

课程详述

COURSE SPECIFICATION

以下课程信息可能根据实际授课需要或在课程检讨之后产生变动。如对课程有任何疑问，请联系授课教师。

The course information as follows may be subject to change, either during the session because of unforeseen circumstances, or following review of the course at the end of the session. Queries about the course should be directed to the course instructor.

1.	课程名称 Course Title	高级管理系统分析与设计 Advanced Management System Analysis and Design
2.	授课院系 Originating Department	信息系统与管理工程系 Division of Information Systems & Management Engineering
3.	课程编号 Course Code	MIS307
4.	课程学分 Credit Value	3
5.	课程类别 Course Type	专业核心课 Major Core Courses
6.	授课学期 Semester	秋季 Fall
7.	授课语言 Teaching Language	英语 English
8.	授课教师、所属学系、联系方式 (如属团队授课, 请列明其他授课教师) Instructor(s), Affiliation & Contact (For team teaching, please list all instructors)	杨玉坤, 信息系统与管理工程系 Yukun YANG, Division of Information Systems & Management Engineering
9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	待公布 To be announced
10.	选课人数限额(可不填) Maximum Enrolment (Optional)	40

11. 授课方式 Delivery Method	讲授 Lectures	习题/辅导/讨论 Tutorials	实验/实习 Lab/Practical	其它(请具体注明) Other (Please specify)	总学时 Total
	学时数 Credit Hours	30	2 (mid-term exam)	28	4 (project presentation)
12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	EBA207 管理系统分析与设计				
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite	无 None				
14. 其它要求修读本课程的学系 Cross-listing Dept.	无 None				

教学大纲及教学日历 SYLLABUS

15. 教学目标 Course Objectives

这是系统分析和设计的高级课程，介绍有关系统开发的传统方法（例如面向过程和面向数据的方法）以及不断发展的方法（例如面向对象的开发方法）的概念性材料。本课程的重点是系统开发生命周期的关键阶段，包括计划，分析和设计。介绍了用于理解和建模组织的现有和计划中的信息系统的模型和过程。计算机辅助软件工程工具用于提供设计信息系统的动手经验。基于案例的方法用于为学生提供应用课程中涵盖的分析和设计技术的机会。此外，学生还将参加一个现实生活中的系统开发项目。本课程还将重点介绍管理系统开发中的问题和挑战。

This is an advanced course in systems analysis and design that presents conceptual material about both traditional approaches to systems development such as process oriented and data-oriented methodologies and evolving approaches such as object-oriented development methods. Key stages of the systems development life cycle including planning, analysis, and design are the focus of this course. Models and procedures for understanding and modeling an organization's existing and planned information systems are presented. Computer-aided software engineering tools are used to provide hands-on experience in designing information systems. A case-based approach is used to provide students an opportunity to apply the analytical and design techniques covered in the course. In addition, students are expected to do a real-life systems development project. The course also focuses on the issues and challenges in managing systems development.

16. 预达学习成果 Learning Outcomes

- 了解将系统分解为体系结构和层的需求和过程。
- 能够将数据结构标准化为第三范式。
- 知道如何为面向对象的系统设计类。
- 知道要使用 Statechart 定义对象和类的行为。
- 能够以多种形式表达详细的过程逻辑，例如结构化英语，决策表等。
- 能够开发 PERT 和 GANNT 图表并解释围绕项目管理的组织问题。
- 了解中间件在现代组织中的形式使用和目的，并且能够并且能够对中间件的评估和部署做出适当的决定。
- Understand the need and processes of factoring systems into architectures and layers.
- Know how to design classes for object-oriented systems.
- Know how to use a Statechart to define object and class behavior.
- Be able to express detailed process logic in multiple forms e.g., Structured English, Decision Tables, etc.

- Be able to develop PERT and GANNT charts and explain the organizational issues surrounding project management.
- Understand the form use and purpose of middleware in modern organizations and be and be able to make appropriate decisions about its evaluation and deployment.

17. 课程内容及教学日历（如授课语言以英文为主，则课程内容介绍可以用英文；如团队教学或模块教学，教学日历须注明主讲人）

Course Contents (in Parts/Chapters/Sections/Weeks. Please notify name of instructor for course section(s), if this is a team teaching or module course.)

下面的大纲是本课程的初步规划。根据兴趣和时间，最终可能会有所不同。

理论（包括期中考试+小组项目报告）（36 学时）

第一周 系统分析回顾（2 学时）

回顾初级系统分析的相关内容。

第二周 系统设计要点回顾（2 学时）

回顾初级系统设计的相关内容。

第三周 架构和层（2 学时）

讲解整体系统架构的设计技术。

第四周 项目管理技术（2 学时）

更详细地讨论系统开发生命周期并回顾两种主要的方法：传统方法和面向对象的方法。

第五周 项目管理技术 2（2 学时）

重点介绍与计划和管理系统开发项目有关的原理和活动。

第六周 面向对象的设计（2 学时）

介绍与面向对象设计相关的概念。

第七周 详细的过程设计（2 学时）

更加深入地学习面向对象的详细设计。

第八周 期中考试（2 学时）；期中考试讲解（2 学时）

第九周 数据库，控制和安全（2 学时）

讲解有关数据库，控制 and 安全性有关的概念。

第十周 原型化 1（2 学时）

详细介绍如何设计及原型化用于系统开发项目的计算机输出。

第十一周 原型化 2（2 学时）

详细讲解项目的输入设计任务。

第十二周 用户界面设计（2 学时）

介绍如何设计和原型化系统用户界面。

第十三周 系统构建和实施（2 学时）

系统开发的构建和实施阶段的概述。

第十四周 系统操作与支持（2 学时）

概述系统开发的系统支持阶段。

第十五周 系统开发的最新趋势（2学时）
介绍几种当前流行的开发方法以及相关的实践和技术。

第十六周 小组项目报告（4学时）
各组进行项目演示和汇报。

实验（28学时）

第一周 实验课：系统分析（2学时）
应用针对系统分析的相关知识。

第二周 实验课：系统设计（2学时）
应用针对系统设计的相关知识。

第三周 实验课：架构和层（2学时）
学习绘制物理数据流程图。

第四周 实验课：项目管理 1（2学时）
更详细地讨论系统开发生命周期并回顾两种主要的方法：传统方法和面向对象的方法。

第五周 实验课：项目管理 2（2学时）
继续练习与项目管理相关的技能。

第六周 实验课：面向对象的设计（2学时）
学习如何使用 CRC 卡片和类图来执行用例。

第七周 实验课：详细的过程设计（2学时）
学习使用扩展详细设计过程的方法。

第九周 实验课：数据库，控制和安全（2学时）
了解如何将域模型类图转换为详细的数据库模型，以及如何使用数据库管理系统来实现该模型。

第十周 实验课：原型化 I（2学时）
学习如何使用布局工具，原型工具和代码生成工具的组合来设计、验证和测试输出。

第十一周 实验课：原型化 II（2学时）
学习如何设计应用的输入界面。

第十二周 实验课：用户界面设计（2学时）
学习如何将合适的用户界面策略应用于信息系统。例如，使用状态转换图来计划和协调用户界面。

第十三周 实验课：系统构建和实施（2学时）
学习如何构建，测试，安装和交付系统。

第十四周 实验课：系统操作和支持（2学时）
学习不同类型的系统支持技术。

第十五周 实验课：系统开放（2学时）
本次课程的实验部分用于解答学生在小组项目中遇到的问题。

The outline below represents a tentative roadmap for the course. We may deviate from it depending on interest and time.

Lecture (include: Mid-term exam interpretation+ group project presentation) (36 hours)

Week 1. Review on System Analysis Activities (2hours)

We will review key learning points of system analysis activities.

Week 2. Review on Essentials of System Design (2hours)

We will review key learning points of system design.

Week 3. Architectures and Layers (2hours)

This class aims to teach students techniques for designing the overall information system application architecture.

Week 4. Project Management Techniques and Managing Projects I (2hours)

This class will discuss the SDLC in more detail and review two main approaches: the traditional approach and the object-oriented approach.

Week 5. Project Management Techniques and Managing Projects II (2hours)

This class focuses on the principles and activities related to planning and managing a systems development project.

Week 6. Object-Oriented Design (2hours)

This class aims to introduce the concepts associated with object-oriented design.

Week 7. Detailed Process Design (2hours)

This class pursues object-oriented detailed design in more depth and formality. The focus will be placed on fundamental principles based on the concepts of use case realization.

Week 8. Mid-term exam (2hours); Mid-term exam interpretation (2hours)

Week 9. Database, Controls, and Security (2hours)

This class will introduce concepts relate to database, control, and security.

Week 10. Prototyping I (2hours)

This class will provide a detailed overview of the design and prototyping of computer outputs for a systems development project.

Week 11. Prototyping II (2hours)

This class will provide a detailed overview of the input design tasks of a project.

Week 12. User Interface Design (2hours)

This class will introduce how to design and prototype the user interface for a system.

Week 13. System construction and implement (2hours)

This class will provide an overview of the construction and implementation phases of systems development.

Week 14. System operations and support (2hours)

This class aims to provide an overview of the systems support phase of systems development.

Week 15. Current Trends in System Development (2hours)

This class will introduce several current development methodologies, along with their associated practices and techniques.

Week 16. Group Project Presentation (4hours)

Students will present their group projects.

Lab (28hours)

Week 1. Lab tutorial for system analysis (2hours)

Students will practice various operations of system analysis.

Week 2. Lab tutorial for system design (2hours)

Students will practice various operations of system design.

Week 3. Lab tutorial for architectures and layers (2hours)

Students will learn how to draw physical data flow diagrams.

Week 4. Lab tutorial for project management I (2hours)

Students will practice skills and techniques that relate to project management, e.g., PERT chart and the Gantt chart.

Week 5. Lab tutorial for project management II (2hours)

Students will continue practicing skills and techniques that relate to project management.

Week 6. Lab tutorial for object-oriented design (2hours)

Students will learn how to use CRC cards and design class diagrams to carry out use cases.

Week 7. Lab tutorial for detailed process design (2hours)
Students will learn the method that extends the process of detailed design.

Week 9. Lab tutorial for database, controls, and security (2hours)
Students will learn how to transform the domain model class diagram into a detailed database model and implement the model by using a database management system.

Week 10. Lab tutorial for Prototyping I (2hours)
Students will learn to design, validate, and test outputs using a combination of layout tools, prototyping tools, and code-generating tools.

Week 11. Lab tutorial for Prototyping II (2hours)
Students will learn how to design input screens for an application.

Week 12. Lab tutorial for User Interface Design (2hours)
Students will learn how to apply appropriate user interface strategies to an information system. E.g., use a state transition diagram to plan and coordinate a user interface.

Week 13. Lab tutorial for system construction and implement (2hours)
Students will learn how to construct, test, install, and deliver the final system into operation.

Week 14. Lab tutorial for system operations and support (2hours)
Students will learn different types of systems support techniques.

Week 15. Lab tutorial for system development (2hours)
Students can work on their group projects and ask questions if they have any.

18. 教材及其它参考资料 Textbook and Supplementary Readings

Bennet S., McRobb S. & Farmer R. (2010): Object-Oriented Systems Analysis and Design using UML, 4th edition, McGraw-Hill. ISBN 0077125363

Satzinger J., Jackson R., Burd S. (2016): System Analysis and Design in a Changing World, 7th edition, New York: Thomson Course Technology. ISBN 1111534152

“系统分析与设计导论：英文版”，机械工业出版社，2011，ISBN 9787111352785

课程评估 ASSESSMENT

19. 评估形式 Type of Assessment	评估时间 Time	占考试总成绩百分比 % of final score	违纪处罚 Penalty	备注 Notes
出勤 Attendance				
课堂表现 Class Performance		10		
小测验 Quiz				
课程项目 Projects		30		
平时作业 Assignments		10		
期中考试 Mid-Term Test		25		



期末考试 Final Exam		25		
期末报告 Final Presentation				
其它（可根据需要 改写以上评估方 式） Others (The above may be modified as necessary)				

20. 记分方式 GRADING SYSTEM

- A. 十三级等级制 Letter Grading
 B. 二级记分制（通过/不通过） Pass/Fail Grading

课程审批 REVIEW AND APPROVAL

21. 本课程设置已经过以下责任人/委员会审议通过
This Course has been approved by the following person or committee of authority

