SOET **B.Tech CSE(AI & ML)-Year 2020-2024 (Scheme of Studies as per Choice-Based Credit System (CBCS) and Learning Outcome-Based Curriculum Framework (LOCF))** **SOET**

ODD SEMESTER									EVEN SEMESTER							
Year	SNo		Course Code	Course Title	L	T	P	C	SNo		Course Code	Course Title	L	T	P	C
	1	SE	ETEL155A	Communication Skills	4	0	0	4	1	SE	ETMA104A	Applied Mathematics-II	3	1	0	4
	2	SE	ETDM301A	Disaster Management	3	0	0	3	2	SE	ETEC101A	Basics of Electrical & Electronics Engineering	3	1	0	4
	4	SE	ETPH109A	Engineering Physics	3	1	0	4	3	CC	ETCS103A	Programming for Problem Solving	3	1	0	4
	5	SE	ETPH161A	Engineering Physics lab	0	0	2	1	4	SE	ETME 155A	Engineering Graphics Lab	0	0	3	1.5
	6	SE	ETMA105A	Applied Mathematics-I	3	1	0	4	5	SE	ETEC151A	Basics of Electrical & Electronics Engineering Lab	0	0	2	1
	7	SE	ETME101A	Basics of Mechanical Engineering	3	1	0	4	6	SE	ETCH159A	Engineering Chemistry Lab	0	0	2	1
	8	SE	ETME151A	Basics of Mechanical Engineering Lab	0	0	2	1	7	SE	ETME 157A	Workshop Practices	0	0	3	1.5
									8	SE	ETCS153A	Programming for Problem Solving Lab	0	0	2	1
									9	OE		Open Elective	4			6
	TOTAL				16	3	4	21	TOTAL				13	3	12	24
Second	1	CC	ETCS211A	Operating Systems	3	1	-	4	1	CC	ETCS222A	Computer Organization & Architecture	4	-	-	4
	2	CC	ETEC 233A	Analog Electronics	3	1	-	4	2	CC	ETCS220A	Analysis and Design of Algorithms	4	-	-	4
	3	CC	ETEC 210A	Digital Electronics	4		-	4	3	CC	ETCS307A	Database Management Systems	4	-	-	4
	4	SE	ETCS555A	Python Programming Lab	-	-	2	1	4	CC	IIIT102A	Fundamentals of Innovation and Entrepreneurship	3	-	-	3
	5	CC	ETCS217A	Data Structures	4		-	4	5	CC	ETCS260A	Computer Organization & Architecture Lab	-	-	2	1
	6	SE	ETEC 263A	Analog Electronics Lab	-	-	2	1	6	SE	ETCS 355A	Database Management Systems Lab	-	-	2	1
	7	CC	IIT213A	Project I	-	-	4	2	7	SE	ETCS262A	Analysis and Design of Algorithms Lab	-	-	2	1
	8	SE	ETCS257A	Data Structures Lab	-	-	2	1	8	SE	IIIT211A	Proability and Statistics	4	-	-	4
									9	CC	IIIT212A	Project II	-	-	4	2
	TOTAL				14	2	10	21	TOTAL				19	0	10	24

Note: Practical training will be of minimum six weeks duration at the end of fourth semester during summer break and the evaluation will be done at the end of fifth semester.

Third	1	CC	ETCS323A	Java Programming	4	-	-	4	1	CC	ETCS412A	Compiler Design	4	-	-	4
	2	CC	ETCS 214A	Theory of Computation	3	1	-	4	2	CC	ETCS401A	Artificial Intelligence	4	-	-	4
	3	CC	ETCS211A	Operating Systems	4	-	-	4	3	CC	ETCS 202A	Software Engineering	4	-	-	4
	4	CC	ETCS304A	Computer Networks	4	-	-	4	4	SE	ETCS454A	Compiler Design Lab	-	-	2	1
	5	SE	ETCS365A	Computer Networks Lab	-	-	2	1	5	SE	ETCS374A	Advanced iOS Development Lab	-	-	3	1.5
	6	SE	ETCS361A	Java Programming Lab	-	-	2	1	6	CC	ETCS417A	Data Warehousing and Data Mining	4	-	-	4
	7	CC	ETCS363A	Fundamentals of iOS Development Lab	-	-	3	1.5	7	SE	ETCS456A	Data Warehousing and Data Mining Lab	-	-	2	1
	8	SE	ETCS255A	Operating System Lab	-	-	2	1	8	SE		Value Added Course	3	-	-	0
	9	SE	ETCS381A	Practical Training I	-	-	-	1	9		**Elective**					
	10	SE		Value Added Course	3	-	-	0	(i)	CC	ETCS308A	Web Technologies	3	-	-	3
									(ii)	CC	ETCS309A	Distributed Computing Systems	3	-	-	3
									(iii)	CC	ETCS310A	Advanced Computer Architecture	3	-	-	3
	TOTAL				**18**	**1**	**9**	**21.5**	**TOTAL**				**22**	**3**	**7**	**22.5**

