Agile Software Development (40-475)

Dr. Raman Ramsin

Undergraduate Course, 3 Units, Elective (Computer Engineering)
Prerequisite: Systems Analysis and Design (40-418)

Overview
The aim of this course is to familiarize undergraduate students of Computer Engineering with the concepts, principles, and methods of agile software development. After a review of agile principles and the XP methodology, students will gain knowledge on the DSDM and DAD methodologies, and will use them, along with patterns and agile practices, to develop a software system.

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 XP (Extreme Programming) (2 sessions)
3) DSDM Methodology (Dynamic Systems Development Method)
   • Framework, Principles and Rules (2 sessions)
   • Feasibility Phase (1 session)
   • Foundations Phase (2 sessions)
   • Evolutionary Development Phase (2 sessions)
   • Deployment Phase (2 sessions)
   • Roles, Products and Practices (3 sessions)
4) DAD Methodology (Disciplined Agile Delivery)
   • Framework (1 session)
   • Inception Phase (1 session)
   • Elaboration Phase (2 sessions)
   • Construction Phase (2 sessions)
   • Transition Phase (1 session)
   • Iterative Activities and Practices (2 sessions)
5) Agile Practices: Team Management, Design and Kanban (3 sessions)
6) Patterns (3 sessions)

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
• E. Gamma, R. Helm, R. Johnson, J. Vlissides, Design Patterns: Elements of Reusable Object-Oriented Software. Addison-Wesley, 1995.