

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



**SAULT
COLLEGE**

COURSE OUTLINE

COURSE TITLE: Energy Site Development

CODE NO. : Net 301 **SEMESTER:** 6

PROGRAM: Natural Environment Technologist

AUTHOR: Brian Anstess

DATE: June 2011 **PREVIOUS OUTLINE** N / A

DATED:

APPROVED:

'B. Punch'

Jan. 2012

	CHAIR	DATE
TOTAL CREDITS:	3	

PREREQUISITE(S): Nil

HOURS/WEEK: 3

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**For additional information, please contact Brian Punch, Chair, Environment and Design
School of Technology and Natural Resources
(705) 759-2554, Ext. 2681**

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:

Quizzes	10%
Lab Assignments	20%
Renewable energy Project Case Study	20%
Mid term Test	25%
Final Test	25%
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:Course Outline Amendments:

The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Retention of Course Outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Prior Learning Assessment:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question. Please refer to the Student Academic Calendar of Events for the deadline date by which application must be made for advance standing.

Credit for prior learning will also be given upon successful completion of a challenge exam or portfolio.

Substitute course information is available in the Registrar's office.

Disability Services:

If you are a student with a disability (e.g. physical limitations, visual impairment, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Disability Services office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Communication:

The College considers **WebCT/LMS** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the **Learning Management System** communication tool.

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Code of Conduct*. A professor/instructor may assign a sanction as defined below, or make recommendations to the Academic Chair for disposition of the matter. The professor/instructor may (i) issue a verbal reprimand, (ii) make an assignment of a lower grade with explanation, (iii) require additional academic assignments and issue a lower grade upon completion to the maximum grade “C”, (iv) make an automatic assignment of a failing grade, (v) recommend to the Chair dismissal from the course with the assignment of a failing grade. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Student Portal:

The Sault College portal allows you to view all your student information in one place. **mysaultcollege** gives you personalized access to online resources seven days a week from your home or school computer. Single log-in access allows you to see your personal and financial information, timetable, grades, records of achievement, unofficial transcript, and outstanding obligations, in addition to announcements, news, academic calendar of events, class cancellations, your learning management system (LMS), and much more. Go to <https://my.saultcollege.ca>.

Electronic Devices in the Classroom:

Students who wish to use electronic devices in the classroom will seek permission of the faculty member before proceeding to record instruction. With the exception of issues related to accommodations of disability, the decision to approve or refuse the request is the responsibility of the faculty member. Recorded classroom instruction will be used only for personal use and will not be used for any other purpose. Recorded classroom instruction will be destroyed at the end of the course. To ensure this, the student is required to return all copies of recorded material to the faculty member by the last day of class in the semester. Where the use of an electronic device has been approved, the student agrees that materials recorded are for his/her use only, are not for distribution, and are the sole property of the College.

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.

Tuition Default:

Students who have defaulted on the payment of tuition (tuition has not been paid in full, payments were not deferred or payment plan not honoured) will be removed from placement and clinical activities. This may result in loss of mandatory hours or incomplete course work. Sault College will not be responsible for incomplete hours or outcomes that are not achieved or any other academic requirement not met as of the result of tuition default. Students are encouraged to communicate with Financial Services with regard to the status of their tuition prior to this deadline to ensure that their financial status does not interfere with academic progress.