



Program of Study: Pre-Engineering Associate of Science

Career Pathway: Engineering

Secondary Partner:

Program Name:

CIP:

Program ID:

Post-secondary Partner: Trinidad State College

Program Name: Pre-Engineering Associate of Science

CIP:

Program ID:

Secondary Program Description: The Pre-Engineering Program at Trinidad State College is expertly designed to equip students with the foundational knowledge and skills required to complete the lower-division (freshman and sophomore) coursework for a Bachelor of Science (BS) degree in engineering. This transfer course list is specific to Colorado School of Mines – other schools may differ. Talk to your advisor to ensure the courses you’re taking will transfer to your school of choice.	
Career and Technical Courses	Possibilities of careers, and demand relating to this Pathway
State Graduation Requirements: www.cde.state.co.us/postsecondary/graduationguidelines	
<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold; padding-right: 5px;">High School/Secondary</div> <ul style="list-style-type: none"> PHY 211 Physics: Calculus-based I (GT-SC1) CHE 111 General College Chemistry I with Lab (GT-SC1) MAT 201 Calculus I (GT-MA1) MAT 202 Calculus II (GT-MA1) MAT 203 Calculus III (GT-MA1), or MAT 204 (PREFERRED) Calculus III with Engineering Applications (GT-MA1) MAT 261 Differential Equations with Engineering Applications (GT-MA1), or MAT 265 Differential Equations (GT-MA1) Up to 6 hours of 200-level GT-HI1, GT-AH1, GT-AH2, GT-AH3 or GT-SS1, GT-SS2, or GT-SS3 and 100-level courses World Language courses will fulfill mid-level humanities and social sciences requirements BIO 111 General College Biology I with Lab (GT-SC1) BIO 112 General College Biology II with Lab (GT-SC1) CHE 112 General College Chemistry II with Lab (GT-SC1) GEY 111 Physical Geology with Lab PHY 212 Physics: Calculus-based II (GT-SC1) CSC 160 Computer Science I (Language) CSC 161 Computer Science II (Language) CAD 101 Computer Aided Drafting I CAD 102 Computer Aided Drafting II CAD 201 CAD/Custom CAD 202 Computer Aided Drafting/3D COM 115 Public Speaking (Free Elective Only) </div>	<p>Possibilities of Careers: 11-9041.00: Architectural and Engineering Managers 17-2199.03: Energy Engineers 25-1032.00: Engineering Teachers, Postsecondary 17-2071.00 - Electrical Engineers 17-2141.00 Mechanical Engineers 17-3011.01 Architectural Drafters</p> <p>Employment Demand and Wage Data: Jobs for 2019 Colorado Central Planning Region (CCPR) Architectural & Engineering increased by 4,123 jobs (10%) from 2014-2019, outpacing the national growth rate of 7.4%. The industries are projected to increase by 4,632 jobs (10.2%) from 2019-2024, outpacing the national growth rate of 5.9%. Regional job concentration for 2019 CCPR architectural & Engineering is 1.96 times the national job concentration. In other words, there are 96% more jobs at 2019 CCPR Architectural & Engineering in this region than we would expect to find in the average region. The cost of labor in the region is above average. The regional earnings per job for 2019 CCPR Architectural & Engineering is \$113K, which is \$9.9K above the national average of \$103K. (Source: A/D WORKS! http://www.adworks.org/images/uploads/general-img-pdf/Engineering_Profile_2.20_WEB.pdf) -Employment of mechanical engineers is projected to grow 9 percent from 2016 to 2026; Prospects for mechanical engineers overall are expected to be good. They will be best for those with training in the latest software tools, particularly in computational design and simulation. Such tools allow engineers and designers to take a project from the conceptual phase directly to a finished product, eliminating the need for prototypes. (Source: LMI Gateway) -Overall employment of drafters is projected to grow 7 percent from 2016 to 2026; Candidates proficient in CAD and BIM are likely to have better job opportunities. (Source: LMI Gateway) -Overall employment of electrical and electronics engineers is projected to grow 7 percent from 2016 to 2026; The rapid pace of technological innovation will likely drive demand for electrical and electronics engineers in research and development, an area in which engineering expertise will be needed to design distribution systems related to new technologies.</p>

	Related Industry Certifications/Credential(s) offered through program:	Work-based Learning offered through program: Career Research Cooperative Education Job Shadowing	
	Advanced Credit Options Key: Notate above which course has an articulation agreement or concurrent enrollment. AA – Course is approved for Articulation Agreement CE – Course is offered as Concurrent Enrollment	CTSO organization(s): <input type="checkbox"/> DECA <input type="checkbox"/> FBLA <input type="checkbox"/> FCCLA <input type="checkbox"/> FFA <input type="checkbox"/> CCSA <input type="checkbox"/> HOSA <input type="checkbox"/> SkillsUSA <input type="checkbox"/> TSA <input type="checkbox"/> SC ²	

POSTSECONDARY CREDENTIALS				
Postsecondary	Certificate(s) offered through program:	Associate Degree(s) offered through program:	Bachelor's Degree(s) program aligns to:	Advanced Degree(s) program aligns to:
		Engineering Transfer AS	Engineering BS	Engineering MS, PhD
	Postsecondary Program Description:			

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Program Requirements for Entry:

<http://www.trinidadstate.edu/admissions>

CTE Courses

Required Courses

- PHY 211 Physics: Calculus-based I (GT-SC1)
- CHE 111 General College Chemistry I with Lab (GT-SC1)
- MAT 201 Calculus I (GT-MA1)
- MAT 202 Calculus II (GT-MA1)
- MAT 203 Calculus III (GT-MA1), or MAT 204 (PREFERRED) Calculus III with Engineering Applications (GT-MA1)
- MAT 261 Differential Equations with Engineering Applications (GT-MA1), or MAT 265 Differential Equations (GT-MA1)
- Up to 6 hours of 200-level GT-HI1, GT-AH1, GT-AH2, GT-AH3 or GT-SS1, GT-SS2, or GT-SS3 and 100-level courses World Language courses will fulfill mid-level humanities and social sciences requirements

Elective Courses

- BIO 111 General College Biology I with Lab (GT-SC1)
- BIO 112 General College Biology II with Lab (GT-SC1)
- CHE 112 General College Chemistry II with Lab (GT-SC1)
- GEY 111 Physical Geology with Lab
- PHY 212 Physics: Calculus-based II (GT-SC1)
- CSC 160 Computer Science I (Language)
- CSC 161 Computer Science II (Language)
- CAD 101 Computer Aided Drafting I
- CAD 102 Computer Aided Drafting II
- CAD 201 CAD/Custom
- CAD 202 Computer Aided Drafting/3D
- COM 115 Public Speaking (Free Elective Only)

District/College Review

Secondary Partner

Print Name:

Title:

Signature:

Date:

Postsecondary Partner

Print Name:

Title:

Signature:

Date: