



Al-Balqa Applied University
Faculty of Artificial Intelligence
Intelligent Systems Department

**The Curriculum for the
B.Sc. Degree in**

**Digital Forensics
Investigations**

Al-Balqa Applied University

Curriculum for the bachelor's degree in Digital Forensics Investigations

Jan 2021

The curriculum for the B.Sc. degree in Digital Forensics Investigations consists of (132) credit hours distributed as follows:

Requirements	Credit Hours	Percentage
University Requirements	24	%18
Faculty Requirements	20	%15
Compulsory Specialization Requirements	70	%53
Elective Specialization Requirements	12	%09
Supportive Specialization Requirements	6	%05
Total	132	%100



University Requirements (24 Credit Hours) distributed as follows:

a) University Compulsory Requirements (18 Credit hours)

Course Number	Course Name	Credit hours	Weekly Hours		Pre-requisite
			Theory	Practical	
AAL101	Applied Arabic Language	3	3	0	--
AEL101	Applied English Language (1)	3	3	0	--
AEL102	Applied English Language (2)	3	3	0	AEL101
NE101	National Education and University Behavior	3	3	0	--
35001101	Military Sciences	3	3	0	--
CS101	Computer Skills and E-Learning	1	1	0	--
IEC101	Innovation, Entrepreneurship and Creativity	2	2	0	--
Total		18	18	0	

b) University Elective Requirements (6 Credit Hours)

Course Number	Course Name	Credit Hours
36001101	Communication Skills	3
36002102	Principles of Psychology	3
36003103	Jordanian Society	3
36004104	Sport and Health for all	3
36005105	Islamic Culture	3
36009111	Economic concepts	3
36009110	Contemporary Management Concepts and Skills	3
36012109	History of Righteous Caliphs	3
36007107	Agriculture in Jordan	3
36008108	Environment and Society	3
36009114	Jerusalem (Palestinian Cause)	3
36009112	Law, Media and Society	3
36009109	Islam and Life	3
36009115	Digital Society	3

Faculty Requirements (20 Credit Hours)

Course Number	Course Name	Credit hours	Weekly Hours		Pre-requisite
			Theory	Practical	
AR142	Introduction to Artificial Intelligence	3	3	0	*30202102
AR241	Artificial Intelligence Programming	3	2	3	AR142
30801101	Computer Skills (2) for Science Colleges+	3	2	3	CS101*
30801203	Object Oriented Programming	3	3	0	30801101
30801204	Object Oriented Programming Lab.	1	0	3	30801203*
AR231	Introduction to Unix	1	0	3	--
30202101	Calculus (1)	3	3	0	--
30202102	Calculus (2)	3	3	0	30202101
Total		20	16	12	

Specialization Requirements (82 credit Hours) distributed as follows:

a) Specialization Compulsory Requirements (70 credit hours)

Course Number	Course Name	Credit hours	Weekly Hours		Pre-requisite
			Theory	Practical	
ICS 140	Principles of Information and Cyber Security	3	3	0	30801101
AR 243	Machine Learning	3	3	0	AR142
ICS 251	Machine Learning Lab.	1	0	3	AR243*
DF 440	Mobile Digital Investigation	3	2	3	DF347
ICS 244	Fundamentals of Cryptography	3	3	0	ICS140
AR211	Data Structures	3	3	0	30801203
AR212	Design and Analysis of Algorithms	3	3	0	AR211
AR214	Data Structures and Algorithms Lab.	1	0	3	AR212*
30102212	Digital Logic Design	3	3	0	30801101
30102213	Digital Logic design Lab.	1	0	3	30102212*
ICS230	Computer Networks (1)	3	3	0	ICS140
ICS232	Computer Networks (1) Lab.	1	0	3	ICS230*
DF260	Privacy and Data Protection	3	3	0	ICS230
30801243	Database Design and Management 1	3	3	0	AR211
30801244	Database Design and Management Lab. 1	1	0	3	30801243*
DF 330	Operating Systems for Digital Forensics	3	3	0	AR211
ICS346	Networks Security	3	3	0	ICS230
ICS348	Networks Security Lab.	1	0	3	ICS346*
DF355	Security Threats and Countermeasures	3	3	0	ICS244
DF347	Network Forensics and Anti-Forensics	3	2	3	ICS230
DF341	Data Recovery	3	3	0	30801243
DF343	Data Recovery Lab	1	0	3	*DF341
DF460	Digital Forensics and Criminal Justice	3	3	0	ICS347

