# BIG SKY PATHWAY PROPOSAL

## COLLEGE DEGREE PROGRAM: Welding (Certificate of Applied Science)

<table>
<thead>
<tr>
<th>Cluster Overview:</th>
<th>Pathway Options:</th>
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</thead>
</table>
| Jobs in the manufacturing career cluster involve planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities, such as production planning and control, maintenance, and manufacturing/ process engineering. | - Production  
- Manufacturing & Production Process Development  
- Maintenance, Installation and Repair  
- Quality Assurance  
- Logistics and Inventory Control  
- Health, Safety and Environmental Assurance  |

## Occupation Examples:
Assembler, MIG Welder, TIG Welder, Machine Operator, Sheet Metal Worker, Mechanical Engineer, Industrial Engineer, Quality Control Technician, Safety Technician, Safety Engineer, Dispatcher, Production Manager, Purchasing Agent, Logistician

For a complete listing, go to: [http://online.cnetcenter.org/find/career?c=13&q=Go](http://online.cnetcenter.org/find/career?c=13&q=Go)

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## SUGGESTED HIGH SCHOOL COURSES

### 9th Grade
- Graduation Requirements: Workforce/2-Year College Prep  
- 4-Year MT College/Univ Prep (Rigorous Core)
- CTE and/or Electives:

### 10th Grade
- Graduation Requirements: Workforce/2-Year College Prep  
- 4-Year MT College/Univ Prep (Rigorous Core)
- CTE and/or Electives:

### 11th Grade
- Graduation Requirements: Workforce/2-Year College Prep  
- 4-Year MT College/Univ Prep (Rigorous Core)
- CTE and/or Electives:

### 12th Grade
- Graduation Requirements: Workforce/2-Year College Prep  
- 4-Year MT College/Univ Prep (Rigorous Core)
- CTE and/or Electives:

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## ADVANCED LEARNING OPPORTUNITIES

### High School to College/Career Linkages

CTE START courses: None

Advanced Placement or IB courses:  
AP Calculus, AP English, AP Statistics

Dual Enrollment courses:  
WLDG 110 WLDG 111 with Gallatin College MSU, Montana Digital Academy

Online courses:  
Montana Digital Academy, BYU online

Other:
### POSTSECONDARY PROGRAM OF STUDY (Gallatin College)

<table>
<thead>
<tr>
<th>Math</th>
<th>English</th>
<th>Major</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>13—Semester 1</td>
<td>WLDG 104-Technical Math</td>
<td>WLDG 106-Welding Fabrication Methods, WLDG 110-Welding Theory I, WLDG 111-Welding Theory I Practical, WLDG 121-Welding Theory II Practical, WLDG 117-Welding Blueprint Reading, WLDG 205-Applied Metallurgy</td>
<td>COMX 102-Interpersonal Skills in the Workplace</td>
</tr>
</tbody>
</table>

### MONTANA POSTSECONDARY OPPORTUNITIES

Montana University System Degree and Program Inventory: [http://www.homepage.montana.edu/~mus/dirainv/](http://www.homepage.montana.edu/~mus/dirainv/)
Your Guide to Montana’s Certificate and Associate Degree Programs: [http://mus.edu/twoyear/YourGuide.html](http://mus.edu/twoyear/YourGuide.html)

<table>
<thead>
<tr>
<th>MILITARY</th>
<th>PROFESSIONAL CERTIFICATE</th>
<th>APPRENTICESHIP</th>
<th>CERTIFICATE OF APPLIED SCIENCE</th>
<th>ASSOCIATE’S OF APPLIED SCIENCE DEGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requires diploma or GED</td>
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</tr>
<tr>
<td>17 with parental consent 18 without</td>
<td>Less than 30 credits; little/no general ed credits</td>
<td>Must be at least 18</td>
<td>30-45 credits; limited general education credits</td>
<td>60-72 credits; includes 15-25 general ed credits</td>
</tr>
<tr>
<td>Complete in one year or less</td>
<td>Complete in one year or less</td>
<td>Minimum 2,000 hours of supervised experience</td>
<td>Complete in one year or less</td>
<td>Complete in two years (if prepared academically in math and English)</td>
</tr>
</tbody>
</table>

For more information: [http://todaysmilitary.com](http://todaysmilitary.com)

Air Force, Air Guard, Army, Coast Guard, Marines, and Navy

**Tribal Colleges:** BCJC—Browning; CDJC—Cradle River; FCJC—Haakon; FPCC—Poplar; LBHCC—Crow Agency; SCCC—Box Elder; SKCC—Pablo

