Course Specification
(Bachelor)

Course Title: Development and Operations

Course Code: SE1769

Program: Software Engineering

Department: Software Engineering

College: Faculty of Computer Science and Information Technology

Institution: Al-Baha University

Version: V1.0

Last Revision Date: 24-April-2024

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (3)

3 Credit Hours (2, 2, 0) (Lecture, Lab, Tutorial)
(4 Contact Hours)

2. Course type

A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☐ Required		☒ Elective		

3. Level/year at which this course is offered: (8th Level/3rd Year)

4. Course General Description:

Development and Operations (DevOps) paradigm is a culture that enhanced the efficiency of the software and IT industry. With agile practices, DevOps has created end-to-end software development and delivery. DevOps phases vary, however, automation tools for DevOps fall in one of the following: Build, Deployment, and Operations.

5. Pre-requirements for this course (if any):   None

6. Pre-requirements for this course (if any):   None

7. Course Main Objective(s):

In this course, students will learn the culture of DevOps and the need of it. In addition, students will train on a number of DevOps tools which are important in the DevOps phases.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	22	50%
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

No	Mode of Instruction	Contact Hours	Percentage
5	Other (Lab)	22	50%

3. 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	Illustrate an understanding of DevOps and its phases	K1	- Lectures	*Direct Assessment Tool* Midterm Exam Final exam *Indirect Assessment Tool* Course Exit Survey
1.2	Recognize the main objectives of DevOps.	K2	- Lectures - Lab Work	*Direct Assessment Tool* Midterm exam Final exam *Indirect Assessment Tool* Course Exit Survey
2.0	**Skills**			
2.1	Organize automation of the building, deployment	S1	- Lectures - Lab work - Project	*Direct Assessment Tool* Project (rubric)

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	and operations using DevOps tools.			Final exam *Indirect Assessment Tool* Course Exit Survey
2.2	Evaluate the most suitable options in DevOps stages	S2	- Lectures - Lab work - Project	*Direct Assessment Tool* Project (rubric) Final exam *Indirect Assessment Tool* Course Exit Survey
3.0	**Values, autonomy, and responsibility**			
3.1	Demonstrate effective teamwork.	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 to DevOps**	**4**
2.	**DevOps and Software Development Life Cycle**	**4**
3.	**Agile**	**4**
4.	**git tool**	**6**
5.	**Jenkins tool**	**6**
6.	**Kubernetes Vs Docker tools**	**6**
7.	**Ansible**	**6**
8.	**Puppet**	**4**
9	**Chef**	**2**
10.	**Amazon Web Services (AWS)**	**2**
Total		**44**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Assignment	Weekly	10%
2.	Quiz	4	10%
3.	Midterm Exam	6	20%
4.	Final Project and Presentation	11	20%
4.	Final Exam	12	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	Ops for Developers delivers a practical, thorough introduction to approaches, processes and tools to foster collaboration between software development and operations.
Supportive References	None
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