

# EET-1140: PRODUCTIVITY TOOLS FOR ENGINEERING

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## Cuyahoga Community College

**Viewing: EET-1140 : Productivity Tools for Engineering**

**Academic Term:**

Fall 2018

**Subject Code**

EET - Electrical/Electronic Engineer

**Course Number:**

1140

**Title:**

Productivity Tools for Engineering

**Catalog Description:**

Productivity Tools for Engineering exposes students to word processing, spread sheets and CAD (Computer Aided Design) programs directed at the electronic engineering technology environment.

**Credit Hour(s):**

2

**Lecture Hour(s):**

0

**Lab Hour(s):**

4

## Requisites

**Prerequisite and Corequisite**

ENG-1010 College Composition I; and eligibility for MATH-0965 Intermediate Algebra; or departmental approval.

## Outcomes

**Course Outcome(s):**

Use file management techniques to organize word processing, spreadsheet and computer aided design files

**Objective(s):**

1. Create new folders/directories before starting a project
2. Create new folders/directories when it is realized that they are needed
3. Reorganize or delete folders or directories as the project architecture dictates
4. Back-up files
5. Organize a logical project workspace that peers can understand

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**Course Outcome(s):**

Diagnose and troubleshoot electronic circuits using a spreadsheet application.

**Objective(s):**

1. Use software vendor program updates as they are released and troubleshoot inconsistencies that may arise
  2. Discuss the compatibility between products and releases
  3. Use spreadsheets when applicable to solve electronic engineering concerns like frequency response calculations, trouble shoot circuits with out-of-specification responses, etc.,
  4. Use embedded formulas in a spreadsheet to calculate circuit parameters like transistor operating point and diagnose differences between theoretical and operational
  5. Use macros in spreadsheets to increase productivity
  6. Use cell formatting and graphing to display results of electronic calculations
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**Course Outcome(s):**

Use a word processing tool to create standard engineering report format to summarize experiments, theoretical calculations, and calculations derived from other engineering productivity tools using appropriate engineering terminology

**Objective(s):**

1. Use a word processors engineering related features to enhance the reports readability
2. Use embedding to link to other engineering application results into a report
3. Demonstrate the format for an engineering report

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**Course Outcome(s):**

Use CAD software to enhance the readability and comprehension of an electronic engineering report

**Objective(s):**

1. Create a custom template to support electronic related diagrams
2. Set measurement defaults, snap and glue, and other CAD commands
3. Create flowcharts, static diagrams, state tables to explain electronic designs or aid in troubleshooting
4. Import CAD diagrams into a report in a word processing program

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**Course Outcome(s):**

Develop a portfolio of student projects, complete a final project, and perform an oral presentation of the final project.

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**Methods of Evaluation:**

1. Projects that use spreadsheets to solve electronic engineering related problems
2. Use file management to display directories and/or folders that are associated with a project
3. Create engineering reports that meet the requirements of the standard format
4. Show drawing made in CAD software
5. REQUIRED projects per ABET
  - a. Student portfolio
  - b. Final project
  - c. Oral report on final project

**Course Content Outline:**

1. Concepts
  - a. External storage
  - b. Layering
  - c. Macros
  - d. Enhance productivity
  - e. Operating systems
  - f. File management
  - g. Embedding versus linking
  - h. Backing up the report
  - i. Version control
  - j. Offsite file storage
  - k. Backup and recovery
  - l. Scaling
- m. Views
  - a. CAD output files
  - b. Custom templates
  - c. Creating graphs
  - d. Embedded formulas
2. Skills
  - a. Troubleshooting
  - b. Cutting and pasting between applications
  - c. Logical analysis
  - d. File management
  - e. Utilize CAD to create flow charts, static tables and state diagrams
  - f. Utilize engineering related features of a word processing program

- g. Create standard engineering report format in a word processing program
  - h. Utilize advance spreadsheet tools for calculations and reports
  - i. Knowledge of a word processor's capabilities relative to the engineering environment
3. Issues
- a. Data Integrity
  - b. Product/release compatibility
  - c. Backing up files
  - d. loosing and recovering files
  - e. Limitations of CAD programs
  - f. Precision
  - g. When linking, the source must be included

## Resources

Bonnie Biafore. *Visio 2003 Bible*. 1st Edition,. Wiley, 2004.

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Brent Heslop. *Word 2003 Bible*. 1st Edition,. Wiley, 2004.

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John Walkenbach. *Excel 2003 Power Programming with VBA*. 1st Edition,. Wiley, 2004.

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