Navajo Technical University http://navajotech.edu
P.O. Box 849, Crownpoint, NM 87313-0849 Tel: (505) 786-4100 FAX: (505) 786-5644

Course Title: Welding Fundamentals II- WLD 130

Credit Hours: 3 Credits
Semester: Spring 2022
Cap: 15

Faculty: Hank Charleston **E-mail:** hcharleston@rmusd.net
Office: Red Mesa CTE Building #111B **Office Phone:** (928) 656-4222
Office Hours: Monday 1: 30 pm to 8:30 pm, Tuesday & Thursday 1:30 pm to 8:30 pm, Friday 9 am to 4 pm
Class Location: Red Mesa CTE Building
Class Meeting Time: Wednesday 5:30 pm to 8:00 pm

Required Materials: Safety glasses, Welding hood, Welding gloves, Cutting googles, Protective clothes, hand tools, 4.5 angle grinder & work boots

Textbooks: Larry Jeffus (2017), *Welding Principles and Applications* (8th Edition). ISBN-13:978-1-305-49469-5, Lab Workbook: Larry Jeffus (2017), *Welding Principles and Applications* (8th Edition), ISBN- 13:978-1-305-49470-1, Larry Jeffus/ Lawrence Bower (2010), *Welding Skills Processes and Practices for Entry-Level Welders* (Book 3), ISBN- 13: 978-1-4354-2796-9

Tools: One-time issued to students @ $500.00
Lab Fee: Included in tuition

Mission Statement
Navajo Technical University's mission is to provided university readiness programs, certificates, associates, baccalaureate, and graduate degrees. Students, faculty, and staff will provide value to the Dine community through research, community engagement, service learning, and activities designed to foster cultural and environmental preservation and sustainable economic development. The University is committed to a high quality, student-oriented, hands-on-learning environment based on the Dine cultural principals:

Course Description
WLD-130 (3 Credits) Introduction to GMAW/ FCAW
Development of basic skills with gas metal arc welding (GMAW), metal inert gas (MIG), flux-cored arc welding (FCAW) in accordance with AWS entry level welder objectives/ wire electrodes, shielding gases and modes of metal transfer will be discussed.
Students will acquire the knowledge to learn basic techniques for weld groove joints using; GMAW, FCAW in the 2G welding position. They will also learn to set-up equipment and adjustment of GMAW/ FCAW equipment. The welding safety procedures and terminology, skill development in laying welding beads with various patterns, position and processes. Preform a

root pass on plate with E70S-6 electrode, and E70S-6 fill and cap in 1F, 2G and 6G (stationary 45 degree angle) positions. Perform MIG root downhill on plate set at 45 degree, using E70S-6 electrode wire fill and cap on 2G and simulate 6G position.

Week	Date	Academic Calendar	Chapters Assignments	Quizzes
1	1/19		TBD	Pre-Assessment
	1/21	Last day to add/drop		
2	1/26		Chapter 1	Quiz 1
3	2/2		Chapter 2	
4	2/9		Chapter 3	
5	2/16		Chapter 4	Quiz 2
6	2/23		Chapter 5	
7	3/2		Chapter 6	
8	3/9	Midterm	Midterm	Test
	3/11	Midterm grades are due		
9	3/16		Chapter 7	
10	3/23		Chapter 8	
11	3/30		Chapter 9	
12	4/6		Chapter 10	
13	4/13		Chapter 11	
14	4/20		Chapter 12	
15	4/27		Chapter 13	Student Survey
16	5/4			Post Assessment
17	5/11	Semester Finals	FINALS	Test/ Bend Test
18	5/12	Grades are due to the Registrar		
19	5/13	Graduation		

COURSE OUTCOMES	COURSE MEASUREMENTS
Students should be able to demonstrate proper safety features in the shop and during welding.	Complete chapter reading assignments/ review questions, work assignments, exams, projects, and quizzes.
Discuss the four methods of metal transfer GMAW	
List shielding gases used for short-circuiting, spray and pulsed-spray transfer.	
Explain the various specifications that may be used to specify pipe and tubing.	
Define voltage, electrical potential, amperage, and electrical current as related to GMAW	
Describe the backhand and forehand welding techniques	
Explain the FCAW process	
List the advantages of FCAW and explain it's limitations	
Describe the proper care and handling of GMAW/ FCAW electrodes	

