MFG 105 Welding Technology II
3 Credits
College Now/CTE
Student Outcomes Checklist
cocc.edu/departments/college-now

Student's Name_____

Student's Signature _____**Completion Date** _____

High School Teacher's Signature _____

Recommended Grade _____**High School** _____

COCC Review Instructor's Signature _____

COURSE DESCRIPTION: Intermediary course focused on welding carbon steel plate in specific out-of-position set-ups. Includes continuing practice in GMAW and SMAW welding and interpretation of inspection standards related to weld quality. Prerequisites: instructor approval. Recommended preparation: MFG 100.

COURSE OUTCOMES:

1. Perform multi-pass fillet and groove welds
2. Demonstrate intermediate level welding abilities in SMAW
3. Demonstrate intermediate level welding abilities in GMAW
4. Identify common weld discontinuities and defects
5. Determine probable cause and repairs for common weld defects

REQUIRED TEXT: MFG 105 Course Packet.

GRADING: A, A-, B+, B, B-, C+, C, D, F.
See https://www.cocc.edu/departments/college-now/forms/files/grading_policy.pdf

GRADING SCALE:

A	100 – 94%	B	85 – 83%	C	75 – 70%
A-	90 – 93%	B-	82 – 80%	D	69 – 60%
B+	89 – 86%	C+	79 – 76%	F	59% and below

COURSE COMPLETION: Student outcome assessment and articulation credit will be based on the following:

1. Successful completion of all outcomes listed on page 2.
2. Passing score on quizzes and assignments
3. Successful completion of the final exam or final project as assigned by instructor.

QUIZZES AND FINAL EXAM: Contact Chris Baughman, COCC Instructor, by phone 541. 504.2933 or email cbaughman@cocc.edu to request a copy of the quizzes and the final exam.

REQUIRED COMPLETION DOCUMENTS: When the student has completed all assignments the high school teacher will then mail or deliver the following documentation to: College Now Office, Central Oregon Community College, 2600 NW College Way, Bend, OR 97703.

1. Completed and signed course outcomes checklist (pages 1 - 3 of this document)
2. A copy of the graded Final Exam or Final Project.
3. Completed and signed final grade roster for the course.

Grade Sheet

Schedule	SMAW Weld Tasks	Blackboard Quiz Scores	Skill Assessment
	Weld 1. 6010 3F Downhill Position, T-Joint, and Lap Joint Single Pass		
	Weld 2. 6010 3F Downhill Position, T-joint Multi Pass		
	Weld 3. 6010 3F Downhill Position, Weave		
	Weld 4. 6010 3F Uphill position, T-Joint, and Lap Joint Single Pass		
	Weld 5. 6010 3F Uphill position, T-Joint, Multi Pass		
	Weld 6. 7018 3F Position, T-Joint and Lap Joint Single Pass		
	Weld 7. 7018 3F Position T-Joint Multi Pass		
	Weld 8. 7018 3F Position T-Joint Weave		
	Weld 9. 6010 4F Position, T-Joint, and Lap Joint Single Pass		
	Weld 10. 6010 4F Position T-Joint, Multi Pass		
	Weld 11. 7018 4F Position T-Joint and Lap Joint Single Pass		
	Weld 12. 7018 4F Position T-Joint Multi Pass		
Week 1-3	**Chapter 12 Carbon Steel Electrodes**		
Week 1-4	**Chapter 12 Stainless and Aluminum Electrodes**		
	GMAW Weld Tasks		
	Weld 13. 2F Position, T-Joint, and Lap Joint Single Pass		
	Weld 14. 2F Position, T-Joint Multi Pass		
	Weld 15. 3F Downhill Position, T-Joint, and Lap Joint Single Pass		
	Weld 16. 3F Downhill Position, T-Joint Multi Pass		
	Weld 17. 3F Downhill Position, T-Joint Weave Bead		
Week 1-6	**Chapter 13 & 14**		
Week 1-9	**Chapter 21**		
Finals Week	**FINAL**		

NAME DATE
COURSE_____ TERM_____

DATE	HOURS	INSTRUCTOR	DATE	HOURS	INSTRUCTOR

COURSE OVERVIEW- IMPORTANT-

- **REFERENCE THE HOBART BOOK IN EACH BOOTH IF NEEDED- IT HAS INSTRUCTIONS FOR MACHINE SETUP AND ESSENTIAL VARIABLES**

- **YOU ARE ALLOWED TO ROTATE BETWEEN SMAW AND GMAW LAB PRACTICES.**

- **IF ALL GMAW MACHINES ARE IN USE, YOU MAY CONTINUE WITH THE NEXT SMAW LAB PRACTICE.**

- **IF ALL SMAW MACHINES ARE IN USE, YOU MAY CONTINUE WITH THE NEXT GMAW LAB PRACTICE.**

- **AFTER YOU HAVE COMPLETED A WELD COME CHECK WITH AN INSTRUCTOR OR FACILITATOR FOR ASSESSMENT.**

- **IF YOUR INSTRUCTOR IS NOT AVAILABLE, YOU MAY BE INSTRUCTED TO CONTINUE TO YOUR NEXT ASSIGNMENT, BUT NEVER COMPLETE MORE THAN THREE LAB PRACTICES WITHOUT CHECKING WITH YOUR INSTRUCTOR.**

