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See what the student sees...

Course Master: Approved

Resources: Approved

Program Standards: Approved



Course Outline

1.0 IDENTIFICATION

COURSE INFORMATION

Subject Code	ENRG
Course Name	Energy Technology 2
Course Code	10002
Offering Term	Winter 2014
Classification	Specialized
Program Code and Name	360 - Energy Systems Eng Technology
Total Course Hours	70
Credit Value / Grade Type	5
Academic Year	2013/2014
Approving Associate Dean	Tom Low
Revision Date	October 21, 2013

2.0 LEARNING OVERVIEW

SUBSECTION

Course Description Examine various clean and renewable technologies and their applications. Trends in the RE industry are considered, particularly with regard to costs, industry growth and technology innovation. Apply chemistry and physics pertaining to specific technologies.

Resources

Status

REQ = Required
REC =
Recommended

Code or ISBN	Name or Title	Author / Publisher	Version or Edition	Type	Status
9781439802922	Photovoltaic Systems Engineering	Roger A. Messenger, Jerry Ventre / CRC PRes	3	Text	REQ

REF = Reference

Type

Online
Supply
Text Book
Custom Courseware

Pre-requisite(s)		Subject Code	Course Code	Course Name
		MATH	10014	Engineering Mathematics 3
	And	ELEC	10104	Electronic Circuits
Equivalent(s)	N/A			

3.0 COURSE CONTENT

MAJOR MODULES, THEMES, OR TOPICS

Solar Energy

Photovoltaic Devices

Thermal energy from the sun.

Purpose, devices and components to be used in solar, thermal and photovoltaic systems.

List the permits and credentials required to work on different areas on each system.

4.0 REFERENCE TO STANDARDS

VS CODE	RELEVANT VOCATIONAL LEARNING OUTCOME
	N/A
EE CODE	RELEVANT ESSENTIAL EMPLOYABILITY SKILLS OUTCOME
EE03-A	Apply a systematic approach to solve problems.
EE04-B	Analyze, evaluate, and apply relevant information from a variety of sources.
GE CODE	RELEVANT GENERAL EDUCATION THEME
	N/A
ES CODE	OTHER EXTERNAL STANDARD
	N/A

5.0 COURSE LEARNING OUTCOMES

Upon successful completion of the course learning outcomes, the student will reliably demonstrate the ability to:

LO01 Design and install a photovoltaic system

LEARNING ELEMENTS

Determine what is needed for construction and positioning of a system

Determine what is needed for sizing the system

Perform energy usage analysis

Determine the type and configuration of the required system

Select components.

Determine the mounting / racking requirements

LINKING TO STANDARDS**Vocational Standard****Essential Employability Skills****External Standard**

N/A

N/A

N/A

LO02 Propose devices and components to be used in solar, thermal and photovoltaic system.

LEARNING ELEMENTS

List advantages and disadvantages of several thermal collectors

Describe the I-V curve and factors affecting it for photovoltaic panels.

List the advantages of several of the different photovoltaic technologies.

Select appropriate technologies to accomplish the needs of the application

LINKING TO STANDARDS**Vocational Standard****Essential Employability Skills****External Standard**

N/A

N/A

N/A

LO03 Follow specifications of the permits and credentials required to work on different areas of each system

LEARNING ELEMENTS

List building permits

Describe the micro – FIT and FIT programs and requirements.

List electrical permits

LINKING TO STANDARDS**Vocational Standard****Essential Employability Skills****External Standard**

N/A

N/A

N/A

LO04 Design and install an active solar thermal heating system

LEARNING ELEMENTS

Site a new system.

Specify the racking and support structures.

Specify the type and size of active collectors.

Perform heat load calculation.

Specify the ballance of system components

LINKING TO STANDARDS

Vocational Standard	Essential Employability Skills	External Standard
N/A	N/A	N/A

6.0 ASSESSMENT

Individual assignment and grading details to be provided by Instructor.

Assessment Method	Weight	Associated Outcomes
Lab(s)	50%	LO01 , LO02 , LO03
Mid Term Exam	20%	LO01 , LO02 , LO03
Final Exam	30%	LO01 , LO02 , LO03 , LO04
TOTAL	100%	

7.0 STUDENT SUCCESS - POLICIES AND PROCEDURES

Mohawk College has developed several policies and procedures designed to protect students and provide an enriching and rewarding learning experience in which the rights of individuals are respected. This may include the use of digital assessments such as [turn it in](#). For the most up to date information on the following policies and procedures, consult Mohawk College's [Policies and Procedures](#) website.

In addition, students enrolled in Mohawk/McMaster collaborative programs are protected under McMaster University's policies and procedures outlined in [General Academic Regulations, McMaster Undergraduate Calendar](#), and in McMaster's [Academic Integrity Policy](#).

Please be advised that all policies and procedures are subject to change.

EFFECTIVE FALL 2009 - Policy: AC700 - Program Promotion and Graduation Requirements: A minimum grade of 50% is required as a course pass at Mohawk College. Please be aware, however, that a higher passing grade (minimum 60% or 70%) may be required if this course is taken as part of certain diploma or certificate programs. Please consult your Academic Department for details.

Additionally, if you are taking this course as part of a diploma or certificate program, be aware that you need an overall weighted grade point average (WGPA) of at least 60% to graduate. Graduation requirements are higher for some programs. Please check requirements with your department.

Note:

Faculty are required to review Emergency Lockdown procedures and Emergency Evacuation Procedures,

including Evacuation Procedures for students with disabilities, at the first class of every course they are teaching each semester. This information is available in the College Emergency Safety and Security Procedures Booklet distributed to all staff in hard copy, or online in MoCoMotion within the HR Staff Services Tab in the Occupational Health and Safety Channel (Occupational Health and Safety web site).

Course information correct as of: **October 21, 2013**

Last updated by: **Larry Petkov**