Engineering Career Cluster

The Engineering career cluster focuses on planning, designing, testing, building, and maintaining of machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and to mapping technician.

Regional Program of Study: Drone (Unmanned Vehicle)

Approved in ESC Regions 2, 4, 5, 6, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20

The list of approved ESC regions is updated every school year. Be sure to check the CTE regional program of study website for updates.

The Drone (Unmanned Vehicle) regional program of study focuses on the occupational and educational opportunities associated with operating or designing an unmanned aircraft using a ground-based controller. This program of study includes understanding and designing systems of communications between the controller and the aircraft to ensure compliance with federal aviation safety regulations.

Secondary Courses for High School Credit

Level 1	• Introduction to Aerospace and Aviation
Level 2	• Introduction to Unmanned Aerial Vehicles (UAV) • Robotics I
Level 3	• Engineering Science • Digital Electronics • Robotics II
Level 4	• Career and Technical Education Project-Based Capstone • Practicum in Manufacturing • Practicum in Manufacturing + Extended Practicum in Manufacturing • Career Preparation for Programs of Study • Career Preparation for Programs of Study + Extended Career Preparation • Scientific Research and Design

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	• Intern with a public service, engineering, construction, or transportation firm • Practice drone operations with an industry professional at a work site
Expanded Learning Opportunities	• Participate in an aerial drone competition • Participate in SkillsUSA or TSA

Aligned Industry-Based Certifications

- Applied Robotics
- Certified Industrial Robotics Programmer (CIRP)
- Certified Industry 4.0 Technician Level 1
- Certified Industry 4.0 Technician Level 2
- Certified Industry 4.0 Technician Level 3
- Certified Mechanical Technician Level 1
- Certified Mechanical Technician Level 2
- Certified Mechanical Technician Level 3
- Certified Robotics Technician Level 1
- Certified Robotics Technician Level 2
- Certified Robotics Technician Level 3
- FAA Part 107 Remote Drone Pilot
- Fundamentals of Robotics
- Introduction to Aerodynamics
- Robot Operations I

Example Postsecondary Opportunities

Associate Degrees
- Airline/Commercial/Professional Pilot and Flight Crew
- Manufacturing Engineering Technology/Technician

Bachelor's Degrees
- Aviation Science
- Aeronautical/Aerospace Engineering Technology

Master's, Doctoral, and Professional Degrees
- Aerospace, Aeronautical, and Astronautical/Space Engineering, General

Additional Stackable IBCs/License
- Aerial Mapping and 3D Modeling Certification

Example Aligned Occupations

Aerospace Engineering and Operations Technicians
Median Wage: $75,660
Annual Openings: 85
10-Year Growth: 21%

Avionics Technicians
Median Wage: $78,639
Annual Openings: 128
10-Year Growth: 16%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.

For more information visit:
https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/eng-drone-unmanned-vehicle-extended.pdf

Successful completion of the Drone (Unmanned Vehicle) regional program of study will fulfill requirements of the Business and Industry endorsement.

Texas Education Agency

Drone (Unmanned Vehicle)

Engineering Career Cluster

Regional Program of Study: Drone (Unmanned Vehicle)

Course Information

Level 1

Course	Prerequisites | Corequisites	Career Clusters
Introduction to Aerospace and Aviation* N1304672 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisite:** None **Recommended Corequisites:** None	

Level 2

Course	Prerequisites | Corequisites	Career Clusters
Introduction to Unmanned Aerial Vehicles (UAV) N1304670 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisite:** Principles of Transportation Systems **Recommended Corequisites:** None	
Robotics I* 13037000 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisite:** Principles of Applied Engineering **Recommended Corequisites:** None	

Level 3

Course	Prerequisites | Corequisites	Career Clusters
Engineering Science* 13037500 (1 credit)	**Prerequisites:** Algebra I, one credit in biology, and at least one credit in a course from the Engineering career cluster **Corequisites:** None **Recommended Prerequisite:** Geometry, Integrated Physics and Chemistry (IPC), one credit in chemistry, or one credit in physics **Recommended Corequisites:** None	
Digital Electronics* 13037600 (1 credit)	**Prerequisites:** Algebra I and Geometry **Corequisites:** None **Recommended Prerequisite:** None **Recommended Corequisites:** None	
Robotics II* 13037050 (1 credit)	**Prerequisites:** Robotics I **Corequisites:** None **Recommended Prerequisite:** None **Recommended Corequisites:** None	

** Indicates course is included in more than one program of study in this career cluster.*

For additional information on the **Engineering** career cluster, contact cte@tea.texas.gov or visit https://tea.texas.gov/cte

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Engineering Career Cluster

Regional Program of Study: Drone (Unmanned Vehicle)

Level 4

Course Information

Course	Prerequisites | Corequisites	Career Clusters
Career and Technical Education Project-Based Capstone* First Time Taken: 12701101 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisite:** None **Recommended Corequisites:** None	
Practicum in Manufacturing First Time Taken: 13033000 (2 credits) Second Time Taken: 13033010 (2 credits)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisite:** None **Recommended Corequisites:** None	
Practicum in Manufacturing + Extended Practicum in Manufacturing First Time Taken: 13033005 (3 credits) Second Time Taken: 13033015 (3 credits)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisite:** None **Recommended Corequisites:** None	
Career Preparation for Programs of Study* First Time Taken: 12701121 (2 credits)	**Prerequisites**: At least one Level 2 or higher CTE course **Corequisites:** None **Recommended Prerequisite:** None **Recommended Corequisites:** None	
Career Preparation for Programs of Study + Extended Career Preparation* First Time Taken: 12701141 (3 credits)	**Prerequisites:** At least one Level 2 or higher CTE course **Corequisites:** None **Recommended Prerequisite:** None **Recommended Corequisites:** None	
Scientific Research and Design* 13037200 (1 credit)	**Prerequisites:** Biology, and one credit of the following: Physics for Engineering, chemistry, Integrated Physics and Chemistry (IPC), or physics **Corequisites:** None **Recommended Prerequisite:** None **Recommended Corequisites:** None	

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