
CSE 403 Software Engineering

Credits

4.0 (3 hrs lecture, 1 hr section)

Lead Instructor

Michael Ernst

Textbook

None

Course Description

Fundamentals of software engineering using a group project as the basic vehicle. Topics covered include the software crisis, managing complexity, requirements specification, architectural and detailed design, testing and analysis, software process, and tools and environments.

Prerequisites

either CSE 303 or CSE 331; either CSE 332 or CSE 326; recommended: either CSE 331 or project experience in a work setting.

CE Major Status

Selected Elective

Course Objectives

A central objective of the course is to have students develop a deep understanding of the distinctions between software engineering and programming. In addition, the students understand the software lifecycle, increase their knowledge of classic and modern software engineering techniques, and develop concrete experience in turning ill-formed concepts into products working with a team.

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

Course Topics

- Topics covered include the software crisis, managing complexity, requirements specification, architectural and detailed design, testing and analysis, software process, and tools and environments.