

Minnesota State University Moorhead

CSIS 221: Foundations of Computing

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 3

Lab Hours/Week: *.*

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

An overview of computers and computer systems, from the gate level to the application layer, including an introduction to Boolean algebra and review of Boolean arithmetic. Recommended prerequisite: CSIS 152 or equivalent.

B. COURSE EFFECTIVE DATES: 08/25/2008 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Overview of computers, their components and functions.
2. Introduction to assembly programming.
3. Binary codes.
4. Number systems and arithmetic operations.
5. Boolean algebra, basic logic gates.
6. Combinational logic circuits & map simplification.
7. NAND and NOR gates analysis and synthesis.
8. Medium scale integrated circuit modules such as adders, decoders, and multiplexers.
9. Latches, flip flops, timing diagrams, state diagrams and tables, and sequential circuits.
10. Memory and programmable logic.

D. LEARNING OUTCOMES (General)

1. Describe the relationship between Boolean algebra and digital logic.
2. Analyze and express Boolean expressions in standard forms.
3. Describe the functions and usage of logic modules.
4. Explain the basic computer circuitry.
5. Integrate various logic devices and modules into a CPU.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted