

IT488

 **Software Product Development Using Agile**

ExcelTrack™ Module Preview

This guide contains a preview of the materials for all course modules in this series:

IT488M1 Software Development Using Agile Development Practices

IT488M2 Software Development Using Agile Project Development and Communication

IT488M3 Continuous Integration Environment

IT488M4 Software Application Creation

IT488M6 Software Project Release Packaging

Be sure to follow the detailed directions found within the actual course modules after you receive access. The content in this guide is only a preview and course content may have changed.

## Course Materials

None

| **Course Code** | IT488M1 |
| --- | --- |
| **Competency Title** | Software Development Using Agile Development Practices |
| **Outcome(s)** | **IT488M1:**Determine agile development practices.**GEL-1.02:**Demonstrate college-level communication through the composition of original materials in Standard English. |

## Learn: Reading and Research

Essential Scrum: A Practical Guide to the Most Popular Agile Process

Chapter 17: “Envisioning (Product Planning)”

Chapter 2: “Scrum Framework”

Chapter 3: “Agile Principles”

## Competency Assessment

This Competency Assessment assesses the following outcome(s):

**Part 1:**

**IT488M1:**Determine agile development practices.

**GEL-1.02:**Demonstrate college-level communication through the composition of original materials in Standard English.

**Purpose:**

Examine various principles of Agile Development and Agile methodologies for software development. Compare and contrast the differences in the methodologies and identify which approach might be best suited to a particular project.

**Assessment Instructions:**

You are the team leader for a software development project. Your task is to develop a new software product. However, your requirements are not all well understood and you will need to involve an integrated team to define and develop this product in several iterations over a period of two months. You want to plan for a deliverable at the end of this two-month period. As part of your process, you will be including a customer acceptance test during each iteration before you integrate the code into the code base for the next iteration of development. Your team consists of a senior software engineer, two or three junior software engineers, one system test engineer, and one quality assurance engineer.

Provide the rationale for using an Agile methodology for this development and select and describe a software process methodology to implement in order to best accomplish your development goals for this new development.

Compose a 3-5 page expository paper, not including title page or references, in the form of a proposal to your management team, suggesting the use of a specific methodology and your justification for choosing it.

Your proposal will make a recommendation and justify that proposal. Be sure to indicate how each of your resources will be used.

**Part 2: Initial Product Description**

Propose a software product based on the description provided in the proposal in Part 1 that includes multiple user stories (minimum of 3–5) that will be developed and tracked in consecutive modules of the Excel Track series of courses. Note that the actual development of software starts in Module 2 and continues through Module 5. Your objective in the six modules of this course is to create a significant product that may be marketable as a software application. Your product will be consistent with an application or product that you would see in an App store for download or on a Web site that you could register to use. To ensure your product is understood to be a significant one, you must obtain approval of the instructor before proceeding with any additional further development. Make this approval part of the project documentation that you save for the next phase.

Additionally, in this stage you should include in your proposal an initial description of the infrastructure for support of the system and the development. Will this system be a standalone system or a Web page? Is there a plan for testing the infrastructure for development, management, and distribution of this system as part of the development of the system?

This initial submission may be presented as an attachment to the Part 1 paper and proposal. However, this attachment should be prepared as something that can be carried forward to M2 in the sequence for development in the next series of Excel Track Modules.

**After you receive access to each module, you will be able to see the submission requirements and a Checklist Rubric for the Competency Assessment.**

| **Course Code** | IT488M2 |
| --- | --- |
| **Competency Title** | Software Development Using Agile Project Development and Communication |
| **Outcome(s)** | **IT488M2:**Engage in agile project teamwork and communication.**GEL 4.01:**Describe how personal experiences influence workplace culture. |

## Learn: Reading and Research

Essential Scrum: A Practical Guide to the Most Popular Agile Process

Chapter 5: “Requirements and User Stories”

Chapter 9: “Product Owner”

Chapter 10: “ScrumMaster”

Chapter 11: “Development Team”

Chapter 12: “Scrum Team Structures”

Search for DevOps tool suites online and adopt.

