

# ENERGY GENERATION OPERATIONS

## Associate of Applied Science Degree

### Types of jobs available:

- Bio-diesel production facility operator
- Coal-fired power plant operator
- Ethanol production facility operator
- Natural gas turbine plant operator
- Nuclear power plant operator
- Solar plant operator
- Wind turbine farm operator
- Wind turbine technician
- Reciprocating engine power plant operator

### Program overview

Classes are offered on Milford Campus. Flexible scheduling may be available. Contact the program chair for more information.

This program is designed to provide five quarters of common core curriculum for several types of energy generation systems operations. Energy Generation Operators must understand and oversee all aspects of a power generating facility, whether that facility is generating electricity or liquid fuels. Students will study a wide range of necessary topics to gain this broad understanding of plant operations and maintenance. In the 6th quarter, specific types of fuel operations will be covered in detail to prepare students for careers in the type of energy generating plant of their choice.

### For more information contact:

John Pierce, Program Chair  
402-761-8394, 800-933-7223 ext. 8394, jpierce@southeast.edu  
or the College Admissions Office  
Milford 402-761-8243, 800-933-7223 ext. 8243

## Milford Campus

Credit Hours Required for Graduation:

Biofuels Focus	121.5
Fossil Fuels (Coal, Gas Turbine) Focus	115.5
Nuclear Focus	122.0
WindTechnology Focus	112.5

### Core Classes

COURSE #	COURSE TITLE	CREDIT HRS
ENER1100	Introduction to Energy Generation and Distribution	4.5
ENER1110	Operator Safety (Rigging, climbing)	3.0
ENER1115	Mechanical & Fluid Fundamentals	4.5
ENER1130	Electrical Schematics	2.0
ENER1210	Electrical Power Theory	3.0
ENER1220	Process Dynamics	2.0
ENER1230	Data Collection (SCADA)	1.0
ENER1235	Piping and Process Drawings	3.0
ENER1250	Emission Control Systems	1.0
ENER1255	Instrumentation & Control Systems (PLC's)	6.0
ENER1900	Internship	3.0
ENER2100	Motor Controls and Switchgear	4.5
ENER2105	Boiler Systems	3.0
ENER2110	Backup Power Generation	3.0
ENER2115	Advanced Operator Safety (First Aid/CPR)	2.0
ENER2120	Steam Turbines	2.0
HVAC1131	Refrigeration Theory I	5.0
MFGT1413	Electrical Fundamentals	5.0
LBST1101	Applied Chemistry I	3.0
LBST1102	Applied Chemistry II	3.0
LBST1422	Survey of Chemistry Laboratory	1.5
LBST2302	Water and Wastewater Technology	3.0
	Fossil Fuel or Wind Technology Core Credits:	68.0

LBST1205/LBST1215	Introductory Biology and Lab (Biofuels Focus)	4.5
	OR	
ENER2135	Atomic Structures (Nuclear Focus)	4.5
	Biofuels or Nuclear Core Credits:	72.5

### General Education Requirements:

Contact your program advisor to select general education course/s from each category which will meet your program's graduation requirements. See page 4 for complete list.

(One class from each area below).

Oral Communications	4.5
Written Communications	4.5
Mathematics	
MATH1050 or higher	4.5

Science	
PHYS1017 or PHYS1150 or PHYS1410 or higher	4.5

(Plus one class from one of the two areas below).

Social Science	
ECON1200      Personal Finance	4.5
	22.5 hours

### Additional Class Requirements

BSAD1010	Microsoft Applications I	4.5
ACFS2020	Career Development	2.5
	Total Other Credits:	7.0

General Education Core Requirements: 29.5

Total Core Credits: 97.5-102.0 hours

## Biofuels Focus

ENER2500	Biofuels Process Fundamentals	3.0
ENER2510	Distillation & Evaporation	4.5
ENER2520	Microbial Ecology	4.5
ENER2530	Process Plant Chemistry	3.0
ENER2540	Biofuels Process Operations	4.5

Core Credits: 102.0

Total Credits for Ethanol Fuel Systems A.A.S. degree: 121.5

## Fossil Fuels (Coal, Gas Turbine) Focus

ENER2300	Coal Plant Operations	6.0
ENER2310	Coal Plant Safety	3.0
ENER2400	Gas Turbine Systems	3.0
ENER2410	Combined Cycle Operations	3.0
ENER2420	Plant Operations & Troubleshooting	3.0

Core Credits: 97.5

Total Credits for Fossil Fuels Generation: 115.5

## Nuclear Focus

ENER2200	Introduction to Nuclear Energy	4.5
ENER2210	Nuclear Plant Layout	3.0
ENER2220	Reactor Plant Materials	4.5
ENER2230	Radiation Detection & Protection	3.5
ENER2240	Reactor Safety	4.5

Core Credits: 102.0

Total Credits for Nuclear Energy Generation: 122.0

## Wind Technology Focus

ENER2700	Introduction to Wind Turbine Systems	1.0
ENER2710	Rotor Systems	2.0
ENER2720	Wind Farm Management	4.5
ENER2730	Wind Turbine Electrical & Fluid Systems	4.5
ENER2735	Wind Turbine Safety	3.0

Core Credits: 97.5

Total Credits for Wind Power Generation: 112.5

