



Architectural and Engineering Design Department (AEDD) South Portland, Maine 04106

Title: Architectural Sustainable Design Catalog Number: AEDD-216

Credit Hours: 3

Total Contact Hours: 60 Lecture: 30 Lab: 30

Instructor: Michael Belleau

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Course Syllabus

Course Description

This course introduces the student to the concepts of green design and construction consistent with, but not limited to, residential projects. The course is presented in modules of major sustainable design elements through text and mixed media exploring current technologies and local applications/ appropriateness.

Prerequisites: AEDD-165

Course Objectives

1. Demonstrate an understanding of green building concepts, sustainable system applications and installations as they relate to architecture.
2. Apply sound planning techniques and show the ability to identify and solve design problems creatively while working within recognized industry methods and material limits.
3. Understand how to successfully integrate a variety of design concepts into a single design, and recognize synergistic opportunities.
4. Show basic knowledge of LEED certification, Passive house, and Energy Star certification processes, concepts and requirements.
5. Show understanding of appropriate technical vocabulary by integrating vocabulary into discussions and design presentations.
6. Apply practical green design principles and design solutions to both existing and new structures.
7. Have the ability to analyze the pros and cons of technological advances for specific building projects and present those findings.
8. Recognize limitations of knowledge-based design decisions and identify situations requiring consultant expertise, such as mechanical, electrical, plumbing, and structural.

Topical Outline of Instruction

- Sustainability and how it relates to architecture
- Site Selection and observation

- Building Envelope
- Building Science basics and Envelope performance
- Heating and Air Conditioning – Indoor Climate control
- Commercial Buildings – Traditional vs. Sustainable
- Energy and indoor air quality
- Water efficiency
- Waste reduction
- Sustainable materials
- Heat loss calculation and analysis

Course Requirements

1. Active attendance
2. Active participation
3. Completion of all assignments

Text

The Green Studio Handbook / Alison G. Kwok and Walter T. Grondzik
 ISBN -13:978-0-7506-8022-6 Elsevier Copyright. 2007

Optional Text

Homes for a Changing Climate Passive Houses in the US by Katrin Klingenberg, Mike Kernagis, and Mary James

Builder’s Guide To: Cold Climates by Joseph Lstiburek

Grading and Evaluation

Design Practicum I and II	40%
Exams (Midterm and Final Exam)	30%
Home Work	15%
Critique/Discussion Participation	15%

Late work drops 1 full letter grade per class late

See department policies below for more on grades and equivalencies and other department policies

Course Structure:

This will be a lecture class with an emphasis on project-based learning. There will be short lectures, videos, readings, periodic class critiques, and site visits to exemplary project locations. Textbook is required, reading from text required. Textbook will be referenced in class discussions and concept analyses

Department Policies

1. Grading – grading policies may vary by instructor

A	4.00	9.3-10
A-	3.67	9-9.2
B+	3.33	8.7-8.9
B	3.00	8.3-8.6
B-	2.67	8-8.2
C+	2.33	7.7-7.9
C	2.00	7.3-7.6
C-	1.67	7.0-7.2
D+	1.33	6.7-6.9
D	1.00	6.3-6.6
F	0.00	>6.3 FAILURE
P	NONE	Equivalent to a “C” (2.0) or better
AF	0.00	Administrative Failure
I	None	Incomplete*
W	None	Official Withdrawal from course
NS	None	Failure to appear for any session of class

*Incomplete grades are given at the discretion of the Instructor. Incomplete grades may only be given after an incomplete contract between the instructor and student has been signed and submitted to Enrollment Services. Students may withdraw from a class up to the twelfth week into the semester to avoid a failing grade. Make note of the class withdrawal deadline date and time in the student handbook and academic calendar on the portal.

2. Work submitted that does not meet standards will be given and “N/A Resubmit”. Instructions on how to correct your work will be provided through “Redlines” (comments by instructor). All “Redlines” must be addressed before resubmitting the assignment. NO PARTIAL credit will be given unless all Redlines have been corrected.
3. **Late work** will drop a letter grade per week late. Assignments turned in more than 4 weeks late will result in a failing grade for that assignment. Completion of all assignments is required.
4. Any student who submits work done by someone else will at the least, receive a failing grade for that assignment and must redo the assignment. Should the instructor see fit, the student involved will be reported to the Dean of Students in violation of the Student Code of Conduct which will result in the student receiving a failing grade for the class.
5. Any activity, conversation or behavior that is not considered appropriate for the classroom or professional environment will result in the request that the behavior cease. If it does not, the student(s) involved will be dismissed from class and referred to the dean of Students and may not return to class until they have met with the Dean of Students, Department Chair and Instructor.

