

Science, Technology, Engineering, and Mathematics Career Cluster

The Science, Technology, Engineering, and Mathematics (STEM) Career Cluster focuses on planning, managing, and providing, scientific research and professional and technical services, including laboratory and testing services, and research and development services.

Renewable Energy Statewide Program of Study



The Renewable Energy program of study helps CTE learners discover to assemble, inspect, maintain, and repair different equipment required for renewable energy. It introduces students to solar photovoltaic equipment and wind turbines, the systems and processes used to maintain and manage these types of equipment, and helps students develop the skills needed to do so.

Secondary Courses for High School Credit

Level 1

- Principles of Applied Engineering
- Foundations of Energy

Level 2

- AC/DC Electronics

Level 3

- Energy and Natural Resources Technology/Lab
- Environmental Sustainability (PLTW)
- Solid State Electronics

Level 4

- Digital Electronics
- Engineering Design and Problem Solving
- Project-Based Research
- Applied Mathematics for Technical Professionals
- Practicum in STEM
- Practicum in Energy
- Scientific Research and Design

- Introduction to Renewable Energy *(Not a CTE Course)

Postsecondary Opportunities

Associates Degrees

- Industrial Mechanics and Maintenance Technology
- Solar Energy/ Technology
- Engineering, Mechanics
- Engineering, General

Bachelor's Degrees

- Surveying Engineering
- Systems Engineering
- Engineering, Mechanics
- Engineering, General

Master's, Doctoral, and Professional Degrees

- Surveying Engineering
- Systems Engineering
- Manufacturing Engineering
- Engineering, General

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities

- Join Skills USA or a local science club

Work-Based Learning Activities

- Research four renewable energy companies and compare them

Industry-Based Certifications

- C-200 Certified Industry 4.0 Automation Systems Specialist I - 201 Electrical Systems 1
- Industrial Technology Maintenance (ITM) - Electrical Systems
- NCCER Core
- NCCER Electronic System Technician Level I
- NCCER Electronic System Technician Level II
- Certified Electronics Systems Associate*
- Industrial Technology Maintenance (ITM) - Electronic Control Systems*
- ISCET Certified Electronics Technicians*
- OSHA 30 Hour General*

*IBC sunseting 8/31/24



Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Wind Turbine Services Technician	\$51,334	387	108%
Solar Photovoltaic Installer	\$43,957	47	81%

Successful completion of the Renewable Energy program of study will fulfill requirements of the Business and Industry or STEM endorsement if the math and science requirements are met. Revised – December 2022

Renewable Energy Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Applied Engineering	13036200 (1 credit)	None	None
Foundations of Energy	13040503 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
AC/DC Electronics	13036800 (1 credit)	Principles of Applied Engineering	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Energy and Natural Resources Technology/Lab	13001100 (1 credit) 13001110 (2 credits)	None	None
Environmental Sustainability (PTLW)	N1303746 (1 credit)	None	None
Solid State Electronics	13036900 (1 credit)	AC/DC Electronics	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Digital Electronics	13037600 (1 credit)	Algebra I and Geometry	None
Engineering Design and Problem Solving	13037300 (1 credit)	Algebra I and Geometry	None
Project-Based Research	12701500 (1 credit)	None	None
Applied Mathematics for Technical Professionals	12701410 (1 credit)	None	None
Practicum in STEM	13037400 (2 credits) 13037405 (3 credits) 13037410 (2 credits) 13037415 (3 credits)	Algebra I and Geometry	None
Practicum in Energy	N1303910 (2 credits)	None	None
Scientific Research and Design	13037200 (1 credit)	Biology, Chemistry, Integrated Physics and Chemistry (IPC), or Physics	None

*Introduction to Renewable Energy (not a CTE course)

N1120042 (.5-1 credit)

None

None

Renewable Energy

FOR ADDITIONAL INFORMATION ON THE SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS
CAREER CLUSTER,
PLEASE CONTACT: CTE@tea.texas.gov
<https://tea.texas.gov/cte>

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Further nondiscrimination information can be found at [Notification of Nondiscrimination in Career and Technical Education Programs](#).

"Introduction to Renewable Energy supports courses within the Renewable Energy Program of Study. However, it is not a CTE course, does not count toward autocoding, and does not generate tiered funding."