Aalto University

CS-C2130 / CS-C2140 / CS-E4910
Software Project 1 / 2 / 3

Lecture 2: Scrum Basics
Casper Lassenius & Jari Vanhanen

14.9.2022

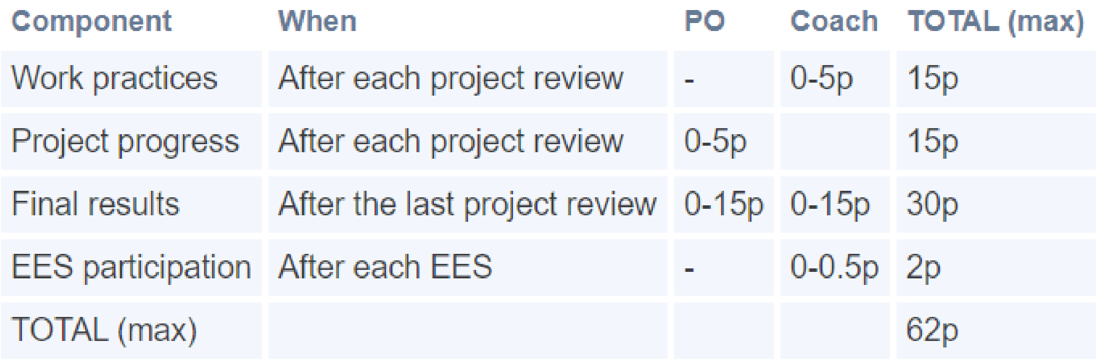
Agenda

- Evaluation principles
- Next Steps on the course

- Scrum Basics, Prof Casper Lassenius
- Applying Scrum on this course, Jari Vanhanen
- Additional requirements for the course projects

Evaluation Principles

- The students are evaluated as a team
  - team can propose individual changes of +/-1 grade
- Product Owner and Coach evaluate separately
- Results and Work practices are evaluated



Component	When	PO	Coach	TOTAL (max)
Work practices	After each project review	-	0-5p	15p
Project progress	After each project review	0-5p		15p
Final results	After the last project review	0-15p	0-15p	30p
EES participation	After each EES	-	0-0.5p	2p
TOTAL (max)				62p

Evaluation Principles: https://mycourses.aalto.fi/mod/page/view.php?id=908246

Next Steps

- **15.-16.9. 8:15 - 16** CSM Training for ScMs only
  - breakfast available 8:00 – 8:15
- **Mo 19.9. 13:00** The remaining students assigned to the teams
  - If you are not in any team, **fill the “Preferred Teams”-column by Su 18.9.**
- **We 21.9. 16:15 - 18** session for ScMs only
  - Scrum Master's role in the course project & Tips for Scrum Masters
  - Instructions for being the Scrum Master in the Scrum Simulation
- Register (as a team) ASAP to a Scrum Simulation session
  - Some teams are needed already to the first session on Mo 26.9. 16-20.

- **6.-10.10.** Send Team "CV" to 2-5 Clients
  - Keep the team’s list of favorite topics on the Team Info sheet up-to-date
- **We 12.10. 16:15 - ~18:15** Meetings with the Clients
  - 10-minute meetings can be reserved on the GoogleSheet

Aalto University
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Scrum Basics

14.9.2022

Goals of This Lecture

- Teach you
  - The basics of the Scrum process
    - Roles
    - Process steps
    - Terminology
- After this lecture
  - You know the basics of Scrum and how it can/should be applied in the course project
  - You are able to participate in the Scrum Simulation in the developer role
- This lecture is based on
  - Scrum Primer (and Scrum Guide 2020)

Scrum

- Iterative and incremental agile software development framework for **managing** product development

Does not cover design, implementation, or concrete testing practices

- Process framework
  - not a process, technique, or definitive method
  - every team must decide the specific tactics for using Scrum

Introduction to Scrum (7 min)

- https://youtu.be/9TycLR0TqFA

Why Process?

- A process defines how an organization, in your case, a team works together to achieve its goals

- Why do you think having an understood/agreed upon process is or is not beneficial?

