

# Virginia Western Community College

## EGR 124

### Introduction to Engineering and Engineering Methods

#### Co-requisites

MTH 263

#### Course Description

Introduces the engineering profession, professionalism, and ethics. Covers problem presentation, engineering calculations, digital computer applications, word processing, worksheets, programming in FORTRAN or C++ and elementary numerical methods.

**Semester Credits: 3 Lecture Hours: 3 Lab/Recitation Hours: 0**

#### Required Materials

##### **Textbooks:**

Thinking Like an Engineer, 3<sup>rd</sup> Edition, Author: Stephan, et al., Pearson Prentice Hall, ISBN# 9780133808483 (must purchase access to myengineering lab which is provided for free with a new book or can be purchased for ~\$57 from Pearson with a used book)

Learning Autodesk Inventor 2017, A Tutorial Introduction, Author: Shih, SDC Publications, ISBN# 9781630570477

##### **Other Required Materials:**

Engineering Computation Paper, Calculator



## **Course Outcomes**

**At the completion of this course, the student should be able to:**

1. Solve engineering problems by applying mathematics concepts of geometry, trigonometry, graphing, and simultaneous equations.
2. Use CAD to design engineering solutions.
3. Write a technical report for an engineering design project.
4. Give a technical presentation for an engineering design project.



**Topical Description**

Week #	Week of:		Topic	TLE Chapter
1	August	18	Engineering	TLE 1
2		25	Ethics, Inventor, Teams	TLE 2,3
3	September	1	Communication, Estimation	TLE 4,5
4		8	Solving Problems	TLE 6
5		15	Fundamental Dimensions	TLE 7
6		22	Fundamental Dimensions	TLE 7
7		29	Universal Dimensions	TLE 8
8	October	5	Universal Dimensions	TLE 8
9		12	Dimensionless Numbers	TLE 9
10		19	Excel Workbooks	TLE 10
11		26	Graphical Solutions	TLE 11
12	November	3	Excel Applications	LEWAS Lab
13		10	Mathematical Models	TLE 12
14		17	Mathematical Systems	TLE 13
15		24	Thanksgiving	
16	December	1	Statistics, Robot Competition Prep	TLE 14
17		7	Finals Prep	

Autodesk Inventor tutorials as needed throughout the semester.

Parallax Boe-Bot Robot tutorials self-paced throughout the semester.

Robot Competition: Saturday Dec. 6th (Tentatively Scheduled, Mandatory Attendance)



### Notes to Instructors

1. All instructors teaching this course will use the same textbooks.
2. Course content within this course may be covered at the instructor's discretion but with all topics being understood.
3. This course and its grades will be structured around a minimum of 2 tests, final exam, homework, and a group course project.
4. At the end of the semester, all instructors will give the outcome assessment as it relates to the final exam to the program head at the same time they prepare their student final grades.
5. A comprehensive final exam will be given, which must be at least 10% of the final grade.

