

UNIVERSITY OF MADRAS
B.Sc. DEGREE PROGRAMME IN COMPUTER SCIENCE
SYLLABUS WITH EFFECT FROM 2023-2024

Year: III	Semester: V
Software Engineering Common for B.C.A. , B.Sc.-SA , B.Sc.-CSc , B.Sc.-CSc-wAI , B.Sc.-CSc-wDS	325E5D
Credits 3	Lecture Hours: 4 per week
Learning Objectives: (for teachers: what they have to do in the class/lab/field)	
<ul style="list-style-type: none"> • To introduce the software development life cycles • To introduce concepts related to structured and object oriented analysis & design co • To provide an insight into UML and software testing techniques 	
Course Outcomes: (for students: To know what they are going to learn)	
<ol style="list-style-type: none"> 1. The students should be able to specify software requirements, design the software using tools 2. To write test cases using different testing techniques. 	

Units	Contents
I	Introduction – Evolution – Software Development projects – Emergence of Software Engineering. Software Life cycle models – Waterfall model – Rapid Application Development – Agile Model – SpiralModel
II	Requirement Analysis and Specification – Gathering and Analysis – SRS – Formal System Specification
III	Software Design – Overview – Characteristics – Cohesion & Coupling – Layered design – Approaches Function Oriented Design – Structured Analysis – DFD – Structured Design – Detailed design
IV	Object Modeling using UML – OO concepts – UML – Diagrams – Use case, Class, Interaction, Activity, State Chart – Postscript
V	Coding & Testing – coding – Review – Documentation – Testing – Black-box, White-box, Integration, OO Testing, Smoke testing.

TEXT BOOK:

1. Rajib Mall, “Fundamentals of Software Engineering”, PHI 2018, 5th Edition.

REFERENCE BOOKS:

1. Roger S. Pressman, “Software Engineering - A Practitioner’s Approach”, McGraw Hill 2010, 7th Edition.

2. Pankaj Jalote, “An Integrated Approach to Software Engineering”, Narosa Publishing House 2011, 3rd Edition.

WEB REFERENCES:

NPTEL online course – Software Engineering - <https://nptel.ac.in/courses/106105182/>