جامعة الإسراء
ISRA UNIVERSITY

Faculty of Information Technology

Department of

Computer Science\Computer Network Systems

Study Plan for the Bachelor Degree in Computer Science\Computer Network Systems

2023 / 2024

Vision:

Leadership and excellence in computer science to reach for global according to the approved standards.

Mission:

Prepare distinguished and effective elite in the fields of computer science capable of developing software and computer-related industries to meet the needs of the labor market and serve the local community.

Program Objectives:

1) Delivering high-quality and effective education using a variety of contemporary teaching methods including blended online education as a means of increasing efficiency and student learning opportunities.
2) Provide Scholarships for outstanding students.
3) Attracting distinguished faculty members.
4) Build mutual partnership with the local community.
5) Prepare qualified competencies in the field of computer network systems to fulfill the local and regional labor market requirements.
6) Preparing cadres committed to the ethics of the profession

1. **Intended Learning Outcomes (ILOs):**

   a) Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

   b) Design, implement and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

   c) Communicate effectively in a variety of professional contexts.

   d) Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

   e) Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

   f) Apply computer science theory and software development fundamentals to produce computing-based solutions. [CS].

2. Framework for Computer science\Computer Network Systems Bachelor Degree (135 Cr. Hrs.)

Classification	Credit Hours			Percentage
	Compulsory	Elective	Total	
University Requirements	**12**	**12**	**24**	**18%**
Faculty Requirements	**21**	**-**	**21**	**16%**
Program Requirements	**72**	**9**	**81**	**60%**
Support Courses	**6**	**-**	**6**	**4%**
Free Electives	**3**	**-**	**3**	**2%**
Total			**135**	**100%**

Course Numbering:

0	6		0	8		year	semester		0-9		0-9
Faculty Code			**Dept. Code**			**Course Level**			**Knowledge Field**		**Sequence**

Knowledge Areas

Number	Knowledge Field
0	**Computer and Algorithms Sciences** - Discrete Mathematics, Data Structure, Algorithms
1	**Programming** - Visual Programming, Object Oriented Programming, Web Design (1), Web Design (2), Programming Methodology, Programming Fundamentals
2	**Computer Main Components** - Digital Logic Circuits, Operating Systems, Computer Organization and Design, Computer Architecture
3	**Information Sciences and Applications** - Databases, Information Systems Analysis and Design, Database Systems Management,
4	**Networks**: - Computer networks, Wireless Computer Networks
5	**CNS Speciation:** -Information Security, Digital Forensics, Advanced Computer Networks, Advanced Network Protocols, Network Security, Networks Management, Smart Phone Programming
6	**Network Programming:** -Network Monitoring and Documentation, Networks & Severs Programming
7	**Electives (**Minimum of 6 Credit Hours) - Advanced Programming, Electronic mail management, Network Simulation and modeling, Network project management, Programing network security, Network multimedia, Selected Topics (1), Selected Topics (2), Optical Network Communication.

9	**Training / CNS** - 3 Hrs of Training after completing at least 90 Hrs **Graduation Project/ CNS** - 3 Hrs after completing at least 90 Hrs

3. University Requirements: (24 Credit Hours)

3.1 Compulsory University Requirements: (12 Credit Hours)

Course No.	Course Title	Cr. Hr.	Prerequisite	Corequisite
01101101	Military Sciences (Only for Jordanian *)	3	-	-
01101102	National Education (Only For Jordanian *)	3	-	-
01101111	Arabic Language	3	01100011	-
01101112	English Language	3	01100012	-
	Total	**12**		