6. Use of cell phones, and other electronic devices during class which are not for class purposes is prohibited. Cell phones **do not** need to be turned off, but should be set to **vibrate** or **silenced** during class. Class time is for class activities only.
7. Personally owned computers are not required to be successful in this program, however they are highly recommended. All students have access to free Autodesk software downloads available at <http://students.autodesk.com/>. If you do not have access to your own computer to complete your homework, computer labs are available during open building hours 8:00 AM – 9:30 PM M-F. At least 3-9 hours of homework time outside each 3 credit course is normal and to be expected.
8. Hours for faculty members are posted on the faculty member's door. You may also make appointments with faculty via e-mail.
9. Only SMCC E-mail addresses will be used by faculty to communicate to students. E-mails between student and faculty must meet the following criteria:
 - a. The subject line has the **class code** along with a reference to the e-mail subject
 - b. E-mails must be signed with the student's full name as it appears on the class list.

See the full e-mail etiquette policy in **R:\General\Department Policies**.

10. **Attendance policy** – attendance is taken at the beginning of each class. If the student is late for a class it is the responsibility of the student to review their attendance and make sure that they have been marked Tardy rather than absent. There are no excused absences. Students are either present or absent.
 - a. **For classes that meet once a week** – no more than 3 absences are allowed **total**, no more than 2 classes may be missed **in a row**. A student who misses a class will receive a warning e-mail; if two weeks in a row are missed without communication the student will receive an Administrative Fail (AF) for the class. A student who has a total of 3 classes will receive an AF.
 - b. **For classes that meet twice a week** – no more than a total of 5 absences are allowed; no more than 3 classes may be missed **in a row**. If a student fails to attend two classes in a row he/she will receive a warning e-mail. If no correspondence has been made and the student fails to show for the third class in a row, the student will receive an AF for the class. Students that have missed a total of 5 classes will receive an AF.
 - c. It is the responsibility of the student to make sure to get the course materials and assignments that were covered during his/her absence. Assignment due dates **WILL NOT BE ADJUSTED DUE TO AN ABSENCE**. See late work policy above.
11. All students are expected to take notes and maintain them for reference purposes throughout the class and future classes. Students must also be responsible for their own backup of course work. If work is lost it is **NOT** the AEDD responsibility to replace or find it.
12. All work must follow the Technical Graphics Standards Manual for the AEDD. A copy of the manual has been placed in R:\Standards Various Sources

End-of-Course Evaluation

Students complete evaluations for each course attended at SMCC. Evaluations are submitted online and can be accessed through the student portal. Students can access the course evaluations beginning one week before the end of classes. The deadline for submission of evaluations occurs Monday at 5 PM following the last day of the class. You will receive an email to your student email account when course evaluations are available.

ADA Syllabus Statement

Southern Maine Community College is an equal opportunity/affirmative action institution and employer. For more information, please call 207-741-5798. If you have a disabling condition and wish to request accommodations in order to have reasonable access to the programs and services offered by SMCC, you must register with the Disability Services Coordinator, Sandra Lynham, who can be reached at 741-5923. Further information about services for students with disabilities and the accommodation process is available upon request at this number. Course policies about online testing are modified to suit each individual's accommodations.

SMCC Pay-for-Print Policy

Per Page Costs

Each semester students receive a \$20 printing credit. The balance resets at the end of the semester and any remaining credits are removed. The cost varies depending upon page size and whether printing is done in black and white or color.

- a. There is a \$0.10 per page fee for standard 8.5" by 11" black and white documents.
- b. The reverse sides of duplex (double-sided) documents are free.
- c. There is a \$.50 per page fee for standard 8.5" by 11" color documents.
- d. There is a \$.20 per page fee for 8.5" by 14" (legal) or 11" by 17" (tabloid) black and white documents.
- e. There is a \$1.00 per page fee for 8.5" by 14" (legal) or 11" by 17" (tabloid) color documents.

