**offered by Department of Information Systems
with effect from Semester A in 2017 / 2018**

Part I   Course Overview

Course Title: Systems Analysis and Design

Course Code: IS3430

Course Duration: One Semester (13 weeks)

Credit Units: 3

Level: B3

Proposed Area:
(for GE courses only)

☐ Arts and Humanities
☐ Study of Societies, Social and Business Organisations
☐ Science and Technology

**Medium of
Instruction:**   English

**Medium of
Assessment:**   English

Prerequisites:
(Course Code and Title)   Nil

Precursors:
(Course Code and Title)   Nil

Equivalent Courses:
(Course Code and Title)   Nil

Exclusive Courses:
(Course Code and Title)   IS3431 Systems Analysis

Part II   Course Details

1.   Abstract
(A 150-word description about the course)

The purpose of this course is to provide students with an opportunity to develop the skills required for effectively analysing and designing information systems.   This course aims to convey the basics of systems analysis and design and how businesses use information systems to support their business processes.   It is designed to provide methods of analysing and designing systems tailored to business requirements.   The students will get familiar with modelling techniques and the design of solution for information system using Unified Modelling Language (UML).   This course is designed to be useful to those who are potential system analysts, system designers/consultants and project managers.

Upon completing this course successfully, the students would be able to understand the processes of system analysis and design, and the key principles of system development life cycle (SDLC), and be able to apply the techniques and skills in designing new information systems especially for business applications.

2.   Course Intended Learning Outcomes (CILOs)
(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs#	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	*A2*	*A3*
1.	Demonstrate the attitude and ability to discover the best practices of modelling in information systems analysis and design, and the interactions between users, customers and managers involved in information systems development projects.	20%	✓	✓	
2.	Devise and model creative and effective system solutions for business problems using Unified Modelling Language.	30%	✓	✓	✓
3.	Evaluate different types of models of information systems requirements and suggest innovative improvements.	20%		✓	
4.	Operate effectively in a collaborative environment and demonstrate skills in team building and project management.	10%			✓
5.	Communicate and present information effectively in formats adopted for information systems development.	20%		✓	✓
If weighting is assigned to CILOs, they should add up to 100%.		100%			

* *If weighting is assigned to CILOs, they should add up to 100%.*
# *Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.*

A1:   Attitude
   Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.
A2:   Ability
   Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.
A3:   Accomplishments
   Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Teaching and Learning Activities (TLAs)

(TLAs designed to facilitate students' achievement of the CILOs.)

TLA	Brief Description	CILO No. 1	2	3	4	5	Hours/week (if applicable)
TLA1: Lecture	Concepts of object-oriented systems analysis and design methods, and associated modelling techniques (functional, structural and behavioural) are explained using activities designed to enable students to apply different modelling techniques, to select appropriate requirements gathering technique and to evaluate different design options especially user interfaces.	✓	✓	✓			1 Hour/Week
TLA2: Laboratory	During laboratory sessions, the following activities are used to reinforce and practice of various modelling techniques learnt in lectures: • *Exercises*: Hands-on activities using a CASE tool (e.g., Microsoft Visio) as part of systems modelling exercises such as requirement gathering using interviews, use case models, functional models, structural models behavioural models, and user interface designs. • *Discussion*: Discussion on implications of various concepts learnt in lectures, and how they can be applied to a typical information system analysis project. Critique requirements models and suggest improvements. • *Presentations*: Members of project team will make presentation of their draft project work, and the rest of the tutorial group and the instructor will comment and offer suggestions for improvements.	✓	✓	✓	✓	✓	2 Hours/Week
TLA3: Project	Students will complete a group project to perform systems analysis and design activities aimed at capturing requirements of an information system in business sector and finding suitable solutions. The group project work will be submitted at different phases for review and comments by the instructor/tutors.	✓	✓	✓	✓	✓	

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.					Weighting*	Remarks[#]
	1	2	3	4	5		
Continuous Assessment: 50%							
AT1: Continuous Assessment Participation in class and lab sessions in activities such as: • application of systems analysis techniques (including information gathering techniques) • modelling exercises completed and submitted.	✓	✓	✓	✓	✓	15%	
AT2: Project Presentation Each project team makes one presentation of their draft project work and the rest of tutorial group members will participate in discussion and offer improvements.	✓				✓	5%	
AT3: Project Each student will participate in group project aimed at gathering requirements of an information system, and modelling those requirements using appropriate techniques.	✓	✓	✓	✓	✓	30%	
Examination: 50% (duration: one 2-hour exam)							
AT4: Final Examination A written examination is developed to access students' competence level of the taught subjects.	✓	✓	✓			50%	
* The weightings should add up to 100%.						100%	

[#] Remark: Students must pass BOTH coursework and examination in order to get an overall pass in this course.

