

Program of Study –Engineering, Manufacturing & Technology Pathway:
Career Field- Engineering, Manufacturing, & Technology
Career Cluster- Manufacturing
Career Pathway- Manufacturing Production



District Name MID-MINNESOTA PERKINS PARTNERSHIP MASTER TEMPLATE

	9 th Grade	10 th Grade	11 th Grade	12 th Grade
Required Courses	English 9	English 10	English 11	English I2 or Advanced Composition
	Geometry 9	Advanced Algebra 10	Trigonometry, Pre-calculus, Statistics	Pre-calculus or Applied Math
	Biology 9 or Earth & Space Science	Human Science	Chemistry	Physics or Environmental Studies
	Civics/Government	World History	American History	Political Science, Economics, Geography
	Health 9 , PE 9 & Music, Art	Health 10, PE 10 & Music, Art		
General and other Technical Courses	Career Investigation	Personal Finance Computer Applications	Advanced Biology Computer Programming Project Lead the Way courses: -Principles of Engineering -Intro to Engineering Design -Digital Electronics -Computer Integrated Manufacturing Trigonometry Welding	Advanced Biology Computer Programming Project Lead the Way courses: -Principles of Engineering -Intro to Engineering Design -Digital Electronics -Computer Integrated Manufacturing Technical Writing Trigonometry Welding
	College Credit Courses through the high school			
			Basic AutoCAD (ACC) Basic Lathe (ACC) Basic Milling (ACC) Basic Shop I (ACC) Basic Shop Math (ACC) Bench-Saws-Drilling (ACC) Cabinet Making (ACC) Drafting Basics (ACC) Framing (ACC) Machine Trades Print Reading (ACC) Parametric Design (ACC) Tool & Construction Safety (ACC)	Basic AutoCAD (ACC) Basic Lathe (ACC) Basic Milling (ACC) Basic Shop I (ACC) Basic Shop Math (ACC) Bench-Saws-Drilling (ACC) Cabinet Making (ACC) Drafting Basics (ACC) Framing (ACC) Machine Trades Print Reading (ACC) Parametric Design (ACC) Tool & Construction Safety (ACC)
	GRAD Test of Written Composition	MCA-II Reading	MCA-II Mathematics MCA-II Science	
College Credit Legend: AP- Advanced Placement, ACC-Articulated College Credit, GEC-General Ed Concurrent, TC-Technical Concurrent				

This program of study should serve as a guide, along with other career planning materials, for students to plan for their courses and education. Courses listed within this program are only recommended coursework and should be individualized to meet each learner's educational and career goals. Any plans made by students should be confirmed to meet high school graduation requirements as well as college entrance requirements. The information on this document should not be regarded as contractual in nature.

Enhanced Learning (Optional)	High School	Community & Technical College
Work-based Learning & Service Learning, College Preparation or Career & Technical Student Organizations	Super-mileage Vehicle, Real World Design Challenge, Science Olympia, Tech Challenge, Science Fairs, Robot Challenges, Career Fairs	Career Fairs, Career Visit Days, Welding Competitions, Skills Fest, Student Clubs, Work Internship experiences, Skills USA

College/University Programs			
College Name(s)	Program Name	University Name(s)	Bachelor Degree
Ridgewater College-	15.130600- CAD Technician (certificate) 15.130600- Computer Aided Drafting & Design – diploma, AAS 15.040300-Automated Systems Engineering Technology –certificate, diploma, AAS 15.030300-Electronics Technician – diplomas, AAS 15.040400 –Measurement Sciences Technology /Process Controls– diplomas, AAS 15.040401- Calibration Engineering Technology – Certificate, diploma, AAS 15.040402-Nondestructive Testing Technology – AAS 15.040403- Aviation Maintenance/NDT-certificate, diploma 15.040404-Nondestructive Testing Technology – diploma 15.040402- Process Controls Technician/Technology – certificates, diplomas	-Metropolitan State University -Bemidji State University -Minnesota State University- Moorhead	Bachelor's of Applied Science Degree BAS– Technology Management BAS- Applied Engineering (BSU)

Short-term Training Certification Options		
	High School	Community and Technical College
Industry Certifications, Licenses, & Third-party Assessments	PLTW assessment, A+ certification	American Society of Nondestructive Testing Automated Systems Engineering (certificate) Calibration Engineering Technology (certificate) CCNA certification, A+ certification, IPC certification

Minnesota Occupations Related to the Pathway & Training Levels			
One year post-secondary or less	Community & Technical College Diploma or Associate Degree	University Bachelor Degree	University Master Degree
	CAD Technician CNC Operator Machine Operator Electronics Technician Manufacturing Technician Fluid Power Technician Welder	Manufacturing Engineer Production Engineer Purchasing Agent Industrial Engineer Electronics Engineer Electrical Engineer	Engineers: mechanical, electrical, design