系统测试与质量管理 教学大纲

Systems Testing and Quality Management Subject Syllabus

一、课程信息 Subject Information

课程编号: Subject ID	3100213002	开课学期: Semester	3
课程分类: Category	专业教育 PA	所属课群: Section	专业平台 MT
课程学分: Credit Points	3.5	总学时/周: Total Hours/Weeks	56/14
理论学时: LECT. Hours	56	实验学时: EXP. Hours	0
PBL 学时: PBL Hours	0	实践学时/周: PRAC. Hours/Weeks	0
开课学院: College	东北大学 悉尼智能科技学院	适用专业: Stream	计算机科学与技术 CST
课程属性: Pattern	必修 Compulsory	课程模式: Mode	引进 UTS
中方课程协调人: NEU Coordinator	周杨　于七龙 Yang Zhou　Qilong Yu	成绩记载方式: Result Type	百分制 Marks
先修课程: Requisites	工程领导力 Engineering Communication		
英文参考教材: EN Textbooks	Rex Black, Managing the Testing Process_ Practical Tools and Techniques for Managing Hardware and Software Testing, 2009.		
中文参考教材: CN Textbooks	无 None		
教学资源: Resources	无 None		
课程负责人(撰写人): Subject Director	周杨　于七龙 Yang Zhou　Qilong Yu	提交日期: Submitted Date	8/27/2023
任课教师(含负责人): Taught by	周杨　　　于七龙 Yang Zhou　　Qilong Yu		
审核人: Checked by	韩鹏	批准人: Approved by	史闻博
		批准日期: Approved Date	9/2/2023

二、教学目标 Subject Learning Objectives (SLOs)

注：毕业要求及指标点可参照悉尼学院本科生培养方案，可根据实际情况增减行数

Note: GA and index can be referred from undergraduate program in SSTC website. Please add/reduce lines based on subject.

整体目标: Overall Objective		本课程为学生提供有效测量和控制软件产品质量所需的实用知识和技能。它涵盖了软件质量保证、管理原则和实践，以及系统和软件测试方法。 This subject provides students with the practical knowledge and skills that are necessary to effectively measure and control the quality of software products. It covers software quality assurance and management principles and practice together with systems and software testing approaches.
（1）专业目标: Professional Ability	1-1	计划和执行特定的测试过程、类型和阶段，以确保软件产品的质量 Plan and execute specific processes, types and phases of testing to assure quality in software products
	1-2	应用探索性测试和烟雾测试来评估系统操作和功能 Apply exploratory and smoke testing to evaluate system operations and functions
	1-3	将质量保证和管理原则应用于敏捷和瀑布式测试过程 Apply quality assurance and management principles to Agile and Waterfall test processes
	1-4	积极合作，计划、开发、应用和记录测试系统 Work collaboratively and actively to plan, develop, apply and document test systems
	1-5	了解测试和质量管理的原则和主要方法，包括测试过程支持开发人员、项目和业务成果的方式 Understand the principles and major approaches to testing and quality management including the way testing processes support developers, projects and business outcomes
	1-6	了解如何在测试的各个方面以专业的方式进行沟通 Understand how to communicate in a professional manner in all aspects of testing
（2）德育目标: Essential Quality	2-1	培养具有不畏困难、不惧失败、锲而不舍、敢于尝试、迎难而上的精神，并在学习过程中培养自己的细心和耐心的勇气和精神 Cultivate the spirit of not fearing difficulties or failure, perseverance, daring to try, and cultivate their own careful and patient courage and spirit in the process of learning
	2-2	培养服务意识，具有"以人为本"的服务精神 Cultivate service consciousness and have the service spirit of "people-oriented"
	2-3	培养遵守法律、懂规则、守规则的新时代公民 Cultivate citizens of the new era who abide by the law, understand and obey the rules
	2-4	了解主要矛盾和次要矛盾，在面对复杂问题的时候要实事求

	是、抓住主要矛盾 Understand the main contradiction and secondary contradiction, seek truth from facts and grasp the main contradiction in the face of complex problems
2-5	培养有条理和计划，做到心中有数、有条不紊、循序渐进地完成一项工作 Cultivate a sense of order and plan, and complete a work in an orderly and gradual manner

