TU/e EINDHOVEN UNIVERSITY OF TECHNOLOGY

Software / Web Engineering Project (2IPE0)

2021-2022 Q4

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Software/Web Engineering Project

Goal:

- Development of large non-trivial software in group context

A real **project** with a real **customer**

- **Team** of ~10 students
- Separate **project** (scrum master) and **quality manager**
- Each team has a CS staff member as **supervisor**

Timing:

- 10 ESTC; 280 hours per person
- 25 Apr 2022 – 8 Jul 2022 **Kick-off: 25 April**

Software/Web Engineering Project

Acquire and practice **professional skills** throughout the project

Completion of all the professional skills assignments is a prerequisite for a successful pass of SEP

Project Deliverables

Documentation (based on ESA standard)

- 4 product documents:
  - User Requirements Document (URD)
  - Software Design Document (SDD)
  - Software User Manual (SUM)
  - Software Transfer Document (STD)
- 2 test plans: Unit test plan (UTP), Acceptance test plan (ATP)

Code

Poster

All documents and code delivered to the customer and to the SEP coordinator

Grading

Necessary conditions for passing: completed **all professional skills** assignments; not excluded from the project (due to free riding or absence)

Grade based on **two components**:

- **Group** grade
  - All documents are checked by at least 2 staff members according to a grading form
  - Code quality is checked by a tool (info available on Canvas)
- **Individual** student contribution
  - Based on 2 rounds peer reviews during the project (done by fellow students, project managers, supervisor)
  - Usually a value in [-1, +1] interval

Final grade is the group grade with the individual correction applied

Peer Reviews

Done twice: in the middle and in the end of the project

- Students evaluate each other
- Project managers evaluate students
- Students evaluate project managers
- Supervisor evaluates students

Evaluation form is available on Canvas

Peer Reviews

In the beginning of the project:

- The group defines the meaning of ‘reliable team member’
- Discuss the notion of ‘contribution’, ‘commitment’, ‘reliability’

Way of Working

Main work done **online**

Face-to-face meetings

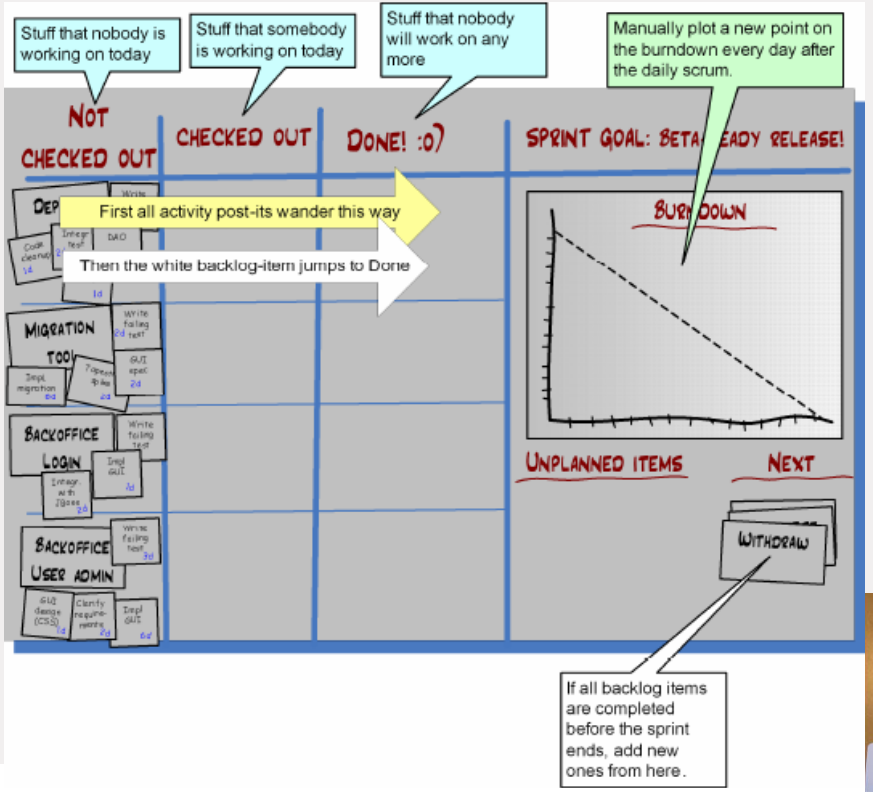
- Intermediate and final presentations
- 1 day per week the teams may work at the TU/e campus or on customer site

