North Career Paths
Career Pathway Chart

Career Cluster: Engineering & Applied Mathematics

Career Pathway: Engineering

HIGH SCHOOL	
EXPLORER COURSES: Choose one or more of the following courses to see if this would be a career you would enjoy.	
Engineering Essentials	Introduction to Engineering Design (strong in math)
CONCENTRATOR COURSES: Completed after an Explorer course. Helps you discover what area of the field you would like to specialize in.	
Principles of Applied Engineering	Computer Integrated Manufacturing (coming soon)
Aerospace Engineering	Civil Engineering & Architecture (coming soon)
Aerospace Engineering Lab	Digital Electronics (coming soon)
COMPLETER COURSES: Must have completed an Explorer and a Concentrator course before taking this course.	
Engineering Design & Development	

PATHWAY SEQUENCE: Suggested order of courses.			
9th Grade	**10th Grade**	**11th Grade**	**12th Grade**
Introduction to Engineering Design	Principles of Applied Engineering	Aerospace Engineering + Aerospace Lab	Engineering Design & Development
Engineering Essentials	Computer Integrated Manufacturing (coming)	Civil Engineering & Architecture (coming soon)	Digital Electronics (coming soon)
SUPPORTING COURSES: Courses outside of the pathway that would be very helpful in your career.			
Intro to Industrial Tech	Prod. Blueprint Reading	Precalculus	Calculus
Hand & Power Tools	Aviation Fundamentals	AP Physics 1	AP Physics 2

STUDENT ORGANIZATION OPPORTUNITIES	
Society of Hispanic Professional Engineers (SHPE)	Contact: Mr. Owen (F305)
Robotics	Contact: Mrs. Carson (F304)
CERTIFICATION & COLLEGE CREDIT OPPORTUNITIES	
Introduction to Engineering Design (WSU)	CATIA (WSU Tech Block)
Aerospace Engineering Lab (WSU Tech)	Aircraft Maintenance (WSU Tech Block)
Engineering Design & Development (WSU)	Industrial Automation (WSU Tech Block)

HIGH SCHOOL TO POSTSECONDARY EDUCATION & TRAINING

There are several options for education and training beyond high school, depending on your career goals.

COLLEGE 1 2 4 or more	**1 - Year** Certificate Avg. Salary: $41,000	**2 - Year** Assoc. or Tech. Degree Avg. Salary: $61,700	**4 - Year** Bachelor's Degree Avg. Salary: $95,600
	➢ Machine Operator ➢ Production Tech **Local Institutions** ➢ WSU Tech: Engineering Design Technology, AutoCAD, CATIA Mechanical Engineering Design, Introduction to Manufacturing, NC Programmer, Robotics, Welding, Nondestructive Testing, Machining Technology, HVAC, Industrial Automation, Automotive Service Technology, Construction Science, Logistics & Supply	➢ Engineering Technician ➢ Mechanical Drafter ➢ Mechanical Engineering Tech ➢ Avionics ➢ Aircraft Maintenance **Local Institutions** ➢ Butler: Pre-Engineering Degree & Engineering Technology Degree ➢ Cowley: Pre-Engineering Transfer Pathway (AS) ➢ WSU Tech: Engineering Design Technology (AAS)	➢ Aerospace Engineer ➢ Civil Engineer ➢ Electrical Engineer ➢ Mechanical Engineer ➢ Industrial Engineer ➢ Chemical Engineer **Local Institutions** ➢ WSU: Aerospace, Biomedical, Mechanical, Electrical & Computer Engineering, Industrial Systems and Manufacturing Engineering Technology ➢ Friends: Mechanical Engineering

Career Cluster: Engineering & Applied Mathematics

Career Pathway: Engineering

Course Descriptions

Engineering Essentials () – 1 year
Explore global engineering challenges and sustainability goals, the impact of engineering, and the variety of career paths available to them.

Introduction to Engineering Design (7041/7042) – 1 year
Learn the engineering design process, applying math, science, and engineering standards to hands-on projects. While working both individually and in teams to design solutions to a variety of problems using 3D modeling software and documenting in an engineering notebook.

Principles of Applied Engineering (7251F/7252F) – 1 year
Explore a broad range of engineering topics, including mechanisms, the strength of structures and materials, and automation. Develop skills in problem solving, research, and design needed for presentation, collaboration, and design process documentation

Aerospace Engineering - 1 year
Learn the fundamentals of atmospheric and space flight. Explore the physics of flight by bringing the concepts to life by designing an airfoil, propulsion system, and rockets while learning basic orbital mechanics using industry-standard software.

Aerospace Engineering Lab - 1 year
Apply what is being taught in Aerospace Engineering by building a FAA certified kit plane under the mentorship of local Aerospace engineers while receiving credit through WSU Tech.

Engineering Design and Development (7043/7044) – 1 year
Prerequisite: Intro to Engineering Design and Principles of Engineering. This course involves two-to four-person teams that research an open-ended problem and then design and construct a solution to it, submitting progress reports and a final research paper, then defend the solution with an oral presentation.

CATIA (WSU Tech Block)
Drawings include technical details and specify dimensions, materials, and procedures. Drafters fill in technical details using drawings, rough sketches, specifications, and calculations made by engineers or scientists. Engineering Designs in Wichita earn an average of $29.08 per hour.

Aviation Maintenance (WSU Tech Block)
The Aviation Maintenance Technology program meets the requirements for students to take the exam for the airframe and power plant mechanic certificate which authorizes the holder to approve aircraft that has undergone inspection or maintenance "for return to service". This curriculum is approved by the Federal Aviation Administration. A&P Mechanics in Wichita earn an average of $28.98 per hour.

Industrial Automation (WSU Tech Block)
Learn how to analyze, troubleshoot, and align mechanical and automated industrial machinery. Program course work includes electronics, industrial wiring, motor controls, programmable logic controls, manufacturing automation concepts and robotics. Average wages for this career are $22 per hour.

Computer Integrated Manufacturing - 1 year (coming soon)
This course illuminates the opportunities related to understanding manufacturing. Learning about manufacturing processes, product design, robotics, and automation. Being able to earn a virtual manufacturing badge recognized by the National Manufacturing Badge system.

Civil Engineering and Architecture - 1 year (coming soon)
Learn important aspects of building and site design and development. Apply math, science, and standard engineering practices to design both residential and commercial projects and document work using 3D architecture design software.

Digital Electronics - 1 year (coming soon)
From smartphones to appliances, digital circuits are all around us. Study topics such as combinational and sequential logic and are exposed to circuit design tools used in industry, including logic gates, integrated circuits, and programmable logic devices.