NVCC COLLEGE-WIDE COURSE CONTENT SUMMARY
ITN 125 - WIRELESS–MOBILE NETWORKING (W-MN) (3 CR.)

COURSE INFORMATION

Presents an introduction to radio frequency, FHSS, and Bluetooth technology used in mobile networking solutions. Provides instruction in the scope, goals, specifications, applications and structure of Bluetooth technology and its applications and interrelationships with Wireless Local Area Networks (WLAN), Personal Area Networks (WPAN), HomeRF networks, wireless protocols, and data communications systems.

Lecture - 3 hours per week

CO-REQUISITES OR PRE-REQUISITES

Prerequisite is ITN 100 and pre- or co-requisite is ITN 101. Students must be able to read and write at a college level.

COURSE OBJECTIVES

Upon completion of this course, the student will have a working knowledge of and the ability to:

- Explain Wireless Local Area Networks (WLAN)
- Explain Radio Frequency Fundamentals
- Explain Wireless/Bluetooth Fundamentals
- Explain WLAN Organization and Standards
- Explain Bluetooth Implementation
- Explain the Bluetooth Management and Devices
- Explain Bluetooth Profiles

MAJOR TOPICS TO BE COVERED

- Radio Frequency Theory
- Wireless/Bluetooth Fundamentals
- Standards and Regulations
- Bluetooth Implementation
- Bluetooth Management and Devices
- Bluetooth Profiles

STUDENT LEARNING OUTCOMES

- Radio Frequency Theory
- Safety Guidelines
- Wireless Terminology
- Frequency, Wavelength, Bandwidth
- Power Emissions/Controls
- FHSS and DSSS
- Safety Guidelines
- Wireless Propagation
- Modulation
- SWR, SNR

- Wireless/Bluetooth Fundamentals
- Frequency Hopping
- Packet types and Construction
- Audio Transport
- Link Control Protocol
- Logical Channels
- Audio CODECs
- Bluetooth Devices Address
- Channel Coding and Bit-stream
- RFCOM
Master, Slaves and Piconets
Time-base synchronization
Service Discovery Protocol
Physical Links (SCO and ACL)
Receive Correlation
WAP Protocol
Bluetooth Packet Structure
Baseband/Link Controller
Telephony Control Protocol

Standards and Regulations
IEEE 802.11
WPAN
ICNIRP
IEEE 802.15
HIPERLAN
HomeRF

Bluetooth Implementation
Installation Requirements
Bluetooth IP Core
Security
Protocol
System Partitioning
ASIC Prototyping/FPGAs
Radio Link
SCO
Hardware Integration
Radio Implementation
Profile
ACL

Bluetooth Management and Devices
Fault Management
Configuration/Name Management
Security Management
Link Manager(LM)
Host Controller Interface(HCI)
RFCOMM/SDP
Accounting Management
Performance Management
Dial-up Services
L2CAP
Cellular Phone
Handheld Devices
Tablet PCs
PDAs
Notebooks

Bluetooth Profiles
Telephone Profiles (TP)
Serial Port Profiles (SPP)
Service Discovery Application Profile(SDAP)
Networking Profiles (NP)
General Profiles (GP)
Object Exchange Profiles
General Access Profile(GAP)