IS3430: SYSTEMS ANALYSIS AND DESIGN

Effective Term
Semester A 2022/23

Part I Course Overview

Course Title
Systems Analysis and Design

Subject Code
IS - Information Systems
Course Number
3430

Academic Unit
Information Systems (IS)

College/School
College of Business (CB)

Course Duration
One Semester

Credit Units
3

Level
B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
IS3431 Systems Analysis

Part II Course Details

Abstract
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.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-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	x	x	
2	Devise and model creative and effective system solutions for business problems using Unified Modelling Language.	30	x	x	x
3	Evaluate different types of models of information systems requirements and suggest innovative improvements.	20		x	
4	Operate effectively in a collaborative environment and demonstrate skills in team building and project management.	10			x
5	Communicate and present information effectively in formats adopted for information systems development.	20		x	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.

Teaching and Learning Activities (TLAs)

	TLAs	Brief Description	CILO No.	Hours/week (if applicable)
1	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, 2, 3	1 Hour/Week

2	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.	1, 2, 3, 4, 5	2 Hours/Week
3	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.	1, 2, 3, 4, 5	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	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.	1, 2, 3, 4, 5	15	
2	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.	1, 5	5	
3	AT3: Project Each student will participate in group project aimed at gathering requirements of an information system, and modelling those requirements using appropriate techniques.	1, 2, 3, 4, 5	30	

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

2

Assessment Rubrics (AR)

Assessment Task

AT1: Continuous Assessment

Criterion

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.

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: Continuous Assessment

Criterion
Capability to devise and model creative and effective system solutions for business problems using Unified Modelling Language.

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: Continuous Assessment

Criterion
Capability to evaluate different types of models of information systems requirements and suggest innovative 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
AT1: Continuous Assessment

Criterion
Capability to operate effectively in a collaborative environment and demonstrate skills in team building and project management.

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: Continuous Assessment

Criterion
Ability to communicate and present information effectively in formats adopted for information systems development.

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 Presentation

Criterion
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.

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 Presentation

Criterion
Ability to communicate and present information effectively in formats adopted for information systems development.

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: Project

Criterion
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.

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: Project

Criterion
Capability to devise and model creative and effective system solutions for business problems using Unified Modelling Language.

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: Project

Criterion
Capability to evaluate different types of models of information systems requirements and suggest innovative 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
AT3: Project

Criterion
Capability to operate effectively in a collaborative environment and demonstrate skills in team building and project management.

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: Project

Criterion
Ability to communicate and present information effectively in formats adopted for information systems development.

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 Examination

Criterion
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.

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 Examination

Criterion
Capability to devise and model creative and effective system solutions for business problems using Unified Modelling Language.

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 Examination

Criterion
Capability to evaluate different types of models of information systems requirements and suggest innovative 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

Part III Other Information

Keyword Syllabus

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.

Reading List

Compulsory Readings

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

Additional Readings

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