



Course Competencies Template - Form 112

GENERAL INFORMATION			
Name: Dr. Nelly Delessy-Gassant	Phone #: 7-1485		
Course Prefix/Number: CNT 3526C	Course Title: Wireless and Mobile Networking		
Number of Credits: 4			
Degree Type	<input type="checkbox"/> B.A. <input checked="" type="checkbox"/> B.S. <input type="checkbox"/> B.A.S <input type="checkbox"/> A.A. <input type="checkbox"/> A.S. <input type="checkbox"/> A.A.S. <input type="checkbox"/> C.C.C. <input type="checkbox"/> A.T.C. <input type="checkbox"/> C.T.C.(V.C.C.)		
Date Submitted/Revised: 02-20-2018	Effective Year/Term: 2018-1		
<input checked="" type="checkbox"/> New Course Competency <input type="checkbox"/> Revised Course Competency			
Course to be designated as a General Education course (part of the 36 hours of A.A. Gen. Ed. coursework): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
The above course links to the following Learning Outcomes: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Communication <input checked="" type="checkbox"/> Numbers / Data (2) <input checked="" type="checkbox"/> Critical thinking (7) <input checked="" type="checkbox"/> Information Literacy (8) <input type="checkbox"/> Cultural / Global Perspective </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Social Responsibility <input type="checkbox"/> Ethical Issues (7) <input checked="" type="checkbox"/> Computer / Technology Usage (1) <input type="checkbox"/> Aesthetic / Creative Activities <input type="checkbox"/> Environmental Responsibility </td> </tr> </table>		<input type="checkbox"/> Communication <input checked="" type="checkbox"/> Numbers / Data (2) <input checked="" type="checkbox"/> Critical thinking (7) <input checked="" type="checkbox"/> Information Literacy (8) <input type="checkbox"/> Cultural / Global Perspective	<input type="checkbox"/> Social Responsibility <input type="checkbox"/> Ethical Issues (7) <input checked="" type="checkbox"/> Computer / Technology Usage (1) <input type="checkbox"/> Aesthetic / Creative Activities <input type="checkbox"/> Environmental Responsibility
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Course Description (limit to 50 words or less, must correspond with course description on Form 102): This is upper division course for students majoring in Information Systems Technology introduces students to wireless and mobile network architecture, protocols and technologies. In particular, students will learn about Wireless Local Area Networks (WLANs), Wireless Personal Area Networks (WPANs) and Wireless Metropolitan Area Networks (WMANs) technologies. Other topics include antenna concepts, cellular networks, the 802.11 network architecture, and wireless security. Prerequisites: CTS1134 or CTS1650. (3 hr. lecture; 2 hr. lab).			
Prerequisite(s): CTS1134 or CTS1650	Co requisite(s):		

Course Competencies: (for further instruction/guidelines go to: <http://www.mdc.edu/asa/curriculum.asp>)

Competency 1: The student will demonstrate an understanding of the various types of wireless communications technologies by:

1. Identifying the various types of wireless communications technologies.
2. Explaining the advantages of wireless communications technology.
3. Discussing the challenges of wireless communications technology.

Competency 2: The student will demonstrate an understanding of wireless data transmission by:

1. Discussing the two types of wireless transmission.
2. Explaining the properties of a wave, such as amplitude, wavelength, frequency, and phase.
3. Identifying the basic concepts and techniques related to the transmission of data by radio waves.
4. Explaining spread spectrum transmissions.

Competency 3: The student will demonstrate an understanding of radio frequency communications by:

1. Identifying the basic components of a radio system.
2. Describing the major telecommunications standards organizations.
3. Explaining the radio frequency spectrum.

Competency 4: The student will demonstrate an understanding of antennas by:

1. Defining decibels, gain, and loss.
2. Explaining how antennas work.
3. Listing different antenna types, shapes, sizes, and applications.
4. Explaining RF signal strength and direction.

Competency 5: The student will demonstrate an understanding of Wireless Personal Area Networks (WPANs) by:

1. Defining a wireless personal area network (WPAN).
2. Listing the IEEE 802.15 WPAN standards and their applications.
3. Explaining how Bluetooth and ZigBee RF WPANs work.
4. Describing some of the security features and threats in WPAN technologies.

Competency 6: The student will demonstrate an understanding of Wi-Fi Wireless Local Area Networks (WLANs) by:

1. Identifying the components of a WLAN.
2. Describing the modes of operation of a WLAN.
3. Discussing the first IEEE WLAN standards.
4. Describing coordinating communications in RF WLANs.
5. Explaining the process of association and reassociation.
6. Outlining the power management features of IEEE 802.11 networks.
7. Discussing 802.11 MAC frame formats.

Competency 7: The student will demonstrate an understanding of WLAN performance by:

1. Explaining how IEEE 802.11g enhances 802.11b networks
2. Outlining how IEEE 802.11a works and how it differs from 802.11 networks
3. Discussing IEEE 802.11n and how it functions in both the 2.4 GHz and 5 GHz bands
4. Describing the IEEE 802.11ac and 802.11ad amendments
5. Listing other important current and future amendments to 802.11

Competency 8: The student will demonstrate an understanding of WLAN security by:

1. Discussing how wireless bridges and repeaters can expand the functionality of WLANs.
2. Describing how wireless controllers can simplify management of WLANs.
3. Discussing WLAN design considerations.
4. Explaining how Wi-Fi Direct can make it easier for end users to share resources, synchronize devices, and connect directly.

5. Describing developments in the use of WLANs in multimedia distribution.
6. Listing the security features and challenges of IEEE 802.11 networks, and how to manage them.

Competency 9: The student will demonstrate an understanding of Wireless Metropolitan Area Networks (WMANs) by:

1. Defining wireless metropolitan area networks (WMANs).
2. Describing various land-based fixed broadband wireless technologies, including Free Space Optics (FSO), microwave, and WiMAX.
3. Explaining IEEE 802.16 (WiMAX) standards, applications, and protocols.
4. Outlining the security features of WMANs.

Competency 10: The student will demonstrate an understanding of Wireless Wide Area Networks (WWANs) by:

1. Explaining the basic concepts of cellular telephony and how it works.
2. Discussing the various generations and evolution of cellular telephony.
3. Discussing satellites and their application in WWANs.

Competency 10: The student will demonstrate an understanding of Radio Frequency Identification and Near Field Communication by:

1. Explaining radio frequency identification (RFID) and near field communication (NFC).
2. Listing the components of an RFID or NFC system.
3. Describing how RFID and NFC work.
4. Explaining the challenges and security considerations of RFID and NFC.