Big Sky Pathway
Program of Study Team Worksheet

Assembling a Team Designing and implementing a Big Sky Pathway requires collaboration at every level of the process. Based on your local community and the specific Career Pathway for which you wish to implement a Program of Study, you should assemble a team that includes academic and CTE Teachers, District or School CTE Advisors, Business and Industry Representatives, Postsecondary Partners and Faculty, Education Administrators, and even relevant local community leaders or recent program of study graduates.

This team will have several responsibilities in the creation of the Program of Study (POS), which are explained in depth in the Big Sky Pathway Implementation Guide For Montana [p. 47].

After reviewing the Guide, it is a good practice to fill out the information below and identify the roles and responsibilities of the team members:

Date of Meeting: _______ Dec 10, 2014 _______

Career Cluster: _______ Agriculture Food & Natural Resources _______

Career Pathway/Program of Study: _ Ag. Mechanics __________

High school & College: _____ Joliet High School / MSU - Northern _______

Program of Study Team Members:

<table>
<thead>
<tr>
<th>Team Member</th>
<th>Name/Affiliation</th>
<th>Role/Responsibility</th>
<th>Signature/Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example: Business &amp; Industry</td>
<td>Scott Blain, Production Agriculturalist</td>
<td>Ensure the curriculum teaches skills employers need in entry-level workers, Look for ways to incorporate industry recognized certificates into the POS, provide work-based learning experiences for students</td>
<td>()</td>
</tr>
<tr>
<td>College Pathway Coordinator</td>
<td>Holly Haas</td>
<td>Information, approval</td>
<td>()</td>
</tr>
<tr>
<td>OPI Specialist</td>
<td>Dr. Brad King</td>
<td>Information, approval</td>
<td>()</td>
</tr>
<tr>
<td>Secondary Administration  (Principal or Superintendent)</td>
<td>Mrs. Marilyn Vukonich</td>
<td>Information, approval</td>
<td>()</td>
</tr>
<tr>
<td>Postsecondary Administration</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
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>X</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>X</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></td>
<td>X</td>
</tr>
<tr>
<td>4. Pathway leads to an industry-recognized postsecondary credential, degree or employment</td>
<td></td>
<td>X</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) List National Standards or Local/Regional Business Here: AFNR Content Standards.</td>
<td></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></td>
<td>X</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></td>
<td>X</td>
</tr>
</tbody>
</table>
### HIGH SCHOOL: Joliet High School

**COLLEGE: MSU Northern**

**COLLEGE DEGREE PROGRAM: Ag Mechanics Technology**

<table>
<thead>
<tr>
<th>Cluster Overview:</th>
<th>Pathway Options:</th>
</tr>
</thead>
</table>
| Careers in the Agriculture, Food and Natural Resources cluster involve the planning, implementation, production, management, processing, and/or marketing of agricultural commodities and services. | - Food Products and Processing Systems  
- Plant Systems  
- Animal Systems  
- Power, Structural & Technical Systems  
- Natural Resources Systems  
- Environmental Service Systems  
- Agribusiness Systems |

**Occupation Examples:** Agricultural Chemical Dealer, Aquaculturalist, Environmental Compliance-Assurance Manager, Farm Manager, Health and Safety Sanitarian, Meat Cutter-Meat Grader, Park Manager, Produce Buyer, Recycling Technician, Wildlife Manager, Botanist, Agricultural Educator, Ecologist, Environmental Engineer, Fish and Game Officer, Bank Loan Officer, Plant Pathologist, Veterinarian

For a complete listing, go to: [http://online.onetcenter.org/find/career?c=1&g=Go](http://online.onetcenter.org/find/career?c=1&g=Go)

### SUGGESTED HIGH SCHOOL COURSES

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Requirements</th>
<th>Recommended CTE Cluster Foundation Courses:</th>
</tr>
</thead>
<tbody>
<tr>
<td>9th</td>
<td>Graduation Requirements Workforce/2-Year College Prep</td>
<td>AGED I.</td>
</tr>
<tr>
<td></td>
<td>4-Year MT College/Univ Prep (Rigorous Core)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>English 9, Math, Physical Science, PE 9, Career Class, Keyboarding 1,2</td>
<td></td>
</tr>
</tbody>
</table>

