

Energy Career Cluster

The Energy Career Cluster prepares individuals for careers in the designing, planning, maintaining, generating, transmission, and distribution of traditional and alternative energy.

Refining and Chemical Processes Statewide Program of Study



The Refining and Chemical Processes program of study helps CTE learners discover how to monitor, adjust, and control different equipment housed in petrochemical plants and refineries. It introduces students to the computer technology and instrumentation used to operate a variety of equipment systems and industrial processes, helping students build the skills needed to operate these systems.

Secondary Courses for High School Credit

Level 1

- Foundations of Energy

Level 2

- Introduction to Process Technology
- Introduction to Instrumentation and Electrical

Level 3

- Petrochemical Safety, Health, and Environment
- Advanced Instrument and Electrical

Level 4

- Project-Based Research
- Applied Mathematics for Technical Professionals
- Practicum in Energy

Postsecondary Opportunities

Associates Degrees

- Process Technology
- Process Operating Technology
- Logistics, Material, and Supply Chain Management
- Petroleum Technology/ Technician

Bachelor's Degrees

- Business Administration and Management, General
- Business/Commerce, General
- Industrial Engineering
- Petroleum Engineering

Master's, Doctoral, and Professional Degrees

- Business Administration and Management, General
- Business/Commerce, General
- Industrial Engineering
- Petroleum Engineering

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities

- Tour a power plant or refinery

Work-Based Learning Activities

- Attend student summer conferences

Industry-Based Certifications

- NCCER Core
- NCCER Electronic System Technician Level I
- NCCER Instrumentation Level I

- ISCET Certified Electronics Technicians*
- ISA Certified Control Systems Technician*
- OSHA 30 Hour General*

*IBC Sunsetting 8/31/24



Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Gas Plant Operators	\$62,650	312	9%
Petroleum Pump System Operators, Refinery Operators, and Gaugers	\$71,488	1,181	9%
Power Plant Operators	\$71,635	309	9%

Successful completion of the Refining and Chemical Processes program of study will fulfill requirements of the Business and Industry endorsement or STEM endorsement if the math and science requirements are met.. Revised – August 2022

Refining and Chemical Processes Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Foundations of Energy	13040503 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Introduction to Process Technology	13040502 (1 credit)	None	None
Introduction to Instrumentation and Electrical	N1303900 (1 credit)	None	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Petrochemical Safety, Health, and Environment	13040504 (1 credit)	None	None
Advanced Instrument and Electrical	N1303901 (1 credit)	None	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Project-Based Research	12701500 (1 credit)	None	None
Applied Mathematics for Technical Professionals	12701410 (1 credit)	None	None
Practicum in Energy	N1303910 (2 credits)	None	None

FOR ADDITIONAL INFORMATION ON THE ENERGY CAREER CLUSTER,
PLEASE CONTACT: CTE@tea.texas.gov
<https://tea.texas.gov/cte>

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