

## Master Syllabus

### MET 1161 - Software Tools for Engineering Technology

**Division:** Science, Mathematics and Engineering

**Department:** Mechanical Engineering Technology

**Credit Hour Total:** 1.0

**Lecture Hrs:** 0.5 **Lab Hrs:** 1.5

**Prerequisite(s):** MAT 0300OR MAT 1280OR MAT 1470OR MAT 1580

**Date Revised:** February 2015

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#### Course Description:

Introduction to computer-based solution of engineering and engineering technology problems. Includes the fundamentals and applications of computer-based software (MathCAD) and integration with other software for documentation of work, including proper use of units and unit systems. Software solution applications include graphing functions and data, basic statistical calculations, use of matrices, vectors, solution of simultaneous and an introduction to Boolean logic. One-half classroom, one and one-half lab hours per week.

#### General Education Outcomes:

- ▣ Critical Thinking/Problem Solving Competency
- ▣ Computer Literacy Competency
- ▣ Information Literacy Competency
- ▣ Written Communication Competency

#### Course Outcomes:

##### Graphing and analyzing functions and data

Develop a graph for a specific function, groups of functions, or raw data.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% or more correct on exams

##### Computational software

Solve simple mathematical problems, statistical functions, and solve simultaneous equations using MathCAD and Excel.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% or more correct on exams

##### Use computational software with other programs

Insert a working Excel spreadsheet into MathCAD to share information.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% or more correct score on exams

##### Technical documents

Lay out a technical document with proper calculations, graphics, and a documentation suitable for desktop publishing.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% or more correct on exams

#### Outline:

Basic Software Conventions

Object Linking with Embedding (OLE) Applications

Using and Defining Units

Plotting Graphs

Basic Matrix and Vector Operations

Solving Simultaneous Equations

Statistical Calculations