Scrum Roles

Product Owner

- Responsible for maximizing return on investment, thus has the final authority
- Identifies product features
- Prioritizes the features
- Interacts regularly with the developers
  - e.g. reviews the Sprint results
- May delegate some work to the developers, but remains accountable
- One person
- Product Owner ≈ Product Manager ≈ Customer

The Developers

- Develop the product and provide ideas to the Product Owner about how to make the product great
- 7 ± 2 people
- The developer role is cross-functional (all expertise necessary to deliver a potentially shippable product each sprint)
- Are self-managing: high degree of autonomy and accountability
- Every developer is just a developer, no other roles

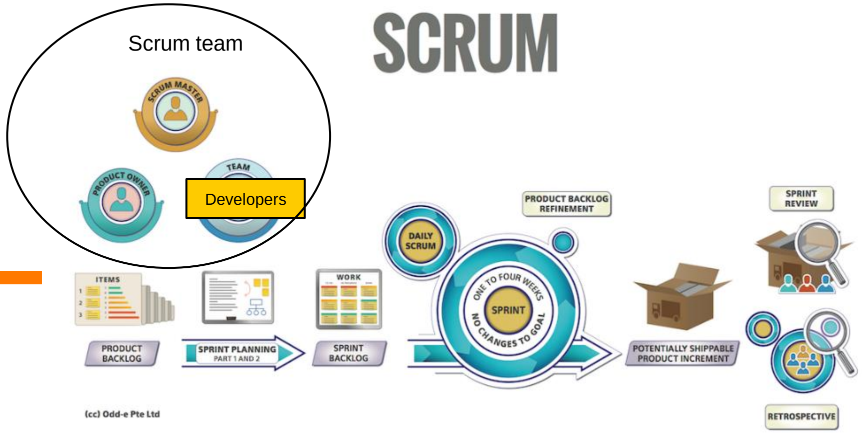
Scrum Master

- Helps the Scrum team learn and apply Scrum to achieve business value
- Is NOT the manager of the team members, NOR a project manager OR team lead
- Serves the team, e.g. helps to remove impediments, protects from outside interference
- Is a coach and teacher, especially Scrum principles and practices

Scrum Process

Sprint

- Time-boxed development cycles of 1-4 weeks
- Never extended: ends exactly when planned, contents give flexibility
- The output of every sprint is: “Potentially Shippable Product Increment”, which means that item chosen for that sprint are “Done” (according to the Definition of Done)
  - System is integrated
  - Fully tested
  - End-user documented
  - Potentially shippable



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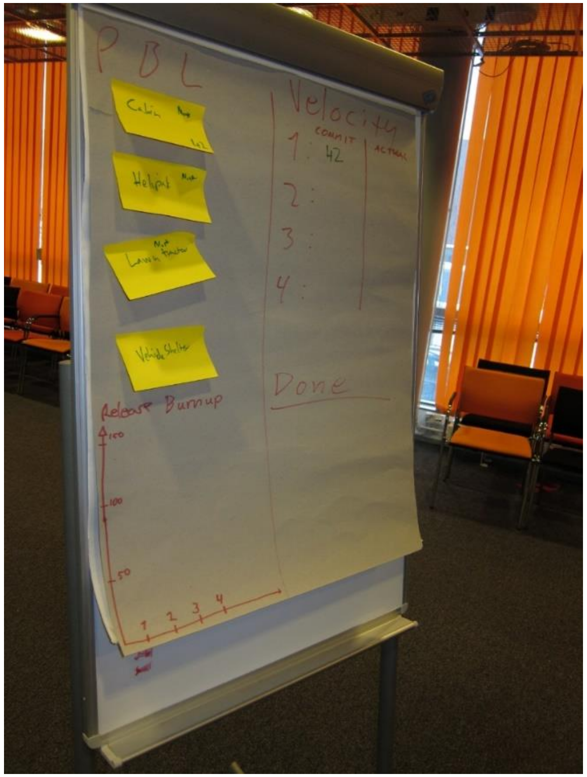
Sprints (CS-C2130)

- At least six Sprints
  - 225h / 6 = 37.5h
- Plan in the beginning of the project
  - start and end dates of all sprints
  - effort allocation per person per Sprint
- First Sprint (“Sprint 0”) and Last Sprint differ from the normal Sprints
  - contain some tasks defined by the course