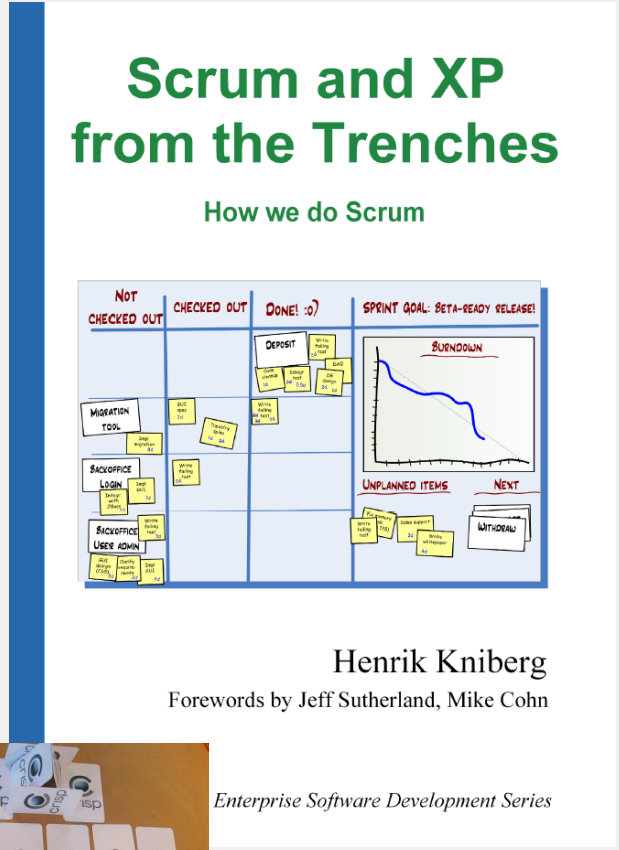
Reserved SEP project rooms

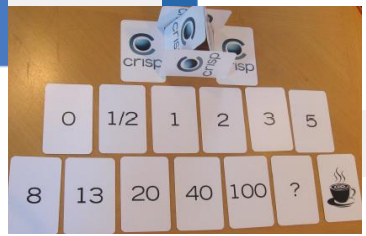
- **MF 3.101-MF 3.105**, **MF 4.122, MF 4.199, MF 4.212, MF 5.135, MF 5.143, MF 5.199, MF 5.202** available on **Tuesdays** in 8:45-19:15

