Description: A study of classical and object-oriented software engineering principles and methods. Topics include software processes, requirements analysis, design, testing and maintenance, project management and software metrics, process improvement. Agile software development and open-source software development are also covered. There will be a group project. Three hours lecture per week.

Prerequisite: Advanced Data Structures & Algorithm Analysis (COSC 320).

Required Text: No required textbook.

References:
“Software Engineering” (9ed) by Sommerville; Addison Wesley, 2010.
“Introduction to Software Testing” (2ed) by Ammann and Offutt; Cambridge, 2014.

Weeks

Introduction to Software Engineering
Overview. Historical perspective. Agile and traditional software development processes. 2.0

Project Management and Planning
Project management principles. Project planning and software cost estimation. 4.0

Classical Analysis and Design
Requirements analysis and specification. Prototyping. Architectural and detailed designs. 4.0

Object-oriented Analysis and Design
Object-oriented concepts, analysis and design methods and principles. UML. 4.0

Software Inspections
Test planning, processes, and strategies. Software reviews and inspections. 4.0

Maintenance & Evolution
Maintenance process, costs, documentation. Configuration management. 4.0

Other Topics
Software process improvement, Open-source software development. 4.0

Tests

EVALUATION
Projects 60%
Exams 40%

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