Product Backlog

- Is a prioritized list of customer-centric features
- “Everything that could be done by the Scrum team ever in order of priority”
- Includes “items”, e.g. new customer features, major engineering improvement goals, research work, (known defects)
  - User stories, epics
- Includes effort estimates
  - e.g. as story points
- Is detailed appropriately
- Is regularly refined (“grooming”) = splitting, estimating, re-estimating items



User Stories and Epics [1]

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- Describe SW features as user stories

- User story
  - Basic format: “As a [type of user] I [want/can/am able to/need to/etc.] so that [some reason].”
  - Can be in other formats, as long as the above aspects are covered
  - Can be implemented in **one** Sprint
  - Works well for functional requirements, less well for quality attributes

- Epic
  - Basically a “big user story”, i.e. cannot be implemented in a single sprint
  - Usually broad in scope, short on details, and will commonly need to be split into multiple, smaller stories before the team can work on them

[1] https://www.scrumalliance.org/community/spotlight/mike-cohn/march-2014/agile-user-stories-epics-and-themes

Product Vision (CS-C2130)

1. Why?

- explain why the product is being built (the business view)

2. What?

- product goal, i.e. the desired state of the product in the end of the course project
- include also critical quality attributes that are difficult to include in the Definition of Done

3. For Whom?

- characterize the end users

Created based on the project proposal and further discussions with the PO

Sprint Planning: Topics 1 & 2

- Participants: Product Owner, Developers, Scrum Master
- Understand
  - WHY this Sprint is valuable,
  - WHAT can be done (which features to implement, and why they are needed)
- Discussion
  - PO explains
  - Developers ask questions
  - Joint decision on what can realistically be included

“WHY & WHAT?”

Sprint Planning: Topic 3

- Participants: Developers, Scrum Master (Product Owner reachable for questions)
- Focus on HOW to implement the selected items
- May contain:
  - Overall design
  - Splitting product backlog items into tasks – building sprint backlog!
  - Estimating items/tasks
  - Renegotating scope

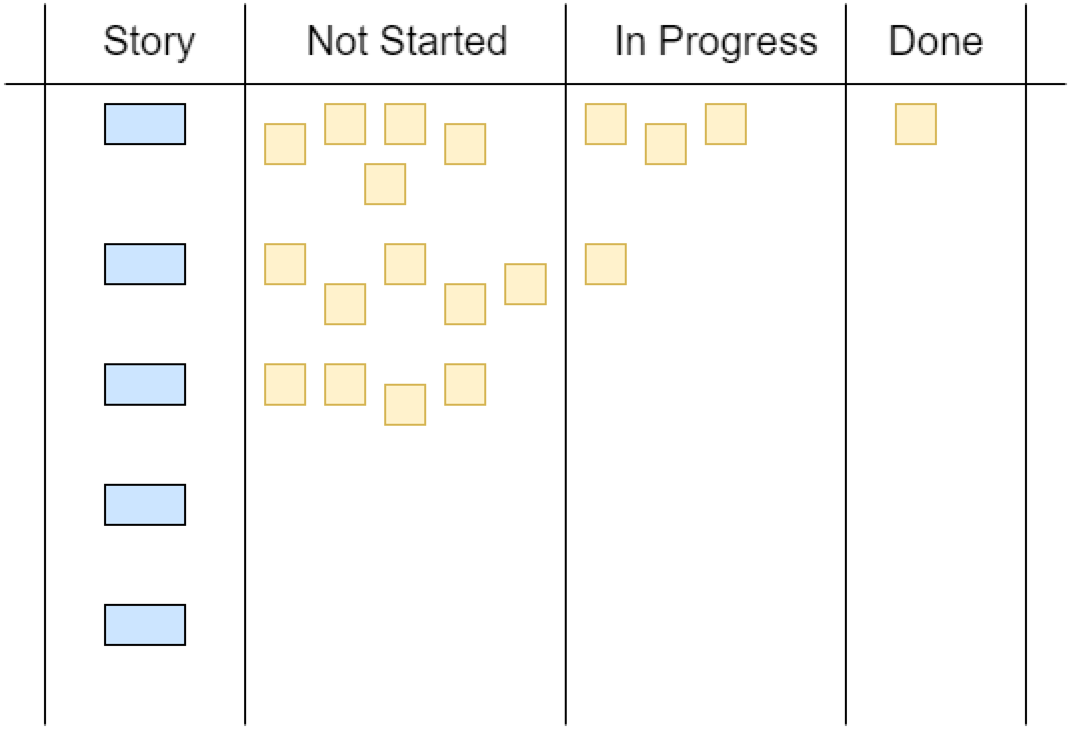
"HOW?"

