



**CREDIT COURSE OUTLINE**

**I. COVER PAGE**

(1) MFGT 101	(2) BASIC MANUFACTURING SKILLS	(3) 1
Number	Title	Units

(4) Lecture / Lab Hours:	(8) Classification:
Course Hours	
Weekly Lec hours: 20.00	Degree applicable: X
Weekly Lab hours: 0	Non-degree applicable:
Total Contact hours: 20.00	Basic skills:
Lec will generate __ hour(s) outside work.	(9) RC Fulfills AS/AA degree requirement: (area)
Lab will generate __ hour(s) outside work.	General education category:
(5) Grading Basis: Grading Scale Only	Major:
Pass/No Pass option	Certificate of:
Pass/No Pass only X	Certificate in:
(6) Advisories:	(10) CSU Baccalaureate:
(7) Pre-requisites (requires C grade or better):	(11) Repeatable: (A course may be repeated three times) 2
Corequisites:	(12) C-ID:
	Proposed Start Date: Spring 2012

(12) Catalog Description:  
Introduction to manufacturing shop safety, operations, measurement, work flow, and manufacturing facilities.

**II. COURSE OUTCOMES:**

*(Specify the learning skills the student demonstrates through completing the course and link critical thinking skills to specific course content and objectives.)*

Upon completion of this course, students will be able to:

- I. Organize and arrange workflows in a manufacturing environment.
- II. Practice safe shop techniques.
- III. Calculate common mathematical problems associated with part fabrication and machinery operation.
- IV. Choose appropriate materials for any assigned project.
- V. Execute daily assigned work in a timely and professional manner.
- VI. Creatively apply manufacturing knowledge to first inspect, and second formulate a solution to manufacturing problems.
- VII. Differentiate between acceptable and non-acceptable tolerance limits and overall work quality.
- VIII. Illustrate compatibility working with others in a group situation.

**III. COURSE OBJECTIVES:**

*(Specify major objectives in terms of the observable knowledge and/or skills to be attained.)*

In the process of completing this course, students will:

- I. Select and properly use hand tools of the machine trade.
- II. Perform precision measurement and layout needed in the machine trade.
- III. Propose proper material for a prescribed project and calculate necessary cuts for the job.
- IV. Set up and perform basic machining operations on common machine shop equipment.
- V. Identify potential hazards in machine operation and revise techniques to optimize safety.
- VI. Prepare accurate and correct calculations to precisely set machines for close tolerance work.
- VII. Illustrate work discipline through use of a time clock and progress on assigned task.
- VIII. Perform precision machine work within a group setting.

**IV. COURSE OUTLINE:**

**Lecture Content:**

- A. Manufacturing Technology Orientation
- B. Shop Safety
  - 1. General
  - 2. Hand Tools
  - 3. Machinery
  - 4. Electrical
  - 5. Chemical
- C. Hand Tools
  - 1. Tools that clamp
  - 2. Tools that cut
  - 3. Tools that twist
  - 4. Tools that are hit
  - 5. Abrasives
- D. Shop Math
  - 1. Fractions
  - 2. Feeds and speeds
  - 3. Trigonometry
- E. Measurement
  - 1. Rulers
  - 2. Micrometers
  - 3. Calipers
  - 4. Protractors
  - 5. Gages
  - 6. Indicators
- M. Finishing
  - 1. Machine Finish
  - 2. Finishing Operations
  - 3. Coatings
- N. Inspection
  - 1. Methods of Inspection
  - 2. Hardness Testing

**V. APPROPRIATE READINGS**

**Reading assignments may include but are not limited to the following:**

- I. Sample Text Title:
  - 1. Recommended - Richard R. Kibbe *Machine Tool Practices* , Prentice Hall , 2006,
  - 2. Recommended - - *Machinery's Handbook*, Industrial Press , 2008,

II. Other Readings

- Global or international materials or concepts are appropriately included in this course
- Multicultural materials and concepts are appropriately included in this course

If either line is checked, write a paragraph indicating specifically how global/international and/or multicultural materials and concepts relate to content outline and/or readings.

**VI. METHODS TO MEASURE STUDENT ACHIEVEMENT AND DETERMINE GRADES:**

Students in this course will be graded in at least one of the following four categories. Please check those appropriate. A degree applicable course must have a minimum of one response in category A, B, or C.

