ELE140 Residential Wiring I Syllabus

Course Information

Credits: 4
Campus: Washburn Institute of Technology
Address: 5724 SW Huntoon
City/State/Zip: Topeka, Kansas 66604
Office Fax: 785-273-7080

Description
An introductory course on residential wiring methods that includes practical applications and hands-on experience in implementing code requirements. The student will gain the necessary skills to wire a residence to meet the minimum requirements as set forth in the current National Electrical Code for residential occupancies.

Textbooks
Electrical: Level 1 Trainee Guide w/Workbook; NCCER. ISBN 978-0-130-18899-1

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. Explain the role of the National Electrical Code in residential wiring.
2. Identify and install required branch circuits per National Electrical Code.
3. Identify and calculate residential services per National Electrical Code.
4. Identify and install various types of luminaries.
5. Describe branch circuit requirements for appliances per National Electrical Code.
6. Identify and install various types of switches and receptacles per National Electrical Code.
7. Identify the NEC requirements for grounding and bonding.
8. Identify and install over current/short circuit and ground fault protection.
9. Calculate the service-entrance equipment requirements for a dwelling.
10. Select the service-entrance equipment.
11. Explain the purpose of ground fault circuit interrupters.
12. Identify where ground fault circuit interrupters must be installed.
13. Size outlet boxes for different wiring methods.
14. Select the proper type of outlet boxes for different wiring methods.
15. Describe the rules for installing electric space heating and HVAC equipment.
16. Describe the installation rules for electrical systems around swimming pools, spas, and hot tubs.
17. Use National Electrical Code Table 220.55 to calculate residential cooking equipment loads.
18. Explain how wiring devices are selected and installed.
19. Describe the installation and control of lighting fixtures.
20. Identify the methods for hand bending and installing conduit.
22. Make 90-degree bends, back-to-back bends, offsets, kicks, and saddle bends using a hand bender.
23. Describe the characteristics of light.
24. Recognize the different kinds of lamps.
25. Explain the advantages and disadvantages of each of the following kinds of lamps: 1) Incandescent, 2) Halogen, 3) Fluorescent, and 4) High-intensity discharge.
26. Install various lamps in lighting fixtures.
27. Install the following types of lighting fixtures: 1) Surface-mounted, 2) Recessed, 3) Suspended, and 4) Track-mounted.
28. Recognize ballasts used in fluorescent and HID lighting fixtures.
29. Describe the function of the ballast in fluorescent and HID lighting fixtures.
30. Explain the relationship of Kelvin temperature to the color of light produced by a lamp.

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
Student progress is evaluated by means that include, but not limited to: exams (60%), written assignments/labs (30%), and attendance/class participation (10%).

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<th>Percentage</th>
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<tr>
<td>92-100%</td>
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Attendance
Classroom attendance is required. Material missed must be made up with instructor.

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