

IN5140/IN9140 Censorship guide 2023

General

The exam is divided into the following four sections:

Section 1: Multiple Choice questions (10%)

Section 2: Various question types (20%)

Section 3: Text answers (30%)

Section 4: Case (40%)

It is possible to achieve a total of 100 points.

Section 1: Multiple Choice questions (10%)

This section contains 5 multiple choice questions where one answer is correct.

- Each correct answer is rewarded with 2 points
- Each wrong answer gives 0 points
- A total of 10 points are achievable

For grading on this section, please refer to Inspira. Both candidates and censors are able to see the correct answer there.

Section 2: Various question types (20%)

This section contains 5 multiple choice questions where several answers might be correct.

- The type of questions varies.
- Each task describes a number of achievable points for that task.
- A total of 20 points are achievable.

For grading on this section, please refer to Inspira. Both candidates and censors are able to see the correct answer there.

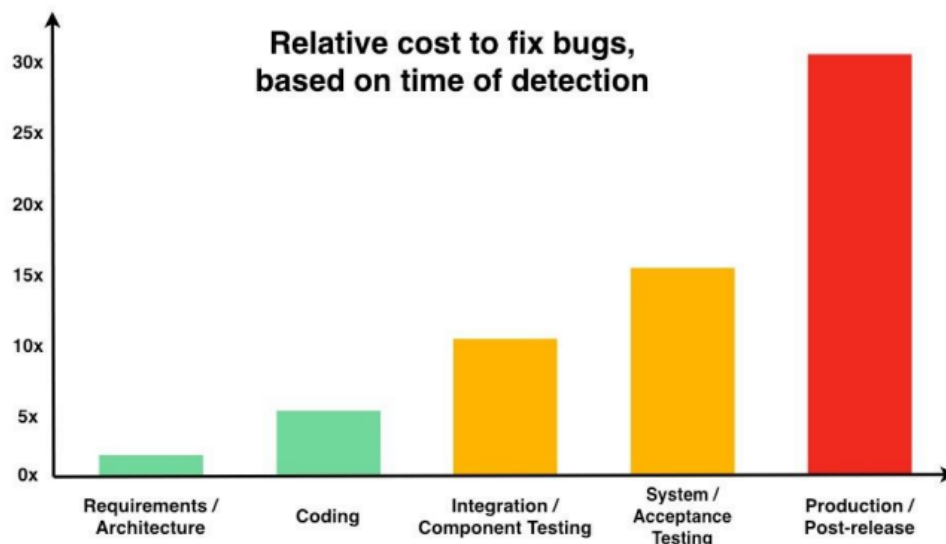
Section 3: Text answers (30%)

This section contains various questions from the curriculum. 30 points is achievable in this section.

For all of these questions, the answer should be brief. That means if a candidate uses a lot of words to answer these tasks, some points should be reduced.

3.1 Diagram from lecture. (5p)

The diagram is shown in the “Quality Assurance in Software Projects”-lecture. The diagram shows the relative cost to fix bugs based on time of detection. That means it is less expensive to fix bugs earlier, instead of fixing them later in the software development lifecycle.

