# COURSE SYLLABUS

**Course Title:** Benchwork  
**Department:** Advanced Manufacturing Technology  
**Curriculum:** Technology Studies  
**Date submitted:** 4/30/2018 (18-31)

**Course Code:** (eg. ACC*101) MFG*166  
**Course Type:** X  
**Elective Type:** G  
**Credit Hours:** 1  
**Developmental:** (yes/no) No  
**Lecture:** .5  
**Clinical:** 0  
**Lab:** .5  
**Studio:** 0  
**Other:** 0  
**TOTAL:** 1  
**Class Maximum:** 24  
**Semesters Offered:** Fall, Spring  

**Catalog Course Description:** Benchwork is a basic course in the fundamentals, principles, practices, and tools used in semi-precision and precision layout and in the various tools, methods and procedures for common machine shop benchwork. Topics will include, measurement systems, layout principles, hand tools and power tools.

**Corequisites:** None  
**Prerequisites:** None  
**Other Requirements:** None  

**Topical Outline:** INSTRUCTIONAL UNITS:
1. Basics of Applied Benchwork
2. Mechanical Fasteners
3. Units of Measure
4. Semi-precision Measuring Tools and Gages
5. Precision Measuring Tools and Gages
6. Tolerances and Fits
7. Non-precision and Semi-precision Layout Tools
8. Precision Layout Tools
9. Layout Procedures
10. Assembly Tools, Arbor and Shop Presses
11. Chisels, Files, Scrapers, and Abrasive Cloth
12. Power hand Drills and Grinders
13. Special Benchwork Tools and Procedures

LABORATORIES:
1. Demonstrate the basics of Applied Benchwork
2. Use of Mechanical Fasteners
3. Identify Units of Measure
4. Use of Semi-precision Measuring Tools and Gages
5. Use of Precision Measuring Tools and Gages
6. Exercises in Tolerances and Fits
7. Use of Non-precision and Semi-precision Layout Tools
8. Use of Precision Layout Tools
9. Apply Layout Procedures
10. Use of Assembly Tools, Arbor and Shop Presses
11. Use of Chisels, Files, Scrapers, and Abrasive Cloth
12. Use Power Hand Drills and Grinders
13. Use Special Benchwork Tools and Procedures

Upon successful completion of this course, the student will be able to do the following:

COURSE:
1. demonstrate the ability to use units of measure
2. identify various types of fasteners
3. demonstrate an understanding of fits and tolerances
4. demonstrate an understanding of the difference between semi-precision and precision layout
5. demonstrate the proper use of arbor presses
6. identify and understand the use of hand tools
7. use tools to layout semi-precision and precision layout work

PROGRAM: (Numbering reflects Program Outcomes as they appear in the college catalog)

Electronics Technology Certificate and A.S. Degree
1. demonstrate an understanding of Shop Safety
2. demonstrate an understanding the theory of electrical structure, voltage, current, resistance, and electrical circuit and their measurement
3. demonstrate an understanding of the basic laws of arithmetic
4. demonstrate an understanding of several number systems and codes that are
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<tr>
<th>Course Objectives</th>
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<td>the foundation of digital theory and digital applications</td>
<td>5. make comparisons with personal computers; as well as, develop an understanding of its origin and growth since conception</td>
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<td>6. demonstrate an understanding of the fundamentals of Automated Manufacturing systems</td>
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**GENERAL EDUCATION:** (Numbering reflects General Education Outcomes as they appear in the college catalog)

No General Education outcomes.

**Evaluation:**
List how the above outcomes will be assessed.

Assessment will be based on the following criteria:
- quizzes
- exams
- lab Projects

**Instructional Resources:**
List library (e.g. books, journals, online resources), technological (e.g. Smartboard, software), and other resources (e.g. equipment, supplies, facilities) required and desired to teach this course.

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<th>Required</th>
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<td>Manufacturing lab with machine shop benchwork tools.</td>
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**Textbook(s)**