II Year MCA I Semester

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MC207　SOFTWARE ENGINEERING

Objectives of the Course:
The course aims
- *To explain the concept of a software life cycle and the role of process maturity models.*
- *To apply key elements and common methods for elicitation and analysis to produce a set of software requirements.*
- *To explain the importance of Architecture in software design.*
- *To distinguish between the different types and levels of testing (unit, integration, systems, and acceptance).*

UNIT - I　　　　　　　　　　　　　　　　　　　　**(10 Hrs)**
Software Product and Process: Introduction to Software Engineering, Generic view of process- Capability Maturity Model Integration (CMMI),
Process models: The Waterfall Model, Incremental Process Models, Evolutionary Process Model, An Agile view of process.

UNIT - II　　　　　　　　　　　　　　　　　　　　**(12 Hrs)**
Software Requirements Engineering:　Requirement Engineering Task, Initiating the Requirements Engineering Process, Requirements Analysis, Data Modeling, and Scenario based modeling, Flow Oriented Modeling.

UNIT - III　　　　　　　　　　　　　　　　　　　　**(12 Hrs)**
Software Design Engineering: Design Process And Concepts, Pattern Based Software Design.
Creating Architectural Design: Software architecture, Data design, Architectural styles and patterns, Performing User Interface Design.

UNIT - IV　　　　　　　　　　　　　　　　　　　　**(14 Hrs)**
Software Testing: A strategic approach to software testing, test strategies for conventional software, Validation Testing, System Testing, The Art of Debugging.
Testing tactics: White box testing, Basis Path Testing, Control Structure Testing, Black Box Testing.

UNIT - V　　　　　　　　　　　　　　　　　　　　**(12 Hrs)**
Software　Metrics: Software Quality, Metrics for Analysis Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance.

Text Books:
1. Roger S. Pressman, "Software Engineering – A practitioner's Approach",Sixth Edition,McGraw-Hill International Edition
2. Ian Somerville,"Software Engineering", 7th Edition, International Computer Science Series.

References Books:

1. K.K. Agarwal & Yogesh Singh," Software Engineering" ,New Age InternationalPublishers
2. Waman S Jawadekar, "Software Engineering principles and practice", The McGraw-Hill Companies.