Lane Community College SM

4000 East 30th Avenue, Eugene, Oregon 97405 lanecc.edu

ENERGY MANAGEMENT PROGRAM

2009-2010
Career and Technical Program

Science Division
(541) 463-5446

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, Resource Conservation Management

Purpose To prepare students for careers in the Energy Management field, and optionally as Renewable Energy Systems Installers.

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.

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.

Costs in Addition to Tuition (estimate)*

Total $750

* Subject to change without notice.
This is a limited enrollment program. Students must apply to the program by completing an Energy Program application form.

Criteria Used for Admission into Program
Complete a program application and have completed MTH 070. Students are required to attend an Orientation Meeting the first week of August prior to attending the program in the fall. The Orientation is required and non-attendance may result in being dropped from the Program. Must complete MTH 095 by the end of the first year.

Admission Information Science Department, Bldg. 16, Rm. 252/253, *youngg@lanecc.edu*, *ebbager@lanecc.edu* or advisor, *lukacss@lanecc.edu*, or counselor, *ganserd@lanecc.edu*

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 Larry Scott, Energy Management Co-op Coordinator, Bldg. 19, Rm. 154, (541) 463-5458.

Want to know about courses and credits? See other side.

Energy Management Technician

Program Director/Advisor Roger Ebbage, Science 253, (541) 463-3977, *ebbager@lanecc.edu*

Program Counselor Debby Ganser, *ganserd@lanecc.edu*

Program Advisor Shirley Lukacs, *lukacss@lanecc.edu*

Two-Year Associate of Applied Science Degree

First Year	**Fall**
BT 114 MS Excel for Business *,D,G	4
NRG 102 Blueprint Reading: Residential and Commercial 1,D,G	3
MTH 095 Intermediate Algebra *,2,M	5
NRG 101 Introduction to Energy Management 1,D,G	3
NRG 103 Sustainability in the Built Environment 1,D,G	3
Total Credits	18

	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 Co-op Ed: Energy Management Seminar	1
PH 101 Fundamentals of Physics *,1,S	4
WR 121 English Composition: Exposition and Introduction to Argument *,5,6,W	4
Total Credits	18

	Spring
NRG 121 Air Conditioning Systems Analysis *,1,D,G	3
NRG 124 Energy Efficient Methods *,1,D,G	3
NRG 131 Lighting Fundamentals *,1,D,G	3
PH 102 Fundamentals of Physics *,1,S	4
CG 203 Human Relations at Work 5,R	3
Total Credits	16

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,A	4
Restricted 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 206 Co-op Ed: Energy Management Seminar D	1
Choice of: 4,5,6,R	3
Physical Education Activity requirement	
Health requirement	
Restricted 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 114 MS Excel for Business *,D,G	4
NRG 102 Blueprint Reading: Residential and Commercial *,1,D,G	3
MTH 095 Intermediate Algebra *,2,M	5
NRG 101 Introduction to Energy Management 1,D,G	3
NRG 103 Sustainability in the Built Environment 1,D,G	3
Total Credits	18

	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 Co-op Ed: Energy Management Seminar D	1
PH 101 Fundamentals of Physics *1,S	4
WR 121 English Composition: Exposition and Introduction to Argument *,5,6,W	4
Total Credits	18

	Spring
NRG 121 Air Conditioning Systems Analysis *,1,D,G	3
NRG 124 Energy Efficient Methods *,1,D,G	3
NRG 131 Lighting Fundamentals *,1,D,G	3
PH 102 Fundamentals of Physics *1,S	4
Human Relations requirement 5, R	3
Total Credits	16

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,A	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 Co-op Ed: Energy Management Seminar D	1
Choice of: 4,5,6,R	3
Physical Education Activity requirement	
Health requirement	
Total Credits	16

Energy Management Technician

	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

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

Restricted Electives are arranged with the program director/advisor and must be taken for a grade.

Resource Conservation Management Option

First Year	Fall
BT 114 MS EXCEL for Business *,D,G	4
NRG 101 Introduction to Energy Management 1	3
MTH 095 Intermediate Algebra *,2,M	5
NRG 103 Sustainability in the Built Environment 1,D,G	3
NRG 102 Blueprint Reading: Residential and Commercial 1,D,G	3
Total	18

	Winter
NRG 111 Residential/Light Commercial Energy Analysis *,1,3,D,G	3
PH 101 Fundamentals of Physics *,1,S	4
WATR 101 Introduction to Water Resources 1,D,G	3
WR 121 English Composition: Exposition and Introduction to Argument *,5,6,W	4
NRG 154 Alternative Energy Technologies 1,D,G	3
Total	17

	Spring
NRG 131 Lighting Fundamentals *,1,D,G	3
NRG 124 Energy Efficiency Methods *,1,D,G	3
NRG 121 Air Conditioning System Analysis *,1,D,G	3
PH 102 Fundamentals of Physics *,1,S	4
CG 203 Human Relations at Work 5,R	3
Total	16

Second Year	Fall
WR 227 Technical Writing *,5,6,A	4
NRG 141 Energy Investment Analysis *,1,3,D,G	3
NRG 122 Commercial Air Conditioning System Analysis *,D,G,1	3
NRG 157 Renewable Energy Systems *,1,D,G	3
Total	13

	Winter
NRG 112 Commercial Energy Use Analysis *,1,D,G	4
NRG 206 Co-op Ed: Energy Mgmt. Seminar D	1
PE/Health Requirements	3
Resource Conservation Management Option Elective	8
Total	16

	Spring
WATR 210 Water Conservation: Industrial/Commercial D,G	4
NRG 142 Energy Accounting *,1,3,D,G	3
NRG 170 Organizational Behavior/Fostering Sustainable Practices 1,G,D	3
Total	10

Standard footnotes:

* Prerequisite required
A Meets Arts/Letters requirement
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
H Meets Human Relations/Social Science requirement
M Meets Mathematics requirement
P Meets PE/Health requirement
R Required for AAS degree
S Meets Science/Math/Computer Science requirement
W Meets Written Communications or English Composition requirement