


HIGH SCHOOL: Capital High School		BIG SKY PATHWAY PROPOSAL 
COLLEGE: Helena College		
COLLEGE DEGREE PROGRAM: Welding Technology AAS		
Cluster Overview: 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.	Pathway Options: <ul style="list-style-type: none"> • 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 <i>For a complete listing, go to:</i> http://online.onetcenter.org/find/career?c=13&q=Go

SUGGESTED HIGH SCHOOL COURSES

Grade	Workforce/2-Year College Prep	4-Year MT College/Univ Prep (Rigorous Core)	CTE and/or Electives	Recommended CTE Cluster Foundation Course(s)	Recommended CTE Pathway Courses	Other Recommended CTE Courses	Career & Technical Student Organization(s)
9th	Graduation Requirements	English I, Pre Algebra, Math I, Earth Science, World Cultures, Phys Ed1, Elective		Industrial Tech, Welding I, Welding and Machining II, Welding and Machining III	Industrial Tech, Welding I, Welding and Machining II, Welding and Machining III	Computer Tech Skills Drafting I, Drafting II –Mechanical, CAD, Carpentry, Automotive, Accounting I (DC)	Skills USA
	Workforce/2-Year College Prep						
	4-Year MT College/Univ Prep (Rigorous Core)	Industrial Technology					
10th	Graduation Requirements	English 2, Math II, Biology, PE/Health, , Elective, Elective		Industrial Tech, Welding I, Welding and Machining II, Welding and Machining III	Industrial Tech, Welding I, Welding and Machining II, Welding and Machining III	Computer Tech Skills Drafting I, Drafting II –Mechanical, CAD, Carpentry, Automotive, Accounting I (DC)	Skills USA
	Workforce/2-Year College Prep						
	4-Year MT College/Univ Prep (Rigorous Core)	Welding I					
11th	Graduation Requirements	English 3, Math III, M111T Technical Math (DC) , Pre-Calculus, Chemistry, US History, Elective, Elective, Elective		Industrial Tech, Welding I, Welding and Machining II, Welding and Machining III	Industrial Tech, Welding I, Welding and Machining II, Welding and Machining III	Computer Tech Skills Drafting I, Drafting II –Mechanical, CAD, Carpentry, Automotive, Accounting I (DC)	Skills USA
	Workforce/2-Year College Prep						
	4-Year MT College/Univ Prep (Rigorous Core)	Welding and Machining II					
12th	Graduation Requirements	English 4, WRIT101 College Writing (DC) , WRIT 121T Technical, M111T Technical Math (DC) , Physics, US Government, Elective, Elective, Elective		Industrial Tech, Welding I, Welding and Machining II, Welding and Machining III	Industrial Tech, Welding I, Welding and Machining II, Welding and Machining III	Computer Tech Skills Drafting I, Drafting II –Mechanical, CAD, Carpentry, Automotive, Accounting I (DC)	Skills USA
	Workforce/2-Year College Prep						
	4-Year MT College/Univ Prep (Rigorous Core)	Welding and Machining III - Certification Available – AWS 3G and 4G 3/8 Plate Test minimum; WLDG 112 Cutting					

ADVANCED LEARNING OPPORTUNITIES

High School to College/Career Linkages

Advanced Placement or IB courses: AP Lang & Comp 3, AP History, AP European History, AP English IV, AP Government, AP Economics, AP Biology
• Dual Enrollment courses: M111T Technical Mathematics; M121 (DC) College Algebra; WRIT121T Technical Writing, WRIT101 College Writing; ACTG 101 Accounting Procedures I; COMX111 (DC Intro to Public Speaking); MS Word (CAPP154); MS Excel (CAPP156); MS PowerPoint (CAPP153); WLDG 112 Cutting Processes
Online courses: Montana Digital Academy - http://www.montanadigitalacademy.org/
Other: Work-based Learning: Business Work Coop (Business Education Instructors, Counselors); Job Shadow (Boeing) and Student Shadow (HC)

	Math	English	Major	Other
Semester 1	M111T Technical Math		WLDG 105 Shop Safety, WLDG 112 Cutting Processes, WLDG 117 Blueprint Reading and Weld Symbols, WLDG 132 Estimating of Job Materials, WLDG 133 GMAW, FCAW, and GMAW-P, WLDG 180 Shielded Metal Arc Welding	