Way of Working

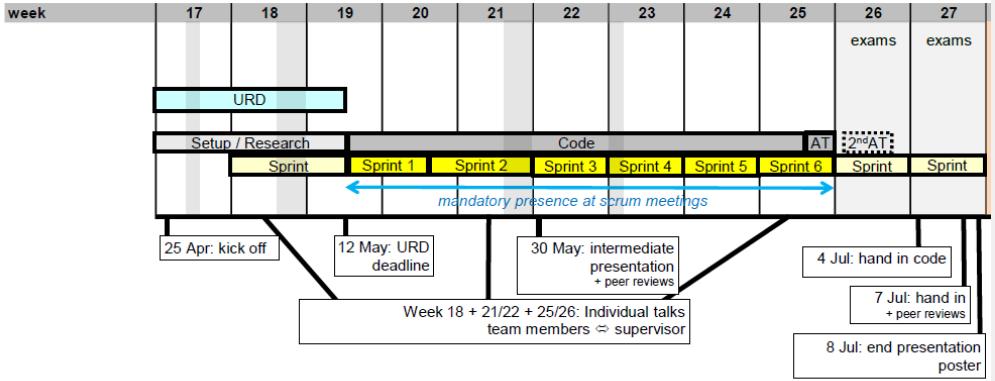
Agile, Scrum-based





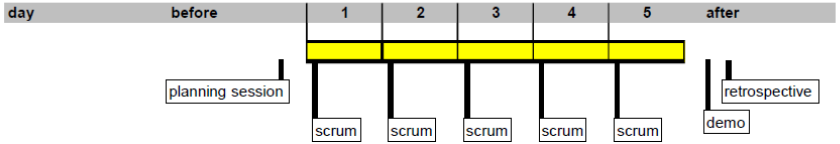


Overall Project Planning



Sprint planning

Each sprint starts with a **planning session** (1 hour) and ends with a **demo** (30 min) and a **retrospective** (15 min).
During the sprint, each morning a **standup meeting** (scrum) is held (15 minutes).



Planning session

Precondition: functionalities (stories) have been defined and tasks have been assigned to functionalities
The functionalities are documented in the URD.
Priorities are assigned by the product owner.
During the session: planning poker is used to assign points to the tasks and assemble all tasks for this sprint

Retrospective

Precondition: everybody has three items, categories "keep", "stop", "try"
During the session everybody mentions one item.

Deadlines:

- Hand in **Code – 4 July**
- Documents and poster: 7 July

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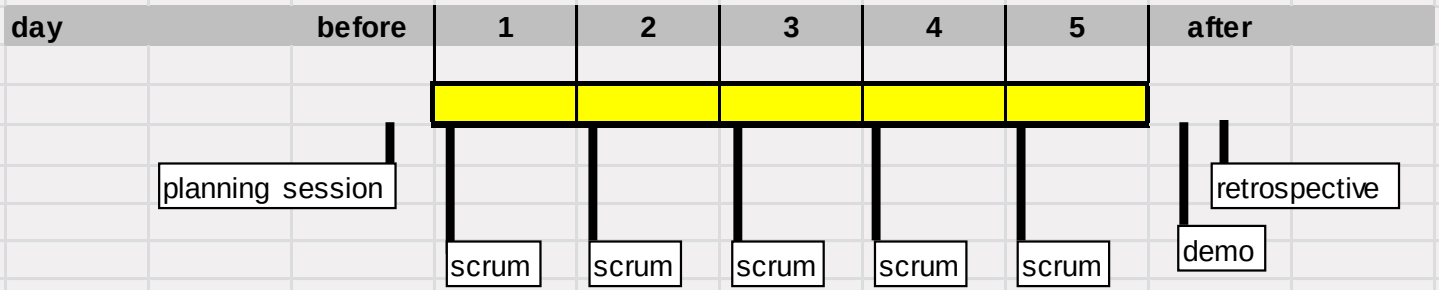

Planning session

Precondition: functionalities (stories) have been defined and tasks have been assigned to functionalities
The functionalities are documented in the URD (more detail follows in SRD).
Priorities are assigned by the product owner.
During the session: planning poker is used to assign points to the tasks and assemble all tasks for this sprint

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Precondition: everybody has three items, categories "keep", "stop", "try"
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Daily Standups

Presence at the daily standups is **mandatory**

- with some exceptions (next slide)

Missing **one** standup without permission leads to a **warning** (yellow card)

Missing a **second** meeting

- the student is excluded from the project and cannot pass

Project manager keeps track of presence

The group and the project managers decide on the time of the standups

Daily Standups

Missing a daily standup is allowed in the following cases

- for a fixed day in every week due to other activities. This exemption has to be motivated and requested in advance from the SEP coordinator
- permission for an occasional absence may be granted by the group supervisor or by the academic advisor (in case of personal reasons)
- the strict attendance requirement does not apply in the first two weeks and the last two weeks (the examination period)

Project Management

Two roles: project manager/**scrum master** and **quality manager**

- tasks shared among the two project managers (PMs)

Project manager:

