هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission
اعتماد
NCAAA
2024
TP-153

Course Specification

(Bachelor)

Course Title:	IS Application Development
Course Code:	SE3606
Program:	BSc in Software Engineering
Department:	Software Engineering
College:	College of Computing
Institution:	Umm Al Qura University
Version:	1.0
Last Revision Date:	22/04/2025

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (3)					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☐ Required		☒ Elective		
3. Level/year at which this course is offered: (3rd year/ 5th or 6th level) or (4th year/8th level)					
4. Course General Description:					
The primary purpose of this course is to enable students carry out all the necessary activities for the development of effective and efficient information systems (IS) in an orderly and organized manner (appropriate IS that provide information to support purposeful human activities). Within this framework, the various concepts used in the process of IS development are presented and several topics that need to be dealt with are analyzed (technical, functional, and financial). The course is founded upon the systemic approach of ISs dictating that ISs are human activity systems aiming at providing feasible and desirable solutions on real world problems.					
5. Pre-requirements for this course (if any)**:**					
SE2301 - Software Modelling and Analysis					
6. Co-requisites for this course (if any)**:**					
N/A					
7. Course Main Objective(s):					
In general, students are trained to: 1. Use widely accepted modern IS development methodologies in line with current best practices. 2. Define the underlying technical, functional, and financial factors to select the best possible solution regarding IS development and implementation. 3. In addition, students are trained to define the process of IS evolution through the interoperability of existing (legacy) systems to ensure past investments and the capitalization upon the use of modern digital technologies.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	E-learning	0	0
3	Hybrid • Traditional classroom • E-learning	0	0
4	Distance learning	0	0

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	30
2.	**Laboratory/Studio**	30
3.	**Field**	0
4.	**Tutorial**	0
5.	**Others (specify)**	0
Total		60

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Understand the principles of systems analysis, systems thinking, and methodologies like agile and structured approaches.	K1	Lecture, exercise	Quiz, exams, assignments
1.2	Recognize the organization as a system and the role of information systems in achieving efficiency and modernization.	K2	Lecture, exercise	Quiz, exams, assignments
1.3	Identify key components and applications of e-business, e-health, and e-government systems.	K3	Lecture, exercise	Quiz, exams, assignments

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
2.0	**Skills**			
2.1	Apply systems analysis and design methodologies to develop and evaluate information systems.	S1	Lecture, exercise	Quiz, exams, assignments
2.2	Create UML diagrams, prototypes, and secure systems using structured and object-oriented development techniques.	S1	Lecture, exercise	Quiz, exams, assignments
2.3	Implement innovative solutions for e-business, e-health, and e-government using real-world case studies and best practices.	S2	Lecture, exercise	Quiz, exams, assignments
3.0	**Values, autonomy, and responsibility**			
3.1	Appreciate the importance of user-centered and participative approaches in information system design and development.	V1	Lecture, exercise	Quiz, exams, assignments
3.2	Promote ethical practices, security, and inclusivity in developing and deploying information systems.	V1	Lecture, exercise	Quiz, exams, assignments
3.3	Value the transformative role of information systems in enhancing organizational and societal outcomes.	V2	Lecture, exercise	Quiz, exams, assignments

C. Course Content

No	List of Topics	Contact Hours
1.	Information Systems in organizations • Systems of human activity • Systems thinking • The organization as a system	**12**

	• the organization as a frame of reference for information systems development • the concept of the organization in information systems • information systems-assisted organizational reengineering.	
2.	Object-oriented development of information systems • RUP methodology, general principles of the methodology. • Use of DevOps methodologies and tools for the integrated implementation of Development and Operation approaches. Utilization of CI/CD practices (Continuous Integration / Continuous Delivery). • Security of information systems, security policies and enforcement mechanisms, security policies based on user roles, authorization management.	**12**
3.	E-Business • Types, types and models of digital services, • e-business, basic building blocks, architecture, perspectives and modern strategies, • analysis of the role of e-business in achieving competitive advantage, • virtual businesses, innovation, virtual business strategy, digital product, modern promotion and pricing techniques digital products, application examples and case studies.	**12**
4.	E-Health • Health systems, necessity of e-health services, cost reduction and improvement of service quality, • e-health services and systems, international trends and architectures, best practices of development and operation, • security of e-health services. • Examples of electronic health services (Electronic health record, electronic home nursing support, electronic prescription, electronic referral, standard systems).	**12**
5.	E-Government • The importance, role and challenges of e-government, • e-government as a tool for modernization and reorganization of public services, • application characteristics, parties involved, roles of stakeholders,	**12**

• presentation and analysis of application characteristics, case studies.	
Total	**60**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	**Assignments and Quizzes**	**2-14**	**15**
2.	**Projects**	**2-14**	**15**
3.	**Practicals**	**2-14**	**10**
4.	**Mid Term**	**7**	**20**
5.	**Final Exam**	**16-17**	**40**

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	• Langer, A. M. (2010). *Analysis and design of information systems*. Springer. ISBN 978-1441975423. • Checkland, P., & Holwell, S. (2002). *Information, systems and information systems: Making sense of the field*. Wiley. ISBN 978-0471986042. • Earl, T., Little, M., Simon, A., & Richbeck, T. (2011). *Modern SOA infrastructure: Technology, design, and governance*. Prentice Hall. ISBN 978-0137080235. • Ulrich, W. M., & Newcomb, P. (2010). *Information systems transformation: Architecture-driven modernization case studies*. The MK/OMG Press. ISBN 978-0123749130. • Morgan, T. (2002). *Business rules and information systems: Aligning IT with business goals*. Addison-Wesley. ISBN 978-0201743916. • Hevner, A., & Chatterjee, S. (2010). *Design research in information systems: Theory and practice*. Springer. ISBN 978-1441956538. • Vasilecas, O., Caplinskas, A., Wojtkowski, G., & Wojtkowski, W. (2010). *Information systems development: Advances in theory, practice, and education*. Springer. ISBN 978-1441956613.

	• Simon, P., & Webster, B. F. (2010). *Why new systems fail: An insider's guide to successful IT projects*. Course Technology/Cengage Learning. ISBN 978-1435456440.
Supportive References	
Electronic Materials	• University of Piraeus. (n.d.). *Information systems development*. Retrieved from https://mscdss.ds.unipi.gr/en/the-msc/advanced-information-systems/information-systems-development/
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Traditional Classroom
Technology equipment (projector, smart board, software)	Multimedia Projector
Other equipment (depending on the nature of the specialty)	N/A

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Direct, Indirect
Effectiveness of Students' assessment	Faculty, Peer reviewer	Direct, Indirect
Quality of learning resources	Faculty, Course coordinator	Direct, Indirect
The extent to which CLOs have been achieved	Course coordinator, Program management committee	Direct
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**SOFTWARE ENGINEERING DEPARTMENT COUNCIL**
REFERENCE NO.	**THE 17TH MEETING FOR THE ACADEMIC YEAR 1446H**
DATE	**22/04/2025**