Semester 2			WLDG 131 Intro to Layout and Pattern Making, WLDG 140 Intro Gas Tungsten ARC Welding (GTAW) - Integrated Lab , WLDG 151 Shop Practices , WLDG155 Design and Fabrication, WLDG 160 Rigging for Welders	
Semester 3		WRIT 121T Introduction to Technical Writing	WLDG 217 Advanced Blueprint, WLDG 225 Structural Fabrication, WLDG 230 Field Welding and Processes, WLDG 243 Advanced Metal Fabrication I, WLDG 255 CNC Burn Table Programming and Operation	
Semester 4			WLDG 213 Pipe Welding Lab I, WLDG 244 Advanced Metal Fabrication II, WLDG 245 Metal Fabrication Design and Construction, WLDG 265 MSHA Safety Training	HR 110T Career Development and Human Relations

MONTANA POSTSECONDARY OPPORTUNITIES

*Montana University System Degree and Program Inventory: <http://www.homepage.montana.edu/~mus/drginv/>
Your Guide to Montana's Certificate and Associate Degree Programs: <http://mus.edu/twoyear/YourGuide.html>*

MSU Two Year Colleges and Programs: City College MSUB—Billings (CC); Great Falls College MSU—Great Falls (GFC); Helena College UM—Helena (HC) Highlands College MT Tech—Butte(HC-Tech); Missoula College UM—Missoula (MC); Gallatin College MSU—Bozeman(GC)	Community Colleges: Dawson Community College (DCC) Flathead Valley Community College (FVCC) Miles Community College (MCC)	Tribal Colleges: Aaniiih Nakoda College (ANC);Blackfeet Community College(BCC); Chief Dull Knife College (CDKC);Fort Peck Community College (FPCC);Little Big Horn College (LBHC);Stone Child College (SCC);Salish Kootenai College (SKC)	Four Year Colleges/Universities: MSU—Bozeman; MSUB—Billings; MSUN—Havre; MT Tech—Butte; UM—Missoula; UMW—Dillon
MILITARY	<ul style="list-style-type: none"> 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	
PROFESSIONAL CERTIFICATE	<ul style="list-style-type: none"> Requires diploma or GED Less than 30 credits; little/no general ed credits Complete in one year or less 	Welding Technology — FVCC	
APPRENTICESHIP	<ul style="list-style-type: none"> Requires diploma or GED Must be at least 18 Minimum 2,000 hours of supervised experience 	Electricians Sheet Metal Workers See the MT Dept of Labor website for more information: http://wsd.dli.mt.gov/apprenticeship/default.asp	
CERTIFICATE OF APPLIED SCIENCE	<ul style="list-style-type: none"> Requires diploma or GED 30-45 credits; limited general education credits Complete in one year or less 	Industrial Machine Technology/CNC — FVCC Metals (Fabrication) Technology — CC Machine Tool Technology — HC, UMW Sustainable Energy Technician — CC, HC Tech, GFC, MSUN Water Quality Technology — HC, MSUN Welding Technology — HC, MC, GFC, CC, GC, MSUN, DCC, FVCC, FPCC	
ASSOCIATE'S OF APPLIED SCIENCE DEGREE	<ul style="list-style-type: none"> Requires diploma or GED 60-72 credits; includes 15-25 general ed credits Complete in two years (if prepared academically in math and English) 	Biofuel Energy — MCC Computer-Aided Manufacturing -- HC Electronics Technology — MC Energy Technology — MC Metals (Fabrication)Technology — HC, HC Tech, CC Machine Tool Technology — HC Power Plant Technology — CC Process Plant Technology — CC Sustainable Energy Technician — CC, HC Tech, GFC, MSUN Water Quality Technology — FPCC Welding Technology — HC, MC, CC, FVCC	
BACCALAUREATE DEGREE	<ul style="list-style-type: none"> Requires 4-year college prep for admission 128 credits (approximately) Complete in four years 	Bioengineering — MSU Electrical Engineering — MT Tech, MSU Civil Engineering — MT Tech, MSU Industrial Engineering — MSU Mechanical Engineering —MT Tech MSU Mining Engineering — MT Tech Occupational Safety & Health — MT Tech Welding Engineering — MT Tech Metallurgical & Materials Engineering — MT Tech Petroleum Engineering — MT Tech	

Degree and Program Inventory above may not be all inclusive