Note: Practical training will be of eight weeks duration at the end of sixth semester during summer break and the evaluation will be done at the end of seventh semester.

Fourth	1	CC	ETMC310A	Chasing The Rainbow: The Entrepreneurial Streak	3	-	-	3								
	2	CC	ETCS462A	Project	-	-	10	5								
	3	CC	ETCS481A	Practical Training II	-	-	-	2								
	4		**Elective (without Lab)**									**Six Months Industrial Internship**				6
	(i)	CC	ETCS402A	Natural Language Processing	4	-	-	4								
	(ii)	CC	ETCS403A	Digital Image Processing	4	-	-	4								
	(iii)	CC	ETCS404A	Advanced Database Management Systems	4	-	-	4								
	(iv)	CC	ETCS408A	Neural Network	4	-	-	4								
	5		**Elective (with Lab)**													
	(i)	CC	ETCS416A	Cloud Computing	4	-	-	4								
		SE	ETCA362A	Cloud Computing Lab	-	-	2	1								
	(ii)	CC	ETCS418A	Internet of Things	4	-	-	4								
		SE	ETCS457A	Internet of Things Lab	-	-	2	1								
	(iii)	CC	ETCS411A	Machine Learning	4	-	-	4								
		SE	ETCS455A	Machine Learning Lab	-	-	2	1								
	TOTAL				**9**	-	**14**	**19**	**TOTAL**				-	-	-	6
									Total Credits [C]						**159**	

Electives (without lab) can be offered as MOOC courses. The students has to appear in Swayam courses and appear for examinations to earn credits.

Open Electives -III	
	Human Resource Management
	Business Applications Of Economics
	Economic Policies of India
ETLW601A	Constitution of India
ETLW602A	Cyber Laws and Ethics
ETEL217A	Personality Development and Communication Skills
	German
	French
	Yoga and Meditation
	Physical Education

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B.Tech (CSE)-AI/ML **Year 2021-2025 (Scheme of Studies as per Choice-Based Credit System (CBCS) and Learning Outcome-Based Curriculum Framework (LOCF))** **SOET**

ODD SEMESTER

Year	SNo	Category	Course Code	Course Title	L	T	P	C	EMP/ENT/SE/ OP
First	1	BS	ETMA105A	Applied Mathematics-I	3	1	0	4	SE
	2	BS	ETPH109A	Engineering Physics	3	1	0	4	SE
	3	MC	UCES125A	Environmental Studies	3	0	0	3	SE
	4	PCC	ETCS106A	Clean Coding with Python	3	0	0	3	EMP
	5	PCC	ETCS105A	Overview of AI, Data Science, Ethics and Foundation of Data Analysis	2	0	0	2	EMP
	6	ESC	ETME101A	Basics of Mechanical Engineering	3	1	0	4	OP
	7	ESC	ETME151A	Basics of Mechanical Engineering Lab	0	0	2	1	OP
	8	BS	ETPH151A	Engineering Physics Lab	0	0	2	1	SE
	9	PCC	ETCS155A	Overview of AI, Data Science, Ethics and Foundation of Data Analysis Lab	0	0	2	1	EMP
	10	PCC	ETCS157A	Clean Coding with Python Lab	0	0	2	1	EMP
	TOTAL				**17**	**3**	**8**	**24**	

EVEN SEMESTER

SNo	Category	Course Code	Course Title	L	T	P	C
1	BS	ETMA104A	Applied Mathematics-II	3	1	0	4
2	HSMC	UCCS 155A	Communication Skills	4	0	0	4
3	BS	ETCH119A	Engineering Chemistry	3	1	0	4
4	ESC	ETME 155A	Engineering Graphics Lab	0	0	3	1.5
5	BS	ETCH159A	Engineering Chemistry Lab	0	0	2	1
6	PCC	ETCS107A	Data Analysis using Python, Numpy, Pandas, Matplotlib, and Seaborn	2	0	0	2
8	PCC	ETCS154A	Data Analysis using Python, Numpy, Pandas, Matplotlib, and Seaborn Lab	0	0	2	1
9	ESC	ETEC101A	Basics of Electrical and Electronics En	3	1	0	4
10	ESC	ETEC151A	Basics of Electrical and Electronics En	0	0	2	1
TOTAL				**15**	**3**	**10**	**22.5**

