

# Global Learning Semesters

## Course Syllabus

Course: ITM-525 Computer Networks and Communication Systems

Department: Computer Science

Host Institution: Intercollege, Nicosia, Cyprus



Course Summary		
Course Code	Course Title	Recommended Credit Hours
ITM-525	Computer Networks and Communication Systems	3
Semester Offered	Contact Hours	Prerequisites
Please contact us	42-45	None
Department	Level of Course	Language of Instruction
Computer Science	Upper Division	English

### Course Description

This module aims to provide an understanding of the technology underlying network operation for network types ranging from small, local-area networks to the Internet with its global coverage. This establishes the technical background needed to appreciate the capabilities of computer networks, to manage networks, and to evaluate networks intended to meet specific enterprise requirements. Having established how networks capable of providing connectivity can be established on any scale, the module then proceeds to cover the linking of such networks and their management as well as security concerns.

This readily accessible and managed fabric has the capability to support many applications, and, what is more, to support different applications at the same time. The reasons for this versatility and flexibility are considered, and the ways in which they may be realized are examined. It is shown that the applications can be grouped under the broad headings of communication, digital libraries, and the market place. The specific examples considered under the respective heading include electronic mail and Electronic Data Interchange, the World-Wide Web, and various aspects of electronic commerce and Internet commerce.

### Prerequisites

None

### Topic Areas

1. Computer Architecture: an overview.
2. Introduction to computer networks: definitions, concepts and components of computer networks, network topologies, LANs, WANs, MANs, wireless LANs, PANs, MANETs protocols, high-speed LANs, broadband multi service networks.
3. Introduction to networked applications and services.
4. Explanation of network components – repeaters, hubs, bridges, switches and routers.
5. Explanation of the operation of various networking technologies, including local area networks, packet-switched networks, wide-area networks, frame relay, ATM and the Internet and the internet.
6. Communication software, network management, networked applications.
7. The networks as a communication system; a digital library; and a market place.
8. Introduction to security in computing: concepts and definitions, computer security goals and vulnerabilities, taxonomy of classifying risks and threats, legal and ethical issues in computer security.
9. Identification and authentication, cryptography, firewalls and Intrusion detection systems.

## Readings and Resources

### Required Materials

- Kurose, JF, and J. Rose (2004) "Computer networks: a top-down approach featuring the internet, 2004, Addison Wesley, ISBN 0-321-26976-4.

### Additional Texts

- Duck, M. and Read, R., Data and computer communications and computer networks for computer scientist and engineers, 2003, 2nd Edition, Prentice Hall, ISBN 0-13093047-4.