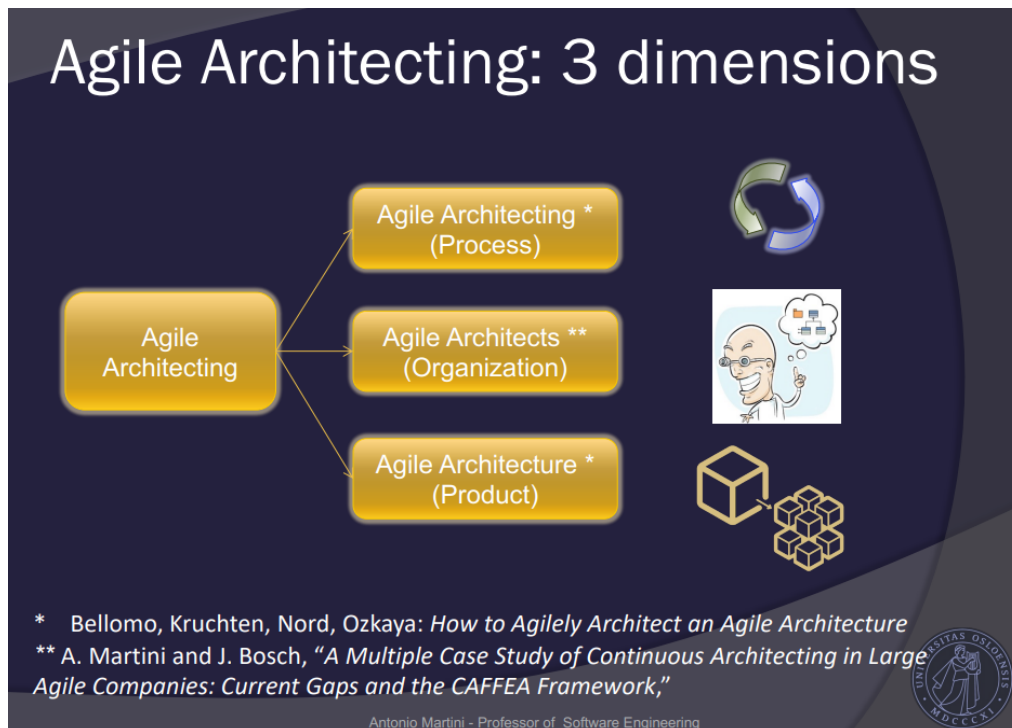


Regarding considering its effect the candidate could mention some static code analysis tool to discover bugs early so that they can be dealt with. Can also perform a risk analysis to decide on if a bug should be prioritized or not.

3.2 Agile Architecting (5p)

Agile architecting is architecting that supports Continuous Delivery.

The candidate should provide an answer explaining this approach as well as briefly elaborate on the following three dimensions:



3.3 Describe the "Follow the sun"- software development approach and mention one advantage and one disadvantage. (5p)

Follow the sun is a model in which work is relocated from one site to another in a different time zone, allowing for continuous development / support / maintenance. This approach ensures that while one team rests for the night, the work is seamlessly handed over to another team in a different time zone, enabling round-the-clock development.

- One advantage of the "Follow the Sun" model is the continuous work on the system, enhancing the ability to respond promptly to potential changes.
- A potential disadvantage could be reduced communication between teams situated in different countries, as the overlapping working hours are minimal.

The candidate should be rewarded for other adequate mentioned advantages and disadvantages.

3.4 SAFe (5p)

Lecture:

<https://www.uio.no/studier/emner/matnat/ifi/IN5140/h23/lectures/scaling-agile-at-volvo-cars-based-on-the-safe.pdf>

SAFe framework (linked from the slides)

<https://scaledagileframework.com/>

In general, the student should be able to describe high level the SAFE fw and mention a few points related or similar to the following description (it can be partial or somewhat high level, it's only 5 points so we should not be too strict):

The Scaled Agile Framework (SAFe) is a comprehensive system for scaling Agile principles and methods to large organizations. The framework provides a set of organization and workflow patterns intended to guide enterprises in scaling lean and agile practices.

Here is a brief description of the key components of the SAFe framework:

Lean-Agile Principles:

SAFe is built on lean and agile principles, emphasizing customer value, collaboration, and adaptability. It aims to deliver value faster and more predictably.

Agile Release Trains (ARTs):

ARTs are the heart of SAFe, consisting of cross-functional teams that work together to deliver value in a value stream. ARTs are organized around the value they deliver and operate on a fixed cadence.

Program Increment (PI):

PI is a time-boxed planning interval during which an Agile Release Train delivers incremental value in the form of working, tested software and systems. It typically spans 8-12 weeks.

Roles:

SAFe defines various roles at different levels, including team, program, and portfolio levels. Roles include Scrum Masters, Product Owners, Release Train Engineers, Product Managers, and more.

Release Planning:

Release Planning is a major event in SAFe, where teams come together to plan the content of the next Program Increment. This involves estimating and prioritizing features and creating a roadmap.

Backlog:

SAFe maintains different levels of backlogs, including the Team Backlog, Program Backlog, and Portfolio Backlog. Each backlog helps prioritize and manage work at various organizational levels.

Inspect and Adapt:

SAFe emphasizes continuous improvement through regular retrospectives and Inspect and Adapt (I&A) workshops. These events allow teams and organizations to reflect on their performance and make necessary adjustments.

Value Streams and Value Stream Mapping:

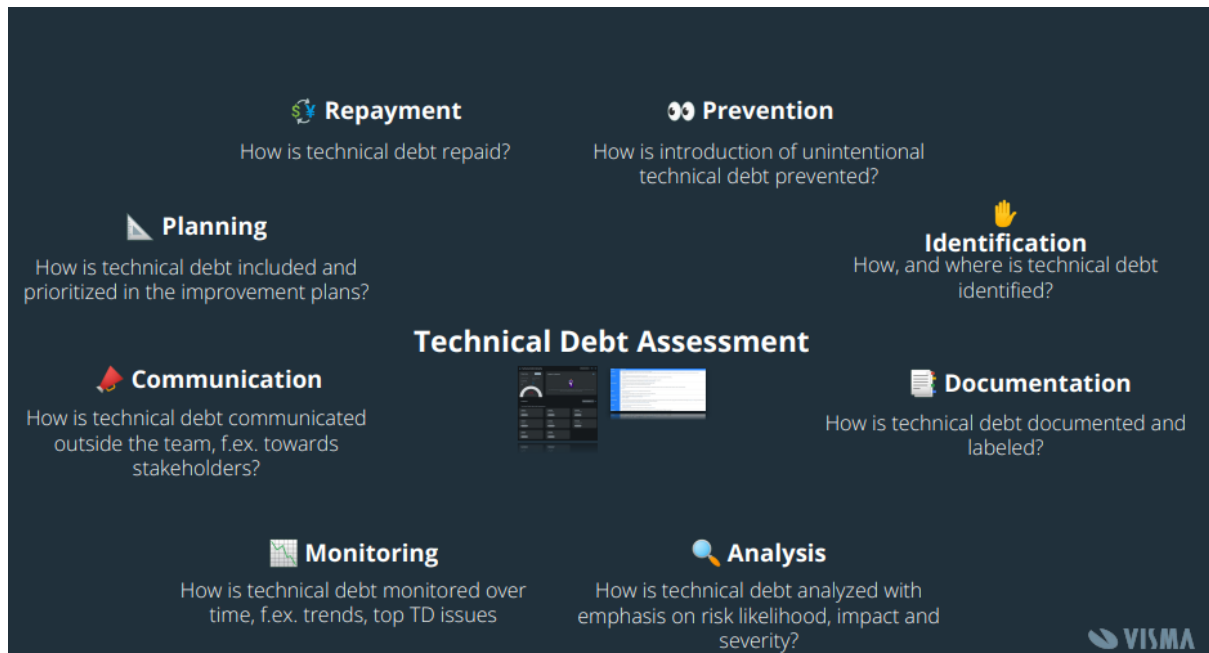
SAFe encourages organizations to identify and visualize their value streams, understanding the steps involved in delivering value to the customer. Value Stream Mapping helps in optimizing these processes.

Lean-Agile Leadership:

SAFe places a strong emphasis on leadership at all levels, promoting a lean-agile mindset among leaders to foster a culture of continuous improvement and collaboration.

