Topic Notes: Introduction and Overview

Welcome to Software Engineering!

What is Software Engineering?

Throughout the computer science curriculum, you learn about programming languages, computer hardware, algorithms, and much more. Software engineering brings all of these together to study the software development process.

In particular, we study large-scale software development. Once the size of a software project grows beyond the point where it is reasonable for a single developer to design, implement, test, and maintain it, a number of new issues begin to arise. Many of the techniques used to deal with these issues apply just as well to smaller projects and those with a single developer, but they become much more essential for larger projects.

Much of the work of software engineering becomes the management of requirements (working with customers, who may not be technically literate, and may not really know exactly what they want or if it is even possible), management of teams of developers, testers, and documentation specialists, and management of the software development itself (source code control and testing suites).

The vast range, scope, and complexity of the software in use today speaks to the success of software engineering over the several decades since the field's invention. But there are also many failures, some spectacular, from which we can learn.

This semester, we will study the field by reading from our textbook and other sources, by hearing from a selection and discussing with professionals in the software development and related industries, by practicing with some of the enabling tools and technologies, and by developing a large-scale team project from requirements and design through implementation, testing and delivery.