Course **Outline**

Essential Skills for Software Development

Course ID	Prerequisites	Course Duration	Lecture Hours Per Week	Lab Hours Per Week	Passing Grade
SD103	None	16 Weeks	5	5	Pass or Pass Outstanding

COURSE DESCRIPTION

This introductory course is an amalgamation of many key "point skills" needed as a foundation of knowledge for the software developer. Each week a new skill or concept is introduced and covered in detail through individual study, class lessons, and small team activities. The key skills covered in this course include: Agile software development, GIT, pair programming, JIRA, technical writing and presentations, linux, bash, essential mathematical skills and the Cloud9 IDE.

COURSE MATERIAL/TEXT/RESOURCES:

There is no textbook for this course.

LEARNING OUTCOMES

Module 1: How to Study and Learn

Description: In this module, students will discover strategies for studying effectively, which will help them throughout their entire journey as a student in this program.

#	Learning Outcomes (Mastery Skills):	ACHIEVEMENT
1	Create a personalized study plan with strategies for success in the software development program.	Fail, Pass, Pass Outstanding

***Passing this module requires at least a pass on all Learning Outcomes (Mastery Skills). A Pass Outstanding is awarded where student achieves a Pass Outstanding on at least 50% of the Learning Outcomes (Mastery Skills).**

Module 2: Computers and General Computing

Description: In this module, students will review core concepts of computing to gain enough familiarity with their computers and operating systems to engage in the upcoming course work effectively.

#	Learning Outcomes (Mastery Skills):	ACHIEVEMENT
1	Demonstrate an ability to open up a terminal in the Mac OS operating system and use basic Bash shell commands and Unix programs.	Fail, Pass, Pass Outstanding
2	Demonstrate an ability to access core course materials for other courses using the web interfaces for Microsoft teams.	Fail, Pass, Pass Outstanding
3	Present in a technical briefing on what a computer is, what the basic components are, and what the role of each component is.	Fail, Pass, Pass Outstanding

***Passing this module requires at least a pass on all Learning Outcomes (Mastery Skills). A Pass Outstanding is awarded where student achieves a Pass Outstanding on at least 50% of the Learning Outcomes (Mastery Skills).**

Module 3: Git

Description: In this module, students will find a basic introduction to the git command line tool. This will allow them to pull down and submit code for their work in later modules and other courses.

#	Learning Outcomes (Mastery Skills):	ACHIEVEMENT
1	Demonstrate an ability to clone a git repository, add a file to the repository, and create a commit for that file with a relevant message, and push the changes back to the repository.	Fail, Pass, Pass Outstanding

***Passing this module requires at least a pass on all Learning Outcomes (Mastery Skills). A Pass Outstanding is awarded where student achieves a Pass Outstanding on at least 50% of the Learning Outcomes (Mastery Skills).**

Module 4: Bash

Description: In this module, students will get a formal introduction to the core command line utilities and tools which will help them configure virtual servers, write code, and perform other related tasks necessary in upcoming modules and future courses.

#	Learning Outcomes (Mastery Skills):	ACHIEVEMENT
1	Students should be able to navigate through the file system using ls and cd, delete files with rm, edit files with nano, make directories using mkdir all in the terminal.	Fail, Pass, Pass Outstanding

***Passing this module requires at least a pass on all Learning Outcomes (Mastery Skills). A Pass Outstanding is awarded where student achieves a Pass Outstanding on at least 50% of the Learning Outcomes (Mastery Skills).**

Module 5: AWS and Cloud9

Description: In this module, students will be introduced to the AWS platform and will gain experience using the Cloud9 IDE as a development environment.

#	Learning Outcomes (Mastery Skills):	ACHIEVEMENT
1	Demonstrate an ability to log into Cloud9 and write a simple program in python using it.	Fail, Pass, Pass Outstanding
2	Demonstrate the ability to setup and run a simple piece of code on a basic EC2 instance.	Fail, Pass, Pass Outstanding
3	Demonstrate the ability to host a static file using a S3 bucket.	Fail, Pass, Pass Outstanding

***Passing this module requires at least a pass on all Learning Outcomes (Mastery Skills). A Pass Outstanding is awarded where student achieves a Pass Outstanding on at least 50% of the Learning Outcomes (Mastery Skills).**

Module 6: Essential Math

Description: In this module, students will review essential mathematical concepts that are a prerequisite to tackling certain types of programming problems. In particular, students will review some essential algebraic, geometric, and trigonometric equations and problems.

