Xi'an Jiaotong-Liverpool University
西交利物浦大学

CPT203

Software Engineering I
Department of Computing Stage 3 | Level 2

SECTION A: Basic Information

Brief Introduction to the Module

The module, Software Engineering I, is intended to develop an understanding of the problems associated with the development of significant computing systems (that is, systems that are too large to be designed and developed by a single person, and are designed to be used by many users) and to appreciate the techniques and tools necessary to develop such systems efficiently, in a cost-effective manner. In particular, this module introduces problems with each of the fundamental software engineering activities, and more importantly, methodologies and tools that are used to solve these problems. At the end of the module, the students are expected to realize the problems in designing and building significant computer systems. They should understand the need to design systems that fully meet the requirements of the intended users and appreciate the need to ensure that the implementation of a design is adequately tested to ensure that the completed system meets the specifications. Students should be fully aware of the principles and practice of an object-oriented approach to the design and development of software systems and their components and be able to apply these principles in practice.

Key Module Information

Module name	Module code	Credit value	Semester in which the module is taught	Pre-requisites needed for the module
Software Engineering I	CPT203	5	SEM1	CPT105 OR CPT111
Programmes on which the module is shared	BEng Computer Science and Technology BSc Information and Computing Science BSc Information Management and Information Systems			

Module Leader and Contact Details

Module Leader:

Name	Email address	Office telephone number	Room number	Office hours	Preferred means of contact
Nanlin Jin	Nanlin.Jin@xjtlu.edu.cn	88161800	SD429(SIP Campus-Science Building)	Wednesdays 3 to 4pm; Fridays 3-4pm	Email
Brief Biography	Nanlin has been in the teaching team of CPT203 over 3 years. Her research in the software engineering area includes LLM for automated software testing.				

Additional Teaching Staff and Contact Details:

Role	Name	Email address	Office telephone number	Room number	Office hours	Preferred means of contact
Co-lecturer	Soon Phei Tin	Soon.Tin@xjtlu.edu.cn	81889038	SD531(SIP Campus-Science Building)	Thursday 12:30 - 13:30; Friday 15:00 – 16:30	Email

Co-lecturer	Yihong Wang	Yihong.Wang@xjtlu.edu.cn	89167188	SD423(SIP Campus -Science Building)	Wednesdays 4-5pm, and Thursdays 1-2pm	Email

SECTION B: What You Can Expect from the Module

Educational Aims of the Module

The module is intended to develop an understanding of the problems associated with the development of significant computing systems (that is, systems that are too large to be designed and developed by a single person,and are designed to be used by many users) and to appreciate the techniques and tools necessary to develop such systems efficiently, in a cost-effective manner.

Learning Outcomes

Students completing the module should be able to:

A. Appreciate and describe the issues and methods involved in designing and building computer systems to meet business goals.
B. Understand how user requirements are elicited and incorporated into the design of a computing system while being able to identify and analyse relevant legal, social, ethical and professional concerns informed by professional codes of conduct.
C. Appreciate the need to ensure that the implementation of a design is adequately tested to ensure that the completed system meets the specifications.
D. Apply an object-oriented approach to the design and development of software systems and their components.
E. Adopt a holistic and proportionate approach to the mitigation of security risks using a risk management process to identify, evaluate and mitigate and risks associated with a software engineering activities.
F. Discuss the role of quality management systems and continuous improvement in Software Engineering.

Methods of Learning and Teaching

Students will be expected to attend three hours of formal lectures, as well as to participate in one hour of supervised practical classes in a typical week.
In addition, students will be expected to devote six hours of unsupervised time to private study: private study will provide time for reflection and consideration of lecture material and background reading.

