



جامعة اليرموك  
**Yarmouk University**  
 كلية تكنولوجيا المعلومات وعلوم الحاسوب  
**Information Technology and Computer  
 Sciences**



<b>Document Code</b>	<b>Courses Description</b>	<b>Document Approval Date</b>
AP01-PR06		

<b>Department: Information Technology</b>	<b>Program: Cybersecurity</b>	<b>Official Stamp:</b>
The courses description was approved by the decision of the Department's Council no. .... on ....		

<b>Course Name: Cyber Security Principles</b>	<b>Course Code and Number: CYS 230</b>	<b>Number of Credit Hours:</b>
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Teaching Language: English

Pre-requisite: **CS 111**

<b>Course Description</b>	This course is designed to cater all student knowledge needs, from elementary networking concepts, to intermediate network monitoring and security techniques. Topics covered include: software and operating security, data and database security, network security, encryption, IP addressing, firewall, computer crime
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<b>Course Name: Introduction to Cryptography</b>	<b>Course Code and Number: CYS 232</b>	<b>Number of Credit Hours: 3</b>
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Teaching Language: English

Pre-requisite: **CS 142, CYS 230**

<b>Course Description</b>	The objective of this course is to familiarize the students with cryptography and its applications. Topics covered include: classical encryption methods such as DES, public encryption methods such RSA, one-way encryption, digital signature and hash function
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<b>Course Name: Network Operating Systems</b>	<b>Course Code and Number: CYS 321</b>	<b>Number of Credit Hours: 3</b>
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Teaching Language: English

Pre-requisite: **CS332 and CS130**

<b>Course Description</b>	The objective of this course is to cover fundamental network administration and system management. Topics to be covered include: accessing and configuring basic network services, managing directory services, and using network management software on heterogeneous operating system platforms. Students should be able to apply system administrator skills in developing a network management strategy from installation, configuration and administration of Network Operating Systems.
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<b>Course Name: Risk Assessment and Management</b>	<b>Course Code and Number: CYS 331</b>	<b>Number of Credit Hours: 3</b>
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Teaching Language: English

Pre-requisite: **CYS 230**

<b>Course Description</b>	This course aims to provide students with the basic concepts of security risk management and explore the latest techniques for securing information and its systems with an emphasis on management perspectives. The course covers a wide range of topics which include risk management frameworks, models, processes and tools, operationalize risk management in organizations, vulnerabilities and risks, computer crime, disaster recovery, contingency planning, physical security, operational security, and information security, and the role of awareness, law, policy, and standards.
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<b>Course Name: Security of Software Systems</b>	<b>Course Code and Number: CYS 332</b>	<b>Number of Credit Hours:</b>
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Teaching Language: English

Pre-requisite: **CYS 230, CS 210**

<b>Course Description</b>	This course aims at applying basic principles in software security. It also highlights defenses that prevent or mitigate these attacks, including advanced testing and analysis techniques that can be used to enhance the security of software systems. The course requires some programming knowledge in C / C ++ Java languages, as well as knowledge of some popular algorithms.
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<b>Course Name: Ethical Hacking</b>	<b>Course Code and Number: CYS 333</b>	<b>Number of Credit Hours: 3</b>
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Teaching Language: English

Pre-requisite: **BIT 381 and CYS 321**

<b>Course Description</b>	The objective of this course is to provide students with the skills and understanding to test IT infrastructures for vulnerabilities to malicious attack. Topics to be covered include: the attack process in order to develop and maintain secure IT infrastructures against attacks, the methodologies and application of ethical hacking concepts, techniques, and tools in order to better understand how attacks are carried out.
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<b>Course Name: Ethical Hacking Laboratory</b>	<b>Course Code and Number: CYS 333L</b>	<b>Number of Credit Hours: 1</b>
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Teaching Language: English



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<b>Pre-requisite: CYS 333</b>		
<b>Course Description</b>	The objective of this course is to teach students using networking lab to run wide-range of experiments via network security tools. Topics covered include but not limited to: Eavesdropping, applying and executing attack against following protocols: ARP, IP, ICMP, TCP, UDP, identify points of weakness in DNS and make several attacks such as SQL injection. In addition to this, students shall be able to prepare network server, connect devices to each other and setup firewall.	
<b>Course Name: Network Security</b>	<b>Course Code and Number: CYS 334</b>	<b>Number of Credit Hours: 3</b>
<b>Teaching Language: English</b>		
<b>Pre-requisite: CS 332 and CYS 332</b>		
<b>Course Description</b>	The objective of this course is to concentrates on computer network defense and countermeasures by providing a solid foundation in advanced network security fundamentals. Topics to be covered include: firewalls, intrusion detection and prevention systems, virtual private network.	
<b>Course Name: Security of Internet of Things</b>	<b>Course Code and Number: CYS 335</b>	<b>Number of Credit Hours: 3</b>
<b>Teaching Language: English</b>		
<b>Pre-requisite: CYS 334</b>		
<b>Course Description</b>	This course will give students a theoretical and practical grounding in Internet of Things (IoT), covering IoT systems architecture, hardware platforms, embedded programming and debugging, networking paradigms for IoT, secure operation, cloud integration, and simple data analytics. designed to allow participants to acquire knowledge on the fundamentals of safeguarding connected devices and networks in Internet of Things (IOT). Participants will learn about the essentials of how to integrate the security aspect into their IOT design taking into consideration all the threats that can possibly happen.	
<b>Course Name: Network Programming and Monitoring</b>	<b>Course Code and Number: CYS 370</b>	<b>Number of Credit Hours: 3</b>
<b>Teaching Language: English</b>		
<b>Pre-requisite: CS 332L</b>		



