# High School to College and Career Pathway: Secondary

Area of Study: Technology and Engineering Education

## Pathway: Pre-Engineering
## (Utah Pre-Engineering Program)

| Middle School | | State Requirements | | | High School Suggested Education Plan | | | | College & Careers |
|---|---|---|---|---|---|---|---|---|---|
| 7th Grade → | 8th Grade → | Middle School | | High School | 9th Grade Suggested → | 10th Grade Suggested → | 11th Grade Suggested → | 12th Grade Suggested → | |
| Language Arts 7 1.00 | Language Arts 8 1.00 | 2.00 | Language Arts | 4.00 | Language Arts 9 1.00 | Language Arts 10 1.00 | Language Arts 11 1.00 | Language Arts 12 1.00 | |
| Math 7 1.00 | Pre-Algebra 1.00 | 2.00 | Math | 3.00 | Elem Algebra or Applied Math 1.00 | Geometry or Applied Math II 1.00 | Intermediate Algebra 1.00 | Pre-Calculus 1.00 | |
| Science .50 | Science 1.00 | 1.50 | Science | 3.00 | Earth Systems 1.00 | Biology 1.00 | Physics 1.00 or Physics with Technology 1.00 | Chemistry 1.00 | |
| Utah Studies .50 | U.S. History I 1.00 | 1.50 | Social Studies | 2.50 | Geography for Life .50 | World Civilizations .50 | U.S. History II 1.00 | U.S. Government and Citizenship .50 | |
| P.E. 1.00 | Health .50 | 1.50 | P.E./Health | 2.00 | Participation Skills and Techniques .50 | Fitness for Life .50 / Health Education .50 Lifetime Activities or Sport .50 | | | |
| The Arts .50 | The Arts .50 | 1.00 | Fine Arts | 1.50 | Fine Arts Courses 1.50 | | | | |
| | | | Financial Literacy | .50 | | | Financial Literacy .50 | | |
| Keyboarding .50 | | | Computer Tech. | .50 | Computer Technology .50 | | | | |
| CTE Intro 1.00 | Exploring Technology .50 | 1.00 | Career and Technical Education | 1.00 | | | | | |

### *Workforce Trends*

Due to the expansion of jobs in the technical fields and the increasing numbers of engineers who are retiring, the number of job openings in technology and engineering is increasing. There is a critical shortage of engineers and engineering technologists entering the field at a time when technology is reinvenging itself every few years.

### *Get the Facts*

In Utah, an engineer, professional or structural, must be licensed.

Core Curriculum and elective requirements may vary district to district. Check with your school counselor.

Concurrent enrollment course offerings vary by school and district.

### Career and Technical Education Recommended Pathway Courses

(Students may select individual courses for exploration, or a complete Pathway for an in-depth focus.)

**CLASS AVAILABILITY MAY VARY AT YOUR HIGH SCHOOL**

| Course # | Foundation Courses: (required) | Credit | |
|---|---|---|---|
| 21.0115 | Engineering Design | .50 | 2.00 credits |
| 21.0114 | Pre-Engineering | 1.00 | |
| 21.0116 | Materials & Processes | .50 | |
| | **Elective Courses:** | | 1.00 credits |
| 21.0104 | Foundations of Technology | .50 | |
| 21.0200 | Energy Foundations | .50 | |
| 20.0112 | Advanced Technology | .50 | |
| 48.0101 | Drafting/CAD | 1.00 | |
| 47.0105 | Electronics | 1.00 | |
| 14.3101 | Material Science | 1.00 | |
| 32.0199 | Student Internship (Critical Workplace Skills) | .50 | |

3.00 credits for completion

Many Utah post-secondary programs accept high school courses toward a two- or four-year degree through concurrent enrollment. Check regional post-secondary Pathways for details.

## Beyond High School

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

> Certificate
> Associate degree
> Bachelor's degree
> Professional degree
> On-the-job training
> Apprenticeship
> Military training

**Pre-Engineering is:**

> High skill
> High wage
> High demand
> Nontraditional for females

## Sample Occupations

> Civil Engineer
> Civil Engineering Technician
> Electrical Engineer
> Technology and Engineering Education Teacher
> Mechanical Engineer
> Mechanical Engineering Technician

For more information on salary projections, labor market demand, and training options, visit www.utahfutures.org.

***Note:*** *For more information, talk to your school counselor.*

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