Contact Information:

- Professor Bruce R. Maxim
- Email: bmaxim@umich.edu
- Phone Number: 313-436-9155

- Office Hours: 2-6 W Th and by appt.
- Office Location: 233 CIS

Learning Goals:

Dearborn Discovery Core Category and Goals:

a. Capstone Experience

- Students are able to identify, obtain, research, and describe major issues associated with a specific topic of inquiry.
- Students are able to identify and discuss critical questions leading to a deeper engagement in the study of a specific topic of inquiry or technology.
- Students are able to apply knowledge, skills and abilities in the creation and execution of a concrete project informed by specific topic of inquiry.

b. Critical and Creative Thinking

- Students are able to identify, summarize, and understand the problem, question, and/or issue.
- Students are able to identify, locate, and critically or creatively evaluate evidence using appropriate sources or technology.
- Students are able to consider and interpret alternative perspectives to support analysis.
- Students are able to develop and communicate conclusions and implications by synthesizing technical, aesthetic, conceptual knowledge or supporting evidence.

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. Outcomes of instruction

- The student will be able to conduct one 30 minute seminar discussions of ethics or professional issues papers requiring independent library and/or Internet research
- The student will be able to create a risk monitoring, mitigation, and management plan for a real-world software development project
- The student will be able to create and execute a software quality assurance plan for a real-world software project
- The student will be able to describe the design trade-offs considered in formulating the analysis model for a software system intended to meet the needs of a real-world client
- The student will be able to make 5 group PowerPoint presentations, each about 15-20 minutes in length
- The student will be able to write 3 milestone documents (about 40 pages each)
- 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
- The student will be able to write a software quality management plan for a software project.
- The student will be able to write a specification document for a software system, including detailed requirements and a complete analysis model, based on the needs of a real-world customer

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: Ethics for the Information Age, 8th Edition, M. Quinn, Pearson, 2019.

RECOMMENDED: Software Engineering: A Practitioners Approach, 9th Edition,
  Roger S. Pressman and Bruce R. Maxim, McGraw-Hill, 2020

URL: http://www-personal.umd.umich.edu/~bmaxim/
  http://groups.umd.umich.edu/cis/course.des/cis4951.html

Assignments and Grading Distributions:

4 Project Assignments (Written and Oral)	60%
Paper Presentation	20%
Working Prototypr	10%
Attendance	10%

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 and Content
Jan 08	Client Presentations
Jan 15	Client Presentations
Jan 22	Project Teams Formed
Jan 29	Paper Presentations
Feb 05	Paper Presentations
Feb 12	Use Case Presentations

Feb 19	Paper Presentations
Feb 26	Project Management Plan Presentations
Mar 04	Spring Break
Mar 11	Paper Presentations
Mar 18	Specification Document Presentations
Mar 25	Specification Document Presentations
Apr 01	Paper Presentations
Apr 08	Paper Presentations
Apr 15	SQA Plan Presentations
Apr 17	CECS Senior Design Day 10:00-3:00
Apr 22	Post Mortem and Feasibility Prototype 11:30-2:30

Course and University Policies:

Instructor or Course Specific Policies:

University Attendance Policy:

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.

Presence or participation is also expected in online courses. Participation in online courses can take various forms; it is the instructor who determines what form of presence or participation is expected. Students enrolled in online courses are responsible for being aware of that policy/expectation.

An instructor is entitled to give a failing grade for excessive absences or for a student who stops participating in class at some point during the semester.

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