## Competency Assessment

This Competency Assessment assesses the following outcome(s):

**Part 1:**

**IT488M2:**Engage in agile project teamwork and communication.

**GEL 4.01:**Describe how personal experiences influence workplace culture.

**Purpose:**

Implementing an Agile Development methodology involves completing certain processes that will guide the team toward completion of their objectives for each iteration of the development. In this module you present your process for implementing your selected development methodology and identify and describe the key roles of the team members in the development.

**Assessment Instructions:**

You are the team leader for a software development project. You are developing a new software product. Complete a 3 to 5 page paper describing your Selected Agile development process framework that includes discussion of roles, responsibilities, and management tools you will use to support the development process.  Describe how the positions in an Agile development team differ from more standard (SDLC) based methodologies and how the roles of your team members are influenced by the workplace organization and culture. Then describe how your own persona, or the aspect of your character as perceived by others, may influence the development process, factoring in any larger societal contexts that may impact your personal experiences. Evaluate the strengths and limitations of your own personal experiences in both theoretical and applied situations.

Your paper should be in the form of a development plan overview that you will provide to your team members and your management team, showing the process framework for the project and the general roles and responsibilities of the team members.

Focus on communication and how your methodology supports communication between the parties involved in the development.

**Part 2:  Initial Product Development Increment**

Complete the first increment of the software product development artifacts based on a minimum of 2 User Stories.  The development deliveries (actual code) will start after this Module and will continue through Module 6. Student may deliver UML Diagrams further defining the User stories using thing like Use Cases, Class Diagrams, DFD’s, ERD (if needed) during this phase.  Coordination of the precise deliverables should be made between the student and the instructor for each phase of the product deliverable during this module. Prepare your deliverable as an attachment to your development plan.

**Part 3:  Product Support Infrastructure**

Describe the initial selection of the infrastructure for support for the DevOps and tracking of the system development. What will you use to track your backlog and progress? Are there any technical issues with the selected the infrastructure that you need to resolve? These should be resolved during this phase and reported to the instructor. Prepare an attachment to your plan.

Submit Part 2 and Part 3 as Attachments to the Part 1 paper. However, these attachments should be prepared so that they can be carried forward to module M3 in the sequence to support the next increment of development in the next Excel Track Module.

**After you receive access to each module, you will be able to see the submission requirements and a Checklist Rubric for the Competency Assessment.**

| **Course Code** | IT488M3 |
| --- | --- |
| **Competency Title** | Continuous Integration Environment |
| **Outcome(s)** | **IT488M3:**Demonstrate software development skills in a continuous integration environment. |

## Learn: Reading and Research

Essential Scrum: A Practical Guide to the Most Popular Agile Process

Chapter 4: “Sprints”

Chapter 6: “Product Backlog”

Chapter 7: “Estimation and Velocity”

Chapter 14: “Scrum Planning Principles”

Chapter 19: “Sprint Planning”

Chapter 20: “Sprint Execution”

## Competency Assessment

This Competency Assessment assesses the following outcome(s):

**Part 1:**

**IT488M3:**Demonstrate software development skills in a continuous integration environment.

**Purpose:**

Implementing an Agile Development methodology involves completing certain processes that will guide the team toward completion of their objectives for each iteration of the development. In this module you present your process for Sprint Planning and Estimation as well as your backlog and burndown tracking processes.

**Assessment Instructions:**

You are the team leader for a software development project. Complete a slide presentation describing your Agile development planning and estimation framework that includes discussion of the intake process for new functionality, backlog planning, burndown and how this methodology differs from (SDLC) based methodologies.

Your presentation should be annotated, or you should provide an audio file explaining the presentation slides. If you use the audio option, your presentation should last 5-8 minutes.

**Part 2: Product Development Increment**

Prepare a demonstration and summary of the first increment of product delivery based on the User stories from Module 2. Coordinate a presentation with your instructor during this module.  Presentation may include online access to a demonstration and/or a presentation to your instructor. This task should be completed during the first week of the module.

