

I. COURSE DESCRIPTION:

Students will be introduced to the basics of energy efficient and environmentally friendly construction, including: green construction standards and techniques; sustainable site analysis & development; energy efficient design and construction practices; sustainable water efficiencies; innovative construction techniques; sustainable materials & resources; air quality; green building opportunities.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Identify key components of green and sustainable construction;
2. Identify barriers, processes, and goals critical to progressive construction practices;
3. Contrast general, green and sustainable construction practices;
4. Compare and contrast several green construction standards;
5. Perform a site analysis following a stated objective of sustainability;
6. Understand water management & efficiencies with respect to ground water, potable water, grey water, and sewage;
7. Identify energy efficiency criteria in building design & construction;
8. Select materials based on environmental impact and waste reduction;
9. Identify indoor air quality issues and ways of improving air quality;
10. Explore innovative construction practices, techniques, and building components for green construction;
11. Understand and use Building Information Modeling software;
13. Identify issues and strategies for building operation & maintenance;
14. Achieve a basic understanding of the application of green construction standards such as Green Globes and LEED
15. Discern strategies and opportunities in a green building economy.

III. TOPICS:

1. Course Overview – Building with Awareness
2. Green and Sustainable Construction Standards, Issues and Goals
3. The Economics of Green Construction
4. General Construction Practices, Building Systems, and Techniques
5. Green/Sustainable Construction Practices, Building Systems, and Techniques
6. Site Analysis for Sustainable Site Planning and Construction
7. Water Sustainability and Efficiencies
8. Conventional Building Design, Efficiency, and Sustainability
9. Green Building Design, Efficiency, and Sustainability
10. Material Impact and Waste Reduction
11. Indoor Environmental Quality
12. Innovative Practices, Materials and Building Components
13. Building Information Modeling

14. Building Commissioning, Operations & Maintenance

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

LEED 2009 New Construction & Major Renovations Rating System

(PDF) **A Contractor's Guide to Green Building Construction** by Thomas E. Glavinich. ISBN# 978-0-470-05621-9 (or Equivalent Canadian Text)

BEES40e - Shareware Building Materials Information Software (or Equivalent Canadian Software)

V. EVALUATION PROCESS/GRADING SYSTEM:

1. The passing mark for this course is 50%. The final grade is composed of unit tests, unit assignments, a mid-term exam and a final exam.

2. Evaluation Breakdown:

Attendance: 10%

Tests (6 in total – see Appendix A): 30%

Unit Assignments and Labs (8 in total – see Appendix A): 30%

Course Assignment: 10%

Final Exam: 20%

3. The following semester grades will be assigned to students:

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

4. All assignments are due at the beginning of lecture on their due date. After the lecture has started, all assignments will be considered late and a late penalty will be applied. Late submissions of assignments will have their values reduced at a rate of 10% per day after the due date. After 10 days the assignment will be evaluated as a zero.
5. Students missing tests or exams because of illness or other serious reason must contact and inform the professor via SCAAT student email, phone or personal note, before the assessment (759-2554 ext. 630). Those students who have notified the professor of their absence, according to policy, will be eligible to arrange an opportunity as soon as possible to write the assessment at another time. Those students who do not notify the professor will receive a zero grade for that assessment. It is the student's responsibility on his/her first day back at school to contact the professor to arrange to write the exam. Failure to notify the professor at this time will result in a mark of "0".

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.

Appendix A

Tests (6 in total):

1. General Site Analysis
2. Water & Energy Efficiencies
3. Sustainable Materials & Resources
4. Environmental Quality in Buildings
5. Commissioning, Operations & Maintenance
6. General LEED Practices

Assignments (6 in total):

1. Site Analysis and Techniques Used
2. Efficiencies & Inefficiencies of a Selected Site (Campus)
3. Select a Site Experiment
4. Water Efficiency Technology
5. Emerging & Niche Market Green Materials & Resources
6. Building Envelope in the Energy House
7. General Construction Techniques in the Energy House
8. Efficient Building Techniques in the Energy House

Course Assignment:

The standards for the development of this semester long assignment are:

1. Research a green construction product, technique, process, or technology (not standard wind, geothermal, or solar technology);
2. Prepare graphic(s), mock-up sample(s), and/or demonstration of your selected topic and findings;
3. Prepare a brief technical report;
 - a. Minimum 1 page, maximum 3 pages (not including any pictures, diagrams, charts etc.)
 - b. Must also include a separate title page
 - c. Must demonstrate or explain how the product, technique, process or technology works;
 - d. Must explain where the product materials, technique, process, or technology comes from and/or was developed and can it be readily available or executed;
 - e. Must explain the advantage of your topic, why it is useful, and why people or businesses should use what you are presenting;
 - f. Must show or explain practical applications;
 - g. Must identify where it can qualify for or assist in LEED credits;
 - h. Explain any economic benefits or draw backs;
4. Present to the class in 2 to 5 min. (extra minutes available if needed);