3.2 Elective: 12 Credit Hours from the following courses.

Course No.	Course Title	Cr. Hr.	Prerequisite	Corequisite
01101103	Traffic Education	3	-	
01101104	Innovation and Entrepreneurship			
01101121	Life skills	3	-	
01101131	Islamic Culture	3	-	
01101132	Jerusalem and the Hashemite Custodianship	3	-	
01101141	Sport and Health	3	-	
01101142	Environment and society	3	-	
01101151	Computer Skills	3	01100051	
01101152	Internet and Communication	3	-	
01101161	Economic Systems and Concepts	3	-	
01101171	Psychology and Society	3	-	
01101213	Communication Skills in Arabic Language	3	01101111	
01101214	Communication Skills in English Language	3	01101112	
01101243	Public safety and first aid	3	-	
01101281	Scientific Research Methods	3	-	
01101282	Introduction to Astronomy	3	-	
03011101	Law in our Life	3	-	
03021201	Human Rights	3	-	

4. Faculty Requirements: (21 Credit Hours)

4.1 Compulsory Faculty Requirements: (21 Credit Hours)

Course No.	Course Title	Cr. hr.	Theoretical	Practical	Prerequisite
11021101	General Physics 1	3			-
11031101	Calculus (1)	3			-
06051110	Programming Methodology	3			-
06051200	Discrete Mathematics	3			-
06051220	Logic Design	3	2	2	11021101
06051211	Programming Fundamentals	3	2	2	06051110
06052102	Data Structures	3	2	2	06051211
	Total	**21**			

4.2 Faculty Requirements Electives: (zero Credit Hours)

Course No.	Course Title	Cr. hr.	Prerequisite	Corequisite

5. Department Requirements (81 Credit Hours)
5.1 Compulsory Department Requirements: (72. Credit Hours)

Course No.	Course Title	Cr. hr.	Theoretical	Practical	Prerequisite
06052232	Information Systems Analysis and Design	3			06052112
06052112	Object Oriented Paradigm	3	2	2	06051211
06052201	Algorithms	3			06052102
06052122	Computer Architecture	3			06051220
06053113	Visual Programming	3			06052112
06053214	Web Design (1)	3	2	2	06052112
06014115	Web Design (2)	3	2	2	06053214
06053130	Databases	3	2	2	06052201
06053223	Operating System	3			06052122
06052221	Computer Organization and Design	3			06052122
06042150	Information Security	3			11031141
06044251	Digital Forensics	3			06043256
06052140	Computer Networks	3			06051220
06083150	Advanced Computer Networks	3			06052140
06083141	Wireless Computer Networks	3			06052140
06083251	Advanced Network Protocols	3			06083150
06043256	Networks Security	3			06042150

Course No.	Course Title	Cr. hr.			Prerequisite
06084152	Network operating systems	3			06053223
06013153	Networks Management	3			06052140
06082261	Network Monitoring and Documentation	3			06052140
06043162	Networks & Severs Programming	3			06052140
06084190	Practical Training CNS	3			Pass 90 Cr.hr.
06084191	Graduation Project CNS	3			Pass 90 Cr.hr.
06013256	Smart Phone Programming	3			06053113
	Total	**72**			

5.2 Department Electives: (9 Credit Hours)

Course No.	Course Title	Cr. hr.	Theoretical	Practical	Prerequisite
06043273	Advanced Programming	3			06053113
06084271	Electronic mail management	3			06052140
06084272	Optical Network Communication	3			06052140
06083173	Network Simulation and modeling	3			06052140
06083275	Network Project Management	3			06052140
06083270	Programing Network Security	3			06043162
06084277	Network Multimedia	3			06052140
06014171	Selected Topics (1)	3			Dept Approval
06054272	Selected Topics (2)	3			Dept Approval
	Total				

6. Support Courses (6 Credit Hours)

Course No.	Course Title	Cr. hr.	Theoretical	Practical	Prerequisite
11031141	Statistics and Probabilities	3			11031101
06052253	Numeric Analysis	3			11031101
	Total	**6**			

7. Free Electives: 3 Credit Hours

Course No.	Course Title	Cr. hr.	Theoretical	Practical	Prerequisite
	Total				

Study Plan Guide for the Bachelor Degree in Computer Sciences\Computer Multimedia Systems

