T-104
2022

Course Specification
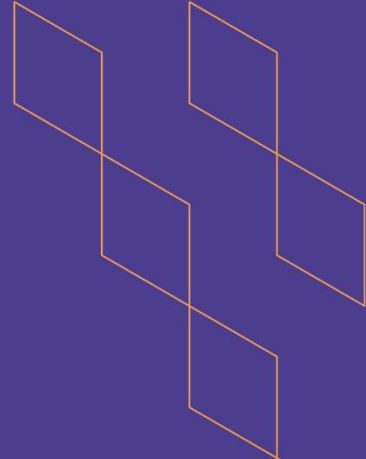
Course Title:	**Software Engineering 1**
Course Code:	**IT10702**
Program:	**Information Technology**
Department:	**Information Technology**
College:	**Computer Science and Information Technology**
Institution:	**Albaha University**
Version:	**01**
Last Revision Date:	**5-4-2023**

Table of Contents:

A. General information about the course:

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:	**7th Level / 3rd Year**

4. Course general Description

This course provides an introduction to software engineering, including software development processes, software feasibility study, software requirements and software design and architecture. Students will learn about software development methodologies, tools, and techniques for managing software projects. Students will learn about the importance of software engineering in developing quality software products and the challenges that arise in the software development process. They will also gain hands-on experience with software engineering tools and techniques, such as Unified Modeling Language (UML). In addition, the course will cover software project management and teamwork skills. Students will work in teams to complete a software analysis and design project, which will give them practical experience in applying the software engineering principles and practices learned in the course.

5. Pre-requirements for this course (if any):
 Programming 2 (CS10005).

6. Co- requirements for this course (if any): none

7. Course Main Objective(s)
The main purpose for this course is to teach students how to:
  Upon completion of the course, students will have a solid understanding of the software analysis and design processes and be able to:

- Understand software engineering concepts, life cycle, objectives, architecture and software types.
- Recognize different software development processes, Agile software engineering and Scrum method.
- Analysis a problem and develop the software requirements and the feasibility study accordingly
- Design a software
- Explore UML diagrams for domain analysis and systems design.
- Effectively communicate concepts and techniques in oral presentations.
- Commit to work independently and collaboratively in a small group with seriousness and enthusiasm.

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	44	100%
2.	E-learning		
3.	Hybrid • Traditional classroom • E-learning		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	22
2.	Laboratory/Studio	22
3.	Field	-
4.	Tutorial	-
5.	Others (specify)	-
	Total	44

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	Understand software engineering concepts, life cycle, objectives, architecture and software types.	K1	- Lectures - Discussions	- Homework (rubric) - Midterm Exam - Final exam
1.2	Recognize different software development processes, Agile software engineering and Scrum method.	K1	- Lectures - Discussions	- Homework (rubric) - Midterm Exam - Final exam
2.0	Skills			
2.1	Analysis a problem and develop the software requirements and the feasibility study accordingly	S5	- Lectures - Discussions - Lab Tutorials (Problem based learning)	- Homework (rubric) - Lab Exam - Final exam - Project evaluation form (rubric)
2.2	Design a software	S1	- Lectures - Discussions - Lab Tutorials (Problem based learning)	- Homework (rubric) - Final exam - Lab Exam - Group Project (Rubric)
2.3	Effectively communicate concepts and techniques in oral presentations.	S6	- Assignments - Oral Presentation	- Group Project (Rubric)
3.0	Values, autonomy, and responsibility			
3.1	Commit to work independently and collaboratively in a small group with seriousness and enthusiasm	V1	- Assignments - Oral Presentation	- Group Project (Rubric)

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Software Engineering	4
2.	Software Development Processes	4
3.	Agile Software Development and Scrum Method	2
4.	Software Feasibility Study	2
5.	Requirements Engineering	4

6.	Software Design	4
7.	Software Architecture	2
	Total	22

No	List of Topics (Labs) The lab consists in Analyzing and designing a Software	Contact Hours
1.	Software Requirement	4
2.	Software Design - Use Case Diagram	4
3.	Software Design - Sequence Diagrams	2
4.	Software Design – Class Diagram	4
5.	Software Design – Activity Diagrams	2
6.	Database Design	4
7.	Lab Exam	2
	Total	22

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Homework	Every 2-3 Weeks	10%
2.	Midterm Exam	6	20%
3.	Group Project (Evaluated through a rubric)	11	10%
4.	Lab Exam	11	20%
6.	Final Exam	12 or 13	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	- Ian Sommerville, Software Engineering, Pearson, 10th edition (2016). - UML Distilled: A Brief Guide to the Standard Object Modeling Language, 3rd Edition.
Supportive References	- Roger S. Pressman and Bruce Maxim, Software Engineering: A Practitioner's Approach, McGraw Hill; 9th edition (2021).
Electronic Materials	- Access to the university library through "Bahith" platform: http://bahith.bu.edu.sa/ - 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	- ACM (Association for Computer Machinery) Curricula Recommendations 2017 – https://www.acm.org/binaries/content/assets/education/curricula-recommendations/it2017.pdf

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	• A classroom or lecture hall for every 20-25 students. • A student laboratory for every 10-15 students equipped with 15 computers.
Technology equipment (projector, smart board, software)	• A smartboard and projector for each classroom and lecture hall and laboratory. • A software design software in each laboratory computer. • High speed Internet connection. • An instructor computer station.
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 Assessment	• Students • Faculty • Peer Reviewers • Course Coordinator • Exam Evaluation Committee • Course Coordinator	• Surveys (indirect). • Direct feedback from students. • Course evaluation by Peer Reviewers (indirect). • Comprehensive Course report (where we can find information about assessment difficulties and action plan, …)

Assessment Areas/Issues	Assessor	Assessment Methods
		• Exam evaluation by the Exam Evaluation Committee (indirect)
Extent of achievement of course learning outcomes	• Faculty • Program Leader • Course Coordinator •	• Student Results (direct) • Comprehensive Course report (where we can find the CLO assessment results)
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, …)

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	IT DEPARTMENT COUNCIL
REFERENCE NO.	
DATE	6-4-2023