


Program: Helena Adult Basic Education		BIG SKY PATHWAY PROPOSAL 
COLLEGE: Helena College		
COLLEGE DEGREE PROGRAM: AAS Industrial Welding & Metal Fabrication		
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

CRITICAL SKILLS PRACTICED IN ADULT LEARNING CENTER

Reading	Concentrate on Technical Reading: Find specific information in a technical manual; learn to read blueprints, diagrams and charts; read step-by-step instructions; determine the meaning of key technical terms; research reasons for safety regulations	Notes
	Applications <i>Read an article in <u>Welding Journal</u> and define terms. Read a safety poster and explain reasons for each rule.</i>	
Writing	Concentrate on Technical Writing Skills: Write step-by-step instructions; reports, orders for materials, and emails.	Notes
	Applications <i>Write an email requesting information about a job</i>	
Mathematics	Concentrate on fractions, temperatures, volumes, measurements, and angles	Notes
	Application <i>Construct a three-dimensional model, calculating angles and fractions</i>	
Other academic skills: Chemistry	Learn properties of hazardous materials used in welding	Notes
	Application <i>Shadow a welding student</i>	
Employability Skills	Get to work on time; communicate orally; keep a work space clean; avoid distractions (like cell phones)	Notes
	Applications <i>Visit a welding shop and ask questions about work expectations</i>	

SUGGESTED TRANSITIONAL COURSES AND EXPERIENCES

College courses: M111T Technical Mathematics; WRIT121T Technical Writing; WLDG 107 (Industrial Safety)

Online courses: M111T Technical Mathematics; WRIT 121T Technical Writing

Other: Job Shadowing and Student Shadowing at Helena College; Working in a Welding Shop

POSTSECONDARY PROGRAM OF STUDY

	Math	English	Major	Other
13th Semester 1	M111T Technical Mathematics (3)		WLDG 107 Industrial Safety (2); WLDG 112, Cutting Processes (3); WLDG 135 GMAW Theory and Practical Application (5); WLDG 181 Shielded Metal Arc Welding (SMAW) Theory and Practical Application (5)	
13th Semester 2			WLDG 117 Blueprint Reading and Weld Symbols (3); WLDG 131 Layout, Metal Forming & and Fabrication (6), WLDG 140 Intro Gas Tungsten ARC Welding (GTAW) - Integrated Lab (3); WLDG 151 Shop Practices (4);	
14th Semester 3		WRIT 121T Introduction to Technical Writing (3)	WLDG 217 Advanced Blueprint (2); WLDG 225 Structural Fabrication (2); WLDG 230 Field Welding and Processes (2), WLDG 243 Advanced Metal Fabrication I (6); WLDG 255 CNC Burn Table Programming and Operation (3)	
14th Semester 4			WLDG 213 Pipe Welding Lab I (5); WLDG 244 Advanced Metal Fabrication II (4); WLDG 245 Metal Fabrication Design and Construction (5); WLDG 265 MSHA Safety Training (1)	HR 100T Human Relations (2)

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 Metals Technology – Helena College Machine Tool Technology – UMW Sustainable Energy Technician – CC, HC Tech, GFC, MSUN Water Quality Technology – HC, MSUN Welding Technology – Helena College, 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 (<i>if prepared academically in math and English</i>) 	Biofuel Energy – MCC Computer-Aided Manufacturing – Helena College Electronics Technology – MC Energy Technology – MC Industrial Welding and Metal Fabrication – Helena College Metals (Fabrication)Technology – Highlands, CC Machine Tool Technology – Helena College Power Plant Technology – CC Process Plant Technology – CC Sustainable Energy Technician – CC, HC Tech, GFC, MSUN Water Quality Technology – FPCC Welding Technology – 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