Syllabus & Teaching Plan

Week Number	Mode of Delivery(Lecture/Tutorial/Seminar/Field Trip/ Other)	Topic	Pre-reading and others
W1	Lab/Lecture	Introduction to Software Engineering	Software Engineering by Ian Sommerville Chapter 1
W2	Lab/Lecture	Software Processes	Chapter 2
W3	Lab/Lecture	Agile Methods	Chapter 3

W4	Lab/Lecture	Requirements Engineering	Chapter 4
W5	Lab/Lecture	Systems Modeling and UML -1	Chapter 5
W6	Lab/Lecture	Systems Modeling and UML -2	Chapter 5
W7	Lab/Lecture	Reading week (no teaching) TBC by SAT	
W8	Lab/Lecture	Design concepts	Chapter 6
W9	Lab/Lecture	Software design	Chapter 7
W10	Lab/Lecture	Testing 1	Chapter 8
W11	Lab/Lecture	Testing 2	Chapter 8
W12	Lab/Lecture	Project management	Chapter 22
W13	Lab/Lecture	Revision	

Assessment Details

Initial Assessment

Written Examination,Final Exam (70% of the module mark)

Assessment Type: *EXAM*
Learning outcomes assessed: *ALL*
Duration: *2.0 hours*
Resit opportunity: *S*

Assessment Task	Learning Outcomes	Weighting	Release Date	Due Date
WRITTEN EXAMINATION,Final exam	ALL	70%	/	/
Artificial Intelligence Permissions	/			
Brief Description of the Assessment Task				
Closed book				

Lab-Based Coursework,Test/Quiz (15% of the module mark)

Assessment Type: *CW*
Learning outcomes assessed: *A, B*
Duration: *N/A*
Resit opportunity: *S*

Assessment Task	Learning Outcomes	Weighting	Release Date	Due Date
Lab-based coursework,Test/Quiz	A, B	15%	28/Oct/2025	28/Oct/2025 17:00
Artificial Intelligence Permissions	No			

Brief Description of the Assessment Task
Lab based test; closed book. The exact date and time will be decided by MITS and based on lab lab availability

Lab-Based Coursework,Project, (15% of the module mark)

Assessment Type: *CW*
Learning outcomes assessed: *C, E*
Duration: *N/A*
Resit opportunity: *S*

Assessment Task	Learning Outcomes	Weighting	Release Date	Due Date
Lab-based coursework,Project,	C, E	15%	12/Nov/2025	12/Dec/2025 12:00
Artificial Intelligence Permissions	No			
Brief Description of the Assessment Task				
Coursework				

Resit Assessment

Exam (100% of the module mark)

Assessment Type: *EXAM*
Learning outcomes assessed: *ALL*
Duration: *2.0 hours*

Assessment Task	Learning Outcomes	Weighting	Release Date	Due Date
Exam	ALL	100%	/	/
Artificial Intelligence Permissions	/			
Brief Description of the Assessment Task				
Closed book				

Reading Materials

Type	Title	Author	ISBN/Publisher
Mandatory Textbooks	SOFTWARE ENGINEERING (EBOOK) ISBN-13: 978-0-13-703515-1 ISBN-10: 0-13-703515-2	IAN SOMMERVILLE	9780133943030/PEARSON EDUCATION
Optional Textbooks	SYSTEM ANALYSIS & DESIGN AN OBJECT -ORIENTED APPROACH WITH UML (EBOOK)	ALAN DENNIS, BARBARA HALEY WIXOM, DAVID TEGARDEN	9781119559917/WILEY

Reference Textbooks	USING UML: SOFTWARE ENGINEERING WITH OBJECTS AND COMPONENTS	PERDITA STEVENS WITH ROB POOLEY	9780321269677/ADDISON WESLE
	SOFTWARE ENGINEERING: A PRACTITIONER'S APPROACH (EBOOK)	RS PRESSMAN	9781259872976/ADDISON WESLE
	PROJECT MANAGEMENT	H. MAYLORPITMAN	9781292088433/PITMAN PUBLISHING
	MANAGING SOFTWARE QUALITY AND BUSINESS RISK	MARTYN A. OULD	9780471997825/ADDISON WESLE
	ESSENTIAL SCRUM: A PRACTICAL GUIDE TO THE MOST POPULAR AGILE PROCESS	KENNETH S. RUBIN	9780137043293/ADDISON-WESLEY
Additional Materials			

SECTION C: Additional Information

This section provides students with essential information and resources pertaining to their academic studies to ensure a successful academic journey and engagement with the module.

