

# **Course Specifications**

<b>Course Title:</b>	Information Systems Security
Course Code:	463CIS-3
Program:	Information Systems
Department:	Department of Information System
College:	College of Computer Science and Information Systems
Institution:	Najran University







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### A. Course Identification

1. Credit hours: 3 (2, 1, 0) [Theory, Lab, Tutorial]				
2. Course type				
a. University College Department	Others			
b. Required Elective				
3. Level/year at which this course is offered: Leve	el 11 <sup>th</sup> / Year 3			
4. Pre-requisites for this course (if any): None				
5. Co-requisites for this course (if any): None				

#### 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	<b>Contact Hours</b>	Percentage
1	Traditional classroom	50	100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

#### 7. Contact Hours (based on academic semester)

No	Activity	<b>Contact Hours</b>
1	Lecture	20
2	Laboratory/Studio	20
3	Tutorial	10
4	Others (specify)	
	Total	50

### **B.** Course Objectives and Learning Outcomes

### 1. Course Description

This course is to make students familiar with the basic concepts of information systems security. The course aims to name basic security goals, security functions, and security mechanisms. The content is: Introduction to information security, information security and risk management, access control, security architecture and design, physical environmental security, telecommunications and network security, business continuity and disaster recovery, application security and operation security. The choice of appropriate encryption/decryption is the key in the development of efficient secure information systems. In fact, it is difficult to create a trusted information system without a good understanding of a number of fundamental information security issues

### 2. Course Main Objective

To introduce the basic concept of information systems security including confidently integrity and availability. In addition, discussing the basics countermeasure tools and techniques to minimize the risks of violating security measurement.

# **3.** Course Learning Outcomes

	CLOs	Aligned PLOs
1	Knowledge and Understanding	
1.1	Explain the objectives of information security.	K1, K2
1.2	Describe different cryptography techniques	K1, K2
1.3	Define the concepts of authentication and access control	K1, K2
1.4	Describe different countermeasures to stop or to recover from an attack	K1, K2
2	Skills:	
2.1	Evaluate vulnerability of an information system and establish a plan for risk management.	S1, S2
2.2	Apply contemporary theories, processes, tools, and solutions to problems of information security	S2, S4
2		
3	Values:	
3.1	Develop leadership, teamwork, self-learning in the implementation of the information systems security.	V1, V2
3.2		
3.3		
3		

### **C.** Course Content

No List of Topics		Contact Hours
1	Introduction to information Security	4
2	Elementary Cryptography	4
3	User authentication and access control	6
4	Information security and risk management	4
5	Malicious software, Intrusion prevention systems and Intrusion detection	8
5	systems	0
6	Introduce and explain basic concepts of kali linux	5
7	Port scanning tools and vulnerability scanning tools	5
8	Penetration test tools and traffic analysis tools like wireshark and nmap	6
9	Security in Networks	6
10	Revision	2
	Total	50

# **D.** Teaching and Assessment

1. Alignment of Course Learning	<b>Outcomes with</b>	Teaching	Strategies	and A	ssessment
Methods					

Code	<b>Course Learning Outcomes</b>	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	Explain the objectives of information security	• Lecture: here the instructor addresses verbally in front of students the concepts associated	<ul> <li>Class Tests</li> <li>Instant quizzes / Quiz by surprise</li> <li>Individual homework</li> </ul>

Code	Course Learning Outcomes	<b>Teaching Strategies</b>	Assessment Methods
		<ul> <li>with examples with taking help of writing on the board as needed.</li> <li>Group discussion</li> <li>Student-centered learning should be designed to facilitate the learner in doing, thinking, manipulating, constructing, testing, analyzing and reflecting.</li> <li>Encourage students to browse different journals, seminars or websites at their leisure time to have better understanding about the process and latest advancement</li> </ul>	<ul> <li>assignments</li> <li>Think and present the best idea of a given problem in a quick session</li> <li>Asking Questions about previous topics discussed and getting replies</li> <li>Midterm exam and Final written exam.</li> </ul>
1.2	Describe different cryptography techniques	<ul> <li>in this arena.</li> <li>Lecture: here the instructor addresses verbally in front of students the concepts associated with examples with taking help of writing on the board as needed.</li> <li>Group discussion</li> <li>Student-centered learning should be designed to facilitate the learner in doing, thinking, manipulating, constructing, testing, analyzing and reflecting.</li> <li>Encourage students to browse</li> </ul>	<ul> <li>Class Tests</li> <li>Instant quizzes / Quiz by surprise</li> <li>Individual homework assignments</li> <li>Think and present the best idea of a given problem in a quick session</li> <li>Asking Questions about previous topics discussed and getting replies</li> <li>Midterm exam and Final written exam.</li> </ul>

