Bossier Parish Community College
Master Syllabus

Course Prefix and Number: TEED 201   **Credit Hours:** 3-2-1

Course Title: Basic Digital Electronics

Course Prerequisite: TEED 101

Textbook(s): Tokheim, Roger. Digital Electronics, 8th edition. McGraw-Hill, 2013. ISBN: 9780073373775

Digital Electronic Fundamentals. Energy Concepts, 2012. ISBN: 1557560846

Course Description: A course in basic digital circuits with emphasis on logic gates, truth tables, counters, binary code, hexadecimal code, decoder/driver, three-state logic, multivibrators, RAM, ROM, and registers.

Learning Outcomes:
At the end of the course, the student will:
   A. identify and explain terminology, number systems and boolean logic principles associated with digital electronics;
   B. measure physical parameters such as frequency, pulse characteristics, data packets, timing/clocking, and the like to support analysis and troubleshooting of digital logic circuits;
   C. prepare timing and truth table diagrams to support analysis and troubleshooting of digital logic circuitry;
   D. interpret and apply technical information contained in vendor supplied technical data sheets; and
   E. explain the application of half-adders and full-adders and subtractors in digital math processes.

To achieve the learning outcomes, the student will or will be able to:
(The letter designations at the end of each statement refer to the learning outcome(s).)
   1. differentiate between digital and analog signals; (B)
   2. list types of multivibrators used in making circuits that product digital signals; (B, D, E)
   3. convert binary to decimal, hexadecimal to binary, and octal to decimal; (A, B, C, D, E)
   4. list the symbol, truth table, function, and Boolean expression for the eight basic logic gates; (A, D, E)
   5. given a Boolean expression, draw a network of logic symbols which will perform that function; (A, D, E)
   6. given a sum-of-products Boolean expression, implement the expression using NAND gates; (A, D, E)
   7. translate from one code to another in whole numbers; (A, D, E)

8. compare the important characteristics of LCD, LED, and vacuum fluorescent seven-segment displays; (A, D, E)
9. fill in a blank truth table for a D and J-K flip-flop; (A, D, E)
10. draw a symbol for a Schmitt trigger inverter and describe at least one use for the device; (A, D, E)
11. draw from memory a circuit diagram of a ripple counter using J-K flip-flops; (A, D, E)
12. draw a block diagram of a frequency divider circuit; (A, B, C, D, E)
13. draw from memory a circuit diagram of a series shift register using D flip-flops; (A, B, C, D, E)
14. identify diagrams for a half adder, full adder, half subtractor and able to draw the block symbols for each; (A, B, C, D, E) and
15. solve binary addition and binary subtraction problems by hand. (A, B, C, D, E)

Course Requirements: Complete all homework assignments, lecture tests, lab assignments and final exam.

Course Grading Scale:
90 – 100 = A
80 – 89   = B
70 – 79   = C
60 – 69   = D
0 – 59   = F

Attendance Policy: The college attendance policy is available at
http://www.bpcc.edu/catalog/current/academicpolicies.html

Course Fees: This course is accompanied with an additional non-refundable fee for supplemental materials, laboratory supplies, software licenses, certification exams, and/or clinical fees.

Nondiscrimination Statement: Bossier Parish Community College does not discriminate on the basis of race, color, national origin, gender, age, religion, qualified disability, marital status, veteran's status, or sexual orientation in admission to its programs, services, or activities, in access to them, in treatment of individuals, or in any aspect of its operations. Bossier Parish Community College does not discriminate in its hiring or employment practices.

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