Second	1	GE	ETMA215A	PROBABILITY AND STATISTICS	4	-	-	4	SE
	2	PCC	ETCS203A	Probabilistic Modelling and Reasoning with Python	2	-	-	2	SE
	3	PCC	ETCS231A	Discrete Mathematics	3	1	-	4	SE/OP
	4	PCC	ETCS217A	Data Structures	3	1	-	4	SE/EMP
	5	PCC	ETCS208A	R Programming for Data Science and Data Analytics	2	-	-	2	EMP
	6	PCC	ETCS257A	Data Structures Lab	-	-	2	1	SE/EMP
	7	PCC	ETCS259A	Probabilistic Modelling and Reasoning with Python Lab	-	-	2	1	SE
	8	PCC	ETCS261A	R Programming for Data Science and Data Analytics Lab	-	-	2	1	EMP
	9	**MC**	**UCDM301A**	**Disaster Management**	**3**	**-**	**-**	**3**	**MC**
	TOTAL				**17**	**2**	**6**	**22**	

1	PCC	ETCS222A	Computer Organization & Architecture	3	1	-	4
2	PCC	ETCS220A	Analysis and Design of Algorithms	3	1	-	4
3	PCC	ETCS307A	Database Management Systems	3	1	-	4
4	PCC	ETCS205A	Machine Learning and Pattern Recognition	3	-	-	3
5	HSMC	ETMC 226A	Fundamentals of Management	3	-	-	3
6	PCC	ETCS254A	Machine Learning Practical with Python, Scikit-learn, Matplotlib,	-	-	4	2
7	PCC	ETCS 355A	Database Management Systems Lab	-	-	2	1
8	PCC	ETCS262A	Analysis and Design of Algorithms La	-	-	2	1
9			Value Added Course	3	-	-	0
10	HSMC		MOOC	1	-	-	2
TOTAL				**19**	**3**	**8**	**24**

Note: Practical training will be of minimum six weeks duration at the end of fourth semester during summer break and the evaluation will be done at the end of fifth semester.

Third	1	PCC	ETCS308A	Big Data Analytics	3	-	-	3	EMP/ENT
	2	PCC	ETCS 214A	Theory of Computation	3	1	-	4	SE
	3	PCC	ETCS211A	Operating Systems	3	1	-	4	SE
	4	PCC	ETCS304A	Computer Networks	3	1	-	4	EMP/OP
	5	PCC	ETCS365A	Computer Networks Lab	-	-	2	1	EMP/OP
	6	PCC	ETCS364A	Big Data Analytics Lab	-	-	2	1	EMP/ENT
	7	PCC	ETCS367A	iOS Development Lab	-	-	2	1	EMP/ENT
	8	PCC	ETCS255A	Operating System Lab	-	-	2	1	SE
	9	PROJ	ETCS381A	Practical Training I	-	-	-	1	EMP
	10			Value Added Course	3	-	-	0	SE
	TOTAL				**15**	**3**	**8**	**20**	

1	PCC	ETCS412A	Compiler Design	3	1	-	4
2	PCC	ETCS327A	Neural Networks and Deep Learning	3	-	-	3
3	PCC	ETCS354A	Deep Learning Practical with Python, TensorFlow and Keras	-	-	4	2
4	PCC	ETCS313A	Data Science - Tools and Techniques	2	-	-	2
5	PCC	ETCS311A	Natural Language Processing	2	-	-	2
6			Value Added Course	3	-	-	0
7	PCC	ETCS356A	Data Science - Tools and Techniques	-	-	2	1
8	PCC	ETCS352A	Natural Language Processing Lab	-	-	2	1
9		**Elective**					
(i)	PEC	ETCS420A	Graph Theory	3	-	-	3
(ii)	PEC	ETCS320A	Distributed Computing Systems	3	-	-	3
(iii)	PEC	ETCS310A	Advanced Computer Architecture	3	-	-	3
TOTAL				**16**	**1**	**10**	**18**

Note: Practical training will be of eight weeks duration at the end of sixth semester during summer break and the evaluation will be done at the end of seventh semester.