**Community Colleges:** DCC—Garland; FC—Kalispell; MCC—Missoula City

**Colleges of Technology:** BLOC—Billings; GFCC—Great Falls; HCCT—Helena; TECHC—Butte; UMCOT—Missoula; GCP—Bozeman

**Four Year Colleges/Universities:** MSU—Bozeman; MSUB—Billings; MSU— Havre; TECH—Butte; UM—Missoula; UMW—Billings

**Programs:**
- Welding Technology — FVCC
- Electricians
- Sheet Metal Workers
- Industrial Machine Technology/GNC — FVCC
- Metals (Fabrication) Technology — BLOC
- Machine Tool Technology — HCOT, UMW
- Sustainable Energy Technician — BLOC, TECHCOT, GFCCOT, MSUN
- Water Quality Technology — HCOT, MSUN
- Welding Technology — HCOT, UMCOT, GFCCOT, BLCOT, GCP, MSUN, DCC, FVCC, FPCC
- Biofuel Energy — MCC
- Electronics Technology — UMCOT
- Energy Technology — UMCOT
- Metals (Fabrication) Technology — HCOT, TECHCOT, BLCOT
- Machine Tool Technology — HCOT
- Power Plant Technology — BLCOT
- Process Plant Technology — BLCOT
- Sustainable Energy Technician — BLCOT, TECHCOT, GFCCOT, MSUN
- Water Quality Technology — FPCC
- Welding Technology — HCOT, UMCOT, BLCOT, FVCC
| BACCALAUREATE DEGREE | Bioengineering — MSU  
|                       | Electrical Engineering — TECH, MSU  
|                       | Civil Engineering — TECH, MSU  
|                       | Industrial Engineering — MSU  
|                       | Mechanical Engineering — TECH, MSU  
|                       | Mining Engineering — TECH  
|                       | Occupational Safety & Health — TECH  
|                       | Welding Engineering — TECH  
|                       | Metallurgical & Materials Engineering — TECH  
|                       | Petroleum Engineering — TECH |

- Requires 4-year college prep for admission  
- 128 credits (approximately)  
- Complete in four years

Degree and Program Inventory above may not be all inclusive
<table>
<thead>
<tr>
<th>Team Member</th>
<th>Name/Affiliation</th>
<th>Role/Responsibility</th>
<th>Signature/Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big Sky Pathways Coordinator</td>
<td>Amy Williams Gallatin College</td>
<td>Meets with CTE instructors, school counselors, and school administrators to explain and advocate for pathways, assist in filling out pathway paperwork, and complete gap analysis; collaborates with Gallatin College Program Development Manager who communicates with industry leaders and GC advisory boards; coordinates and creates dual enrollment opportunities where appropriate.</td>
<td>11/21/13</td>
</tr>
<tr>
<td>Industry Liaison-Gallatin College Program Development Manager</td>
<td>Stephanie Gray Gallatin College</td>
<td>Communicates with industry leaders and GC advisory boards. Works directly with Amy Williams to communicate information from industry to secondary education and create programs connecting industry and secondary educators.</td>
<td>11/21/13</td>
</tr>
<tr>
<td>OPI Specialist</td>
<td>Don Michalsky OPI</td>
<td>Reviews Pathways materials sent by Amy Williams, assists with Cluster specific information as needed, provides information about regional schools and CTE programs/Perkins funds utilization.</td>
<td>01/08/14</td>
</tr>
<tr>
<td>Secondary Administration (Principal or Superintendent)</td>
<td>Lynne Scalia Park High School</td>
<td>Meets with Amy Williams to discuss the establishment of Big Sky Pathways in the school, connects Mrs. Williams with CTE instructors and counselors, collaborates in the discussion of dual enrollment, and assists in any other ways helpful and/or necessary.</td>
<td>11/21/13</td>
</tr>
<tr>
<td>Postsecondary Administration (Academic Dean or Department Chair)</td>
<td>Janet Heiss Arms Gallatin College</td>
<td>Communicates with Amy Williams about regional schools and Pathway establishment as well as dual enrollment.</td>
<td>11/21/13</td>
</tr>
<tr>
<td>Secondary Counselor</td>
<td>NA</td>
<td>Assists Amy Williams in determining the correct sequence of courses (standard and rigorous core) that fulfill HS graduation requirements for the Pathway proposal document, assists in the gap analysis when available and relevant, reviews and approves courses in the pathway document.</td>
<td>NA</td>
</tr>
</tbody>
</table>
### Secondary Curriculum Director or Academic Dean
| Julie Lentz | Assists Amy Williams in determining the correct sequence of courses (standard and rigorous core) that fulfill HS graduation requirements for the Pathway proposal document and reviews and approves courses in the pathway document. | 11/21/13 |
| Park High School | | | |

### Postsecondary Academic Advisor/Career Counselor
| Amy Williams | Same as "Big Sky Pathways Coordinator" above. | 11/21/13 |
| Gallatin College | | | |

### CTE Teacher
| Kevin Fuchs | Works with Amy Williams to fill out the Gap Analysis document and complete the CTE electives portion of the Big Sky Pathways document. Collaborates with Mrs. Williams on identifying potential dual enrollment opportunities. | 11/21/13 |
| Park High School | | | |

### Postsecondary Program Director
| David Cohenour | Determines that the sequences of courses listed on the Pathway Proposal are correct for obtaining the certificate or degree in their program. | 12/2/13 |
| Gallatin College | | | |

In developing a pathway/program of study, it is also important to determine that the pathway includes the following elements:

### Pathway Checklist

<table>
<thead>
<tr>
<th>Element</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pathway includes all state and local graduation requirements preparing students for entry into a postsecondary program</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>2. Pathway identifies the appropriate secondary CTE, academic, and recommended elective courses offered by the high school which will prepare the student for college-level courses without remediation</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>3. Pathway outlines a non-duplicative sequence of courses from grades 9-12 and from secondary to postsecondary education</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>4. Pathway leads to an industry-recognized postsecondary credential, degree or employment</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>5. Curriculum between secondary and postsecondary Institutions has aligned curriculum, using industry recognized standards or with input of local/regional business and industry (May use Gap Analysis) Gap Analysis List National Standards or Local/Regional Business Here; AWS</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>6. Pathway includes dual enrollment, high school for college credit, and opportunities for Industry-recognized credentials and work-based learning experiences when applicable</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>7. The pathway utilizes the guidance of a web-based career counseling system, or information regarding the pathway is available on the Institution’s website.</td>
<td>yes</td>
<td></td>
</tr>
</tbody>
</table>