CIS 375 Section 001
Software Engineering 1
4 Credit Hours, Fall 2019
6:00-7:45 TTh, Recitation, 1212 ML

Contact Information:

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- Office Hours: 4-5 T W Th by appt. MF
- Office Location: 233 CIS

Learning Goals:

Dearborn Discovery Core Category and Goals: Upper Level Writing

- Students are able to demonstrate advanced competency by writing for a specific audience and integrating disciplinary ideas and concepts (requirements document).
- Students are able to effectively evaluate and use research methods, sources, or technology appropriate to the field (design document).
- Students are able to engage in critical inquiry and thinking to synthesize or create a new rendering of perspective (milestone documents in the term project.

Program Learning Goals:

- Our graduates will be successfully employed in a computer and information science-related field or another career path, in an industrial, commercial, academic, governmental, or non-governmental organization, or will be a successful graduate student in a program preparing them for such employment
- Our graduates will lead and participate in culturally diverse teams, becoming global collaborators and adapting to an ever-changing field
- Our graduates will continue their professional development by obtaining continuing education credits, professional registration or certifications, or post-graduate study credits or degrees

Course Objectives:

a. instructional objectives

- The student will be able to create a risk table for a software development project and risk information sheets for each critical or catastrophic risk
- The student will be able to create and execute a test plan for a software system, including test case creation, based on the specified requirements

- The student will be able to implement a software system that meets the needs of an external customer and that involves the creation of a significant user interface and help system
- The student will be able to make use of appropriate software engineering tools in the development of a software product
- The student will be able to manage the completion of a software project for an external customer
- The student will be able to participate in several peer design walkthroughs, including the presentation and critiquing of each other's designs during class time
- The student will be able to participate on a multi-disciplinary design team to design and implement a software project
- The student will be able to write a complete design document for a software system
- The student will be able to write a management plan for a software project that involves time and resource estimates, personnel scheduling detail, and the determination of its production costs

b. Student outcomes addressed in the course

- Outcome (1) – Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
- Outcome (2) – Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- Outcome (3) – Communicate effectively in a variety of professional contexts.
- Outcome (4) – Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- Outcome (5) – Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- Outcome (6) – Apply computer science theory and software development fundamentals to produce computing-based solutions.

Required Materials and/or Technology:

- REQUIRED: R.S. Pressman and B. Maxim, Software Engineering: A Practitioner's Approach, 9th Edition, McGraw Hill, 2020.

- RECOMMENDED: S.R. Schach, Object-Oriented and Classical Software Engineering, 8th Edition, McGraw-Hill, 2011

- TECHNOLOGY: TECHNOLOGY: Various programming languages and software engineering tools.

- URL: http://www-personal.umd.umich.edu/~bmaxim/
  http://groups.umd.umich.edu/cis/course.des/cis375.html

Assignments and Grading Distributions:

16 of 18 Reading Reflections	20%
5 Project Assignments	60%
20 of 22 Class Activities	20%

97-100%	**A+**	84-86%	**B**	70-73%	**C-**
94-96%	**A**	80-83%	**B-**	67-69%	**D+**
90-93%	**A-**	77-79%	**C+**	64-66%	**D**
87-89%	**B+**	74-76%	**C**	60-63%	**D-**

Tentative Course Outline and Schedule:

Date	Activity, Content, Assignments
Sept 05	Software Process Models Paper Tower, Airplane Challenge - SEPA Chap 2
Sept 10	Agile Process Models SCRUM Card Game - SEPA Chap 3
Sept 12	Requirements Engineering 1 Understanding Requirements and Ambiguity - SEPA Chap 4
Sept 17	Requirements Engineering 1 User Stories, Use Cases - SEPA Chap 6, SEPA Chap 7
Sept 19	Requirements Modeling 1 CRC/UML - SEPA Chap 8
Sept 24	Requirements Modeling 2 UML - SEPA Chap 8, SEPA App 1
Sept 26	Reviews SEPA Chap 16
Oct 01	Inspections SEPA Chap 16

Oct 03	PMP 1 Project Estimation – SEPA Chap24, SEPA Chap 26
Oct 08	Team Presentations OOA Project Due
Oct 10	PMP 2 Project Scheduling - SEPA Chap 26
Oct 15	Fall Break
Oct 17	Architectural Design and Component Design SEPA Chap 9, SEPA Chap 10, SEPA Chap 11
Oct 22	RISK Management and Software Metrics SEPA Chap 23, SEPA Chap 26
Oct 24	Configuration Management and Support SEPA Chap 22, SEPA Chap 27
Oct 29	Team Presentations Project Plan Due
Oct 31	UX Design 1 User Interface Design and Reviews SEPA - Chap 12
Nov 05	UX Design 2 Patterns, Personas, Customer Journeys - SEPA Chap 13, SEPA Chap 14
Nov 07	UX Design 3 Paper Prototypes and User Modeling - SEPA Chap 13
Nov 12	Software Quality Defect Life Cycle - SEPA8 Chap 15
Nov 14	Technical Reviews Design Document Due
Nov 19	Testing 1 Understanding Testing – SEPA Chap 19, SEPA Chap 20
Nov 21	Testing 2 Teat Case and Test Plans – SEPA Chap 19, SEPA Chap 20
Nov 26	Testing 3 Cost Effective Testing – SEPA19
Nov 28	Thanksgiving Vacation

Dec 03	Software Quality Assurance and Usability/Accessibility SEPA Chap 17, SEPA Chap 21
Dec 05	Security Inspection SEPA Chap 18
Dec10	Technical Reviews Test Plan due
Dec 11	Study Day
Dec 17	1212 ML Final Project Presentations 6:30-9:30

Course and University Policies:

Instructor or Course Specific Policies:

A student enrolled in a course (lecture, laboratory, recitation, colloquium, seminar, or other university approved format) is expected to attend every scheduled session of the course. The instructor of each course will make known to the students the course attendance policy with respect to student absences. It is the student's responsibility to be aware of this policy. The instructor makes the final decision to excuse or not to excuse an absence.

The University of Michigan-Dearborn values academic honesty and integrity. Each student has a responsibility to understand, accept, and comply with the University's standards of academic conduct as set forth by the Code of Academic Conduct, as well as policies established by each college. Cheating, collusion, misconduct, fabrication, and plagiarism are considered serious offenses and violations can result in penalties up to and including expulsion from the University.

University-wide Policies or Statements Relevant to Courses:

Please see the 'Course Policies' Menu on Canvas for information on the following:

- University Attendance Policy
- Academic Integrity Policy
- Counseling
- Disabilities Services
- Safety Statement
- Harassment, Sexual Violence, Bias, and Discrimination