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 168

COURSE TITLE:  ELECTRONIC DEVICES LAB

SEMESTER CREDIT HOURS:  3

DEPARTMENT:  Manufacturing

DIVISION:  Workforce Education/Community Services

PREREQUISITE:  INDU 125 Fundamentals of Electronics I – DC w/Lab
                INDU 167 Fundamentals of Electronics II – AC w/Lab
                Enrolled in INDU 123 Electronics Devices

REVISION DATE:  September 2011

COURSE DESCRIPTION:
This course will include 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