



National Computing Education Accreditation Council
NCEAC



NCEAC.DOC.001-E

COURSE DESCRIPTION

NAME OF INSTITUTION Lahore Garrison University

PROGRAM (S) TO BE EVALUATED Computer Science , Spring 2023

Course Description :

Course Code	CSC374		
Course Title	Information Security		
Credit Hours	3		
Prerequisites by Course(s) and Topics			
Assessment Instruments with Weights (homework, quizzes, midterms, final, programming assignments, lab work, etc.)	SESSIONAL (Quizzes, Assignments, Presentations) =25 % Midterm Exam =25 % Final Exam = 50%		
Course Coordinator			
URL (if any)			
Current Catalog Description			
Textbook (or Laboratory Manual for Laboratory Courses)			
Reference Material			
Course Goals			
Course Learning Outcomes (CLOs):	At the end of the course the students will be able to:	Domain	BT Level*
	* BT= Bloom's Taxonomy, C=Cognitive domain, P=Psychomotor domain, A= Affective domain		

Topics Covered in the Course, with Number of Lectures on Each Topic (assume 15-week instruction and one-hour lectures)

Week	Lecture	Topics Covered
Week 1	1	Objective and Motivation, Introduction, Course Prerequisites, Course Contents. History of Secure Systems (Source: Wikipedia).
	2	Basic Principles(Information Security,Confidentiality Integrity, Availability).
Week 2	3	Authentication Models (Authentication, Authorization, Audit, Access Matrix), ACLs, Capability List
	4	BellLaPadula Model, RBAC, TBAC
Week 3	5	Security Kernels including History of Kernels Security, OS Protection Principles, OS Protection Objects, Trusted OS Concepts
	6	Secure Communications Processor (Scomp), Scomp Architecture, SCOMP Security Protection Module, Scomp Trusted Operating Program (STOP), Scomp Applications
Week 4	7	Cryptography Algorithms (Symmetric vs. Asymmetric Algorithms)
	8	Symmetric Algorithms including Data Encryption Standard (DES), 3DES (Triple DES)Blowfish,Two fish
Week 5	9	IDEA (International Data Encryption Algorithm)RC4, RC5, RC6
	10	AES (Advanced Encryption Standard), SAFER (Secure and Fast Encryption Routine)Serpent
Week 6	11	Asymmetric Key Algorithms(Diffie-Hellman), RSA (Rivest-Shamir-Adleman)
	12	EI Gamal Elliptic curve cryptosystem (ECC)
Week 7	13	Digital Signature Algorithm (DSA), Merkle-Hellman Knapsack
	14	Revision
Week 8	1 hours	Mid Term
Week 9	15	Message Digest(M.D. Algorithms) One way Hash ,Message Authentication Codes ,HMAC,Symmetric Keys,MD 2, MD 4
	16	MD5 Algorithms, HAVAL, Secure Hash Algorithm(SHA)SHA-1, SHA-256, SHA 384, SHA-512
Week 10	17	Intrusion Detection & Response including Introduction to IDS and IPS, Signature-based, Anomaly-based, Stateful Protocol
	18	Stateless Protocol, Network-based, Host-based, Network Behavior Analysis (NBA), Wireless IDPS, IDPS Evaluation
Week 11	19	Host and Network Security Requirements, Types of Threats, Interruption, Interception, Modification, Fabrication, Communication Lines and Networks, Active & Passive Attacks, Object Protection, Protection of Memory
	20	User and Data Oriented Access Control, Malicious Programs, Password Learning Techniques, Trapdoor, Logic Bomb, Trojan Horse, Worms, Zombie, Virus Types and Stages (Parasitic, Memory Resident, Boot Sector, Stealth, Polymorphic)
Week 12	21	The "How-Tos" of Physical Protection, Physical Security Components, Layers of Physical Security for Environmental Design and Physical Access, Monitoring Systems, Physical Zoning, Policy Formation and Enforcement including Information Security Policy
	22	Standards and Practices, Enterprise Information Security Policy (EISP). Issue-Specific Security Policy (ISSP), Systems-Specific Policy (SysSP), Policy Management, Military Security Policy, Commercial Security Policies, Clark-Wilson Commercial Security Policy, Chinese Wall Security Policy, Network Architecture for Automatic Security and Policy Enforcement
Week 13	23	Database Security, Database Policy Formulation and Enforcement, Database Administration, Database Policies, Access Privilege Policies
	24	Prevention of unauthorized access, Intentional or accidental to database, DBMS's Security Features, Disaster Planning, Archiving
Week 14	25	Legal and Social Security Issue including Law and Ethics in Information Security, Relevant U.S. Laws (General), Privacy of Customer Information, U.S. Copyright Law, Freedom of Information Act of 1966 (FOIA), International Laws and Legal Bodies
	26	Digital Millennium Copyright Act (DMCA), United Nations Charter, Policy Versus Law, Association of Computing Machinery (ACM) Code of Ethics, Information Systems Audit and Control Association (ISACA), Information Systems Security Association (ISSA)
Week 15	27	Revision
	28	Revision
Week 16	29	Presentation 1

	Week	Lecture	Topics Covered
		30	Presentation 2
	Week 17	2 hours	Final Term
Laboratory Projects/Experiments Done in the Course			
Programming Assignments Done in the Course			

Instructor Name

Instructor Signature

Date