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		different journals, seminars or websites at their leisure time to have better understanding about the process and latest advancement in this arena.	
1.3	Define the concepts of authentication and access control	<ul> <li>Lecture: here the instructor addresses verbally in front of students the concepts associated with examples with taking help of writing on the board as needed.</li> <li>Group discussion</li> <li>Student-centered learning should be designed to facilitate the learner in doing, thinking, manipulating, constructing, testing, analyzing and reflecting.</li> <li>Encourage students to browse different journals, seminars or websites at their leisure time to have better understanding about the process and latest advancement in this arena</li> </ul>	<ul> <li>Class Tests</li> <li>Instant quizzes / Quiz by surprise</li> <li>Individual homework assignments</li> <li>Think and present the best idea of a given problem in a quick session</li> <li>Asking Questions about previous topics discussed and getting replies</li> <li>Midterm exam and Final written exam.</li> </ul>
1.4	Describe different countermeasures to stop or to recover from an attack	<ul> <li>Lecture: here the instructor addresses verbally in front of students the concepts associated with examples with taking help of writing on the board</li> </ul>	<ul> <li>Class Tests</li> <li>Instant quizzes / Quiz by surprise</li> <li>Individual homework assignments</li> <li>Think and present the best idea of a</li> </ul>

Code	Course Learning Outcomes Teaching Strategie		Assessment Methods	
		as needed. • Group discussion	given problem in a quick session • Asking Questions	
		<ul> <li>Student-centered learning should be designed to facilitate the learner in doing, thinking, manipulating, constructing, testing, analyzing and reflecting.</li> <li>Encourage students to browse different journals, seminars or websites at their leisure time to have better understanding about the process and latest advancement in</li> </ul>	about previous topics discussed and getting replies • Midterm exam and Final written exam.	
2.0	Skills	this arena.		
2.1	Evaluate vulnerability of an information systems and establish a plan for risk management.	<ul> <li>Lecture: Teacher gives concepts theoretically and by applying those to a real-world case study to be discussed using different examples on different situations</li> <li>Discussions: the teacher throws an idea to students and asks them to give their viewpoints, as well as, their reasoning regarding it</li> <li>Encouraging student participation</li> <li>Use more easily understandable graphs/pictures to describe certain</li> </ul>	<ul> <li>Class participation</li> <li>Asking Questions about previous topics discussed and getting replies</li> <li>Individual homework assignments</li> <li>Think and present the best idea of a given problem in a quick session</li> </ul>	

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		<ul> <li>topic and in that process use interesting words or interactive sounds to help students to improve their receptive memory.</li> <li>Before starting the new lecture, ask the class to recall the topics of last lecture and the critical issues based on different topics, which certainly helps students to recall memory frequently and store that topic in their memory for long term.</li> </ul>	
2.2	Apply contemporary theories, processes, tools, and solutions to problems of information security.	<ul> <li>Lecture: Teacher gives concepts theoretically and by applying those to a real-world case study to be discussed using different examples on different situations</li> <li>Discussions: the teacher throws an idea to students and asks them to give their viewpoints, as well as, their reasoning regarding it</li> <li>Encouraging student participation</li> </ul>	<ul> <li>Class participation</li> <li>Asking Questions about previous topics discussed and getting replies</li> <li>Individual homework assignments</li> <li>Think and present the best idea of a given problem in a quick session</li> </ul>

