



MFGT 52 Syllabus Manufacturing Fabrication

Spring 2023 – Code: 53118

Combo Lecture/Lab

Lecture: TH 7:00a – 8:50a FEM 3
Lab: TH 9:30a – 12:50 pm IND 19

Instructors: Andrew Mancini

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Office Hours: M-W: 6:30 – 7am, 3 – 4 pm

F: By appt only via Zoom
(email to schedule appt.)

Basic Skills Advisories:

Eligibility for English 1A/1AH & Math 45

Prerequisites: MFGT 11 or 60

Course Description

4 Units

This course will provide advanced instructions on metal fabrication. The focus will be in the areas of welding techniques, project planning, sketches/working drawings, material selection, project layout, cutting, fitting, tacking, squaring, and finishing of student projects.

Required Text/Materials: (By second class meeting)

- A. Welding Skills 3rd edition – B.J. Moniz & R.T. Miller ISBN: 978-0-8269-3010-1
- B. Approved eye protection/safety glasses (Z87.1 A.N.S.I.)
- C. Welding Hood With #10 Lenses
- D. Oxyacetylene goggles or glasses with #5 Lenses
- E. Welding Gloves
- F. Welding Jacket/Long Sleeves, Long pants (preferably jeans), Closed-Toe shoes (leather boots recommended)
- G. Tape Measure and various hand tools like chipping hammers, pliers, etc.

Student Learning Outcomes

Upon completion of this course, the student will be able to:

- Demonstrate skills to sketch and design metal fabrication projects.
- Apply fabrication skills to build metal projects from a set of designs.
- Develop a strong student portfolio.

Course Objectives

1. Use acquired knowledge and skills to design projects.
2. Use acquired skills to fabricate projects from a set of designs
3. Review, demonstrate and use proper safety procedures relating to welding and fabrication.
4. Develop basic drawings and materials list.
5. Select proper materials and supplies to construct a project.
6. Estimate the cost of a fabrication project.
7. Select and order appropriate materials.
8. Demonstrate the proper cutting techniques used to cut metal.

9. Prepare metal and material for welding.
10. Demonstrate proper welding techniques using shielded metal arc welding (SMAW) and gas metal arc welding (GMAW).
11. Demonstrate proper metal finishing procedures and techniques.
12. Understand the terminology associated with welding fabrication.
13. Coordinate and construct individual student portfolio. Include; resume, letter of application, work samples, bill of materials, and working drawings.

Course Outline

The instructor will determine the order in which the following will be presented and developed. It is also probable that several skills may be served by the same assignment.

Lecture Content:

- Review: Shop / personal safety and orientation
- Review: Welding Safety
- Introduction into metal preparation, joining and cutting.
- Review of SMAW
- Review of GMAW
- Metal and materials
- Metal finishing
- Project plans: designs & sketches
- Project plans: working drawings
- Work Samples
- Bill of Materials
- Resume
- Cover Letter
- Finishing a fabrication project

Lab Content:

- Safety orientation
- GMAW welding proficiency
- SMAW welding proficiency
- Torch cutting and plasma cutting
- Metal preparation, layout, cutting and fitting
- Metal clean-up and finishing
- Project plan
- Project fabrication

Attendance

Lecture: Attendance is required, and roll will be taken at each class meeting. A “tardy” is considered an absence unless the student contacts the instructor at the end of class to change the status from absent to tardy. Two tardies will count as one absence. Any student who misses more than two weeks of class meetings within the first 9 weeks of instruction will be dropped from the class by the instructor (i.e., class meets once per week, you are allowed 2 absences).

Lab: **Attendance in all labs is mandatory.** Students must make prior arrangements with the instructor to be excused from lab. At that time, the instructor will determine if any make-up work will be appropriate.

Homework/Quizzes: Short, 5-minute, “Pop” quizzes will be held randomly during lecture as the Instructor sees fit, and will generally cover topics discussed during the previous lecture or lab. Therefore, there will be no make-ups for quizzes. The purpose of this is to encourage lecture attendance, as well as to promote student attentiveness during class time. However, because life has a tendency to throw the occasional curveball, I realize that you may miss a lecture due to circumstances that are out of your control, and will therefore drop your lowest quiz score from your final grade. Homework will be assigned based on the topics being discussed in class and will directly correlate with the information on the midterms/final exam. As with the quizzes, your lowest homework score will be dropped from your final grade.

