M.TECH — **M.TECH CSE - Year 2020-2022: Scheme of Studies as per Choice-Based Credit System (CBCS) and Learning Outcome-Based Curriculum** — **SOET**

ODD SEMESTER

Year	SNo		Course Code	Course Title	L	T	P	C
FIRST	1	CC	ETCS 601A	Mathematical foundations of Computer Science	3	1	-	4
	2	CC	ETCA802A	Data Structures and Algorithms	3	1	0	4
	3	SE	ETMC 674A	Research Methodology and IPR	2	-	-	2
	4		**Departmental Electives (without lab) - I**					
	i	CC	ETCS 605A	Machine Learning	4	0	-	4
	ii	CC	ETCS 607A	Wireless Sensor Networks	4	0	-	4
	iii	CC	ETCS 609A	Introduction to Intelligent Systems	4	0	-	4
	5		**Departmental Electives (with lab) - II**					
	i	CC	ETCS 611A	Data Science	4	0	-	4
		SE	ETCS 653A	Data Science Lab	0	-	2	1
	ii	CC	ETCS 613A	Distributed Systems	4	0	-	4
		SE	ETCS 655A	Distributed Systems Lab	0	-	2	1
	iii	CC	ETCS 615A	Advanced Wireless and Mobile Networks	4	0	-	4
		SE	ETCS 657A	Advanced Wireless and Mobile Networks Lab	0	-	2	1
	6	SE	ETCA852A	Data Structures and Algorithms Lab	0	0	2	1
	7	SE		Audit Course - I *	2	-	-	-
			TOTAL		**20**	**0**	**4**	**20**

EVEN SEMESTER

SNo		Course Code	Course Title	L	T	P	C
1	CC	ETCS 602A	Advance Algorithms	3	1	-	4
2	CC	ETCS 604A	Soft Computing	3	1	-	4
3		**Departmental Electives (with lab) - III**					
i	CC	ETCS 606A	Data Preparation and Analysis	3	1	-	4
	SE	ETCS 652A	Data Preparation and Analysis Lab	0	-	2	1
ii	CC	ETCS 608A	Secure Software Design & Enterprise Computing	3	1	-	4
	SE	ETCS 654A	Secure Software Design & Enterprise Computing Lab	0	-	2	1
iii	CC	ETCS 610A	Computer Vision	3	1	-	4
	SE	ETCS 656A	Computer Vision Lab	0	-	2	1
4		**Departmental Electives (without lab) - IV**					
i	DE	ETCS 612A	Human and Computer Interaction	3	1	-	4
ii	DE	ETCS 614A	GPU Computing	3	1	-	4
iii	DE	ETCS 616A	Digital Forensics	3	1	-	4
5	CC	ETCS 658A	Soft Computing Lab	0	-	2	1
6	CC	ETCS 660A	Mini Project with Seminar	2	-	-	2
7	SE		Audit Course - II *	2	-	-	-
		TOTAL		**16**	**4**	**4**	**20**

	SNo		Course Code	Course Title	L	T	P	C
Second	1		**Departmental Electives (without lab) - V**					
	i	CC	ETCS 617A	Mobile Applications and Services	3	1	-	4
	ii	CC	ETCS 619A	Compiler for HPC	3	1	-	4
	iii	CC	ETCS 621A	OptimizationTechniques	3	1	-	4
	2	OE	**Open Electives**					
	i	OE	ETMC 675A	Business Analytics	3	-	-	3
	ii	OE	ETME 817A	Industrial Safety	3	-	-	3
	iii	OE	ETMC 676A	Operations Research	3	-	-	3
	iv	OE	ETMC 677A	Cost Management of Engineering Projects	3	-	-	3
	v	OE	ETME 819A	Composite Materials	3	-	-	3
	vi	OE	ETME821 A	Waste to Energy	3	-	-	3
	3	CC	ETCS 659A	Dissertation-I /Industrial Project	0	-	20	10
					6	**1**	**20**	**17**

***Students going for Industrial Project/Thesis will complete these courses through MOOCs.**

SNo		Course Code	Course Title	L	T	P	C
1	CC	ETCS 662A	Dissertation-II	-	-	-	16
			TOTAL	**0**	**0**	**0**	**16**
Total Hours: Lect [L]+Prac [P]+Tut [T]				**107**			
Total Credits [C]				**73**			

List of Audit Courses for 1st Semester

SNo		Course Code	Course Title	L	T	P	C
1	SE	ETEL 402A	English for Research Paper Writing	2	-	-	-
2	SE	ETCE 601A	Disaster Management	2	-	-	-
3	SE	SEED 545A	Value Education	2	-	-	-

List of Audit Courses for 2nd Semester

SNo		Course Code	Course Title	L	T	P	C
1	SE	ETLS 601A	Constitution of India	2	-	-	-
2	SE	SEED 546A	Pedagogy Studies	2	-	-	-
3	SE	ETMC 678A	Stress Management by Yoga	2	-	-	-
4	SE	ETMC 679A	Personality Development through Life Enlightenment Skills.	2	-	-	-

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ETCS659A	Dissertation-I/Industrial Project	L	T	P	C
Version 1.0		0	-	0	10
Pre-requisites/Exposure	--				
Co-requisites	--				

Course Objectives

1. To learn how to carry out literature survey
2. To be associated with an area of research/research project and contribute towards domain knowledge.
3. To learn the art of technical report writing
4. To learn the art of verbal communication with the help of modern presentation techniques

Course Outcomes

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

CO1. Carry out the extensive literature survey.
CO2. Learn to write and present technical reports/articles.
CO3. Learn to analyze various methods and techniques applicable to the topic to study and contribute to domain knowledge.
CO4. Have practical knowledge on the applications of topic of study on society.

Catalog Description

This is the first part of the major dissertation/industrial project wherein every student shall be expected to contribute to domain knowledge incrementally. It is expected that the research/project work should be focused in a particular area for concept, design, implementation and/or analysis. Each student will have to undertake a research/project work under a supervisor. Research/project work may be carried out within department or in any other academic / research / industrial / commercial organization under the guidance of the thesis supervisor who must be a faculty member of the department or under a joint supervision including at least one such faculty member. The work will have to be carried out during the 5th semester of study. The student will have to submit a typewritten or printed report on the work done by him / her according to a schedule to be announced by the department. The project-report should be duly approved by the supervisor concerned and should embody results of research / development work carried out by the student.

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Student will be continuously evaluated during the semester in form of Dissertation/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 Dissertation 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	Carry out the extensive literature survey.	PO2
CO2	Learn to write and present technical reports/articles.	PO5
CO3	Learn to analyze various methods and techniques applicable to the topic to study and contribute to domain knowledge.	PO2
CO4	Have practical knowledge on the applications of topic of study 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	Research Oriented	Gl ba Pe pe ive
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PS O3
ETCS 659A	Dissertation-I/Industrial Project		3			3	3							3		

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

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		L	T	P	C
ETCS662A	**Dissertation-II**	-	-	-	**16**

Course Objectives

1. To learn how to carry out literature survey
2. To be associated with an area of research/research project and contribute towards domain knowledge.
3. To learn the art of technical report writing
4. To learn the art of verbal communication with the help of modern presentation techniques.

The assignment to normally include:

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