课程教学目标与毕业要求的对应关系 Matrix of GA & SLOs

毕业要求 GA	指标点 GA Index	教学目标 SLOs
3、设计/开发解决方案：能够设计针对复杂工程问题的解决方案，设计满足特定需求的系统、单元或流程，并能够在设计环节中体现创新意识，考虑社会、健康、安全、法律、文化以及环境等因素。 **3. Design/Development of Solutions**: Design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health, and safety, cultural, societal and environmental considerations.	3-1：能够设计针对本专业相关复杂工程问题的解决方案，能够设计和开发实现特定功能、满足特定需求的计算机、软件或网络系统 3-1: Capable of designing solutions to complex engineering problems related to the major, and capable of designing and developing computers, software or network systems that can function specifically and meet specific requirements. 3-2：能够对不同设计方案进行比较和优化，在工作各环节中具有创新意识 3-2: Capable of comparing and optimizing different design schemes, and innovative in all aspects of the work. 3-3：能够在设计和开发的各个环节中综合考虑社会、健康、安全、法律、文化以及环境等因素 3-3: Capable of taking social, health, safety, legal, cultural and environmental factors in consideration during all aspects of design and development.	1-1 到 1-6 2-1、2-2、2-4、2-5
5、使用现代工具：能够针对复杂工程问题，开发、选择与使用恰当的技术、资源、现代工程工具和信息技术工具，包括对复杂工程问题的预测与模拟，并能够理解其局限性。 **5. Modern Tool Usage**: Create, select and apply appropriate techniques, resources and modern	5-1：能够对本专业相关复杂工程问题进行建模与分析，理解获取相关 信息参数的必要性与基本方法，并理解其局限性；指标点 5-1: Capable of modeling and analyzing complex engineering problems related to the major, understanding the necessity and basic methods of obtaining relevant information parameters, and their limitations. 5-2：熟悉解决本专业相关复杂工程问题	1-1 到 1-6 2-5

engineering and IT tools, including prediction and modeling, to complex engineering problems, with an understanding of the limitations.	所需的技术和资源，能够运用现代信息技术进行文献检索和资料查询，获取专业解决方案 5-2: Familiar with the technology and resources needed to solve complex engineering problems related to this major, and be able to use modern information technology for literature retrieval and data query to obtain professional solutions.	
	5-3：能够针对本专业相关复杂工程问题，选择与使用恰当的技术、资源、现代工程工具和信息技术工具 Capable of selecting and using appropriate technology, resources, modern engineering tools and information technology tools to solve complex engineering problems related to the major.	
9、个人与团队 ：能够在多学科背景下的团队中承担个体、团队成员以及负责人的角色 **9. Individual and Teamwork**: Function effectively as an individual, and as a member or leader in diverse teams and in multi disciplinary settings.	9-1：能够认识团队协作的重要性，具有强烈的团队协作意识和能力、卓越的组织管理能力、较强的表达能力和人际交往能力 9-1: Recognition of the importance of teamwork, a strong sense and capability of teamwork, excellent organization and management skills, outstanding expression and interpersonal skills.	1-1 到 1-6 2-2、2-5
	9-2：具有良好的跨文化、跨领域沟通交流能力，适应本专业相关行业的团队协作机制积极主动的在团队中发挥作用。 9-2: Good cross cultural and cross field communication skills, adaption to the team cooperation mechanism of the relevant industry of the major, and actively play a role in the team.	
10、沟通 ：能够就本专业复杂工程问题与业界同行及社会公众进行有效沟通和交流，包括撰写报告和设计文稿、陈述发言、清晰表达或回应指令。具备一定的国际视野，能够在跨文化背景下进行沟通和交流 **10. Communication**: Communicate effectively on	10-1：能够就计算机领域相关复杂工程问题与业界同行及社会公众进行有效沟通和交：能够就计算机领域相关复杂工程问题与业界同行及社会公众进行有效沟通和交流，能够通过口头或书面方式实现有效表达；流，能够通过口头或书面方式实现有效表达 10-1: Capable of effectively communicating and communicating with industry peers and the public on complex practical issues related to the computer	1-1 到 1-6 2-1、2-5

