semaphores, Classic problems of synchronization, Critical regions, Monitors	1	T1	Lecture with Discussion		
9	2.9 Deadlock - System model, Deadlock characterization	1	T1	Lecture with Discussion	ASSIGNMENT 2	
10	2.10 Methods for handling deadlocks, Deadlock prevention, Deadlock avoidance	1	T1	Lecture with Discussion		
11	2.11 Deadlock detection, Recovery from deadlock	1	T1	Lecture with Discussion		
Total Number of Periods:11						

l.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT III TITLE: STORAGE MANAGEMENT				
1	3.1 Main Memory – Background	1	T1	Lecture with Discussion		
2	3.2 Swapping, Contiguous Memory Allocation	1	T1	Lecture with Demonstration		
3	3.3 Paging	1	T1	Lecture with Discussion		
4	3.4 Segmentation	1	T1	Lecture with Discussion		
5	3.5 Segmentation with paging, 32 and 64 bit architecture Examples	1	T1	Lecture with Discussion	ASSIGNMENT 3	
6	3.6 Virtual Memory – Background	1	T1	Lecture with Discussion		
7	3.7 Demand Paging, Page Replacement, Allocation	1	T1	Lecture with Discussion		
8	3.8 Thrashing	1	T1	Lecture with Discussion		
9	3.9 Allocating Kernel Memory, OS Examples	1	T1	Lecture with Discussion	ASSIGNMENT 3	
Total Number of Periods:9						

l.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT IV TITLE: FILE SYSTEMS AND I/O SYSTEMS				
1	4.1 Mass Storage system – Overview of Mass Storage Structure	1	T1	Lecture with Discussion		
2	4.2 Disk Structure, Disk Scheduling and Management	1	T1	Lecture with Discussion	ASSIGNMENT	
3	4.3 Swap space management	1	T1	Lecture with Discussion		
4	4.4 File-System Interface - File concept, Access methods, Directory Structure	1	T1	Lecture with Discussion		
5	4.5 Directory organization, File system mounting, File Sharing and Protection	1	T1	Lecture with Discussion		
6	4.6 File System Implementation- File System Structure, Directory implementation	1	T1	Lecture with Discussion		
7	4.7 Allocation Methods, Free Space Management, Efficiency and Performance, Recovery	1	T1	Lecture with Discussion		
8	4.8 I/O Systems – I/O Hardware, Application I/O interface	1	T1	Lecture with Discussion		
9	4.9 Kernel I/O subsystem, Streams, Performance	1	T1	Lecture with Discussion	ASSIGNMENT	
10	4.10 Mass Storage system – Overview of Mass Storage Structure	1	T1	Lecture with Discussion		
Total Number of Periods:9						

I.No.	Topics to be covered	Planned No. of periods	Resources (T1, T2, R1, R2, W1, W2, W3)	Teaching Methods/Teaching Aids planned	Assignment/Tests planned	Remarks
		UNIT V TITLE: CASE STUDY				
1	5.1 Linux System - Design Principles	1	T1	Lecture with Discussion		
2	5.2 Kernel Modules	1	T1	Lecture with Discussion		
3	5.3 Process Management, Scheduling	1	T1	Lecture with Discussion		
4	5.4 Memory Management	1	T1	Lecture with Discussion		
5	5.5 Input-Output Management	1	T1	Lecture with Discussion		
6	5.6 File System, Inter-process Communication	1	T1	Lecture with Discussion		
7	5.7 Mobile OS - IOS and Android Architecture	1	W1	Lecture with Discussion	ASSIGNMENT	
8	5.8 SDK Framework, Media Layer	1	W1	Lecture with Discussion		
9	5.9 Services Layer, Core OS Layer, File System	1	W1	Lecture with Discussion	ASSIGNMENT	
Total Number of Periods:9						

Signature of the Head of the Department

T-TextBook
R-Reference Book
W-Web resources

Teaching methods/ Teaching Aids (Sample): Lecture with Demonstration
Lecture with Discussion
Tutorial

SRI SAI RAM ENGINEERING COLLEGE
CHENNAI - 44
DEPARTMENT OF M.TECH CSE
LESSON PLAN FOR PRACTICAL

Name of the Staff: Shiny. A **Class: II/IV**
Subject Name: Operating Systems Laboratory **Subject Code: 20CSPL301**

2023 - 2024.

S.no	Name of the Experiment	Batch-I		Batch-II		Remarks
		Proposed Date of Execution	Actual Date of Execution	Proposed Date of Execution	Actual Date of Execution	
1.	Basics of UNIX commands	19.02.24	26.02.24	15.02.24		
2.	Write programs using the following system calls of UNIX operating system fork, exec, getpid, exit, wait, close, stat, opendir, readdir	26.02.24		22.02.24		
3	Write C programs to simulate UNIX commands like cp, ls, grep, etc..	04.03.24		29.02.24		
4	Shell Programming	11.03.24		07.03.24		
5	Write C programs to implement the various CPU Scheduling Algorithms	18.03.24		14.03.24		
6	Implementation of Semaphores	25.03.24		22.03.24		
7	Implementation of Shared memory and IPC	1.04.24		29.03.24		
8	Bankers Algorithm for Deadlock Avoidance	08.04.24		04.04.24		
9	Implementation of Deadlock Detection Algorithm	15.04.24		11.04.24		
10	Implementation of the following Memory Allocation Methods for fixed partition a)First Fit b) Worst Fit c) Best Fit	22.04.24		18.04.24		