Lane Community College SM

2011 - 2012
Career and Technical Programs

Science Division
541.463.3977

lanecc.edu

Energy Management Technician

Two-Year Associate of Applied Science Degree

Two-Year Associate of Applied Science Option, Renewable Energy Technician

Two-Year Associate of Applied Science Option, Energy Management

Purpose To prepare students for careers in Energy Management, Resource Conservation Management, and Renewable Energy.

Learning Outcomes The graduate will:

- evaluate the energy use patterns for residential and commercial buildings and recommend energy efficiency and alternative energy solutions for high-energy consuming buildings.
- understand the interaction between energy consuming building systems and make recommendations based on that understanding.
- construct energy evaluation technical reports and make presentations for potential project implementation.
- use appropriate library and information resources to research professional issues and support lifelong learning.
- access library, computing and communications services, and obtain information and data from regional, national and international networks.
- collect and display data as lists, tables and plots using appropriate technology (e.g., graphing calculators, computer software).
- develop and evaluate inferences and predictions that are based on data.
- determine an appropriate scale for representing an object in a scale drawing.
- interpret the concepts of a problem-solving task, and translate them into mathematics.

The graduate of the Renewable Energy Technician Option also will:

- appropriately size and recommend renewable energy system types for particular situations.
- understand and put into practice the installation protocol for Photovoltaic and Solar Domestic Hot Water Systems.

The graduate of the Resource Conservation Management Option also will:

- conduct a full sustainability assessment.
- understand the LEED Framework and green buildings
- make recommendations for materials management and solid waste management
- assess carbon footprints for climate action in complex organizations

Employment Trends Employment opportunities in the Energy Management Industry are excellent. Students must consider the entire Western United States when seeking employment, as those willing to relocate will have greater employment opportunities.

Wages Energy Management, $38,000-45,000 annually. Renewable Energy Technician, $25,000-35,000 annually, depending on the area. Resource Conservation Management, $40,00-505,000 annually.

Costs in Addition to Tuition (estimate)*

Total $850

* Subject to change without notice.

This is a limited enrollment program. Students must apply to the program by completing an Energy Program application form.

Admission Information Science Division, Bldg. 16, Rm. 252/253, *youngg@lanecc.edu, ebbager@lanecc.edu*

Accreditation Awarded Institute for Sustainable Power Quality accreditation credential from the Interstate Renewable Energy council, International Standard #0102,1 for accreditation and certification of renewable energy training programs and instructors.

Cooperative Education (Co-op) Co-op is a required and important part of the Energy Management program. It provides relevant field experience that integrates theory and practice while providing opportunities to develop skills, explore career options, and network with professionals and employers in the field. Students must complete six Co-op credits for the AAS degree. Students may use up to eighteen Co-op credits toward the degree requirements. Contact the Cooperative Education Division, Bldg. 19, Rm. 231, 541.463.5203.

Program Director Roger Ebbage, Science 253, 541.463.3977, *ebbager@lanecc.edu*

Energy Management Technician

First Year	Fall
BT 123 MS Excel for Business *,D,G	4
NRG 102 Blueprint Reading: Residential and Commercial 1,D,G	3
MTH 095 Intermediate Algebra *,2	5
NRG 101 Introduction to Energy Management 1,D,G	3
NRG 103 Sustainability in the Built Environment 1,D,G	3
PH 101 Fundamentals of Physics *,1	4
Total Credits	22

	Winter
NRG 111 Residential/Light Commercial Energy Analysis *,1,3,D,G	3
NRG 154 Alternative Energy Technologies 1,D,G	3
WATR 101 Introduction to Water Resources 1,D,G	3
NRG 206A Co-op Ed: Energy Management Seminar 1	1
PH 102 Fundamentals of Physics *,1	4
WR 121 Introduction to Academic Writing *,5,6	4
Total Credits	18

	Spring
NRG 121 Air Conditioning Systems Analysis *,1,D,G	3
NRG 124 Energy Efficient Methods *,1,D,G	4
NRG 131 Lighting Fundamentals *,1,D,G	3
Human Relations Requirement 5,R	3
Total Credits	13

Second Year	Fall
NRG 122 Commercial Air Conditioning Systems Analysis *,1,D,G	3
NRG 132 Lighting Applications *,1,D,G	3
NRG 141 Energy Investment Analysis *,1,3,D,G	3
WR 227 Technical Writing *,5,6	4
Directed electives 5	3
Total Credits	16

	Winter
NRG 112 Commercial Energy Use Analysis *,1,D,G	4
NRG 123 Energy Control Strategies *,1,D,G	4
NRG 206B Co-op Ed: Energy Management Seminar 2 D	1
Choice of: 4,5,6,R	3
Physical Education Activity requirement	
Health requirement	
Directed electives 5	3
Total Credits	15

	Spring
NRG 113 Building Energy Simulations *,1,D,G	4
NRG 142 Energy Accounting *,1,3,D,G	3
NRG 280 Co-op Ed: Energy Management D,G	6
Total Credits	13

Renewable Energy Technician Option

First Year	Fall
BT 123 MS Excel for Business *,D,G	4
NRG 102 Blueprint Reading: Residential and Commercial *,1,D,G	3
MTH 095 Intermediate Algebra *,2	5
NRG 101 Introduction to Energy Management 1,D,G	3
NRG 103 Sustainability in the Built Environment 1,D,G	3
PH 101 Fundamentals of Physics *1	4
Total Credits	22

