



Module (Course Syllabus) Catalogue

2023-2024

College/ Institute	Erbil Technology College		
Department	Information and Communication Technology		
Module Name	Cryptography		
Module Code	INS401		
Degree	Technical Diploma Diploma	<input type="checkbox"/> Master	<input checked="" type="checkbox"/> Bachelor PhD
Semester	Sixth		
Qualification	Master degree in computer science		
Scientific Title	Lecture		
ECTS (Credits)			
Module type	Prerequisite	<input checked="" type="checkbox"/> Core	<input type="checkbox"/> Assist.
Weekly hours	3		
Weekly hours (Theory)	(3) hr Class	() Total hrs Workload	
Weekly hours (Practical)	() hr Class	() Total hrs Workload	
Number of Weeks	15 weeks		
Lecturer (Theory)	Shereen Abdullah Anwar		
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Lecturer (Practical)	Shereen Abdullah Anwar		
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Websites			

Course Book

Course Description	This course provides a discussion of security fundamentals. This course will cover historic and modern encryption methods. It will cover how to protect the computers against viruses via anti-virus programs. It will cover information about firewalls, internet security, viruses, anti-viruses and secure Internet Protocol.				
Course objectives	<p>The objective of information security course is to familiarize with techniques and procedures that make your information more secure and keep it far away from malicious user, the student will learn how to keep information secure through authorization and authentication techniques, the course also focuses on the types of viruses and cryptographic algorithms and network security.</p> <ul style="list-style-type: none"> • To continually strengthen and improve the overall capabilities of the information security management system • To increase professional skills in terms of information security management and technology • To make International Games System’s management system for information security so complete and reliable that the ISO/IEC 27001 certification standard will continue to be effective • To ensure that information-related business operations continue to be carried out in line with the ISO/IEC 27001 standard and to establish a sustainable operation plan for business that is cost effective • To establish quantified information security goals annually through management and review meetings 				
Student's obligation	<ul style="list-style-type: none"> ○ Students attending classes regularly. ○ Group work. ○ Doing assignments. ○ Class activities. 				
Required Learning Materials					
Evaluation	Task	Weight (Marks)	Due Week	Relevant Learning Outcome	
	Paper Review	0			
	Assignments	Homework	10		
		Class Activity	2		
		Report	4		
		Seminar	10		
		Essay	0		

	Project	0		
	Quiz	4		
	Lab.	14		
	Midterm Exam	16		
	Final Exam	40		
	Total	100		
Specific learning outcome:	<p>- Specific learning outcome:</p> <p>Students successfully completing the course will be able to:</p> <ul style="list-style-type: none"> -Describe Cryptography. -Describe elements of cryptography, including encryption and hashing algorithms and Numerous methods of cryptography. -Have the ability to encrypt and decrypt a message by using C++ program. -Describe the various forms of attacks – Viruses, Worms, Trojan horses and Logic bomb and how to use anti-viruses programs. - Implement security on wireless networks. - Identify and use multiple authentication types. 			
Course References:	<p>Course Reading List and References:</p> <ul style="list-style-type: none"> ▪ Key references: Introduction to Computer Security, Matt Bishop, October 26, 2004, Cryptography and Network Security, William Stallings, Published by Person education, 2006. ▪ Useful references: 1- Hamdan.O.Alanazi, B.B.Zaidan, A.A.Zaidan, New Comparative Study Between DES, 3DES and AES within Nine Factors. 2- Mohd Zaid Waqiyuddin Mohd Zulkifli, Attack on Cryptography. 3- Nigel Smart cryptography : An Introduction (3rd Edition). ▪ Magazines and review (internet): www.kutub.info 			
Course topics (Theory)	Week	Learning Outcome		
An introduction to cryptography	1	Defination Goal of Cryptography Type of cryptofraphy		
Classical cryptographic methods <ul style="list-style-type: none"> • Monoalphabetic Method • Substitution Method Modern cryptographic methods:	2-3-4-5	Polyalphabetic Method Transposition methods Hill cipher. German ADFGVX Cipher. Affine cipher. Rail cipher		

2- Authentication means confirm identity of sender.

3- Find the cipher text by using "OTP" Method if you know that the plain text is "SECRETMESSGE" with this Key "CIJTHUUHMLFRU".

Extra notes:

Making the topics covered in the semester compatible with reality of the educational . Covering more than 80% of the prescribed subjects to improve the scientific level of students and preserve the standardization of diploma programs.

External Evaluator