NHTI - CONCORD'S COMMUNITY COLLEGE
Advanced Manufacturing Processes Certificate Program
MET- MFT Department

Course: MP 101 Manufacturing Processes

Hours per week: 3 Lecture 3 Lab Credits: 4

Outline for Spring Semester: 2014 **Outline Prepared: January 2014**

Name of Instructor: Lenny Harrison **Mailbox: Little Hall Mail/Copy Room**

Office: **e-mail: harrisonl@nashua.edu**

Office Hours: By Appointment

Catalog Description:

This course covers fundamentals of machining processes using traditional machine tools: lathe, milling machine, surface grinder, and cutoff saw. An in-depth coverage of shop safety is presented. The use of standard precision measuring tools including micrometers, dial calipers, vernier scales, etc. is presented. Basic machine setup practices and common cutting tool materials are introduced. Machining operations: turning, milling, grinding, drilling, boring, reaming, and tapping are covered. The lab portion of the course allows students to apply classroom theory to actual machine tools using precision measuring tools.

Pre-requisites: none

Required Textbooks:

Text: Machining Fundamentals, 9th Edition, John R. Walker, ISBN: 978-1-61960-209-0

Workbook: Machining Fundamentals, 9th Edition, John R. Walker, ISBN: 978-1-60960-216-8

Supplemental Text/References:

Machinery's Handbook, Industrial Press, any recent edition (24th and up)

Attendance Policy:

Attendance is expected at all scheduled lectures and laboratory sessions. If more than 3 lecture sessions and/or 2 lab sessions are missed, a grade of "AF" may result. Note: An "AF" grade is calculated into your GPA. Attendance is taken at the beginning of each

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lecture and lab. Late arrivals will be considered absences. In addition, attendance will be considered in the final grade. Arriving late, leaving early, excessively exiting and re-entering the classroom/lab is considered inappropriate and will also be considered in the final grade.

Policy on Makeup Tests and Makeup Labs:

Work missed due to an absence may be made up in cases of well documented excused absences at the instructor's discretion. In the case of a planned absence, prior arrangements can be made with the instructor to schedule a time to take a test. In the case of an unplanned absence, it is **the student's responsibility to make arrangements upon immediate return from said absence.** Missed work and tests cannot be made up after one week beyond the absence.

Lab Project Makeup is essentially impossible except for situations and circumstances where well documented excused absences have occurred. It is important to attend all scheduled lab sessions. Be on time for the lab and do not leave early. Failure to attend various labs can result in projects not being fully completed. This will have resulting grade consequences.

Policy on Homework:

Homework assignments will be assigned regularly in class. These will consist of reading assignments along with Chapter Review Questions at the end of each chapter and in workbook. Students are expected to do all assignments. Chapter Review Questions and workbook assignments will be used for test material. Homework assignments will not be collected or graded. In general, Lab Assignments are due at the beginning of the next scheduled lab period, due dates will be announced in the lab. Project Inspection Reports (hammer project) are due when the project is completed (near end of term).

Professionalism:

Honesty is expected of all students. Students are expected to complete their own work at all times. When working in an instructor approved group, in specified lab exercises, group members may work together to assist one another when appropriate, but each student is expected to submit their own original work. Plagiarism or cheating is a serious offense and will be treated according to the guidelines outlined in the NHTI Student Handbook.

Students are expected to show proper behavior and respect in the classroom and laboratory. Each student is expected to act as a professional as would be expected in industry. This includes the use of proper language and attitude toward the instructor and other students. Students should be on-time, not exit and re-enter class or lab

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excessively, and not leave early. Cell phones, text messaging devices, IPods **should be turned off and put away** during lecture and laboratory sessions. Laptops are permitted for **note taking only**, NOT for accessing the internet or email services. Courtesy and respect is expected from all students. **All safety practices and policies must be adhered to at all times, especially in the lab.** Improper behavior or continued violations of any of the above rules will not be tolerated. Violation of the above rules, especially safety rules, will result in suspension from the lab and/or course with appropriate corresponding grade consequences.