Fourth	1	PCC	ETCS428A	Computer Vision	2	-	-	2	EMP
	2	PROJ	ETCS464A	Major Project	-	-	-	6	EMP/ENT
	3	PCC	ETCS453A	Computer Vision Lab	-	-	2	1	EMP
	4	PROJ	ETCS481A	Practical Training II	-	-	-	2	EMP/ENT
	5	PCC	ETCS332A	Data Visualization and Story Telling	2	-	-	2	EMP/ENT
	6	PCC	ETCS461A	Data Visualization and Story Telling Lab	-	-	2	1	EMP/ENT
	7		**Elective (with Lab)**						
	(i)	PEC	ETCS422A	Cloud Computing	4	-	-	4	EMP/ENT
		PEC	ETCA362A	Cloud Computing Lab	-	-	2	1	EMP/ENT
	(ii)	PEC	ETCS418A	Internet of Things	4	-	-	4	EMP/ENT
		PEC	ETCS457A	Internet of Things Lab	-	-	2	1	EMP/ENT
	(iii)	PEC	ETCS424A	Data Warehousing and Data Mining	4	-	-	4	EMP/ENT
		PEC	ETCS463A	Data Warehousing and Data Mining Lab	-	-	2	1	EMP/ENT
	TOTAL				**8**	**-**	**6**	**19**	

1	PROJ	ETCS490A	**Industrial Internship**	-	-	-	12
TOTAL				-	-	-	**12**
Total Credits [C]							**161.5**

Electives (without lab) can be offered as MOOC courses. The students has to appear in Swayam courses and appear for examinations to earn credits.

EMP	Employability
SE	Skill Enhancement
ENT	Entrepreneurship
OP	Open Elective

HSMC	Humanities, Social Science and Management
BS	Basic Science
ESC	workshop, drawing, basics of
MC	Mandatory Courses
OEC	Open Elective
PROJ	Projects / Industrial Training/ Seminar
PEC	Professional Elective Courses
PCC	Professional Core Courses

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K.R. MANGALAM UNIVERSITY

THE COMPLETE WORLD OF EDUCATION

SCHOOL OF ENGINEERING AND TECHNOLOGY

Bachelor of Technology (Computer Science & Engineering)
B.Tech (CSE)

PROGRAMME CODE: 01

2020-24

Approved in the 23rd Meeting of Academic Council Held on 23 June 2020

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Semester VII

ETCS462A	Project	L	T	P	C
Version 1.0		-	-	10	5
Pre-requisites/Exposure	--				
Co-requisites	--				

The course is designed to provide an opportunity to students to demonstrate the ability to devise, select and use a range of methodologies and tools to the Chosen/Given project, applying the theoretical knowledge to a real life situation. Experiential Learning outside classroom through self-exploration, practical experience, Industry, field experience, live experience, research, design projects etc.

The learning process in the Project seeks out and focuses attention on many latent attributes, which do not surface in the normal class room situations. These experiential learning attributes through project includes Intellectual ability, Professional judgment and decision making ability, Inter-disciplinary approach, Skills for data handling, Ability in written and oral presentation, Sense of responsibility Developing professional Skills Application of theory, concepts in given industry /practical / field scenario.

Course Outcomes

On completion of this course, the students will be able to

CO1. Use applied scientific knowledge to identify and implement relevant principles of mathematics and computer science.
C02. Use the relevant tools necessary for engineering practice.
CO3. Define overall needs and constraints to solve a problem and develop/ design a prescribed engineering sub-system.
CO4. Communicate effectively and learn to be a team player.

Catalog Description

Students are expected make a project based on the latest advancements related to the parent branch of Engineering. Students may opt for an in-disciplinary project (if feasible).
The project may be a complete hardware or a combination of hardware and software under the guidance of a Supervisor from the Department. This is expected to provide a good training for the student(s) in technical aspects

Student will be continuously evaluated during the semester in form of Project ProgressSeminars. At the end of the semester, assessment of the research/project work of each student will bemade by the board of

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examiners including supervisors on the basis of a viva-voceexamination and the report submitted by the student.