Propose the next increment of the software product development based on a minimum of 2 additional User Stories that will be developed and tracked in the current module of the Excel Track series. Note that the development of software started in Module 2 will continue through Module 5 or 6.

**Part 3:  Product Dashboard**

Describe the progress of development using the selected tools and dashboards. As a minimum, present a current backlog and burndown chart showing planned development and development progress. This will continue for each remaining Module in the sequence. Prepare this as an attachment to the deliverable for this module. This attachment should present the charts noted and any additional data as PowerPoint slides.

**After you receive access to each module, you will be able to see the submission requirements and a Checklist Rubric for the Competency Assessment.**

| **Course Code** | IT488M4 |
| --- | --- |
| **Competency Title** | Integration and System Testing |
| **Outcome(s)** | **IT488M4:**Apply integration and system testing skills in an agile environment. |

## Learn: Reading and Research

## Search the internet for “Agile Testing Best Practices” Competency Assessment

This Competency Assessment assesses the following outcome(s):

**Part 1:**

**IT488M4:**Apply integration and system testing skills in an agile environment

**Purpose:**

Implementing an Agile Development methodology involves completing certain processes that will guide the team toward completion of their objectives for each iteration of the development. In this module you present your process for testing of the functionality that is completed during the Sprint. The focus of the testing is on the acceptance testing. However, Test Driven test activities are included in the development that will help to ensure that the code that is tested for acceptance is being tested appropriately along the way and that regression tests are developed as part of the product.

**Assessment Instructions:**

You are the team leader for a software development project. Complete a test plan of 3–5 pages for the testing of the code developed during each of the Sprints. Include quality assurance processes, how you incorporate test-driven development into your development process, and also how you will incorporate any test automation into the development of regression testing for subsequent Sprints.

Ensure that you focus on both developer-focused test activities and test activities that may be performed by the cross functional team during the acceptance test phase at the end of the Sprint.

**Part 2: Product Development Increment**

Prepare a demonstration and summary of the first increment of product delivery based on the user stories from Module 2. Coordinate a presentation to your instructor during this module. Your presentation may include online access to a demonstration and/or a presentation to your instructor. This task should be completed during the first week of the module.

Propose the next increment of the software product development based on a minimum of 2 additional User Stories that will be developed and tracked in the current module of the Excel Track series. Note that the development of software started in Module 2 and will continue through Module 5 or 6.

**Part 3: Product Dashboard**

Describe the progress of development using the selected tools and dashboards. As a minimum, present a current backlog and burndown chart showing planned development and development progress. This will continue for each remaining Module in the sequence. Prepare this as an attachment to the deliverable for this module. This attachment should present the charts noted and any additional data such as PowerPoint slides.

**After you receive access to each module, you will be able to see the submission requirements and a Checklist Rubric for the Competency Assessment.**

| **Course Code** | IT488M5 |
| --- | --- |
| **Competency Title** | Software Application Creation |
| **Outcome(s)** | **IT488M5:**Create a software application from a concept to a finished product. |

## Learn: Reading and Research

Essential Scrum: A Practical Guide to the Most Popular Agile Process

Chapter 21: “Sprint Review”

Chapter 22: “Sprint Retrospective"

## Competency Assessment

This Competency Assessment assesses the following outcome(s):

**Part 1**

**IT488M5:**Create a software application from a concept to a finished product.

**Purpose:**

Implementing an Agile Development methodology involves completing certain processes that will guide the team toward completion of their objectives for each iteration of the development. In this module you present your process for conducting the Sprint Review at the end of each of the Sprints and the Sprint Retrospective. Each of these events has an important purpose and is key to the delivery of the product and the continuing improvement of the scrum team.

**Assessment Instructions:**

You are the team leader for a software development project. Complete a presentation of 8–12 slides outlining the Sprint Review and Sprint Retrospective events that will be conducted at the end of each Sprint.

