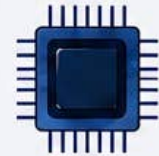
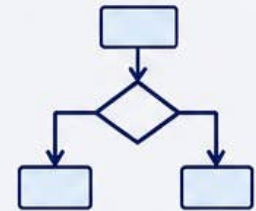




1010101010
0101010101
1010101010
0101010101



Syllabus



Major Course: Software Engineering

Level	Semester	Course Code	Course Name	Credits	Teaching Hours	Exam Duration	Max Marks
5.5	V	112214	Software Engineering	2	30	2 Hrs.	30

Course Objectives:	1. Understand the fundamental concepts of Software Engineering 2. Analyse software requirements, risk management techniques, and software quality measurement methods used in software development. 3. Apply software design principles, architectural design, user interface design, and UML modeling techniques for developing software systems. 4. Understand software testing strategies, debugging techniques, and quality assurance standards for producing reliable software products.						
Course Outcomes:	Students will be able to - 1. Explain the basic principles of Software Engineering. 2. Identify and analyse functional and non-functional requirements 3. Design software architecture, user interfaces, and UML-based system models for software applications. 4. Apply testing methods, risk management strategies, and software quality assurance standards to improve software reliability.						
Unit System	Contents				Workload Allotted	Weightage of Marks Allotted	Incorporation of Pedagogies
Unit I	Introduction to Software Engineering: Characteristics of Software, Types of Software, Need of Software Engineering, Software Development Life Cycle (SDLC), Phases of SDLC, Software Development Models: Introduction to Process Models, Waterfall Model, Prototype Model, Spiral Model				8 Hrs.	8 Marks	Use any pedagogical technique suitable for the topic
Unit II	Software Requirements: Functional and non-functional requirements, User requirements, System requirements Requirements engineering process: Requirements elicitation and analysis, Requirements validation, Requirements management.				7 Hrs.	7 Marks	
Unit III	Risk management: Risk strategies, software risks, Risk identification, RMMM Plan Design Engineering: Design process and Design quality. Introduction to software Architecture, Data design and Architectural pattern				8 Hrs.	8 Marks	

	User interface design: Golden rules, and interface design steps,			
Unit IV	overview of System models and UML Diagrams. Testing Strategies: A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging	7 Hrs.	7 Marks	
References :	Course Material/Learning Resources Text books: 1. Software Engineering: A Practitioner's Approach – Roger S. Pressman 2. Software Engineering – Ian Sommerville 3. Fundamentals of Software Engineering – Rajib Mall 4. An Integrated Approach to Software Engineering – Pankaj Jalote Reference Books: 1. Software Engineering Principles and Practice – Hans Van Vliet 2. Object Oriented and Classical Software Engineering – Stephen R. Schach 3. Software Engineering – K. K. Aggarwal & Yogesh Singh 4. Software Engineering Concepts – Richard Fairley 5. UML Distilled – Martin Fowler Weblink to Equivalent MOOC on SWAYAM if relevant: 1. https://onlinecourses.nptel.ac.in/e-learning/preview/noc25_cs108 2. https://cse.iitk.ac.in/pages/CS455.html Weblink to Equivalent Virtual Lab if relevant: https://se-iitkgp.vlabs.ac.in/ Any pertinent media (recorded lectures, YouTube, etc.) if relevant: 1. https://www.youtube.com/watch?v=Z6f9ckEElsU 2. https://onlinecourses-archive.nptel.ac.in/noc18_cs43/preview 3. https://www.youtube.com/playlist?list=PL_pbwdIyffslgxMVyXhnHiSn_EWTvx1G-			

Assessment Rubric: Internal for Theory Course (Major)

SANT GADGE BABA AMRAVATI UNIVERSITY, AMRAVATI THEORY EXAMINATION B.Sc. III, SEMESTER – V (NEP)			
Theory	Course Code: 112214	Course Title: Software Engineering	Max Marks: 20
Sr. No.	Assessment Criteria		Marks
1	Any Two of the Activity (weekly or monthly assignment/ Unit Test/Class Test) (CAT-1)		10
2	Any One of the Activity includes Open Book Test, MCQ Tests, / Theory related Class activity/Task etc.) etc. (CAT-2)		5
3	Participation in any one Activity includes Quiz, Seminar, Group Discussion, Industry visit, Case Study, Mini project, innovative work, etc. based on Theory Course. Involvement in subject related activities such as Conference, Workshop, Coding Competitions etc. (CAT-3)		5