Methods of Testing/Evaluation (Grading):

Grades will be based on the following:

Attendance/participation (includes safety practices)	10%
Tests (3)	40%
Lab assignments and projects	30%
Final Exam (comprehensive)	20%
	100%

Course Grading System including letter grade/numeric equivalents:

A	95-100	B+	87-89	C+	77-79	F	0-69
A-	90-94	B	83-86	C	73-76		
		B-	80-82	C-	70-72		

The "C" grade represents achievement of a level of understanding and ability consistent with that required for successful entry into the field of Engineering Technology and is therefore the minimum acceptable grade for major field courses.

Academic support:

The Learning Center provides a variety of services for students to be successful, i.e. peer tutoring, drop-in math, writing lab, computer tutorials, etc. Please refer to the Academic Affairs Notices attached to this syllabus for further information.

Students experiencing difficulty with the course work are urged to make arrangements for extra help as soon as possible. Do not hesitate to ask, there are a number of ways to obtain help. Contact your instructors/advisors for information. Take advantage of

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Instructor Office Hours. These are hours that have been set aside for your use. We are here to help you succeed in your academic studies.

Course materials, handouts, and assignments will be posted on the NHTI Blackboard website. This can be accessed from either on or off-campus.

Specific Course Objectives or Outcomes:

The student will be able use basic precision measuring equipment and/or tools and will learn basic measurement practices.

The student will become well versed in machine shop safety practices and procedures. The Machine Shop Safety Test must be successfully passed with a 100% score before a student may operate any of the machines in the lab.

The student will be able to understand the basic theory of material removal processes (machining).

The student will be able to set-up and operate the following machines and demonstrate safe operating procedures:

Cut-off saw
Lathe
Vertical Milling Machine
Conventional Surface Grinder

Policy on Credit by Examination for Lab portion of course:

Students who possess extensive machine tool experience (work experience or high school competencies) may elect to take a credit by examination test for the lab portion of this course. Credit by examination shall be requested prior to the start of the 2nd full week of classes and administered prior to the end of the 4th full week of classes. The student who passes this exam will still be responsible for some specific lab activities (as determined by the instructor), but will be excused from the machining project portion of lab (hammer project)

In order to qualify for credit by examination, the student must give in writing the rationale as to the student's background which justifies taking the examination. This justification will specify how the knowledge was acquired, equating course material in comparison to experience, i.e. high school competency completion documentation, a detail experience record for industry/work related experience.

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MP101 Semester Topics Covered to Meet Course Outcomes: (tentative)

Week of		Chapter	Topic	Lab
1 (1/20)	1,2,3		Intro, Shop Safety	"Safety Regulations"
2 (1/27)	4,5		Measurement	Measurement
3 (2/3)	5,6,7	**ST**	Layout, Hand tools	Layout
4 (2/10)	14		Lathe Operations	Machine Shop Project A/B
5 (2/17)	15		Lathe Operations	Machine Shop Project A/B
6 (2/24)	16	**T1**	Lathe Operations	Machine Shop Project A/B
7 (3/3)	18		Milling Operations	Machine Shop Project A/B
(3/10)		**Spring Break Week – no classes**		
8 (3/17)	19		Milling Operations	Machine Shop Project A/B
9 (3/24)	12	**T2**	Drilling Operations	Machine Shop Project B/A
10 (3/31)	28		Metals	Machine Shop Project B/A
11 (4/7)	29		Heat Treatment	Machine Shop Project B/A
12 (4/11)	11		Sawing	* Heat Treatment
13 (4/21)	20		Grinding	Machine Shop Project B/A
14 (4/28)	9	**T3**	Jigs & Fixtures	Machine Shop Project B/A
15 (5/5)			Review	Machine Shop Make-Up
16 (5/12)	---		**Final Exam Week**	

Notes: **T1, T2, T3** are tentative test weeks.

ST - Safety Test (100% passing score required)

*Tentative week Heat Treatment Lab

Machine Shop Projects A and Project B are the two machined components/parts which when assembled forms a hammer.

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