

Course Name: Network Security

Course Code: CNET411

General Information						
Course Code	CNET411	Level/Year	7/3	Required (R) / Selected Elective (SE)		R
Credit Hours	Theory	2	Lab	1	Total	3
Prerequisites	ITEC251	Course Coordinator		Mr. Mohammad Imran Alam		
Corequisites	Nil					
Course Description						
<p>This course introduces the fundamentals concepts of security goals, attacks, services, mechanisms. In addition, security mechanisms at the network, transport, and application layers are introduced. This includes IPsec, SSL, and TLS, email security, firewalls, and IDS. The lab portion of the course is interactive such that students are given various challenges and they are assessed based on their ability to solve these challenges</p>						
Course Objectives : On completion of the course, the student will be able to:						
<ul style="list-style-type: none"> • Explain the goals of network security and classify various types of attacks, services, and defense mechanisms. • Describe security protocols and mechanisms at the network, transport, and application layers. • Evaluate and select appropriate security solutions to protect network infrastructures. • Analyze the architecture, functions, and configurations of firewalls and intrusion detection/prevention systems. • Perform practical lab exercises related to network scanning, analysis, and monitoring using tools such as Linux, Nmap, and Wireshark. • Demonstrate the ability to engage in self-directed learning and assessment to stay current with evolving network security technologies. 						
Course Contents						
List of Topics						
CH 1: Introduction to Security Concepts						
CH 2: Cryptography in Networks						
CH 3: Denial of Service						
CH 4: Firewalls						
CH 5: Intrusion detection system						
CH 6: Side channel attacks						
Textbook						
<ul style="list-style-type: none"> • Security in Computing, Charles P. Pfleeger, Shari Lawrence Pfleeger, Jonathan Margulies, 5th Edition, Prentice Hall, Year- 2015, ISBN 0134085051, 9780134085050 						

Reference Materials	
<ul style="list-style-type: none"> Cryptography And Network Security, By Behrouz A. Forouzan, 1st edition, McGraw-Hill Education, Year-2010, ISBN-13 : 978-0073327532 	
Course Learning Outcomes	
CLO#01	Explain security goals, attacks, services, and mechanisms effectively.
CLO#02	Describe security mechanisms at the network, transport, and application layers clearly.
CLO#03	Apply the appropriate security mechanism to protect the network when given a scenario for application, transport, and network layers.
CLO#04	Differentiate between the types of firewalls and intrusion detection systems effectively.
CLO#05	Solve problems using Linux, Nmap, Wireshark, TLS, IPsec, firewalls, IDS & trusted computing effectively.
CLO#06	Perform self-study and self-assessment through lab assignments.