

ECE 441, 442, 443 – Engineering Design Project

Catalog Description: An extended team design project to expose students to problem situations and issues in engineering design similar to those encountered in industry. (Writing Intensive Courses)

Credits: 3+3+2 **Terms Offered:** Fall+Winter+Spring

Prerequisites: ECE 322, ECE 351, (ECE 375 or CS 261 or Major in Engr Physics)

Courses that require this as a prerequisite: None

Structure: One 110-minute lecture per week

Instructors: D. Heer (primary), R. Traylor (secondary)

Course Content:

- Project management fundamentals
- Workplace behavior and ethics
- Project information communication
- Total quality improvement, cycles

Measurable Student Learning Outcomes:

At the completion of the course, students will be able to...

1. **Write** a concise project description stemming from an identified objective (ABET Outcomes: E, G, a, c, f)
2. **Collect** and review technical information on a project from relevant external resources (ABET Outcomes: I, J, e)
3. **Identify** and describe the constraints on projects imposed by resources and in terms of broader impact (ABET Outcomes: C, E, H, a, d, f, m)
4. **Identify** project milestones (ABET Outcomes: G, d)
5. **Acquire** tooling and hardware (components) for a breadboard / prototype (ABET Outcomes: K, j)
6. **Actively revise** and adjust solutions based on new information (ABET Outcomes: B, C, E, I, K, m)
7. **Record** technical results, and measure progress (ABET Outcomes: G, a, d)
8. **Complete** (from design to at least the prototype) a significant ECE project (ABET Outcomes: A, B, C, E, G, K, M, d, i)
9. **Generate** Operational and Technical Documentation for an ECE project (ABET Outcomes: G, a, b, c, d)
10. **Present** project information succinctly to a technically aware audience (ABET Outcomes: A, G, f)
11. **Work** effectively in professional multidisciplinary teams utilizing appropriate communication skills (ABET Outcomes: D, G, f)
12. **Analyze** ethical dilemmas in terms of the impact of engineering solutions in global, economic, environmental, social context (ABET Outcomes: F, H, J)

Learning Resources:

- *Design for Electrical and Computer Engineers*, Ralph M. Ford and Chris S. Coulston (required)

Students with Disabilities:

Accommodations are collaborative efforts between students, faculty and Services for Students with Disabilities (SSD). Students with accommodations approved through SSD 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 SSD should contact SSD immediately at 737-4098.

Link to Statement of Expectations for Student Conduct:

<http://oregonstate.edu/admin/stucon/achon.htm>

Revised: 9/24/07

Revised: 6/1/13

Revised CLO Outcome Mappings: 7/15/14

Revised Learning Resources: 10/01/14