UNIVERSITY OF AGDER

FACULTY OF SOCIAL SCIENCES

EXAM

Course code: **IS-402**
Course name: **Systems Development Process and Methods**

Date: November 25, 2015
Duration: 09:00-12:00 (3 hours)

Number of pages incl. front page: 2

Resources allowed: closed book examination

Notes: Please answer all exercises in prose. You may, however, use bullet point lists. Please also feel free to make drawings, diagrams, etc. and refer to them. To support your argumentation or for purposes of illustration, you may also make examples. Please note that some of the exercises require an elaborate answer. Nonetheless, grading will be done based on precision and quality of argumentation and not on textual length. As a rough hint as to how much time you should spend on each of the exercises, their share on the exam's overall grade is given as a percent value.

Exercise 1: Planning (10%)

For the purpose of development project planning, in the lecture *milestone planning*, *Gantt-charts*, and *precedence diagrams* were proposed. Explain *one* of the three methods!

Exercise 2: Analysis and Definition (35%)

You have been appointed to be requirements engineer in a development project. The customer has told you that he has no time for questioning and he "simply wants you to develop the new customer relationship management tool" without asking him much about requirements. Argue, why this is a pretty bad idea! Be sure to include

- details on what kind of requirements exist,
- how they can be identified,
- in which form they can be documented, and
- by which criteria the functional specification document can be assessed.

Exercise 3: Design (30%)

The customer had some considerations and eventually discussed with you. You now need to make a system design for his requirements. A function is to sort entries in the customer relationship management tool. For this purpose, different sorting modules exist. For example, entries can be sorted by different characteristics; some sorting modules work particularly well with large datasets. All sorting modules can be designed to have a common interface. This setting asks for the usage *of a design pattern*. Which pattern do you propose? Explain your decision! Graphically sketch a possible way of usage of the pattern!

Exercise 4: Implementation and Testing (5%)

Since your company is in favour of agile methods, for actual implementation *test*-driven development (TDD) is considered. Briefly explain and discuss TDD!

Exercise 5: Software Development Methodologies (20%)

In the lecture possibilities for the comparison of plan-driven and agile methods were discussed. Sketch two brief scenarios for the "customer relationship management tool" development project! One of it should be applicable for plan-driven development, the other for an agile approach. Discuss which method you would recommend in each case and why the differences between the scenarios need to be addressed methodologically.