

Minnesota State College Southeast

ELEC 1212: Digital Electronics I

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 2

Lab Hours/Week: 2

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

Students will learn what a digital circuit is and how digital circuits are used in electronic equipment, from simple clocks to large computers. Experimentation with digital circuits will aid in the reinforcement of digital concepts. (Prerequisite: None) (3 credits: 2 lecture/1 lab)

B. COURSE EFFECTIVE DATES: 04/27/1998 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Verify logic circuit operation
2. Convert between number systems
3. Identify IC pin number
4. Develop a Boolean expression

D. LEARNING OUTCOMES (General)

1. Identify digital electronic circuits
2. Test clock circuit
3. Label digital waveform
4. Convert between number systems
5. Verify logic circuit operation
6. Draw logic network
7. Identify NOT gate
8. Verify NOT gate operation
9. Verify OR gate operation
10. Identify OR gate
11. Verify AND gate operation
12. Identify AND gate
13. Identify NAND gate
14. Identify NOR gate
15. Verify NOR gate operation
16. Verify NAND gate operation
17. Identify XOR gate
18. Identify XNOR gate
19. Verify XOR gate operation
20. Verify XNOR gate operation
21. Identify IC pin numbers
22. Test LED
23. Interpret data sheets
24. Test 7-segment display
25. Verify display driver operation
26. Troubleshoot logic circuit
27. Draw logic symbol network
28. Develop a Boolean expression
29. Simplify a Boolean expression
30. Verify D flip-flop operation
31. Compare display characteristics
32. Verify JK flip-flop operation
33. Identify 7-segment display characteristics
34. Determine display driver outputs
35. Analyze RS flip-flop
36. Analyze D flip-flop
37. Determine flip-flop triggering type
38. Determine flip-flop operating mode

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

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted