COWLEY COLLEGE
& Area Vocational Technical School

COURSE PROCEDURE FOR

INTRODUCTION TO ENGINEERING
PHS4545 2 Credit Hours

Student Level:
This course is open to students on the college level in either the freshman or sophomore year.

Catalog Description:
PHS4545 - INTRODUCTION TO ENGINEERING (2 hrs)
An introduction to engineering concepts, design and ethics. Graphing, problem solving, metric units, engineering calculations, and computers are included. Hands-on projects involving the basic concepts and disciplines of engineering are considered. Prerequisites: None.

Prerequisite:
None. (An interest in a career in engineering will be helpful.)

Controlling Purpose:
Excite the student about engineering, provide a strong foundation in engineering fundamentals and cultivate problem solving skills.

Learner Outcomes:
The students will be introduced to engineering, engineering design and engineering discipline. There will be a focus on what it takes to successfully complete an engineering degree.

Units Outcomes and Criterion Based Evaluation Key for Core Content:
The following defines the minimum core content not including the final examination period. Instructors may add other content as time allows.

Evaluation Key:

A = All major and minor goals have been achieved and the achievement level is considerably above the minimum required for doing more advanced work in the same field.

B = All major goals have been achieved, but the student has failed to achieve some of the less important goals. However, the student has progressed to the point where the goals of work at the next level can be easily achieved.

C = All major goals have been achieved, but many of the minor goals have not been achieved. In this grade range, the minimum level of proficiency represents a person who has achieved the major goals to the minimum amount of preparation necessary for taking more advanced work in the same field, but without any major

handicap of inadequacy in his background.

D = A few of the major goals have been achieved, but the student's achievement is so limited that he is not well prepared to work at a more advanced level in the same field.

F = Failing, will be computed in GPA and hours attempted.

N = No instruction or training in this area.

UNIT 1:						**INTRODUCTION TO ENGINEERING**
Outcomes						Students will acquire an understanding of engineering professions and skills required to become a good engineer.
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Describe the differences between multiple engineering professions.
						Recognize the difference between learning in high school and in college engineering courses.
						Create a graduation plan for the student to successfully complete a degree in engineering.
						Describe the traits of a good engineer.

UNIT 2:						**ENGINEERING FUNDAMENTALS**
Outcomes						Students will acquire an understanding of how the engineering design process works.
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Navigate through the engineering design process.
						Recognize the need for Standards and Codes.
						Use multiple forms to communication to express an engineering design.
						Apply ethical principles to engineering scenarios.

UNIT 3:						**MATHEMATICS IN ENGINEERING** Outcomes Students will acquire an understanding of the mathematics involved in engineering.
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Recognize SI units and make unit conversions.
						Apply a variety of physical laws to make a prediction using mathematics.
						Identify the math sequence and math skills needed to complete a degree in engineering.
						Describe the economics commonly associated with engineering.
						Use the engineering skills and mathematics in a variety of hands-on projects associated with engineering.

Text Book:
Engineering Fundamentals: An Introduction to Engineering. Saeed Moaveni. 5th Ed.

Materials/Equipment:
A scientific calculator is required; a graphing calculator is recommended. Access to a computer would be helpful.

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Course Grade
The grading policy will be outlined by the instructor in the course syllabus.

Maximum Class Size:
Based on classroom occupancy

Course Timeframe:
The U.S. Department of Education, Higher Learning Commission and the Kansas Board of Regents define credit hour and have specific regulations that the college must follow when developing, teaching and assessing the educational aspects of the college. A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for approximately fifteen weeks for one semester hour of credit or an equivalent amount of work over a different amount of time. The number of semester hours of credit allowed for each distance education or blended hybrid courses shall be assigned by the college based on the amount of time needed to achieve the same course outcomes in a purely face-to-face format.

Refer to the following policies:

402.00 Academic Code of Conduct
263.00 Student Appeal of Course Grades
403.00 Student Code of Conduct

Disability Services Program:

Cowley College, in recognition of state and federal laws, will accommodate a student with a documented disability. If a student has a disability which may impact work in this class which requires accommodations, contact the Disability Services Coordinator.