



CERTIFIED SCRUM DEVELOPER® (CSD®)

Learning Objectives

PURPOSE

This document describes the learning objectives that must be covered in a Certified Scrum Developer® (CSD®) offering in addition to the Scrum Foundations learning objectives. These learning objectives take the following into consideration:

While the application of scrum is in no way limited to the area of software development, Scrum Alliance recognizes the special need for additional education in this field. Scrum is inherently incremental in nature, therefore a software development implementation of scrum requires an incremental approach to software engineering.

The learning objectives for this offering are based on:

- Scrum Guide, scrumguides.org*
- *Manifesto for Agile Software Development*, four values and 12 principles, agilemanifesto.org
- Scrum values, <https://www.scrumalliance.org/about-scrum/values>
- Scrum Alliance Scrum Foundations Learning Objectives
- *Extreme Programming Explained - Embrace Change* by Kent Beck
- <https://www.agilealliance.org/agile101/subway-map-to-agile-practices/>

SCOPE

Scrum Alliance adopted the *Scrum Guide, The Definitive Guide to Scrum: The Rules of the Game*, co-authored and updated (most recently in 2020) by the co-creators of the scrum framework as the guiding curriculum for this offering. CSD candidates are expected to build a body of knowledge of the scrum framework, including its accountabilities, events, and artifacts. Incorporating scrum principles and practices takes diligence, patience, and a commitment to continuous improvement. Scrum is a framework, not a prescriptive methodology.

Students attending the CSD course should expect to learn essential concepts and skills to be able to work successfully in a scrum team that focuses on creating software. They also should expect to be enabled to bring essential collaboration skills into their team. Thirdly, this course should create an understanding for the need of agile engineering practices and encourage participants to adopt them in their contexts.

This entails covering learning objectives within the following categories:

- Lean, Agile, and Scrum
- Collaboration
- Architecture & Design
- Refactoring
- Test Driven Development
- Continuous Integration

Students attending a CSD offering should expect that each learning objective identified in this document will be covered as well as the Scrum Foundations learning objectives. Individual approved CSD Trainers may choose to include ancillary topics. Ancillary topics presented in a CSD offering must be clearly indicated.

Bloom's Taxonomy:

Bloom's-style classification of learning objectives consists of six levels of learning that progress from lower-order (Knowledge), to higher-order (Evaluation) thinking skills. Each learning objective begins with an action verb which correlates to a Bloom's Taxonomy dimension. Please think of each learning objective with the affixed statement in mind: *"Upon successful validation and completion of this course, the learner will be able to..."* These are the dimensions:

Knowledge	Recall of information, processes, facts, and concepts	<i>Verbs: Define, Name, List</i>
Comprehension	Interpret information and determine its importance	<i>Verbs: Describe, Discuss, Recognize</i>
Application	Apply developed knowledge and concepts in real-life	<i>Verbs: Apply, Demonstrate, Illustrate</i>
Analysis	Dissect and organize information using critical thinking skills	<i>Verbs: Compare, Contrast, Distinguish</i>
Synthesis	Use of knowledge to create new products or processes	<i>Verbs: Create, Prepare, Organize</i>
Evaluation	Use of judgment to make decisions and solve problems	<i>Verbs: Measure, Assess, Evaluate</i>

LEARNING OBJECTIVES

1 - Lean, Agile, & Scrum

- 1.1 **practice** utilizing a sprint backlog.
- 1.2 **describe** the responsibility of the scrum team for turning product backlog items (PBIs) in the sprint backlog into increments of value.
- 1.3 **practice** the daily scrum.
- 1.4 **list** at least three attributes of PBIs.
- 1.5 **give** at least three examples of how a scrum team will inspect and adapt PBIs during product backlog refinement.
- 1.6 **discuss** at least five elements of a definition of done that ensure the increment provides information that enhances transparency and focus against which progress can be measured.

2 - Collaboration & Team Dynamics

- 2.1 **explain** at least three differences between a working group and a team.
- 2.2 **discuss** at least three attributes of effective teams.
- 2.3 **demonstrate** "working together as one team."
- 2.4 **describe** at least three benefits of developers interacting directly with customers and users.
- 2.5 **restate** at least three ways a scrum team may collaborate with stakeholders, customers, and/or users during the sprint.
- 2.6 **co-create**, collectively as a scrum team, a usable increment of value.

3 - Architecture & Design

- 3.1 **outline** at least three benefits of technical excellence.
- 3.2 **explain** at least one design practice on an agile team.
- 3.3 **list** at least three principles of architecture in an agile environment.

4 - Refactoring

- 4.1 **define** refactoring.
- 4.2 **describe** at least three benefits of refactoring to an agile software development effort.

5 - Test Driven Development (TDD)

- 5.1 **explain** test-first as a design and development approach and list three benefits.
- 5.2 **list** at least three differences between “traditional” and “agile” testing.
- 5.3 **explain** the importance of refactoring in the TDD cycle.
- 5.4 **describe** at least three qualities of a good agile testing approach.

6 - Continuous Integration (CI)

- 6.1 **define** continuous integration and list at least three benefits.
- 6.2 **describe** at least three examples of how a scrum team could benefit from using CI.
- 6.3 **describe** at least one advantage of an automated build, test, measure pipeline.

PROGRAM TEAM

Certified Scrum Developer Team (2021)

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