

MFG 32B Welding (MIG, TIG, Innershield & Certification)
 Mike Bockman
 Spring 2000
 T TH 6 pm – 10:15 pm

Drop Date

Last day to drop or be dropped from this class without penalty is **Friday, March 10, 2000**. A letter grade is required after this date.

Required Background

MFGT 32A Basic Welding or previous welding or shop experience with instructor approval

Description

Welding--MIG-TIG-Innershield and Certification

1. Advance shop welding practices in electric arc welding (SMAW) on M.S. plate and pipe. Welding will be done in flat, horizontal, vertical and overhead position with emphasis on working towards A.W.S. plate and pipe certification.
2. Advance shop oxy-acetylene cutting practice using hand torch, straight line cutter, optic cutter and plasma cutting equipment.
3. Basic shop welding in MIG and innershield welding on M.S., stainless steel and aluminum. Welding will be done in flat and vertical position.
4. Basic shop welding in TIG welding on M.S., stainless steel and aluminum plate. Welding will be done in the flat position.
5. Students will work fabrication and repair jobs as they apply to the welding field.
6. Students will fill out a job application and review basic job interview skills.

Expected Outcomes

1. Students will be able to select and use proper tools and power machines correctly as needed in the welding field.
2. Students will be able to select, adjust and properly use the welding wire, rods and welding power sources.
3. Students will be able to perform fusion welds on plate and pipe in SMAW, positions on M.S., stainless steel and aluminum.
4. Students will be able to use the oxy-acetylene and plasma cutting equipment with proficiency.
5. Students will have been given the opportunity to acquire both college welding and state AWS welding certification.
6. Students will have acquired some experience in fabrication and repair jobs.
7. Students will have been given the needed skills for successful job interviewing.

Minimum Student Materials – Approximate Cost

1. Textbook – Welding Skills – R.T. Miller
2. Student Lab Manual – Welding Skills – J.F. Gosse
3. Notebook – 3 ring and pencil
4. Highlighter
5. Safety glasses
6. Ear plugs
7. Gloves
8. Helmet
9. Goggles
10. Shop coveralls
11. Tape Measure – 16’ or 20’

No Cost
No Cost
No Cost
No Cost
No Cost
Total

Final exam date

How Class will be conducted

1. Lectures
2. Individual instruction
3. Lab Work
4. Workbook, quizzes, exams

Grading

1. Fabrication & repair projects
2. Pipe welding & fitting
3. Mig welding
4. Innershield welding
5. Tig welding
6. Cutting process – hand, straight line & optic
7. Time clock & attendance
8. Shop clean up
9. Text workbooks
10. Quizzes & final exam
11. Other (ind. Tours)

Points**Percent**

1200	14.25%
500	6.00%
800	11.00%
400	5.50%
800	9.50%
300	3.50%
940	9.00%
570	6.00%
1754	20.80%
950	11.30%
200	2.30%
TOTAL	8400 100.00%

Attendance

Roll will be taken through the use of a time clock. Each student is expected to punch in at the beginning of each class, and out at the end of each class day.

Any student missing more than three days per each nine weeks of the class, without prior permission will be counseled by the instructor and if the student misses an additional day, student may be dropped from the class.

You are required to find out from the instructor any material missed during absence. Tests may be made up at the instructor's discretion.

Do not leave the classroom or shop area without the instructor's permission.

General Policies

You are responsible to bring required materials to class. Textbooks and notebooks will be required.

Lockers will be provided for storage of projects and required materials. Students will provide locks.

Supplies will be provided by the school for required projects. Projects to be removed from shop will require all material bills to be paid.

School policy prohibits smoking, dipping snuff, eating, and drinking in the classroom and in the lab.

Any conduct that disrupts or distracts the class or is dangerous will not be tolerated.

Willful violations of any safety rule that endangers the health of yourself or others in the class or shop will result in immediate dismissal from the class.

See additional "Policies & Procedures" handout sheet.

Text: Welding Skills
 Manual Welding Skills – Workbook

Week	Topic	Text Chapter	Workbook Chapter	Workbook Page	Agenda
1 – 2	Welding Safety		2	2	3 – 4 Lec / Demo
3 – 5	Joint Design		4	4	9 – 11 Lec / Demo
	GMAW		25	25	54 – 58 Lec / Demo
6 – 9	Pipe Welding		29	29	67 – 69 Lec / Demo
	GTAW		24	24	51 – 53 Lec / Demo
	Welding Metallurgy		3	3	5 – 8 Lec / Demo
	Steel ID & Selection		-----	-----	----- Handout Sheets & Demo
10 – 11	Related GMAW Process		26	26	59 – 60 Lec / Demo
12 – 13	Horizontal Welding		17	17	37 – 38 Lec
	Vertical Welding		18	18	39 – 40 Lec
	Overhead Welding		19	19	41 – 42 Lec
14 – 15	Cutting Operations		30	30	70 – 72 Lec / Demo
16 – 17	Certification of Welder		36	36	88 – 90 Lec
18	Testing Welds		34	34	82 – 84 Lec
	Review & Lab Cleanup		-----	-----	----- Classroom & Lab
	Final Exam Week		-----	-----	-----

Students Workbook Assignments:

Date to be completed and turned in:

- Chapters 2, 4
- Chapters 25, 29
- Chapters 24, 3
- Chapter 26
- Chapters 17, 18, 19
- Chapter 30
- Chapters 36, 34

Any assignment turned in up to one week late will receive only 50% credit for the assignment. Any assignment more than one week late will receive no credit!

Workbook questions point values

- T & F = 3 points each
- Multiple Choice = 4 points each
- Matching = 3 points each

Workbook	Points
Chapters 2, 4	270
Chapters 25, 29	406
Chapters 24, 3	375
Chapter 26	88
Chapters 17, 18, 19	173
Chapter 30	143
Chapters 34, 36	224
Safety Test	75
Quizzes – Mig, Tig, Metallurgy, Joints & Pipe fitting, positions, Testing Welds, Materials Cost	750
Final Exam	200

(Total – 2,704)

Welds from Progress Chart

Mig	# _____	800
Tig	# _____	800
Pipe	# _____	500
Innershield	# _____	400
Cutting Process – Hand Optic, Straight Line		300
Fabrication & Repair		1200

(Total – 4,000)

Attendance

Attendance		300
Deduct 25 points for each absence		
Deduct 25 points for each tardy		
Time clock usage – 40 pts @ 16 weeks		640
Weekly clean-up – 20 pts @ 16 weeks		320
End of semester clean-up and preventative maintenance		250

Class Participation

Following instructions and working with other students		200
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(Total – 1,710)
GRAND TOTAL - 8410

Listed above are the total number of all possible points that can be earned. The following percentages are needed to earn the respective grade:

7560 – 8400	90%	=	A
6720 – 7559	80%	=	B
5880 – 6719	70%	=	C
5040 – 5879	60%	=	D

*Extra points may be earned during the semester by attending field trips, doing a term paper, or shop maintenance outside of scheduled class or lab time. Maximum of 10% can be earned.