

5/6/2025

DATE



REQUIRED COURSE



ELECTIVE COURSE

TEC



DIVISION

NEW COURSE



REVISION

# Lake Land College

## Course Information Form

|                                      |  |                  |  |                        |                      |      |                      |                              |          |        |     |       |     |
|--------------------------------------|--|------------------|--|------------------------|----------------------|------|----------------------|------------------------------|----------|--------|-----|-------|-----|
| COURSE NUMBER:                       | WLD-040  |                  | TITLE (30 Characters Max):   |                        | Welding Fundamentals |      |                      |                              |          |        |     |       |     |
| SEM CR HRS:                          | 2.5  | Lecture:         |  | 1.0                    | Lab:                 | 3.0  | ICCB Lab:            | 3.0                          | ECH:     | 4.0    |     |       |     |
| Course Level:                        | <input type="checkbox"/> Gen Ed / IAI<br><input type="checkbox"/> Baccalaureate /Non-IAI                       |                  | <input checked="" type="checkbox"/> Career/Technical<br><input type="checkbox"/> Dev Ed/ Not in Degree Audit |                        | Clinical Practicum:  | 0.0  | Work-based Learning: | 0.0                          | WBL ECH: | 0.0    |     |       |     |
| Course PCS & CIP:                    | 12 - 48.0508   |                  | IAI Code   |                        | N/A                  |      |                      | Contact Hours (Minutes/Week) |          |        |     |       |     |
| Repeatable (Y/N):                    | N  | Pass/Fail (Y/N): | N  | Variable Credit (Y/N): | N                    | Min: |                      | Max:                         |          | 16 Wks | 200 | 8 Wks | 400 |
| Prerequisites:                       | None   |                  |  |                        |                      |      |                      |                              |          |        |     |       |     |
| Corequisites:                        | None   |                  |  |                        |                      |      |                      |                              |          |        |     |       |     |
| Catalog Description: (40 Word Limit) | Course will cover basic welding processes, including: oxy-acetylene welding, arc welding, cutting and brazing. |                  |  |                        |                      |      |                      |                              |          |        |     |       |     |

| List the Major Course Segments (Units) | Contact Lecture Hours | Contact Lab Hours | Clinical Practicum | Work-based Learning |
|--|-----------------------|-------------------|--------------------|---------------------|
| Welding equipment                      | 1                     | 3                 |                    |                     |
| Safety                                 | 1                     | 3                 |                    |                     |
| Oxy/Acetylene welding                  | 2                     | 6                 |                    |                     |
| Oxy/Acetylene cutting                  | 1                     | 3                 |                    |                     |
| Brazing                                | 1                     | 3                 |                    |                     |
| Arc welding                            | 3                     | 9                 |                    |                     |
| Electrode classification               | 2                     | 6                 |                    |                     |
| Welding symbols                        | 1                     | 3                 |                    |                     |
| Gas metal arc welding                  | 2                     | 6                 |                    |                     |
| Gas tungsten arc welding               | 1                     | 3                 |                    |                     |
| <b>TOTAL</b>                           | <b>15</b>             | <b>45</b>         | <b>0</b>           | <b>0</b>            |

### EVALUATION

|  |  |                                     |                                 |
|--|--|-------------------------------------|---------------------------------|
| QUIZZES <input checked="" type="checkbox"/>  | EXAMS <input checked="" type="checkbox"/>    | ORAL PRES <input type="checkbox"/>  | PAPERS <input type="checkbox"/> |
| LAB WORK <input checked="" type="checkbox"/> | PROJECTS <input checked="" type="checkbox"/> | COMP FINAL <input type="checkbox"/> | OTHER <input type="checkbox"/>  |

