



# Manufacturing Career Cluster

## PLAN OF STUDY

<http://pages.minot.k12.nd.us/votech/cte.htm>

<https://careertech.org/>

Name \_\_\_\_\_

School \_\_\_\_\_

Date \_\_\_\_\_



SAMPLE OCCUPATIONS RELATING TO THIS CAREER CLUSTER	
Pathway	Occupations
PRODUCTION	Welder • Machinist & Tool Maker • Pipefitter,
MANUFACTURING PROCESS PRODUCTION DEVELOPMENT	Mechanical Engineer • Structural Engineer • Industrial Technology/Mechanic • Design Engineer • Industrial Engineer • Power Generating & Reactor Plant Operator • Purchasing Agent • Manufacturing Engineer • Precision Inspector/Tester/Grader
MAINTENANCE, INSTALLATION & REPAIR	Boilermaker • Communication Systems Installer/Repairer • Computer Repair Technician (A+ Certification) • Electronics Technologist • Industrial Facilities Manager • Instrument Calibration & Repairer • Maintenance Repairer • Millwright • Plumber/Pipe Fitter/Steam Fitter
QUALITY ASSURANCE	Calibration Technician • Inspector • Quality Control Technician
LOGISTICS & INVENTORY CONTROL	Dispatcher • Freight/Stock/Material Mover • Industrial Truck & Tractor Operator • Material Handler • Material Mover • Traffic/Shipping/Receiving Clerk
HEALTH, SAFETY & ENVIRONMENTAL ASSURANCE	Environmental Engineer • Health & Safety Representative • Safety Coordinator • Safety Team Leader • Safety Technician

### MINOT HIGH SCHOOL - SUGGESTED COURSE OF HIGH SCHOOL STUDY

It is suggested that students consider appropriate dual credit, articulation, or advanced placement opportunities for postsecondary credit.

Language Arts (four credits required to graduate)	Math (three credits required to graduate)	Science (three credits required to graduate)	Social Studies (three credits required to graduate)	Physical Education (two credit required to graduate)	Minot Public Schools Career & Technical Education and Other Electives (a total of three credits must be earned in foreign language, fine arts, or career and technical education – required to graduate)	Additional Suggested Learning Opportunities
<input type="checkbox"/> Grade 9 Lang Arts* <input type="checkbox"/> Grade 10 Lang Arts* <input type="checkbox"/> Grade 11 Lang Arts* <input type="checkbox"/> Speech or Debate* <input type="checkbox"/> Read Improvement <input type="checkbox"/> Basic Writing <input type="checkbox"/> Creative Writing <input type="checkbox"/> Humanities <input type="checkbox"/> Media Literacy	<input type="checkbox"/> Intro to Algebra <input type="checkbox"/> Algebra <input type="checkbox"/> Geometry <input type="checkbox"/> Advanced Algebra <input type="checkbox"/> Consumer Math <input type="checkbox"/> College Algebra (D) <input type="checkbox"/> Mathematics Applications	<input type="checkbox"/> Physical Science* <input type="checkbox"/> Biology* <input type="checkbox"/> Physics <input type="checkbox"/> Chemistry <input type="checkbox"/> Geology <input type="checkbox"/> Environmental Science	<input type="checkbox"/> World History* <input type="checkbox"/> U.S. History* <input type="checkbox"/> American Government* <input type="checkbox"/> Sociology <input type="checkbox"/> Economics* <input type="checkbox"/> Criminal Law	<input type="checkbox"/> Physical Education <input type="checkbox"/> Health  *Required Courses (D) – Dual credit  22 Credits are Required to graduate from Minot High School	<input type="checkbox"/> Agricultural Welding <input type="checkbox"/> Agricultural Engines and General Mechanics <input type="checkbox"/> Welding I & II <input type="checkbox"/> Energy & Transportation <input type="checkbox"/> Principles of Engineering & Design <input type="checkbox"/> Agriculture & Medical Engineering <input type="checkbox"/> Communications & Entertainment Engineering <input type="checkbox"/> Advanced Engineering <input type="checkbox"/> Invent It <input type="checkbox"/> How Stuff Works <input type="checkbox"/> Skills for Living <input type="checkbox"/> Introduction to Computer Applications <input type="checkbox"/> Cisco IT Essentials <input type="checkbox"/> World of Work <input type="checkbox"/> Foreign Language	<b>School-Based:</b> <input type="checkbox"/> SkillsUSA <input type="checkbox"/> TSA <input type="checkbox"/> Career Research <input type="checkbox"/> Cooperative Education <input type="checkbox"/> Internship <input type="checkbox"/> Job Shadowing <input type="checkbox"/> Service Learning Project  <b>Community-Based:</b> <input type="checkbox"/> Mentorship <input type="checkbox"/> Volunteer <input type="checkbox"/> Part-time Employment
For a complete listing of course offerings/electives at Minot High School, go to our Registration Guide at: <a href="http://pages.minot.k12.nd.us/votech/File/image/RegGuide.pdf">http://pages.minot.k12.nd.us/votech/File/image/RegGuide.pdf</a>						

