هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification

(Bachelor)

Course Title:	Advanced Software Engineering
Course Code:	SE1759
Program:	Software Engineering
Department:	Software Engineering
College:	Faculty of Computer Science and Information Technology
Institution:	Al-Baha University
Version:	V1.0
Last Revision Date:	Axx-April-2024

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (3)					
3 Credit Hours (3, 0, 0) (Lecture, Lab, Tutorial) **(3 Contact Hours)**					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (11th Level/4th Year)					
4. Course General Description:					
This course aims to provide students with an in-depth understanding of the Advanced Software Engineering concepts that are needed to develop software systems that can meet basic functional requirements within a well-defined problem domain. Specific topics include Object-oriented software design and Implementation, Agile Software Development, Project Planning & Management, Architectural Design, Software Testing, Quality Management, etc.					
5. Pre-requirements for this course (if any): **Foundation of Software Engineering (SE1001)**					
6. Pre-requirements for this course (if any): **None**					
7. Course Main Objective(s):					
The main objective of this course is to provide students with an overview of advances in software engineering. After completing this course student will be able to • Understand the modern software engineering process and life-cycle • Provide students with necessary skills to build system design based on requirements' analysis • Educate students principles of object-oriented analysis and design, and UML Modeling. • Be able to distinguish between problems and solutions and know how to map object oriented analysis to object oriented design					

- Learn the various testing techniques, including unit testing, functional testing, integration and systems testing.
- Learn Quality Management such as software quality, software standards, reviews and inspections, software measurement and metrics.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	33	100%
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		
5	Other (Lab)		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	33
2.	**Laboratory/Studio**	
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		33

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

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Students will be able to understand the modern software engineering process and life cycle. Furthermore, students will be able to understand the necessary skills to build system design based on requirements analysis	K1	- Lectures	***Direct Assessment Tool*** Midterm Exam Final exam ***Indirect Assessment Tool*** Course Exit Survey
1.2	Students will be able to understand principles of object-oriented analysis and design, and UML Modeling. They will be able to distinguish between problems and solutions and know how to map object-oriented analysis to object-oriented design .	K2	- Lectures	***Direct Assessment Tool*** Midterm exam Final exam ***Indirect Assessment Tool*** Course Exit Survey
1.3	Students will be able to use the knowledge of various testing techniques, including unit testing, functional testing, integration and systems testing. They will also learn Quality Management such as software quality, software standards, reviews and inspections, software measurement and metrics.	K3	- Lectures	***Direct Assessment Tool*** Quiz Midterm exam Final exam ***Indirect Assessment Tool*** Course Exit Survey
2.0	**Skills**			
2.1	Demonstrate the basic knowledge of essential phases and techniques of Software Development.	S1	- Lectures - Project	***Direct Assessment Tool*** Project (rubric) Final exam ***Indirect Assessment Tool***

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
				Course Exit Survey
2.2	Demonstrate the basic knowledge of essential techniques for software testing and Quality	S2	- Lectures - Project	***Direct Assessment Tool*** Project (rubric) Final exam ***Indirect Assessment Tool*** Course Exit Survey
2.3	Demonstrate a basic knowledge of software project management	S3	- Lectures - Project	***Direct Assessment Tool*** Project (rubric) Final exam ***Indirect Assessment Tool*** Course Exit Survey
3.0	**Values, autonomy, and responsibility**			
3.1	Recognize the importance of teamwork, collaboration, and communication in the design and development of secure software systems. Furthermore the importance of giving and receiving constructive feedback.	V1	-Small Groups	***Direct Assessment Tool*** Project Presentation (rubric) ***Indirect Assessment Tool*** Course Exit Survey

C. Course Content

No	List of Topics (Lectures)	Contact Hours
1.	**Introduction: Advances in Software Engineering**	3
2.	**Software Processes and Agile Development**	3
3.	**Object-Oriented Requirement Analysis**	6
4.	**Object-Oriented Design and Implementation**	3
5.	**Software Testing and Evaluation**	6
6.	**Software Quality and Configuration Management**	3
7.	**Service Oriented Computing**	6
8.	**Software Project Management**	3
Total		**33**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	**Midterm Exam**	**6**	20%
2.	**Quiz**	8	10%
3.	**Final Project and Presentation**	10	10%
4.	**Final Exam**	12	60%

*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	• Ian Sommerville, "Software Engineering". 9th Edition, Addison-Wesley • Software Engineering: A Practitioner's Approach, 8th Edition by Roger S. Pressman (Author), Bruce Maxim (Author) •
Supportive References	• ACM (Association for Computer Machinery) Curricula Recommendations • http://www.acm.org/education/curricula-recommendations
Electronic Materials	• Access to the Saudi Digital Library (SDL). • Using the learning management system of the university – Rafid System (https://lms.bu.edu.sa/).
Other Learning Materials	• Nielsen Norman Group: https://www.nngroup.com/

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	• A classroom or lecture hall with a whiteboard for 25 students.
Technology equipment (projector, smart board, software)	• A digital image projection system with a connection to a desktop computer and laptop computer. • High speed Internet connection
Other equipment (depending on the nature of the specialty)	**None**

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	• Students • Faculty • Peer Reviewers • Program Leader • Course Coordinator	•Surveys (indirect). •Direct feedback from students. •Course evaluation by Peer Reviewers (indirect). •Class visit by Program Leader (indirect). •Comprehensive Course report (where we can find information about teaching difficulties and action plan)
Effectiveness of Students assessment	• Students • Faculty • Peer Reviewers • Program Leader • Exam Evaluation Committee • Course Coordinator	• Surveys (indirect). • Direct feedback from students. • Course evaluation by Peer Reviewers (indirect). • Class visit by Program Leader (indirect) • Exam evaluation by the Exam Evaluation Committee (indirect)
Quality of learning resources	• Students • Faculty • Peer Reviewers • Course Coordinator	• Surveys (indirect) • Course evaluation by Peer Reviewers (indirect). • Comprehensive Course report (where we can find information about difficulties and challenges about learning resources as well as consequences and action plan)
The extent to which CLOs have been achieved	• Faculty • Program Leader • Course Coordinator	• Student Results (direct) • Comprehensive Course report (where we can find the CLO assessment results)
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**Curriculum Committee**
REFERENCE NO.	
DATE	**28 April 2024**