



CREDIT COURSE OUTLINE

I. COVER PAGE

<u>(1) MFGT 41</u>	<u>(2) FUNDAMENTALS OF WELDING ELECTRIC ARC</u>	<u>(3) 2</u>
Number	Title	Units

<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td colspan="3">(4) Lecture / Lab Hours:</td> </tr> <tr> <td colspan="3">Course Hours</td> </tr> <tr> <td style="width:20%">Weekly Lec hours:</td> <td style="width:10%"> </td> <td style="width:10%">21.00</td> </tr> <tr> <td>Weekly Lab hours:</td> <td> </td> <td>50.00</td> </tr> <tr> <td>Total Contact hours:</td> <td> </td> <td>71.00</td> </tr> <tr> <td colspan="3">Lec will generate __ hour(s) outside work.</td> </tr> <tr> <td colspan="3">Lab will generate __ hour(s) outside work.</td> </tr> <tr> <td>(5) Grading Basis:</td> <td>Grading Scale Only</td> <td align="center">X</td> </tr> <tr> <td></td> <td>Pass/No Pass option</td> <td> </td> </tr> <tr> <td></td> <td>Pass/No Pass only</td> <td> </td> </tr> <tr> <td>(6) Advisories:</td> <td colspan="2"> </td> </tr> <tr> <td>(7) Pre-requisites (requires C grade or better):</td> <td colspan="2"> </td> </tr> <tr> <td>Corequisites:</td> <td colspan="2"> </td> </tr> </table>	(4) Lecture / Lab Hours:			Course Hours			Weekly Lec hours:		21.00	Weekly Lab hours:		50.00	Total Contact hours:		71.00	Lec will generate __ hour(s) outside work.			Lab will generate __ hour(s) outside work.			(5) Grading Basis:	Grading Scale Only	X		Pass/No Pass option			Pass/No Pass only		(6) Advisories:			(7) Pre-requisites (requires C grade or better):			Corequisites:			<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td colspan="3">(8) Classification:</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td>Degree applicable:</td> <td align="center">X</td> </tr> <tr> <td> </td> <td>Non-degree applicable:</td> <td> </td> </tr> <tr> <td> </td> <td>Basic skills:</td> <td> </td> </tr> <tr> <td>(9) RC</td> <td>Fulfills AS/AA degree requirement: (area)</td> <td> </td> </tr> <tr> <td> </td> <td>General education category:</td> <td> </td> </tr> <tr> <td> </td> <td>Major:</td> <td> </td> </tr> <tr> <td> </td> <td>Certificate of:</td> <td> </td> </tr> <tr> <td> </td> <td>Certificate in:</td> <td> </td> </tr> <tr> <td>(10) CSU</td> <td>Baccalaureate:</td> <td align="center">X</td> </tr> <tr> <td>(11) Repeatable: (A course may be repeated three times)</td> <td> </td> <td align="center">0</td> </tr> <tr> <td>(12) C-ID:</td> <td colspan="2"> </td> </tr> <tr> <td>Proposed Start Date:</td> <td colspan="2">Spring 2012</td> </tr> </table>	(8) Classification:							Degree applicable:	X		Non-degree applicable:			Basic skills:		(9) RC	Fulfills AS/AA degree requirement: (area)			General education category:			Major:			Certificate of:			Certificate in:		(10) CSU	Baccalaureate:	X	(11) Repeatable: (A course may be repeated three times)		0	(12) C-ID:			Proposed Start Date:	Spring 2012	
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(12) Catalog Description:
 Basic shop welding practices in electric stick arc and M.I.G. welding on M.S. plate and pipe; welding in flat, horizontal, vertical and overhead position.

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. select and properly use tools encountered in the welding field.
- II. perform electric arc welds on plates and pipe in the flat, horizontal, vertical and overhead position.
- III. perform MIG welds on plates and pipe in the flat, horizontal, vertical and overhead position.