complex engineering activities with the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions. Be able to communicate in a cross--cultural context with an International vision.	sciences, and effective expression through oral or written forms.	
	10-2：熟练掌握英语，能够在本专业相关领域进行有效的技术沟通和交流。：熟练掌握英语，能够在本专业相关领域进行有效的技术沟通和交流 10-2: Proficient in English, capable of carrying out effective technical communication and exchange in related fields of the major.	
11、项目管理与财务：理解并掌握工程管理原理与经济决策方法，并能在多学科环境中应用 **11. Project Management and Finance**: Demonstrate knowledge and understanding of engineering management principles and economic decision making and apply these to one s own work as a member and leader in a team, to manage projects and in multi disciplinary environments.	11-1：掌握基本的工程管理原理和经济决策方法，能 对计算机相关领域的新技术、新应用进行技术分析和比较 11-1: Master of basic engineering management principles and economic decision making methods, and capable of analyzing and comparing new technology and applications in computer related fields. 11-2：具有良好的组织、管理和领导能力，能够将本专业相关工程管理原理与经济决策方法应用于多学科环境中 11-2: Good skills on organization, management and leadership, and Capable of applying relevant engineering management principles and economic decision making methods in the multidisciplinary environment.	1-1 到 1-6 2-2、2-3、2-5

三、教学内容 Content (Topics)

注：以中英文填写，各部分内容的表格可根据实际知识单元数量进行复制、扩展或缩减

Note: Filled in both CN and EN, extend or reduce based on the actual numbers of knowledge unit

(1) 理论教学 Lecture

知识单元序号: Knowledge Unit No.	1	支撑教学目标: SLOs Supported	1-1、2-1、2-2
知识单元名称 Unit Title	课程概述 Introduction to STQM		
知识点: Knowledge Delivery	主题概述 Subject Overview. 质量与测试简介 Introduction to Quality and Testing.		

	基本测试概念和原则		
	Basic testing concepts and principles.		
学习目标: Learning Objectives	了解: Recognize	主题概述 Subject Overview.	
		Python 语言环境的安装 Installing Python	
	理解: Understand	质量与测试 Quality and Testing	
	掌握: Master	基本测试概念和原则 Basic testing concepts and principles.	
德育目标 Moral Objectives	培养具有不畏困难、不惧失败、锲而不舍、敢于尝试、迎难而上的精神，并在学习过程中培养自己的细心和耐心的勇气和精神 Cultivate the spirit of not fearing difficulties or failure, perseverance, daring to try, and cultivate their own careful and patient courage and spirit in the process of learning		
	培养服务意识，具有 "以人为本" 的服务精神 Cultivate service consciousness and have the service spirit of "people-oriented"		
	培养遵守法律、懂规则、守规则的新时代公民 Cultivate citizens of the new era who abide by the law, understand and obey the rules		
重点: Key Points	质量与测试 Quality and Testing		
	基本测试概念和原则 Basic testing concepts and principles.		
难点: Focal Points	基本测试概念和原则 Basic testing concepts and principles.		

知识单元序号: Knowledge Unit No.	2	支撑教学目标: SLOs Supported	1-1、1-2、2-1 到 2-5
知识单元名称 Unit Title	质量与测试 Quality and Testing		
知识点: Knowledge Delivery	更多关于质量和测试之间的关系 More on the relationship between quality and testing.		
	质量差的影响和质量管理的介绍 Impacts of poor quality and introduction to quality management.		
	尽早开展测试原因，静态测试讨论 The need to start testing early leading to discussion on static testing		
学习目标: Learning Objectives	了解: Recognize	质量和测试之间的关系 The relationship between quality and testing.	
	理解: Understand	质量差的影响和质量管理的介绍 Impacts of poor quality and introduction to quality management.	
	掌握: Master	尽早开展测试原因，静态测试讨论 The need to start testing early leading to discussion on	

	static testing
德育目标 Moral Objectives	了解主要矛盾和次要矛盾，在面对复杂问题的时候要实事求是、抓住主要矛盾 Understand the main contradiction and secondary contradiction, seek truth from facts and grasp the main contradiction in the face of complex problems
重点: Key Points	质量和测试之间的关系 The relationship between quality and testing. 低质量的影响 Impacts of poor quality.
难点: Focal Points	静态测试 Static testing

