

COURSE DESCRIPTION

Course No.	CSC 340	Course Title	Software Engineering
Course Type	Required		
Sem. Hours	3	Coordinator	Nancy Green

Current Catalog Description:

Practical and theoretical concepts of software engineering

Textbook:

Timothy Lethbridge and Robert Laganriere. Object-Oriented Software Engineering: Practical Software Development Using UML and Java, 2nd Edition.

References:

None

Course Outcomes:

- Upon completion of the course students should be able to
1. Demonstrate knowledge of principles and terminology of the field of Software Engineering
 2. Demonstrate knowledge of object-oriented modeling techniques (UML)
 3. Apply knowledge in 1-2 to the requirements, analysis, design, implementation, and testing of a software system in a team project; and present project deliverables in written form
 4. Demonstrate knowledge of software teams and software engineering ethics
 5. Demonstrate knowledge of software evaluation

Activities Enabling Program Outcomes (POx refers to program student outcome x)

Instruction: The lectures in this course cover techniques of software engineering for medium to large software projects including requirements-analysis-design-implementation-testing (POc), teamwork: how software teams are organized and how successful teams operate (POd), professional ethics (POe), components of requirements-analysis-design documentation (POf), classical and UML modeling techniques (POi), software lifecycle models and software architecture (POk).

Student Activities and Assessment: Every offering of this course will include (details of assessment criteria and expectations are in outcome rubrics):

- One or more assignments in which students identify, analyze, and clearly document system requirements and design, using current software engineering techniques (POc, POfw, and POi)

- One or more assignments in which students utilize classical and UML diagrams for software design and development (POk)
- One or more program in which students implement a system consistent with a design document, using current software engineering techniques (POc and POi)
- One or more assignment or quiz/test question in which students demonstrate an ability to evaluate a product in terms of requirements, design, and implementation, and testing (POc and POfw and POi)
- One or more test/quiz questions in which students to identify a professional, ethical, legal, security , or social issue and the stakeholders involved (POe)
- One or more test/quiz questions in which students demonstrate understanding of principles of effective teamwork (POd)
- A survey and peer assessment exercise in which students demonstrate an understanding of teamwork and an ability to function effectively on a team (POd)

Prerequisites by Topic:

Students must have

- a grade of at least C (2.0) in CSC 330 (Advanced Data Structures)

Major Topics Covered in the Course:

- Introduction to Software Engineering including Software Engineering Ethics
- Software Life Cycle Models
- Software Process
- Software Teams
- Introduction to Testing
- Software Project Planning and Estimating
- Requirements and UML
- Object-oriented Analysis and UML
- Modules and Design
- Reuse and Portability
- Implementation
- Integration and Testing
- Maintenance
- Special Topics (e.g. Software Architecture, User Interface Design)

Estimated Curriculum Category Content (Semester hours):

<i>Area</i>	<i>Core</i>	<i>Advanced</i>	<i>Area</i>	<i>Core</i>	<i>Advanced</i>
Algorithms	0	0	Software design	3	0
Data structures	0	0	Prog. Languages	0	0
Comp Org & Arch	0	0			