

Computer Networks (2)

Course Title: Computer Networks (2)

Course Code: NWE303

Credit Hours: 3

Knowledge Domain: Networks and Web Engineering..

Prerequisite(s): Computer Networks (1) (NWE302)

Learning Objectives

Upon completion of this course, the student will be able to:

1. Present the main aspects of wireless & mobile networks and multimedia networking.
2. Grasp the basics of network security.
3. Acquire the basics of network management with presentation of the Simple Network Management Protocol (SNMP).

Learning Outcomes:

1. Grasping the main concepts of wireless& mobile networks and the elements of Mobile IP.
2. Acquaintance with the basic network security issues and network management through SNMP.

Overview and Syllabus

Wireless and mobile networks. Multimedia networking. Security in computer networks. Network Management.

Course Outline

	Topic
1	<u>Module 01: Wireless Networks</u> Introduction Objectives Lesson 01: Characteristics of Wireless Networks Lesson 02: IEEE 802.11 Wireless LANs (“wi-fi”) Lesson 03: WiMax Lesson 04: Cellular Internet Access Summary Assessment
2	<u>Module 02: Mobility in Wireless Networks</u> Introduction

	<p>Objectives</p> <p>Lesson 01: Principles: Addressing and Routing to Mobile Users</p> <p>Lesson 02: Mobile IP</p> <p>Lesson 03: Handling Mobility in Cellular Networks</p> <p>Lesson 04: Mobility and Higher-Layer Protocols</p> <p>Summary</p> <p>Assessment</p>
3	<p><u>Module 03: Multimedia Networks: Application Perspective</u></p> <p>Introduction</p> <p>Objectives</p> <p>Lesson 01: Streaming stored audio and video</p> <p>Lesson 02: Streaming live audio and video</p> <p>Lesson 03: Real-time interactive applications</p> <p>Lesson 04: Making the best out of best effort service</p> <p>Summary</p> <p>Assessment</p>
4	<p><u>Module 04: Protocols for real-time interactive multimedia applications</u></p> <p>Introduction</p> <p>Objectives</p> <p>Lesson 01: Real-Time Protocol (RTP)</p> <p>Lesson 02: Real-Time Control Protocol (RTCP)</p> <p>Lesson 03: Session Initiation Protocol (SIP)</p> <p>Lesson 04: Providing multiple classes of service</p> <p>Lesson 05: Providing QOS guarantees</p> <p>Summary</p> <p>Assessment</p>
5	<p><u>Module 05: Network Security</u></p> <p>Introduction</p> <p>Objectives</p> <p>Lesson 01: What is network security?</p> <p>Lesson 02: Principles of cryptography</p> <p>Lesson 03: Message integrity</p> <p>Lesson 04: End Point Authentication</p> <p>Summary</p> <p>Assessment</p>
6	<p><u>Module 06: Network Management</u></p> <p>Introduction</p> <p>Objectives</p> <p>Lesson 01: Structure of Management Information: SMI</p> <p>Lesson 02: Management Information Base: MIB</p> <p>Lesson 03: SNMP Protocol Operations and Transport Mappings</p> <p>Lesson 04: Security and Administration</p> <p>Lesson 05: ASN.1: Abstract Syntax Notation 1</p> <p>Summary</p> <p>Assessment</p>