Sprint Backlog

- Sprint backlog items
  - Some items from the product backlog, and the necessary tasks
  - Attributes of the tasks
    - name/description
    - effort estimate as hours or story points

- Product and Sprint backlogs should be in a (real) backlog management tool
  - Jira, Trello, …
  - a well-organized Miro board is allowed too

Scrum Board



Story

Not Started

In Progress

Done

Sprint 0 (CS-C2130)

- Sprint goal
  - “Set up the project so that everything is ready for starting sw development work from the first day of the following Sprint.”

- Main tasks
  - product vision and initial Product Backlog
  - prototyping, selecting and **studying technologies**
  - deciding work methods and tools, e.g**.**
    - communication channels, team work sessions
    - practicalities of the Scrum events
    - backlog management, time tracking, version control

How to study efficiently as a team?

- Results presented to the PO and **to the Coach**

Last Sprint (CS-C2130)

- Focuses on finalizing the product for the final delivery to the PO

- Some tasks
  - bug fixing and finalization (no more new features)
  - acceptance testing by the Client
  - handover to the Client (both the system and any necessary knowledge)
  - preparing an excellent software demo and a project poster

Daily Scrum Meeting

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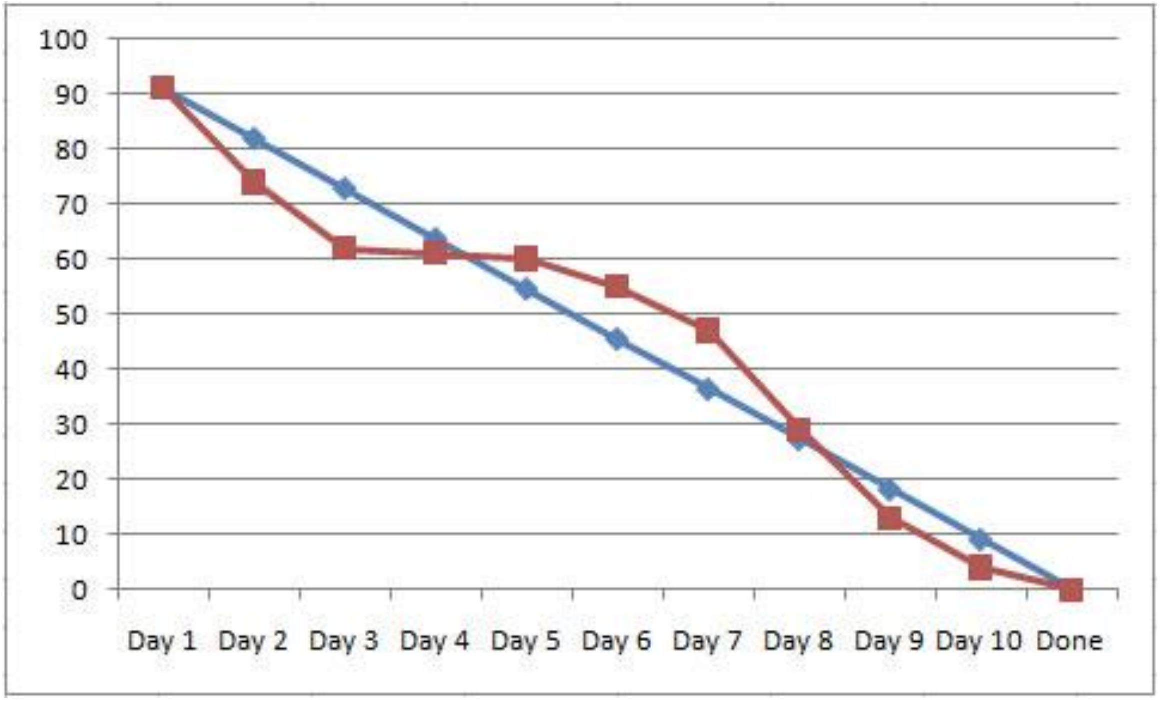
- At least once per week

