**Course Number:** SE 303

**Course Title:** Software Engineering III

**Location:** Cascades

**Course Credit**

(4) This course meets twice per week in lecture, combining approximately 120 hours of instruction, online activities and assignments for 4 credits.

**Pre-requisites**

CS 362

**Description**

Introduction to refactoring techniques and improving the quality and maintainability of software. Applying continuous integration and deployment tools; containers and virtual development environments.

**Content**

* Design patterns
* Code smells
* Refactoring techniques
* Test-driven development
* Source code integration techniques
* Software deployment techniques
* Deployment environments (eg. AWS, and platform-as-a-service)
* Containers and orchestration

**Learning Outcomes**

1. Recognize flaws in software design (e.g. “code smells”).
2. Describe common refactoring techniques.
3. Apply refactoring techniques in a test-driven process to improve the quality and maintainability of code.
4. Describe deployment processes such as continuous integration and continuous delivery.
5. Apply tools for managing the construction and deployment of N-tier applications for virtualized environments.
6. Describe the benefits and drawbacks of containers for managing development and production environments.
7. Apply containerization tools to create development and production environments.
8. Participate effectively in a software engineering team.

**Evaluation of Student Performance (A/F)**

In the OSU online catalog, refer to [AR 18 and AR 19](https://catalog.oregonstate.edu/regulations/) regarding assignment of grades.

* 7% Professional Development
* 38% Exercises
* 55% Project

**Learning Resources**

Fowler, M., & Beck., K. (1999). *Refactoring: Improving the Design of Existing Code*. 1st. ed. Addison-Wesley Professional. ISBN 9780201485677

Additional free / online materials provided by the instructor.

**Statement Regarding Students with Disabilities**

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at <https://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

[**Statement of Expectations for Student Conduct**](https://studentlife.oregonstate.edu/code) (https://studentlife.oregonstate.edu/code)

**Religious Observance**

Oregon State University strives to respect all religious practices. If you have religious holidays that are in conflict with any of the requirements of this class, please see me immediately so that we can make alternative arrangements.

**Excused Absences for University Extracurricular Activities**

Students participating in an officially sanctioned, scheduled, university extracurricular activity should be given the opportunity to make up class assignments or other graded assignments missed as a result of their participation. It is the responsibility of the student to make arrangements with the instructor prior to any missed scheduled examination or other missed assignment for making up the work.