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		<ul> <li>Use more easily understandable graphs/pictures to describe certain topic and in that process use interesting words or interactive sounds to help students to improve their receptive memory.</li> <li>Before starting the new lecture, ask the class to recall the topics of last lecture and the critical issues based on different topics, which certainly helps students to recall memory frequently and store that topic in their memory for long term.</li> </ul>	
3.0	Values		
3.1	Develop leadership, teamwork, self- learning in the implementation of the information systems Security.	Lab Demonstrations, Group Discussions	Assignments, projects
3.2			
2. Asses	2. Assessment Tasks for Students		

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	2,4,7,8 weeks	10%
2	Assignments	2,4,7,9 weeks	10%
3	Midterm Examinations	6 <sup>th</sup> week	20%
4	Final Examination	12 <sup>th</sup> ,13 <sup>th</sup> week	40%
5	Final Lab Examination	11 <sup>th</sup> week	10%
6	Lab Performances	2-13 <sup>th</sup> weeks	10%
7			

#	Assessment task*	Week Due	Percentage of Total Assessment Score
8			
			100%

\*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 : Weekly office hours =10

Weekly academic advising hours = 4

### **F. Learning Resources and Facilities**

#### **1.Learning Resources**

Required Textbooks	<ul> <li>Michael E. Whitman, Herbert J. Mattord, Principles of information security, 7<sup>th</sup> edition, Cengage Learning, 2021, ISBN-13: 9780357677889</li> </ul>
Essential References Materials	<ul> <li>Vincent Nestler, "Principles of Computer Security CompTIA Security and Beyond Lab Manual", Second Edition, McGraw-Hill Osborne Media, ISBN-10: 0071748563</li> <li>W. Stallings, Cryptography and Network Security: Principles and Practice, Pearson, 7<sup>th</sup> Edition. 2016. ISBN 13: 978-1-292-15858-7</li> </ul>
Electronic Materials	www.iacr.org
Other Learning Materials	

### 2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	<ul> <li>Lecture Rooms with appropriate number of seats, Projector with Screen and a white board or a smart board.</li> <li>All the computers in all the laboratories should be installed with the latest version of the required software.</li> </ul>
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	<ul> <li>One PC and one projector and data show in the lecture room</li> <li>Number of PCs according to strength of students in the lab room</li> </ul>
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

# **G.** Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	<b>Evaluation Methods</b>
Strategies for Obtaining Student Feedback on Effectiveness of Teaching	<ul> <li>Online Course Survey: By the end of each semester, students give their opinions about many factors in the course. They give feedback about the teaching strategies, assessment methods, textbooks, instructor, etc.</li> <li>Feedback about Course Learning Outcomes (CLOs): A course survey is distributed to students to take their opinions about the CLOs.</li> </ul>	Direct
Strategies for Evaluation of Teaching by the Instructor or by the Department	<ul> <li>Consulting peers on teaching.</li> <li>Discussion about the course in department.</li> <li>Discussion with experienced teaching staff in the subject.</li> </ul>	Direct
Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)	<ul> <li>Mid and Final exams are reviewed by Course Coordinators to check the compatibility between questions and CLOs.</li> <li>All the exams (mid and final) and final grade sheet will be rechecked by a faculty member assigned by GEC before the final result.</li> <li>Vice Dean and Dean will review and approve the final grades before publishing on the internet.</li> </ul>	Direct
Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement	<ul> <li>Each instructor has to teach the course according to the previous course materials and improvement plans.</li> <li>By the end of each semester, a course file containing all activities and samples must be prepared and submitted to the college.</li> <li>Evaluation of CLOs can be used to compare the</li> </ul>	Indirect

Evaluation Areas/Issues	Evaluators	<b>Evaluation Methods</b>
	<ul> <li>improvement from previous evaluation.</li> <li>Improvement plan based on the online course survey must be prepared.</li> <li>Action plan based on the CLOs achievements must be prepared.</li> </ul>	

**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	Department Council
Reference No.	14440729-0182-00018
Date	1444/08/01