Tests: Make-up tests are limited to students who have made arrangements with the instructor prior to the required testing period.

Design Project Portfolio: Each student will be required to design and build a full-size fabrication project during the second half of the semester. This project may be something of your own choosing. Some prior projects include, but are not limited to: BBQ’s, Fire Pits, Work/Shop Tables, Custom Furniture, etc. These projects must be made primarily out of metal, and if it is a project of your own design, then you are responsible for purchasing the metal required to build the project, so keep that in mind when choosing your design. Along with that, each student will be required to document all of their work on the project and compile it all into a portfolio that will be submitted for a grade in the lab section of the class. This portfolio will include a resume, cover letter, examples of your class project, including bill of materials, working drawings, photographs of the completed project, and a short report on the design and fabrication process of your project. Checks will be made throughout the semester to ensure that you are staying on track with your portfolio. The complete portfolio will be turned in on the last day of class. I will grade them, and return them to you on the day of the final exam.

Extra Credit: In the real-world work environment, there are rarely opportunities for “Extra Credit”, therefore, do not expect there to be “Extra Credit” assignments available simply because you did poorly on an assignment or exam. There **may** be opportunities for extra credit questions on exams or homework assignments, or possibly an extra credit assignment in the lab, but these will be given only as I see fit. **Do not ask for extra credit assignments!!!** Rather, put in the effort to do the assigned work correctly and on time, and study for the exams, so that no extra credit is needed.

Time Clock: All students are required to punch in and out of shop class on a daily basis. Failure to do so will result in an absence. Students are expected to only punch their own cards and cannot, under any circumstances, punch another student’s card. Misuse of the time clock system can result in removal from the class. Your Time Clock score will be included in the “Participation” part of your final grade.

Canceled Class: In the event that I must cancel class due to illness/emergency, I will send an email to the class as soon as I am aware of said situation. Check your email regularly before coming to class to make sure you are up to date on any announcements I may send out. I will also notify the school if such an event should occur, so that they can post it on the campus website as well as place a notice on the classroom door. I will **never** cancel class simply because I *really, really, really* want to go see fill in the blank in concert, therefore you should not ditch my class to go to said concert either.

Grading Policy/Scales/Evaluation Criteria

For maximum point consideration, all written assignments and term reports should be typed and double-spaced, unless I say otherwise. Lecture assignments (homework) will be accepted late up to the day of the test for that unit of the course; however, late assignments will be penalized 20% of the possible points. All lab assignments are due by the last day of instruction. Late lab assignments will not be accepted. Portfolios will **NOT** be accepted after the due date.

*Final exam and Student Portfolios are **MANDATORY**. Failure to complete either of these assignments will result in a non-passing grade.

Point Distribution: 90% = A, 80% = B, 70% = C, 60% = D, 59% & less = F

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| <u>Assignments & Grades:</u> | Homework/Quizzes | 10% |
| | Midterm | 10% |
| | Final Exam | 15% |
| | Lab Assignments/ Project Portfolio | 60% |
| | <u>Participation</u> | <u>5%</u> |
| | Total = | 100% |

All assignments will be graded and returned during the next class meeting after they are due. All grades will be updated regularly on **Canvas**. It is the student's responsibility to check Canvas regularly for accuracy and report any discrepancies to the Instructor immediately via email with visual proof of the error.

Cheating & Plagiarism

In keeping with the philosophy that students are entitled to the best education available, and in compliance with Board Policy 5410, each student is expected to exert an entirely honest effort toward attaining an education. Violations of this policy will result in disqualification for the course.

Accommodations for Students with Disabilities

If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact the instructor as soon as possible.

Work Ethic - Most students are enrolled in college classes to obtain a quality job or to enhance their skills for advancement with their current employment situation. Employers look for a punctual, responsible individual who is prepared to go to work. Our goal is to replicate the workplace environment where a student can develop and demonstrate these desirable traits.

- Punctual: It is customary to arrive at least 5 minutes before work begins. Individuals will be terminated if they are not punctual. *To be early, is to be on time; to be on time, is to be late; and to be late, is to be irresponsible.*
- Responsible: It is expected that an employee work every scheduled work day. Individuals will be terminated if they are not responsible.