Explain how changing the welding gun angle affects the weld produced	

Grading Plan

Homework	20%	A= 90- 100%
Midterm	20%	
Final Exam	25%	B= 80- 89%
Project	10%	
Quizzes	20%	C= 70- 79%
Class Participation	3%	D= 60- 69%
Portfolio	2%	F= 0- 59%

Grading Policy

Each student must do his or her own homework and case studies. Discussion among students on homework and cases is encouraged for clarification of assignments, technical details of using software, and structuring major steps of solutions- especially on the course's Web site. Students must do their own work on the homework and exam. Cheating and Plagiarism are strictly forbidden. Cheating includes but is not limited to: Plagiarism, submission of work that is not the student's own, submission or use of falsified data, unauthorized access to exam or assignment, use of unauthorized material during an exam, supplying or communication unauthorized information for an assignment or exam.

Participation

Students are expected to attend and participate in all class activities- as listed above, as it is 50% of their grade. Points will be given to students who actively participate in class activities including field work, laboratories, and ask questions of guest speakers and other presenters.

Cell phone and head phone usage

Please turn cell phones off or place them on silence or vibrate mode **before** coming to class. Also, answer cell phones **outside of class** (not in the classroom). Exercising cell phone usage is courtesy is appreciated by both the instructor and classmates. Headphones are to be removed before coming to class and students should not wear it during lab hours (safety factor).

Attendance Policy

Students are expected to regularly attend all classes for which they are registered. A percentage of the student's grade will be based on class attendance and participation. Absence from class, regardless of the reason, does not relieve the student of his/her responsibility to complete all course work by the required deadlines. Furthermore, it is the student's responsibility to obtain notes, handouts, and any other information covered when absent from class and to arrange to make up any in-class assignments or tests if permitted by the instructor. Incomplete or missing assignments will necessarily affect the student's grades. Instructor will report excessive and/or unexplained absences to the Counseling Department for investigation and potential intervention. **Instructors may drop students from the class after three (3) absences unless prior arrangements are made with the instructor to make up work and the instructor deems any excuse acceptable.**

Study Time Outside of Class for Face-to-Face Courses

For every credit hour spent in a class, a student is expected to spend two hours (2) outside of class studying the course materials.

Study Time for Hybrid or Blended Courses
For a hybrid or blended course of one (1) credit hour, a students is expected to spend three (3) hours per week studying the course materials.

Study Time for Online Courses
For an online course of one (1) credit hour, a student is expected to spend four hours (4) per week studying the course materials.

Academic Integrity

Integrity (honesty) is expected of every student in all academic work. The guiding principle of academic integrity is that a student's submitted work must be the student's own. Students who engage in academic dishonesty diminish their education and bring discredit to the University community. Avoid situations likely to compromise academic integrity such as: cheating, facilitating academic dishonesty, and plagiarism; modifying academic work to obtain additional credit in the same class unless approved in advance by the instructor, failure to observe rules of academic integrity established by the instructor.

Dine Philosophy of Education

The Dine' Philosophy of Education (DPE) is incorporated into every class for students to become aware of and to understand the significance of the four Dine' Philosophical elements, including its affiliation with the four directions, four sacred mountains, the four set of thought processes and so forth; Nitsahakees, Nahat'a, Iina and Siih Hasin which are essential and relevant to self-identity, respect and wisdom to achieve career goals successfully.

Students with Disabilities

The Navajo Technical University and the welding program are committed to serving all enrolled students in a non-discriminatory and accommodating manner. Any student who feels he/she may need an accommodation based on the impact of disability, or needs special accommodations should inform NTU in accordance with the procedures of the subsection entitled "Students with Disabilities" under section 7: Student Support Programs, NTU student handbook.