CAP437:SOFTWARE ENGINEERING PRACTICES

L:4 T:0 P:0 Credits:4

Course Outcomes: Through this course students should be able to

CO1 :: understand the various phases of the software development life cycle

CO2 :: identify appropriate process model depending on the user requirements

CO3 :: apply software engineering practices to create complex software designs.

CO4 :: analyze the need of software maintenance activities

CO5 :: assess the software with different testing strategies

Unit I

Introduction to software engineering : define software engineering, software process, software engineering practices

Software process models : classical software development lifecycle model, prototyping model, V model, software development life cycle (SDLC), incremental Model, introduction to agile method of software development

Unit II

Requirement engineering : requirement gathering, requirement analysis, stakeholder analysis, software requirement specification document, characteristics of a good SRS, organization of functional requirements, fit-gap analysis, requirement engineering, requirement eliciting/gathering, negotiating requirement, validating requirement, functional and non-functional requirement

Unit III

Design : design process, design concepts, coupling, cohesion, data flow diagram (DFD), flow chart, architectural design, component based design, object oriented design, class based components, use case diagram, class diagram, activity diagram

Unit IV

User interface design : golden rules, interface design models, interface design process, interface design activities

Standards : good coding practices, coding standards, code reusability, documentation, documentation standards

Unit V

Software testing : test planning, software testing introduction, test case design

Testing strategies : black box testing and its method, white box testing and its methods

Automated testing with selenium : introduction to Selenium IDE, creating test cases and suites using selenium IDE commands, using JavaScript with selenium (variables manipulation)

Unit VI

Software maintenance and metrics : need for software maintenance, business process reengineering, reverse engineering, types of software maintenance

Product metrics : metrics and indicators, function based metrics, introduction to measures, introduction to COCOMO model

Text Books:

1. SOFTWARE ENGINEERING A PRACTITIONERS APPROACH by R.S. PRESSMAN, MCGRAW HILL EDUCATION

2. FUNDAMENTALS OF SOFTWARE ENGINEERING by RAJIB MALL, PHI Learning

References:

1. SOFTWARE ENGINEERING: PRINCIPLES AND PRACTICES by RAJESH NARANG, MCGRAW HILL EDUCATION

2. AN INTEGRATED APPROACH TO SOFTWARE ENGINEERING by PANKAJ JALOTE, NAROSA PUBLISHING HOUSE

3. SOFTWARE ENGINEERING A PRACTITIONERS APPROACH by R.S. PRESSMAN, MCGRAW HILL EDUCATION

4. FUNDAMENTALS OF SOFTWARE ENGINEERING by RAJIB MALL, PHI Learning