ANNEXURE 18

Program and Course Structure M.Tech (Software Engineering)

1. Standard Structure of the Program at University Level

1.1 Vision, Mission and Core Values of the University

Vision of the University

To serve the society by being a global University of higher learning in pursuit of academic excellence, innovation and nurturing entrepreneurship.

Mission of the University

1. **Transformative educational experience**
2. **Enrichment by educational initiatives that encourage global outlook**
3. **Develop research, support disruptive innovations and accelerate entrepreneurship**
4. **Seeking beyond boundaries**

Creative Campaign Can be TEDs: This is guiding principle for promotion and wide circulation among various stakeholder.
Guidelines: Similar Mnemonics can be designed by schools.

Core Values

- **Integrity**
- **Leadership**
- **Diversity**
- **Community**

Note: Detailed Mission Statements of University can be used for developing Mission Statements of Schools/ Departments.

1.2 Vision and Mission of the School

Vision of the School

To become a globally acclaimed institution of higher learning in engineering and technology promoting excellence in research, innovation and entrepreneurship

Mission of the School

1. **To impart quality education with strong industry & academic connectivity in the expanding fields of Engineering and Technology in a conductive and enriching learning environment.**
2. **To product technocrats equipped with technical & soft skills and experiential learning required to stay current with the modern tools in emerging technologies to fulfill professional responsibilities and uphold ethical values.**
3. **To inculcate a culture of interdisciplinary research, innovation and entrepreneurship to provide sustainable solutions to meet the growing challenges and societal needs.**
4. **To foster collaborative learning and to play adaptive leadership role in professional career and pursuit of higher education through effective mentoring and counselling.**

1.2.1Vision and Mission of the Department

Vision of the Department

To be known and recognized as the fountainhead of excellence in technical knowledge and research in computer science and engineering, and draw to it the students and scholars across nations.

Mission of the Department

1. To facilitate and foster the academia industry collaboration to enhance entrepreneurship skills and acquaintance with corporate culture.
2. To strengthen core competences of students to be successful, ethical , effective problem solver in Computer Science & Engineering through analytical learning
3. To promote research based activities in emerging areas of technology convergence.
4. To induce moral values and spirit of social commitment.

1.3 Programme Educational Objectives (PEO)

1.3.1 Writing Programme Educational Objectives (PEO)

The Educational Objectives of UG Program in Computer Science Engineering are:

PEO1 : The Graduate will ensconce himself/herself as effective professionals by solving real life problems using exploratory and analytical skills along with the knowledge acquired in the field of Computer Science and Engineering.

PEO2 : The Graduate will demonstrate his/her ability to accustom to rapidly changing environment in advanced areas of Computer Science and scale new height in their profession through lifelong learning.

PEO3 : The Graduate will have the ability to work and communicate effectively as a team member or leader to complete the task with minimal resources, meeting deadlines.

PEO4 : The Graduate will embrace professional code of ethics in the profession while deliberately being part of projects which contributes to the society at large without disturbing the ecological balance.

Methods of Forming PEO's

STEP 1: The needs of the Nation and society are identified through scientific publications, industry interaction and media.

STEP 2. Taking the above into consideration, the PEOs are established by the coordination Committee of the department.

STEP 3. The PEOs are communicated to the alumni and their suggestions are obtained.

STEP 4. The PEOs are communicated to all the faculty members of the department and their feedback is obtained.

STEP 5. The PEOs are then put to the Board of Studies of the department for final approval.

[Note: Prepare a file for the same, how you arrive for PEO's]

1.3.2 Map PEOs with School Mission Statements:

PEO Statements	School Mission 1	School Mission 2	School Mission 3	School Mission 4
PEO1:	**3**	**3**	**2**	**2**
PEO2:	**2**	**3**	**2**	**1**
PEO3:	**2**	**2**	**2**	**3**
PEO4:	**2**	**1**	**3**	**1**

Enter correlation levels 1, 2, or 3 as defined below:

1. **Slight (Low)** **2. Moderate (Medium)** **3. Substantial (High)**

If there is no correlation, put "-"

1.3.2.1 Map PEOs with Department Mission Statements:

PEO Statements	Department Mission 1	Department Mission 2	Department Mission 3	Department Mission 4
PEO1:	**2**	**3**	**2**	**1**
PEO2:	**1**	**3**	**3**	**1**
PEO3:	**3**	**2**	**1**	**1**
PEO4:	**1**	**2**	**2**	**3**
PEO5:	**2**	**3**	**2**	**1**

Enter correlation levels 1, 2, or 3 as defined below:

1. Slight (Low) 2. Moderate (Medium) 3. Substantial (High)

If there is no correlation, put "-"

1.3.3 Program Outcomes (PO's)

PO1: Advanced Knowledge: - Student must acquire advanced knowledge of the course.

PO2: Methods: - Students must get familiar with methods of research.

