

**SU DEPARTMENT OF MATHEMATICS & COMPUTER SCIENCE**  
**SYLLABUS (Tentative)**  
**COSC 425/COSC426 Software Engineering I & II**

**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.
- “The Mythical Man-month” by Brooks, Jr; Addison Wesley, 1995.
- “Object-oriented and Classical Software Engineering” (8ed) by Schach; McGraw, 2011.
- “Introduction to Software Testing” (2ed) by Ammann and Offutt; Cambridge, 2014.
- “The Unified Modeling Language Reference Manual” (2ed) by Booch, Rumbaugh and Jacobson; Addison Wesley, 2004.

	<i>Weeks</i>
<b><i>Introduction to Software Engineering</i></b>	2.0
Overview. Historical perspective. Agile and traditional software development processes.	
<b><i>Project Management and Planning</i></b>	4.0
Project management principles. Project planning and software cost estimation.	
<b><i>Classical Analysis and Design</i></b>	4.0
Requirements analysis and specification. Prototyping. Architectural and detailed designs.	
<b><i>Object-oriented Analysis and Design</i></b>	4.0
Object-oriented concepts, analysis and design methods and principles. UML.	
<b><i>Software Inspections</i></b>	4.0
Test planning, processes, and strategies. Software reviews and inspections.	
<b><i>Maintenance &amp; Evolution</i></b>	4.0
Maintenance process, costs, documentation. Configuration management.	
<b><i>Other Topics</i></b>	4.0
Software process improvement, Open-source software development.	
<b><i>Tests</i></b>	<u>2.0</u>
	28.0

**EVALUATION**

Projects 60%

Exams 40%