RAYALASEEMA UNIVERSITY, KURNOOL

Common Framework of CBCS for Colleges in Andhra Pradesh w.e.f. 2017-2018
(Revised in April, 2016)

III YEAR V SEMESTER
Paper VI : Software Engineering

Course Objectives

The Objective of the course is to assist the student in understanding the basic theory of software engineering, and to apply these basic theoretical principles to a group software development project.

Course outcomes
1. Ability to gather and specify requirements of the software projects.
2. Ability to analyze software requirements with existing tools
3. Able to differentiate different testing methodologies
4. Able to understand and apply the basic project management practices in real life projects
5. Ability to work in a team as well as independently on software projects

UNIT I
INTRODUCTION: Software Engineering Process paradigms - Project management - Process and Project Metrics – software estimation - Empirical estimation models - Planning - Risk analysis - Software project scheduling.

UNIT II
REQUIREMENTS ANALYSIS : Requirement Engineering Processes – Feasibility Study – Problem of Requirements – Software Requirement Analysis – Analysis Concepts and Principles – Analysis Process – Analysis Model

UNIT III
SOFTWARE DESIGN: Software design - Abstraction - Modularity - Software Architecture - Effective modular design - Cohesion and Coupling - Architectural design and Procedural design - Data flow oriented design.

UNIT IV
USER INTERFACE DESIGN AND REAL TIME SYSTEMS : User interface design - Human factors - Human computer interaction - Human - Computer Interface design - Interface design - Interface standards.

UNIT V
SOFTWARE QUALITY AND TESTING : Software Quality Assurance - Quality metrics - Software Reliability - Software testing - Path testing – Control Structures testing - Black Box testing - Integration, Validation and system testing - Reverse Engineering and Re-engineering.

CASE tools –projects management, tools - analysis and design tools – programming tools - integration and testing tool - Case studies.

REFERENCE BOOKS:
1. Roger Pressman S., "Software Engineering: A Practitioner's Approach", 7th Edition, McGraw Hill, 2010.
2. Software Engineering Principles and Practice by Deepak Jain Oxford University Press
2. Sommerville, "Software Engineering", Eighth Edition, Pearson Education, 2007
3. Pfleeger, "Software Engineering: Theory & Practice", 3rd Edition, Pearson Education, 2009
4. Carlo Ghazi, Mehdi Jazayari, Dino Mandrioli, "Fundamentals of Software Engineering", Pearson Education, 2003

Student Activity:

1. **Visit any financial organization nearby and prepare requirement analysis report**
2. **Visit any industrial organization and prepare risk chart.**

III YEAR V SEMESTER

PROJECT & VIVA-VOCE

The objective of the project is to motivate them to work in emerging/latest technologies, help the students to develop ability, to apply theoretical and practical tools/techniques to solve real life problems related to industry, academic institutions and research laboratories.

The project is of 2 hours/week for one (**Semester-V**) semester duration and a student is expected to do planning, analyzing, designing, coding, and implementing the project. The initiation of project should be with the project proposal. The synopsis approval will be given by the project guides.

The project proposal should include the following:

➢ Title
➢ Objectives
➢ Input and output
➢ Details of modules and process logic
➢ Limitations of the project
➢ Tools/platforms, Languages to be used
➢ Scope of future application

The **Project work** should be either **an individual one or a group of not more than five members** and submit a project report at the end of the semester. The students shall defend their dissertation in front of experts during viva-voce examinations.