# Manufacturing Program of Study

## Bismarck High School Career Cluster Program of Study

This Program of Study Template can serve as a guide, along with other career planning materials, as you continue your career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner’s educational and career goals. **Ask your high school counselor to help you fill in the required courses you need to graduate.**

<table>
<thead>
<tr>
<th>Grade</th>
<th>English 6 semesters</th>
<th>Math 6 semesters</th>
<th>Science 6 semesters</th>
<th>Social Studies 6 semesters</th>
<th>Other Required Courses, Recommended Electives</th>
<th>Career &amp; Technical Courses and/or Degree Major Courses</th>
<th>SAMPLE Occupations Relating to this Pathway</th>
</tr>
</thead>
</table>
| 9     | Comm Arts I         | High School Math | High School Science Course | High School S.S. Course | Personal Finance Computer Science Physics See your counselor for more high school offerings | See your high school counselor for more course offerings | ► Assembler  
► Boilermaker  
► Design Engineer  
► Environmental Engineer  
► Foundry Worker  
► Freight, Stock and Material Mover  
► Health and Safety Representative  
► Industrial Machinery Mechanic  
► Inspector  
► Labor Relations Manager  
► Logistician  
► Manufacturing Technician  
► Pattern and Model Maker  
► Production Manager  
► Quality Control Technician  
► Safety Engineer  
► SPC Coordinator  
► Tool and Diemaker  
► Traffic Manager  
► Welder |
| 10    | Comm Arts II        | High School Math | High School Science Course | High School S.S. Course | Personal Finance Computer Science Physics See your counselor for more high school offerings | See your counselor for more high school offerings | ► Assembly Worker  
► Machinist  
► Plumber  
► Welder |
| 11    | Comm Arts III       | High School Math or Pre-Algebra | High School Science Course | High School S.S. Course – Government & History  
*Am. College History I & II  
*Political Systems | Physics Courses  
*Personal Finance  
*Computer Science  
See counselor for additional college course offering (Available for Dual Enrollment) | See your high school counselor for more high school offerings  
*Unitec Programs – Collision Repair Technology, Automotive Technology, Welding Technology, Machine Tool | ► Assembler  
► Boilermaker  
► Design Engineer  
► Environmental Engineer  
► Foundry Worker  
► Freight, Stock and Material Mover  
► Health and Safety Representative  
► Industrial Machinery Mechanic  
► Inspector  
► Labor Relations Manager  
► Logistician  
► Manufacturing Technician  
► Pattern and Model Maker  
► Production Manager  
► Quality Control Technician  
► Safety Engineer  
► SPC Coordinator  
► Tool and Diemaker  
► Traffic Manager  
► Welder |
| 12    | Senior Comm Arts & Comm Arts elective  
*English Comp II  
*Intro to Literature | High School Math or Pre-Algebra | High School Science Course | High School S.S. Course – Government & History  
*College Oceanography, Astronomy or Physics  
*Am. College History I & II  
*Political Systems | Physics Courses  
*Personal Finance  
*Computer Science  
See counselor for additional college course offerings (Available for Dual Enrollment) | See your high school counselor for more high school offerings  
*Unitec Programs – Collision Repair Technology, Automotive Technology, Welding Technology, Machine Tool | ► Assembler  
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► Tool and Diemaker  
► Traffic Manager  
► Welder |

*Dual Credit courses can often be substituted for high school credit. Check with your Counselor.*

*Dual Enrollment courses can be taken online or on a MAC campus.*

Assessments/Certifications: College Placement Assessments, Compass, ACT, SAT

Clubs/Extracurricular Activities: Ask your Counselor what is available at your school.

CTSO(s): □ FBLA  □ FFA  □ TSA  □ Skills USA

Work-Based Learning: □ After School Employment  □ Internship/Mentorship  □ Job Shadowing  □ Service Learning  □ Supervised Business Experience
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.

<table>
<thead>
<tr>
<th>Sample Career Specialties / Occupations</th>
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</table>
| Assembler
  Automated Manufacturing Technician
  Bookbinder
  Calibration Technician
  Electrical Installer and Repairer
  Electromechanical Equipment Assembler
  Extruding and Drawing Machine Setter/Set-Up Operator
  Extrusion Machine Operator
  Foundry Worker
  Grinding, Lapping, and Buffing Machine Operator
  Hand Packers and Packager
  Hoist and Winch Operator
  Instrument Maker
  Large Printing Press Machine Setter and Set-Up Operator
  Machine Operator Manager, Supervisor
  Medical Appliance Maker
  Milling Machine Setter, Set-Up Operator
  Millwright
  Operator, Tender, Cutter/Brazer, Solderer, Machine Operator
  Painter
  Pattern & Model Maker
  Precision Layout Worker
  Precision Optical Goods Worker
  Production Associate
  Sheet Metal Worker
  Solderer and Brazer
  Tool and Die Maker
  Welder
| Design Engineer
  Electrical and Electronics Technician and Technologist
  Electronics Engineer
  Engineering and Related Technician and Technologist
  Engineering Technician
  Industrial Engineer
  Labor Relations Manager
  Manufacturing Engineer
  Manufacturing Technician
  Power Generating and Reactor Plant Operator
  Precision Inspector, Tester, and Grader
  Process Improvement Technician
  Production Manager Purchasing Agent Supervisor
| Biomedical Equipment Technician
  Boilermaker
  Communication System Installer/Repairer
  Computer Installer/Repairer
  Computer Maintenance Technician
  Electrical Equipment Installer/Repairer
  Facility Electrician
  Industrial Electronic Installer/Repairer
  Industrial Facilities Manager
  Industrial Machinery Mechanic
  Industrial Maintenance Electrician
  Industrial Maintenance Mechanic
  Industrial Maintenance Technician
  Instrument Calibration and Repairer
  Instrument Control Technician
  Job/Fixture Designer
  Laser Systems Technician
  Maintenance Repairer
  Major Appliance Repairer
  Meter Installer/Repairer
  Millwright
  Plumber, Pipefitter and Steamfitter
  Security System Installer/Repairer
| Calibration Technician
  Inspector Lab Technician
  Process Control Technician
  Quality Control Technician
  Quality Engineer SPC Coordinator
| Communications, Transportation and Utilities Manager
  Dispatcher
  Freight, Stock, and Material Mover
  Industrial Truck and Tractor Operator
  Logistical Engineer
  Logistician
  Material Associate
  Material Handler
  Material Mover
  Process Improvement Technician
  Quality Control Technician
  Traffic Manager
  Traffic, Shipping, and Receiving Clerk
| Environmental Engineer
  Environmental Specialist
  Health and Safety Representative
  Safety Coordinator
  Safety Engineer
  Safety Team Leader
  Safety Technician

<table>
<thead>
<tr>
<th>Cluster Knowledge and Skills</th>
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<tbody>
<tr>
<td>• Academic Foundations • Communications • Problem Solving and Critical Thinking • Information Technology Applications • Systems • Safety, Health and Environment • Leadership and Teamwork • Ethics and Legal Responsibilities • Employability and Career Development • Technical Skills</td>
</tr>
</tbody>
</table>

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<tr>
<th>Pathways</th>
<th>Manufacturing Production Process Development</th>
<th>Maintenance, Installation &amp; Repair</th>
<th>Quality Assurance</th>
<th>Logistics &amp; Inventory Control</th>
<th>Health, Safety and Environmental Assurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathway 1</td>
<td>Production</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>K&amp;S</td>
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