اعتماد
NCAAA

T4

2020

Course Specifications

Course Title:	Computer systems Security
Course Code:	502459-3
Program:	Bachelor in Computer Science
Department:	Department of Information Technology
College:	College of Computers and Information Technology
Institution:	Taif University

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Table of Contents

A. Course Identification

1. **Credit hours:3**
2. Course type
a. University ☐ College ☐ Department ☑ Others ☐
b. Required ☑ Elective ☐
3. Level/year at which this course is offered: **14/5**
4. Pre-requisites for this course (if any)**: 503442-3**
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**	5	62.5%
2	**Blended**	0	0
3	**E-learning**	0	0
4	**Distance learning**	0	0
5	**Other**	3	37.5%

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	50
2	**Laboratory/Studio**	30
3	**Tutorial**	0
4	**Others** (specify)	0
	Total	80

B. Course Objectives and Learning Outcomes

1. Course Description

This course introduces the basic security attacks against computer systems and the different techniques to overcome these attacks. Besides, this course explains the different modern encryption mechanisms and protocols (including symmetric and public key cryptography). Moreover, it examines the different security services such as authentication and access control. Finally, this course introduces an overview to network security and the tools used to secure networks such as the firewall, proxy and intrusion detection systems. Students will learn about tools for defending against attacks, and methods for designing secure systems

2. Course Main Objective

The objective of this course is to cover principles of computer and network security along with some relevant background in basic cryptography. We will discuss various attack techniques and how to defend against them. After completing this course, students will be able to analyze, design, and build secure systems of moderate complexity.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Compare and contrast most existing threads, attacks and vulnerabilities of a computer system.	K1
2	**Skills :**	
2.1	Use the appropriate cryptographic methods and techniques to protect local and communicated data.	S1
2.2	Use existing security services and techniques to design a secure computer system.	S2
3	**Values:**	

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to computer security	**3**
2	Malware	**3**
3	Cryptographic Tools and encryption methods	**3**
4	Symmetric cryptography encryption methods	**5**
5	Public-Key Cryptography and Message Authentication	**6**
6	User Authentication	**3**
7	Access Control methods	**6**
8	Web Security: Vulnerabilities, Attacks, and Countermeasures	**6**
9	Networks security	**9**
10	Physical and Infrastructure security	**6**
	Total	**50**

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	Compare and contrast most existing threads, attacks and vulnerabilities of a computer system.	Lecture Discussion Lab work	Written Exams Assignments Practical Exam
2.0	**Skills**		
2.1	Use the appropriate cryptographic methods and techniques to protect local and communicated data.	Lecture Discussion Lab work	Written Exams Assignments Practical Exam

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.2	Use existing security services and techniques to design a secure computer system.	Lecture Discussion Lab work	Written Exams Assignments Practical Exam
3.0	**Values**		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Assignments	10	10%
	Mid Exam	6	20%
2	Minor project	10	10%
4	Labs	11	20%
5	Final Exam	12	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 :

Academic advising and counseling of students is an important component of teaching; student academic advising is a mandatory requirement of College of Computers and Information Technology (CCIT). Appropriate student advising provides support needed for the student during times of difficulty. In addition, it helps the student to build a close relationship with his/her advisor and to provide student motivation and involvement with the institution.

In addition, since faculty are usually the first to recognize that a student is having difficulty, faculty members play a key role in developing solutions for the students or referring them to appropriate services. Faculty members also participate in the formal student-mentoring program.

Additional counseling is provided by course directors, who provide students with academic reinforcement and assistance and refer "at risk" students to the Vice Dean for Academic Affairs and the Vice Dean for female section.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	William Stallings, Lawrie Brown, "**Computer Security: Principles and Practice**", Prentice Hall, latest edition.
Essential References Materials	CompTIA Security+ Review Guide: Exam SY0-501 James Michael Stewart ISBN: 978-1-119-41694-4
Electronic Materials	Presentations and recorded lectures

Item	Resources
Other Learning Materials	Useful web links Resources for security certification training

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	• A Lecture room appropriate for maximum 25 students with a personal computer, a data show and a smart board. • A Lab room appropriate for maximum 15 students with a personal computer, a data show and a smart board.
Technology Resources (AV, data show, Smart Board, software, etc.)	• Lab materials and required software
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	Evaluation Methods
Effectiveness of Teaching	Students	Students surveys and Students course evaluation
Improvement of Teaching	Course Coordinator	deficiencies based on the student Evaluation, faculty input, course file, and program assessment
Verifying Standards of Student Achievement	Curriculum Committee	• Review CAF (Course assessment file) • Alumni surveys. Periodic exchange and remarking of tests or a sample of assignments with staff at another

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	CS council
Reference No.	Meeting #12
Date	23-10-1443

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