



Software Engineering Course Syllabus

WESTERN GOVERNORS UNIVERSITY

Software Engineering

Hello, and welcome!

If you want to advance your IT career, this course will help you accomplish that. This course assumes a foundational knowledge of programming concepts. It provides an overview of software engineering processes and their challenging nature. You will also get familiar with project management models. These include the waterfall model and agile development. You will become prepare for tasks related to engineering, design, and software quality. Along the way, you will hone your skills in analysis and problem-solving.

We invite you to take a minute to learn about the course by reviewing the information that follows. This way, you will be better able to understand the expectations of the course as a whole. Then you can determine how to manage your time and efforts as you navigate through it.

Apply yourself and explore these concepts. We're here to help you every step of the way!

Course Description and Competencies

WHAT TO EXPECT

This course will give you a broad understanding of software engineering. You will explore software engineering processes, and you will look at several process models. You will also look at project management for software engineering.

This course contains four modules of content. Each is made up of one to three units. Each unit contains:

- An introduction describing Competencies and Learning Objectives
- Readings and Exercises
- A summary and Knowledge Check questions

This course covers the following competencies:

1. The learner analyzes the objectives, scope, and organizational impact of software systems.
2. The learner identifies the costs and impact of design changes to software systems.
3. The learner determines optimal software design for given requirements.
4. The learner creates test cases for quality assurance as part of software development processes.

Assessment

You will demonstrate competency by preparing a solution proposal for a fictitious company. You must achieve a ranking of **Competent** on each assessment to pass the course. You may attempt the assessment two times before additional support is necessary. If you require further attempts, please contact your Course Instructor or Student Experience Specialist.

◆ **1** solution design proposal

◆ **4** competency units

Course Outline

Module	Upon completion of this module, you will be able to:
Software Engineering	A. Apply principles that guide software engineering processes and practice. B. Explain the importance of a document management system and its components. C. Identify the types of documentation and their attributes. D. Apply a change control process and project management principles to a software project. E. Apply a plan for deployment.
Process Models	A. Apply the software development life cycle process. B. Apply the characteristics of iterative models. C. Apply a prototype or a variation of the concept to a software project. D. Analyze the characteristics of rapid application development (RAD) models. E. Analyze the principles of agile, including the Agile Manifesto.
Design	A. Apply guidelines for gathering collaborative requirements. B. Analyze requirements within the context of the object-oriented paradigm. C. Organize criteria for testing different types of software applications. D. Apply qualitative software assessments to categorize and control bugs. E. Integrate software testing methods throughout the software development process.
Project Management	A. Create UML and ER diagrams. B. Define agile project management. C. Explain the importance of artifact transparency. D. Define product backlog and sprint backlog. E. Compare agile methods with other development methods.

Technology Requirements

We want to be sure you have the tools to succeed! Review the [Computer System and Technology Requirements](#) to learn about the technology you'll need. If you have questions about your setup, contact support@academy.wgu.edu.

You will need Adobe Acrobat Reader DC. If you haven't already, [download this free software](#). You may encounter an interactive form that contains fields that you can select or fill in. Review [how to fill in a PDF form](#).

Key Contacts

Certificate Connect [for cert courses]

Check out the Course Lobby to take advantage of course resources, including videos and tips from our educators. There, you can ask and answer questions, provide feedback on your progress, and connect with fellow students. You will find this platform in the Student Resources section of the course. Log on and do some exploring!

Technical Support

If you encounter technical issues, be sure to contact the Help Desk. Just [submit a Support Request for assistance](#).

Program Support

Do you have questions about your account? Student Support has answers. They can help with billing, switching courses, and other requests. You can contact them at (888) 320-0540 or support@academy.wgu.edu.

Accommodations

WGU provides compliant and accessible learning experiences. If you require accommodation, please contact us at the start of the course. You can email support@academy.wgu.edu or call (888) 320-0540. We are committed to ensuring that all students with disabilities have equal access to WGU's services and materials. We strive to use best practices for accessibility. Our goal is to conform to existing U.S. laws. These include the Americans with Disabilities Act and Section 504 and Section 508 of the Rehabilitation Act. Our learning management system (LMS) platform is Open edX. Open edX's commitment to accessible content is published on their [Website Accessibility Policy](#).