THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Software Engineering Techniques

CSE 3231

Credit Hours:
3.00

Course Levels:
Undergraduate (1000-5000 level)

Course Components:
Lecture

Course Description:
Software engineering issues, techniques, methodologies and technologies; software lifecycle activities: requirements analysis, architecture, design, testing, deployment, maintenance; project management; enterprise software systems; frameworks.

Prerequisites and Co-requisites:
Prereq: 3901 or 3902 or 3903.

Course Goals / Objectives:
- Be competent with structured and agile software engineering frameworks; specifically structured and agile software engineering methodologies for requirements identification, analysis, architecture, design, testing, deployment and project management
- Be familiar with the characterization of enterprise software systems
- Be familiar with frameworks for analyzing the business context of enterprise IT systems, the concept of Business-IT alignment and related issues, and Enterprise Architecture
- Be exposed to the trends impacting enterprise systems
- Be exposed to the need for frameworks for software engineering

Course Topics:

- Characteristics of enterprise softw. sys.: scale, heterogeneity, distribution, federation by nature, lack of complete knowledge; organizational challenges; external drivers
- Understanding the business and the relationship between the business and information technology - business strategy, business-IT alignment and enterprise architecture
- Software engineering process - broadly characterized as structured or agile processes. Scenario-driven, Incremental and iterative development. Introduction to work-products and work-product-oriented development. Agile principles
- Requirements gathering. Structured and agile requirements work-products
- Analysis - domain, problem and solution analysis. Exposure to UML. Structured and agile analysis work-products. CRC-card based analysis
- Architecting softw. intensive sys: Designing, evaluating architectures; non-functional requirements & quality attributes in arch. Quality-driven design. Structured & agile architecture work-products
- Software project management: Structured and Agile project planning and management, linear and parametric software estimation, Risk planning. Software configuration management. Agile boot camp ? LEGO-based workshop on Agile development
- Software design: Responsibility-driven design concepts, application of responsibility-driven design in design patterns and enterprise technology frameworks, designing applications using enterprise technology frameworks
- Testing: Testing methodologies for enterprise systems. Testing in agile methodologies
- Deployment, Maintenance and Management: IT Infrastructure Library (ITIL) practices for infrastructure management
- Case studies in software engineering

Designation:

Required
Elective