松江工業高等専門学校	開講年度	令和05年度 (2023年度)	授業科目	ソフトウェア工学１

科目基礎情報

科目番号	0026	科目区分	専門 / 必履修
授業形態	授業・演習	単位の種別と単位数	履修単位: 1
開設学科	情報工学科	対象学年	4
開設期	前期	週時間数	2
教科書/教材	［教科書］高橋直久・丸山勝久：情報工学レクチャーシリーズ・ソフトウェア工学（森北出版）　［参考書］小泉寿男：ソフトウェア開発（オーム社）		
担当教員	廣瀬 誠		

到達目標

(1) Understand the basic concepts of software life cycle and development process.
(2) Understand the concept of project management in software development.
(3) Understand the concept and procedure of analysis and design of the upstream process of system development, and be able to analyze and design rudimentary systems.

ルーブリック

	Ideal Level	Standard Level	Unacceptable Level
Achievement 1	Fully understood the basic concepts of software life cycle and development process.	Understood the basic concepts of software life cycle and development process.	Does not understand the basic concepts of software life cycle and development process.
Achievement 2	Fully understood the concept of project management in software development.	Understood the concept of project management in software development.	Does not understand the concept of project management in software development.
Achievement 3	Fully understand the concept and procedure of analysis and design of the upstream process of system development, and be able to analyze and design rudimentary systems.	Understand the concept and procedure of analysis and design of the upstream process of system development, and be able to analyze and design rudimentary systems.	The candidate does not understand the concept of analysis and design in the upstream process of system development, and how to proceed. They are also unable to perform rudimentary system analysis and design.

学科の到達目標項目との関係

教育方法等

概要	In recent years, system development has been shifting from structured methods to object-oriented methods. However, the basic ideas of structured methodologies have been inherited to object-oriented methodologies, and it is useful for future software development to learn both methods. In this course, students learn the necessity of software engineering, its models and upstream processes using structured methods, and acquire knowledge to understand the difference between object-oriented methods and structured methods (object-oriented methods are understood through practice in the programming language III). (Object-oriented methods are understood with practice in Programming Language III.) In addition, students learn about the role of the project manager, who handles projects in software development.
授業の進め方・方法	# This course is a BYOD class, so a laptop computer is required. # This course is designed to assess the achievement of the objectives (1) to (3). ・Final exam 45% (no mid-term exam) ・Exercises and assignments 45% ・Final assignment 10% The total of these will be used as the overall evaluation of the course. # Students must obtain 60 points or more out of 100 points to pass the course. However, in the following cases, the student will be deemed to have no intention of completing the course and will fail the course. ・Did not take the final exam. ・More than 1/3 of the exercises and assignments have not been submitted. ・The final exercise has not been submitted. # In principle, no re-examination will be given in this course (however, if the attendance rate is more than 2/3, it will be taken into consideration).
注意点	

授業の属性・履修上の区分

☑ アクティブラーニング	☑ ICT 利用	☐ 遠隔授業対応	☐ 実務経験のある教員による授業

授業計画

		週	授業内容	週ごとの到達目標
前期	1stQ	1週	Issues in Large-Scale Software Development ・Issues and Solutions in Large-Scale Software Development	Understand achievement 1
		2週	Software development process ・Waterfall model, Agile, etc.	Understand achievement 1
		3週	Project Management (1) ・Estimation of development process	Understand achievement 2
		4週	Project Management (2) ・What is a Project Manager?	Understand achievement 2
		5週	Project Management (3) ・What Project Managers Should Consider ①	Understand achievement 2
		6週	Project Management (4) ・What Project Managers Should Consider ②	Understand achievement 2
		7週	Requirements Analysis (1) ・What is Requirements Analysis? Requirements Acquisition	Understand achievement 3

		8週	Requirements Analysis (2) ・Requirement definition	Understand achievement 3
	2ndQ	9週	Requirements Analysis (3) ・Specification	Understand achievement 3
		10週	Structured Analysis (1) ・What is Structured Analysis? Analysis procedure using data flow diagram (DFD)	Understand achievement 3
		11週	Structured Analysis (2) ・Process specification, data dictionary	Understand achievement 3
		12週	Structured Analysis (3) ・ER diagram, state transition diagram	Understand achievement 3
		13週	Final exam ・To check understanding of Weeks 1 to 12	Measuring understanding of achievement 1,2 and 3
		14週	Upstream system design using structured analysis (1) ・Return and review of final examinations, and preparation of upstream design documents using DFD, etc.	Understand achievement 1, 2 and 3
		15週	Upstream system design using structured analysis (2) ・Create upstream design documents using DFD, etc.	Understand achievement 1, 2 and 3
		16週	Upstream system design using structured analysis (3) Create upstream design documents using DFD, etc.	Understand achievement 1, 2 and 3

モデルコアカリキュラムの学習内容と到達目標

分類	分野	学習内容	学習内容の到達目標	到達レベル	授業週

評価割合

	Final exam	Exercises and assignments	Final assignment	合計
総合評価割合	45	45	10	100
Basic Proficiency	20	20	0	40
Specialized Proficiency	20	20	10	50
Cross Area Proficiency	5	5	0	10