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. demonstrate safe use of welding equipment.
- II. demonstrate knowledge of proper arc welding machine selection, setting and rod selection required for various welding applications.
- III. demonstrate hand-eye motor skills and welding techniques required to satisfactorily complete assigned welding projects.

IV. COURSE OUTLINE:

Lecture Content:

- A. Arc Welding Theory
 1. Arc welding safety
 2. Personal welding equipment
 3. Arc welding equipment
 4. Arc welding equipment set-up
- B. Basic Skills of Arc Welding
 1. Machine types
 2. Machine adjustments
 3. Welding rod selection
 4. Welding positions and techniques
- C. M.I.G. Welding Machines

1. Machine types
2. Machine set-up and adjustment
3. Wire selection
4. Welding positions and techniques

V. APPROPRIATE READINGS

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

I. Sample Text Title:

1. Recommended - - *Machinery's Handbook*, ed. 28th Industrial Press, 2008,
2. Recommended - William A. Bowditch & Kevin E. Bowditch *Welding Technology Fundamentals*, Goodheart-Willcox, 2005,

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.

A. Writing			
Check either 1 or 2 below			
X	1. Substantial writing assignments are required. Check the appropriate boxes below and provide a written description in the space provided.		
	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.		
	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. Problem Solving			
Computational or non-computational problem-solving demonstrations, including:			
X	a) exam(s)		d) laboratory reports
X	b) quizzes	X	e) field work
X	c) homework problems		f) other (specify):

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

Sample questions:

1. Specific skill building task oriented projects.
2. Reading and interpreting diagrams and drawings.
3. Completing skills demonstrating projects using diagrams and drawings.
4. Completion of projects requiring the combining of several problem-solving tasks.

C. Skill demonstrations, including:			
X	a) class performance(s)	X	c) performance exams(s)
	b) field work		d) other (specify)

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

1. Satisfactory completion of assigned skill building tasks.
2. Demonstration of the ability to safely set-up and operate various welding equipment.
3. Demonstration of the ability to properly use tools found in the welding trade.

D. Objective examinations including:

X	a) multiple choice	X	d) completion
X	b) true/false	X	e) other (specify): tool identification
X	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):	College-Level Criteria Met	
	YES	NO
Textbook	<u> X </u>	<u> </u>
Reference materials	<u> X </u>	<u> </u>
Instructor-prepared materials	<u> </u>	<u> X </u>
Audio-visual materials	<u> </u>	<u> X </u>

Indicate Method of evaluation:

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

<i>Computation Level</i> (Eligible for MATH 101 level or higher where applicable)	<u> </u>	<u> X </u>
Content		
Breadth of ideas covered clearly meets college-level learning objectives of this course	<u> X </u>	<u> </u>
Presentation of content and/or exercises/projects:		
Requires a variety of problem-solving strategies including inductive and deductive reasoning.	<u> X </u>	<u> </u>
Requires independent thought and study	<u> X </u>	<u> </u>
Applies transferring knowledge and skills appropriately and efficiently to new situations or problems.	<u> X </u>	<u> </u>
List of Reading/Educational Materials		
Recommended - - <i>Machinery's Handbook</i> , ed. 28th Industrial Press , 2008,		
Recommended - William A. Bowditch & Kevin E. Bowditch <i>Welding Technology Fundamentals</i> , Goodheart-Willcox , 2005,		

Comments:

- This course requires special or additional library materials (list attached).
- X This course requires special facilities:
lecture and welding laboratory

Attached Files:

BASIC SKILLS ADVISORIES PAGE 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 three major basic skills needed at the beginning of the target course and check off the corresponding basic skills listed at the left.

Check the appropriate spaces.

- Eligibility for Math 201 is advisory for the target course.
- Eligibility for English 126 is advisory for the target course.
- Eligibility for English 125 is advisory for the target course.

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.

REQUISITES
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 41
Course Title(s): FUNDAMENTALS OF WELDING ELECTRIC ARC
Rationale for Limiting Enrollment: 0