Course Content

The assignment to normally include:

1. Review and finalization of the Approach to the Problem relating to the assigned topic.
2. Preparing an Action Plan for conducting the investigation, including team work.
3. Detailed Analysis/Modelling/Simulation/Design/ProblemSolving/Experiment as needed.
4. Final development of product/process, testing, results, conclusions and future directions.
5. Preparing a report in the standard format for being evaluated by the Department.
6. Final project presentation before a Departmental Committee.

Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination
Examination Scheme:

Components	Quiz	Attendance	Mid Term Exam	Presentation/ Assignment/ etc.	End Term Exam
Weightage (%)	10	10	20	10	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Program Outcomes
CO1	Use applied scientific knowledge to identify and implement relevant principles of mathematics and computer science.	PO3
CO2	Use the relevant tools necessary for engineering practice.	PO5
CO3	Define overall needs and constraints to solve a problem and develop/ design a prescribed engineering sub-system.	PO3

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CO4	Communicate effectively and learn to be a team player.	**PO10**

		Engineering Knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual or team work	Communication	Project management and finance	Life-long Learning	Application of Concepts	Innovation and Industry Friendly	Etcs and Comic or Sks
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PS
ETCS 462A	Major Project			3		2					3			3		

1=weakly mapped
2= moderately mapped
3=strongly mapped

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Semester VIII

	Six Month Industrial Internship	L	T	P	C
Version 1.0		-	-	-	6
Pre-requisites/Exposure	--				
Co-requisites	--				

Course Objectives

1. To learn how to carry out extensive research/study in the area of project implementation.
2. To be associated with an area of research/research project and contribute towards domain knowledge.
3. To learn technical report/project documentation writing.
4. To learn and implement the technology that in being used is the specific industry where the training is carried out.

Course Outcomes

On completion of this course, the students will be able to

CO1. Carry out the extensive literature survey/study in the area on internship provided.
C02. Write technical documentation for the project implement.
CO3. Analyze and develop various methods and techniques applicable to the topic to study/area of implementation.
CO4. Have practical knowledge on the applications of project of implementation on society.

Catalog Description

The student will carry out a minimum of six months in industry or appropriate workplace/ academic and research institutions in India/abroad. The internship should give exposure to the practical aspects of the discipline. In addition, the student may also work on a specified task or project which may be assigned to him/her. The outcome of the internship/industrial training should be presented in the form of a report.

Course Content

The assignment will be defined by the organization where the student will carry of his industrial training.

Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination
Examination Scheme:

Components	Quiz	Attendance	Mid Term Exam	Presentation/ Assignment/ etc.	End Term Exam
Weightage (%)	10	10	20	10	50

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Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	Carry out the extensive literature survey/study in the area on internship provided.	**PO2**
CO2	Write technical documentation for the project implement.	**PO5**
CO3	Analyze and develop various methods and techniques applicable to the topic to study/area of implementation.	**PO3**
CO4	Have practical knowledge on the applications of project of implementation on society.	**PO6**

		Engineering Knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual or team work	Communication	Project management and finance	Life-long Learning	Application of Concepts	Innovation and Industry Friendly	Ethics and Communication Skills
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ETCS 490A	Six Month Industri		3	3		3	2							3		2

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	al Internship															

1=weakly mapped
2= moderately mapped
3=strongly mapped

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ETCS464A	Major Project	L	T	P	C
Version 1.0		-	-	-	6
Pre-requisites/Exposure	--				
Co-requisites	--				

The course is designed to provide an opportunity to students to demonstrate the ability to devise, select and use a range of methodologies and tools to the Chosen/Given project, applying the theoretical knowledge to a real life situation. Experiential Learning outside classroom through self-exploration, practical experience, Industry, field experience, live experience, research, design projects etc.

The learning process in the Project seeks out and focuses attention on many latent attributes, which do not surface in the normal class room situations. These experiential learning attributes through project includes Intellectual ability, Professional judgment and decision making ability, Inter-disciplinary approach, Skills for data handling, Ability in written and oral presentation, Sense of responsibility Developing professional Skills Application of theory, concepts in given industry /practical / field scenario.

Course Outcomes

On completion of this course, the students will be able to

CO1. Use applied scientific knowledge to identify and implement relevant principles of mathematics and computer science.

C02. Use the relevant tools necessary for engineering practice.

CO3. Define overall needs and constraints to solve a problem and develop/ design a prescribed engineering sub-system.

CO4. Communicate effectively and learn to be a team player.