	Winter
NRG 111 Residential/Light Commercial Energy Analysis 1,3,D,G	3
NRG 154 Alternative Energy Technologies *,1,D,G	3
WATR 101 Introduction to Water Resources 1,D,G	3
NRG 206 A Co-op Ed: Energy Management Seminar 1 D	1
PH 102 Fundamentals of Physics *1	4
WR 121 Introduction to Academic Writing *,5,6	4
Total Credits	18

	Spring
NRG 121 Air Conditioning Systems Analysis *,1,D,G	3
NRG 124 Energy Efficient Methods *,1,D,G	4
NRG 131 Lighting Fundamentals *,1,D,G	3
Human Relations Requirement 5,R	3
Total Credits	13

Second Year	Fall
ET 129 Electrical Theory 1 *,D,G	4
NRG 141 Energy Investment Analysis *,1,3,D,G	3
NRG 155 Photovoltaic Design and Installation 1 *,1,D,G	4
NRG 157 Renewable Energy Systems *,1,D,G	3
WR 227 Technical Writing *,5,6	4
Total Credits	18

	Winter
ET 130 Electrical Theory 2 *,D,G	4
NRG 156 Photovoltaic Design and Installation 2 *,1,D,G	4
NRG 158 Solar Thermal Design and Installation 1 *,1,D,G	4
NRG 206 B Co-op Ed: Energy Management Seminar 2 D	1
Choice of: 4,5,6,R	3
Physical Education Activity requirement	
Health requirement	
Total Credits	16

	Spring
NRG 159 Solar Thermal Design and Installation 2 *,1,D,G	4
NRG 162 Solar Photovoltaics Systems Design and Installation *,1,3,D,G	4
NRG 280 Co-op Ed: Energy Management D,G	6
Total Credits	14

Energy Management Technician

1 Instructor permission required
2 Must be completed by the end of the first year
3 Contains computation instruction to meet industry requirements
4 PE Activity requirement credits must be taken in at least two terms to satisfy degree requirement.
5 Can be taken any term
6 See catalog for AAS requirements

Directed Electives:
DRF 167 CAD 1
DRF 168 CAD 2
BT 223 MS EXCEL for Business - Expert
SPAN 101 Spanish, First-Year
SPAN 102 Spanish, First-Year
MTH 111 College Algebra
BA101 Introduction to Business
ENVS184 Global Climate Change
PS297 Environmental Politics
PSY201 General Psychology
SP100 Basic Communication
SP105 Listening and Critical Thinking
SP111 Fundamentals of Public Speaking
SP112 Persuasive Speech
SP218 Interpersonal Communication
WATR221 Water Mechanical Systems
WATR105 Water Conservation: Residential
WATR202 Fostering Sustainable Practices
WATR215 Integrated Water Management
NRG 280 Coop Ed

Resource Conservation Management Option

First Year	**Fall**
BT 123 MS Excel for Business *,D,G	4
NRG 102 Blueprint Reading: Residential and Commercial 1,D,G	3
MTH 095 Intermediate Algebra *,2	5
NRG 101 Introduction to Energy Management 1,D,G	3
NRG 103 Sustainability in the Built Environment 1,D,G	3
Total Credits	22

	Winter
NRG 111 Residential/Light Commercial Energy Analysis *,1,3,D,G	3
NRG 154 Alternative Energy Technologies 1,D,G	3
WATR 101 Introduction to Water Resources 1,D,G	3
NRG 206A Co-op Ed: Energy Management Seminar 1	1
PH 102 Fundamentals of Physics *,1	4
WR 121 Introduction to Academic Writing *,5,6	4
Total Credits	18

	Spring
NRG 121 Air Conditioning Systems Analysis *,1,D,G	3
NRG 124 Energy Efficient Methods *,1,D,G	4
NRG 131 Lighting Fundamentals *,1,D,G	3
CG 203 Human Relations at Work 5	3
Choice of: 4,5,6,R Physical Education Activity requirement Health requirement	3
Total Credits	16

Second Year	**Fall**
NRG 141 Energy Investment Analysis *,1,3,D,G	3
NRG 122 Commercial Air Conditioning Systems Analysis *,1,D,G	3
NRG 157 Renewable Energy Systems *,1,D,G	3
NRG 171 Materials Management/Solid Waste Management 1,D,G	3
WATR 210 Water Conservation: Industrial/ Commercial 1,D,G	4
Total Credits	16

	Winter
NRG 112 Commercial Energy Use Analysis *,1,D,G	4
NRG 172 Understanding the LEED Framework and Green Buildings 1,D,G	3
WATR 202 Fostering Sustainable Practices1,D,G	3
WR 227 Technical Writing *,5,6	4
NRG 206B Co-op Ed: Energy Management Seminar 2 D	1
Total Credits	15

	Spring
NRG 142 Energy Accounting *,1,3,D,G	3
NRG 173 Carbon Footprints for Climate Action in Complex Organizations1,D,G	4
NRG 174 Conducting a Full Sustainability Assessment 1,D,G	4
NRG 280 Co-op Ed: Energy Management D,G	6
Total Credits	17

Standard footnotes:
* Prerequisite required
B Must be passed with grade of "B" or better to use as a prerequisite
D Degree or certificate requirement; must be passed with grade of "C-" or better
G Must be taken for a grade, not P/NP; major requirement
R Required for AAS degree