**CTE and/or Electives**

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Requirements</th>
<th>Recommended CTE Cluster Foundation Courses:</th>
</tr>
</thead>
<tbody>
<tr>
<td>10th</td>
<td>Graduation Requirements Workforce/2-Year College Prep</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4-Year MT College/Univ Prep (Rigorous Core)</td>
<td>English 10, Geometry, Biology, World History, PE 10</td>
</tr>
<tr>
<td></td>
<td>English 10, Math, Biology (lab science), Recommend World History</td>
<td></td>
</tr>
</tbody>
</table>

**CTE and/or Electives**

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Requirements</th>
<th>Recommended CTE Cluster Foundation Courses:</th>
</tr>
</thead>
<tbody>
<tr>
<td>11th</td>
<td>Graduation Requirements Workforce/2-Year College Prep</td>
<td>English 11, American History, Recommend Advanced Algebra &amp; Statistics, Recommend Advanced Biology, Recommend any CTE Courses</td>
</tr>
<tr>
<td></td>
<td>4-Year MT College/Univ Prep (Rigorous Core)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>English 11, American History, Recommend Advanced Algebra &amp; Statistics, Choose from the following, Physics, Chemistry or Advance Biology, Recommend any CTE Courses</td>
<td></td>
</tr>
</tbody>
</table>

**CTE and/or Electives**

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Requirements</th>
<th>Recommended CTE Cluster Foundation Courses:</th>
</tr>
</thead>
<tbody>
<tr>
<td>12th</td>
<td>Graduation Requirements Workforce/2-Year College Prep</td>
<td>English 12, Government, Choose from one of the following Physics, Chemistry, Advanced Biology, Recommend any of the CTE Courses</td>
</tr>
<tr>
<td></td>
<td>4-Year MT College/Univ Prep (Rigorous Core)</td>
<td>English 12, or AP English, Government, Recommend Trigonometry &amp; Calculus, Choose from one of the following, Chemistry, Physics, Advanced Biology, Recommend any of the CTE Courses</td>
</tr>
</tbody>
</table>

**CTE and/or Electives**

### ADVANCED LEARNING OPPORTUNITIES

High School to College/Career Linkages

**CTE START courses:**

**Advanced Placement or IB courses:**

**Dual Enrollment courses:**

**Online courses:**

**Other:** Supervised Agricultural Experience (SAE) and participation in appropriate FFA activities support and reinforce classroom and laboratory learning and should be a requirement for all students

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## POSTSECONDARY PROGRAM OF STUDY

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Math</th>
<th>English</th>
<th>Major</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>AGTE225 Intro to Grain Harvesting</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>DIES104 Intro to Diesel Engines</td>
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<td></td>
<td></td>
<td></td>
<td>DIES114 Into to Diesel Engines Lab</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>WLDG110 Welding Theory 1</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>WLDG111 Welding Theory 1 Practical</td>
<td></td>
</tr>
<tr>
<td>Semester 2</td>
<td>M111 Tech. Math Or M121 Co Algebra Or M145 Liberal Arts</td>
<td>WRIT108 Elem. TechWriting</td>
<td>AGTE230</td>
<td>AGTE130 Intor to Ag Tractors ADT/134 Electrical/Electronic Systems 1 DIES115 Intro to Diesel Fuel Systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AGTE210 Tig, Plntg, Spray Implements DIES216 Heavy Duty Power Trains DIES262 Diesel Engine Diagnosis &amp; Repair DIES272 Diesel Engine Diag &amp; Repair Lab WLDG260 Repair &amp; Maintenance Welding</td>
<td></td>
</tr>
<tr>
<td>Semester 2</td>
<td></td>
<td></td>
<td>AGTE120 Forage Implements ATDI/264 Ad. Elec/Electronic Syst 2 ATDI/265 Heating &amp; Air Condition DIES204 Intro/Hydraulics &amp; Pneumatics DIES214 Intro/Hydraulics &amp; Pneumatics Lab</td>
<td></td>
</tr>
</tbody>
</table>

