

# Part I



**North Central**  
**MICHIGAN COLLEGE**  
*Your growth. Our mission.*

## *Master Course* *Syllabus*

Course Name: Introduction to Welding Techniques

Course Number: WLD 100

Credit Hrs. 2      Lecture Hrs. 1      Lab Hrs. 2      Clinical Hrs. \_\_\_\_\_      Variable Hrs. \_\_\_\_\_

Total Hours of Instruction: 48      Total Contact Hours: 52.8  
*(Total Contact Hours Formula: (lecture hrs. + lab hrs. + clinical hrs.) x 17.6)*

### Course Description:

Introduction to welding equipment, procedures, types, and styles, including shop safety, welding symbols, print interpretation, oxyacetylene or oxy fuel cutting, shielded metal arc welding (SMAW), gas metal arc welding (GMAW), and flux-cored arc welding (FCAW).

### Course Objectives and Outcomes:

- demonstrate ability to work safely in a welding environment;
- recognize welding symbols for joint design, welding position, weld size, length, and process;
- recognize proper orientation of welding prints, dimensions, angles, and circles;
- perform accurate measurement conversions;
- safely and correctly handle equipment for oxyacetylene or oxy fuel cutting and produce a satisfactory cut;
- safely and correctly handle equipment for shielded metal arc welding (SMAW) and produce satisfactory fillet welds in the flat and horizontal positions;
- safely and correctly handle equipment for gas metal arc welding (GMAW) and flux-cored arc welding (FCAW) and to produce satisfactory welds in multiple positions with either the GMAW or FCAW process.

Lumina Objectives: 1, 2, 3, 7, 10, 13

Reasonable accommodations can be provided for students with documented disabilities. Please contact Learning Support Services to arrange for these — (231) 348-6687 or (231) 348-6817, [kflewelling@ncmich.edu](mailto:kflewelling@ncmich.edu), Room 533 SCRC.



Suggested Methods of Instruction: lecture, powerpoint, and video as well as hands-on instruction in welding lab

Suggested Methods of Evaluation: quizzes, exams, successful production of cuts and welds in various positions using various materials.

Adopted Text at Time of Course Adoption/Revision: TBD

Topics Covered During the Semester:

*Sequence of topics and time allowance are at the discretion of the instructor.*

Week 1	Shop Safety	Week 9	Shielded Metal Arc Welding
Week 2	Weld Symbols	Week 10	Shielded Metal Arc Welding and Gas Metal Arc Welding
Week 3	Print Interpretation	Week 11	Gas Metal Arc Welding
Week 4	Print Interpretation and Oxyacetylene or Oxy Fuel cutting	Week 12	Gas Metal Arc Welding
Week 5	Oxyacetylene or Oxy Fuel cutting	Week 13	Flux-Cored Arc Welding
Week 6	Oxyacetylene or Oxy Fuel cutting and Shielded Metal Arc Welding	Week 14	Flux-Cored Arc Welding
Week 7	Shielded Metal Arc Welding	Week 15	Flux-Cored Arc Welding
Week 8	Shielded Metal Arc Welding	Week 16	Flux-Cored Arc Welding and Final Exam

CRDP Approved: May 1, 2013

**Specialized Knowledge**

1. Describes the scope and principal features of the field of study, citing at least some of its core theories and practices, and offers a similar explication of at least one related field.
2. Illustrates contemporary terminology used in the field.
3. Generates substantially error-free products, reconstructions, data, juried exhibits or performances as appropriate to the field.

**Broad Integrative Knowledge**

4. Describes how existing knowledge or practice is advanced, tested and revised
5. Describes and examines a range of perspectives on key debates and their significance both within the field and in society.
6. Illustrates core concepts of the field while executing analytical, practical or creative tasks.
7. Selects and applies recognized methods of the field in interpreting characteristic discipline-based problems.
8. Assembles evidence relevant to characteristic problems in the field, describes the significance of the evidence, and uses the evidence in analysis of these problems.
9. Describes the ways in which at least two disciplines define, address and interpret the importance of a contemporary challenge or problem in science, the arts, society, human services, economic life or technology.

**Intellectual Skills – Analytic Inquiry**

10. Identifies, categorizes and distinguishes among elements of ideas, concepts, theories and/or practical approaches to standard problems.

**Intellectual Skills – Use of Information Resources**

11. Identifies, categorizes, evaluates and cites multiple information resources necessary to engage in projects, papers or performance in his or her program.

**Intellectual Skills – Engaging Diverse Perspectives**

12. Describes how knowledge from different cultural perspectives would affect his or her interpretations of prominent problems in politics, society, the arts and/or global relations.

**Intellectual Skills – Communication Fluency**

13. Presents accurate calculations and symbolic operations, and explains how such calculations and operations are used in either his or her specific field of study or in interpreting social and economic trends.
14. Presents substantially error-free prose in both argumentative and narrative forms to general and specialized audiences.

**Applied Learning**

15. Describes in writing at least one substantial case in which knowledge and skills acquired in academic settings are applied to a challenge in a non-academic setting; applies that learning to the question; and analyzes at least one significant concept or method related to his or her course of study in light of learning outside the classroom.
16. Locates, gathers and organizes evidence on an assigned research topic addressing a course-related question or a question of practice in a work or community setting; offers and examines competing hypotheses in answering the question.

**Civic Learning**

17. Describes his or her own civic and cultural background, including its origins and development, assumptions, and predispositions.
18. Describes diverse positions, historical and contemporary, on selected democratic values or practices, and presents his or her own position on a specific problem where one or more of these values or practices are involved.
19. Takes an active role in a community context (work, service, co-curricular activities, etc.), and examines the civic issues encountered and the insights gained from the community experience.

Adopted by CRDAP: April 11, 2012