知识单元序号: Knowledge Unit No.	3	支撑教学目标: SLOs Supported	1-1 到 1-6 2-1 到 2-5
知识单元名称 Unit Title	故障模式和影响分析 Failure Modes and Effects Analysis		
知识点: Knowledge Delivery	检查基于风险的测试，特别是故障模式和影响分析 Examines risk-based testing particularly, Failure Modes & Effects Analysis (FMEA) 静态分析和 FMEA 之间的差异 Differences between Static Analysis & FMEA IEEE 29119 标准及其在测试项目和质量管理中的使用的高级概述 A high-level overview of the IEEE 29119 standard and its use in test projects and quality management. 介绍测试计划，重点介绍测试计划中的关键部分 Introduction to test planning with focus on key sections in a test plan.		

学习目标: Learning Objectives	了解: Recognize	故障模式和影响分析 Failure Modes & Effects Analysis (FMEA)
	理解: Understand	静态分析和 FMEA 之间的差异 Differences between Static Analysis & FMEA
	掌握: Master	IEEE 29119 标准及其在测试项目和质量管理中的使用的高级概述 A high-level overview of the IEEE 29119 standard and its use in test projects and quality management. 介绍测试计划，重点介绍测试计划中的关键部分 Introduction to test planning with focus on key sections in a test plan.

德育目标 Moral Objectives	培养有条理和计划，做到心中有数、有条不紊、循序渐进地完成一项工作 Cultivate a sense of order and plan, and complete a work in an orderly and gradual manner
重点: Key Points	静态分析和 FMEA 之间的差异 Differences between Static Analysis & FMEA
	测试计划

	Test planning
难点:	测试计划中的关键部分
Focal Points	Key sections in a test plan.

知识单元序号: Knowledge Unit No.	4	支撑教学目标: SLOs Supported	1-1 到 1-6 2-1 到 2-5
知识单元名称 Unit Title	系统测试流程 Flow of System Testing		
知识点: Knowledge Delivery	检查传统的测试过程 Examines traditional test processes.		
	测试类型讨论，黑、白盒测试、性能、安全性和其他测试 Discusses test types including black and white box testing, performance, security and other test domains.		
	测试级别区分 Differentiates between different test levels.		
	检查验证和确认及其在质量过程中的位置 Examines Verification and Validation and its place in a quality process.		
	讨论如何构建测试计划 Discusses how to build a Test Plan		
学习目标: Learning Objectives	了解: Recognize	传统的测试过程 Traditional test processes.	
	理解: Understand	区分不同的测试级别 Differentiates between different test levels.	
		检查验证和确认及其在质量过程中的位置 Examines Verification and Validation and its place in a quality process.	
	掌握: Master	测试类型，包括黑白盒测试、性能、安全性和其他测试域 Test types including black and white box testing, performance, security and other test domains.	
		构建测试计划 Build a Test Plan	
德育目标 Moral Objectives	培养有条理和计划，做到心中有数、有条不紊、循序渐进地完成一项工作 Cultivate a sense of order and plan, and complete a work in an orderly and gradual manner		
重点: Key Points	检查验证和确认及其在质量过程中的位置 Examines Verification and Validation and its place in a quality process.		
	测试类型，包括黑白盒测试、性能、安全性和其他测试域 Test types including black and white box testing, performance, security and other test domains.		
难点: Focal Points	构建测试计划 Build a Test Plan		

