



BROWARD COLLEGE COURSE OUTLINE

LAST REVIEW: 2009-2010
(i.e. 2003-2004)

NEXT REVIEW: 2014-2015
(i.e. 2008-2009)

STATUS: A
(A, I, D)

COURSE TITLE: Data Communications

COMMON COURSE NUMBER: EET 2355C

CREDIT HOURS: 3

CONTACT HOUR BREAKDOWN

(per 16 week term)

CLOCK HOURS: 64
(Voc. Course ONLY)

Lecture: 48 Lab: 16

Clinic: Other:

PREREQUISITE(S): None

COREQUISITE(S): None

PRE/COREQUISITE(S):

COURSE DESCRIPTION *(750 characters, maximum):*

The student will analyze and implement data communication systems including pulse amplitude, pulse width modulation and RS-232, RS-422, IEEE-488. Descriptions of BISYNC, HDLC and local area networks will be included. Demonstrations and practical applications will include RS 232 and MODEM implementation.

General Education Requirements – Associate of Arts Degree (AA), meets Area(s): Area

General Education Requirements – Associate in Science Degree (AS), meets Area(s): Area

UNIT TITLES

1. Serial Communication Techniques
2. Digital Communication Systems
3. Data Communication Networks

EVALUATION:

Please provide a brief description (250 characters maximum) that details how students will be evaluated on the course outcomes.

Students will be assessed through a variety of means. Evaluation may include, but is not limited to, the following: exams, quizzes, presentations, portfolios, discussions, class participation, attendance, projects, networking diagnosis, co-ops, practical, internships, externships, and research reports.

Common Course Number: EET 2355C

UNITS

Unit 1: Serial Communication Techniques

General Outcome:

- 1.0 The student shall: be able to use the terminology and implementation techniques of a serial data system.**

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 1.1 Describe the utilization of data communications in society.**
- 1.2 Describe the major components of various data communications systems.**
- 1.3 List and define the terms used in describing different types of data communications systems.**
- 1.4 Describe and calculate character formats and rates in asynchronous data transmission.**
- 1.5 Describe in detail the functions of a UART.**
- 1.6 Connect a UART to a microprocessor system and write a program to initialize the UART.**
- 1.7 Communicate with the microprocessor and UART using a terminal.**
- 1.8 Describe the functional options in a typical terminal.**
- 1.9 Describe the signal specifications for the RS-232-C, RS-422A, RS-423 and RS-485 interfaces.**
- 1.10 Describe the signal conditioning and sequence of events in a typical modem communications link.**

Common Course Number: EET 2355C

Unit 2: Digital Communication Systems

General Outcome:

2.0 The student shall: be able to describe the different types of Digital Modulation and the details of data systems using digital techniques

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 2.1 Describe each, and be able to compare amplitude, frequency and phase modulation with a digital modulating signal.**
- 2.2 Define and calculate including FSK, BPSK and QAM bit rate, bit time and relate each to the relevant ITV-T (CCITT) V.XX standards baud rate.**
- 2.3 Define bandwidth in a digital system. Explain the relationship between data speed and bandwidth.**
- 2.4 Make gain, attenuation and power calculations in a digital communications system.**
- 2.5 Describe circuits used in a modern modem.**
- 2.6 Describe signals and protocols used in the implementation of the centronics parallel printer port and IEEE-488 Instrument Bus.**
- 2.7 Describe error detection and correction methods in digital communications including parity, block check sum, cyclical redundancy check (CRC) and hamming codes.**
- 2.8 Define time and frequency division multiplexing and show typical circuits to implement them.**
- 2.9 Describe the features, benefits, specifications and operation of the TI (DS1) TDM system used in digital telephony**

Common Course Number: EET 2355C

Unit 3: Data Communication Networks

General Outcome:

- 3.0 The student shall: be able to describe the terminology and techniques for connecting groups of computers, terminals, and peripherals together in a network.**

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 3.1 Describe the primary types of topology and compare different types of data networks.**
- 3.2 Describe BISYNC, HDLC, SDLC, and X.25 protocols.**
- 3.3 Describe the types of cables (coax, twisted pair, and fiber optic used in data systems.**
- 3.4 Explain spread spectrum and CDMA methods.**
- 3.5 Describe the operation of a packet switched networks including X.25, frame relay, and ATM.**
- 3.6 Describe the two basic types of LAN and explain the benefits and applications of LAN's.**
- 3.7 Describe the topology, speed, access method and protocols used in "Token Ring", ethernet, arcnet, and FDDI networks**