

COURSE NET2110: TELECOMMUNICATIONS 1

Level: Intermediate

Prerequisite: None

Description: Students learn how to select and use various wired and wireless telecommunication systems. By using the Internet, they investigate how communication principles, bandwidth, telecommunication infrastructure and wave spectrum affect telecommunication systems.

Parameters: Access to an appropriate computer work station, utility software, the Internet and support materials.

Outcomes: The student will:

- 1. use selected communication systems, protocols and techniques to transfer messages, do online activities and manage research**
 - 1.1 outline basic elements of a communication system
 - 1.2 describe the development of wired, wireless and Web-based communication systems
 - 1.3 identify key components of wired, wireless and Web-based telecommunication systems
 - 1.4 identify examples of how telecommunication systems are merging and connecting to improve service to various client groups
- 2. describe the principles of wired, wireless and Web-based communication systems and how telecommunication systems are affected by bandwidth and wave spectrum**
 - 2.1 describe how computers send and receive various types of information/data; e.g., voice, data, documents, visuals, multimedia
 - 2.2 identify and describe telecommunication transmission systems in terms of bandwidth and wave spectrum including:
 - 2.2.1 wired; e.g., twisted pair telephone cable, coaxial cable, special data cables, fibre optics
 - 2.2.2 wireless; e.g., radar/microwave, radio, satellite data links
 - 2.2.3 digital versus analog
 - 2.3 describe various types of transmission systems including:
 - 2.3.1 type of information that can be transmitted; e.g., voice, pictures
 - 2.3.2 present installation base
 - 2.3.3 user cost
- 3. compare and contrast key elements of a telecommunication infrastructure**
 - 3.1 identify key elements of an effective telecommunication infrastructure including:
 - 3.1.1 information and interactive applications/services; e.g., entertainment, education, cultural products, social services, business services, learning management systems
 - 3.1.2 transmission systems; e.g., links with/among homes, businesses, governments/education and institutions
 - 3.1.3 software applications; e.g., enable the operation of computers, manipulation of data, protection of data, transmission and reception of data and access to communication networks and their information such as social networks or learning management systems

- 3.1.4 standards and protocols that allow access to, or secure the contents of, information and networks
- 3.1.5 people/expertise needed to create the information, technology, equipment, peripherals, software and services, to provide the information, to construct the facilities and to educate others on its use and benefits
- 3.2 evaluate one or more telecommunication initiatives in terms of the key elements of an information technology infrastructure within one or more of the following areas:
 - 3.2.1 personal; e.g., personal networks, interests, learning
 - 3.2.2 electronic commerce; e.g., allows consumers/businesses to interact such as 1–800 numbers, electronic data interchange, data exchange
 - 3.2.3 health care; e.g., remote diagnostics, patient information sharing, training
 - 3.2.4 research
 - 3.2.5 education and training; e.g., distance learning/course delivery via learning management systems
 - 3.2.6 libraries; e.g., online
 - 3.2.7 government services; e.g., federal, provincial
 - 3.2.8 information services; e.g., information about government services, reports
 - 3.2.9 technology-based process/procedures, filing income taxes electronically, electronic submissions of contract bids/tendering, teleconferencing
 - 3.2.10 law enforcement services; e.g., international/national sharing of criminal data, teleconferenced parole hearings
 - 3.2.11 labour force development; e.g., flexible, readily upgraded training programs
 - 3.2.12 environmental monitoring
- 4. demonstrate established laboratory procedures and safe work practices**
- 5. demonstrate basic competencies**
 - 5.1 demonstrate fundamental skills to:
 - 5.1.1 communicate
 - 5.1.2 manage information
 - 5.1.3 use numbers
 - 5.1.4 think and solve problems
 - 5.2 demonstrate personal management skills to:
 - 5.2.1 demonstrate positive attitudes and behaviours
 - 5.2.2 be responsible
 - 5.2.3 be adaptable
 - 5.2.4 learn continuously
 - 5.2.5 work safely
 - 5.3 demonstrate teamwork skills to:
 - 5.3.1 work with others
 - 5.3.2 participate in projects and tasks
- 6. identify possible life roles related to the skills and content of this cluster**
 - 6.1 recognize and then analyze the opportunities and barriers in the immediate environment
 - 6.2 identify potential resources to minimize barriers and maximize opportunities