COURSE SYLLABUS

LAST REVIEW   Fall 2022

COURSE TITLE   Electrical Math

COURSE NUMBER   ELET 0120

DIVISION   Career and Technical Education

DEPARTMENT   ELET

CIP CODE   46.0302

CREDIT HOURS   3

CONTACT HOURS/WEEK   Class: 1   Lab: 4

PREREQUISITES   None

COURSE DESCRIPTION
This course is the first of a two-semester sequence that will introduce the mathematical skills and concepts necessary in technical work. It will focus on the basics of algebra, geometry and trigonometry and their applications. Topics will include operations with polynomials, linear equations, systems of equations and right triangle trigonometry

PROGRAM ALIGNMENT
This course is part of a program aligned through the Kansas Board of Regents and Technical Education Authority. For more information, please visit:
https://kansasregents.org/workforce_development/program-alignment

PROGRAM LEARNING OUTCOMES

1. The Student will be able to identify workplace safety issues in accordance with OSHA standards.
2. Upon successful completion of this course, the student should be able to identify the job skills necessary to have a successful career in the Electrical Profession.
3. Inspect electrical circuit connections in accordance with the N.E.C. standards of compliance.

TEXTBOOKS
http://kckccbookstore.com/

METHOD OF INSTRUCTION
A variety of instructional methods may be used depending on content area. These include but are not limited to lecture, multimedia, cooperative/collaborative learning,

labs and demonstrations, projects and presentations, speeches, debates, panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE

I.   The Real Number System
    A.   Describe the properties of the real number system.
    B.   Use the order of operations for the real number system to simplify mathematical expressions.
    C.   Simplify expressions involving exponents and radicals.
    D.   Determine the number of significant digits in a number.
    E.   Use the concepts of scientific notation and rounding appropriately in computation.
    F.   Convert between scientific notation and standard notation.
    G.   Evaluate algebraic expressions.

II. Basic Algebra Skills
    A.   Compute sums and differences of polynomials.
    B.   Compute products of polynomials.
    C.   Compute quotients of polynomials.
    D.   Solve linear equations; solve formulas for a particular variable.
    E.   Define ratio and proportion.
    F.   Solve a proportion for a missing term.

III. Basic Geometry Skills
    A.   Define parallel lines and angles formed by a transversal; use these concepts to determine unknown angles.
    B.   Classify triangles.
    C.   Calculate area and perimeter of polygons.
    D.   Calculate area and circumference of circles.
    E.   Calculate volume and surface area of geometric solids.

IV. Functions and Graphs
    A.   Define relations and functions; use function notation.
    B.   Calculate sums, differences, products, and compositions of functions.
    C.   Plot points on the rectangular coordinate system.
    D.   Graph straight lines.

V.   Basic Trigonometry
    A.   Define angle measurement for degree and radian measure.
    B.   Define the basic trig functions.
    C.   Solve right triangles for missing parts by using trig functions.
    D.   Describe types of flexible cords.

COURSE LEARNING OUTCOMES AND COMPETENCIES
Upon successful completion of this course, the student will:

A. Simplify numerical and algebraic expressions.
   1. Achieve this outcome by applying the laws of exponents to simplify expressions.
   2. Simplify expressions of exponents and radicals.
   3. Determine the number of significant digits in a number.
   4. Use scientific notations and rounding in computations.
   5. Convert scientific notation and standard notations.
   6. Evaluate algebraic expressions.

B. Solve equations.
   7. Solve first-degree equations in one variable.
   8. Solve first-degree systems in two and three variables.
   9. Apply equation solving skills to practical situations.
   10. Define ratio and proportions.
   11. Solve a proportion for a missing term.
   12. Solve formulas for a particular variable.

C. Graph equations.
   13. Graph simple equations by plotting points.
   14. Graph linear equations to solve systems.
   15. Plot points on the rectangular coordinate systems.
   16. Calculate sums and differences of graphs.
   17. Define relations and functions.

D. Use basic geometry.
   18. Apply formulas to geometric applications.
   19. Define parallel lines and angles formed by transversal.
   20. Solve right triangles and their applications.
   21. Calculate area and perimeter.
   22. Calculate area and circumference.
   23. Calculate volume and surface area of geometric solids.
   24. Classify triangles.

E. Use basic trigonometry.
   25. Define basic trigonometry functions.
   26. Solve right triangles for missing parts.
   27. Define angle measurement for degree and radian measure.

ASSESSMENT OF COURSE LEARNING OUTCOMES AND COMPETENCIES
Student progress is evaluated through both formative and summative assessment methods. Specific details may be found in the instructor's course information document.

COLLEGE POLICIES AND PROCEDURES

Student Handbook
https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf

College Catalog
https://www.kckcc.edu/academics/catalog/index.html

College Policies and Statements
https://www.kckcc.edu/about/policies-statements/index.html

Accessibility and Accommodations
https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html.