


HIGH SCHOOL: Capital High School		BIG SKY PATHWAY PROPOSAL 
COLLEGE: Helena College		
COLLEGE DEGREE PROGRAM: Computer-Aided Manufacturing 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	Course/Requirement	Prerequisites	Notes
9th	Graduation Requirements Workforce/2-Year College Prep	English I, Pre Algebra, Math I, Earth Science, World Cultures, Phys Ed1, Elective	Recommended CTE Cluster Foundation Course(s): Industrial Tech, Welding I, Welding and Machining II, Welding and Machining III
	4-Year MT College/Univ Prep (Rigorous Core)		
	CTE and/or Electives	Industrial Technology	Recommended CTE Pathway Courses: Industrial Tech, Welding I, Welding and Machining II, Welding and Machining III
10th	Graduation Requirements Workforce/2-Year College Prep	English 2, Math II, Biology, PE/Health, , Elective, Elective	Other Recommended CTE Courses: Computer Tech Skills Drafting I, Drafting II –Mechanical, CAD, Carpentry, Automotive, Accounting I (DC)
	4-Year MT College/Univ Prep (Rigorous Core)		
	CTE and/or Electives	Welding I	Career & Technical Student Organization(s): Skills USA
11th	Graduation Requirements Workforce/2-Year College Prep	English 3, Math III, M111T Technical Math (DC) , Pre-Calculus, Chemistry, US History, Elective, Elective, Elective	Career & Technical Student Organization(s): Skills USA
	4-Year MT College/Univ Prep (Rigorous Core)		
	CTE and/or Electives	Welding and Machining II;	
12th	Graduation Requirements Workforce/2-Year College Prep	English 4, WRIT101 College Writing (DC) , WRIT 121T Technical, M111T Technical Math (DC) , Physics, US Government, Elective, Elective, Elective	Career & Technical Student Organization(s): Skills USA
	4-Year MT College/Univ Prep (Rigorous Core)		
	CTE and/or Electives	Welding and Machining III - Certifications Available HAAS Milling Level II, NIMS CNC Milling Level 1, CNC Mill Operator	

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); WLDC 112 Cutting; MACH 234 Milling Operations I
Online courses: Montana Digital Academy - http://www.montanadigitalacademy.org/
Other: Work-based Learning: Business Work Coop (Business Education Instructors, Counselors) Job Shadowing (Boeing) Student Shadowing (HC)

POSTSECONDARY PROGRAM OF STUDY

	Math	English	Major	Other
Semester 1	M111T Technical Mathematics, 3cr		MCH120 Blueprint Reading and Interpretation for Machining, 2cr; MCH130 Machine Shop, 3cr; MCH132 Introduction to Engine Lathes, 5cr; MCH134 Intro to Mills, 5cr	
Semester 2			MCH136 Advanced Lathes, 5cr; MCH137 Advanced Mills, 5cr; MCH139 Grinding Applications 2cr; MCH240 Metallurgy, 1cr; MCH246 Shop Practices, 2cr	

Semester 3		WRIT121T Introduction to Technical Writing	MCH230 Tooling and Fixtures in CNC, 2cr; MCH231 CNC Turning Operations Level 1, 3cr; MCH232 CNC Turning Programming Operations 2, 3cr; MCH234 Milling Operations Level 1, 3cr; MCH236 CNC Millings Programming Operations 2, 3cr	
Semester 4			MCH233 CNC Turning Programming Operations 2, 3cr; MCH236 CNC Milling Programming Operations 3, 3cr; MCH237 CAD/CAM CNC turning Center, 5cr; MCH238 CAD/CAM CNC Machining Center, 5 cr	HR110T Career Development and Human Relations, 3cr

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 (<i>if prepared academically in math and English</i>) 	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
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Degree and Program Inventory above may not be all inclusive