IND 144 Basic Electricity II Syllabus

Course Information

Credits 3
Campus Washburn Institute of Technology (Forbes Facility)
Address 6530 SE Forbes Avenue
City/State/Zip Topeka, Kansas 66619
Office Fax 785-670-2734

Description
This course provides understanding of analysis of series and parallel DC and AC circuits; combination of resistive, inductive and capacitive circuits and industrial applications of these circuits. Hands on labs help guide student learners to assimilate this material. Prerequisite: IND104 or consent of instructor.

Textbooks

Student Learning Outcomes:
A. Communicate effectively
B. Integrate technology
C. Learn effectively
D. Demonstrate cooperative teamwork skills
E. Apply safety in the workplace
F. Think critically and creatively
G. Demonstrate responsible work ethics

Competencies
1. Connect and operate basic electrical circuit.
2. Troubleshoot basic electrical circuit.
3. Describe AC current and voltage waveforms and the principles of three-phase current.
4. Describe the AC terms cycle, period, and power factor, and the formulas for calculating their values.
5. Describe the RMS and average values of an AC sine wave.
6. Calculate AC power in resistive, inductive and capacitive circuits.
7. Describe magnetic fields, flux and poles.
8. Explain the principles of electromagnetism, reluctance, induced voltage, and inductance.
9. Describe electromagnets in DC motors, solenoids and relays.
10. Explain how capacitors, inductors and resistors function in AC, DC, series and parallel circuits.
11. Analyze circuits and their power dissipation.
12. Connect and operate circuit protection devices.
13. Connect lighting circuits, voltage divider circuits and explain their working.
14. Apply introductory safety concepts throughout the course which includes: terminology, identification of devices, safety, and device functions.

**Guidelines for Success**

**Assessment Plan**
Assessment is an integral part of the educational process at Washburn Tech and accurate feedback is an important tool in continuously improving the institution’s technical programs. Students can expect to participate in assessment activities prior to entry into programs, within specific courses and following program completion for specific fields of study.

**Grading Rationale**
Class sessions and assignments will include daily homework, in-class review of homework, quizzes. Grades will be based on: Attendance and general participation, daily homework, quizzes and tests and final exam.

**Grading Scale**
- 90% or higher: A
- 80% to 89%: B
- 70% to 79%: C
- 60% to 69%: D
- Less than 60%: F

**Attendance**
Tardies and absences will affect the daily grade for attendance. Students who miss class should inform the instructor beforehand whenever possible, and are responsible for course content, for turning in any required homework, and for taking the initiative to make up any missed tests, labs or quizzes.
Disability
The Special Support Services (SSS) Office is responsible for assisting in arranging accommodations and for identifying resources at Washburn Institute of Technology for persons with disabilities. Qualified students with disabilities MUST register and provide documentation with the office to be eligible for services. New requests for accommodations should be submitted two months or more prior to the date services should begin; however, contact the SSS Office as soon as a need may arise. Depending on the accommodation request, four to eight week lead time may be needed for timely and effective provision of services. SSS coordinates and assist in arranging services it deems appropriate of eligible students on a case-by-case basis.

If you are a student with a disability that may substantially limit your ability to participate in this class and believe you will need accommodations, it is your responsibility to contact:

Special Support Services Coordinator
Phone: 785-228-6356
E-Mail: ssscoordinator@washburn.edu