CREDIT/CONTACT HOURS: Credit Hours: 4, Contact Hours: 75

COORDINATOR: Dr. Nan Niu


SPECIFIC COURSE INFORMATION:
Catalog Description: Three hours lecture. Two hours laboratory. Introduction to software engineering; planning, requirements analysis and specification, design; testing; debugging; maintenance; documentation. Alternative design methods, software metrics, software project management, reuse, and reengineering.
  a. Prerequisites: CSE 2383 with a grade of C or better
  b. Required/Elective:
     Computer Science – Selected Elective
     Software Engineering – Required
     Computer Engineering - Elective

SPECIFIC GOALS OF THE COURSE:
Specific Outcomes of Instruction:
  1. Provide an introduction to the software engineering discipline
  2. Describe the SE process and select the correct process for a given software development scenario.
  3. The student will be placed in a project environment and required to work as part of a software development team.
  4. The student will be able to perform object-oriented software analysis, design, test, and implementation.
  5. The student will be able to apply standard, accepted software engineering techniques to system development and to apply appropriate metrics.
  6. The student will demonstrate proficiency in eliciting requirements from a customer and refining the high level requirements to an end product.
  7. The student will demonstrate the ability to document their work to an acceptable standard.

Criterion 3 Outcomes:
  Note: Parenthesized list indicates the ABET EAC and CAC outcomes addressed by each performance criteria.
  1. Provide an introduction to the software engineering discipline. (EAC: i, j; CAC: h)
2. Describe the SE process and select the correct process for a given software
development scenario. (EAC: a; CAC: a,j)
3. The student will be placed in a project environment and required to work as
part of a software development team. (EAC: c; CAC: c)
4. The student will be able to perform object oriented software analysis, design,
verification & validation, and implementation. (EAC: b; CAC: k)
5. The student will be able to apply standard, accepted software engineering
techniques to system development and to apply appropriate metrics. (EAC: i;
CAC: k)
6. The student will demonstrate proficiency in eliciting requirements from a
customer and refining the high level requirements to an end product to the
satisfaction of the customer. (EAC: c,e,g; CAC:b, c,f )
7. The student will demonstrate the ability to document their work to an
acceptable standard. (EAC: g; CAC: f)

TOPICS COVERED: (Number of class hrs)
1. Software Development Process 2
2. Software Project Management & Planning 6
3. Requirements engineering 6
4. Object-oriented Analysis and Design 8
5. Formal Specification methods 3
6. Component Based Software Development 3
7. Software Testing & quality assurance 4
8. Software Maintenance and Configuration Management 3
9. Software Metrics 3
10. Software Standards & documentation 4
11. Examinations 3

Laboratory Outline (Number of lab weeks)
1. ConOps Developemnt 3 weeks
2. Requirements specification 4 weeks
3. Design specification 4 weeks
4. Coding & Testing 4 weeks