DF361	National Laws and Standards	3	3	0	DF 260
DF453	Criminal Scene Investigation	3	3	0	ICS346
DF470	Graduation Project (1)	1	-	-	+ 90 Credit Hours
DF471	Graduation Project (2)	2	-	-	DF470
DF473	Training for Digital Forensics Students	6	-	-	+ 90 Credit Hours
Total		70	51	27	

b) Specialization Elective Requirements (12 hours)

Course Number	Course Name	Credit hours	Weekly Hours		Pre-requisite
			Theory	Practical	
DF351	Risk Analysis and Security Policies	3	3	0	DF260
DF356	Database Security and Forensics	3	3	0	30801243
DF442	Operating Systems digital investigation	3	3	0	DF 330
DF450	Forensic Accounting and Fraud Examination	3	3	0	DF 347
DF 447	Cyber Intelligence and Auditing	3	3	0	ICS346
DF454	Biometrics and Security	3	3	0	ICS346
DF455	Special Topics in Digital Forensics Investigations	3	3	0	+ 90 Credit Hours
31401102	Information Technology Crimes	3	3	0	DF260
31401101	Introduction to science of Law	3	3	0	DF260
31401106	Criminal Law	3	3	0	DF260

Supportive Specialization Courses (6 credit Hours)

Course Number	Course Name	Credit hours	Weekly Hours		Pre-requisite
			Theory	Practical	
30801214	Discrete and Mathematical Structures	3	3	0	30202101
30202131	Probability and Statistics	3	3	0	30202101
Total		6	6	0	



Advisory Plan

First Year					
First Semester			Second Semester		
Course Number	Course Name	Cr. Hrs.	Course Number	Course Name	Cr. Hrs.
AAL101	Applied Arabic Language	3	AEL102	Applied English Language (2)	3
AEL101	Applied English Language (1)	3	30202102	Calculus (2)	3
30202101	Calculus (1)	3	30801101	Computer Skills (2) for Science Colleges	3
CS101	Computer Skills and E-Learning	1	30801214	Discrete and Mathematical Structures	3
IEC101	Innovation, Entrepreneurship and Creativity	2	30202131	Probability and Statistics	3
NE101	National Education and University Behavior	3	AR231	Introduction to Unix	1
-	University Elective 1	3			
Total		18	Total		16

Second Year					
First Semester			Second Semester		
Course Number	Course Name	Cr. Hrs.	Course Number	Course Name	Cr. Hrs.
AR142	Introduction to Artificial Intelligence	3	AR211	Data Structures	3
30801203	Object Oriented Programming	3	ICS244	Fundamentals of Cryptography	3
30801204	Object Oriented Programming Lab.	1	AR243	Machine Learning	3
ICS140	Principles of Information and Cyber Security	3	ICS251	Machine Learning Lab	1
30102212	Digital Logic Design	3	ICS232	Computer Networks (1) Lab	1
-	University Elective 2	3	AR241	Artificial Intelligence Programming	3
			30102213	Digital Logic design Lab	1
			ICS230	Computer Network (1)	3
Total		16	Total		18



Third Year					
First Semester			Second Semester		
Course Number	Course Name	Cr. Hrs.	Course Number	Course Name	Cr. Hrs.
30801243	Database Design and Management 1	3	DF341	Data Recovery	3
AR212	Design and Analysis of Algorithms	3	DF343	Data Recovery Lab	1
AR214	Data Structures and Algorithms Lab	1	DF460	Digital Forensics and Criminal Justice	3
ICS346	Networks Security	3	DF355	Security Threats and Countermeasures	3
ICS348	Networks Security Lab	1	30801244	Database Design and Management Lab. 1	1
DF347	Network Forensics and Anti-Forensics	3	DF361	National Laws and Standards	3
DF 260	Privacy and Data Protection	3	DF 330	Operating Systems for Digital Forensics	3
Total		17	Total		17

