**CA5T5E          ADVANCED SOFTWARE ENGINEERING   Credits : 4**

Lecture Hours : 4 periods / week          Internal assessment : 30 Marks

Semester and Examination: 70 Marks

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**Course Description:**

This course aims to develop software project management and its requirements. And it deals with Object oriented software engineering which indicates objects and its case studies. IT establishes software reengineering and its characteristics. It deals with the improvement of process and product integrated environments. And Finally deals with software configuration management and Web Engineering.

**Course Objective:**
- Student will learn the appropriate features of Advanced Software Engineering.
- Student will understand the requirements and specifications of SPM.
- Student will understand the Object Oriented Software Engineering.
- Student able to learn Reengineering and its importance in software engineering**.**
- Student able to learn Web Engineering.
- Able to learn Project Management for Special Classes of Software Projects.

**UNIT I:**

**Software Project Management**: Comparison between Process and Product – Scheduling and tracking – Management activities – Software Process and its Problems in all Phases – Problems with Software Production – IEEE Standard for Software project management plan.

**UNIT II:**

**Requirements and Specification:** Requirement Analysis – Definition – Specification – Formal Specification – Algebraic Specification – Structural Specification – Error Specification – Model Based Specification – Z Schemas – Z Specification Process.

**UNIT III:**

**Object Oriented Software Engineering:** Introduction to Object Oriented Development – Architecture – Object Oriented Testing, Object Oriented Metrics – Objects and Productivity – Object Documentation – MSG Case Study.

**UNIT IV:**
**Software Reengineering:** Reusability – Characteristics – Reuse Strategy – Assessing Reuse Maturity – Reengineering for Reuse – Case Studies – Raytheon Missile Systems Division, NASA Software etc.

**UNIT V:**
**Process and Product Improvements:** Integrated Environments – Platform Services – Frameworks Services – SEI Process Maturity Model – Process Classification.

**Unit VI:**
**Software Configuration Management:** SCM Process, Objects in Software configuration, Version control, Change control, Configuration audit, Status reporting, SCM standards .SOFTWARE QUALITY ASSURANCE: Quality Concepts, Quality Movement, SQA Activities and Formal Approaches to SQA.

**Unit VII:**
**Web Engineering:** Attributes of Web-Based Applications. Process, Modeling activity, Analysis modeling for WebApps, Design- functional, information & interaction, testing WebApps- content, navigation, configuration, and performance testing, Change and Content Management of Web Engineering.

**Unit VIII:**
**Project Management For Special Classes Of Software Projects:** Using CASE tools, CBSE, Reengineering, forward engineering, client/server software engineering, outsourcing, Software project management standards.

## Learning Resources

**Text Books:**
1. Stephen. R. Schach - Software Engineering With Java, Tata McGraw Hill, 1998
2. Even-Andre etal - Software Reuse – A Holistic Approach, John Wiley and Sons, 1996

**Reference Books:**
1. Ivar Jacobson etal - Object Oriented Software Engineering – A Use Case Driven Approach, ISE, 1992.
2. Ian Sommerville - Software Engineering, Addison Wesley, 5/e, 1996.
3. Ian Sommerville - Software Engineering, Addison Wesley, 9/e, 2010.