هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

Course Specifications

Course Title:	Software security development
Course Code:	CYB 0203
Program:	Computer Science (Cybersecurity)
Department:	Applied Sciences
College:	Applied College
Institution:	Imam Muhammad Bin Saud Islamic University

Table of Contents

A. Course Identification

1. Credit hours:	**4(3 theory , 2 lab)**
2. Course type	
a.	University ☐ College ☐ Department ☑ Others ☐
b.	Required ☑ Elective ☐
3. Level/year at which this course is offered:	Third Semester
4. Pre-requisites for this course (if any)**:**	CYB0101
5. Co-requisites for this course (if any)**:**	None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	4hours\week	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	22
3	**Tutorial**	
4	**Others** (specify)	
	Total	55

B. Course Objectives and Learning Outcomes

1. Course Description

This course deals with security analysis in software development. Identify and detect vulnerabilities that threaten systems. Topics include risk modeling, defensive and security programming on the Internet, the interaction between usability and trust management, safe usage control, the principle of least privilege, information overflow, check time versus time to access, and other related security issues. Advanced topics in the secure design of computer systems. Security services and models. Determining security requirements for computer systems, designing secure software architectures, and verifying the security of software and computer systems. Types of attack, means of checking the credibility of messages.

2. Course Main Objective

Students should be able to understand in deep the software development using different systems, and the matter of the secured system. Also, a clear concept must be clear for them in the design

matters for security, foundation, threats, mitigation, and the pattern of the secure development. Furthermore, students should be aware of the implementation of any secure design in analyzing level as a developer.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Understand the secured software design.	ع1,ع2
1.2	Demonstrate the main aspects and of secured deign.	ع2
2	**Skills :**	
2.1	Learning about secured design, programming, reviewing, level of codes, or level of flows in design.	م2
2.2	Analysis of secured system requirements.	ق1,م7
3	**Values:**	
3.1	Provide a software secured design for a system.	ق3,ق2,ق1,م7

ع1-ع2-م2-م7-ق1-ق2-ق3

C. Course Content

No	List of Topics	Contact Hours
1	Introduction, Why design matters for security	5
2	Foundation: Core concepts of domain driven design	10
3	Concept: Foundation	5
4	Concept: Threats	5
5	Concept: Mitigation	3
6	Concept: Pattern	3
7	Design: Secure Design	5
8	Design: Security Design Reviews	5
9	Implementation: Secure Programming	8
10	Implementation: Low level coding flaws	3
11	Implementation: Untrusted input	3
Total		55

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Understand the secured software design.	Class lectures Class Discussion Questions/Answers sessions in class Home work assignments Quizzes Case studies and Analysis.	Quizzes Homework and Assignments. Written exams (Midterm and final). Writing reports.

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.2	Demonstrate the main aspects and of secured deign.	Class lectures Class Discussion Questions/Answers sessions in class Home work assignments Quizzes Case studies and Analysis.	Quizzes Homework and Assignments. Written exams (Midterm and final). Writing reports. Study cases.
2.0	**Skills**		
2.1	Learning about secured design, programming, reviewing, level of codes, or level of flows in design.	Class lectures Class Discussion Questions/Answers sessions in class Home work assignments Quizzes Case studies and Analysis.	Quizzes Homework and Assignments. Written exams (Midterm and final). Writing reports. Study cases.
2.2	Analysis of secured system requirements.	Class lectures Class Discussion Questions/Answers sessions in class Home work assignments Quizzes Case studies and Analysis.	Quizzes Homework and Assignments. Written exams (Midterm and final). Writing reports. Study cases.
3.0	**Values**		
3.1	Provide a software secured design for a system.	Class lectures Class Discussion Questions/Answers sessions in class Home work assignments Quizzes Case studies and Analysis.	Quizzes Homework and Assignments. Written exams (Midterm and final). Writing reports. Study cases.

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	Week3,5	10%
2	Midterm	Week 7	20%
3	Lab Assignments group or individual /Class Assignments group or individual	Week4,7,9	15%
4	Lab Evaluations	All Semester	15%
5	Final	Week13	40%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :
6 office hours per week. 3 hours of weekly meetings Contact through the LMS Communication/interact via e-mails with students

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Designing Secure Software: A Guide for Developers,2022,By Loren Kohnfelder
Essential References Materials	N/A
Electronic Materials	Online resources will be provided during class lectures.
Other Learning Materials	N/A

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Lecture room with Smart board Lab with 25 Pcs
Technology Resources (AV, data show, Smart Board, software, etc.)	PC and WiFi Internet access within the class room
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	N\A

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Student	Indirect using course evaluation survey
Quality of learning resources	Student and Faculty	Indirect using course evaluation and faculty survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

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

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	