Fourth Year					
First Semester			Second Semester		
Course Number	Course Name	Cr. Hrs.	Course Number	Course Name	Cr. Hrs.
DF440	Mobile digital investigation	3	DF471	Graduation Project (2)	2
DF453	Criminal Scene Investigation	3	DF473	Training for Digital Forensic Students	6
-	Specialization Elective 1	3		Specialization Elective 3	3
-	Specialization Elective 2	3	-	Specialization Elective 4	3
35001101	Military Sciences	3			
DF470	Graduation Project (1)	1			
Total		16	Total		14



Course Description

Course Name	: Introduction to Artificial Intelligence	Course Number	: AR142
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: 30202102*
Introduction to artificial intelligence, Uninformed, informed and Adversarial search, Partial observability; CSPs, Propositional Logic and related probability, Bayesian, Bayesian Network inference, Approximate inference in Bayesian Networks, Information gathering, Temporal models. Markov Decision Processes, Learning using Regression and Classification, Linear and Logistic regression, introduction to Learning methods using Bayesian Networks, Reinforcement learning, Q-learning, Probabilistic first order logic.			

Course Name	: Artificial Intelligence Programming	Course Number	: AR241
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: AR142
This course introduces Python programming, it covers basic programming topics, such as variables, functions and loops, to more advanced topics. Moreover, students are expected to explore their programming skills in Lab. with guided programming exercises focusing on AI algorithms and applications.			

Course Name	: Computer Skills (2) for Science Colleges	Course Number	: 30801101
Credit Hours	: [3] Th. : [2] Pra. : [3]	Prerequisites	: CS101*
Basics of programming, algorithm development using top-down design with syntax and semantics of the C++ programming language, creating, compiling and executing C++ programs, primitive data types, operations, Loops, control structures, procedures and functions, arrays and classes.			

Course Name	: Object Oriented Programming	Course Number	: 30801203
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: 30801101
Object-oriented (OO) programming environment, OO building blocks, input/output, loops, decisions, functions, arrays and strings, data structures, encapsulation, advanced variables, object oriented programming, useful OO features, classes and objects, inheritance, composition, polymorphism, method overloading, handling exceptions, thread programming and multithreading.			

Course Name	: Object Oriented Programming Lab.	Course Number	: 30801204
Credit Hours	: [1] Th. : [0] Pra. : [3]	Co-Prerequisites	: 30801203*
Structured Programming Skills Recap, Object-Oriented Programming(OOP) Skills, Classes And Objects, Access Modifiers, Constructors, Constructor Overloading, Destructors, Using Constantin OOP, Using Static in OOP, Methods and Parameter Passing, Array of Objects, Composition, Inheritance, Abstract Classes, Derived Classes, Interfaces, Method Override, Polymorphism, Working with Files, Exception Handling, OOP and GUI.			



Course Name	:	Introduction to Unix	Course Number	:	AR231
Credit Hours	:	[1] Th. : [0] Pra. : [3]	Prerequisites	:	-

Introduction:, A brief history of UNIX, Architecture of the Linux operating system, General format of UNIX commands, The UNIX filesystem, Typical UNIX directory structure, Inspecting file content, Finding files, Sorting files, File compression and backup, Handling removable media, Processes, Pipes, Redirecting input and output, User Information and Communication, Printer control, Email utilities, Advanced text file processing, Manual pages, UNIX editors, The superuser root, User management, Reconfiguring and recompiling the Linux kernel, Cron jobs, Keeping essential system processes alive, Shells and shell scripts, Shell variables and the environment, Simple shell scripting, More advanced shell scripting, Start-up shell scripts.

