



# Course Specification

## (Bachelor)

Course Title: Digital Forensics

Course Code: APIS3212

Program: Information Security Diploma

Department: Diplomas

College: Applied College

Institution: Umm Al-Qura university

Version: 1.0

Last Revision Date: 13 December 2024

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## A. General information about the course:

### 1. Course Identification

1. Credit hours: ( 3 )

#### 2. Course type

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

3. Level/year at which this course is offered: ( Level 3 )

#### 4. Course General Description:

This course introduces the field of digital forensics. The course provides a broad background on the legal considerations applicable to digital forensics and how to identify, collect and analyze digital evidence and eventually prepare proper forensic reports to support legal actions.

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

- Cyber Crimes and Threats

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

None

#### 7. Course Main Objective(s):

- Learn how to ensure the integrity of digital evidence
- Understand what types of evidence that is likely to be found on computing devices.
- Understand how to acquire digital evidence from multiple media
- Practice some common tools for analyzing digital evidence
- Write proper incident documents to report the findings of forensics analysis.

## 2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	(2 lec + 2 lab)/week	100%
2	E-learning		
3	Hybrid <ul style="list-style-type: none"> <li>Traditional classroom</li> <li>E-learning</li> </ul>		
4	Distance learning		

## 3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	30
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		60

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

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Solve a given cyber investigation problem using digital forensics techniques and tools.	K1	Lectures and Laboratory	Exams and assignments.
1.2	Distinguish between the types of evidence that is likely to be found on computing devices.	K2	Lectures and Laboratory	Exams and assignments.

<b>2.0</b>	<b>Skills</b>			
2.1	Illustrate legal and regulation issues related to digital forensics and investigation according to the legislation, regulations, instructions and decisions in the Kingdom.	S1, S4, S5, S6	Lectures and Laboratory	Exams and assignments.
<b>3.0</b>	<b>Values, autonomy, and responsibility</b>			
3.1	Be able to properly document and report the digital evidence of an indecent	V1, V2, V3	Lectures and Laboratory	Exams and assignments.

### C. Course Content

No	List of Topics	Contact Hours
1.	Forensic investigations and processing crime and incident scenes	4
2.	Legal compliance: applicable laws, affidavits, testimony, testifying, case law and chain of custody	4
3.	Types and sources of digital forensics	4
4.	Data storage and recovery	4
5.	Digital forensics acquisitions	4
6.	Digital forensics analysis	4
7.	Digital forensics reporting	4
8.	Case Study	2
Total		30

## Laboratory Content

No	List of Topics	Contact Hours
1.	Identifying digital evidence at a crime scene	3
2.	Data Acquisition Tools	3
3.	Capturing an Image Digital Evidence	3
4.	Using Remote Network Acquisition Tools	3
5.	Understanding File Systems	3
6.	Recovering Graphics Files	3
7.	Validating Forensic Data	3
8.	Conducting a Cloud Investigation	3
9.	Password Cracking Tools	3
10	Encryption Cracking Tools	3
Total		30

## D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Incident (case) analysis (hands-on assignment)	4	5%
2.	Incident (case) report assignment	6	5%
3.	Midterm	8	20%
4.	Laboratory	14	30%
5.	Final exam	Final Week	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	<p>Practical Guide to Digital Forensics Investigations, A, 2nd edition Published by Pearson IT Certification (October 16, 2020) © 2021, Darren R. Hayes</p> <ul style="list-style-type: none"> <li>Nelson, B., Phillips, A., &amp; Steuart, C. (2015). Guide to computer forensics and investigations. Delmar Learning.</li> <li>Feder, H. A. (2011). Law 101: Legal Guide for the Forensic Expert.</li> </ul>
Supportive References	<p>Learn Computer Forensics: A Beginner's Guide to Searching, Analyzing, and Securing Digital Evidence, by William Oettinger, Packt Publishing; 1st edition 2020, ISBN-13: 978-1838648176</p>
Electronic Materials	
Other Learning Materials	

### 2. Required Facilities and equipment

Items	Resources
<b>facilities</b> (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<b>Classroom &amp; Laboratory</b>
<b>Technology equipment</b> (projector, smart board, software)	<b>Multimedia Projector, Internet access, Common digital forensic tools</b>
<b>Other equipment</b> (depending on the nature of the specialty)	<b>IoT devices, Mobile phones, several types of computer memories and storages</b>

## F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Survey at the end of the course
Effectiveness of Students assessment	Instructor	Course Report
Quality of learning resources	Instructor	Survey at the end of the course
The extent to which CLOs have been achieved	Instructor	Course Report
Other		

**Assessors** (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify))



**Assessment Methods** (Direct, Indirect)

## G. Specification Approval

<b>COUNCIL /COMMITTEE</b>	Umm Al-Qura University Council
<b>REFERENCE NO.</b>	851141114462/190358
<b>DATE</b>	1446/11/22