知识单元序号: Knowledge Unit No.	5		支撑教学目标: SLOs Supported	1-1 到 1-6 2-1 到 2-5
知识单元名称 Unit Title	测试设计 Test Design			
知识点: Knowledge Delivery	讨论测试设计，包括测试用例和测试场景，以及它们与业务流程和 FMEA 的一致性 Discusses test design including test cases and test scenarios and their alignment with business processes and the FMEA			
	以测试计划为例定义测试周期和发布，确定测试范围、资源、时间表、测试分配等 Defines test cycles and releases with example of a test plan identifying for example, scope, resources, schedule, allocation of tests etc.			
学习目标: Learning Objectives	了解: Recognize	测试用例和测试场景 Test cases and test scenarios.		
	理解: Understand	测试设计的业务流程 Flow of test design.		
	掌握: Master	以测试计划为例定义测试周期和发布，确定测试范围、资源、时间表、测试分配等 Defines test cycles and releases with example of a test plan identifying for example, scope, resources, schedule, allocation of tests etc.		
德育目标 Moral Objectives	培养有条理和计划，做到心中有数、有条不紊、循序渐进地完成一项工作 Cultivate a sense of order and plan, and complete a work in an orderly and gradual manner			
重点: Key Points	测试设计的业务流程 Flow of test design.			
难点: Focal Points	以测试计划为例定义测试周期和发布，确定测试范围、资源、时间表、测试分配等 Defines test cycles and releases with example of a test plan identifying for example, scope, resources, schedule, allocation of tests etc.			

知识单元序号: Knowledge Unit No.	6	支撑教学目标: SLOs Supported	1-1 到 1-6 2-1 到 2-5
知识单元名称 Unit Title	敏捷测试 Agile testing		
知识点: Knowledge Delivery	查看数据对测试和测试计划的影响，并检查在保持良好质量水平的同时减少工作量的方法 Looks at the impact of data on testing and test plans and examines ways to reduce the workload while still maintaining a good level of quality.		
	介绍边界值和等价划分以及组合测试技术 Introduces boundary value & equivalence partitioning, and combinational test technique.		
	介绍敏捷测试过程，包括验收标准和测试，并比较敏捷和瀑布测试		

	方法 Introduces agile testing processes including acceptance criteria and tests and compares Agile and Waterfall test approaches.	
学习目标: Learning Objectives	了解: Recognize	边界值、等价划分、组合测试技术 Boundary value, equivalence partitioning, and combinational test technique.
	理解: Understand	数据对测试和测试计划的影响 The impact of data on testing and test plans
	掌握: Master	保持良好质量水平的同时减少工作量的方法 Ways to reduce the workload while still maintaining a good level of quality.
		敏捷测试过程 Agile testing processes
德育目标 Moral Objectives	培养有条理和计划，做到心中有数、有条不紊、循序渐进地完成一项工作 Cultivate a sense of order and plan, and complete a work in an orderly and gradual manner	
重点: Key Points	数据对测试和测试计划的影响 The impact of data on testing and test plans	
难点: Focal Points	敏捷测试过程 Agile testing processes	

知识单元序号: Knowledge Unit No.	7	支撑教学目标: SLOs Supported	1-1 到 1-6 2-1 到 2-5
知识单元名称 Unit Title	缺陷管理 Defect management		
知识点: Knowledge Delivery	讨论缺陷管理，包括缺陷严重性和优先级、度量及其跟踪/管理 Discusses defect management including defect severities and priorities, metrics and their tracking/management		
	概述如何开发以及测试报告中应包含的内容，包括通过或失败测试的指标、突出缺陷和满足退出标准 Outlines how to develop and what to include in test reports including metrics on passed or failed tests, outstanding defects and meeting exit criteria		
学习目标: Learning Objectives	了解: Recognize	如何开发以及测试报告中应包含的内容 how to develop and what to include in test reports	
	理解: Understand	缺陷管理，包括缺陷严重性和优先级、度量及其跟踪/管理 Defect management including defect severities and priorities, metrics and their tracking/management	
	掌握: Master	如何开发以及测试报告中应包含的内容 how to develop and what to include in test reports	
德育目标 Moral Objectives	培养有条理和计划，做到心中有数、有条不紊、循序渐进地完成一项工作 Cultivate a sense of order and plan, and complete a work in an orderly		

	and gradual manner

重点: Key Points	缺陷管理，包括缺陷严重性和优先级、度量及其跟踪/管理 Defect management including defect severities and priorities, metrics and their tracking/management
难点: Focal Points	如何开发以及测试报告中应包含的内容 how to develop and what to include in test reports

