CSE 481K Capstone Software Design: Resource-constrained Environments

Credits

5.0 (3 hrs lecture, 2 hrs+ meeting times)

Lead Instructor

Ruth Anderson

Textbook

None

Course Description

Students work in teams to design and implement a software project involving multiple areas of the CSE curriculum. Emphasis is placed on the development process itself, rather than on the product.

Prerequisites

CSE 331 or CSE 341; CSE 326 or CSE 332; CSE 351 or CSE 378; substantial programming experience such as CSE 451 or CSE 457.

CE Major Status

Selected Elective

Course Objectives

Students form interdisciplinary project groups to scope and design projects for resource-constrained environments. The emphasis is on group work leading to the creation of testable realizations and completion of initial evaluations of the software and hardware artifacts produced. Students work in inter-disciplinary groups with a faculty or graduate student manager. Groups document their work in the form of posters, verbal presentations, videos, and written reports.

ABET Outcomes

(a) an ability to apply knowledge of mathematics, science, and engineering
(b) an ability to design and conduct experiments, as well as to analyze and interpret data
(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
(d) an ability to function on multi-disciplinary teams
(e) an ability to identify, formulate, and solve engineering problems
(f) an understanding of professional and ethical responsibility
(g) an ability to communicate effectively
(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
(i) a recognition of the need for, and an ability to engage in life-long learning
(j) knowledge of contemporary issues
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Course Topics

- o Software development in teams
- o Project platforms vary but often include a mobile component
- o Attention to design for conditions of low connectivity, low cost, different user populations
- o Most student time is spent in the development process, and performing critiques of it.