**Course Description**
*This course delves into a variety of processes to structure software development. It also covers the foundations of core Agile practices, such as Extreme Programming and Scrum.*

*Upon successful completion of this course, you will be able to:*
- *Distinguish between different process models for organizing software production.*
- *Gauge the applicability of process models for a software development project.*
- *Apply the fundamentals of Agile software development and management practices.*

# SOFTWARE PRODUCT MANAGEMENT Specialization

## Course 2: Software Processes & Agile Practices

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| Module 1<br>**Introduction to Processes** | Module 2<br>**Process Models** | Module 3<br>**Agile Practices** | Module 4<br>**Other Practices** |
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### Module 1 — Introduction to Processes

Introduction: **Specialization Preview** — *2 minutes*

Introduction: **Introduction to Software Processes and Agile Practices** — *3 minutes*

Course Resources: **Software Processes & Agile Practices - Course Notes & Glossary**

Lesson 2.1.1(A, B): **Processes and Practices** — *18 minutes*
- *Recognize the importance of process*
- *Summarize the concept of a process*
  - *Identify a lifecycle*
  - *Identify an activity*
  - *Identify a task*
  - *Identify a dependency*
  - *Identify a work product*
  - *Identify a resource*
  - *Identify a role*
- *Classify the connections between process terms (2.1)*
  - *Identify consumes*
  - *Identify produces*
  - *Identify uses*

Reading: **Differentiating Phases, Activities and Tasks**

Lesson 2.1.2(A, B): **Software Engineering Activities** — *15 minutes*
- *Summarize what the IEEE Standard 1074 is*
  - *Identify key activities (see chart in slides)*
  - *Recognize the inputs and outputs of each activity*

Reading: **Module 1: Supplemental Resources**

Module Assessment: **Quiz 1 – Graded** (8 questions)
*Passing threshold - 70%* — *Course weight 15%*

Discussions: **Week 1**

### Module 2 — Process Models

Lesson 2.2.1: **Linear Models** — *15 minutes*
- *Summarize the Waterfall Model*
  - *Recognize that the model is sequential/linear*
  - *Identify the model image*
  - *List the sequential steps*
- *Summarize the pros and cons of the Waterfall Model*
- *Recognize the V-Model*
- *Recognize the Saw Tooth Model*

Lesson 2.2.2: **Spiral Model** — *9 minutes*
- *Summarize the importance of an iterative model*
- *Summarize the Spiral Model*
  - *Recognize the Spiral Model diagram*
  - *List the quadrants of the model*
  - *Recognize invariants can exist in the iterative model.*

Lesson 2.2.3: **Unified Process** — *9 minutes*
- *Explain what a parallel model is*
- *Summarize the Unified Model*
  - *Identify the Unified Model Diagram*
  - *Define the term inception*
  - *Define the term elaboration*
  - *Define the term construction*
  - *Define the term transition*

Lesson 2.2.4: **Prototyping** — *14 minutes*
- *Summarize the prototype model for software development*
- *Identify models of prototyping and their associated processes*
  - *Illustrative prototypes*
  - *Exploratory prototypes*
  - *Throwaway prototypes*
  - *Incremental prototypes*
  - *Evolutionary prototypes*

Lesson 2.2.5: **Continuous Delivery** — *12 minutes*
- *Describe the phases of the staged delivery model*
- *Summarize the pros and cons of staged delivery*
- *Explain the idea of Microsoft's Daily Build.*

Reading: **Module 2: Supplemental Resources**

Module Assessment: **Quiz 2 – Graded** (8 questions)
*Passing threshold - 70%* — *Course weight 15%*

Discussions: **Week 2**

### Module 3 — Agile Practices

Lesson 2.3.1: **Using Agile with Process Models** — *7 minutes*
- *Make connections from Agile to the other models examined*

Lesson 2.3.2(A, B): **Extreme Programming—XP** — *28 minutes*
- *Summarize the 12 practices of XP*
  - *Classify the 12 practices in 5 categories:(communication, simplicity, feedback, respect and courage)*
- *Recognize the XP is an Agile Practice that focuses on development.*
- *Summarize the controversies of XP*

Lesson 2.3.3: **Scrum** — *16 minutes*
- *List the three pillars of scrum*
- *Summarize the practices of Scrum*
  - *Summarize the concept of sprints*
  - *Summarize the concept of product backlog*
  - *Summarize the concept of sprint review*
  - *Summarize the concept of scrum*
  - *Summarize the concept of product owner*
  - *Summarize the concept of scrum master*
- *Recognize that Scrum is an Agile Process that focuses on management*

Discussions: **Difficulties Adopting Scrum**

Reading: **Module 3: Supplemental Resources**

Module Assessment: **Quiz 3 – Graded** (8 questions)
*Passing threshold - 70%* — *Course weight 15%*

Discussions: **Week 3**

### Module 4 — Other Practices

Lesson 2.4.1(A, B, C): **Agile Variations and Lean Software Development** — *32 minutes*
- *Summarize the practices of Lean*
  - *Summarize the concept eliminating waste*
  - *Summarize the concept amplify learning*
  - *Summarize the concept decide as late as possible*
  - *Summarize the concept delivery as fast as possible*
  - *Summarize the concept empower the team*
  - *Summarize the concept build integrity in*

Lesson 2.4.2: **Kanban** — *16 minutes*
- *Recognize that Agile practices are evolving and changing as technology evolves.*
- *Summarize concepts of other Agile Practice*

Reading: **Module 4: Supplemental Resources**

Module Assessment: **Quiz 4 – Graded** (8 questions)
*Passing threshold - 70%* — *Course weight 15%*

Course Assessment: **Course Final Quiz – Graded** (36 questions)
*Passing threshold - 75%* — *Course weight 40%*

Discussions: **Week 4**

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**NOTE:** The lesson number refers to the course, module, and lesson. For example, lesson 1.2.3 refers to the first course, second module, third lesson.