اعتماد
NCAAA

T4

2020

Course Specifications

Course Title:	Cryptography and Network Security
Course Code:	503557-3
Program:	Bachelor in Computer Engineering
Department:	Department of Computer Engineering
College:	College of Computers and Information Technology
Institution:	Taif University

Table of Contents

A. Course Identification

1. Credit hours: 3 hours	

2. Course type

a.	University ☐	College ☐	Department **x**		Others ☐		
b.		Required ☐	Elective **x**				

3. Level/year at which this course is offered: 10/5

4. Pre-requisites for this course (if any)**:**
Computer networks (503443-4)

5. Co-requisites for this course (if any)**:**
NON

6. Mode of Instruction (mark all that apply)

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

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	45
2	**Laboratory/Studio**	
3	**Tutorial**	
4	**Others** (specify)	
	Total	45

B. Course Objectives and Learning Outcomes

1. Course Description

Need for computer system security, Security attacks and threats, Security service, Conventional cryptography: concepts and methods, Conventional cryptography algorithms: DES, AES, etc., Public key cryptography, RSA Algorithm, Key management, User authentication and digital signature, Firewalls and proxy servers, Network intrusion detection and PC security.

2. Course Main Objective

This course provides students with the most common cryptographic algorithms and protocols and how to use cryptographic algorithms and protocols to secure distributed applications and computer networks

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Understand the Cryptography principles and types	K1

2	Skills :	
2.1	Apply public key encryption methods	S3
2.2	Secure the email and web servers	S3
3	Values:	
3.1	Describe the computer systems security issues	V1
3.2	Describe authentication schemes	V1

C. Course Content

No	List of Topics	Contact Hours
1	Introduction, CONVENTIONAL ENCRYPTION, DES,AES	4
2	Contemporary Symmetric Ciphers 3DES, RC4, RC5	4
3	Introduction to Number Theory	4
4	PublicKey Cryptography. RSA	4
5	Message Authentication and Hash Functions, Hash and Mac Algorithms	4
6	Digital Signatures and Authentication Protocols	5
7	MAC, Hash and message digests	5
8	Digital signatures, passwords, Kerberos	5
9	Network security Authentication Applications	5
10	IP and Web security	5
	Total	45

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 Cryptography principles and types	Lecture Discussion Brainstorming Problem solving	Written Exams Quizzes Assignments
2.0	**Skills**		
2.1	Apply public key encryption methods	Lecture Discussion Brainstorming Group Work Problem Solving	Written Exams Quizzes Assignments
2.2	Secure the email and web servers	Lecture Discussion Self learning Group Work Problem Solving	Written Exams Quizzes Assignments Student research
3.0	**Values**		
3.1	Describe the computer systems security issues	Discussion Brainstorming Self-Learning	Assignments Student research
3.2	Describe authentication schemes	Discussion	Assignments

		Brainstorming Self-Learning	Student research

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Assignments	Continues	5%
2	Midterm Exam	8	20%
3	Project	11	15%
4	Quizzes	Continues	10%
5	Final Exam	16	50%

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 :

- Teaching staff provide at least 6 office hours for students to help them in the course as well as in any other academic issues.
- Consultation can also be done 24 hours/ 7days through university Edugate (Tawasol) or emails or BB messages.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Cryptography and Network Security: Principles and Practice, William Stallings, Prentice Hall, 5th edition 2010
Essential References Materials	Cryptography and network security. by: Parashar, Ajay Raj, (2015)
Electronic Materials	
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Traditional Classrooms,
Technology Resources (AV, data show, Smart Board, software, etc.)	Data show, Blackboard system
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 and assessment	Students	Indirect (Survey) Student surveys and student evaluation
Achievement of course learning outcomes	Students Faculty Curriculum committee	Indirect (Survey) Direct (Course Report) Direct (program report)
Quality of learning resources	Staff members Students	Indirect (Survey)
Improvement of teaching	Course coordinator	Deficiencies based on student evaluation, course reports, and program assessment.
Verifying standards of student achievement	Curriculum committee	Review CAF (course assessment file) Alumni surveys

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	CE council/ curriculum committee
Reference No.	
Date	

قسم هندسة الحاسب
Computer Engineering Department
TU
جامعة الطائف
TAIF UNIVERSITY