Course Name	:	Calculus (1)	Course Number	:	30202101
Credit Hours	:	[3] Th. : [3] Pra. : [0]	Prerequisites	:	--

Functions: domain, operations on functions, graphs of functions, trigonometric functions; inverse functions; logarithmic and exponential functions; inverse trigonometric functions; limits and continuity; the derivative: techniques of differentiation, the chain rule, implicit differentiation; differentials; Roll's theorem; the main value theorem; increasing and decreasing functions; concavity; maximum and minimum values of a function, graphs of including rational functions; the indefinite integral; the fundamental theorem of calculus; integration by substitution; the area between a curve and x-axis.

Course Name	:	Calculus (2)	Course Number	:	30202102
Credit Hours	:	[3] Th. : [3] Pra. : [0]	Prerequisites	:	30202101

Hyperbolic functions; Techniques of integration; L'Hôpital's rule; improper integrals; applications of the definite integrals; Infinite series: geometric, p-harmonic, simple comparison tests, formal power series for some elementary functions, Taylor series; polar coordinates; parametric equations and applications.

Course Name	:	Principles of Information and Cyber Security	Course Number	:	ICS140
Credit Hours	:	[3] Th. : [3] Pra. : [0]	Prerequisites	:	30801101

Introduction to Information Security, Number theory and Discrete Logarithm Problem. Security Models and Policies, Cryptography Overview, Security Architectures, Including Identification, Authentication, and Access Control. Introduction to Malicious Software Including Viruses, Worms, Trojan Horses, etc. Program Security, Security tools, Assurance, Law and Ethics, Privacy and Privacy Enhancement tools. Human Resources Security.

Course Name	:	Machine Learning	Course Number	:	AR243
Credit Hours	:	[3] Th. : [3] Pra. : [0]	Prerequisites	:	AR142

This course covers essential machine learning algorithms. Topics include supervised learning algorithms (linear and logistic regression, generative models for classification, learning theory), deep learning algorithms (feedforward neural networks, convolutional neural networks, recurrent neural networks), unsupervised learning algorithms (variational autoencoders, generative adversarial networks, mixture models), and reinforcement learning (classic RL, deep RL).



Course Name	: Machine Learning Lab.	Course Number	: ICS251
Credit Hours	: [1] Th. : [0] Pra. : [3]	Prerequisites	: AR243*

In this course student will implement the machine learning concepts and algorithms that are covered in Machine Learning course in any suitable language selected by the department.

Course Name	: Mobile Digital Investigation	Course Number	: DF440
Credit Hours	: [3] Th. : [2] Pra. : [3]	Prerequisites	: DF347

In this course students will get related to the examination of mobile devices and the impact of mobile technology on the greater law enforcement community and prosecution of crimes. There will be an emphasis on field based learning. Upon successful course completion, students will be able to demonstrate knowledge of legal issues surrounding the search and seizure of mobile devices; investigate the types of evidence that could potentially be recovered from these devices; and examine mobile device forensic tools, techniques and best practices.

Course Name	: Fundamentals of Cryptography	Course Number	: ICS244
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: ICS140

Introduction to Modern Cryptography, with an Emphasis on the Fundamental Cryptographic Primitives of Symmetric and Asymmetric Public-Key Encryption, Hash Functions, Message Authentication, RSA, Diffie-Hellman, Certification Authorities, Digital Signatures, Pseudo-Random Number Generation, and Basic Protocols and their Computational Complexity Requirements Introduction to Elliptic Curve Cryptography.

Course Name	: Data Structures	Course Number	: AR211
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: 30801203

This course provides students an appreciation to the fundamentals of computer science. Models and applications of data structures including heaps, search trees, hash tables and disjoint sets are introduced and evaluated. Mathematical tools for analysis of algorithms and data structures are discussed and applied.

Course Name	: Design and Analysis of Algorithms	Course Number	: AR212
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: AR211

This course is to design efficient computer algorithms, proving their correctness, and analyzing their running times. It includes mathematical analysis of algorithms (summations and recurrences), advanced data structures (balanced search trees), algorithm design techniques (divide-and-conquer, dynamic programming, and greedy algorithms), graph algorithms (breadth-first and depth-first search, minimum spanning trees, and shortest paths).

