SCRUM GUIDELINES
Senior Project
Computer Science

(Draft)

SCRUM: A process framework that consists of a Scrum Team and their associated roles, events, artifacts and rules. The rules bind together the events, roles and artifacts and defining the relationships and interaction between them.¹

The process relies on transparency, inspection (assessment), and adaptation (learning).

- **Transparency**
  Through a common language refereeing to the process must be shared by all participants
  Those performing the work and those accepting the work product must share a common definition of "done".

- **Inspection**
  Scrum users must frequently inspect Scrum artifacts and progress toward a Sprint Goal to detect undesirable variances. Inspections are most beneficial at as the work progresses.
  However, inspection should not get in the way of the work

- **Adaptation**
  If inspection identifies aspects of the process as well as the work in progress, adjustments must be made.

Scrum prescribes four formal events for inspection and adaptation:
1. Sprint Planning
2. Daily Scrum
3. Sprint Review
4. Sprint Retrospective

SCRUM VALUES

“When the values of commitment, courage, focus, openness and respect are embodied and lived by the Scrum team, the Scrum pillars of transparency, inspection, and adaptation come to life and build trust for everyone. The Scrum Team members learn and explore those values as they work with the Scrum events, role and artifacts.

Successful use of Scrum depends on people becoming more proficient in living these five values. People personally commit to achieving the goals of the Scrum Team. The Scrum Team members

have courage to do the right thing and work on tough problems. Everyone focuses on the work of the Sprint and the goals of the Sprint Team. The Scrum Team and its stakeholder agree to be open about all the work and the challenges with performing the work. Scrum Team members respect each other to be capable, independent people.”

THE SCRUM TEAM

- Product Owner (the project client)
- Development Team
- Scrum Master (a shared responsibility between the seminar instructor and the team’s faculty adviser)

The Scrum team is expected to have cross-functional skills and to be self-organizing (capable of deciding how best to do the work.

The Scrum Team delivers product iteratively and incrementally maximizing opportunities for feedback.

The Scrum Team commits to incremental deliveries of “done” product so that a potentially useful version of working product is always available.

THE PRODUCT OWNER

The Product Owner is responsible for creation and management of the Product Backlog.

“In the simplest definition, the Product Backlog is simply a list of all things that need to be done within the project. It replaces the traditional requirements specification artifacts. These items can have a technical nature or can be user-centric e.g. in the form of user stories.”

The Product is the sole person responsible for managing the Product Backlog… that includes:

- Clearly expressing Product Backlog items
- Ordering by prioritizing the items in the Product Backlog
  (Ensuring that the value of the work of the Team is optimized)
- Ensuring that the Product Backlog is visible, transparent, and clear to all… and shows what the Scrum Team will work on next
- Ensuring the Scrum Team understands items in the Product Backlog to the level needed.

THE DEVELOPMENT TEAM

The Development Team commits to working professionally to deliver a potentially releasable increment of “Done” product at the end of each sprint.

The Development Team must share the following characteristics:
- Self-Organizing (the Team determines what is needed to turn Product Backlog into increments of potentially releasable functionality)
- Cross-functional (the Team possess all the skills as a team necessary to create an increment of releasable product)²
- Scrum recognizes NO titles for development team members other than developer, regardless of the work being performed by the person
- Scrum recognized no sub-teams in the development team.
- Individual team members may have specialized skills and areas of focus, but accountability belongs to the development team as a whole

SCRUM MASTER (this role and its responsibilities will be provided by the team’s Project Adviser and the Seminar Instructor.)

- The Scrum Master is responsible for ensuring development team is understands and is properly implementing the Scrum process.
- Coaches the development team
- Intercedes to remove impediments to the team’s progress and to facilitate resolution of difficulties within the team or between the team and the client (product owner).

Figure 1 Scrum Process Overview

² Skills may need to be learned by one or more team members over the course of the project work.
SPRINTS

Each sprint is “time-boxed”. The sprint begins and its duration is fixed and should not be shortened or lengthened but is of a fixed duration. The work done during the sprint is intended to provide a “Done”, usable and releasable product increment.

The team will self-organize to specify what is to be built during the sprint as well as developing a plan that will guide the build.

