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 123
COURSE TITLE: ELECTRONIC DEVICES
SEMESTER CREDIT HOURS: 3
DEPARTMENT: Manufacturing
DIVISION: Workforce Education/Community Services
PREREQUISITE: INDU 125 Fundamentals of Electronics DC/AC
INDU 167 Fundamentals of Electronics DC/AC LAB
Or Equivalent
REVISION DATE: 1/2017

COURSE DESCRIPTION:
This course will provide a fundamental knowledge of DC Power Supplies, Diodes, Transistors, Amplifiers and Troubleshooting, Operational Amplifiers, Oscillators, Integrated Circuits, Thyristors, Switch Mode Regulators, and AM/FM Radio Circuits.

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

1. Understand and demonstrate proficiency in laboratory practices
   - Apply proper OSHA safety standards
   - 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 solid-state devices
   - Identify properties of semiconductor materials
   - Identify and define operating characteristics and applications of pn junctions
• Identify and define operating characteristics and applications of special diodes
• Analyze diode circuits
• Construct diode circuits
• Troubleshoot diode circuits
• Identify and define operating characteristics and applications of field effect transistors (FET’s)
• Setup and operate a DMM for solid-state devices
• Setup and operate power supplies for solid-state devices
• Setup and operate oscilloscopes for solid-state devices
• Setup and operate signal generators for solid-state devices
• Setup and operate capacitor/inductor analyzers for solid-state devices
• Analyze solid-state devices
• Setup and operate impedance bridges for solid-state devices
• Setup and operate curve tracers
• Setup and operate transistor testers
• Understand electro-static devices

3. Demonstrate proficiency in analog circuits
• Identify and define operating characteristics and applications of differential and operational amplifiers
• Construct differential and operational amplifiers
• Troubleshoot differential and operational amplifiers
• Identify and define operating characteristics and applications of power supply regulators
• Construct power supply regulators
• Troubleshoot power supply regulators
• Identify and define operating characteristics and applications of active filters
• Construct active filters
• Troubleshoot active filters
• Identify and define operating characteristics and applications of sinusoidal and non-sinusoidal oscillators
• Demonstrate basic knowledge of microwave theory
• Demonstrate basic knowledge of lasers
• Construct oscillators
• Troubleshoot oscillators
• Identify and define operating characteristics and applications of motor phase-control circuits (single-phase and multiphase)
• Identify and define operating characteristics and applications of cathode ray tubes (CRT’s) as used in video terminals
• Identify and define operating characteristics and applications of optical devices
• Setup and operate a DMM for analog circuits
• Setup and operate power supplies for analog circuits
• Setup and operate oscilloscopes for analog circuits
• Setup and operate frequency counters for analog circuits
• Setup and operate signal generators for analog circuits
• Setup and operate impedance bridges for analog circuits

4. 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

5. Demonstrate employability skills
   • Conduct a job search
   • Secure information about a job
   • Identify documents that may be required when applying for a job
   • Complete a job application
   • Demonstrate competence in job interview techniques
   • Identify or demonstrate appropriate responses to criticism from employer, supervisor or other persons
   • Identify acceptable work habits
   • Demonstrate knowledge of how to make job changes appropriately
   • Demonstrate acceptable employee health habits