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
AT1: Continuous Assessment	Attitude and ability to discover the best practices of modelling in information systems analysis and design, and the interactions between users, customers and managers involved in information systems development projects.	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to devise and model creative and effective system solutions for business problems using Unified Modelling Language.	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to evaluate different types of models of information systems requirements and suggest innovative improvements.	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to operate effectively in a collaborative environment and demonstrate skills in team building and project management.	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to communicate and present information effectively in formats adopted for information systems development.	High	Significant	Moderate	Basic	Not even reaching marginal levels

AT2: Project Presentation	Attitude and ability to discover the best practices of modelling in information systems analysis and design, and the interactions between users, customers and managers involved in information systems development projects.	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to communicate and present information effectively in formats adopted for information systems development.	High	Significant	Moderate	Basic	Not even reaching marginal levels
AT3: Project	Attitude and ability to discover the best practices of modelling in information systems analysis and design, and the interactions between users, customers and managers involved in information systems development projects.	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to devise and model creative and effective system solutions for business problems using Unified Modelling Language.	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to evaluate different types of models of information systems requirements and suggest innovative improvements.	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to operate effectively in a collaborative environment and demonstrate skills in team building and project management.	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to communicate and present information effectively in formats adopted for information systems development.	High	Significant	Moderate	Basic	Not even reaching marginal levels
AT4: Final Examination	Attitude and ability to discover the best practices of modelling in information systems analysis and design, and the interactions between users, customers and managers involved in information systems development projects.	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to devise and model creative and effective system solutions for business problems using Unified Modelling Language.	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to evaluate different types of models of information systems requirements and suggest innovative improvements.	High	Significant	Moderate	Basic	Not even reaching marginal levels

Part III   Other Information (more details can be provided separately in the teaching plan)

1. **Keyword Syllabus**
   (An indication of the key topics of the course.)

   Information systems development life cycle; Unified modelling language; Unified process; System requirements; Process modelling; Case diagrams; Use-case descriptions; Activity diagrams; Structural modelling; Inheritance; Encapsulation; Polymorphism; Systems design.

2. **Reading List**
2.1 **Compulsory Readings**
   (Compulsory readings can include books, book chapters, or journal/magazine articles.   There are also collections of e-books, e-journals available from the CityU Library.)

1.	Dennis, A., Wixom, B.H. and Tegarden, D., <u>Systems Analysis & Design with UML Version 2.0: An Object-Oriented Approach</u>, 5th edition, Wiley, 2015.

2.2 **Additional Readings**
   (Additional references for students to learn to expand their knowledge about the subject.)

1.	Dennis, A., Wixom, B.H. and Tegarden, D., <u>Systems Analysis & Design with with UML Version 2.0: An Object-Oriented Approach</u>, 3rd edition, Wiley, 2009.
2.	Satzinger, Jackson and Burd, <u>Systems Analysis & Design in a Changing World</u>, 6th edition, Course Technology, 2011, ISBN: 978-1111534158.
3.	George, J.F., Batra, D., Valacich, J.S. and Hoffer, J.A., <u>Object-oriented Systems Analysis and Design</u>, 2nd edition, Prentice Hall, 2006.
4.	Bennett, S., McRobb, S. and Farmer, R., <u>Object-Oriented Systems Analysis and Design Using UML</u>, 4th edition, McGraw Hill, 2010.
5.	Larman, C., <u>Applying UML and Patterns</u>, 3rd edition, Prentice Hall PTR, 2004.
6.	George, J.F., Batra, D., Valacich, J.S. and Hoffer, J.A., <u>Object-oriented Systems Analysis and Design</u>, Prentice Hall, 2004, ISBN: 0131133268.

2.3 **Online Resources:**

   UML Resources - http://www.uml.org/
   Agile modelling - http://www.agilemodeling.com/