ECE 152 – Introduction to Programming II with Embedded Control Lab

Catalog Description: Control using microcontrollers with the C language. Interfacing to PCs using an Object Oriented Programming language. Lec/lab.

Credits: 4 **Terms Offered:** Fall, Spring

Prerequisites: (CS 151 or ECE 151) and MTH231*
[* means concurrent enrollment is acceptable]

Courses that require this as a prerequisite: CS 261, CS 275

Structure: Three 50-minute lectures per week, and one 110-minute laboratory per week

Instructors: Heer

Course Content:
- Object-oriented principles
- Class hierarchy, inheritance, and recursion
- Graphical user interface design
- Hardware Interfaces
- Code Documentation
- Testing/Debugging/Troubleshooting

Learning Resources:
- Materials to be supplied by instructor

Measurable Student Learning Outcomes:
At the completion of the course, students will be able to…
1. **Design** and **implement** programs that require
    a. multiple classes, structures
    b. hierarchies of classes that use inheritance and polymorphism
    c. an understanding of abstraction, modularity, separation of concerns, and exception handling (ABET Outcomes:)
2. **Construct** and **use** basic linear structures (arrays, stacks, queues, and various linked lists) in programs, and be able to **describe** instances appropriate for their use. (ABET Outcomes:)
3. **Write** an object-oriented program that efficiently communicates to another device, using multiple classes, methods, and objects (ABET Outcomes:)
4. **Develop** testing/debugging plans for programming projects (ABET Outcomes:)
5. **Produce** recursive algorithms, and **choose** appropriately between iterative and recursive algorithms. (ABET Outcomes:)
6. **Using** embedded control, actuate motors, servos, displays, and/or other traditionally embedded devices. (ABET Outcomes:)
7. **Classify** moderately complicated algorithms in these complexity classes: O(1), O(log n), O(n), O(n log n), and $O(n^2)$

Students with Disabilities:
Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 737-4098.

Link to Statement of Expectations for Student Conduct, i.e., cheating policies
http://oregonstate.edu/admin/stucon/achon.htm

Revised: 1/18/11