### NORTH DAKOTA APPRENTICESHIP OPPORTUNITIES AND POSTSECONDARY PROGRAMS RELATED TO THIS CAREER CLUSTER

Pathway	Apprenticeship Opportunities	Associate Degree or Less	Bachelors Degree	Masters Degree or More
PRODUCTION	<input type="checkbox"/> Machinist <input type="checkbox"/> Welder	<input type="checkbox"/> Welding (BSC, FBCC, LRSC, NDSCS, TMCC)		
MANUFACTURING PROCESS PRODUCTION DEVELOPMENT	<input type="checkbox"/> Machinist	<input type="checkbox"/> Power Plant/Process Plant Operations (BSC, TMCC)	<input type="checkbox"/> Industrial Technology/Mechanic (UND)	<input type="checkbox"/> Industrial Technology/Mechanic (UND)
MAINTENANCE, INSTALLATION & REPAIR	<input type="checkbox"/> Boilermaker <input type="checkbox"/> Gas Appliance Servicer <input type="checkbox"/> Gas Main Fitter <input type="checkbox"/> Machinist <input type="checkbox"/> Plumber, Steamfitter/Pipefitter <input type="checkbox"/> Sheet Metal Worker <input type="checkbox"/> Sprinkler Fitters Apprenticeship <input type="checkbox"/> Welder	<input type="checkbox"/> Mechanical Maintenance Technology (NDSCS) <input type="checkbox"/> Plumbing (FBCC, NDSCS) <input type="checkbox"/> Simulator Maintenance Technology (LRSC) <input type="checkbox"/> Welding (BSC, FBCC, LRSC, NDSCS, TMCC) <input type="checkbox"/> Electrical/Electronics Technology (BSC, NDSCS) <input type="checkbox"/> HVAC/R (BSC, NDSCS) <input type="checkbox"/> Water Treatment Technology (FBCC)	<input type="checkbox"/> Industrial Technology/Mechanic (UND) <input type="checkbox"/> Environmental Design – (NDSU)	<input type="checkbox"/> Industrial Technology/Mechanic (UND)
QUALITY ASSURANCE	<input type="checkbox"/> Instrument Tech (Utilities)			
LOGISTICS & INVENTORY CONTROL	<input type="checkbox"/> Truck Driver	<input type="checkbox"/> Truck Driving (G's Driving School – Minot)		<input type="checkbox"/> Transportation & Logistics (NDSU)
HEALTH, SAFETY & ENVIRONMENTAL ASSURANCE	For more about Apprenticeships: <a href="#">Apprenticeship Opportunities</a>	<input type="checkbox"/> Emergency Management (NDSCS)	<input type="checkbox"/> Emergency Management (NDSU)	<input type="checkbox"/> Emergency Management (NDSU)

BSC – Bismarck State College, FBCC – Fort Berthold Community College, LRSC – Lake Region State College, NDSCS – North Dakota State College of Science, NDSU – North Dakota State University, TMCC – Turtle Mountain Community College. UND – University of ND