

Software Engineering

Basic Course Information	2205114	Subject Category	Computer, CS
Course Number	2205114	Credit Type and Number	1
Class Format	Lecture	Prerequisites	
Department	Computer	Student Category	Year 3
Period of Study	Semester 2	Classes per Week	1
Required Materials	Hardware: Laptop and Tablet. Hardware will be provided.		
Instructor	Mr Kobuszki	Therese West Peterson	

Course Objective

This course provides students with a comprehensive understanding of the principles, processes, and best practices involved in software development. In software engineering activities such as requirements analysis, design, implementation, testing and maintenance are essential for successful software development. Throughout the course, various development frameworks will be introduced and explored. By the end of the course, students will be equipped with the knowledge and practical skills necessary to excel in the field of software engineering.

Evaluation/Rubric	Meets Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Understand and explain the process of software-centered system development	To be able to understand and explain the processes of software-centered system development	To be able to understand the processes of software-centered system development	Not to be able to understand the processes of software-centered system development
Understand and explain the process of designing a system based on the users' requirements	To be able to understand and explain the process of designing a system based on the users' requirements	To be able to explain the process of designing a system based on the users' requirements	Not to be able to understand the process of designing a system based on the users' requirements
Understand the importance of project management	To be able to understand and explain the importance of project management	To be able to understand the importance of project management	Not to be able to understand the importance of project management

Relationship with Learning Outcomes

CO1) Ability to operate and administer the computer software and hardware

CO2) Ability to understand the operating system and to develop software to solve specific problems.

Teaching Method

Outing:	Lecture and Practice
Class Format:	Lecture, Practice, Quiz, Group work, Homeworks and Reports
Please Note :	Students are expected to actively participate in class and collaborate effectively with other group members through class communication. "Software Engineering, 10th Edition" for Ian Sommerville will be referenced in the class.

Course Plan	Contents and Method of Course	Goals	Related MCC
Semester 2			
1st week (Nov. 6)	<ul style="list-style-type: none"> Online Introduction to Software Engineering (1) What is software? What is professional software development? Diversity of software 	<ul style="list-style-type: none"> To understand the objectives and achievement goals of this course. To be able to explain what software is and what Software Engineering is To be able to explain software engineering's diversity. 	V-D, 2, 28
2nd week (Nov. 13)	<ul style="list-style-type: none"> Online Introduction to Software Engineering (2) History of Software Engineering Problems in large software systems and projects to solve them Ethical dilemmas in Software Engineering 	<ul style="list-style-type: none"> To be able to explain what software crisis is To be able to explain concepts to resolve problems in software engineering. To be able to explain what software engineering ethics are. 	V-D, 2, 28 V-D, 4, 50
3rd week (Nov. 20)	<ul style="list-style-type: none"> Software process models and process activities (1) Plan-driven processes Waterfall model V-model Evolutionary process model Scrum model 	<ul style="list-style-type: none"> To be able to explain the concepts of software processes and software process models. To be able to explain the fundamental process activities To be able to explain the plan-driven process models 	V-D, 2, 28
4th week (Nov. 27)	<ul style="list-style-type: none"> Software process models and process activities (2) Agile methods Concepts of Agile methods Extreme Programming Scrum 	<ul style="list-style-type: none"> To be able to explain the concepts of agile processes and To be able to explain the main methods in agile processes 	V-D, 2, 28
5th week (Dec. 4)	Review of 1st to 4th classes	<ul style="list-style-type: none"> To be able to answer some mini-quizs related to the previous 4 classes. To be able to explain and summarize what you learned in the previous 4 classes. To be able to use the knowledge of what you learned to make a group presentation. 	V-D, 2, 28
6th week (Dec. 11)	Holiday		
7th week (Dec. 18)	<ul style="list-style-type: none"> Project management and Requirement Analysis Concepts of project management and quality management Concepts of requirement analysis Functional and non-functional requirements 	<ul style="list-style-type: none"> To be able to explain project management To be able to calculate the man-hours on software development To be able to understand concepts of requirements analysis and explain user and system requirements 	V-D, 4, 50 V-D, 2, 28 V-D, 2, 28
8th week (Dec. 25)	<ul style="list-style-type: none"> System modeling and UML Concepts of system modeling About UML diagram types 	<ul style="list-style-type: none"> To be able to understand and explain the main concepts of system modeling. To be able to explain Unified Modeling Language 	V-D, 2, 28
9th week (Jan. 1)	Holiday		
10th week (Dec. 27-Jan. 9)	Mid-term Examination *		
11th week (Jan. 10, Monday Class)	<ul style="list-style-type: none"> Structured Analysis with Data Flow Diagram Concept of structured analysis Data Flow Diagram 	<ul style="list-style-type: none"> To be able to understand and explain the Data Flow Diagram To be able to explain the main concept of Structured Analysis 	V-D, 2, 28 V-D, 4, 50
12th week (Jan. 15)	<ul style="list-style-type: none"> Practice of Structured Analysis with Data Flow Diagram Based on the examples, students try to analyse requirements with data flow diagram (Group work) 	To be able to analyse requirements by Structured Analysis	V-D, 2, 28 V-D, 4, 50
13th week (Jan. 22)	<ul style="list-style-type: none"> Object-Oriented Analysis and Design Concepts of Object-Oriented Analysis and Design Object-oriented development methodology Practice of Object-Oriented Analysis and Design 	To be able to explain the main concepts of Object-Oriented Analysis and Design	V-D, 2, 28
14th week (Jan. 29)	<ul style="list-style-type: none"> Architecture Design and Interface Design Concepts of Architecture Design Process of Architecture Design Architecture Style Concepts of Interface Design 	<ul style="list-style-type: none"> To be able to understand and explain the main concepts of Architecture Design To be able to understand and explain the main concepts of Interface Design 	V-D, 2, 28
15th week (Feb. 5)	<ul style="list-style-type: none"> Programming Concepts of Programming Structured programming Data oriented approach 	<ul style="list-style-type: none"> To be able to explain the main concepts of programming and structured programming To be able to explain the difference between the process oriented approach and data oriented approach 	V-D, 2, 28
16th week (Feb. 12)	<ul style="list-style-type: none"> Testing and Validation About software test and several types of software test About software validation and methods 	To be able to explain how to test and verify the software systems	V-D, 2, 28
17th week (Feb. 19)	<ul style="list-style-type: none"> Software maintenance, reuse, and evolution Function of software maintenance Methods of software maintenance What software evolution is 	<ul style="list-style-type: none"> To be able to explain the main concepts of software maintenance and reuse To be able to explain what software evolution is 	V-D, 2, 28
18th week (Feb. 26)	Holiday		
19th week (March 4)	Preparation for final examination	To be able to review what you learned in this subjects and prepare for the final exam	
20th week (March 8-18)	Final Examination *		
21th week (March 19-22)	Return Exam Papers and Feedback		

Do not

Basic Ability	Examination	Quiz	Mutual Evaluations between students	Report	Project	Other
Basic Ability	10	10	10	10	10	10
Practical Ability						
Interdisciplinary Ability						