COM 421, 430, Software Engineering I, II

American University of Central Asia
Software Engineering Department

1 Course Information

Course IDs
COM 421, 3705
COM 430, 3881

Course Repository
`https://github.com/auca/com.421-430`

Place
AUCA, laboratory G30

Time
Monday 12:45
Wednesday 12:45

2 Prerequisites

COM 112, Programming II. Object Oriented Design and GUI Programming
COM 324, Algorithm Analysis

3 Contact Information

Instructor
Toksaitov Dmitrii Alexandrovich
toksaitov_d@auca.kg

Office
AUCA new campus, room 315

Office Hours
Monday 14:00–16:00
Wednesday 14:00–15:00
Friday 12:00–14:00

4 Course Overview

The course introduces students to software engineering, teaching each of the individual steps of the software life cycle: requirements, design, coding, testing and software delivery. The course covers estimating man months to complete a project and writing project proposals. Along with the theory, students will go through all the stages of software development on their own projects. This is a two-semester course designed for Software Engineering majors and minors.

5 Topics Covered

- Software engineering concepts
- Software development methodologies
- Agile software development
- Requirements engineering
- System design and modeling
- System implementation
- Software testing
- Software evolution
- Project management
- Dependability and security

6 Practice Tasks

Students are required to finish 6 practice tasks. The tasks are based on topics discussed during lectures. Each task should be finished during the class to receive a grade.

7 Course Projects

The course contains two projects for each semester. Each project requires to develop a software product for an imaginary customer. Small teams of 4 students will compete to deliver solutions to a specified problem. Teams will go through all steps of software production such as requirements specification, software design, construction, testing, deployment, and maintenance.

8 Final Quizzes

At the end of each semester students will get a quiz on topics discussed during the course.

9 Reading

Software Engineering (9'th Edition) by Ian Sommerville (AUCA Library Call Number: QA76.758.S657 2011, ISBN: 978-0137035151)

9.1 Supplemental Reading

1. The Mythical Man-Month: Essays on Software Engineering, Second Edition by Frederick P. Brooks Jr. (ISBN: 858-0001065793)
2. Extreme Programming Explained: Embrace Change, 2nd Edition by Kent Beck, Cynthia Andres (ISBN: 978-0321278654)
3. Essential Scrum: A Practical Guide to the Most Popular Agile Process by Kenneth S. Rubin (ISBN: 007-6092046028)
4. Test Driven Development: By Example by Kent Beck (ISBN: 978-0321146533)
5. Code Complete: A Practical Handbook of Software Construction by Steve McConnell (AUCA Library Call Number: QA76.76.D47M39 2004, ISBN: 079-0145196705)
6. Design Patterns: Elements of Reusable Object-Oriented Software by Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides (AUCA Library Call Number: QA 76.64 D47 1995, ISBN: 978-0201633610)
7. Refactoring: Improving the Design of Existing Code by Martin Fowler, Kent Beck, John Brant, William Opdyke, Don Roberts (AUCA Library Call Number: QA76.76.R42 F695 1999, ISBN: 978-0201485677)

10 Grading

- Practice tasks (20%)
- Course project (several parts)
  - Major part of the final grade (60%)
- Final quiz (20%)

– 90%–100%: A
– 80%–89%: A-

- 70%–79%: B+
- 65%–69%: B
- 60%–64%: B-
- 56%–59%: C+
- 53%–55%: C
- 50%–52%: C-
- 46%–49%: D+
- 43%–45%: D
- 40%–42%: D-
- Less than 39%: F

11 Rules

Students are required to follow the rules of conduct of the Software Engineering Department and American University of Central Asia.