知识单元序号: Knowledge Unit No.	8	支撑教学目标: SLOs Supported	1-1 到 1-6 2-1 到 2-5
知识单元名称 Unit Title	测试工具 Testing tools		
知识点: Knowledge Delivery	介绍用于不同测试类型和/或测试级别的测试工具示例 Introduction to examples of testing tools used for different test types and/or test levels.		
	讨论测试驱动开发（TDD）和行为驱动开发（BDD） Discusses Test Driven Development (TDD) and Behaviour Driven Development (BDD).		
	自动化测试工具使用简介 Introduction to use of automation tools		
学习目标: Learning Objectives	了解: Recognize	自动化测试工具 Automation tools	
	理解: Understand	测试驱动开发（TDD）和行为驱动开发（BDD） Test Driven Development (TDD) and Behaviour Driven Development (BDD).	
	掌握: Master	用于不同测试类型和/或测试级别的测试工具示例 Examples of testing tools used for different test types and/or test levels.	
德育目标 Moral Objectives	培养有条理和计划，做到心中有数、有条不紊、循序渐进地完成一项工作 Cultivate a sense of order and plan, and complete a work in an orderly and gradual manner		
重点: Key Points	用于不同测试类型和/或测试级别的测试工具示例 Examples of testing tools used for different test types and/or test levels.		
难点: Focal Points	测试驱动开发（TDD）和行为驱动开发（BDD） Test Driven Development (TDD) and Behaviour Driven Development (BDD).		

知识单元序号: Knowledge Unit No.	9	支撑教学目标: SLOs Supported	1-1 到 1-6 2-1 到 2-5
知识单元名称 Unit Title	Cucumber测试工具介绍 Introduction to Cucumber-a BDD Test tool		
知识点: Knowledge Delivery	常见自动化测试工具介绍 Introduction to common automated testing tools.		
	Cucumber 安装		

	Installation of Cucumber		
	自动化测试实例 Automated testing case		
学习目标: Learning Objectives	了解: Recognize	自动化测试工具 Common automated testing tools.	
	理解: Understand	自动化测试 Automated testing	
	掌握: Master	自动化测试流程 Steps of automated testing	
德育目标 Moral Objectives	培养有条理和计划，做到心中有数、有条不紊、循序渐进地完成一项工作 Cultivate a sense of order and plan, and complete a work in an orderly and gradual manner		
重点: Key Points	自动化测试 Automated testing		
难点: Focal Points	自动化测试 Automated testing		

知识单元序号: Knowledge Unit No.	10	支撑教学目标: SLOs Supported	1-1 到 1-6 2-1 到 2-5
知识单元名称 Unit Title	测试设备与压力处理方法 Testing equipment and ways to deal with difficult situations		
知识点: Knowledge Delivery	高水平讨论测试基础设施、办公空间、办公组织和设备 At a high level, discusses test infrastructure, office space, office organisation & equipment.		
	比较群组测试与传统测试方法以及对测试团队的影响 Compares crowd testing to traditional testing methods and the impact on the test team.		
	讨论测试通信和演示 Discusses test communications and presentations.		
	查看测试人员和测试管理人员面临的政治压力以及处理困难情况的方法 Looks at political pressures faced by testers and test managers and ways to deal with difficult situations.		
学习目标: Learning Objectives	了解: Recognize	测试基础设施、办公空间、办公组织和设 Test infrastructure, office space, office organisation & equipment.	
	理解: Understand	群组测试与传统测试方法以及对测试团队的影响 Crowd testing and traditional testing methods and the impact on the test team.	
	掌握: Master	测试人员和测试管理人员面临的政治压力以及处理困难情况的方法 Ways to deal with difficult situations.	
德育目标 Moral Objectives	培养有条理和计划，做到心中有数、有条不紊、循序渐进地完成一项工作		

	Cultivate a sense of order and plan, and complete a work in an orderly and gradual manner		
重点: Key Points	群组测试与传统测试方法以及对测试团队的影响 Crowd testing and traditional testing methods and the impact on the test team.		
难点: Focal Points	测试人员和测试管理人员面临的政治压力以及处理困难情况的方法 Ways to deal with difficult situations.		

