LABETTE COMMUNITY COLLEGE BRIEF SYLLABUS

SPECIAL NOTE:
This brief syllabus is not intended to be a legal contract. A full syllabus will be distributed to students at the first class session.

TEXT AND SUPPLEMENTARY MATERIALS USED IN THE COURSE (if any):

Please check with the LCC bookstore http://www.labette.edu/bookstore for the required texts for this class.

COURSE NUMBER: INDU 169

COURSE TITLE: DIGITAL LOGIC CIRCUITS LAB

SEMESTER CREDIT HOURS: 2

DEPARTMENT: Workforce Education/Career Training/Personal Enrichment

DIVISION: Continuing Education/Workforce

PREREQUISITE: INDU 125 Fundamentals of Electronics DC/AC
or Equivalent
INDU 167 Fundamentals of Electronics DC/AC LAB
or Equivalent
Co-enrolled in, or successful completion of INDU 127 Digital Logic Circuits
Co-enrolled in, or successful completion of INDU 155 OSHA Safety 10
Or with instructor permission

REVISION DATE: 08/2017

COURSE DESCRIPTION:
This course will provide lab practices of course INDU 127 with building block circuits in logic systems and computers in a hands-on environment. Small scale ICs are used to learn the basic fundamentals of these systems and subsystems. Analysis techniques are taught to build the student's ability to troubleshoot.

COURSE OUTCOMES AND COMPETENCIES:
Students who successfully complete this course will be able to:

1. Understand and demonstrate proficiency in laboratory practices
    - Make electrical connections
    - Identify and use hand tools and power tools properly
    - Demonstrate acceptable soldering and de-soldering techniques
    - Demonstrate knowledge of surface mount technology

2. Demonstrate proficiency in digital devices

- Analyze/minimize logic circuits using Boolean operations
- Setup and operate a DVM for digital devices
- Setup and operate a logic probe for digital devices
- Setup and operate power supplies for digital devices and solve power distribution and noise problems
- Setup and operate pulsers for digital devices
- Setup and operate oscilloscopes for digital devices
    - Construct registers and counters for flip-flops and logic gates
    - Troubleshoot registers and counters
    - Analyze clock and timing circuits
    - Construct clock and timing circuits
- Troubleshoot clock and timing circuits
    - Construct logic-arithmetic circuits
    - Troubleshoot logic-arithmetic circuits
    - Construct encoders and decoders
    - Troubleshoot encoders and decoders
    - Use memory devices in circuits
    - Troubleshoot memory-devices circuits
    - Construct digital-to analog and analog-to-digital circuits
    - Troubleshoot digital-to-analog and analog-to-digital circuits
    - Construct display circuits
    - Troubleshoot display circuits
    - Analyze representative digital systems (class project)
    - Design, construct, and troubleshoot representative digital systems (class project)
    - Demonstrate applications of representative digital systems (class project)

3. Demonstrate proficiency in technical recording and reporting

- Draw and interpret electronic schematics
- Record data and design curves and graphs
- Write reports and make oral presentations
- Maintain test logs
- Make equipment-failure reports
- Specify and requisition simple electronic components
- Compose technical letters and memoranda
- Write formal reports of laboratory experiences
- Draft preventive maintenance and calibration procedures