- chairs the standups, planning and demo sessions, and retrospectives
- organizes the scrum board, keeps the backlog up to date
- reports progress to SEP coordinator: weekly progress meetings, time tracking and metrics

Quality manager:

- Responsible for quality of the documents; makes sure document reviews are held
- Organizes the peer reviews
- Makes sure a testing environment is set up and continuous testing performed

Time Tracking

Every group member (except the project managers) keeps track of the spent time on **weekly basis**

- The planned and spent time for each backlog item
  - Standard items (e.g. documentation writing)
  - All user stories as a separate item

Individual timesheets are collected by the project manager

- A summary is sent to the SEP coordinator every Monday

Example Timesheet

	Back log item	Hours spent this week	Hours spent total	Hours left
Standard backlog items for each project group	URD (requirements gathering + document writing + review)	…	…	…
	SDD (document writing + review)	…	…	…
	UTP (document writing)	…	…	…
	ATP (document writing + review)	…	…	…
	SUM (document writing + review)	…	…	…
	STD (document writing)	…	…	…
	Meetings (project / scrum meetings)	…	…	…
	Kick off, presentations (intermediate / final), poster	…	…	…
	Professional skills assignments	…	…	…
All code and test items in the project back log	User Story 1	…	…	…
	User Story 2	…	…	…
	User Story 3	…	…	…
	User Story 4	…	…	…
	User Story 5	…	…	…
	User Story 6	…	…	…
	….	…	…	…
	….	…	…	…
	Total:	sum	sum	sum

Meetings

- **Daily** standups (chaired by the scrum master)
  - Total team
- **Weekly project** meetings: planning, demo, retrospective (chaired by the scrum master)
  - Total team
  - Customer (planning, demo sessions)
  - Preferably also attended by the supervisor
- **Weekly progress** meetings
  - Project managers and SEP coordinator (~10 mins per group)
- **Individual** meetings
  - Student and supervisor; 3 times
- **General** meetings
  - Intermediate and final presentations, poster

Document Reviews

- Each document is reviewed
- Customer reviews URD and ATP
- Supervisor reviews URD
- URD is signed by the customer and the supervisor
- ATP is signed by the customer before the acceptance test

Facilities for Online Working

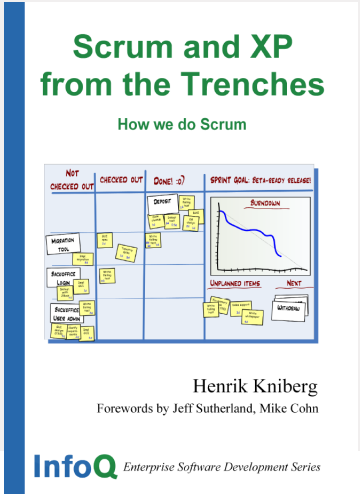
- Organize the **scrum board** in Trello or GitLab
- Daily **standups**, **demos**, **planning** and **retrospective** sessions via video conferencing
- **Planning poker** via, for example, planitpoker.com
- **Acceptance test** has to be performed on customer's PC via MS Teams (if meeting physically is not possible)
- **Presentations** via MS Teams
- **Handing in** the results via WeTransfer
- **GitLab** project (if needed) can be created by the supervisor

Resources on Canvas

- Assignments
- Examples of project documentation from previous years
- Marking form with the required content for each document
- Code quality guidelines
- Book “Scrum and XP from the Trenches”: **read sections 1-10**
- Forms for requesting resources (e.g. VMs)
- Peer review form
- General info on SEP: planning, deadlines, etc.

What is Next? – Short Term Activities

- During the kick-off
  - the customer explains the project
  - the PMs explain the way of working
- Define project name
- Form the URD group (2-4 students)
  - Contact and involve the customer, ask questions, write the document iteratively, ask supervisor for feedback (end of project week 1)
- Setup the development environment
  - Request resources if needed
- Start research on the technologies to be used
- Establish meeting schedule:
  - Setup the tools for online work
  - Establish contacts among the main players
  - PMs ask for the availability of students



Read about Scrum!