**SYLLABUS**

CS 450 01 - Cyber Security

SE 450 01 - Cyber Security

**Instructor: Dr. Samer Khamaiseh**

**Credits:** 3 (Elective)

**Course Prerequisite:** CS-75 50 Introduction to Computer Science I, CS-501A 50 Comp Prog Essential.

**Textbook and Materials**

1. Computer Security Principles and practice by Lawrie Brown and William Stallings 3rd or 4th edition
2. Course Slides
3. Selected Research Papers.

**Catalog Description:** Study of the fundamental security design and principles of the software systems and networks. During this class, the students will be exposed to the up-to-date security fundamentals including defining the security threats and the possible countermeasure methods.

**General Objectives**

1. To familiarize students with the cybersecurity principles of computer networks and software systems
2. To learn fundamental principles of developing, protecting, and securing the today software systems and networks

**Specific Outcomes:** Upon completion of the course students should be able:

1. to learn how to identify the source of the security threats for both network and software systems
2. Function effectively on teams to accomplish a goal.
3. to understand how to detect security threats using different detection techniques
4. to learn how to countermeasure the security threats for both software applications and networks
5. Use current techniques, skills and tools necessary for practice.
6. Analyze a problem, identify and define its computing requirements
7. to understand the simple techniques of hacking
8. to be able to design secure applications and systems

# Cybersecurity course Topics

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| Chapter Number and Name |
| Chapter 1: Cybersecurity concepts |
| Chapter 3: User Authentication |
| Chapter 4: Access Control |
| Chapter 11: Software Security |
| Chapter 6: Malicious Software |
| Chapter 7: Denial of service attacks |
| Chapter 5: Database and cloud security |
| Chapter 8: Intrusion detection |
| Chapter 2: Cryptographic tools |
| Chapter 20: Symmetric encryption and message confidentiality |
| Chapter 21: Public Key approaches |
| Chapter 16: Physical and Infrastructure security |