- **YOU WILL WORK THROUGH ALL THE LAB PRACTICES FOR EACH WELDING PROCESS, ONCE WE FEEL YOUR ARE ABLE TO MOVE ON TO THE NEXT WELD, WE WILL TELL YOU TO MOVE ON. AFTER YOU HAVE COMPLETED ALL THE WELDS FOR THAT WELDING PROCESS, YOU WILL HAVE ONE DAY TO PRACTICE AND THEN YOU WILL COME BACK AND TEST OUT OF ALL THE WELDS AT ONE TIME.**

- **BE SURE TO REVIEW ALL OF THE TERMS AND DEFINITIONS, WELDING POSITIONS, WELDING NOMENCLATURE, WELD JOINT CLASSIFICATIONS AND ELECTRODE SELECTION AS YOU WILL BE RESPONSIBLE FOR KNOWING THIS INFORMATION ON ALL TESTS FOR THIS COURSE.**

- **THE SKILL ASSESSMENTS FOR EACH WELDING PROCESS ARE DONE AT THE SAME TIME. YOU MAY TEST OUT OF ONE PROCESS BEFORE TESTING OUT OF THE OTHERS.**

- **YOU MAY TAKE YOUR CHAPTER EXAMS AT ANYTIME DURING THE COURSE. ASK YOUR INSTRUCTOR FOR THE PAPER TEST WHEN READY. YOU ARE ALLOWED ONLY ONE ATTEMPT AT EACH TEST. YOU WILL BE ALLOWED TO USE ONLY HAND-WRITTEN NOTES (NO COMPUTER-GENERATED COPIES) DURING THE EXAM.**

- **Chapter 12 - Shielded Metal Arc Welding Electrodes**
  Lap Objectives
  12-1 List the major functions of the SMAW electrode coating.
  12-2 Describe the composition of an electrode covering.
  12-3 Determine the maximum arc length of an SMAW electrode.
  12-4 List the basic systems for identifying steel electrodes.
  12-5 Explain the electrode selection process.
  12-6 List the AWS electrode classification system.
  12-7 List the operating characteristics of the fast fill, fast follow, and fast freeze electrodes.
  12-8 Describe the characteristics of the low hydrogen electrode.
  12-9 Describe the characteristics of the iron powder electrode.
  12-10 List the reasons for keeping mineral coated electrodes dry.

- **Read Chapter 12- Shielded Metal Arc Welding Electrodes**
- **Review the Chapter 12 Power Point Presentation**
- **View Chapter 12 Video Lectures**
- **Take Chapter 12 Paper test (There are 2 tests, one focused on carbon steel electrodes and the other is focused on Stainless, Aluminum and exotic alloys)**

- **Chapter 13- Shielded Metal Arc Welding Practice**
  Lap Objectives
  13-1 Describe uses for the SMAW process.
  13-2 Explain the approach and operating characteristics of welding with the SMAW process.
  13-3 Demonstrate the ability to troubleshoot the SMAW equipment and process.
  13-4 Demonstrate the ability to weld with the SMAW process on various joints, with various welds, in various positions.

- **Read Chapter 13- Shielded Metal Arc Welding Practice**
- **Review the Chapter 13 Power Point Presentation**
- **View Chapter 13 Video Lectures**
- **Chapter 13 and 14 are a combined test. Go through Chapter 14 before taking paper test**

- **Chapter 14- Shielded Metal Arc Welding Practice**
  Lap Objectives
  14-1 Demonstrate ability to make overhead position welds with cellulose electrodes.
  14-2 Demonstrate ability to make groove welds with and without backing in the flat, horizontal, and vertical (travel up and down) positions.
  14-3 Demonstrate ability to make fillet welds with stringer and weave bead techniques in the horizontal and vertical positions with cellulose and low hydrogen electrodes.
  14-4 Demonstrate ability to make outside corner welds in the vertical position with cellulose electrodes.

- **Read Chapter 14- Shielded Metal Arc Welding Practice**
- **Review the Chapter 14 Power Point Presentation**
- **View Chapter 14 Video Lectures**
- **Take Chapter 13 & 14 Paper Test**

- **Chapter 21- Gas Metal Arc and Flux Cored Arc Welding Principles**
  Lap Objectives
  21-1 Explain the principles of gas metal arc and flux cored arc welding processes.
  21-2 Name the gas metal arc and flux cored arc welding equipment.
  21-3 Describe the shielding gases and electrodes used with semiautomatic arc welding processes.

- **Read Chapter 21- Gas Metal Arc and Flux Cored Arc Welding Principles**
- **Review the Chapter 21 Power Point Presentation**
- **View Chapter 21 Video Lectures**
- **Take Chapter 21 Paper Test**

After completing chapter exams turn in to an instructor for grading. Make sure they are turned in with your portfolio upon completion of the course.