Course Name	: Data Structures and Algorithms Lab.	Course Number	: AR214
Credit Hours	: [1] Th. : [0] Pra. : [3]	Co-Prerequisites	: AR212*

Object Oriented Programming Skills Recap, Arrays, Array Implementation of Stack and Applications, Linked List, Array Implementation of Queue and Applications, Linked List and Applications, Double Linked List and



Applications, Linked List Implementation of Stack and Queue, Circular Queue and Application, Collections, Maps (Hash Table), Binary Tree and Binary Search Tree, Recursion, Searching Algorithms, Sorting Algorithms, Graph Representation, Implementation and Applications.

Course Name	:	Digital Logic Design	Course Number	:	30102212
Credit Hours	:	[3] Th. : [3] Pra. : [0]	Prerequisites	:	30801101
Numbering systems, Boolean algebra, logic algebra, basic logic gates, minimization of logic functions, combinational logic: adders, subtractors, encoders and decoders, multiplexers and demultiplexers, sequential logic: flip-flops, counters, registers and clocked sequential circuits.					

Course Name	:	Digital Logic design Lab.	Course Number	:	30102213
Credit Hours	:	[1] Th. : [0] Pra. : [3]	Prerequisites	:	30102212
Digital Logic Gate (AND, OR, NAND, NOR, XOR), Simplification of Boolean Functions, Combinational Circuits, Code Converters, Decoder, Design with Multiplexers, Adder and Subtractor, Flip-Flops, Sequential Circuits, Counters, Shift Registers, Serial Addition, Memory Unit, Clock-Pulse Generator, Parallel Adder And Accumulator.					

Course Name	:	Computer Networks(1)	Course Number	:	ICS230
Credit Hours	:	[3] Th. : [3] Pra. : [0]	Prerequisites	:	ICS140
Open System Interconnection (OSI) Reference Model, TCP/IP Reference Model, Physical Layer, Data Link Layer, Network Layer, Transport Layer, Session Layer, Presentation Layer, and Applications Layer. LAN and WAN Architectures. Network Design, Management and Security.					

Course Name	:	Computer Networks(1) Lab.	Course Number	:	ICS232
Credit Hours	:	[1] Th. : [0] Pra. : [3]	Prerequisites	:	ICS230
Setting Up the PC and Configuring the NIC. Establishing A LAN. Routers and Network tools. Router Configuration and Router Protocols. Securing Networks Using Routers. Configuring Switches. Network Address Conversion. Introduction to Wireless Networks and Configuration.					

Course Name	:	Privacy and Data Protection	Course Number	:	DF 260
Credit Hours	:	[3] Th. : [3] Pra. : [2]	Prerequisites	:	ICS230
This course will examine: 1) security issues related to the safeguarding of sensitive personal and corporate information against inadvertent disclosure; 2) policy and societal questions concerning the value of security and privacy regulations, the real world effects of data breaches on individuals and businesses, and the balancing of interests among individuals, government, and enterprises; 3) current and proposed laws and regulations that govern information security and privacy; 4) private sector regulatory efforts and self-help measures; 5) emerging technologies that may affect security and privacy concerns; and 6) issues related to the development of enterprise data security programs, policies, and procedures that take into account the requirements of all relevant constituencies; e.g., technical, business, and legal.					



Course Name	: Database Design and Management 1	Course Number	: 30801243
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: AR211

Basic concepts and terminology, database, database administrator, database management systems, characteristics of the database approach, the three level-schema architecture, data independence, the entity relationship model, notations and concepts, the relational model (concepts, constraints and operations), relational algebra, ER to relational mappings, the SQL language, functional dependencies and normalization.

