

## XXX 111 - Introduction to Engineering I - 3 Credits

Fall 2014

(XXX stands for BME, CAE, EEN, IEN or MAE)

**Course Description:** Use of engineering tools for problem solving: Use of computer techniques for data acquisition, analysis and presentation; software design and computer aided drafting. Development of design skills through several design and building competitions. Introduction to Professional ethics and intellectual property rights. Learn to use MATLAB, AutoCAD and learn to program in C++

**Textbooks:**

*Engineering Design Graphics*  
by James Leake & Jacob Borgerson  
John Wiley & Sons, Inc, 2013  
Second Edition  
ISBN : 9781118078884

*MATLAB for Engineers*  
by Holly Moore  
Pearson Prentice Hall, 2015  
Fourth Edition  
ISBN : 9781118078884

Engineering Problem Solving with C++  
by Delores M. Etter & Jeanine A. Ingber  
Prentice Hall, 2012  
Third Edition  
ISBN : 9780132492652

**Coordinator:** R. Narasimhan, Research Asst. Professor of Professional Practice

**Course Objective:** Upon successful completion of this course, students will be able to:

1. Do simple data analysis using MATLAB
2. Have the ability to draw and dimension engineering objects
3. Understand the basic concepts of programming
4. Have an appreciation for engineering ethics and intellectual property rights

**Topics:**

1. Orientation to the University and Engineering. & Design Project I
2. Engineering ethics & intellectual property rights

**Using MATLAB:**

3. Introduction to Engineering, Problem Solving and MATLAB
4. Graphing & Curve fitting
5. Descriptive statistics & Interpolation
6. Solving equations & Evaluating Integrals

**Using AutoCAD:**

7. Sketching & Pictorial
8. Orthographic Projections
9. Dimensioning & Tolerancing
10. Auxiliary views and sectioning
11. Working drawings

**Using C++:**

12. Problem Formulation & Representation in computer programming
13. Algorithm Development
14. Modular programming
15. Two hands on projects

**Class Schedule:** 2 classes/week of 2 hours 40 minutes each

**Professional Component:** Engineering Topics: 3 credits      Design: 0.5 credits