# WELDING AND MATERIALS TECHNOLOGY (WMT)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Offered</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Lecture + Lab + Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMT F101</td>
<td>Introduction to Welding</td>
<td>4</td>
<td>Fall, Spring</td>
<td>Introduction and orientation to the processes and procedures involved in the welding field including</td>
<td>Safe operational procedures for</td>
<td>2 + 4 + 0</td>
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<td></td>
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<td></td>
<td>and Summer</td>
<td>shielded metal arc welding (SMAW) (Stick), mixed inert gas (MIG), tungsten inert gas (TIG) and</td>
<td>shielded metal arc welding.</td>
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<td></td>
<td>oxy-acetylene welding; in addition to the appropriate personal protective equipment (PPE), terminology</td>
<td>related to the welding industry.</td>
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<tr>
<td>WMT F102</td>
<td>Intermediate Welding</td>
<td>3</td>
<td>As Demand</td>
<td>Continuation of WMT F101.</td>
<td>WMT F101.</td>
<td>2 + 2 + 0</td>
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<td>Warrants</td>
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<tr>
<td>WMT F103</td>
<td>Welding I</td>
<td>3</td>
<td>Fall</td>
<td>Entry-level course in basic oxyacetylene, arc welding and flame cutting. Attendance at first two</td>
<td>WMT F103.</td>
<td>1 + 4 + 0</td>
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<td>classes is mandatory.</td>
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<tr>
<td>WMT F105</td>
<td>Welding II</td>
<td>3</td>
<td>Fall</td>
<td>Arc welding techniques and basic MIG and TIG welding. Attendance at first two classes is mandatory.</td>
<td>WMT F103.</td>
<td>1 + 4 + 0</td>
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<tr>
<td>WMT F106</td>
<td>Heat Treating/Metal Finishing/Knife Making I</td>
<td>3</td>
<td>As Demand</td>
<td>Heat treating, metal finishing. Build two knives, heat treat and finish. Special Conditions: Must</td>
<td>WMT F106; WMT F241.</td>
<td>2 + 3 + 0</td>
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<td></td>
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<td></td>
<td>Warrants</td>
<td>have excellent hand-eye coordination. Attendance at first class is mandatory.</td>
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<tr>
<td>WMT F117</td>
<td>Oxy-Acetylene Welding and Cutting</td>
<td>3</td>
<td>Spring</td>
<td>Safe oxyacetylene welding techniques and procedures of common metals. Welding of these metals in</td>
<td>WMT F117; WMT F241.</td>
<td>2 + 3 + 0</td>
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<td></td>
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<td></td>
<td>flat, horizontal, vertical and overhead positions. Attendance at first two class meetings is</td>
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<tr>
<td>WMT F130</td>
<td>Shielded Metal Arc Welding</td>
<td>1-3</td>
<td>Fall</td>
<td>All positions for multiple pass fillet welds. Study in shielded metal arc (SMAW) focused on</td>
<td>WMT F103; WMT F105.</td>
<td>1-3 + 0 + 0</td>
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<td>vertical, horizontal, and overhead positions with multiple passes using different techniques.</td>
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<tr>
<td>WMT F140</td>
<td>Metal Fabrication</td>
<td>1-3</td>
<td>Spring</td>
<td>Metal fabrication done by hand and with the aid of equipment is the focus of this class. Plan,</td>
<td>WMT F103; WMT F105; WMT F160.</td>
<td>1.5 + 5.5 + 0</td>
</tr>
<tr>
<td>WMT F150</td>
<td>Gas Tungsten Arc Welding</td>
<td>1-3</td>
<td>Fall</td>
<td>Use of tungsten and argon gas for aluminum and stainless steel gas welding, formerly called Heliarc</td>
<td>WMT F103; WMT F105; WMT F160.</td>
<td>1.5 + 5.5 + 0</td>
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<tr>
<td>WMT F160</td>
<td>Gas Metal Arc Welding</td>
<td>1-3</td>
<td>Fall</td>
<td>Prepares student to work with wire-feed processes. Gas metal arc welding focuses on ferrous and</td>
<td>WMT F103; WMT F105; WMT F160.</td>
<td>1.5 + 5.5 + 0</td>
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<tr>
<td>WMT F206</td>
<td>Heat Treating/Metal Finishing/Knife Making II</td>
<td>3</td>
<td>As Demand</td>
<td>Second level of knife making and heat treating using more complex metals and additional equipment.</td>
<td>WMT F106; WMT F117; WMT F241.</td>
<td>2 + 2 + 0</td>
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<tr>
<td>WMT F210</td>
<td>Pipe Welding</td>
<td>3</td>
<td>As Demand</td>
<td>Prepare and weld pipe in an uphill or downhill position.</td>
<td>WMT F106; WMT F117; WMT F241.</td>
<td>2 + 3.5 + 0</td>
</tr>
<tr>
<td>WMT F241</td>
<td>Gas Tungsten Arc and Gas Metal Arc Welding</td>
<td>3</td>
<td>As Demand</td>
<td>Entry-level gas tungsten arc welding concentrating on aluminum. Materials will be welded in all</td>
<td>WMT F106; WMT F117; WMT F241.</td>
<td>2 + 3.5 + 0</td>
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<tr>
<td>WMT F290</td>
<td>Welding Proficiency Maintenance</td>
<td>3</td>
<td>Spring</td>
<td>Maintenance of a high degree of welding proficiency through practice of previously-learned processes</td>
<td>WMT F103; WMT F105.</td>
<td>2 + 4.5 + 0</td>
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<tr>
<td>WMT F300</td>
<td>Oxy-Acetylene Welding and Cutting</td>
<td>3</td>
<td>Spring</td>
<td></td>
<td>WMT F103; WMT F105.</td>
<td>2 + 4.5 + 0</td>
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</tbody>
</table>

Legend:
- **Introduction and orientation to the processes and procedures involved in the welding field including safe operational procedures for shielded metal arc welding (SMAW) (Stick), mixed inert gas (MIG), tungsten inert gas (TIG) and oxy-acetylene welding; in addition to the appropriate personal protective equipment (PPE), terminology related to the welding industry.**
- **WMT F101: Introduction to Welding**
  - Offered Fall, Spring and Summer
  - 4 Credits
  - Introduction and orientation to the processes and procedures involved in the welding field including safe operational procedures for shielded metal arc welding (SMAW) (Stick), mixed inert gas (MIG), tungsten inert gas (TIG) and oxy-acetylene welding; in addition to the appropriate personal protective equipment (PPE), terminology related to the welding industry.