- Participants: Developers, Scrum Master (Product Owner optional)
- Update and coordination – not a status reporting to anybody else
- Max 15 min
- Each member report to the other team members, e.g.:
  - What have I accomplished since the last meeting?
  - What will I do before the next meeting?
  - What obstacles are in the way?
- If discussion needed: follow-up meetings agreed and held afterwards

15 min

3 Questions

Tracking Progress



Sprint burn-down

Definition of Done (DoD)

- Everyone must understand what “done” means
  - e.g. for tasks, user stories, sprints
- Sometimes people say it is ”done-done” to mean it meets the criteria for DoD
- Scrum Team must define their own DoD (and follow it!)
  - … and improve it when needed
- Often at several levels
  - Task, User story, Sprint
- Typically things like
  - Code is implemented, commented, integrated
  - Automated unit tests have been written, and pass when executed

CS-C2130 minimum DoD:
- unit testing
- functional system testing
- coding standard

More Quality Assurance (CS-C2130)

- Quality attributes (non-functional requirements)
  - e.g. usability, security, performance, compatibility
  - identify the most relevant ones (at least one, but not too many)
    - consider them appropriately in DoD / Product vision / technical design

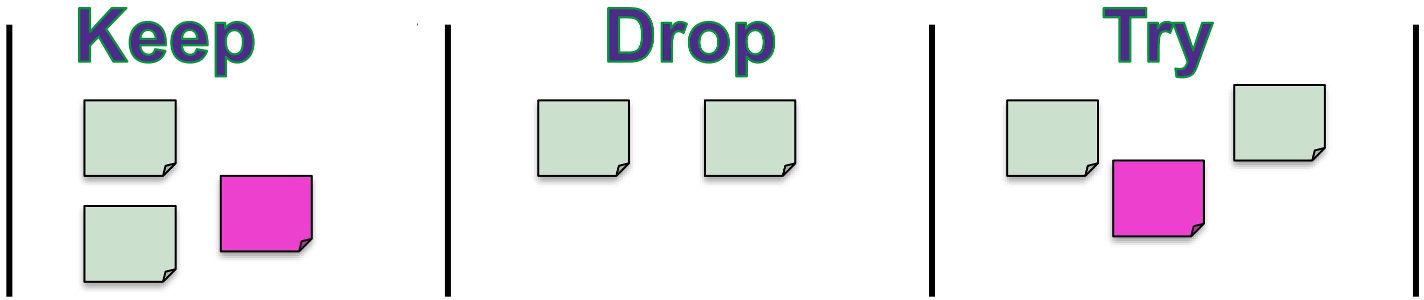
- Peer testing
  - by some other team on the course
  - at least 8 man-hours per team
  - you must plan how to best utilize the other team (when & what)
  - using Session-based exploratory testing

Sprint Review

- Participants: Developers, Product Owner, Scrum Master, other stakeholders invited by the Product Owner
- Inspection of the increment and adaption of the product backlog, if needed
  - What is going on with the product and team
  - What is going on with the Product Owner and the market
  - In-depth conversation
  - Hands-on inspection of the real software running live

Sprint Retrospective

- Inspection and adaption related to the *process and environment*
- Participants: Developers, Scrum Master, Product Owner (optional)
  - Developers discuss **what's working** and **what's not working** and agree on **changes to try**
  - Usually, the Scrum Master facilitates
  - Different techniques, try different ones!



Being Efficient: Doing a Sprint Change

- In one sitting
  - Sprint Review
  - Sprint Retrospective
  - Sprint Planning

- Requires access to Product Owner

What if Scrum Does Not Work for Us? (CS-C2130)

- Try it (for real) first
- If you really need to change it
  - Make a motivated proposal to your coach
  - Try the changed version

Want to Know More about Scrum?