#	Learning Outcomes (Mastery Skills):	ACHIEVEMENT
1	Solve word problems using algebra and trigonometry.	Fail, Pass, Pass Outstanding
2	Solve basic logic and discrete math problems.	Fail, Pass, Pass Outstanding
3	Graph polynomial, exponential, logarithmic, and basic trigonometric functions (sin, cos, tan).	Fail, Pass, Pass Outstanding

***Passing this module requires at least a pass on all Learning Outcomes (Mastery Skills). A Pass Outstanding is awarded where student achieves a Pass Outstanding on at least 50% of the Learning Outcomes (Mastery Skills).**

Module 7: Technical Writing

Description: In this module, students will be introduced to some of the best practices involved in writing technical documents. This will prepare students for future modules and courses in which the ability to write proper technical documentation will be an essential skill.

#	Learning Outcomes (Mastery Skills):	ACHIEVEMENT
1	Write a technical report, following best practices, on some of the topics discussed in the previous modules.	Fail, Pass, Pass Outstanding

***Passing this module requires at least a pass on all Learning Outcomes (Mastery Skills). A Pass Outstanding is awarded where student achieves a Pass Outstanding on at least 50% of the Learning Outcomes (Mastery Skills).**

Module 8: Technical Presentations

Description: In this module, students will be introduced to some of the best practices involved in giving technical presentations. This will prepare students for future modules and courses in which the ability to present technical information in a concise and informative way to a variety of audiences will be an essential skill.

#	Learning Outcomes (Mastery Skills):	ACHIEVEMENT
1	Give a technical presentation, following best practices, on some of the topics discussed in the previous modules.	Fail, Pass, Pass Outstanding

***Passing this module requires at least a pass on all Learning Outcomes (Mastery Skills). A Pass Outstanding is awarded where student achieves a Pass Outstanding on at least 50% of the Learning Outcomes (Mastery Skills).**

Module 9: Agile

Description: In this module, students will be briefly introduced to the concept of Agile software development. Students will learn about some of the tools and methodologies that they will be using in their upcoming project courses and will learn about proper procedures for things like meetings, tracking project progress, and assigning work.

#	Learning Outcomes (Mastery Skills):	ACHIEVEMENT
1	Demonstrate an ability to log into and navigate Jira at a level of proficiency that is sufficient to access core course and assignment materials for other courses using the Jira platform.	Fail, Pass, Pass Outstanding
2	Act as both a team member and a SCRUM master in a notional standup meeting.	Fail, Pass, Pass Outstanding

***Passing this module requires at least a pass on all Learning Outcomes (Mastery Skills). A Pass Outstanding is awarded where student achieves a Pass Outstanding on at least 50% of the Learning Outcomes (Mastery Skills).**

STUDENT PROGRESS AND ASSESMENT

ASSESSMENT	ACHIEVEMENT
Module 1 Learning Outcomes (Mastery Skills)	Fail, Pass, Pass Outstanding
Module 2 Learning Outcomes (Mastery Skills)	Fail, Pass, Pass Outstanding
Module 3 Learning Outcomes (Mastery Skills)	Fail, Pass, Pass Outstanding
Module 4 Learning Outcomes (Mastery Skills)	Fail, Pass, Pass Outstanding
Module 5 Learning Outcomes (Mastery Skills)	Fail, Pass, Pass Outstanding
Module 6 Learning Outcomes (Mastery Skills)	Fail, Pass, Pass Outstanding
Module 7 Learning Outcomes (Mastery Skills)	Fail, Pass, Pass Outstanding
Module 8 Learning Outcomes (Mastery Skills)	Fail, Pass, Pass Outstanding
Module 9 Learning Outcomes (Mastery Skills)	Fail, Pass, Pass Outstanding

***Passing this course requires at least a pass on all modules. A Pass Outstanding in the course is awarded where the student achieves a Pass Outstanding on all modules.**