J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: EGR 124 **Credits:** 3

Course Title: Introduction to Engineering and Engineering Methods

Course Description: Introduces the engineering profession, professionalism, and ethics. Covers problem presentation, engineering calculations, and digital computer applications; word processing, worksheets, and databases; programming in languages, such as MATLAB, FORTRAN, or C++; elementary numerical methods; and other skills required for computer competency. Prerequisite or Co-requisite: MTH 173. Lecture 3 hours per week.

General Course Purpose: Introductory engineering course for all AS Engineering majors.

Course Prerequisites and Co-requisites:
Prerequisite or Co-requisite: MTH 173

Course Objectives:
Upon completing the course, the student will be able to:
a. Understand the various branches of the engineering profession, code of ethics, and engineering professionalism;
b. Work problems involving algebra, trigonometry, exponential, roots, and logarithms;
c. Work problems using vectors, statics, material balance, and energy;
d. Present technical data, perform dimensional analysis, and use engineering software;
e. Independently develop, test, debug, and operate a computer program on an assigned engineering problem; and
f. Solve engineering problems using spreadsheet software, such as EXCEL.

Major Topics to Be Included:
a. Introduction to the engineering profession and engineering solutions
b. Selected topics from algebra, trigonometry, unit conversion, and dimensions
c. Engineering estimation and approximation
d. Representation of technical information and curve fitting
e. Using computer software including equation solvers, word processors, and worksheets
f. Introduction to computer programming: selective execution and repetitive execution
g. Input/output: list-directed and format directed
h. Object-oriented programming
i. Additional introductory engineering topics, such as material balance
j. Use of MATLAB

Effective Date of Course Content Summary: March 18, 2015