知识单元序号: Knowledge Unit No.	11	支撑教学目标: SLOs Supported	1-1 到 1-6 2-1 到 2-5
知识单元名称 Unit Title	团队发展与职业道路 Team development and career paths		
知识点: Knowledge Delivery	检查人员、组织、角色、技能和招聘流程，以获得和维护瀑布式和敏捷测试方法中的有效测试团队 Examines, the people, organisation, roles, skills & recruitment processes needed to gain and maintain an effective test team in waterfall and agile test approaches.		
	讨论职业道路 Discusses career paths.		
学习目标: Learning Objectives	了解: Recognize	检查人员、组织、角色、技能和招聘流程 Examines, the people, organisation, roles, skills & recruitment processes	
	理解: Understand	瀑布式和敏捷测试方法中的有效测试团队 an effective test team in waterfall and agile test.	
	掌握: Master	职业道路 Career paths.	
德育目标 Moral Objectives	培养服务意识，具有"以人为本"的服务精神 Cultivate service consciousness and have the service spirit of "people-oriented"		
	培养有条理和计划，做到心中有数、有条不紊、循序渐进地完成一项工作 Cultivate a sense of order and plan, and complete a work in an orderly and gradual manner		
重点: Key Points	职业道路 Career paths.		
难点: Focal Points	瀑布式和敏捷测试方法中的有效测试团队 an effective test team in waterfall and agile test.		

知识单元序号: Knowledge Unit No.	12	支撑教学目标: SLOs Supported	1-1 到 1-6 2-1 到 2-5
知识单元名称 Unit Title	复习与答疑 Review and Q&A		
知识点: Knowledge Delivery	无 None.		

学习目标: Learning Objectives	了解 Recognize	无 None.
	理解: Understand	无 None.
	掌握: Master	无 None.
德育目标 Moral Objectives	无 None.	
重点: Key Points	无 None.	
难点: Focal Points	无 None.	

知识单元序号: Knowledge Unit No.	13	支撑教学目标: SLOs Supported	1-1 到 1-6 2-1 到 2-5
知识单元名称 Unit Title	系统架构 System architecture		
知识点: Knowledge Delivery	业务系统常见网络结构，微信小程序架构 Business system common network structure, wechat small program architecture		
学习目标: Learning Objectives	了解: Recognize	业务系统总体功能设计，系统架构与系统测试的关系 Overall function design of business system. The relationship between system architecture and system testing	
	理解: Understand	业务系统常见网络结构 Common network structure of service system	
	掌握: Master	微信小程序架构 Architecture of Wechat mini program	
德育目标 Moral Objectives	培养有条理和计划，做到心中有数、有条不紊、循序渐进地完成一项工作 Cultivate a sense of order and plan, and complete a work in an orderly and gradual manner		
重点: Key Points	业务系统常见网络结构 Common network structure of service system		
难点: Focal Points	解决复杂工程的能力 The ability to solve complex projects		

知识单元序号: Knowledge Unit No.	14	支撑教学目标: SLOs Supported	1-1 到 1-6 2-1 到 2-5
知识单元名称 Unit Title	软件配置管理 Software configuration management		
知识点: Knowledge Delivery	软件开发过程中代码管理、版本管理、数据仓库搭建 Code management, version management, data warehouse construction		
学习目标: Learning Objectives	了解: Recognize	版本控制，SVN，Git Version control，SVN，Git	

	理解: Understand	Git 工作流程 Git workflow
	掌握: Master	Git 的使用 Use of Git
德育目标 Moral Objectives		了解主要矛盾和次要矛盾，在面对复杂问题的时候要实事求是、抓住主要矛盾 Understand the main contradiction and secondary contradiction, seek truth from facts and grasp the main contradiction in the face of complex problems
		培养有条理和计划，做到心中有数、有条不紊、循序渐进地完成一项工作 Cultivate a sense of order and plan, and complete a work in an orderly and gradual manner
重点: Key Points		Git 的使用 Use of Git
难点: Focal Points		Git 远程仓库 Git remote repository

(2) 实验教学 Experiments

无
None

四、教学安排 Teaching Schedule

注：可根据实际情况增减行数

Note: Please add/reduce lines based on subject.

