

## Learning Guide Unit 1

### Reading Assignment

As you go through the readings and watch the videos, consider the following:

1. How do various SDLC models influence project planning and execution, and what are the benefits of choosing a model suited to specific project needs?
2. What key roles in a software engineering team contribute to a project's success and functionality.

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#### Read:

1. Summers, B. L. (2020). *Effective methods for software engineering*. Auerbach Publishers, Incorporated.

- Read Chapter 1: Introduction ( pp. 24 - 31 )
  - This chapter covers the role of software engineering in developing reliable, efficient software systems. It explores the software engineering process, including requirements gathering, design, implementation, testing, and maintenance.
- Read Chapter 3: Systems Engineering Capabilities (pp. 40 - 44)
  - This chapter covers the scope of Systems Engineering, focusing on its interdisciplinary approach to designing and managing complex systems. It introduces key Systems Engineering concepts, including requirements analysis, system design, and integration. The chapter also defines the System Engineer's role, emphasizing their responsibility to ensure the system meets both technical and user requirements throughout its lifecycle.

#### To read this book:

- Log into the UoPeople library and go to LIRN. [How to Access LIRN is now added to the library](#).
- Select "Computer Science" under the "Jump to the Specific Group" section.
- Select E-book Central.
- Search using the entire name of the book.
- View the online book.

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#### Additional Readings:

2. Tiwari, U. K., Kumar, S. (2021). *Component-based software engineering: Methods and metrics*. CRC Press LLC.

- Read Chapter 1: Introduction to Software Engineering and Component Based Software Engineering ( pp. 1 - 33 )
  - This chapter introduces Software Engineering as a systematic approach to designing and developing reliable software. It explores Component-Based Software Engineering (CBSE) for creating modular, reusable systems and examines various software development models, including their roles in optimizing project efficiency and adaptability.

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#### Additional Watch:

1. CS & IT Tutorials by Vrushali. (2023, February 7). *SE 1 : Introduction to software engineering / Nature of software / SE full Course [Video]*. YouTube.

- The video introduces fundamental concepts of Software Engineering, covering its purpose and importance, along with the essential characteristics and nature of software. It provides an overview of the software process and various development models

SE 1 : Learn Software Engineering from Scratch || Software...



2. Intellipaat. (2022, August 12). *What is SDLC / Importance of SDLC / Software development life cycle / Intellipaat [Video]*. YouTube.

- This video provides an overview of the Software Development Life Cycle (SDLC), highlighting its importance in ensuring effective software development. It covers the structured phases within SDLC

What is SDLC | Importance Of SDLC | Software Developme...



3. AltexSoft. (2023, October 18). *Software development life cycle: Explained [Video]*. YouTube.

- This video provides an overview of the Software Development Life Cycle (SDLC), highlighting its importance in ensuring effective software development. It covers the structured phases within SDLC

Software Development Life Cycle: Explained



4. Bukola. (2020, May 11). *5 in demand software engineer roles explained [Video]*. YouTube.

- This video provides an overview of the most sought-after software engineering roles, including their key responsibilities and the skills needed to excel in each position. It highlights how these roles contribute to the development and maintenance of modern software solutions across various industries.

### 5 In Demand Software Engineer Roles Explained



5. eduPLEX . (2020, January 4). *Roles of a software engineer / Software engineering basics / AP computer science A / eduPLEX* [Video]. YouTube.

- This video provides a concise introduction to software engineering, outlining the core roles and responsibilities of a software engineer. It covers essential concepts, including how software engineers contribute to various stages of the software development lifecycle, from planning to deployment.

### Roles of a Software Engineer | Software Engineering Basics...

