Course Description

This course covers the techniques for monitoring your projects in order to align client needs, project plans, and software production. It focuses on metrics and reviews to track and improve project project progress and software quality.

Upon successful completion of this course, you will be able to:

- *Apply techniques to measure and visualize project progress*
- *Integrate Agile review practices to increase project visibility*
- *Reflect on lessons learned in software projects through retrospective exercises*
- *Improve project and process quality through ongoing measurement*

SOFTWARE PRODUCT MANAGEMENT Specialization

Course 5: REVIEWS & METRICS FOR SOFTWARE IMPROVEMENTS

Development Team:

Ken Wong
Kari Rasmussen
Rus Hathaway
Bradley Poulette
Morgan Patzelt

Module 1
Right Product

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

Introduction: **Introduction to Reviews and Metrics for Software Improvements** *6 minutes*

Course Resources: **Reviews & Metrics for Software Improvements - Course Notes & Glossary**

Lesson 5.1.1: **Introduction to Monitoring** *6 minutes*

- *Summarize the goals of monitoring*
  - *Summarize the term monitoring*
- *Summarize why monitoring is important/the role of monitoring*
- *Recognize that monitoring is linked to many previous notions from other courses*
- *Summarize the term feedback*
  - *Identify types of feedback*

Lesson 5.1.2: **Sprint Review Meeting** *11 minutes*

- *Summarize the concept of Sprint Review Meeting*
- *Recognize that this is a scrum practice*
- *Recognize that this meeting is Time-Boxed*
- *Identify the difference between a Sprint Review Meeting and a Sprint Retrospective Meeting*
- *Recognize the three main events in a Sprint Review Meeting*
  - *Describe the event Client Demo*
  - *Describe the event Product Owner Approval*
  - *Describe the event Stakeholder Feedback*
- *Recognize that a client can suggest things mid-sprint but it is only added to the backlog--only at the time of the meeting is the new requirement added (end-of-sprint)*
- *Recognize that stakeholders can provide feature suggestions to the backlog during the meeting.*
- *Identify what should be talked about in each meeting*

Lesson 5.1.3: **User Studies** *10 minutes*

- *Summarize the term User Study*
- *Summarize the term Usability*
- *Identify what can be measured using a user study*
- *Summarize different types of user studies*
- *Identify why objective and subjective measures are important*

Discussions: **Other Methods of Usability Testing**

Lesson 5.1.4(A): **Industry Examples** *29 minutes*

- *Recognize that these practices are grounded in the industry*
- *Differentiate the processes of various companies*

Reading: **Module 1: Supplemental Resources**

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

Discussions: **Week 1**

Module 2
Done Right

Lesson 5.2.1(A): **Review Techniques** *17 minutes*

- *Summarize the concept of a code review*
- *Identify techniques used in code reviews*
- *Identify when code reviews are typically completed*

Lesson 5.2.2: **Monitoring Issues** *8 minutes*

- *Summarize some key issues that may arise*
  - *Summarize the issue of missing metrics*
  - *Explain why you chose the metrics you are measuring*
  - *Summarize the issue of quantifying everything*
- *Identify an issue from a scenario*

Lesson 5.2.3: **Goal, Quality, Metric (GQM)** *7 minutes*

- *Summarize the concept of Goal Quality Metric*
  - *Describe the inter-relationship of goals, metrics & quality*
- *Recall the term non-functional requirement*
- *Generate a metric given a quality*

Lesson 5.2.4: **Desirable Properties of Metrics** *14 minutes*

- *Differentiate between metric, measure, and indicator*
  - *Describe the inter-relationship of: metrics, measures & Indicators*
- *Determine whether a metric satisfies the desirable properties*
  - *List the desirable properties*
  - *Summarize the term desirable property*
  - *Summarize why the properties are desirable*

Lesson 5.2.5: **Other Metrics** *3 minutes*

- *Determine why some metrics are popular and some are not*
  - *List popular metrics and describe associated processes*
- *Determine ways to measure the maintainability of a system*
  - *Paraphrase the concept of maintainability metrics*
- *Determine ways to measure the complexity of the system*
  - *Paraphrase the concept of complexity metrics*
  - *Explain the concept of the McCabe Number*