Course Name	: Database Design and Management Lab. 1	Course Number	: 30801244
Credit Hours	: [1] Th. : [0] Pra. : [3]	Prerequisites	: 30801243

Introduction to SQL and environment setup, Working with SQL to query database , create and manage users, Creating schema, DDL statements including CREATE , DROP and ALTER statements , DML including INSERT, UPDATE and DELETE statements, TRUNCATE statement, Retrieving data using the SELECT statement, Restricting and sorting data, Working with single-row functions, Conversion functions and conditional expressions, Reporting aggregated data using the group functions, Displaying data from multiple tables, using subqueries to solve queries, Set operators.

Course Name	: Operating Systems for Digital Forensics	Course Number	: DF 330
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: AR211

Principles, purpose and structure of operating systems; processes, threads, and multi-threaded programming; CPU scheduling; synchronization, mutual exclusion; Deadlock, memory management and virtual memory; device management; file systems, security and protection.

Course Name	: Networks Security	Course Number	: ICS346
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: ICS230

Comprehensive Overview of Network Security, Principles of Network Security, Intrusion Detection and Prevention Systems, Firewalls, Security Overview, Authentication Techniques, Attacks and Malicious Software Code, Network Security, Software Security and Trusted Systems, Denial of Service Attacks, Web Security, Monitoring, Auditing, Intrusion Detection, Intrusion Prevention, and Ethical Penetration Testing. Emphasis Is on Methods to Identify System Vulnerabilities and Threats and Prevent Attacks.

Course Name	: Networks Security Lab.	Course Number	: ICS348
Credit Hours	: [1] Th. : [0] Pra. : [3]	Prerequisites	: ICS346*

Hands-on experiences and practical skills obtained from working on lab assignments are an organic part in the teaching of the Network Security class for students to understand the underneath theoretic parts.

Course Name	: Security Threats and Countermeasures	Course Number	: DF355
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: DF 260



The course details different network infrastructure security threats, attacks, and countermeasures at different organizational network layers. It includes perimeter security defenses, firewalls, virtual private networks, intrusion detection systems, wireless security, mobile networks, and network security auditing tools.

Course Name	: Network Forensics and Anti-Forensics	Course Number	: DF347
Credit Hours	: [3] Th. : [2] Pra. : [3]	Prerequisites	: ICS230

Network Forensics and Anti-Forensics is a specialized area of IT Forensics that focuses primarily on the proactive approaches required for network-based information gathering, legal evidence collection and intrusion detection. Learners will understand how the temporary state of network traffic creates a unique challenge in the field of Network Forensics and Anti-Forensics. This course is a current topics course that will continuously change to meet current IT/Network security conditions. In addition, students will examine files for hidden messages and learn to use programs like MobileFish, OpenPuff and SilentEye to hide files in images and audio files, and Wireshark and NetworkMiner to analyze packet captures. Students also work with the Windows registry, practice locating Internet passwords from browsers using IE PassView and Google tools, and encrypt files/folders using AESCrypt and similar open source programs.

Course Name	: Data Recovery	Course Number	: DF341
Credit Hours	: [3] Th. : [0] Pra. : [0]	Prerequisites	: 30801243

This course surveys the technical analysis of file systems, operating system artifacts and the recovery of data from file systems on digital media. Particular focus is given to the metadata of the file systems and what potential information they can provide. The course explores the files systems used by the following operating systems Windows, Linux and Macintosh as well as recovering data from these files systems.

Course Name	: Data Recovery Lab	Course Number	: DF343
Credit Hours	: [1] Th. : [0] Pra. : [3]	Prerequisites	: *DF341

This course concentrates on hands-on lab exercises that provide an in-depth exposure to the most highly technical logical and physical data recovery procedures. The course focuses on fundamentals of hardware data recovery, hard drive diagnose, logical recovery for Windows, Mac OS X, Linux, RAID arrays, Exchange server and solid state flash NAND drives.