First Year					
First Term					
Course No.	**Course Title**	**Cr. hrs.**	**Theoretical**	**Practical**	**Prerequisite**
06051200	Discrete Mathematics	3			-
11031101	Calculus (1)	3			-
06051110	Programming Methodology	3			-
01101111	Arabic Language	3			01100011
01101112	English Language	3			01100012
	Total	**15**			
Second Term					
Course No.	**Course Title**	**Cr. hrs.**	**Theoretical**	**Practical**	**Prerequisite**
11031141	Statistics and Probabilities	3			11031101
06051211	Programing Fundamentals	3	2	2	06051110
06051220	Logic Design	3	2	2	11021101
-	University Comp or Elective Req	3			-
11021101	General Physics 1	3			-
		15			

Second Year					
First Term					
Course No.	**Course Title**	**Cr. hrs.**	**Theoretical**	**Practical**	**Prerequisite**
	University Comp. or Elective Req.2	3			
06052102	Data Structures	3	2	2	06051211
06013150	Information Security	3			11031141
06052112	Object Oriented Paradigm	3	2	2	06051211
06052122	Computer Architecture	3			06051220
01101102	National Education (Only For Jordanian *)	3			
	Total	**18**			
Second Term					
Course No.	**Course Title**	**Cr. hrs.**	**Theoretical**	**Practical**	**Prerequisite**
06052140	Computer Networks	3			06052122
06052232	Computer Organization and Design	3			06052122
	University Comp. or Elective Req.3	3			
06052232	Information Systems Analysis and Design	3			06052122
06053223	Operating System	3			06052122
06052201	Algorithms	3			06052102
	Free Course	3			
	Total	**18**			

Third Year					
First Term					
Course No.	**Course Title**	**Cr. hrs.**	**Theoretical**	**Practical**	**Prerequisite**
06053113	Visual Programming	3			06052112
06053214	Web Design (1)	3	2	2	06052112
06083150	Advanced Computer Networks	3			06052140
06053130	Databases	3	2	2	06052201
	University Comp. or Elective Req.4	3			
	Specialization Elective	3			
	Total	**18**			
Second Term					
Course No.	**Course Title**	**Cr. hrs.**	**Theoretical**	**Practical**	**Prerequisite**
06013153	Networks Management	3			06052140
06043256	Networks Security	3			06013150
06083251	Advanced Network Protocols	3			06083150
06052221	Computer Organization and Design	3			06052122
06083141	Wireless Computer Networks	3			06052140
06052253	Numeric Analysis	3			11031101
	Total	**18**			

Fourth Year					
First Term					
Course No.	**Course Title**	**Cr. hrs.**	**Theoretical**	**Practical**	**Prerequisite**
06084152	Network Operating Systems	3			06053223
06043162	Networks & Severs Programming	3			06052140
06014115	Web Design (2)	3	2	2	06053214
06084190	Practical Training CNS	3			Pass 90 Cr.hr.
06013256	Smart Phone Programming	3			06053113
	University Comp. or Elective Req.3				
	Total	**18**			
Second Term					
Course No.	**Course Title**	**Cr. hrs.**	**Theoretical**	**Practical**	**Prerequisite**
	Free Course	3			
01101101	Military Sciences (Only for Jordanian *)	3			
06044251	Digital Forensics	3			06043256
06082261	Network Monitoring and Documentation	3			06052140
06084191	Graduation Project-CNS	3			Pass 90 Cr.hr.
	Total	**15**			

Description of Courses offered by the
Department of Computer Science\Computer Multimedia Systems.

11021101   **General Physics (1) (Prerequisite: - none)**   **(3) Cr. Hrs**

Vectors, Basics of Mechanics Description of Motion in one Dimension, Motion in two Dimensions, Applications of   Newton's Laws, Work Energy Theorem, Collisions and Rotational Motion

11031101   **Calculus (1) (Prerequisite:- none)**   **(3) Cr. Hrs**

Functions and Limits, Continuous functions, derivative, differentiation rules, implicit differentiation, applications integrals, definite integrals, transcendental functions, inverse trigonometric functions.