Lesson 5.2.6: **Defect Analysis** *8 minutes*

- *Summarize the concept of defect analysis*
- *Determine the rate of defects found/fix*
- *Summarize the concept of software barrier*
- *Count pre and post-release defects by subsystem*
  - *Recognize that some subsystems with high post-release defect may require more testing/more senior developers*
  - *Explain the terms: subsystem, pre-system, post-system*
- *Recognize when a software is good enough to release*
  - *Summarize the term defect density*
- *Recognize that it's better to find defects early*

Reading: **Module 2: Supplemental Resources**

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

Discussions: **Week 2**

Module 3
Managed Right

Lesson 5.3.1(A): **Daily Scrum** *18 minutes*

- *Summarize the concepts of the daily stand-up meeting*
  - *List the 3 questions of the stand-up*
- *Recognize that this is a scrum process*
- *Summarize the purpose and benefits of the meeting*
- *Describe a successful standup meeting (i.e. not looking at scrum master)*

Discussions: **Daily Scrum**

Lesson 5.3.2: **Velocity** *6 minutes*

- *Map out the estimated velocity vs actual velocity*
  - *Summarize the term estimated velocity*
  - *Summarize the term actual velocity*
- *Determine a prediction for velocity*
  - *Summarize the methods for predicting velocity*
- *Recognize that this is an Agile process*
- *Recognize that velocity changes depending on learning curve, bugs, risks, etc.*
- *Explain the terms: velocity-driven, velocity, done*

Lesson 5.3.3(A): **Release Burndown Chart** *17 minutes*

- *Generate a release burndown*
  - *Summarize the concept of a release burndown*
  - *Paraphrase the concepts: burn up, burn across*
  - *Explain why a task must be done to be marked on the burndown*
  - *Determine how to take information from a chart and put it in a burndown*
- *Generate an adjustable floor*
  - *Describe adjustable floor and when it would apply*

Reading: **Adjusting the Prediction Line**

Lesson 5.3.4: **Iteration Burndown Chart** *13 minutes*

- *Generate an iteration burndown*
  - *Summarize the concept of an iteration burndown*
  - *Recognize that task must be done to be marked on the burndown*
  - *Determine how to take information from a chart and put it in a burndown*
  - *Explain why iteration burndowns are generated daily*
- *Generate a whiteboard task board*
  - *Summarize the concept of a whiteboard task board*
  - *Explain why this is updated live daily*
  - *Describe how to generate an iteration burndown from the task board*

Reading: **Module 3: Supplemental Resources**

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

Discussions: **Week 3**

Module 4
Project Retrospectives

Lesson 5.4.1: **Retrospectives** *5 minutes*

- *Summarize the term retrospective*
  - *Recognize the term postmortem*
  - *Recognize the term postpartum*
  - *Recognize the term lessons learned*
- *Summarize what a retrospective is used for*

Lesson 5.4.2: **Retrospectives Issues** *14 minutes*

- *Recognize that retrospective talk about things that went wrong, not just those that went right*
- *Recognize how to setup a safe environment*
  - *Summarize what constitutes a safe environment*
- *Differentiate between a functional and non-functional culture*
  - *Summarize what constitutes a functional environment*
  - *Summarize what constitutes a non-functional environment*
- *Recognize the benefit of an outside facilitator*
  - *Summarize the term outside facilitator*
  - *Summarize the role of an outside facilitator*
  - *Identify good questions that an outside facilitator could ask*

Lesson 5.4.3: **Sprint Retrospective** *4 minutes*

- *Describe the benefits of applying a retrospective to sprint or iteration level cycles.*

Lesson 5.4.4(A, B, C): **Project Retrospective Exercises** *24 minutes*

- *Summarize how to prepare a retrospective*
- *Identify what occurs at the beginning of the retrospective*
- *Identify what occurs at the middle of the retrospective*
- *Identify what occurs at the end of the retrospective*
- *List the steps of a retrospective meeting*

Reading: **Module 4: Supplemental Resources**

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

Lesson 5.4.5: **Course Summary** *2 minutes*

- *Summarize the concepts learned in this course.*

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

Discussions: **Week 4**

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.