<b>A. Writing</b>			
Check either 1 or 2 below			
X	<b>1. Substantial writing assignments are required. Check the appropriate boxes below and provide a written description in the space provided.</b>		
	<b>2. Substantial writing assignments are NOT required. If this box is checked leave this section blank. For degree applicable courses you must complete category B and/or C.</b>		
	a) essay exam(s)		d) written homework
	b) term or other paper(s)		e) reading reports
	c) laboratory report(s)		f) other (specify)

**Required assignments may include but are not limited to the following:**

<b>B. Problem Solving</b>			
Computational or non-computational problem-solving demonstrations, including:			
X	a) exam(s)		d) laboratory reports
X	b) quizzes		e) field work

<input checked="" type="checkbox"/>	c) homework problems	<input type="checkbox"/>	f) other (specify):
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**Required assignments may include but are not limited to the following:**

Sample questions:

1. Written True / False and multiple choice exams and quizzes that require application of key concepts.
2. Homework assigned weekly based on topic for the week.
3. Individual assignments using internet and other library resources.

<b>C. Skill demonstrations, including:</b>			
<input checked="" type="checkbox"/>	a) class performance(s)	<input checked="" type="checkbox"/>	c) performance exams(s)
<input type="checkbox"/>	b) field work	<input type="checkbox"/>	d) other (specify)

**Required assignments may include but are not limited to the following:**

1. Measurement test requires demonstration of sufficient skill before passing to machine work.
2. Class performance is measured each class period for participation, work produced and overall quality of working environment created.

<b>D. Objective examinations including:</b>			
<input checked="" type="checkbox"/>	a) multiple choice	<input checked="" type="checkbox"/>	d) completion
<input checked="" type="checkbox"/>	b) true/false	<input type="checkbox"/>	e) other (specify):
<input checked="" type="checkbox"/>	c) matching items		

**COURSE GRADE DETERMINATION:**

Description/explanation: Based on the categories checked in A-D, it is the recommendation of the department that the instructor's grading methods fall within the following departmental guidelines; however, the final method of grading is still at the discretion of the individual instructor. The instructor's syllabus must reflect the criteria by which the student's grade has been determined. (A minimum of five (5) grades must be recorded on the final roster.)

If several methods to measure student achievement are used, indicate here the approximate weight or percentage each has in determining student final grades.

**VII. EDUCATIONAL MATERIALS**

For degree applicable courses, the adopted texts, as listed in the college bookstore, or instructor-prepared materials have been certified to contain college-level materials.

Validation Language Level (check where applicable):

- Textbook
- Reference materials
- Instructor-prepared materials
- Audio-visual materials

College-Level Criteria Met	
YES	NO
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Indicate Method of evaluation:

- Used readability formulae (grade level 10 or higher)
- Text is used in a college-level course
- Used grading provided by publisher
- Other: (please explain; relate to Skills Levels)

Computation Level (Eligible for MATH 101 level or higher where applicable)

Content

- Breadth of ideas covered clearly meets college-level learning objectives of this course
- Presentation of content and/or exercises/projects:
- Requires a variety of problem-solving strategies including inductive and deductive reasoning.
- Requires independent thought and study
- Applies transferring knowledge and skills appropriately and efficiently to new situations or problems.

List of Reading/Educational Materials

- Recommended - Richard R. Kibbe *Machine Tool Practices*, Prentice Hall, 2006,
- Recommended - *Machinery's Handbook*, Industrial Press, 2008,

Comments:

This course requires special or additional library materials (list attached).

\_\_\_\_\_ This course requires special facilities:

Attached Files:

<b>BASIC SKILLS ADVISORIES PAGE</b> The skills listed are those needed for eligibility for English 125, 126, and Math 201. These skills are listed as the outcomes from English 252, 262, and Math 250. In the right hand column, list at least <u>three</u> major basic skills needed at the beginning of the target course and check off the corresponding basic skills listed at the left.
<u>Check the appropriate spaces.</u> <input type="checkbox"/> Eligibility for Math 201 is advisory for the target course. <input type="checkbox"/> Eligibility for English 126 is advisory for the target course. <input type="checkbox"/> Eligibility for English 125 is advisory for the target course.
<i><u>If the reviewers determine that an advisory or advisories in Basic Skills are all that are necessary for success in the target course, stop here, provide the required signatures, and forward this form to the department chair, the appropriate associate dean, and the curriculum committee.</u></i>

<b>REQUISITES</b>
No requisites

## JUSTIFICATION OF LIMITATION ON ENROLLMENT

Enrollment in courses or blocks of courses may be limited based on performance, honors, or other performance based criteria. Be mindful of the disproportionate impact the limitation will have on specific groups of students. It is important to determine if the limitation will disproportionately keep under-represented students from enrolling in the course or block of courses.

Describe the reasons for limiting the enrollment.

Course Designator: MFGT 101
Course Title(s): BASIC MANUFACTURING SKILLS
Rationale for Limiting Enrollment: 0