For the Sprint Review, be sure to focus on attendees and who should lead the various areas of discussion during the review of the last Sprint Development, the status of the Backlog, demonstration of functionality, and discussion of what went well or where there were difficulties in the development during the last Sprint. Be sure to also describe next steps related to the next increment for development in the next Sprint.

For the Sprint Retrospective, differentiate this from the Review and describe how the team will conduct this event differently from the Spring Review. How are the objectives of the Sprint Retrospective contributing to the development and maturation of the Scrum Team?

Ensure that you focus on both developer and stakeholder activities and concerns in your presentation. Differentiate between product related and process related activities in this presentation.

**Part 2: Product Development Increment**

Prepare a demonstration and summary of the latest increment of product delivery based on the User stories from Module 4. Coordinate a presentation with your instructor during this module. Your presentation may include online access to a demonstration and/or a presentation to your instructor. This task should be completed during the first week of the module.

Propose the final increment of the software product development based on a minimum of 2 additional User Stories that will be developed and tracked in the current module of the Excel Track series. Note that the development of software started in Module 2 will continue through Module 6.

**Part 3: Product Dashboard**

Describe the progress of development using the selected tools and dashboards. As a minimum, present a current backlog and burndown chart showing planned development and development progress. This will continue for each remaining Module in the sequence. Prepare this as an attachment to the Deliverable for this module. This attachment should present the charts noted and any additional data as PowerPoint slides.

**After you receive access to each module, you will be able to see the submission requirements and a Checklist Rubric for the Competency Assessment.**

| **Course Code** | IT488M6 |
| --- | --- |
| **Competency Title** | Software Project Release Packaging |
| **Outcome(s)** | **IT488M6:**Create a distribution package of software product for release to end-users. |

## Learn: Reading and Research

Essential Scrum: A Practical Guide to the Most Popular Agile Process

Chapter 18: “Release Planning (Longer-Term Planning)”

Chapter 24: “The Path Forward”

## Competency Assessment

This Competency Assessment assesses the following outcome(s):

**Part 1**

**IT488M6:**Create a distribution package of software product for release to end-users.

**Purpose:**

Congratulations! You have created a software product from concept to finished product. You should be very proud of yourself!

In this last module, you will have two objectives. First, you will deploy your software product to an externally facing mechanism so that the end user market can access it. Examples of this could be a public app store, an enterprise app store, a website, or a web app. To help with your distribution strategy, think about how you find and purchase software that you use. The idea is to do the same thing for your software product. Also, you may feel that your software product is ready for end users to beta test it, you may want to sell it, or you may even want to give it away for free. The possibilities are endless!

The second objective of this module is to create a presentation of your product as if you were presenting it to your end user market. Here's to a great last week of development!

**Assessment Instructions:**

Software distribution and software licensing to an end user has changed significantly in the past 20 years. This has caused a cultural shift in the way a consumer acquires software. For example, today a person can download and configure a mobile banking application within minutes. In additional, there are now app stores not only for mobile devices but also for desktops and laptops.

You have created a software product from concept to finished product. In this module you will deploy your software product to an externally facing mechanism so the end user can access it. This could mean deploying through a public app store, an enterprise app store, a website, or through more traditional means that would require providing a user with a download option via a website or CD/DVD.

* Research and analyze the best deployment option for your product and select the one you choose to use. Write a 1-page informative paper in which you discuss your rationale for choosing this method.
* Use scholarly, peer-reviewed sources, and/or textbook(s) as sources.
* Depending on the deployment/distribution method chosen, implement that method so that the product is available to the end user.
* Prepare a presentation of your final product. This presentation should be how you want to present the product to your end user market. You can use PowerPoint®, videos, Prezi®, or any presentation tool you feel will best demonstrate the purpose of your product and demonstrate its functionality.

**Part 2: Final Product Dashboard**

Show a final status of the product as it finishes and goes to its first production release. Prepare this as an attachment to the deliverable for this module. This attachment should present the final status of the backlog and burndown and any other final data as PowerPoint slides.

**After you receive access to each module, you will be able to see the submission requirements and a Checklist Rubric for the Competency Assessment.**