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|  | **Course:** | **MET 1010** |
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|  | **Title:** | **Manufacturing Processes** |
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|  | **Long Title:** | **Manufacturing Processes** |
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|  | **Course Description:** | **Basic fundamentals in the operation of machine tools are studied, including measuring tools, benchmark and layout, and tool grinding. The student performs various machine operations using the engine lathe, milling machine, vertical drills, and surface grinders.** |
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|  | **Min Credit:** | **3** |
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 STANDARD COMPETENCIES:

1. Analyze and determine material fabrication processes.
2. Use laboratory instrument doing routine metrological measurements.
3. Operate regular machine shop equipment such as grinders, drill presses, lathes, milling machines, shapers, and planers.
4. Recognize engine machine tool requirements and be selective in the choice of tools.
5. Setup and operate machines, index and determine machine speeds, feeds, and depth requirements.
6. Identify with numerical control machining and computer programming.
7. Determine costs and establish basic programs in machine shop economics.

 TOPICAL OUTLINE:

1. Introduction to Materials Fabrication
   1. Measuring Tools
   2. Bench Tools and Layout
2. Drill Press
   1. Types and Operation
   2. Tools and Holding Devices
   3. Seeds and Feeds
3. Engine Lathe
   1. Types and Operation
   2. Tools and Accessories
   3. Indexing and Set ups
   4. Speeds, Feeds and Depth of Cut
4. Shaper
   1. Types and Operation
   2. Cutting Tools and Holding Devices
   3. Traverse and Feed
5. Planer
   1. Types and Operation
   2. Cutting Tools and Accessories
   3. Feeds, Speeds and Depth of Cut
6. Grinding Machine
   1. Types
   2. Grinding Principles and Practice
7. N.C. Machine and Demonstration of Computer Programming
8. Metal Cutting Economics – Computer Program