PO3: Research: - Student must get the exact procedure of research.

PO4: Pedagogy: - Student must practice the method and practice of teaching, especially as an academic subject

PO5: Communication: - An ability to write and communicate the ideas in a substantial technical manner.

PO6: Professionalism: - Student should acquire the competence or skill exected of a professional

PSO1: To apply the software engineering lifecycle by demonstrating competence in communication, planning, analysis, design, construction, and deployment

PSO2: An ability to work in one or more significant application domains

PSO3 Demonstrate an understanding of and apply current theories, models, and techniques that provide a basis for the software lifecycle

PSO4: Demonstrate an ability to use the techniques and tools necessary for engineering practice

1.3.4 Mapping of Program Outcome Vs Program Educational Objectives

Mapping	PEO1	PEO2	PEO3	PEO4	PEO5
PO1	3	3	2	1	3
PO2	3	3	3	1	2
PO3	1	2	2	1	1
PO4	3	2	3	1	2
PO5	2	3	3	2	3
PO6	1	2	3	3	1

1. Slight (Low) ***2. Moderate (Medium)*** ***3. Substantial (High)***

M. Tech. (CSE) Software Engg.							
Batch: 2018 Onwards						**TERM: I (Spring-II)**	
S. No.	**Course Code**	**Course**	**Teaching Load**			**Credits**	**Pre-Requisite/Co Requisite**
			L	**T**	**P**		
THEORY SUBJECTS							
1	CSE 611	Analysis and Design of Algorithms	3	1	0	4	
2	CSE 612	Object Oriented Software Engineering	3	0	0	3	
3	CSE 613	Mathematical and Statistical Techniques in Computer Science	3	0	0	4	
4	CSE 642	Soft Computing Techniques	3	0	0	3	OE
5		Departmental Elective-1	3	0	0	3	DE-1
	CSE 643	Software Requirement and Estimation					
		Software Quality Metrics and Testing					
		Software Architecture and Design Pattern.					
	PCM601	Technical Presentation skills	1	0	2	2	
Practical/Viva-Voce/Jury							
1	CSP 611	Analysis and Design of Algorithms Lab	0	0	2	1	
2	CSP 612	Object Oriented Software Engineering Lab	0	0	2	1	
TOTAL CREDITS						21	

M. Tech. (CSE) Software Engg.							
Batch: 2018 Onwards						**TERM: II (Spring-I)**	
S. No.	**Course Code**	**Course**	**Teaching Load**			**Credits**	**Pre-Requisite/Co Requisite**
			L	**T**	**P**		
THEORY SUBJECTS							
1	CSE601	Pattern Recognition	3	0	0	3	
2	CSE622	Advanced Data Mining Techniques	3	0	0	3	
3	CSE621	Web Engineering	3	0	0	3	
5		Departmental Elective-2	3	0	0	3	DE-2
		Software Reliability Engineering					
		Secure Software Engineering					
		Internet of Things					
5		Departmental Elective-3	3	0	0	3	DE-3
		Agile Based Software Engineering					
		Recent Advances in Software Engineering.					
		Component Based Software Engineering					
Practical/Viva-Voce/Jury							
6	CSP621	Web Engineering Lab	0	0	2	1	
7	CSP622	Advanced Data Mining Techniques Lab	0	0	2	1	
8	CSE681	Term Paper	0	2	0	2	
TOTAL CREDITS						19	

M. Tech. (CSE) Cyber security and Networking							
M. Tech. (CSE) Software Engg.							
Batch: 2018 Onwards						TERM: III	
S. No.	Course Code	Course	Teaching Load			Credits	Pre-Requisite/Co Requisite
			L	T	P		
Practical/Viva-Voce/Jury							
1	CSP681	Seminar	0	0	4	2	
2	CSP682	Project	0	0	8	4	
3	CSP691	Dissertation 1	0	0	15	10	
TOTAL CREDITS						**16**	

M. Tech. (CSE) Cyber security and Networking							
M. Tech. (CSE) Software Engg.							
Batch: 2018 Onwards						TERM: IV	
S. No.	**Course Code**	**Course**	**Teaching Load**			**Credits**	**Pre-Requisite/Co Requisite**
			L	**T**	**P**		
Practical/Viva-Voce/Jury							
1.	CSP692	Dissertation-II	0	0	21	16	
TOTAL CREDITS						**16**	

LIST OF DEPARTMENTAL ELECTIVES

DE1	1. Software Requirement and Estimation. 2. Software Quality Metrics and Testing 3. Software Architecture and Design Pattern.
DE2	**1.** Software Reliability Engineering 2. Secure Software Engineering 3. Internet of Things
DE3	1. Agile Based Software Engineering 2. Recent Advances in Software Engineering. 3. Component Based Software Engineering

LIST OF OPEN ELECTIVES

1. Modeling and Simulation
2. Soft Computing Techniques
3. Bioinformatics