

# COUNTY COLLEGE OF MORRIS

## Course Information Outline

Course Title Data Communication PREFIX&NUMBER TEL 232

Lecture Hours 2 Laboratory Hours 3 Credit Hours 3 Course Fee Yes

Department Chairperson Approval V. L. Fuentes Date 3/5/2012

Division Dean Approval P. J. Enright Date 3/5/12

### General Education Information:

#### Categories:

- |  |   |   |                                      |
|--|---|---|--------------------------------------|
| <input type="checkbox"/> Communications  | <input type="checkbox"/> History        | <input type="checkbox"/> Humanities               | <input type="checkbox"/> Mathematics |
| <input type="checkbox"/> Science   | <input type="checkbox"/> Social Science | <input type="checkbox"/> Technological Competency |                                      |
| <input type="checkbox"/> Diversity (check if course also meets diversity category) |   |   |                                      |

#### Integrated Goals: (check all that apply)

- |   |   |
|---|---|
| <input type="checkbox"/> Ethical Reasoning and Action | <input type="checkbox"/> Information Literacy |
|---|---|

#### 1. Catalog Course Description

This course is a study of systems and equipment used in the transmission of data, interfacing data links to computers and troubleshooting of data links. Topics include VoIP (Voice over Internet Protocol), wireless technology, optical networking, serial interfaces, routing, link analysis, modems, data link and protocols, networking. The laboratory makes extensive use of protocol analysis for diagnostics.

#### 2. Prerequisite(s)

ELT 209 Advanced Digital and Microprocessors or TEL 110 Routing I (CISCO CCNA I)

#### 3. Co-requisite(s)

#### 4. Textbooks

Black, *Voice Over IP*, latest edition, Prentice Hall

#### 5. Supplementary Books and/or Materials

#### 6. Specialized equipment, supplies, facilities, for classes limited by enrollment or restricted by accreditation and/or equipment limitations. (Information will be used to determine differential funding category.)

#### 7. Course Content (List of Topics)

Data Transmission  
Data Encoding  
Digital Data Communication Techniques  
Data Link Control  
Multiplexing  
Communication networking  
Protocols and Architecture

**8. Statement of Course LEARNING OUTCOMES**

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

- List concepts, terminology, methods and characteristics as they relate to data transmission
- Describe types of data encoding and its associated error and noises sources
- List digital data communication techniques and error detection techniques
- List types of data link control and error control methodology
- Describe types of multiplexing
- Describe networking types techniques
- List protocol types, associated characteristics and architectures

**9. Statement of Relation to Curriculum(s)**

A required course in Telecommunication Systems Technology and an elective course in the Electronics Engineering Technology curriculum.

**10. Format for offering the course (check all that apply)**

- ☒ Traditional      ☐ On-Line      ☐ Hybrid