Catalog Description

Students are expected make a project based on the latest advancements related to the parent branch of Engineering. Students may opt for an in-disciplinary project (if feasible).
The project may be a complete hardware or a combination of hardware and software under the guidance of a Supervisor from the Department. This is expected to provide a good training for the student(s) in technical aspects

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Student will be continuously evaluated during the semester in form of Project Progress Seminars. At the end of the semester, assessment of the research/project work of each student will be made by the board of examiners including supervisors on the basis of a viva-voce examination and the report submitted by the student.

Course Content

The assignment to normally include:

1. Review and finalization of the Approach to the Problem relating to the assigned topic.
2. Preparing an Action Plan for conducting the investigation, including team work.
3. Detailed Analysis/Modelling/Simulation/Design/Problem Solving/Experiment as needed.
4. Final development of product/process, testing, results, conclusions and future directions.
5. Preparing a report in the standard format for being evaluated by the Department.
6. Final project presentation before a Departmental Committee.

Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination
Examination Scheme:

Components	Quiz	Attendance	Mid Term Exam	Presentation/ Assignment/ etc.	End Term Exam
Weightage (%)	10	10	20	10	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Program Outcomes
CO1	Use applied scientific knowledge to identify and implement relevant principles ofmathematics and computer science.	PO3
CO2	Use the relevant tools necessary for engineering practice.	PO5
CO3	Define overall needs and constraints to solve a problem and develop/design a prescribed engineering sub-system.	PO3
CO4	Communicate effectively and learn to be a team player.	PO10

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ETCS 464A	Course Code	
Major Project	Course Title	
	PO1	Engineering Knowledge
	PO2	Problem analysis
3	PO3	Design/development of solutions
	PO4	Conduct investigations of complex problems
2	P O 5	Modern tool usage
	PO 6	The engineer and society
	PO7	Environment and sustainability
	P O 8	Ethics
	PO9	Individual or team work
3	PO10	Communication
	PO11	Project management and finance
	PO12	Life-long Learning
3	PSO1	Application of Concepts
	PSO2	Innovation and Industry Friendly
	PSO3	Ethics and Communication Skills

1=weakly mapped
2= moderately mapped
3=strongly mapped

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ETCS490A	Industrial Internship	L	T	P	C
Version 1.0		-	-	-	12
Pre-requisites/Exposure	--				
Co-requisites	--				

Course Objectives

1. To learn how to carry out extensive research/study in the area of project implementation.
2. To be associated with an area of research/research project and contribute towards domain knowledge.
3. To learn technical report/project documentation writing.
4. To learn and implement the technology that in being used is the specific industry where the training is carried out.

Course Outcomes

On completion of this course, the students will be able to

CO1. Carry out the extensive literature survey/study in the area on internship provided.
CO2. Write technical documentation for the project implement.
CO3. Analyze and develop various methods and techniques applicable to the topic to study/area of implementation.
CO4. Have practical knowledge on the applications of project of implementation on society.

Catalog Description

The student will carry out a minimum of six months in industry or appropriate workplace/ academic and research institutions in India/abroad. The internship should give exposure to the practical aspects of the discipline. In addition, the student may also work on a specified task or project which may be assigned to him/her. The outcome of the internship/industrial training should be presented in the form of a report.

Course Content

The assignment will be defined by the organization where the student will carry of his industrial training.

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Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination
Examination Scheme:

Components	Quiz	Attendance	Mid Term Exam	Presentation/ Assignment/ etc.	End Term Exam
Weightage (%)	10	10	20	10	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	Carry out the extensive literature survey/study in the area on internship provided.	**PO2**
CO2	Write technical documentation for the project implement.	**PO5**
CO3	Analyze and develop various methods and techniques applicable to the topic to study/area of implementation.	**PO3**
CO4	Have practical knowledge on the applications of project of implementation on society.	**PO6**

ETCS 490A	Course Code	
Industri al Internsh ip	Course Title	
	PO1	Engineering Knowledge
3	PO2	Problem analysis
3	PO3	Design/development of solutions

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	PO4	Conduct investigations of complex problems
3	P O 5	Modern tool usage
2	PO 6	The engineer and society
	PO7	Environment and sustainability
	P O 8	Ethics
	PO9	Individual or team work
	PO10	Communication
	PO11	Project management and finance
	PO12	Life-long Learning
3	PSO1	Application of Concepts
	PSO2	Innovation and Industry Friendly
2	PSO3	Ethics and Communication Skills

1=weakly mapped
2= moderately mapped
3=strongly mapped

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