IS5414: ANALYSIS AND DESIGN OF ECOMMERCE SYSTEMS

Effective Term
Semester A 2025/26

Part I Course Overview

Course Title
Analysis and Design of ecommerce Systems

Subject Code
IS - Information Systems
Course Number
5414

Academic Unit
Information Systems (IS)

College/School
College of Business (CB)

Course Duration
One Semester

Credit Units
3

Level
P5, P6 - Postgraduate Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
Nil

Part II Course Details

Abstract

This course focuses on systems analysis and design with an emphasis on the development of e-commerce systems. Methods of system documentation are examined through the use of object-oriented and structured analysis tools and techniques for describing processes, use cases, data structures, system objects, file designs, input and output designs, and program specifications.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Describe the concepts and principles of the systems development life cycle (SDLC), including systems planning, systems analysis, systems design, systems implementation, and systems support.	25		x	
2	Describe the systems analyst's role and responsibilities in a typical organization.	10		x	
3	Use the tools and techniques of object-oriented system analysis methodology to effectively model systems requirements of real-world organizations.	25		x	
4	Design and prototype forms, reports, screens, and user-computer dialogs which convey the look and feel of a new e-commerce system to real-world users.	20			x
5	Demonstrate team building and project management skills effectively within a team environment.	10	x		
6	Apply information effectively in presentations with oral, written and electronic formats using media formats widely adopted for information systems development in business and government.	10		x	

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 real-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.

Learning and Teaching Activities (LTAs)

	LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lecture: Concepts of systems analysis and associated modelling techniques	- Students will learn the concepts of systems analysis and associated modelling techniques using activities designed to help students differentiate structured and object-oriented methods, apply different modelling techniques to real-world business problems, evaluate different business process change options, and select and evaluate appropriate requirements determination and structuring. - Students will learn the concepts of e-commerce application development and user interaction with examples to help students develop effective e-commerce systems in a creative way to address real-world business problems.	1, 2, 4	Two-Hour Lecture/Week

2	Laboratory: Technical aspects of information management are covered	- Exercises: Students will conduct hands-on activities using CASE tools as part of systems modelling and creation exercises including requirement gathering, consensus formulation and outcome coordination and delivery. - Discussion: Students will discuss the implications of various concepts learnt in lectures, and how they can be applied to real-world problems. Discussion, critique and selection among different approaches of requirement determination, structuring and coordination, system acquisition and development, system architectures, as well as suggestion for improvement on above issues. - Presentations: Members of project team will make presentation of their project work, and the rest of the tutorial group and the instructor will comment and offer suggestions for improvements.	1, 2, 3, 4, 5, 6	One-Hour Lab/Week

3	Project: A group project requiring them to perform systems analysis and design activities	Students will have to complete a group project requiring them to perform systems analysis and design activities including capturing requirements, diagramming models, proposing acquisition/ development alternatives and constructing an aesthetic and practical application prototype of a real-world application. Group project work will be submitted at different phases for review and comments by the instructor/tutors.	1, 2, 3, 4, 5, 6	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks ("-" for nil entry)	Allow Use of GenAI?
1	Participation: Participation in class and lab sessions in activities such as: - application of systems analysis techniques, including requirement and information gathering and structuring techniques - modelling exercises, presentation and discussion of proposed solutions to various scenarios of e-Business environment - contribution, critical analysis and suggestions for requirements - design and delivery of system prototypes, user interface and user interactions	1, 2, 3, 4	20	-	Yes

2	Project: Each team of 3 or 4 local students combined with international counter-parts (if any) in a virtual team context will analyse, collect and structure requirements of a proposed system and deliver a final product which much then be interacted with other team deliverables. The project work should be completed in accordance with defined milestones e.g. Start project - Introduction of goals and objectives - Familiarization with communication tools First interaction using communication tools - Selection of topics - First interaction of virtual project teams Start working in groups - Contribution of topic ideas - Familiarization with asynchronous communication tools Videoconference - Further introduction to communication tools - Discuss research	1, 2, 3, 4, 5, 6	30	-	Yes

3	Personal Reflection: Members of each team provide a personal reflection on their personal contribution and learning as well as team dynamic and suggestions for improvements.	5, 6	10	-	Yes

Continuous Assessment (%)

60

Examination (%)

40

Examination Duration (Hours)

2

Minimum Continuous Assessment Passing Requirement (%)

30

Minimum Examination Passing Requirement (%)

20

Additional Information for ATs

Final Exam
This closed-book examination will assess both the conceptual understanding and the developed skills using one (or more) small eCommerce scenarios.