06051110   **Programming Methodology (Prerequisite: - none)**   **(3) Cr. Hrs**

Problem-solving concepts: constants and variables, data types, problem-solving steps, expressions, problem solving tools, algorithms, flowcharts, pseudo-code, programming logic structures (sequential, decision, and loops), Arrays.

06051200   **Discrete Mathematics (Prerequisite: - none)**   **(3) Cr. Hrs**

Introduces discrete structures and techniques for computing. Sets, graphs and trees. Functions, relation properties, recursive definitions, solving recurrences, equivalence, partial order. Proof techniques, inductive proof counting techniques and discrete probability

06051220   **Logic Design (Prerequisite: -** 11051101**)**   **(3) Cr. Hrs**

- **(2) Theoretical Hours**
- **(2) Practical Hours**

Number systems, computer codes. Boolean algebra and logic gates. Simplification of Boolean functions, Karnaugh map, combinational logic implementation including PLAs, (adders, comparators, coders, decoders, code converters, multiplexers, de-multiplexers). Sequential circuits, flip flops, counters, shift registers, memories

06051211   **Programming Fundamentals (Prerequisite: -** 06051110**)**   **(3) Cr. Hrs**

- **(2) Theoretical Hours**
- **(2) Practical Hours**

Fundamental concepts of programming using C++ or Java: classes and objects, modeling object (attributes and behaviors), algorithms, problem solving

flowcharts, pseudo codes. Basic blocks of programming such as variable names, data types, control structures, functions, arrays.

06052102   **Data Structure (Prerequisite: -** 06051211**)**   **(3) Cr. Hrs**

- **(2) Theoretical Hours**

- **(2) Practical Hours**

Algorithmic problem solving, Data Structures (static & dynamic), lists, stacks, queues, graphs, trees, sets and dictionaries). Recursion and iteration. Students are expected to do lab experiments using C++ or Java

06052232   **Information Systems Analysis & Design (Prerequisite:-** 06052112**) (3) Cr. Hrs**

System Theory, information systems and information systems types, system analysis and design methods, object oriented system analysis and design methods. Study cases.

06052112   **Object Oriented Paradigm (Prerequisite: -** 06051211**)**   **(3) Cr. Hrs**

- **(2) Theoretical Hours**

- **(2) Practical Hours**

Introduction to OOP, models, objects, methods, links, message passing, polymorphism, dynamic binding, classes constructors and destructors, association, generalization and specialization, inheritance, overridden methods, aggregation. Students are required to perform some lab experiments using the latest JAVA language version and UML using Rational Rose software.

06052201   **Algorithms (Prerequisite: -** 06052102**)**   **(3) Cr. Hrs**

Introduction to the design and analysis of algorithms, mathematical algorithms. Greedy technique, manipulating data: sorting, searching, dynamic programming, space & time tradeoffs. The concept of algorithm efficiency, table, and information retrieval. Combinatorial problems, advancement in Java skills and techniques

06052122   **Computer Architecture (Prerequisite: -**06051220**)**   **(3) Cr. Hrs**

Hardware components of a modern computer system, history and performance, the instruction cycle, memory organization, cache memory, I/O organization, CPU, micro-programmed control, instruction formats and modes

06053113   **Visual Programming (Prerequisite: -** 06052112**)**   **(3) Cr. Hrs**

Basic Visual Programming, solid foundation of the syntax and semantics of a visual Programming language used to develop both windows-based and web-based application. Coverage of Microsoft's. NET platform architecture.

06053214　　　**Web Design (1) (Prerequisite: -** 06052112**)**　　　**(3) Cr. Hrs**

- **(2) Theoretical Hours**

- **(2) Practical Hours**

Basic concepts of the Internet and Internet browsers, Internet applications, web page creation tools and languages. Basic XHTML (frames, forms), cascading style sheets, scripting and scripting languages. Dynamic XHTML (object based programming and events). Students are required to do a Mini- project.

