**Welding Metallurgy**  
**Common Course Syllabus**

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| **Course Information**  **Organization** Northern Wyoming Community College District | |
| **Course Number** | WELD 2680 |
| **Credits** | 2 |
| **Description** This course helps students develop an understanding of basic metallurgical principles as they apply to fusion welding to improve the quality of workmanship in the field of welding. Welding Metallurgy covers process, physical and mechanical properties, metal identification, carbon equivalency, selection of filler metal based on the parent metal, heat input (Joules), and the effects of heat on the weld zone (HAZ) along with the properties of heat treatment and stress relieving applications within the welding field.  **Purpose** WELD 2680 Welding Metallurgy is required for the Welding Certificate and the Welding AAS programs.   **Course format** Lecture  **Prerequisites** | |
| None | |
| **Co-requisite** | |
| None | |

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| **Textbooks** |
| *Textbook and/or authority reviewed materials that are selected by individual instructors with Director/Area Coordinator approval.* |

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| **Core Abilities** | |
| A. | Think Critically |
| B. | Acquire and Apply Knowledge |
| C. | Communicate Effectively |

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| **Competencies** Upon completion of WELD 2680 Welding Metallurgy, the student will: | |
| 1. | define the practical applications of metallurgy. |
| 2. | identify fundamental principles and practices of welding metallurgy. |
| 3. | identify the composition and classification of base metals. |
| 4. | explain the physical characteristics and mechanical properties of metals. |
| 5. | identify grain structures and hardfacing of a weldment. |
| 6. | demonstrate field identification methods for base metals. |
| 7. | demonstrate preheat, postheat and postweld heat treatment of metals. |
| 8. | identify hydrogen cracking and the effects of welding on metals. |
| 9. | identify metallurgical considerations for welding ferrous and non-ferrous metals. |
| 10. | demonstrate heat treating and its effects on metals. |
| 11. | relate hardness to other properties including metals. |

**Grading**   
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| **Minimum Course Requirements** | |
| The students shall demonstrate a minimum of 70% proficiency on assigned job/tasks. Evaluation of proficiency shall be through tests, written and hands-on final examination. |

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| **Guidelines and Information** |
| **Academic Honesty Statement** Students are expected to maintain the highest standards of academic honesty and integrity. Academic honesty means performing all academic work without lying, cheating, deceit, plagiarism, misrepresentation, or unfairly gaining advantage over any other student. Violations of academic honesty are in violation of District standards for student conduct and shall result in disciplinary action. |
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| **Disability Statement** Students with disabilities who believe they may need accommodations in this class are encouraged to contact the ADVISING OFFICE as soon as possible to ensure such accommodations may be implemented. |