Agile Software Development (40-475)

Dr. Raman Ramsin

*Undergraduate Course, 3 Units, Elective (Computer Engineering–Software)*

*Prerequisite: Systems Analysis and Design (40-418)*

**Overview**
The aim of this course is to familiarize undergraduate students of Computer Engineering (Software) with concepts, principles, and methods of agile software development. While gaining knowledge and hands-on experience with the Scrum methodology, students will also be introduced to test-driven development, continuous integration, refactoring, and other agile practices, along with their practical use in software projects.

**Topics and Schedule**
1) Introduction to the History, Basic Concepts, Manifesto, and Principles of Agile Development (1 session – each session is 90 minutes in duration)
2) Introduction to Extreme Programming (XP) (3 sessions)
3) Scrum Methodology
   - Framework and Applicability (3 sessions)
   - Sprint Rules (1 session)
   - Requirements, and Product Backlog (3 sessions)
   - Estimation and Velocity (2 sessions)
   - Sprint Planning (2 sessions)
   - Sprint Execution (2 sessions)
   - Refactoring (4 sessions)
   - Sprint Review (1 session)
   - Sprint Retrospective (1 session)
   - High-Level Planning in Scrum (2 sessions)
   - Roles in Scrum (1 session)
4) Agile Practices: Team Management, Design and Kanban (3 sessions)
5) Process Framework for Agile Development: DAD (1 session)

**Exams and Course Project**
- Two exams (Midterm and Final) – Comprising %60 of the total grade
- One comprehensive course project: Project activities will be assigned and completed throughout the semester – Comprising %40 of the total grade

**Main References**