06014115　　　**Web Design (2) (Prerequisite: -**06053214**)**　　　**(3) Cr. Hrs**

- **(2) Theoretical Hours**

- **(2) Practical Hours**

This unit introduces students to design, development and implementation of server side applications, the use of multimedia and human interaction on the browser side. Students gain practical experience creating dynamic web applications that interact with a database using client side scripts, server side scripts and compiled server programs. Security, access right, financial transactions and legal issues are also covered. This unit incorporates substantial practical experience in applying theoretical concepts. Students are required to submit mini project.

06053130　　　**Databases (Prerequisite: -** 06052201**)**　　　**(3) Cr. Hrs**

- **(2) Theoretical Hours**

- **(2) Practical Hours**

An in-depth examination of relational databases, modern database technologies, conceptual design and entity relationship modeling, relational algebra and calculus, data definition and manipulation languages using SQL, schema and view management, query processing and optimization, transaction management, security, privacy, integrity, and management. Students are required to do project work.

06053223　　　**Operating System (Prerequisite: -** 06052122**)**　　　**(3) Cr. Hrs**

Definition of operating system, review of hardware, software and firmware, process concepts, asynchronous concurrent processes, real storage, virtual storage, processor scheduling, distributed computing, disk performance optimization.

06052221　　　**Computer Organization and Design (Prerequisite: -** 06052122**)**　　　**(3) Cr. Hrs**

Explores the levels of architecture and organization in digital computers: logic circuit design, integrated circuits and assembly language coding.

06042150   **Information Security (Prerequisite: -** 11031141**)**   **(3) Cr. Hrs**

Information security basics, basic cryptography, modern symmetric ciphers, public key cryptosystems, key management, message authentication, hash functions, digital signatures, IP and web security, firewalls and trusted systems, secured software design, application security software threats, social, legal, and ethical issues. Human factors in security.

06044251   **Digital Forensics (Prerequisite: -**06043256**)**   **(3) Cr. Hrs**

Fundamentals of Digital Crimes and Network Forensics, Forensic Modeling, Forensic Duplication and analysis, Network Surveillance, Intrusion Detection and Prevention, Incident Response and Trace-Back. Signature and anomaly Based Intrusion Detection, Pattern Matching Algorithms, Viruses, Trojans and Worms Detection. Multicast Fingerprinting, anonymity and Pseudonym. Privacy-Protection Techniques, Cyber Law, Computer Security Policies and Guidelines, Court Testimony and Report Writing, and Case Studies.

06052140   **Computer Networks (Prerequisite: -** 06051220**)**   **(3) Cr. Hrs**

Logical and physical of computer networks, architecture and transmission alternatives. OSI-reference model, ALOHA protocol, CSMA protocols, LAN, IEEE standards and protocols (token ring, token bus and Ethernet), physical layer basics, data link layer, framing protocols, error detecting and correcting, routing algorithms, flow control, congestion control algorithms, personal computer networks.

06083150   **Advanced Computer Networks (Prerequisite: -**06052140**)**   **(3) Cr. Hrs**

Concepts and terminology of data communications and computer networks, logical and physical realization of computer networks, architectures and transmission alternatives. OSI-reference model, LAN, IEEE standards and protocols (token ring, token bus, and Ethernet), physical layer basics, data link layer, framing protocols,

error detecting and correcting, routing algorithms, flow control, congestion control algorithms, and Personal computer networks

06083141   **Wireless Computer Networks (Prerequisite: -** 06052140**)**   **(3) Cr. Hrs**
Introduction to mobile and wireless networks. Designing computer networks to support computer mobility. Mobile network architecture. Wireless technologies and protocols. Wireless LAN standards. Models for indoor and outdoor mobile networks. Systems issues such as performance. Quality of service guarantees, reliability, and security in mobile computing environment. Hardware and access protocols for mobile networks. Mobile application protocols.