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<b>Course Description</b>	The objective of this course is to provide some exposure to the students about the topics in network administration and management duties as network demonstrators/managers. Topics to be covered include: host management, infrastructure components, users management, Simple Network Management Protocol (SNMP), Management Information Base (MIB), remote monitoring, desktop management, and web based management and network security management.
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<b>Course Name: Security of Distributed Computing</b>	<b>Course Code and Number: CYS 436</b>	<b>Number of Credit Hours: 3</b>
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Teaching Language: English

Pre-requisite: **CYS 321**

<b>Course Description</b>	In distributed systems, cryptographic techniques generally form the basis to secure the systems. This course focuses on security in networks and distributed systems and gives a short introduction to cryptography. The threats against distributed systems are covered, as well as applicable methods, technologies and standards to protect against these threats.
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<b>Course Name: Data Privacy and Confidentiality</b>	<b>Course Code and Number: CYS 437</b>	<b>Number of Credit Hours: 3</b>
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Teaching Language: English

Pre-requisite: **CIS 260 and CYS 230**

<b>Course Description</b>	This course aims to provide students with an outline of the security threats to databases and e-commerce and some of the most effective countermeasures used to thwart both known security threats to databases and newly emerging threats. The course covers topics such as: common security problems and their underlying causes, techniques, guidelines and tools that can help prevent or detect those problems on the databases.
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<b>Course Name: Cloud Computing Security</b>	<b>Course Code and Number: CYS 438</b>	<b>Number of Credit Hours: 3</b>
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Teaching Language: English

Pre-requisite: **CYS 321**

<b>Course Description</b>	The objective of this course is to provide the concepts of Cloud Computing and its capabilities and Security across the various Cloud service models including Infrastructure as a Service (IaaS), and Platform as a Service (PaaS) and Software as a Service (SaaS). Topics to be covered include: fundamental Cloud
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	computing terminology and concepts, virtualization, cloud deployment models, cloud service models, cloud enabling technology and evaluating cloud security.
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<b>Course Name: Information Security Protocols</b>	<b>Course Code and Number: CYS 440</b>	<b>Number of Credit Hours: 3</b>
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**Teaching Language: English**

**Pre-requisite: CS 334**

<b>Course Description</b>	The objective of this course is to provide a detailed understanding of essential Internet protocols. Topics to be covered include: ARP, IPv4&v6, ICMP, IGMP, UDP, TCP, routing protocols such as RIP, OSPF and BGP, multicasting and multicast routing protocols such as DVMRP, MOSPF and PIM, application protocols such as DNS, DHCP, FTP and HTTP.
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<b>Course Name: Digital Forensics</b>	<b>Course Code and Number: CYS 461</b>	<b>Number of Credit Hours: 3</b>
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**Teaching Language: English**

**Pre-requisite: CYS 334**

<b>Course Description</b>	The objective of this course is to provide students with an introduction to many tools and techniques used in computer forensics. Computer evidence is often not accessible by usual access methods, so specialized software tools and techniques must be employed to recover the evidences. Modern computer forensics involves the preservation, identification and analysis of computer based evidence stored in the form of magnetically encoded information on various devices and media.
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<b>Course Name: Defense Networking Systems</b>	<b>Course Code and Number: CYS 462</b>	<b>Number of Credit Hours: 3</b>
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**Teaching Language: English**

**Pre-requisite: CYS 334**



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<b>Course Description</b>	The objective of this course is to provide students with computer network defense and countermeasures methodologies skills. Topics to be covered include: the theoretical and practical aspects of network security, the concepts of the defense-in-depth strategy and technologies are covered along with network security policy design and implementation.
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<b>Course Name: Special Topics in Cybersecurity</b>	<b>Course Code and Number: CYS 492</b>	<b>Number of Credit Hours: 3</b>
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**Teaching Language: English**

**Pre-requisite: CYS 334**

<b>Course Description</b>	The objective of this course is to teach any subject that related mainly to Cybersecurity, but not listed with department syllabus. It is should be selected with agreement of Cybersecurity program staff.
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<b>Course Name: Training Certificate</b>	<b>Course Code and Number: CYS 497</b>	<b>Number of Credit Hours:3</b>
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**Teaching Language: English**

**Pre-requisite: ----**

<b>Course Description</b>	The course is approved if the student obtains an accredited international certificate in one of the areas of specialization approved by the department according to special foundations.
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<b>Course Name: Practical Training</b>	<b>Course Code and Number: CYS 498</b>	<b>Number of Credit Hours: 3</b>
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**Teaching Language: English**

**Pre-requisite: Passing 90 CHs**

<b>Course Description</b>	The objective of this course is to enable students to practice the knowledge that they have learnt which includes: database programming, data structures and algorithms, operating systems, web programming, network and data communication etc. It is an opportunity for students to gain ICT knowledge as it in the industry. The students can develop soft skills and professionalism through interaction and communication with colleagues.
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<b>Course Name: Graduation Project</b>	<b>Course Code and Number: CYS 499</b>	<b>Number of Credit Hours: 3</b>
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<b>Teaching Language: English</b>	
<b>Pre-requisite: Passing 98 CHs</b>	
<b>Course Description</b>	The objective of this course is to give students an opportunity to utilize the knowledge and skills gained in other courses in a real-life application problem. The student is supposed to analyze the problem, design a software solution to it, coding the solution in a programming language, and writing the documentation in the form of a project report.



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