



FACULTY OF BUSINESS
BACHELOR OF E-COMMERCE
LEARNING MODULE OUTLINE

Academic Year	2025/26	Semester	1
Module Code	COMP3120-311		
Learning Module	System Analysis and Design		
Pre-requisite(s)	Nil		
Medium of Instruction	English		
Credits	3	Contact Hours	45
Instructor	Prof. Victor Chan	Email	vkychan@mpu.edu.mo
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MODULE DESCRIPTION

This learning module forms an introduction to formal procedures and methods of e-commerce systems analysis and design. Topics include data, process, object-oriented analysis and design modeling methods, systems life cycle, feasibility analysis, data analysis, aspects of systems design, database design, external design, architectural design, portals design, systems implementation and maintenance. Case studies are a feature of the learning module.

MODULE INTENDED LEARNING OUTCOMES (ILOS)

On completion of this learning module, students will be able to:

M1.	describe the object-oriented system analysis and design, UML and the Unified Process,
M2.	practise detailed object-oriented system analysis and design,
M3.	practise software quality assurance, software testing, and software maintenance, and
M4.	evaluate the value of system analysis and design in real-world enterprises.

These ILOs aims to enable students to attain the following Programme Intended Learning Outcomes (PILOs):



PILOs	M1	M2	M3	M4	M5	M6
P1. Demonstrate an understanding of the business processes and operations and the skillful realization of information technologies required to practice electronic commerce;	✓	✓	✓			
P2. Apply knowledge in business, mathematics, programming, computing, web development, and database to address complex problems in the context of electronic commerce;	✓	✓	✓			
P3. Analyze critically the effect of web technology use on organizational performance and develop electronic commerce strategies that fit organizational objectives;				✓		
P4. Select and apply tools and technologies to effectively implement electronic commerce systems in business intelligence, enterprise resources planning, supply chain management, and customer relationship management;						
P5. Develop relationships, motivate others, manage conflicts, lead changes, and work across differences in multi-disciplinary electronic commerce projects;	✓	✓				
P6. Communicate and work effectively using written and spoken word, non-verbal language, and electronic tools with fellow professionals and different stakeholders in the electronic commerce industry;	✓	✓				
P7. Demonstrate a global electronic commerce perspective as evidenced by an understanding of foreign languages and the role of Macau as an interface between the East and the West;						
P8. Cope with and manage contemporary advancement related to electronic commerce development and demonstrate lifelong learning attitudes and abilities;						
P9. Conduct research and devise innovative electronic commerce models to exploit business opportunities; and	✓	✓				
P10. Reflect on professional responsibilities and keep up with the latest electronic commerce issues on legal, environmental, ethical, and societal considerations to benefit society comprehensively.						



MODULE SCHEDULE, COVERAGE AND STUDY LOAD

Week	Content Coverage	Contact Hours
1	Introduction to Systems Analysis and Design Requirements	3
2	Requirements The Business Modelling and Requirements Workflows	3
3	The Business Modelling and Requirements Workflows The Analysis Workflow	3
4	The Analysis Workflow	3
5	The Design Workflow	3
6	Implementation and Maintenance Requirements: Practice	3
7	Requirements: Practice	3
8	Requirements: Practice The Business Modelling and Requirements Workflows: Practice	3
9	The Business Modelling and Requirements Workflows: Practice	3
10	The Business Modelling and Requirements Workflows: Practice The Analysis Workflow: Practice	3
11	The Analysis Workflow: Practice	3
12	The Analysis Workflow: Practice	3
13	The Design Workflow: Practice	3
14	The Design Workflow: Practice	3
15	Presentation and/or summarization	3

TEACHING AND LEARNING ACTIVITIES

In this learning module, students will work towards attaining the ILOs through the following teaching and learning activities:

Teaching and Learning Activities	M1	M2	M3	M4	M5	M6
T1. Lectures	✓		✓			
T2. Case studies		✓		✓		
T3. Group discussion		✓		✓		
T4. Class practice		✓		✓		



ATTENDANCE

Attendance requirements are governed by the Academic Regulations Governing Bachelor's Degree Programmes of the Macao Polytechnic University. Students who do not meet the attendance requirements for the learning module shall be awarded an 'F' grade.