06083251   **Advanced Network Protocols (Prerequisite: -**06083150**)**   **(3) Cr. Hrs**
The goal of this course is to familiarize students with the concepts of data communication, computer networks, and Internetworking. At the end of this course, students will be able to understand the principles of computer networking, including protocol features, protocol layering, and addressing, routing, and basic network security issues. Students will be able to enumerate the architectural structures of the ISO/OSI and TCP/IP and explain functions of each layer. In addition, student will be able to understand Networks applications, Network Protocols and architecture; Data link layer: framing, error detection and correction. In addition, it will explain CSMA/CD, LAN IEEE standards; Network layer: IP service model, IP V4 and IPV6 Addressing, subnetting, Host configuration DHCP, ARP Protocol, ICMP protocol; Transport layer: UDP protocol, TCP protocol, TCP reliable transfer and sliding window. TCP flow and congestion control; Application layer: DNS protocol, NAT protocol, HTTP protocol. In addition Network layer routing protocols, such as Routing Information Protocol (RIP), Open Shortest Path First (OSPF), Border Gateway Protocol (BGP) and routing Algorithms like, Link Stat, Distance Vector. In addition, the course will cover the essential wireless network protocols.

06043256   **Smart Phone Programming (Prerequisite: -** 06053113**)**   **(3) Cr. Hrs**

The smart phone programming course allows students to learn the fundamentals of programming for smart phones. It covers various concepts related to layouts, widgets event handling, processing JSON files, using MySQL database with php service. The course allows students to be familiar with a mainstream of today's technology

06043256   **Networks Security (Prerequisite: -**06042150**)**   **(3) Cr. Hrs**
Introduction to network security; network security requirements, security policy; cryptography and its applications to network security; network security threats; applications of cryptography; secret key and public key cryptographic algorithms; hash functions; authentication; security for electronic mail; Firewalls and intrusion detection techniques; building secure channels; hardening network systems and potential threats to network systems.

06084152   **Network Operating System (Prerequisite: -** 06053223**)**   **(3) Cr. Hrs**

This course develops the necessary skills for students to develop both GUI and command line skills for using and customizing a Linux workstation. Topics include Linux file system and access permissions, GNOME Interface, VI editor, X Window System expression pattern matching, I/O redirection, network and printing utilities. Upon completion, students should be able to customize and use Linux systems for command line requirements and desktop productivity roles

06013153   **Networks Management (Prerequisite: -06052140)**   **(3) Cr. Hrs**

Principles of network, system and application management, various network management standards, network management: fault management, performance management, configuration management, security management, and accounting management, enterprise management system, telecommunication management network, and network management tools and applications.

06082261   **Network Monitoring and Documentation (Prerequisite:- 06052140)**   **(3) Cr. Hrs**

This course covers standard information that a network administrator can use to monitor, analyze, and troubleshoot a group of distributed local area networks (LANs) and interconnecting T-1/E-1 and T-2/E-3 lines from a central site. The course emphasizes "learning by doing", and requires students to conduct a series of lab exercises. Through these labs, students can enhance their understanding of the principles, and be able to apply those principles to solve real problems.

06043162   **Networks & Severs Programming (Prerequisite: -**06052140**)**   **(3) Cr. Hrs**

Introduction to networks programming advanced JAVA (covers I/O Routines, Threading Sockets, URL connections, Server-Side programming), database connectivity, distributed programming, and network security, Students are required to do lab. Assignment.

06043273   **Advanced Programming (Prerequisite: -** 06053113**)**   **(3) Cr. Hrs**

Advanced features of the language such as handling exceptions, Files and Database connectivity. Other major topics in this course include network programming serialization, properties, multithreading, and security.

06084190   **Practical Training CNS (Prerequisite: -** Pass 90 Cr.hr.**)**   **(3) Cr. Hrs**

Practical training in the public or private sector for at least 8 weeks

06084191   **Graduation Project -CNS (Prerequisite:-**Pass 90 Cr.hr.**)**   **(3) Cr. Hrs**

Student picks one of the projects posted by the department as part of requirements of graduation.

06084271   **Electronic Mail Management (Prerequisite: -**06052140**)**   **(3) Cr. Hrs**

Introducing Email protocols on the internet – Mail Access Protocols; 1- Post Office Protocol version 3 (POP3), 2- The Internet Message Access Protocol (IMAP), and

Mail Transport Protocols; 1- Simple Mail Transfer Protocol (SMTP). The topics include Email Program Classifications: 1- Mail Transport Agent, 2- Mail Delivery Agent, 3- Mail User Agent. The course covers customizing your mail filters for Fighting Spam, securing your email, and sending emails with Python examples.

06084272   Optical Network Communication (Prerequisite:- 06052140**)   (3) Cr. Hrs**

Principles of fiber optics, system components, applications of fiber optics in data and network communication systems. The topics covered include building blocks for optical networks and systems. Included is an introduction to optical components, principles, and functionality in optical network elements as well as basic physical principles and properties and constraints in optical fiber transmission.

06083173   Network Simulation And Modeling (Prerequisite: -06052140**)   (3) Cr. Hrs**

Introduction to simulation concepts, discrete event simulation, random number generation, input modeling; statistical analysis of simulation, computer networks simulation, Discrete-time Markov chains (DTMC), Continuous-time Markov chains (CTMC), Queuing models (M/M/1, M/M/c/k, M/G/1). Well-known network simulation packages such as ns3 and/or OPNET.

06083275   Network Project Management (Prerequisite: -06052140**)   (3) Cr. Hrs**

The course covers professional practice in the context of networking projects. It employs case studies and follows projects from start to completion. The Course enhances knowledge and uses in-depth analysis of common issues/risks that project team members often face and strategies to mitigate these issues/risks. This course will cover the following topics: 1. Project management process, 2. Initiation and planning projects, 3. Scheduling, resourcing, budgeting projects, 4. Project quality, risk management, and ethics, 5. Project management integration and closure.

06083270   Programing Network Security (Prerequisite: -06043162**)**

This course provides an application-driven introduction to using Python for cybersecurity. Python can help to automate tasks across the cyberattack life cycle for both cyber attackers and defenders. This course demonstrates some of these applications and how Python can be used to make cybersecurity professionals more

efficient and effective. The challenges faced by security professionals are constantly evolving, the course will give you the skills to develop solutions.

06084277   Network Multimedia (Prerequisite: - 06052140**)**

This course introduces fundamental technologies for video communications and networking. It will address 1) how to efficiently represent and process video signals, and 2) how to deliver video signals over networks. Topics to be covered include an introduction to video systems, Fourier analysis of video signals, properties of the human visual system, motion estimation, basic video compression techniques, video communication standards, and video transport over the Internet and wireless networks.

06014171   Special Topics (1) (Prerequisite: - Dept. Approval**)   (3) Cr. Hrs**

To be set by the department.

06054272   Special Topics (2) (Prerequisite: - Dept. Approval **)   (3) Cr. Hrs**

To be set by the department.

11031141   Statistics and Probabilities (Prerequisite: - 11031101**)   (3) Cr. Hrs**

Definitions and basic elements of probability, Rules of probability, Random Variables: Discrete and continuous random variables and their probability distribution functions, the mathematical expectation. Some discrete and continues distributions: Binomal, Poisson, geometric, Hyper geometric and Normal Distributions. Point and interval estimation of the parameters of one and two populations. Tests of hypotheses concerning the above parameters, and Goodness of fit and independence tests. Simple linear Regression and inference concerning its parameters multiple linear regression: Description and estimate using matrices.

06052253   Numerical Analysis (Prerequisite: - 11031101**)   (3) Cr. Hrs**

The error calculation, roots of nonlinear equations, use of numerical methods to solve systems of linear equations, approximation Functions, Find derivatives, find the values of numerical integrals by numerical methods, the use of numerical methods to solve differential equations