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**Software Development Class**

**Assignment - Day 1**

**August 22, 2024**

**Part 1: Introduction to Software Engineering**

Software engineering is the systematic application of engineering principles to design, develop, test, and maintain software systems. It is crucial in the technology industry, powering everything from communication to commerce​(INTRODUCTION TO SOFTWAR…). Key milestones include the development of programming languages like Fortran and C, the formalization of software engineering in the 1960s, and the rise of agile methodologies in the 2000s​(INTRODUCTION TO SOFTWAR…).

The Software Development Life Cycle (SDLC) consists of phases like requirements gathering, design, implementation, testing, deployment, and maintenance​(INTRODUCTION TO SOFTWAR…). Waterfall methodology follows a sequential approach, suitable for projects with clear, unchanging requirements, while Agile is iterative, allowing flexibility—ideal for dynamic environments​(INTRODUCTION TO SOFTWAR…).

In a software team, the Software Developer writes code, the Quality Assurance Engineer tests software for defects, and the Project Manager oversees the project to ensure timely delivery​(INTRODUCTION TO SOFTWAR…). Integrated Development Environments (IDEs) like Visual Studio streamline coding, and Version Control Systems (VCS) like Git manage code changes effectively​(INTRODUCTION TO SOFTWAR…).

Common challenges include changing requirements, tight deadlines, and technical debt. These can be addressed by adopting Agile methodologies, effective communication, and continuous reassessment​(INTRODUCTION TO SOFTWAR…). Testing, including unit, integration, system, and acceptance testing, ensures software quality​(INTRODUCTION TO SOFTWAR…).

**Part 2: Introduction to AI and Prompt Engineering**  
Prompt engineering involves crafting clear and specific prompts to obtain accurate responses from AI models​(Introduction to AI and …). For example, asking "Tell me about cats" yields general results, while "Tell me about the history of domestic cats" provides focused information​(Introduction to AI and …). Clear and context-specific prompts help AI understand requests better​(Introduction to AI and …).

**References**

* Power Learn Project Academy. (n.d.). *Introduction to Software Engineering*.
* Chakin. (n.d.). *Introduction to AI and Prompt Engineering*.