

ODD SEMESTER										EVEN SEMESTER									
Year	SNo	Category	Course Code	Course Title	L	T	P	C	EMP/ENT/SE/OP	SNo	Category	Course Code	Course Title	L	T	P	C	EMP/ENT/SE/OP	
	1	BS	ETMA105A	Applied Mathematics-I	3	1	0	4	SE	1	BS	ETMA104A	Applied Mathematics-II	3	1	0	4	SE	
	2	BS	ETPH109A	Engineering Physics	3	1	0	4	SE	2	ABCC	ETEC 215A	Embedded Robotics and IOT	4	0	0	4	SE	
	3	MC	UCES125A	Environmental Studies	3	0	0	3	SE	3	BS	ETCH119A	Engineering Chemistry	3	1	0	4	SE	
	4	ESC	ETME101A	Basics of Mechanical Engineering	3	1	-	4	EMP	4	ESC	ETME 155A	Engineering Graphics Lab	0	0	3	1.5	SE	
	5	ESC	ETME151A	Basics of Mechanical Engineering Lab	0	0	2	1	EMP	5	BS	ETCH159A	Engineering Chemistry Lab	0	0	2	1	SE	
	6	ESC	ETEC101A	Basics of Electrical & Electronics Engineering	3	1	0	4	OP	6	PCC	ETCS120A	Software Craftsmanship	3	0	0	3	EMP	
	7	ESC	ETEC151A	Basics of Electrical & Electronics Engineering Lab	0	0	2	1	OP	7	ESC	ETME 157A	Workshop Practices	-	-	3	1.5	ESC	
	8	BS	ETPH151A	Engineering Physics Lab	0	0	2	1	SE	8	PCC	ETCS162A	Software Craftsmanship Using Python	0	0	2	1	EMP	
	9			Open Elective	4	-	-	4	EMP	9			Open Elective	4	-	-	4	OP	
TOTAL					19	4	6	26		TOTAL					17	2	10	24	

Second	1	GE	ETMA215A	PROBABILITY AND STATISTICS	4	-	-	4	SE	1	PCC	ETCS222A	Computer Organization & Architecture	3	1	-	4	SE	
	2	PCC	ETCS225A	Front End Development with ReactJS	3	-	-	3	SE	2	PCC	ETCS220A	Analysis and Design of Algorithms	3	1	-	4	SE/EMP	
	3	PCC	ETCS231A	Discrete Mathematics	3	1	-	4	SE/OP	3	PCC	ETCS307A	Database Management Systems	3	1	-	4	EMP/ENT/OP	
	4	PCC	ETCS217A	Data Structures	3	1	-	4	SE/EMP	4	PCC	ETCS224A	Database Engineering with MongoDB	3	-	-	3	EMP/ENT	
	5	MC	UCDM301A	Disaster Management	3	-	-	3	MC	5	HSMC	ETMC602A	Essentials of Organizational Behaviour	3	-	-	3	ENT	
	6	PCC	ETCS227A	Backend Development using NodeJS	3	-	-	3	EMP	6	PCC	ETCS270A	Database Engineering with MongoDB Lab	-	-	2	1	EMP/ENT	
	7	PCC	ETCS257A	Data Structures Lab	-	-	2	1	SE/EMP	7	PCC	ETCS 355A	Database Management Systems Lab	-	-	2	1	EMP/ENT/OP	
	8	PCC	ETCS267A	Front End Development with ReactJS Lab Lab	-	-	2	1	SE	8	PCC	ETCS262A	Analysis and Design of Algorithms Lab	-	-	2	1	SE/EMP	
	9	PCC	ETCS269A	Backend Development using NodeJS Lab	-	-	2	1	EMP	9		ETCS228A	Communication and Analytical Skills-I	2	-	-	2	SE	
	TOTAL					20	2	6	24		TOTAL					20	3	8	27

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	ETCS328A	Mobile Application Development	3	-	-	3	EMP/ENT	1	PCC	ETCS412A	Compiler Design	3	1	-	4	SE/PCC	
	2	PCC	ETCS 214A	Theory of Computation	3	1	-	4	SE	2	PCC	ETCS332A	CI/CD & Microservice	3	-	-	3	EMP/ENT/PCC	
	3	PCC	ETCS211A	Operating Systems	3	1	-	4	SE	3	PCC	ETCS340A	DevOps & Automation	3	-	-	3	EMP/ENT/PCC	
	4	PCC	ETCS304A	Computer Networks	3	1	-	4	EMP/OP	4	PCC	ETCS401A	Artificial Intelligence	3	1	-	4	EMP/ENT/PCC	
	5	PCC	ETCS365A	Computer Networks Lab	-	-	2	1	EMP/OP	5	PCC	ETCS451A	Artificial Intelligence Lab	-	-	2	1	EMP/ENT/PCC	
	6	PCC	ETCS364A	Mobile Application Development Lab	-	-	2	1	EMP/ENT	6		ETCS330A	Communication and Analytical Skills-III	2	-	-	2	EMP/ESC	
	7	PCC	ETCS367A	iOS Development Lab	-	-	2	1	EMP/ENT	7	PCC	ETCS356A	CI/CD & Microservice Lab	-	-	2	1	EMP/ENT/PCC	
	8	PCC	ETCS255A	Operating System Lab	-	-	2	1	SE	8	PCC	ETCS352A	DevOps & Automation Lab	-	-	2	1	EMP/ENT/PCC	
	9	PROJ	ETCS381A	Practical Training I	-	-	-	1	EMP	9		Elective							
	10		ETCS325A	Communication and Analytical Skills-II	2	-	-	2	EMP	(i)	PEC	ETCS420A	Graph Theory	3	-	-	3	SE/PEC	
TOTAL					14	3	8	22		TOTAL					17	2	6	22	

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	1	PROJ	ETCS490A	Industrial Internship	-	-	-	12	EMP/ENT/PROJ	
	2	PROJ	ETCS464A	Major Project	-	-	-	6	EMP/ENT										
	3			Boot Camp (Training and Placement)	2	-	-	-											
	4	PCC	ETCS479A	Computer Vision Lab	-	-	2	1	EMP										
	5	PROJ	ETCS481A	Practical Training II	-	-	-	2	EMP/ENT										
	6	PCC	ETCS314A	Data Visualization and Story Telling	2	-	-	2	EMP/ENT										
	7	PCC	ETCS461A	Data Visualization and Story Telling Lab	-	-	2	1	EMP/ENT										
	8			Elective (with Lab)															
	(i)	PEC	ETCS422A	Cloud Computing	4	-	-	4	EMP/ENT										
	(ii)	PEC	ETCS421A	Internet of Things	4	-	-	4	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					10	-	6	19		TOTAL					-	-	-	12	
Total Credits [C]													176						

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 Course
BS	Basic Science
ESC	Engineering Science courses including workshop, drawing,
MC	Mandatory Courses
OEC	Open Elective
PROJ	Projects / Industrial Training/ Seminar
PEC	Professional Elective Courses
PCC	Professional Core Courses


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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.
- CO2. 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).


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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 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


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

Course Code	Course Title	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
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ETCS 462A	Major Project			3		2					3			3		


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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

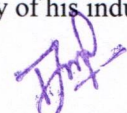
- CO1. Carry out the extensive literature survey/study in the area on internship provided.
- CO2. Write technical documentation for the project implement.
- CO3. Analyze and develop various methods and techniques applicable to the topic to study/area of implementation.
- CO4. Have practical knowledge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



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

1=weakly mapped

2= moderately mapped

3=strongly mapped


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