Previous Years Exam Questions (Answers will be discussed in Group sessions and updated in course page)

Exercise 1 (20%)

What is the motivation for software process improvement; that is, why should one work smarter when developing software?

Answer:

Exercise 2 (50%)

A Norwegian public service company runs a large software development project in the public sector. In total, 175 people work on the project, which is estimated to cost around one billion NOK. Beside the public service company, there are two other main contractors, both consultancy companies. In addition, there are several contractors that fill various roles in the project. Three important roles filled by the public service company are: one overall project manager (dealing with contracts with all the contractors, etc.), one product owner (PO) and one technical project leader. All project members are co-located.

The public service company contributes with six Scrum teams and the two other main contractors contribute with three Scrum teams each. All teams have three weeks sprints and start the sprints on the same day. One person is the PO for all the teams.

The overall requirements specification of the system has already been written and forms the basis for the Product Backlog, which consists of approximately 300 master elements (specified as use cases). These elements are divided into six requirement areas. Each master element in the Product Backlog is roughly estimated by the use of planning poker with a relative size to each other. The technical project leader, three of the Scrum masters (one from each of main contractors) and the PO participate in this estimation. Through the Product

Backlog process for each release (a release is delivered approximately twice a year), the master elements are broken down into user stories that form the Product Backlog items. These items are prioritized by the PO according to the functional importance, technical importance and technical dependencies. The PO may change the priority of the Product Backlog items during the release phase. The PO pre-plans every sprint and prepares the next Product Backlog items before the items are given to the teams in the next sprint planning. In the sprint planning, all the teams further define the tasks required to implement the Product Backlog items that they have been provided. The teams estimate the work on the tasks (using planning poker with absolute estimation in hours). These estimated tasks will become the teams' Sprint Backlog.

The day after the sprint planning, all the Scrum masters and the technical project leader meet to tell each other what the team commitments are in the sprint. They focus on dependencies and make notes about where to go if they run into problems regarding tasks that the other teams are solving. The results of these meetings may affect the Product Backlog process.

There are inter-team coordination meetings (Scrum of Scrum) three times a week where the Scrum masters lift the problems regarding dependencies. The results of these meetings may also affect the Product Backlog process.

a) Use BPMN to document the Product Backlog process described above as a process model.

Answer:

After a while, it became clear that the Product Backlog process was not good enough. The Product Backlog was not refined and prioritized sufficiently to meet all the changed requirements and dependencies among Product Backlog items in the different requirement areas. This resulted in delays and many bugs, especially in features that had dependencies between functional areas. Consequently, many sprints had the Sprint Backlog filled with too many bug-fixing tasks instead of tasks that implemented new features. Therefore, the management decided to make some changes in the organization of the project and in the Product Backlog process.

b) Propose changes in the organization of the project and in the Product Backlog process that might have improved the situation described above.

Answer:

c) Suggest and describe a minimum of three measures that the project could use to evaluate the effects of the changes in the organization of the project and the Product Backlog process that you suggested in

Answer:

(b). For each measure, show the relationship between the measure and the purpose of the changes.

Answer:

d) Describe how data of the proposed measures could be collected and analysed.

Answer:

Exercise 3 (30%)

a) Describe five core principles of Lean. The description should include a motivation for each of the principles, that is, its purpose.

Answer:

b) For each of these five principles, describe how using Scrum may support the principle.

Answer: