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|  | **Spring 2016 Syllabus** |
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| **Course Number:** | CSC450-A |
| **Course Title:** | Projects/Capstone for CSC/IT Majors |
| **Number of Credits:** | 4 credits |
| **Day/Time:** | Wed 4:00-5:50 in TC13 |
| **Prerequisites:** | Completion of ALL required CSC prefix coursework and/or consent of instructor. |
| **Contact Info:** | Mike Konemann – Charles House 202 – 262.524.7162 – [mgk@carrollu.edu](mailto:mgk@carrollu.edu) |
| **Office Hours:** | M 2:30-3:30, T 12:00-1:30, R 12:00-1:30 | After class | By appointment |
| **Course Description (from catalog):** | This course requires students to work on a real-world project, is a very demanding, and only open to majors in their senior year, excepting for those with special privilege. The main focus is the completion, implantation, presentation, and delivery of a unique, self-chosen project that highlights the knowledge acquired during their undergrad work.  The course requires that the student selects a goal and then research, design, and implement what is needed to reach that goal. They must create and implement their own code and also intelligently utilize pre-existing solutions. Documentation of the process as well as the final product is required. Finally, a formal presentation of the product will accompany the deliverables. |
| **Text:** | None required and all repositories of information are utilizable. Documentation of source is expected. |
| **Course objectives/content:** | CSC450/451 should only be taken after a student has completed all their course-work requirement for their major. As such, the course is only open to seniors and those with special permission. The course is designed such that the student must apply what they have learned in their previous courses to a real-world project of their own choosing. Thus, the student will realize an independent and self-challenging experience. Successful completion of the project requires the student determine their project’s requirements; perform system analysis, develop, design, implementation and test their product. The instructor will be functioning as a facilitator and a supervisor but it expected that the student be self-directing in terms of acquiring resources, skills, and knowledge needed to complete their goal. The instructor can assist in obtaining access to Carroll's computing resourses. The main task of the instructor is ensuring the student has demonstrated they meet Carroll’s standards of quality required of its Computer Science Undergrad Program. It is the student’s responsibility to meet any and all technical challenges through their own methods.  The students will:  • Select a project. Their choice must be sufficiently sophisticated and deemed appropriate by the directing faculty supervisor(s).  • Research their chosen project documenting any previous solutions and techniques.  • Accurately determine their projects requirements and any unknowns.  • Create a work plan for the project’s development.  • Analyze and design the Solution.  • Create testing plans.  • Implement the system.  • Test the system.  • Create persistent and archive ready documentation. |
| **Student learning objectives/outcomes** | Successful completion of this capstone course can only be achieved if the students fully demonstrates a strong ability of applying knowledge acquired in their studies to solving real-world problems. Upon successful completion of this course, a student must be able to demonstrate knowledge and understanding of the following:     1. Industry standard Software-Engineering principles and/or Information-Technology project-management principles; as appropriate. 2. Their current abilities and paths for expansion of those abilities. 3. Determination of project feasibility with available resources, requirements needed for completion, and potential risks and required steps for mitigation. 4. Industry standards of quality in project design and implementation. 5. Code reusability, efficiency, and modularity. 6. Systematic and comprehensive testing at every level of production. 7. Professional, effective, and purpose-specific communication. Including, but not limited too, communications with their project’s director, an, and all, mentors, and also their peer-colleagues. |
| **Student Assessment:** | **Grading:**   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | A | AB | B | BC | C | D | F | | [94-100] | [88-94) | [82-88) | [78-82) | [70-78) | [60-70) | [0-60) |   The projects will be graded by the Computer Science Faculty and based on the level of quality in the following areas:   1. Project appropriateness and sufficiently challenging. 2. Project planning and following through, including documentation of scope/specifications, development process, log creation, product evaluations, reports, etc. 3. Software analysis and design. 4. Code quality (proper variable names, modularity, proper class hierarchies, etc.), sophistication, and commenting. 5. Software usability and user specific ergonomics. 6. Project verification, documentation of testing strategies, and proof of testing completeness. 7. Effort (which includes difficulty for student, easily improvable, etc.) 8. Presentation, including, but not limited too; status reports, faculty and colleague contact, and a complete demonstration of a complete and functional product. 9. A complete and archive-ready document including installable software, user manuals, and technical documentation.     **DELIVERABLES**  The following deliverables are expected in your binder:   1. Table of contents indexing each section by page numbers found in document. 2. Your contract/all versions-- i.e., the specification of the project (make a detailed list of the requirements and the constraints of the project) 3. Schedule and log. 4. Plan of product development. 5. Logical Design Documents including story boards, data flow diagrams, ER diagrams, UML diagrams as appropriate. 6. Testing strategies and typical testing scenarios. 7. Complete documentation of all newly created code and modules. Any code generated by IDE, and all code not personally written by the student must be noted and sources must be credited. 8. Comments on the ways the project can be improved. 9. Brief yet accurate user and technical manuals. 10. Final report discussing personal grading of the project based upon the grading rubric criteria supplied. |
| **Tentative Schedule:** | |  |  |  | | --- | --- | --- | | **Milestone** | **Date** | **Delivery Method** | | Ground rules | 01/20/2016 | None | | Project Proposal | 01/27/2016 | Delivered On-line | | Detailed project requirement specification, and the work plan | 02/03/2016 | Delivered On-line | | Update on progress, demonstrating what completed and what remains | Weeks of Feb. 24 or March 02 | One-on-one, scheduled with instructor (informal) | | Update on progress, demonstrating what completed and what remains | Weeks of April 6 and April 13 | One-on-one, scheduled with instructor (informal) | | Final Presentation  **(this is in lieu of a Final Exam)** | 04/28/2016 | Formal with PowerPoint | |
| **Attendance Policy:** | It is required that you attend the face-to-face individual meetings with the instructor, and the Final Presentation. |
| **Assignments:** | The due dates for assignments are listed in the schedule above. Late homework will be accepted for half credit between the due date and the beginning of the next class period. |
| **Required component:** | “Students with disabilities who may need accommodations or any student considering obtaining documents should make an appointment with the Walter Young Center (262‐524‐7621) no later than the first week of class.” |
| **Required component:** | “The Carroll University Academic Integrity Policy is located in the student handbook. Please familiarize yourself with it. Carroll University emphasizes that students have an obligation to conduct their academic work with honesty and integrity. All acts of academic misconduct are serious. If you have any questions about appropriate citations, please ask.” |
| **Required component:** | “The instructor and the University reserve the right to modify, amend or change the syllabus (course requirements, grading policy, etc.) as the curriculum and/or program require(s).” |