MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

COURSE PLAN

Department	Computer Science and Engineering	Programme	BTech (CSE)
Course Name	PRINCIPLES OF SOFTWARE ENGINEERING (OE 1V)	Course Code	CSE 4306
Semester	VII	Curriculum	2018
Name of the faculty	MANOJ R	Academic year	2023-24
No. of Contact Hours/Week	L T P C: 3 0 0 3		

COURSE OUTCOMES (CO'S)

	At the end of this course, the student should be able to:	No. of Hours	Marks
CO1	Ability to define and describe principles of Software Engineering.	6	16
CO2	Ability to gather requirements and plan the project.	10	28
CO3	Ability to design, recognize and develop software development process models.	6	16
CO4	Ability to build and implement DFDs and UML Diagrams.	4	12
CO5	Ability to code, test and analyze software projects.	10	28
	Total hours/ Marks	**36**	**100**

In semester & End semester plan and schedule (AY: 2023-24)

Component	Type	Max. Marks	Syllabus: Topics covered during	Schedule	Blooms taxonomy levels
MISAC 1	Surprise Assignment	5	July 31 - Aug 22, 2023	Aug 28 – Sep 02, 2023	2 to 6
MISAC 2	Mid – term Examination	30	July 31 - Sep 15, 2023	Sep 25-30, 2023	2 to 6
MISAC 3	Quiz	5	Sep 11 - Oct 07, 2023	Oct 09 – 14, 2023	4
FISAC	Take home assignment	10		Oct 30 – Nov 14, 2023	5
END Semester examination		50	L1 – L36		2 to 6

MISAC – Mandatory In semester Assessment Components

FISAC – Flexible In semester Assessment components

*Topics covered under FISAC 1ay vary depending on the assessment type chosen

Blooms Taxonomy Level – FISAC 1 & 2			
No	FISAC Components	First year	Higher semester
A	QUIZ/MCQs	Same as MISAC 2: Quiz/MCQs	
B	Surprise Assignment		Same as MISAC 1: Surprise assignment.
C	Take home assignment		
D	Group Assignment		
E	Seminar		
F	Quiz based on invited talks		
G	Development of SW/Apps		
H	Mini Project		

LESSON PLAN

Lecture No.	Topic	COs addressed
L0	Introductory class(Introduction between teacher & students. Overview of the subject).	-
L1	The Problem Domain of Software Engineering	CO1
L2	The Software Engineering Challenges	CO1
L3	The Software Engineering approach.	CO1
L4	Software Process	CO1
L5	Desired Characteristics of Software Process	CO1
L6	Software development models introduction.	CO1
L7	Software development models.	CO1
L8	Software development model analysis.	CO1
L9	Software Requirements	CO2
L10	Problem Analysis	CO2
L11	Requirement Specifications	CO2
L12	Structure of a requirement document	CO2
L13	Functional Specification with Use Cases	CO2
L14	Functional Specification with Use Cases – Examples, Extensions, Developing use cases.	CO2
L15	Process Planning	CO2
L16	Effort Estimation	CO2
L17	Project Scheduling	CO2
L18	Staffing	CO2
L19	Software Configuration	CO2
L20	Software Configuration Management Plan	CO2
L21	Design Principle	CO3
L22	Design Notations and Specifications	CO3
L23	Structured Design Methodology	CO3

L24	Structured Design Methodology – Factoring the I/P and Transform Branches	CO3
L25	OO Analysis and OO Design	CO4
L26	OO Analysis and OO Design – OO Concepts	C04
L27	Design concepts	CO4
L28	Unified Modeling Language UML	CO4
L29	UML – Class diagram, Sequence and Collaboration diagram etc	CO4
L30	Programming Principle and Guidelines	CO5
L31	Coding Process	CO5
L32	Testing Fundamentals	CO5
L33	Black Box Testing	CO5
L34	White Box Testing	CO5
L35	White Box Testing	CO5
L36	Testing Process.	CO5

SDL-Design of Use case diagram and class diagram

References:

References	
1	Pankaj Jalote, An integrated approach to software engineering (3e), Narosa 2005.
2	Rajib Mall , Fundamentals of Software Engineering (3e), PHI learning 2009.
3	Roger S. Pressman, Software Engineering A Practioner's Approach (6e), McGraw-Hill, 2005.
4	Ian Sommerville, Software Engineering (9e), Pearson, 2010.
5	https://www.youtube.com/playlist?list=PLbRMhDVUMngf8oZR3DpKMvYhZKga90JVt-NPTEL Software Engineering-Video lecture

Submitted by:
Name of the faculty
MANOJ R

(Signature of the faculty)

Date: 28/07/2023

Approved by:

(Signature of HOD)

Date: 28/07/2023

FACULTY MEMBERS TEACHING THE COURSE (IF MULTIPLE SECTIONS EXIST):

FACULTY NAME	SECTION	FACULTY NAME	SECTION
MANOJ R	E		

COURSE PLAN – ADDITIONAL DETAILS

At the end of this course, the student should be able to:		No. of contact Hours	Marks	Program outcomes (POs)	Learning outcomes (LOs)	Program Specific outcomes (PSOs)	Blooms Taxonomy (BT)
CO1	Ability to define and describe principles of Software Engineering.	6	16	1	1,3	_	1 to 6
CO2	Ability to gather requirements and plan the project.	10	28	1	3	_	1 to 6
CO3	Ability to design, recognize and develop software development process models.	6	16	1,4	2	_	1 to 6
CO4	Ability to build and implement DFDs and UML Diagrams.	4	12	1,4	2,3	_	1 to 6
CO5	Ability to code, test and analyze software projects.	10	28	1,3,4,8	1,3,5	1	1 to 6
Total hours/ Marks		**36**	**100**				

Mapping of course outcomes (COs) with Program outcomes (POs) and Program Specific outcomes (PSOs)

Course outcomes (COs)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CO1	Ability to define and describe principles of Software Engineering.	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CO2	Ability to gather requirements and plan the project.	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CO3	Ability to design, recognize and develop software development process models.	2	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–
CO4	Ability to build and implement DFDs and UML Diagrams.	2	–	–	3	–	–	–	–	–	–	–	–	–	–	–	–
CO5	Ability to code, test and analyze software projects.	3	–	3	3	–	–	–	3	–	–	–	–	3	–	–	–
Average Program Articulation Level		**2.2**	**0**	**3**	**2.67**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**

Mapping of course learning outcomes (CLOs) with AHEP Learning outcomes (AHEP LOs)

Course Learning Outcomes (CLOs)		C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18
CLO4306.1	Ability to define and describe principles of Software Engineering.	✓		✓															
CLO4306.2	Ability to gather requirements and plan the project.			✓															
CLO4306.3	Ability to design, recognize and develop software development process models.		✓																
CLO4306.4	Ability to build and implement DFDs and UML Diagrams.		✓	✓															
CLO4306.5	Ability to code, test and analyze software projects.	✓		✓		✓													

Abbreviations

1. **CO – Course outcome**
2. **PO – Program outcome**
3. **PSO – Program Specific outcome**
4. **LO – Learning outcome**
5. **CLO – Course Learning outcome**
6. **BT – Blooms Taxonomy**
7. **AHEP – The Accreditation of Higher Education Programmes**