DATE OF LAST REVIEW: 11/11/2014

CIP CODE: 46.0302

SEMESTER: Departmental Syllabus

COURSE TITLE: National Electric Code II

COURSE NUMBER: ELET0210

CREDIT HOURS: 4

INSTRUCTOR: Departmental Syllabus

OFFICE LOCATION: Departmental Syllabus

OFFICE HOURS: Departmental Syllabus

TELEPHONE: Departmental Syllabus

EMAIL: Departmental Syllabus

KCKCC-issued email accounts are the official means for electronically communicating with our students.

PREREQUISITE (S): ELET0110/ National Electric Code 1

REQUIRED TEXT AND MATERIALS: Please check with the KCKCC bookstore, http://www.kckccbookstore.com for the required text for your particular class.

COURSE DESCRIPTION:

Upon successful completion of this course, the student should be able to use the current National Electrical Code to do calculations involving loads, lighting and circuit sizing. The course will cover typical load calculations used in both residential and commercial settings. The student should also be able to interpret and apply the National Electrical Code rules to special wiring systems including Hazardous Locations, Elevators, Remote-control circuits and Fire Alarm systems.

METHOD OF INSTRUCTION: A variety of instructional methods may be used depending on content area. These may include but are not limited to lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations,
speeches, debates, and panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE:

I. NEC Chapter 5 Special Occupancies
   A. Define the three types of classified hazardous locations.
   B. Explain the difference between a Division 1 and a Division 2 condition in the hazardous locations.
   C. Explain the material groups (A through G) used in hazardous locations and what hazard class they belong to.
   D. Describe the wiring methods required for each class of hazardous location (explosion proof vs. ignition proof).
   E. Explain the use of conduit seals.
   F. Explain the NEC rules for grounding and bonding in hazardous locations.

II. NEC Chapter 6 Special Equipment
   A. Define the NEC rules for branch circuit wiring in machine room spaces.
   B. Explain the NEC rules for wiring a hoist-way pit.
   C. Describe the requirements for the elevator disconnecting means.
   D. Explain the requirements for Ground Fault Circuit Interruption for personnel in an elevator room.

III. NEC Chapter 7 Special Conditions
   A. Define the circuit requirements for Class 1, 2, and 3 remote-control circuits.
   B. Distinguish the difference between Class 1 power sources and Class 2 and 3 power sources.
   C. Explain the NEC rules for separation from other power systems.
   D. Explain the listing and marking requirements for Class 2 and Class 3 cables.
   E. Explain the NEC rules for Fire Alarm circuits, NEC Article 760.
   F. Describe the requirements for Non-power-limited Fire Alarm circuits, (NPLFA).
   G. Describe the requirements for Power-limited Fire Alarm circuits, (PLFA).

IV. NEC Chapter 8 Communications
   A. Explain protection per NEC rules for communications circuits entering buildings.
   B. Explain radio and television receiving and transmitting per NEC.
   C. Explain community antenna television and radio distribution systems per NEC.
   D. Explain network powered broadband communication systems per NEC.

V. NEC Chapter 9 Tables
   A. Explain the use of raceway fill using Table 1 NEC.
   B. Calculate radius of conduit per Table 2 NEC.
   C. Calculate the dimensions and percent area of conduit per Table 4 NEC.
   D. Calculate dimensions of insulated conductors and fixture wires per Table 5 NEC.
   E. Calculate dimensions of compact copper and aluminum buildings per Table 5A.
F. Calculate dimensions of conductor properties per Table 8.
G. Explain table 9 on alternating current resistance and reactance.

EXPECTED LEARNER OUTCOMES:

A. The student will be able to interpret and apply special occupancies per NEC.
B. The student will be able to interpret and apply special equipment per NEC.
C. The student will be able to interpret and apply special conditions per NEC.
D. The student will be able to interpret and apply communications per NEC.
E. The student will be able to interpret and apply tables per NEC.

COURSE COMPETENCIES:

The student will be able to interpret and apply special occupancies per NEC.
1. The student will be able to interpret and apply NEC to hazardous locations.
2. The student will be able to interpret and apply NEC to aircraft hangars.
3. The student will be able to determine special occupancies.
4. The student will be able to explain areas requiring respiratory equipment.
5. The student will be able to determine signs and symbols of warnings.
6. The student will be able to interpret and apply NEC to Carnivals and Circuses.
7. The student will be able to interpret and apply NEC to Manufactured Buildings.
8. The student will be able to interpret and apply NEC to Recreational Vehicles.
9. The student will be able to interpret and apply NEC to Park Trailers.
10. The student will be able to interpret and apply NEC to Floating Buildings and Marinas.

The student will be able to interpret and apply special equipment per NEC.
12. The student will be able to interpret and apply NEC to cranes and hoists.
13. The student will be able to interpret and apply NEC to Elevators and Dumbwaiters.
14. The student will be able to interpret and apply NEC to Electric Vehicle Charging Stations.
15. The student will be able to interpret and apply NEC to Electric Welders.
16. The student will be able to interpret and apply NEC to Information Technology Equipment.
17. The student will be able to interpret and apply NEC to Swimming Pools and Fountains.
18. The student will be able to interpret and apply NEC to Solar Photovoltaic Systems.
19. The student will be able to interpret and apply NEC to Fuel Cell Systems.
20. The student will be able to interpret and apply NEC to Fire Pumps.

The student will be able to interpret and apply special conditions per NEC.
21. The student will be able to interpret and apply NEC to Emergency Systems.
22. The student will be able to interpret and apply NEC to Over current Protection.
23. The student will be able to interpret and apply NEC to Critical Operations Power Systems.
24. The student will be able to interpret and apply NEC to Circuits Operating at Less than 50 volts.
25. The student will be able to interpret and apply NEC to Fire Alarm Systems.
26. The student will be able to interpret and apply NEC to Optical Fiber Cables and Raceways.

*The student will be able to interpret and apply communications per NEC.*

27. The student will be able to use National Electric Code for Communications Circuits.
28. The student will be able to interpret and apply NEC to Radio and Television Equipment.
29. The student will be able to interpret and apply NEC to Network Powered Broadband.
30. The student will be able to interpret and apply NEC to Radio Distribution Systems.

*The student will be able to interpret and apply tables per NEC.*

31. The student will be able to interpret and apply NEC to determine Percent of Cross Sections
32. The student will be able to determine Radius of Conduit and Tubing Bends.
33. The student will be able to determine Dimensions and Percent Area of Conduit.
34. The student will be able to interpret and apply NEC Table 5 on Insulated Conductors.
35. The student will be able to interpret and apply NEC Table 5A on Wire Nominal Dimensions
36. The student will be able to interpret and apply NEC Table 8 on Conductor Properties.
37. The student will be able to interpret and apply NEC Table 9 on Alternating Current Resistance and Reactance for 600 volt Cables, 3-Phase.

**ASSESSMENT OF LEARNING OUTCOMES:**
Student progress is evaluated by means that include, but are not limited to, exams, written assignments and class participation.

**SPECIAL NOTES:**

This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student's progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome anytime.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

Kansas City Kansas Community College offers equal educational opportunity to all students as well as serving as an equal opportunity employer for all personnel. Various laws, including Title IX of the Educational Amendments of 1972, require the college’s policy on non-discrimination
be administered without regard to race, color, age, sex, religion, national origin, physical handicap, or veteran status and that such policy be made known.

Kansas City Kansas Community College complies with the Americans with Disabilities Act. If you need accommodations due to a documented disability, please contact the Director of the Academic Resource Center, in Rm. 3354 or call at: 288-7670.