Course Specification
(Bachelor)

Course Title:	Information Security
Course Code:	IS1489
Program:	Bachelor of Information Systems
Department:	Information systems
College:	College of Computer and Information Sciences
Institution:	Imam Mohammad Ibn Saud Islamic University
Version:	2
Last Revision Date:	21st July 2025

Approved: 24/08/2025

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A. General information about the course:

1. Course Identification

1. Credit hours: 3 credit hours (lectures:3)

2. Course type

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

3. Level/year at which this course is offered: 2nd Year

4. Course general Description:

This course aims to provide students with an academic overview of information security covering its main domains. The course provides the foundation for understanding the key issues associated with protecting information using cryptographic algorithms, determining the authentication and authorization techniques for safe access to information, and assigning the features of information security protocols. In addition, the course will provide the student with an overview of the main software flaws and different ways of protections against intruders. Students will be exposed to the spectrum of security activities, methods, and techniques. By the completion of this course, students should appreciate the significance of information security in the IT realm, and be able to demonstrate in-depth knowledge of information security technical key principles and techniques. Upon successful completion of this course, students will have a broad ethical knowledge of the major technical security challenges.

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

IS1330 Fundamentals of Data Networks

6. Co-requisites for this course (if any):

No Co-requisites

7. Course Main Objective(s):

The target of the course is to introduce topics related to information security. The students will learn about information security terminologies, cryptography techniques, access control algorithms, authentication and security protocols, software flaws, malicious software, information security ethics and laws and information systems security development project.

2. Teaching mode (mark all that apply)

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

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	45
2.	**Laboratory/Studio**	
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		45

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

Code	Course Learning Outcomes	Code of CLOs aligned with PLOs (Performance Level)	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Define the concepts related to advanced information security	K2(P)	Class Lectures	Quiz, Midterm Exam
1.2	Describe advanced cryptography and its implementation considerations	K2(P)	Class Lectures	Quiz, Final Exam
1.3	Describe the fundamental issues in designing access control models and authentication and security protocols.	K2(P), K3(I)	Class Lectures	Final Exam

Code	Course Learning Outcomes	Code of CLOs aligned with PLOs (Performance Level)	Teaching Strategies	Assessment Methods
1.4	List the main characteristics of software flaws and malicious software.	K2(P)	Class Lectures	*Final Exam,* Assignments
2.0	Skills			
2.1	Explain the main cryptography algorithms.	S4(P)	Class Lectures	Midterm, Quiz 2, Final Exams
2.2	Create and maintain a comprehensive security model.	S2(P)	Class Lectures	Project,
2.3	Plan and organize an information systems security development project at an introductory level.	S2(P)	Class Lectures	Assignments,
3.0	**Values, autonomy, and responsibility**			
3.1	Function effectively on teams to accomplish a common goal	V1(P)	Class Discussion, Lecture	Project Report
3.2	Present a topic in a compelling manner	V3(P)	Lecture	Project Presentation

C. Course Content

No	List of Topics	Contact Hours
1.	**Introduction to Information Security**	**3**
2.	**Basic Cryptography**	**3**
3.	**Symmetric Key Cryptosystems (RC4 topic is self-learning)**	**7**
4.	**Public Key Cryptosystems**	**7**
5.	**Access Control-Authentication (Fingerprint History topic is self-learning)**	**5**
6.	**Access Control-Authorization**	**5**
7.	**Authentication Protocols**	**6**
8.	**Security Protocols (WEP is self-learning)**	**3**
9.	**Software Flaws and Malware**	**3**
10.	**Information Security Ethics & Laws (self-learning)**	**3**
Total		**45**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz	4,11	10%
2.	Midterm Exam	8	20%
3.	Assignment	7	10%
4.	Group Project	15	20%
5.	Final Exam	16	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	Information Security Principles and Practice, 2nd edition, Mark Stamp, Wiley Publications, 2011, ISBN 978-0470626399.
Supportive References	Information Security: Principles and Practices; Mark S. Merkow, Jim Breithaupt, Published Jun 4, 2014 by Pearson; ISBN-10: 0-7897-5325-1, ISBN-13: 978-0-7897-5325-0 Understanding Cryptography, 1 edition, ChristofPaar; Jan Pelzl, Springer, 2010, ISBN 978-3642041006. Computer Security, 3rd edition, Dieter Gollmann, John Wiley&Sons, 2011, ISBN 978-0470741153. The Basic of Information Security, Jason Andress, 2014 Elsevier Inc, Second Edition
Electronic Materials	Information Security: Principles and Practices; Mark S. Merkow, Jim Breithaupt, Published Jun 4, 2014 by Pearson; ISBN-10: 0-7897-5325-1, ISBN-13: 978-0-7897-5325-0 A Bug Hunter's Diary: A Guide Tour through the Wild of Software Security, 1 edition, Tobias Klein, No Starch Press, 2011, ISBN 978-1593273859. Practical Malware Analysis: The Hands-On Guide to Dissecting Malicious Software,1 edition, Michael Sikorski; Andrew Honing, No Starch Press, 2012, ISBN 978-1593272906. Applied Cryptography: Protocols, Algorithms and Source Code in C, second edition, Bruce Schneier, Jon Wiely& Sons, Inc., 1995, ISBN 978-0471117094.
Other Learning Materials	N/A

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	**1. At least 30 seats** **2. A projector connected to a PC preferably with Internet connection** **3. Sliding board**
Technology equipment (projector, smart board, software)	
Other equipment (depending on the nature of the specialty)	**N/A**

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	**Students**	**Indirect using course evaluation survey**
Effectiveness of Students assessment	**Faculty members**	**Direct method using TOS file**
Quality of learning resources	**Students and Faculty**	**Indirect using course evaluation survey and faculty survey**
The extent to which CLOs have been achieved	**Faculty members**	**Direct method using TOS file**
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**IS CURRICULUM APPROVAL & DEVELOPMENT COMMITTEE IS QAC / / IS COUNCIL**
REFERENCE NO.	
DATE	