University of Toledo
Mechanical Engineering Technology
Master Syllabus

Course Title: *Metal Machining and Processes Lab*   **Course Code & Number:**   *MET 1120*

Credit Hour Total: *1*

Lecture Contact Hours: *N/A*   **Lab Contact Hours:** *2*

Prerequisite(s):   *MET 1020 and MET 1110*

Text: *Technology of Machine Tools, Krar, 7th Edition, 2010*

Software: *none*

Course Description: (Approved Catalog Description)
Provides students with an opportunity to gain hands-on experience with machine tools and gauging measurement instruments.

Related Program Outcomes:

Outcome k: A commitment to quality, timeliness, and continuous improvement, as evidenced by the ability to read gauges and understand gauge repeatability and reliability. Timeliness is well understood with project timelines. Continuous improvement is done in the identification and elimination of wastes (motion, waiting, scrap, rework, etc.).

Course Objectives:
At the end of the course the student should be prepared to:

1. Develop an understanding of metal machining concepts and processing principles.
2. Develop an understanding speeds and feeds.
3. Take a current design and completely fabricate a product based on the design.
4. Understand the importance of shop safety.
5. Understand the important roll an engineer has in design accuracy and communication (verbal and non-verbal) skills with a fabricator.

Course Outline:

- Understanding machine shop safety.
- Understand the importance of gauges and have the ability to read micrometers.

- Identifying internal and customer quality and key measurable.
- Fabricate a product utilizing the band saw and the drill press.
- Fabricate a product utilizing a vertical mill while learning to work in a coordinate plane.
- Fabricate a product utilizing a metal lathe.
- Fabricate a product utilizing a surface grinder.
- Understand and utilize other common shop floor tools.
- Read and understand blueprints.
- Develop a duplicate of a product by taking all measurements and reproducing.
- Created team work by individually working to assemble a single product.