Course Name	: Digital Forensics and Criminal Justice	Course Number	: DF460
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: DF 260

An overview of the criminal justice system and the application of digital forensic evidence in criminal justice cases. The objective is to apply constitutional and case law to the search and seizure of digital evidence, determine the most effective and appropriate forensic response strategies to digital evidence, and provide effective courtroom testimony in a case involving digital evidence. Topics include crime scene procedures and the collection of digital evidence, procedures performed in a digital forensics lab, and the preparation of courtroom testimony by the digital forensic investigator. Introduction to the topic of criminality in online environments. Topics include hacking, online identity theft, fraud, trade in illicit substances/items, sexual crimes online, and responses to cybercriminal.

Course Name	: National Laws and Standards	Course Number	: DF 361
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: DF 260

This course introduces students to a collection of legislation and related by laws enacted by the Jordan in the domain of Information and communication Technologies. Also covers topics such as national policies and standards, national guidelines and tools, international policies and strategies, international legislations, international standards and international best practices.

Course Name	: Criminal Scene Investigation	Course Number	: DF 453
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: ICS346

An examination of theories and practices of the investigation process in the criminal justice system. An analysis of information and application of operational techniques relating to crime scenes, forensic sciences, interviews, and interrogations. A study of issues concerning rules of evidence, trial testimony, and other constitutional processes.

Course Name	: Graduation Project (1)	Course Number	: DF 470
Credit Hours	: [1] Th. : [-] Pra. : [-]	Prerequisites	: +90 Credit Hours.

This course is the first part of a sequence of two courses that constitute the BSc graduation capstone project. Students to communicate, present, and exhibit significant knowledge and understanding of a project idea that demonstrates knowledge, application, analysis, synthesis, and evaluation of information gained throughout their study. At the end of this semester, students expected to submit a proposal of their project.

Course Name	: Graduation Project (2)	Course Number	: DF 471
Credit Hours	: [2] Th. : [-] Pra. : [-]	Prerequisites	: DFI470

This course is the second part of a sequence of two courses that constitute the BSc graduation capstone project. The student is expected to be engaged in group work and put into action their knowledge gained from the different courses in their study plan through a graduation project.

Course Name	: Training for Cyber Security Students	Course Number	: DF 473
Credit Hours	: [6] Th. : [-] Pra. : [-]	Prerequisites	: +90 Credit Hours.

Student should register as trainee in digital Forensics Investigations. The registration must have the department approval. The purpose of the supervised field training experiences is for student to synthesize the knowledge and skills developed during his academic portion of the program in a practical setting. The expectation is that the field training will provide learning opportunities unavailable in a classroom setting. The student's field training faculty advisor monitors student progress and provides them with on-site supervision and support. The 6 credit hours are equivalent to 280 training hour.



Course Name	: Risk Analysis and Security Policies	Course Number	: DF 351
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: DF 260

Introduction to the different types of risks (i.e., political, legal, financial, operational etc.) that multinational companies operating in developing countries face. Through lectures, readings and case studies, the course will analyze the different tools and strategies companies use to identify, measure, and manage such risks. The concepts, skills and analytical tools taught in this course will enhance students' ability to identify opportunities and risks in the global marketplace and formulate successful international strategies. The course also examines stated information policies in various contexts, including business, government and technology implementation (e.g., cryptographic devices) with an eye to detecting errors, flaws and omissions. The intent is to develop, for those policies that survive careful scrutiny, high level architectural considerations for the possible systems implementations.

Course Name	: Database Security and Forensics	Course Number	: DF 356
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: 30801243

The principles and practices of implementing computer database security in modern businesses and industries, including database security principles, database auditing, security implementation and database reliability. Another objective is to improve efficiency and quality of forensic investigations by applying technical skills in seizing database systems as well as extracting and examining the information they provide.

Course Name	: Operating Systems digital investigation	Course Number	: DF442
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: DF 330

This course offers students the opportunity to deep dive into a case using X-Ways Forensics to examine the registry, understand "typical" user activities on the Internet (social media and search histories, for example), and create a timeline/events. Students also gain more experience with RegRipper along with an introduction to analyzing a memory dump using Volatility.