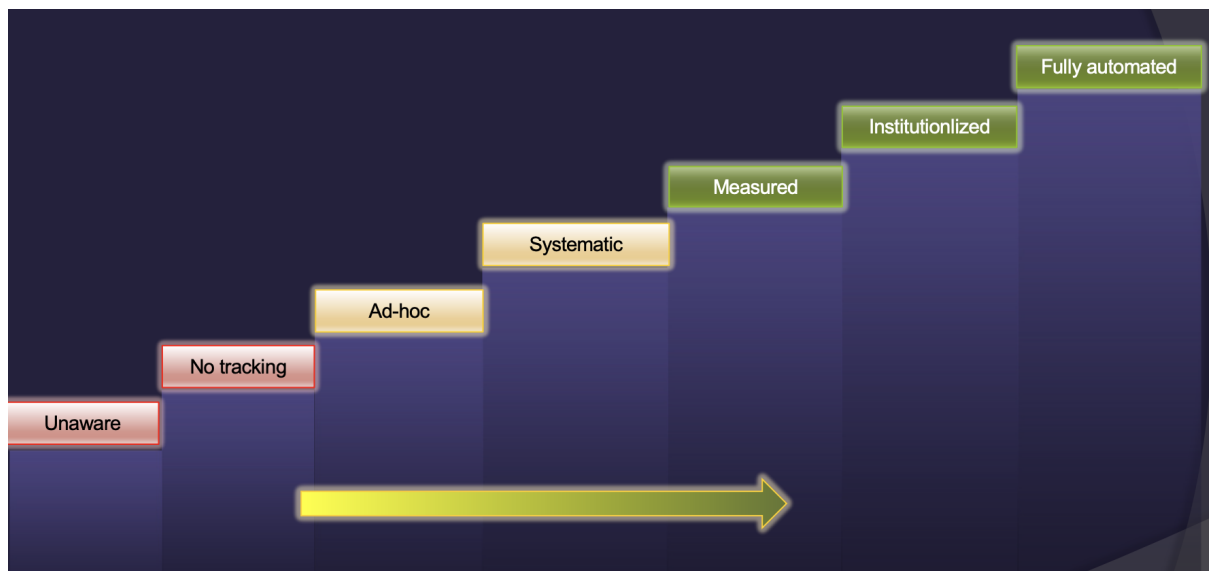
3.5 Technical Debt assessment (5p)

5 of the following activities



After I've gone through some answers, I think it's ok to give 2-3 points if they the maturity model in the picture below and in these slides at this link:

https://www.uio.no/studier/emner/matnat/ifi/IN5140/h23/lectures/2023-09-27-techdebt_1.pdf



3.6 Agile roles

Five agile roles should be mentioned and briefly explained. Some roles includes:

- **Manager**
 - A supporting role (not assigning tasks). “Establishing an environment that enables the team to work successfully”
- **Product owner**
 - Facilitates decisions about the product. Select user stories from the product backlog. Evaluates the result of the sprint (in Scrum)
- **Team**
 - Group of people, but also viewed as a “single” character. Self-organized. Cross-functional (teams should be formed along the lines of features)
- **Members and Observers**
 - The observers will give their opinion if invited, but project decisions, such as including functionality, are the privilege of members
- **Customer**
 - “Put the customer at the centre”. In Scrum often the Product Owner represents the customer
- **Coach, Scrum Master**
 - The Scrum master is responsible for making sure a Scrum team lives by the values and practises of Scrum

IN5140 -> Process Modeling - Slide 4

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Could be other Agile roles as well, for example In SAFE there are other roles such as the RTE (release train engineers). It should be fine if the candidate mention any of them, see roles on the left <https://scaledagileframework.com/>.

Section 4: Case

4.1 BPMN (10p)

There is no “one way “ to solve this task, but the score of this task is affected by:

General:

- The BPMN diagram reflects the problem described in the case.
- The diagram should be understandable and easy to read.
- Assumptions to the case should be included to better understand the BPMN diagram.

Syntax:

- Uses activities and gateways correctly.
- Uses Choreography when modeling meetings.
- Start and end events in all pools.
- Pools and lanes used correctly.
- Use of “sequence flow” and “message flow”.
- Following general BPMN rules as described in BPMN poster from lecture.

Data, task types, og sub-processes have not been addressed heavily in the lectures and group sessions. The candidate should therefore not receive less points if these are missing.

However, if the candidate has major faults in their diagram that reveals misunderstanding of modeling BPMN diagrams, less points should be given.

To receive max points on this task, a majority of the above mentioned criterias should be met.

4.2 Process improvements (12p)

The answer should include:

- Two suggested process improvements. (8p) 4p each improvement.
 - The improvements should be briefly explained.
 - Should also include why they were chosen.
- Two measures for each of the improvements (at least 4 in total), 1p for each measure).

4.3 BPMN - Improved process

There is no “one way “ to solve this task, but the score of this task is affected by:

- The same criterias for the BPMN (regarding syntax) as in task 4.1.
- The improved process should be visible in the BPMN when comparing the diagram with the one delivered as part of task 4.1

4.4 Reflection

- There are no “book answers”.
- The reflections provided by the candidate should discuss the question and not deviate from it.
- Candidates should reflect on more than one challenge.