  - Lecture + Lab + Other: 2 + 4 + 0
- **WMT F102: Intermediate Welding**
  - 3 Credits
  - Offered As Demand Warrants
  - Continuation of WMT F101.
  - Prerequisites: WMT F101.
  - Lecture + Lab + Other: 2 + 2 + 0
- **WMT F103: Welding I**
  - 3 Credits
  - Offered Fall
  - Entry-level course in basic oxyacetylene, arc welding and flame cutting. Attendance at first two classes is mandatory.
  - Lecture + Lab + Other: 1 + 4 + 0
- **WMT F105: Welding II**
  - 3 Credits
  - Offered Fall
  - Arc welding techniques and basic MIG and TIG welding. Attendance at first two classes is mandatory.
  - Prerequisites: WMT F103.
  - Lecture + Lab + Other: 1 + 4 + 0
- **WMT F106: Heat Treating/Metal Finishing/Knife Making I**
  - 3 Credits
  - Offered As Demand Warrants
  - Heat treating, metal finishing. Build two knives, heat treat and finish. Special Conditions: Must have excellent hand-eye coordination. Attendance at first class is mandatory.
  - Recommended: WMT F117; WMT F241.
  - Lecture + Lab + Other: 2 + 3 + 0
- **WMT F117: Oxy-Acetylene Welding and Cutting**
  - 3 Credits
  - Offered As Demand Warrants
  - Safe oxyacetylene welding techniques and procedures of common metals. Welding of these metals in flat, horizontal, vertical and overhead positions. Attendance at first two class meetings is mandatory.
  - Lecture + Lab + Other: 2 + 5 + 0
- **WMT F130: Shielded Metal Arc Welding**
  - 1-3 Credits
  - Offered Fall
  - All positions for multiple pass fillet welds. Study in shielded metal arc (SMAW) focused on vertical, horizontal, and overhead positions with multiple passes using different techniques.
  - Prerequisites: WMT F103; WMT F105.
  - Lecture + Lab + Other: 1-3 + 0 + 0
- **WMT F140: Metal Fabrication**
  - 1-3 Credits
  - Offered Spring
  - Metal fabrication done by hand and with the aid of equipment is the focus of this class. Plan, layout, bend, form raw metal and fabricate metal projects. Attendance at first two classes is mandatory.
  - Prerequisites: WMT F103; WMT F105; WMT F160.
  - Lecture + Lab + Other: 1.5 + 5.5 + 0
- **WMT F150: Gas Tungsten Arc Welding**
  - 1-3 Credits
  - Offered Spring
  - Use of tungsten and argon gas for aluminum and stainless steel gas welding, formerly called Heliarc or TIG. This is an entry level gas tungsten arc welding class concentrating on aluminum. Materials will be welded in all four welding positions.
  - Lecture + Lab + Other: 1.5 + 5.5 + 0
- **WMT F160: Gas Metal Arc Welding**
  - 1-3 Credits
  - Offered Fall
  - Prepares student to work with wire-feed processes. Gas metal arc welding focuses on ferrous and nonferrous metals welded in all positions. Attendance at first two classes is mandatory.
  - Lecture + Lab + Other: 1.5 + 5.5 + 0
- **WMT F206: Heat Treating/Metal Finishing/Knife Making II**
  - 3 Credits
  - Offered As Demand Warrants
  - Second level of knife making and heat treating using more complex metals and additional equipment. Must have excellent hand-eye coordination. Attendance at first class is mandatory.
  - Recommended: WMT F106; WMT F117; WMT F241.
  - Lecture + Lab + Other: 2 + 2 + 0
- **WMT F210: Pipe Welding**
  - 3 Credits
  - Offered As Demand Warrants
  - Prepare and weld pipe in an uphill or downhill position.
  - Lecture + Lab + Other: 2 + 3.5 + 0
- **WMT F241: Gas Tungsten Arc and Gas Metal Arc Welding**
  - 3 Credits
  - Offered As Demand Warrants
  - Entry-level gas tungsten arc welding concentrating on aluminum. Materials will be welded in all positions. Gas metal arc welding focuses on ferrous and nonferrous metals welded in all positions. Attendance at first two class meetings is mandatory.
  - Lecture + Lab + Other: 1.5 + 5.5 + 0
- **WMT F290: Welding Proficiency Maintenance**
  - 3 Credits
  - Offered Spring
  - Maintenance of a high degree of welding proficiency through practice of previously-learned processes with an emphasis on AWS welding certification standards.
  - Prerequisites: WMT F130; WMT F140.
  - Lecture + Lab + Other: 2 + 4.5 + 0