### COURSE MATERIALS

|                     |                                   |
|---------------------|-----------------------------------|
| TITLE:              | Welding: Principles and Practices |
| AUTHOR:             | Edward Bohnart                    |
| PUBLISHER:          | McGraw Hill                       |
| VOLUME/EDITION/URL: | 6th edition                       |
| COPYRIGHT DATE:     | 2024                              |

| MAJOR COURSE SEGMENT | HOURS | LEARNING OUTCOMES   |
|----------------------|-------|---|
|                      |       | <i>The student will be able to:</i>   |
| Welding equipment    | 4     | 1. Prepare time or job cards, reports or records.<br>2. Identify and use welding equipment. |

|                          |    |   |
|--------------------------|----|---|
| Safety                   | 4  | <ol style="list-style-type: none"> <li>1. Perform housekeeping duties.</li> <li>2. Demonstrate proper use and inspection of personal protection equipment (PPE)</li> <li>3. Demonstrate proper safe operation practices in work area.</li> <li>4. Demonstrate proper use and inspection of ventilation equipment.</li> <li>5. Demonstrate proper Hot Zone operation.</li> <li>6. Demonstrate proper work actions for working in confined spaces.</li> <li>7. Demonstrate proper use of precautionary labeling and MSDS information.</li> <li>8. Demonstrate proper inspection and operation of equipment used for each welding and thermal cutting process used. (This is best done as a part of the process module/unit for each of the required welding or thermal cutting processes.)</li> </ol> |
| Oxy/Acetylene welding    | 8  | <ol style="list-style-type: none"> <li>1. Follow written and verbal instructions to complete work assignments.</li> <li>2. Demonstrate how to light and adjust a torch and make simple welds.</li> <li>3. Demonstrate a fillet weld with gas welding process.</li> </ol>  |
| Oxy/Acetylene cutting    | 4  | <ol style="list-style-type: none"> <li>1. Follow written and verbal instructions to complete work assignments.</li> <li>2. Demonstrate how to cut steel with a gas powered torch.</li> </ol>  |
| Brazing                  | 4  | <ol style="list-style-type: none"> <li>1. Follow written and verbal instructions to complete work assignments.</li> <li>2. Demonstrate how to braze a lap joint.</li> </ol>   |
| Arc welding              | 12 | <ol style="list-style-type: none"> <li>1. Follow written and verbal instructions to complete work assignments.</li> <li>2. Demonstrate how to strike and maintain an arc.</li> <li>3. Demonstrate a multi-pass fillet weld.</li> <li>4. Demonstrate arc welding in the vertical position.</li> </ol>  |
| Electrode classification | 8  | <ol style="list-style-type: none"> <li>1. Follow written and verbal instructions to complete work assignments.</li> <li>2. Identify electrodes by AWS designation.</li> <li>3. Select proper electrode for various applications.</li> </ol>   |
| Welding symbols          | 4  | <ol style="list-style-type: none"> <li>1. Follow written and verbal instructions to complete work assignments.</li> <li>2. Identify welding symbols commonly used in industry.</li> </ol>   |
| Gas metal arc welding    | 8  | <ol style="list-style-type: none"> <li>1. Follow written and verbal instructions to complete work assignments.</li> <li>2. Demonstrate how to setup a MIG welder.</li> <li>3. Demonstrate welding using MIG processes.</li> </ol>   |
| Gas tungsten arc welding | 4  | <ol style="list-style-type: none"> <li>1. Follow written and verbal instructions to complete work assignments.</li> <li>2. Demonstrate the TIG process to weld aluminum.</li> </ol>   |
| 60                       |    |   |

| Outcomes*   | At the successful completion of this course, students will be able to: |
|---|--|
| Course Outcome 1  | Demonstrate proper cutting torch procedures.                           |
| Course Outcome 2  | Demonstrate basic SMAW fillet and groove welds.                        |
| Course Outcome 3  | Demonstrate GMAW fillet and groove welds.                              |
| Course Outcome 4  | Demonstrate GTAW butt welds.   |
| Primary Laker Learning Competency Scientific Literacy: Students apply the scientific process to real-life situations. |  |

Secondary Laker Learning Competer Professional Skills & Ethics: Students demonstrate professional skills and ethical accountability.

*\*Course and program outcomes will be used in the software for outcomes assessment and should include at least 1 primary and 1 secondary Laker Learning Competency. Limit to 3-5.*