教学内容 Teaching Content	学时(周)　Hour(Week)			
	理论 LECT.	实验 EXP.	课外实践 PBL	集中实践 PRAC.
课程概述 Introduction to STQM	4			
质量与测试 Quality and Testing	4			
故障模式和影响分析 Failure Modes and Effects Analysis	4			
系统测试流程 Flow of System Testing	4			
测试设计 Test Design	4			
敏捷测试 Agile testing	4			

缺陷管理 Defect management	4			
测试工具 Testing tools	4			
Cucumber测试工具介绍 Introduction to Cucumber-a BDD Test tool	4			
测试设备与压力处理方法 Testing equipment and ways to deal with difficult situations	4			
团队发展与职业道路 Team development and career paths	4			
复习 Review	4			
测试技术 Testing technology	4			
软件配置管理 Software configuration management	4			
总计 Total	56			

五、教学方法 Teaching Methodology

注：可根据实际情况增减行数或修改内容

Note: Please add/reduce lines or revise content based on subject.

勾选 Check	教学方法与特色 Teaching Methodology & Characters
☑	多媒体教学：基于信息化设备的课堂教学 Multi-media-based lecturing
☑	实践能力传授：理论与行业、实际案例相结合 Combining theory with industrial practical problems
☑	课程思政建设：知识讲授与德育相结合 Knowledge delivery with ethic education
☑	PBL 教学：问题驱动的分组学习与交流 Problem-based learning
☐	其他:单击或点击此处输入文字。 Other:单击或点击此处输入文字。

六、成绩评定 Assessment

注：可根据实际情况增减行数或修改内容

Note: Please add/reduce lines or revise content based on subject.

考核环节: Assessment Content	平时 Behavior	环节负责人: Director	周杨　于七龙 Yang Zhou　Qilong Yu

给分形式: Result Type	百分制 Marks	课程总成绩比重(%): Percentage (%)	30
考核方式: Measures	满分 100 分，出勤、课堂主动发言。 The full score is 100 points. Class attendance and presentation		

考核环节: Assessment Content	任务 Assessment Task	环节负责人: Director	周杨　于七龙 Yang Zhou　Qilong Yu
给分形式: Result Type	其他 Others	课程总成绩比重(%): Percentage (%)	70
考核方式: Measures	包含 2 个 quiz 与 3 个任务，其中，quiz 为个人完成，各占 10%；任务 1 为个人完成，占 20%；任务 2 为个人完成，占 25%；任务 3 为团队完成，占 35%。任务以报告方式提交。 Task includes 2 quizzes and 3 tasks, each quiz accounts for 10%, Task 1 should be completed by individual, accounts for 20%; Task 2 should be completed by individual, accounts for 25%; Task 3 should be completed by the team, accounts for 35%. Tasks are submitted in the form of reports.		

七、改进机制 Improvement Mechanism

注：未尽事宜以教学团队以及学院教学指导委员会商定为准。

Note: Matters not covered in this file shall be determined by TAB of SSTC, NEU.

教学大纲改进机制 Subject Syllabus Improvement Mechanism			
考核周期(年): Check Period (YR)	4	修订周期(年): Revise Period (YR)	4
改进措施: Measures	课程负责人根据课程教学内容与人才培养目标组织课程团队讨论并修改教学大纲，报分管教学工作副院长审核后由执行院长批准。 The subject coordinator shall be responsible for the syllabus discussion and improvement, and the revised version shall be submitted to deputy dean (teaching affairs) for reviewing then to executive dean for approval		
成绩评定改进机制 Assessment Improvement Mechanism			
考核周期(年): Check Period (YR)	1	修订周期(年): Revise Period (YR)	1
改进措施: Measures	课程负责人根据课程教学内容、课堂教学效果以及成绩分布，对课程教学方法和成绩评定环节进行改进，并同步优化评定办法。 The subject coordinator shall revise the syllabus based on the teaching content, effect and result distribution while optimize the assessment measures.		