Course Name	: Forensic Accounting and Fraud Examination	Course Number	: DF 450
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: DF 347

This course explores the forensic accountant's role in today's economy. Topics covered include fraud detection and fraud investigation techniques, valuation of closely held businesses, lost profits analyses, and various types of litigation support services. Fundamental legal concepts governing expert witness testimony are also examined, and students are required to quantify economic damages in cases. By the end of the course students are able to understand both the pervasiveness and the causes of fraud and white-collar crime in our society, examine the types of fraud and fraud schemes that affect business enterprises, explore methods of fraud detection and prevention, and increase their ability to recognize potential fraudulent situations.



Course Name	: Cyber intelligence and Auditing	Course Number	: DF 447
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: ICS346

Fundamental concepts related to an information systems audit. Principles and practices related to secure operation of existing information technology. Information security accountability, development of internal control objectives and framework, and identification of appropriate audit procedures for a secure information system. This course will enable students to measure security policy compliance. The course will teach students to reflect on the need to protect IT assets daily. Students will learn that a security audit is a continual effort to improve data protection. The course will demonstrate that an audit measures the organization's security policy and provides an analysis of the effectiveness of that policy within the context of the organization's structure, objectives and activities. Students will learn to use tools as part of the audit process, and how to develop organized, consistent, and accurate data collection.

Course Name	: Biometrics and Security	Course Number	: DF 454
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: ICS346

To provide students with understanding of biometrics, biometric equipment and standards applied to security. also to familiarize students with the recent developments, encompassing new discoveries in the areas of information representation, image processing, database system design, surface modeling and visualization. In Addition, traditional and emerging technologies for fingerprint matching face reconstruction, emotion animation, iris synthesis, voice recognition, thermogram-based biometrics, and fusion methods and its relation and uses in improving secure systems.

Course Name	: Special Topics in Digital Forensics Investigations	Course Number	: DF 455
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: +90 Credit Hours

Students Are Introduced to Advanced Selected topics in Different Areas of digital forensics investigations that not Covered in Other Courses. The topics Covered Vary from Year to Year, Depending on Department's Council Approval.

Course Name	: Information Technology Crimes	Course Number	: 31401102
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: DF260

This course deals with the definition of crimes committed via Internet, indicating their types, forms, pictures, and pillars as transnational crimes, and defining their outdated crimes. It consists also all issues related to the Internet.

Course Name	: Introduction to the science of Law	Course Number	: 31401101
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: DF260

This course deals with the theory of Law, definition of the law and its necessary, characteristics of the legal rules, the sources of law, interpretation of the law, and the scope of application of the law. This course also deals the theory of the right in terms of defining the right, its divisions, sources, pillars, its proof, and the abuse of the use of the right.



Course Name	: Criminal Law	Course Number	: 31401106
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: DF260

This course deals with the crime in terms of its types, elements, stages of its commission, the theory of criminal participation, and the reasons for the permissibility of crimes. It covers the topic of criminal responsibility and its contraindications, reasons for the severity of penalties and the conditions for mitigating penalties, excuse exempt from punishment, and the special treatment of some groups of criminals such as juveniles Etc.

Course Name	: Discrete and Mathematical Structures	Course Number	: 30801214
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: 30202101

Introduction to Logic, Propositional Logic, Predicate Logic, Formal and Informal Proofs, Sets, Set Operations. Functions, Countable and Uncountable Sets. Integers and Modular Arithmetic, Sequences, Summations, Mathematical Induction, Recursion, Counting, Permutations, Combinations, Probability, Relations, Graph Theory, Trees.

Course Name	: Probability and Statistics	Course Number	: 30202131
Credit Hours	: [3] Th. : [3] Pra. : [0]	Prerequisites	: 30202101

Descriptive statistics, Probability; axioms of probability, rules of probability, conditional probability, independence. Discrete and continuous random variables, expectation, probability distributions. Sampling distributions; t and Chi square and F distributions, CLT. Point estimation: for mean and variance, the difference between two means and the ratio of two variances, testing hypotheses for small, large and dependent samples, correlation, simple linear and multiple regression. Goodness of fit tests.