Assessment Rubrics (AR)

Assessment Task

AT1 Participation (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Application of systems analysis techniques, including requirement and information gathering and structuring techniques

Excellent

(A+, A, A-) High

Good

(B+, B, B-) Significant

Fair

(C+, C, C-) Moderate

Marginal

(D) Basic

Failure

(F) Not even reaching marginal levels

Assessment Task
AT2 Project (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion
The project work should be completed in accordance with defined milestones

Excellent
(A+, A, A-) High

Good
(B+, B, B-) Significant

Fair
(C+, C, C-) Moderate

Marginal
(D) Basic

Failure
(F) Not even reaching marginal levels

Assessment Task
AT3 Personal Reflection (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion
Members of each team provide a personal reflection on their personal contribution and learning as well as team dynamics and suggestions for improvements

Excellent
(A+, A, A-) High

Good
(B+, B, B-) Significant

Fair
(C+, C, C-) Moderate

Marginal
(D) Basic

Failure
(F) Not even reaching marginal levels

Assessment Task
AT4 Final Exam (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion
Assess both the conceptual understanding and the developed skills using one (or more) small eCommerce scenarios

Excellent
(A+, A, A-) High

Good
(B+, B, B-) Significant

Fair
(C+, C, C-) Moderate

Marginal
(D) Basic

Failure
(F) Not even reaching marginal levels

Assessment Task
AT1 Participation (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion
Application of systems analysis techniques, including requirement and information gathering and structuring techniques

Excellent
(A+, A, A-) High

Good
(B+, B) Significant

Marginal
(B-, C+, C) Basic

Failure
(F) Not even reaching marginal levels

Assessment Task
AT2 Project (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion
The project work should be completed in accordance with defined milestones

Excellent
(A+, A, A-) High

Good
(B+, B) Significant

Marginal
(B-, C+, C) Basic

Failure
(F) Not even reaching marginal levels

Assessment Task
AT3 Personal Reflection (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Members of each team provide a personal reflection on their personal contribution and learning as well as team dynamics and suggestions for improvements

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Marginal

(B-, C+, C) Basic

Failure

(F) Not even reaching marginal levels

Assessment Task

AT4 Final Exam (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Assess both the conceptual understanding and the developed skills using one (or more) small eCommerce scenarios

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Marginal

(B-, C+, C) Basic

Failure

(F) Not even reaching marginal levels

Part III Other Information

Keyword Syllabus

Organizational context for information systems. The need to describe IS. Modelling. Systems development life cycle. Different approaches to information and business system creation. Different approaches to information and business systems analysis and design. Structured approach. Object-oriented approach.
Details:
- Organisational context for information systems.
- The need to describe IS - analysis of existing systems for evolutionary maintenance; design of new systems; communication between users, developers and project managers.
- Modelling - the purpose of a model; abstraction; key concepts; criteria for assessing modelling formalisms.
- Systems development life cycle - overview of business systems planning and business area analysis; detailed focus on systems analysis (requirements specification).
- Different approaches to information and business system creation, application and deployment - application service providers (ASP), buy, make, various partnerships.
- Different approaches to information and business systems analysis and design - structured approach and object-oriented approach.

- Structured approach - process modeling and data modeling.
- Object-oriented approach - use-case modeling and class modeling.

Reading List

Compulsory Readings

	Title
1	Satzinger, Jackson, Burd Introduction to Systems Analysis and Design: An Agile, Iterative Approach, International Edition, ISBN-13: 978-1111972264, Joe Sabatino (March 1, 2012)

Additional Readings

	Title
1	Dennis, A., Wixom, B.H. and Roth, R.M., Systems Analysis and Design, John Wiley, 3rd edition, 2006.
2	Whitten, J.L. and Bentley, L.D., Systems Analysis and Design Methods, 7th edition, Irwin/McGraw Hill, 2005.
3	George, J.F., Batra, D., Valacich J. and Hoffer, J.A., Object-Oriented System Analysis and Design, 1st edition, Prentice Hall, 2004.
4	Kendall, K.E. and Kendall, J.E., Systems Analysis and Design, 6th edition, Prentice Hall, 2004.
5	Bennett, S., McRobb, S. and Farmer, R., Object-Oriented Systems Analysis and Design Using UML, 2nd edition, McGraw Hill, 2002.
6	George, J.F., Batra, D., Valacich, J.S. and Hoffer, J.A., Object-oriented Systems Analysis and Design, Prentice Hall, 2004. ISBN: 0131133268.
7	Larman, C., Applying UML and Patterns, 2nd edition, Prentice Hall PTR, 2002. ISBN: 0130479500.
8	Online Resources:
9	UML Resources - http://www.uml.org/
10	Agile modelling - http://www.agilemodeling.com/