## MONTANA POSTSECONDARY OPPORTUNITIES

*Montana University System Degree and Program Inventory*: [http://www.homepage.montana.edu/~muscrginvy/](http://www.homepage.montana.edu/~muscrginvy/)

*Your Guide to Montana's Certificate and Associate Degree Programs*: [http://mus.edu/twoyear/YourGuide.html](http://mus.edu/twoyear/YourGuide.html)

### Colleges of Technology:
- BLCOT—Billings; GFHOT—Great Falls; HCUOT—Helena; TECHCOT—Butte; UMCOT—Missoula; GCP—Bozeman

### Community Colleges:
- DCC—Glendive; PVCC—Kalispell; MCC—Missoula City

### Tribal Colleges:
- BFCC—Browning; CDCC—Lame Deer; FBC—Hardin; FPCC—Polson; LBHC—Crow Agency; SCC—Box Elder; SKC—Pablo

### Four Year Colleges/Universities:
- MSU—Bozeman; MSUB—Billings; MSUN—Missoula; TECH—Butte; UM—Missoula; UMW—Dillon

### MILITARY
- Requires diploma or GED
- 17 with parental consent; 18 without
- Air Force, Air Guard, Army, Coast Guard, Marines, and Navy
  - For more information: [http://todaysmilitary.com](http://todaysmilitary.com)

### PROFESSIONAL CERTIFICATE
- Requires diploma or GED
- Less than 30 credits; little/no general ed credits
- Complete in one year or less
- Agri-Mechanics Machinery/Technology — MSUN

### APPRENTICESHIP
- Requires diploma or GED
- Must be at least 18
- Minimum 2,000 hours of supervised experience
- Farm Equipment Mechanics
  - See the MT Dept of Labor website for more information: [http://wsd.dlt.mt.gov/apprenticeship/default.asp](http://wsd.dlt.mt.gov/apprenticeship/default.asp)

### CERTIFICATE OF APPLIED SCIENCE
- Requires diploma or GED
- 30-45 credits; limited general education credits
- Complete in one year or less
- Agri-Business Technology — MCC
- Agri-Mechanics Machinery/Technology — DCC
- Livestock Technology — DCC
- Natural Resource Management — PVCC

### ASSOCIATE’S OF APPLIED SCIENCE DEGREE
- Requires diploma or GED
- 60-72 credits; includes 15-25 general ed credits
- Complete in two years (if prepared academically in math and English)
- Agri-Business Technology — DCC
- Agri-Business Technology — Equitation — DCC
- Agricultural Science/Technology — MSUN
- Agri-Mechanics Machinery/Technology — MSUN, DCC
- Equine Studies — UMW, MCC

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| BACCALAUREATE DEGREE | Natural Horsemanship — UMW  
Natural Resource Management — FVCC, BFCC |
|----------------------|-------------------------------------------------
|                      | Agriculture Business — MSU  
Agriculture Education — MSU  
Animal Science — MSU  
Biotechnology — MSU  
Environmental Horticulture — MSU  
Environmental Sciences — MSU  
Land Rehabilitation — MSU  
Land Resource Sciences — MSU  
Natural Resources & Rangeland Technology — MSU  
Plant Science — MSU  
Sustainable Food & Bio-energy Systems — MSU  
Earth Sciences — MSU  
Biological Sciences — MSU  
Biology — UM  
Environmental Studies — UM  
Forestry — UM  
Resource Conservation — UM  
Wildland Restoration — UM  
Wildlife Biology — UM  
Environmental Engineering — TECH  
Mining Engineering — TECH  
Geological Engineering — TECH  
Environmental Science — UM, SKC  
Earth Science — UM  
Environmental Science & Forestry — SKC |

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

*Degree and Program Inventory above may not be all inclusive*