



## Career Cluster: Architecture & Construction

### Career Pathway: Architecture & Construction

HIGH SCHOOL			
<b>EXPLORER COURSES:</b> Choose one or more of the following courses to see if this would be a career you would enjoy.			
Introduction to Industrial Technology (1 semester)	Hand & Power Tools (1 semester)		
Engineering Essentials (1 year)	Introduction to Engineering Design (strong in math)		
<b>CONCENTRATOR COURSES:</b> Completed after an Explorer course. Helps you discover what area of the field you would like to specialize in.			
Principles of Applied Engineering (1 year)	Computer Integrated Manufacturing (coming soon)		
Civil Engineering & Architecture (coming soon)			
<b>COMPLETER COURSES:</b> Must have completed an Explorer and a Concentrator course before taking this course.			
Engineering Design & Development			
<b>PATHWAY SEQUENCE:</b> Suggested order of courses.			
<b>9<sup>th</sup> Grade</b>	<b>10<sup>th</sup> Grade</b>	<b>11<sup>th</sup> Grade</b>	<b>12<sup>th</sup> Grade</b>
Engineering Essentials	Introduction to Engineering Design	Principles of Applied Engineering	Engineering Design & Development
Intro to Industrial Tech/ Hand & Power Tools	Prod. Blueprint Reading	Civil Engineering & Architecture (coming soon)	Construction Science (WSUTech Block)
<b>SUPPORTING COURSES:</b> Courses outside of the pathway that would be very helpful in your career.			
Aerospace Engineering & Lab (Plane Build)	Prod. Blueprint Reading	Precalculus	Calculus
Computer Integrated Manufacturing (coming)	Essentials of Interior & Textile Design	AP Physics 1	AP Physics 2
<b>STUDENT ORGANIZATION OPPORTUNITIES</b>			
Society of Hispanic Professional Engineers (SHPE)		Contact: Mr. Owen (F305)	
<b>CERTIFICATION &amp; COLLEGE CREDIT OPPORTUNITIES</b>			
Introduction to Engineering Design (WSU)		Construction Science (WSU Tech Block)	
Engineering Design & Development (WSU)		Climate & Energy Control Technologies-HVAC (WSUTech Block)	
Industrial Automation (WSU Tech Block)		CATIA (WSU Tech Block)	
<b>HIGH SCHOOL TO POSTSECONDARY EDUCATION &amp; TRAINING</b>			
There are several options for education and training beyond high school, depending on your career goals.			
	<b>1 - Year Certificate</b> Avg. Salary: \$35,100	<b>2 - Year Assoc. or Tech. Degree</b> Avg. Salary: \$54,500	<b>4 - Year Bachelor's Degree</b> Avg. Salary: \$83,700
	<ul style="list-style-type: none"> <li>➤ Construction Laborer</li> <li><b>Local Institutions</b></li> <li>➤ On the job training</li> <li>➤ WSUTech: Carpentry, Climate &amp; Energy Control Technologies (HVAC), Chief Architect, Architectural Design Technology</li> </ul>	<ul style="list-style-type: none"> <li>➤ Heating, Air, &amp; Refrigeration Mechanics &amp; Installers</li> <li>➤ Supervisors of Construction Workers</li> <li>➤ Architectural &amp; Civil Drafter</li> <li><b>Local Institutions</b></li> <li>➤ Butler: Pre-Engineering Degree &amp; Engineering Technology Degree, Construction Technology</li> <li>➤ Cowley: Pre- Engineering Transfer Pathway (AS)</li> <li>➤ WSUTech: Construction Science, Climate &amp; Energy Control Technologies (HVAC), Architectural Design Technology</li> </ul>	<ul style="list-style-type: none"> <li>➤ Architect</li> <li>➤ Civil Engineer</li> <li>➤ Electrical Engineer</li> <li>➤ Industrial Engineer</li> <li>➤ Construction Manager</li> <li><b>Local Institutions</b></li> <li>➤ WSU: Engineering Technology-Civil Engineering, Electrical Engineering, Industrial Systems and Manufacturing</li> <li>➤ K-State: Architectural Engineering, Construction Science &amp; Management</li> <li>➤ Pitt State: Construction Engineering, Construction Management, Construction Tech</li> </ul>



**Career Cluster: Engineering, Architecture, & Construction**  
**Career Pathway: Architecture & Construction**

**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

**Civil Engineering and Architecture- 1 year (coming soon)**

Learn important aspects of building and site design and development including building components and systems, structural design, storm water management, site design, utilities and services, cost estimation, energy efficiency, and careers in the design and construction industry. Document work using 3D architecture design software.

**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.

**Construction Science (WSUTech Block)**

The Carpentry program prepares students in the basic skills necessary for all occupations in construction. Students begin their study in nine modules, which include: safety; math; materials; hand and power tools; construction drawings; basic rigging; communication; and employability skills. Students then advance to courses which provide hands-on application of technical knowledge and skills. The average wage in Wichita for this profession is \$20.96 per hour.

**Climate & Energy Control Technologies-HVAC (WSUTech Block)**

This program teaches students how to install heating, ventilation and air conditioning in newly built homes, facilities, structures and maintain those currently in use. Heating and Air Conditioning technicians can earn an average of \$23 an hour.

**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.