

SAULT COLLEGE
SAULT STE. MARIE, ONTARIO



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COURSE OUTLINE

COURSE TITLE:	Energy Site Development		
CODE NO. :	Net 301	SEMESTER:	6
PROGRAM:	Natural Environment Technologist		
AUTHOR:	Brian Anstess		
DATE:	Jan. 2016	PREVIOUS OUTLINE DATED:	Jan. 2015
APPROVED:		'C. Kirkwood'	Jan. 2016
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		DEAN	DATE
TOTAL CREDITS:	3		
PREREQUISITE(S):	Nil		
HOURS/WEEK:	3		

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***For additional information, please contact Colin Kirkwood, Dean,
Environment and Design
(705) 759-2554, Ext. 2688***

I. COURSE DESCRIPTION:

This is an introductory course covering the fundamental legislation and processes associated with renewable energy planning and site evaluation. Students will further their knowledge of the application of Geographic Information Systems (GIS) as they work to identify potential site locations for future renewable energy projects. Public consultation, cumulative effects assessment and categorization of renewable energy projects will be introduced within the course and a case-study of a small-scale renewable energy project will be completed.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. **Be able to identify and explain various Renewable Energy Technologies**

Potential Elements of the Performance:

- Wind, Solar, Geothermal, Hydro, Tidal etc.

This learning outcome will constitute approximately 5% of the course.

2. **Describe opportunities for renewable energy applications both on and off grid**

Potential Elements of the Performance:

- Distinguish between on and off grid applications of renewable technologies
- Understand grid tied opportunities within the Ontario Green Energy Act (Fit and Microfit)
- Identify various off grid applications of renewable energy and their benefits (eg remote locations; water pumping etc.)
- Identify other programs and opportunities for renewable energy technology throughout North America and the world

This learning outcome will constitute approximately 10% of the course.

3. **Assess a variety of site specific criteria to determine the practicality of a renewable energy investment**

Potential Elements of the Performance:

- Public Consultation
- Wildlife Assessment
- Environmental Assessment
- Zoning, regulatory setbacks
- Grid Impact Assessment and the LDC
- Domestic Content

This learning outcome will constitute approximately 20% of the course.

4. **Understand the complex process of Regulatory Approvals necessary to ensure a successful installation**

Potential Elements of the Performance:

- OPA
- LDC
- ESA
- OHSA
- Local By-Laws

This learning outcome will constitute approximately 10% of the course.

5. **Have an understanding of the various system design components that comprise a renewable energy installation**

Potential Elements of the Performance:

- Describe the components of a typical grid tied application
- Identify the components of an off grid application
- Identify sources/suppliers of various equipment components

This learning outcome will constitute approximately 15% of the course.

6. **Use relevant software to evaluate the economic feasibility of a renewable energy installation**

Potential Elements of the Performance:

- Analyze and display various data sets with Microsoft Excel
- Utilize maps created in Google Earth Pro as part of the renewable energy planning process

- Use public domain software such as the Ontario Wind and Solar Atlas to assist in site selection and evaluation
- Use of NRCan Ret Screen Renewable Energy Software to evaluate project feasibility

This learning outcome will constitute approximately 15% of the course.

7. Describe the steps of organizing the construction phase of a renewable energy installation.

Potential Elements of the Performance:

- Timeline
- Budget
- Equipment
- Health and Safety
- Materials / equipment
- Project Management and Budgeting

This learning outcome will constitute approximately 15% of the course.

8. Explain the steps and technology involved in a post-construction monitoring program.

Potential Elements of the Performance:

- Monitoring production and efficiency of the technology
- System maintenance
- Environmental monitoring

This learning outcome will constitute approximately 10% of the course.

III. TOPICS:

1. Application of Renewable Energy Technologies
2. Site Assessment and Evaluation
3. The Regulatory Approval Process
4. Components and Construction of a Renewable Energy System
5. Post Construction Monitoring

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Available online.

V. EVALUATION PROCESS/GRADING SYSTEM:

Participation / Attendance	10%
Assignments	30%
Renewable energy Project Case Study	20%
Mid-term Test	20%
Final Test	20%
Total:	100%

The following semester grades will be assigned to students:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00

CR (Credit)	Credit for diploma requirements has been awarded.
S	Satisfactory achievement in field /clinical placement or non-graded subject area.
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty.

VI. SPECIAL NOTES:Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline.