

STEM School Highlands Ranch P-TECH Policy

Pathways in Technology Early College High Schools (P-TECH) is an innovative partnership between a school district, a community college, and one or more local high growth industry employers. Students begin as early as ninth grade and continue for up to six years (i.e. high school and two equivalent years of college). Students graduate with both a high school diploma and an industry-recognized associate degree, in addition to gaining relevant workplace skills.

The P-TECH pathways that are offered at STEM are Robotics and Automation (formerly Mechatronics) and Cybersecurity. Robotics and Automation is a synergetic integration of mechanical, electrical, control, automation, robotics, computer system for industry and computer engineering technologies. Cybersecurity prepares students to access the security needs to computer and network systems, recommend safeguard solutions, and manage the implementation and maintenance of security devices, systems and procedures.

STEM School Highlands Ranch will pay the tuition portion of that college education that is outlined in the P-TECH pathway. Families are responsible for books and fees, as well as courses that are not outlined in the P-TECH pathway. Families must reimburse the school for any course not successfully completed (grade of “F”, “I”, or “W”).

To qualify for the P-TECH Program, students must:

1. Be in 9th, 10th, 11th, or 12th grade
2. Be enrolled in P-TECH program by the beginning of 11th grade
3. Have a social maturity to excel in a college environment
4. Receive a minimum score on the ACT, SAT, or Accuplacer as needed
5. Complete all portions of the P-TECH application and submit the completed application to the P-TECH navigator by the published deadlines
6. Be enrolled in available P-TECH courses
7. Be enrolled in the College Opportunity Fund

Good Standing

Student has at least a cumulative GPA of 2.0 (college GPA), has completed (passed) at least 67% of attempted credits and has not exceeded 150% of the program’s total credits.

Failure to maintain “good standing” at the institute of higher learning may make a student ineligible for financial aid until the student repairs his or her academic status.

Credit Equivalency

Students completing college-level concurrent enrollment college level courses with a grade of C- or higher will be awarded credit equivalency as follows.

1 semester credit	.5 year high school credit
2-3 semester credits	1 year high school credit
4 semester credits	1.5 years high school credit
5 semester credits	2 years high school credit

Mechatronics Engineering Technology Academic Plan

Full-time track at ACC (years 5 and 6)

<i>Year 1: Fall</i>	
ENG 121 – English composition OR ENG 131- Technical Writing Prereqs: CCR 092 (or higher) or equivalent .	3
MAT 108 or higher – Technical Math or higher	4
OSH 117 – 10 HR OSHA Voluntary Compliance Prereqs: None	1
EIC 102– Electrical Print Reading Prereqs: None	4
ELT 106 – Fundamentals of AC/DC Prereqs: None	4
Semester Credits	16

<i>Year 1: Spring</i>	
PHY 105 - Conceptual physics OR PHY 112 – Physics Algebra-based II OR PHY 212 – Physics: Calculus-based II	4-5
BUS 121 – Basic Workplace Skills Prereqs: None	1
ELT 254 – Industrial Wiring Prereqs: ELT 106, EIC 102	3
ELT 252 – Motors and Controls Prereqs: ELT 106	3
ELT 255 – Fluid Power Prereqs: None	3
Semester Credits	14-15

<i>Year 2: Fall</i>	
ELT 267 - Introduction to Robotics Prereqs: ELT 106	1
CAD 255 – Solidworks/Mechanical Prereqs: None	3
ELT 248 - Automation Control Circuits Prereqs: ELT 106	3
ELT 258 – Programmable Logic Controllers Prereqs: ELT 106, ELT 252	3
IMA 120 – Industrial Rotating Equipment Preg: PHY 105 OR PHY 112 – Physics Algebra-based II OR PHY 212 – Physics: Calculus- based II	3
PHI 113 – Logic Prereqs: CCR 092 (or higher) or equivalent .	3
Semester Credits	16

<i>Year2: Spring</i>	
ELT 268 – Robotics Technologies Prereqs: ELT 106, ELT 267	3
ELT 259 – Advanced Programmable Logic Controllers Prereqs: ELT 258	3
Department Approved Elective See below	3
Department Approved Elective See below	3
ELT 280 – Internship Prereqs: ELT 254, ELT 252, ELT 255	3
Semester Credits	15

Part-time track at ACC (years 5, 6 and 7)

<i>Year 1: Fall</i>	
EIC 102– Electrical Print Reading	3
MAT 108 or higher – Technical Math or higher	4
ELT 106 – Fundamentals of AC/DC	4
Semester Credits	11

<i>Year 1: Spring</i>	
PHY 105 – Conceptual Physics	4
ELT 254 – Industrial Wiring	3
ENG 121 – English composition	3
BUS 121 – Basic Workplace Skills	1
Semester Credits	11

<i>Year 2: Fall</i>	
OSH 117 – 10 HR OSHA Voluntary Compliance	1
ELT 267 - Introduction to Robotics	1
CAD 255 – Solidworks/Mechanical	3
ELT 248 - Automation Control Circuits	3
Semester Credits	9

<i>Year 2: Spring</i>	
Department Approved elective	3
Department Approved Elective	3
ELT 252 – Motors and Controls	3
ELT 255 – Fluid Power	3
Semester Credits	12

<i>Year 3: Fall</i>	
ELT 258 – Programmable Logic Controllers	3
IMA 120 – Industrial Rotating Equipment	3
PHI 113 - Logic	3
Semester Credits	9

<i>Year 3: Spring</i>	
ELT 268 – Robotics Technologies	3
ELT 259 – Advanced Programmable Logic Controllers	3
ELT 280 - Internship	3
Semester Credits	9

Department Approved Electives

MTE 244 – Lean Manufacturing. Prereqs: MAT 108 or Higher

PRO 230 - Quality in Process Technology. Prereqs: MAT 108 or Higher

CAD 262 – 3D Printing. Prereqs: [CAD 115](#) , or [CAD 202](#) , or [CAD 240](#) , or [CAD 255](#) with a grade of “C” or better

Cybersecurity Academic Plan

RECOMMENDED COURSE SEQUENCE FULL-TIME TRACK

Year 1: Fall

- 3 Credits, CNG 124 - Networking I: Network + (3 Cr.)
- 3 Credits, CSC 119 - Introduction to Programming (3 Cr.)
- 3 Credits, ENG 121 - English Composition I: GT-CO1 (3 Cr.)
- 3 Credits, PHI 113 - Logic: GT-AH3 (3 Cr.)

Year 1: Spring

- 1 Credits, BUS 121 - Basic Workplace Skills (1 Cr.)
- 3 Credits, CIS 220 - Fundamentals of UNIX (OR CIS 315 - UNIX Operating System: CSU Course**)
- 3 Credits, CIS 232 - Unix Shell Programming OR CSC 160 - Computer Science I
- 3 Credits, CNG 125 - Networking II: Network + (3 Cr.)
- 3 Credits, CNG 132 - Network Security Fundamentals (3 Cr.)
- 4 Credits, MAT 121 - College Algebra: GT-MA1 or Higher

Year 2: Fall

- 3 Credits, BUS 226 - Business Statistics (3 Cr.)
- 3 Credits, CNG 202 - Unix/Linux Server Admin (3 Cr.)
- 4 Credits, CNG 212 - Configuring Windows Server (OR CIS 401 - Network Systems Administration: CSU Course**)
- 3 Credits, CNG 253 - Firewalls and How They Work (3 Cr.)
- 3 Credits, CNG 256 - Vulnerability Assessment I (3 Cr.)

Year 2: Spring

- 3 Credits, BUS 217 - Business Communication & Report Writing (3 Cr.)
- 3 Credits, CIS 287 - Cooperative Education (3 Cr.)

- 4 Credits, CNG 258 - Digital Forensics (OR CIS 462 - Computer Forensics: CSU Course**)
- 4 Credits, CNG 259 - Enterprise Security (4 Cr.)
- 4 Credits, Restricted Elective
 - ~Recommended Restricted Elective(s)~
 - § CIS 461 - Management of IT Security Risk (CSU Course**)
 - § CSC 160 - Computer Science I* (4 Cr.)

RECOMMENDED COURSE SEQUENCE PART-TIME TRACK

Year 1: Fall

- 3 Credits, CNG 124 - Networking I: Network + (3 Cr.)
- 3 Credits, CSC 119 - Introduction to Programming (3 Cr.)
- 3 Credits, ENG 121 - English Composition I: GT-CO1 (3 Cr.)

Year 1: Spring

- 3 Credits, CIS 220 - Fundamentals of UNIX (OR CIS 315 - UNIX Operating System: CSU Course**)
- 3 Credits, CIS 232 - Unix Shell Programming OR CSC 160 - Computer Science I
- 4 Credits, MAT 121 - College Algebra: GT-MA1 or Higher

Year 1: Summer

- 3 Credits, BUS 217 - Business Communication & Report Writing (3 Cr.)

Year 2: Fall

- 3 Credits, CNG 202 - Unix/Linux Server Admin (3 Cr.)
- 4 Credits, CNG 212 - Configuring Windows Server (OR CIS 401 - Network Systems Administration: CSU Course**)
- 4 Credits, Restricted Elective

○ ~Recommended Restricted Elective(s)~

§ CIS 461 - Management of IT Security Risk (CSU Course**)

§ CSC 160 - Computer Science I* (4 Cr.)

Year 2: Spring

- 3 Credits, BUS 226 - Business Statistics (3 Cr.)
- 3 Credits, CNG 125 - Networking II: Network + (3 Cr.)
- 3 Credits, CNG 132 - Network Security Fundamentals (3 Cr.)

Year 2: Summer

- 3 Credits, PHI 113 - Logic: GT-AH3 (3 Cr.)

Year 3: Fall

- 1 Credits, BUS 121 - Basic Workplace Skills (1 Cr.)
- 3 Credits, CNG 253 - Firewalls and How They Work (3 Cr.)
- 3 Credits, CNG 256 - Vulnerability Assessment I (3 Cr.)

Year 3: Spring

- 3 Credits, CIS 287 - Cooperative Education (3 Cr.)
- 4 Credits, CNG 258 - Digital Forensics (OR CIS 462 - Computer Forensics: CSU Course**)
- 4 Credits, CNG 259 - Enterprise Security (4 Cr.)