During the sprint:

- No changes to either increase or decrease the specified sprint backlog
- The intended and expected quality goals are not lessened
- Unintended by needed scope changes may need to be clarified and re-negotiated between the Product Owner and the Scrum Team

Each Sprint goal should be an objective that will be met within the Sprint through the implementation of the Sprint Backlog.

SPRINT PLANNING

This requires the collaborative planning of the entire Scrum Team. What must be decided is the following:

- What increment of work can be delivered in the upcoming Sprint?
- What items from the Product Backlog will be entered into the Sprint Backlog?
- What specific requirements need to be specified in order to identify the tasks needed to design and implement the Product Backlog item?
- How will the work needed to deliver the increment be planned and managed?

The Development Team must have a clear understanding of what is required in order to design and implement each item selected from the Product Backlog.

The 3 C’s (Card, Conversation, Confirmation)

The process associated with the 3 C’s provides for an understanding and a direction for the team to take in order to identify a more specific understanding of the requirements associated with items included in the next Sprint Backlog.

The initial identification of an item to be entered in the Product Backlog does not necessarily provide all the specific requirements associated with development and implementation of an item being assigned to a specific Sprint. Each Product Backlog item provides only a general understanding of the item and provides only enough information to make a preliminary estimate
its scope. This information is represented by the “Card”; with one associated with each Product Backlog item.

The “Conversation” refers to the discussion the Product Owner and Team have during Sprint Planning. The conversation provides the team with more detailed specifications of the work needed for the item moved from the Product Backlog to the Sprint Backlog.

The “Confirmation” refers to the collaborative agreement between the Product Owner and the Team as to the specific requirements needed to design, develop and satisfy the “Done” requirements for the increment associated with this item.

WEEKLY SCRUM MEETING

The meeting is scheduled for a weekly meeting of the entire development team with the team’s Faculty Adviser.

The members will be asked to report on the following:

- What did each member accomplish since the previous meeting that helped the team meet the sprint goal?
- What will team members do in the following week that will help the team meet their sprint goal?
- Are there any impediments (problems) that may prevent the team from meeting its sprint goal?

In the week following the completion of a sprint, the team should report on the sprint review meeting with the product owner (what was accepted and approved and what, if any, technical debt needed to be added to the Product Backlog.

In addition, the team should report on the Sprint Backlog selected for the next sprint.

SPRINT REVIEW

The Sprint Review is held at the end of the sprint to inspect the increment. The team and Product Owner meet to review and assess the work completed and either approve or negotiate any changes that might be needed. If any of scheduled work for the sprint has not been completed, that work must then be added to the Product Backlog. Changes as well as unfinished work are considered technical debt.

The Sprint Review should include the following:

- The Product Owner and Team review the Sprint Backlog items that were “Done”.
- The Team demonstrates the increment of work that is has “Done” and answers questions.

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3 Technical debt represents any work that was needed but not completed in the sprint and therefore must be added to the Product Backlog and prioritized for completion in a future sprint.
• The Team discusses what went well during the Sprint, what problems, if any, incurred and how the problems were resolved.
• The Product Owner discusses the Product Backlog and updated expectations of what work will completed and when.
• The Team and Product Owner collaborate on what work specified in the Product Backlog will make up the Sprint Backlog and the increment of work to be completed in the next Sprint.

SPRINT RETROSPECTIVE

The Sprint Retrospective is an opportunity for the Team to review and assess its performance up to this point and create a plan for improvement to be implemented in the next Sprint.

Issues to consider:
• How the Sprint went with respect to people, relationships, process, and implementation
• Identify and order major items that went well and what is recommended as potential improvements
• Create a plan for implementing whatever improvements are needed

What must be included in the retrospective is a discussion of how to improve the product quality and what might be added to the Teams definition of “Done”.

ARTIFACTS

Product Backlog

• The ordered list of everything that might be needed in the product and is the single source of requirements for any changes to be made to the product.
• The Product Owner is responsible for the Product Owner… its content and prioritizing.
• The Product Backlog evolves over the course of the project.
• The Product Backlog lists all features, functions, requirements, enhancements and fixes that constitute changes to be made in future releases.

Product Backlog refinement is the result of adding detail, estimates and order to items in the Product Backlog. This should be an ongoing process of collaboration between the Team and Product Owner in order to fully understand the requirements associated with Product Backlog items.