Student Feedback:

The University is committed to receiving and responding to student feedback in order to improve the quality of the student experience within the institution. It is University policy that the preferred way of doing this is by using the Online Student Module Feedback Questionnaire Survey. Students are encouraged to complete the questionnaire survey for this module at the end of the semester.

Attendance:

The University expects students to attend all timetabled learning sessions associated with this module, and to engage with the relevant learning and support resources. Student attendance will be recorded using the Attendance Management System (AMS). Please follow your teacher's instructions for recording your attendance at each session. Students are responsible for managing their attendance, and should take prompt action to inform the Module Leader in case circumstances beyond their control affect their class attendance. You are advised to read the University's 'Student Attendance Policy' for more information.

Rules of Submission for Assessed Coursework:

The University has detailed rules and procedures governing the submission of assessed coursework. You need to be familiar with the rules and procedures as detailed in the University's 'Code of Practice on Assessment'.

Late Submission of Assessed Coursework:

The University attaches penalties to the late submission of assessed coursework. You need to be familiar with the rules as detailed in the University's 'Code of Practice on Assessment'.

Mitigating Circumstances:

Students who are unable to submit coursework by the deadline or attend examinations due to serious illness or other unforeseen circumstances, as defined in the Mitigating Circumstances (MC) Policy, may submit a Mitigating Circumstances Application. The application should be submitted before the assessment deadline (or examination date) under the Academic Records page on e-Bridge. Misuse of the MC policy will result in disciplinary actions and demerit points.

Academic Integrity:

Any violation of academic integrity including plagiarism, collusion, copying, submission of commissioned or procured work, Academic Offences I nvolving Artificial Intelligence (AI), and/or falsification and fabrication of data will result in penalties and demerit points. Please be familiar with the University's Academic Integrity Policy.

Examination Misconduct:

The University also values academic integrity in the conduct of examinations. Any behavior that violates examination regulations will not be tolerat ed and will result in penalties and demerit points, as detailed in the policy of Regulations for Conduct of Examinations.

Student Discipline Point System:

Any violation of Academic Integrity Policy, Regulation for Conduct of Examinations, and abuse of the Mitigating Circumstances Policy will accrue demerit points. These points will be placed in the university system, and on the official XJTLU transcript. For details, please refer to the Student D iscipline Point System appended to the Regulations for the Conduct of Examinations.

Artificial Intelligence (AI):

Information on whether the use of AI is permitted or not for each assessed coursework is indicated in the Assessment Details section of this modu le handbook.

For detailed guidelines, please refer to the Academic Integrity Policy Guide for Students and Staff.

For more information and resources on Artificial Intelligence and your learning and assessment, please consult the XJTLU AI for Learning pages of the Learning Mall Core.

Learning Mall Core:

Copies of lecture notes and other materials are available electronically through the Learning Mall Core, the University's virtual learning environme nt, at learningmall@xjtlu.edu.cn.

Communication:

All official communication concerning module-related matters will be conducted via e-mail and/or as Learning Mall Core announcements. Other m odes of electronic communication are treated as informal.

Further Support:

You are advised to contact your Module Leader in the first instance if you experience any issues with your learning on this module. You may also contact your Academic Advisor or Programme Director. Further information on the kinds of support that the University provides to students can be found in the XJTLU Student Handbook.

You are strongly advised to read the policies mentioned above very carefully, because this will help you perform better in your acad emic studies. You can find all the policies and regulations related to your academic study on the e-Bridge → 'Document Zone' page.

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Cut-off Date: 05/Sep/2025