B.Tech (CSE)- UX/UI Design — **Year 2022-2026: Scheme of Studies as per Choice-Based Credit System (CBCS) and Learning Outcome-Based Curriculum Framework (LOCF)**

ODD SEMESTER

Year	SNo	Category	Course Code	Course Title	L	T	P	C	EMP/ENT/SE/OP	EMP/ENT/SE/OP
First	1	BS	ETMA105A	Applied Mathematics-I	3	1	-	4	SE	
	2	BS	ETPH109A	Engineering Physics	3	1	0	4	SE	
	3	MC	UCES125A	Environmental Studies	3	-	-	3	SE	
	4	ESC	ETME101A	Basics of Mechanical Engineering	3	1	-	4	SE	
	5	ESC	ETEC101A	Basics of Electrical & Electronics Engineering	3	1	-	4	OP	
	6	BS	ETPH151A	Engineering Physics Lab	-	-	2	1	SE	
	7	ESC	ETEC151A	Basics of Electrical & Electronics Engineering Lab	-	-	2	1	SE	
	8	ESC	ETME151A	Basics of Mechanical Engineering Lab	-	-	2	1	SE	
	9			Open Elective	4	-	-	4		
	TOTAL				19	4	6	26		

EVEN SEMESTER

SNo	Category	Course Code	Course Title
1	BS	ETMA104A	Applied Mathematics-II
2	ESC	ETCS104A	Introduction to Computer Science and Programming in Python
3	BS	ETCH119A	Engineering Chemistry
4	PCC	ETCS126A	Introduction to UX Design
5	PCC	ETCS114A	Empathy and Understanding Problems
6	ESC	ETME 155A	Engineering Graphics Lab
7	ESC	ETCS150A	Introduction to Computer Science and Programming in Python Lab
8	PCC	ETCS152A	Empathy and Understanding Problems Lab
9			Open Elective
10	ESC	ETME 157A	Workshop Practices
11	BS	ETCH159A	Engineering Chemistry Lab
TOTAL			

Second	1	GE	ETMA215A	PROBABILITY AND STATISTICS	4	-	-	4	SE	
	2	PCC	ETCS213A	Technology in Experience Design	3	-	-	3	SE/EMP	
	3	PCC	ETCS231A	Discrete Mathematics	3	1	-	4	SE/OP	
	4	PCC	ETCS217A	Data Structures	3	1	-	4	SE/EMP	
	5	MC	UCDM301A	Disaster Management	3	-	-	3	SE	
	6	PCC	ETCS215A	User Research	3	-	-	3	SE	
	7	PCC	ETCS251A	User Research Lab	-	-	4	2	SE	
	8	PCC	ETCS257A	Data Structures Lab	-	-	2	1	SE/EMP	
	9									
	TOTAL				20	2	6	24		

1	PCC	ETCS222A	Computer Organization & Architecture
2	PCC	ETCS212A	Introduction to UI Design
3	PCC	ETCS220A	Analysis and Design of Algorithms
4	PCC	ETCS307A	Database Management Systems
5	PCC	ETCS216A	Information Architecture
6		ETCS228A	Communication and Analytical Skills-I
7	PCC	ETCS 355A	Database Management Systems Lab
8	PCC	ETCS262A	Analysis and Design of Algorithms Lab
9	PCC	ETCS256A	UI Design Lab
10	HSMC	ETMC602A	Essentials of Organizational Behaviour
TOTAL			

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	ETCS303A	Introduction to Interaction Design	3	-	-	3		
	2	PCC	ETCS211A	Operating Systems	3	1	-	4	SE	
	3	PCC	ETCS304A	Computer Networks	3	1	-	4	EMP/OP	
	4	PCC	ETCS305A	Design Thinking	3	-	-	3		
	5	PCC	ETCS351A	Design Thinking Lab	-	-	4	2		
	6	PCC	ETCS365A	Computer Networks Lab	-	-	2	1	EMP/OP	
	7	PCC	ETCS255A	Operating System Lab	-	-	2	1	SE	
	8	PROJ	ETCS381A	Practical Training I	-	-	-	1	EMP	
	9		ETCS325A	Communication and Analytical Skills-II	2	-	-	2	EMP	
	10	PROJ	ETCS375A	Mini Project	-	-	-	3	EMP	
	11	PCC	ETCS 214A	Theory of Computation	3	1	-	4	SE	
	TOTAL				17	3	10	28		

1	PCC	ETCS401A	Artificial Intelligence
2	PCC	ETCS302A	Wireframing & Prototyping
3	PCC	ETCS358A	Wireframing & Prototyping Lab
4	PCC	ETCS 202A	Software Engineering
5		ETCS330A	Communication and Analytical Skills-III
6	PCC	ETCS451A	Artificial Intelligence Lab
7		**Elective I**	
(i)	PEC	ETCS310A	Advanced Computer Architecture
(ii)	PEC	ETCS334A	Usability Testing
(iii)	PEC	ETCS420A	Graph Theory
8	PEC	ETCS412A	Compiler Design
9	PROJ	ETCS462A	Minor Project
TOTAL			

Fourth	1	PROJ	ETCS464A	Major Project	-	-	-	6	EMP/ENT	
	2	PCC	ETCS429A	Portfolio Development & Review	3	-	-	3		
	3	PCC	ETCS467A	Visual Design Tools Lab	-	-	4	2		
	4			Bootcamp (Training and Placement)	2	-	-	0	EMP/ENT	
	5									
	(i)	PEC	ETCS433A	UX Design for Futuristic Technologies - HMI	3	-	-	3		
	(ii)	PEC	ETCS309A	Distributed Computing Systems	3	-	-	3	EMP/ENT	
	6		Elective - III							
	(i)	PEC	ETCS435A	Design Thinking for Product Management	3	-	-	3		
	(ii)	PEC	ETCS206A	Computer Graphics	3	-	-	3	EMP/ENT	
				TOTAL	11	-	4	17		

1	PROJ	ETCS490A	Industrial Internship
TOTAL			
Total Credits [C]			

Electives 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, basics of electrical/mechanical/computer etc
MC	Mandatory Courses
OEC	Open Elective
PROJ	Projects / Industrial Training/ Seminar
PEC	Professional Elective Courses
PCC	Professional Core Courses

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ETCS375A	Mini Project	L	T	P	C
Version 1.0		-	-	-	3
Pre-requisites/Exposure	--				
Co-requisites	--				

Course Objectives

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).

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**

		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 375A	Mini Project Lab	-	-	3	-	2	-	-	-	-	3	-	-	3	-	-

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ETCS462A	Minor Project	L	T	P	C
Version 1.0		-	-	-	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.

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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).

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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.
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		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 462A	Minor Project			3		2					3			3		

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

Programme and Course Mapping														
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PSO1**	**PSO2**	**PSO3**
CO1	**2**	-	-	-	-	-	-	-	-	-	-	**3**	-	-
CO2	-	-	**3**	-	-	-	-	-	-	-	-	-	**3**	-
CO	-	**3**	-	-	-	-	-	-	-	-	-	**3**	-	-

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3														
CO 4	-	-	-	**3**	-	-	-	-	-	**3**	-	-	**3**	-
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ETCS464A	Major Project	L	T	P	C
Version 1.0		-	-	-	6
Pre-requisites/Exposure	--				
Co-requisites	--				

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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	Ethics and Communication Skills
Course Code	Course Title	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.

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

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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		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	Industrial Internship		3	3		3	2							3		2

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

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