STATE UNIVERSITY OF NEW YORK
COLLEGE OF TECHNOLOGY
CANTON, NEW YORK

MASTER SYLLABUS

MECH 180 – Survey of Engineering Trades

CIP Code: 15.0000
For assistance determining CIP Code, please refer to this webpage
or reach out to Sarah Todd at todd@canton.edu

Created by: Christopher Mayville
Updated by:

Canino School of Engineering Technology
Mechanical & Energy Technologies
Fall 2023
A. **TITLE:** Survey of Engineering Trades

B. **COURSE NUMBER:** MECH 180

C. **CREDIT HOURS (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity):**

   - Credit Hours: 3
   - Lecture Hours: 2 per Week
   - Lab Hours: 3 per Week
   - Contact hours: 5 per Week

   **Course Length (# of Weeks):** 15

D. **WRITING INTENSIVE COURSE:** No

E. **GER CATEGORY:**

   - Does course satisfy more than one GER category? If so, which one?

F. **SEMESTER(S) OFFERED:** Fall and Spring

G. **COURSE DESCRIPTION:**

   This course provides introduction to some of the trade opportunities in the field of engineering and technology. Students will gain introductory experience in the areas of welding, plumbing, heating, air conditioning, and residential electricity.

H. **PRE-REQUISITES:** None

   **CO-REQUISITES:** None

I. **STUDENT LEARNING OUTCOMES:**

<table>
<thead>
<tr>
<th>Course Student Learning Outcome (SLO)</th>
<th>PSLO</th>
<th>GER</th>
<th>ISLO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Demonstrate an understating of SMAW and GMAW.</td>
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<td>b. Properly assemble various plumbing connections.</td>
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<td>c. Build wood framed walls using industry best practice.</td>
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<td>d. Build electrical circuits using industry best practices.</td>
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<tr>
<td>KEY</td>
<td><strong>Institutional Student Learning Outcomes</strong></td>
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<tr>
<td>ISLO #</td>
<td><strong>ISLO &amp; Subsets</strong></td>
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<tr>
<td>1</td>
<td>Communication Skills</td>
<td></td>
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<tr>
<td>&amp; Subsets</td>
<td>Oral [O], Written [W]</td>
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<tr>
<td>2</td>
<td>Critical Thinking</td>
<td></td>
<td></td>
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<tr>
<td>&amp; Subsets</td>
<td>Critical Analysis [CA], Inquiry &amp; Analysis [IA], Problem Solving [PS]</td>
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<tr>
<td>3</td>
<td>Foundational Skills</td>
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<tr>
<td>&amp; Subsets</td>
<td>Information Management [IM], Quantitative Lit./Reasoning [QTR]</td>
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<td>4</td>
<td>Social Responsibility</td>
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<tr>
<td>&amp; Subsets</td>
<td>Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]</td>
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<tr>
<td>5</td>
<td>Industry, Professional, Discipline Specific Knowledge and Skills</td>
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J. **APPLIED LEARNING COMPONENT:** Yes___X__  No_______

If Yes, select one or more of the following categories:

- Classroom/Lab_X_
- Internship___
- Clinical Practicum___
- Practicum___
- Service Learning___
- Community Service___
- Civic Engagement___
- Creative Works/Senior Project___
- Research___
- Entrepreneurship___

K. **TEXTS:** None

L. **REFERENCES:** None

M. **EQUIPMENT:**

Technology education classroom with: basic hand tools, hand drill, drill press, stick and wire feed welders, propane and oxy/fuel torch

N. **GRADING METHOD:** A-F

O. **SUGGESTED MEASUREMENT CRITERIA/METHODS:**

Quizzes, exams, laboratory activities, and laboratory participation

P. **DETAILED COURSE OUTLINE:**

I. **Welding**
   A. Torch Cutting
   B. SMAW/Stick Welding
   C. GMAW/Wire feed Welding
II. Plumbing, Heating, and Air Conditioning
   A. Ductwork and Pattern Making
   B. Pipe fitting
      - Soldering
      - Threading
      - Gluing PVC
      - PEX

III. Construction
   A. Sawing tool safety
   B. Wood frame construction

IV. Electricity
   A. Lighting, Outlets, and Switch Circuits

Q. LABORATORY OUTLINE:
   A. Setup and Cutting Coupons
   B. FCAW
      a. Stick Welding- Flat butt joints
      b. Stick Welding- T-joints
   C. GMAW
      a. Wire-feed Welding- Flatt butt joints
      b. Wire-feed Welding- T-joints
   D. Pattern making
   E. Soldering Pipe
   F. Assemble pipe fittings: threaded, PVC, PEX
   G. Wood frame construction
   H. Wiring lights, outlets, and switches