Duplex charges (printing on both sides of a page) work in the following fashion: One page is \$0.10, two pages are \$0.10, three pages are \$0.20, and four pages are \$0.20, etc. The flipsides are free, but another sheet of paper is \$0.10. Please be aware that a document with any color at all (when printed to a color printer) will by default be printed in color. You are responsible for setting the print job to print black and white if you do not need color. For directions, please go to the IT Help tab in My SMCC.

How does it work?

The College's pay-for-print system monitors printing on all printers (including those in general access labs, library printers, the Academic Achievement Center, Noisy Lounge and technology labs). Students can check the number of pages they have printed by using the Printing Balance tool available on SMCC computers (located in the lower right corner of the screen, near the clock). Departments with work study students who need to print documents for the department should contact the Help Desk at 741-5696 to have a special account set up.

Refunds

Print jobs are eligible for a refund in the event of mechanical or electronic error on the part of the printer, print server, or software used to submit the job. Jobs are not eligible for a refund in cases where the job was not set up correctly, was submitted multiple times, or the student is not satisfied with the result. To request a refund, please bring the offending print to the IT Department in the basement of the Ross Technology Center. Refunds will be granted in the form of a credit to the student's account.

Why is SMCC charging for printing?

The pay-for-print system is an effort to control escalating printing costs. Charging for printing helps offset the increasing cost of supplies and encourages students to conserve resources. To find ways to reduce your printing charges, please go to the IT Help tab on My SMCC. If you have questions about the pay-for-printing policy or your printing charges, please contact the Help Desk at 741-5696 or send an email to helpdesk@smccme.edu.

Be sure to log OUT of the system when you've finished your printing, to prevent unauthorized access to your account.

Add-Drop Policy

Students who drop a course during the one-week "add/drop" period in the fall and spring semesters and the first three days of summer sessions receive a 100% refund of the tuition and associated fees for that course. Please note any course that meets for less than the traditional semester length, i.e., 15 weeks, has a pro-rated add/drop period. There is no refund for non-attendance.

Withdrawal Policy

A student may withdraw from a course only during the semester in which s/he is registered for that course. The withdrawal period is the second through twelfth week of the fall and spring semesters and the second through ninth week of twelve-week summer courses. This period is pro-rated for shorter-length courses. To withdraw from a course, a student must complete and submit the appropriate course withdrawal form, available at the Enrollment Service Center (no phone calls, please). The designation "W" will appear on the transcript after a student has officially withdrawn. A course withdrawal is an uncompleted course and may adversely affect financial aid eligibility. Failure to attend or ceasing to attend class does not constitute withdrawal from the course. There is no refund associated with a withdrawal.

Plagiarism Statement

Adherence to ethical academic standards is obligatory. Cheating is a serious offense, whether it consists of taking credit for work done by another person or doing work for which another person will receive credit. Taking and using the ideas or writings of another person without clearly and fully crediting the source is plagiarism and violates the academic code as well as the Student Code of Conduct. If it is suspected that a student in any course in which s/he is enrolled has knowingly committed such a violation, the faculty member should refer the matter to the College's Disciplinary Officer and appropriate action will be taken under the Student Code of Conduct. Sanctions may include suspension from the course and a failing grade in the course. Students have the right to appeal these actions to the Disciplinary Committee under the terms outlined in the Student Code of Conduct.

AEDD 216 T1 Lesson plan

PROPOSED CALENDAR

Weekly Topics

- 1 (1/17) Earth Issues (Chapters 1-3 reading)
- 2 (1/24) Regional Issues (Energy Production chapter reading)
- 3 (1/31) City Issues
- 4 (2/7) Neighborhood Issues
- 5 (2/14) Site Issues (Water and Waste chapter reading)
- 6 (2/21) Building Issues- Intro Passive House/Formulas Energy Balance
- 7 (2/28) Envelope/ Insulation (Envelope chapter reading)
- 8 (3/7) Air Sealing/ Venting (Cooling chapter and re-read some Energy Production)
- 9 (3/14) no class
- 10 (3/21) Wall assemblies
- 11 (3/28) Hygrothermal Analysis
- 12 (4/4) Windows/Doors (Passive Solar and Lighting)
- 13 (4/11) Thermal Bridging
- 14 (4/18) Heating/ (Heating chapter reading)
- 15 (4/25) Economics
- 16 (5/2) Draft of house & PHPP
- 17 (5/9) Final Presentations