ASSESSMENT

In this learning module, students are required to complete the following assessment activities:

Assessment Activities	Weighting (%)	ILOs to be Assessed
A1. Class participation and class exercises	20	M1, M2, M3 and M4
A2. Interim Report	40	M1, M2 and M4
A3. Final Report	40	M1, M2, M3 and M4

The assessment will be conducted following the University's Assessment Strategy (see www.mpu.edu.mo/teaching_learning/en/assessment_strategy.php). Passing this learning module indicates that students will have attained the ILOs of this learning module and thus acquired its credits.

MARKING SCHEME

Assessment Criterion	Level of Comprehensiveness				
	0 (0% - 29%)	1 (30% - 49%)	2 (50% - 69%)	3 (70% - 89%)	4 (90% - 100%)
The use case diagram	Not relevantly presented	Vaguely presented and not discussed	Presented but not adequately discussed	Presented and somewhat adequately discussed	Clearly presented and adequately discussed
The use-case descriptions: brief	Not relevantly presented	Vaguely presented and not discussed	Presented but not adequately discussed	Presented and somewhat adequately discussed	Clearly presented and adequately discussed
The use case descriptions: step-by-step	Not relevantly presented	Vaguely presented and not discussed	Presented but not adequately discussed	Presented and somewhat adequately discussed	Clearly presented and adequately discussed
The communication diagram(s)	Not relevantly presented	Vaguely presented and not discussed	Presented but not adequately discussed	Presented and somewhat adequately discussed	Clearly presented and adequately discussed
The sequence diagram(s)	Not relevantly presented	Vaguely presented and not discussed	Presented but not adequately discussed	Presented and somewhat adequately discussed	Clearly presented and adequately discussed
The class diagram: the classes	Not relevantly presented	Vaguely presented and not discussed	Presented but not adequately discussed	Presented and somewhat adequately discussed	Clearly presented and adequately discussed
The class diagram: the attributes	Not relevantly presented	Vaguely presented and not discussed	Presented but not adequately discussed	Presented and somewhat adequately discussed	Clearly presented and adequately discussed
The class diagram: the operations	Not relevantly presented	Vaguely presented and not discussed	Presented but not adequately discussed	Presented and somewhat adequately discussed	Clearly presented and adequately discussed
The structure	Not relevantly presented	Vaguely presented and not discussed	Presented but not adequately discussed	Presented and somewhat adequately discussed	Clearly presented and adequately discussed
The components	Not relevantly presented	Vaguely presented and not discussed	Presented but not adequately discussed	Presented and somewhat adequately discussed	Clearly presented and adequately discussed



REQUIRED READINGS

A. Dennis, B. H. Wixom and R. M. Roth, 2022, Systems Analysis and Design, 8th ed., Wiley.

REFERENCES

<https://www.wiley.com/en-sg/Systems+Analysis+and+Design%2C+8th+Edition-p-9781119803782>

S. R. Schach, 2011, Object-Oriented and Classical Software Engineering, 8th ed., McGraw Hill.

STUDENT FEEDBACK

At the end of every semester, students are invited to provide feedback on the learning module and the teaching arrangement through questionnaires. Your feedback is valuable for instructors to enhance the module and its delivery for future students. The instructor and programme coordinators will consider all feedback and respond with actions formally in the annual programme review.

ACADEMIC INTEGRITY

The Macao Polytechnic University requires students to have full commitment to academic integrity when engaging in research and academic activities. Violations of academic integrity, which include but are not limited to plagiarism, collusion, fabrication or falsification, repeated use of assignments and cheating in examinations, are considered as serious academic offenses and may lead to disciplinary actions. Students should read the relevant regulations and guidelines in the Student Handbook which is distributed upon the admission into the University, a copy of which can also be found at www.mpu.edu.mo/student_handbook/.