- Google
  - Scrum Guide
  - Scrum Primer

Read the CS-C2130 Project Manual

1. It summarizes briefly the requirements set in the Scrum Guide.

2. It describes the modified/additional requirements set by the course.

In order to understand why and how to follow the Project Manual, you must read Scrum Guide / Scrum Primer

Tips for Working as a Remote Team

- Plan joint working sessions – just like you would if you were collocated
- Use e.g. Zoom and keep the session open for the whole day / length of your coworking time
- Always use video when you are communicating in a meeting
- Have a Slack channel for the team, always on
- Try to do something informal together via video, e.g. pizza night, coffee breaks, games…

End of Scrum Basics

Additional requirements for the course projects set by the course

Additional requirements for the course projects (CS-C2130)

- Process Overview Document
- Technical Overview Document
- Time Tracking
- Project Reviews

These are not part of Scrum.

Document – Process Overview (CS-C2130)

- Document briefly the *currently* used work practices and tools **so that all stakeholders can understand how the team works**
- Minimum content
  - project schedule and effort distribution
    - Sprint dates and allocated effort
    - other main events (Project Reviews, team work sessions)
  - recurring events of the Sprints (how and when)
    - Sprint Planning, Daily Scrums, team work sessions, Sprint Review, Sprint Retros
  - other main practices and tools
    - backlogs, time tracking, communication etc.
    - version control, testing etc.

See the template

Producing a document is not the main purpose.

The most important thing is to adopt good work practices that can be realistically used.

Document – Technical Overview (CS-C2130)

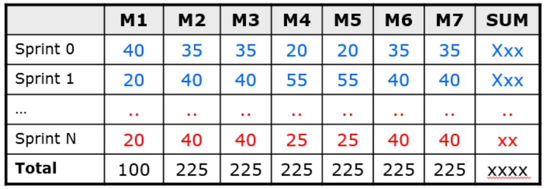
- Very project specific

- General goals
  - **Helping the Scrum Team during the project**
    - e.g., in communicating about the design or in dividing responsibilities
  - **Meeting the Client's needs after the project**
    - e.g., helping some new developers fix bugs or develop new features

- Minimum content
  - Document briefly the **most important architectural design decisions**
  - Document **one or more relevant views** of your architecture design
    - see e.g. 4+1 architectural view model.

Time Tracking (CS-C2130)

- Total effort spent per student per each Sprint
  - includes everything related to the project
  - must be visible also to the Coach
  - must be updated at least weekly
    - impossible to remember what you did last week
  - if someone falls behind or works extra in one Sprint, update the remaining hours in coming Sprints accordingly



	M1	M2	M3	M4	M5	M6	M7	SUM
Sprint 0	40	35	35	20	20	35	35	Xxx
Sprint 1	20	40	40	55	55	40	40	Xxx
…	..	..	..	..	..	..	..	..
Sprint N	20	40	40	25	25	40	40	xx
Total	100	225	225	225	225	225	225	xxxx

(realized hours and remaining hours)

- Some backlog management tools support time tracking
- A simple spreadsheet can work too
  - if you are not interested in task level tracking

See the course's Google Sheet example

Project Review (CS-C2130)

- December, February and April
- Participants
  - student team, PO, coach, teacher, and possibly other people (Accenture, guests)

- Team presents data on the project status
  - status of Sprint Goals and selected Product Backlog items
  - main findings from Sprint retros
  - software quality
  - effort usage per person

See the Progress /
Final report template (slides)

- Team presents the results (mainly a software demo)
  - plan and rehearse

- After each project review, PO and coach evaluate the project

Summary of the required artifacts

- Product vision (Template available)
- Product Backlog
- Sprint Goals of the current and completed Sprints
- Sprint Backlog of the current Sprint
- Definition of Done
- Allocated and spent effort per person per Sprint
- Process overview (Template)
- Technical overview
- Progress report / Final report slides (Template)
- Test session charter(s) for peer testing (Template)

Send a link to the materials to the teacher, coach and PO

- 24 hours before each project review
- the link will be published in MyCourses