Software Engineering **3 Credit Hours**

Objectives
The aim of this is course is to study various software development models and phases of software development life cycle. The concepts of project management, change control, process management, software development and testing are introduced through hands-on Team Projects. The following topics will be covered in the course: The Scope of Software Engineering, Software Process, Software Development Life Cycle, Project Management Concepts, (Planning, Costing, Risk Analysis, Quality Assurance, Risk Management, 4Ps of Project Management), Software Measurement concepts, Product metrics (LOC based and FP based metrics), Software Quality Metrics, Software Project Planning, Software Cost Estimation techniques, COCOMO model, Project Scheduling, (GANTT chart, Critical Path Method), Requirements Engineering, Use Case Techniques, Entity Relationship Diagram, State Transition Diagram, Data Flow Diagrams, Software Designing, Abstraction, refinement, modularity, software architecture, Cohesion & Coupling, Architectural Design, Data Design, Mapping ER to Data Model, Interface Design, Human Computer Interface, Modular Design, Mapping Design to Code, Software Testing, White Box Testing & Black Box Testing, Test Case Design using Cyclometic Complexity Technique, UML modeling, Use-Case Modeling, Domain Modeling, Interaction Diagrams, Design Modeling, and Implementation Modeling; Design Patterns (GRASP), User Interface Design, Usage of Rational Rose

Prerequisites
Databases

Text Book
Roger Pressman, *Software Engineering: A Practioner's Approach*, McGraw-Hill, 2005.ISBN 9780073019338
Craig Larman, *Applying UML and Patterns*, 2002. ISBN-10: 0130925691

Reference Material
- Ian Sommerville, *Software Engineering*, 6th Edition ISBN-10: 020139815X