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## ENVS 294- W5 Passive House and Net Zero Energy Buildings

Spring 2021  
Online Course

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**COURSE DESCRIPTION:** Credits 3. Reduction of energy consumption of buildings is an important step towards a sustainable future. With a focus on the concept of highly energy-efficient buildings, this course explores the passive buildings design ideas, tools, and strategies to use natural energies (solar, wind, and geothermal, etc.) available in the local climate, providing heating, cooling, ventilation and daylighting for indoor environments. It also explains building-integrated systems (BIPV<sup>1</sup>, BIWT<sup>2</sup>, etc.) in net zero energy buildings, to convert renewable energies into electrical energy. It helps students to understand how a well-designed net zero building can produce with on-site renewables the same, or more, amount of energy as it consumes on an annual basis. Zero energy and passive strategies are very scalable from single family homes, to large commercial buildings, to districts or communities of buildings. The course reviews PHIUS<sup>3</sup> and NZEB<sup>4</sup> certification programs, requirements, and process, to prepare students (in part) for these credential exams. It employs a mix of brief lectures, readings, videos, films and online discussions to engage students in learning and provide opportunities for them to move from consumers to creators, to successfully manage their energy budgets, reducing fossil fuel usage and GHG emissions, and improving comfort, health and well-being (addressing to the UN Sustainable Development 3, 7, 8, 9, 11, 12, 13 Goals<sup>5</sup>).

### **COURSE LEARNING OBJECTIVES (CLOs):**

Upon completion of this course the student will be able to:

**CLO 1:** Explain the impact of building as the largest contributor to climate change, on natural environment and human health and well-being.

**CLO 2:** Realize the complexity of sustainability as a multi-dimensional issue, and the significance of sustainable development goals (UN SDGs).

**CLO 3:** Highlight the benefits of energy-efficient (EE) buildings from a sustainability perspective.

**CLO 4:** Identify the concept of passive house (Passivhaus) and discuss its key elements and five design principles.

**CLO 5:** Recognize the concept of net-zero energy buildings (NZEB) and explain its design fundamentals, process, integrated systems, and classifications.

**CLO 6:** Demonstrate the acquired knowledge associated with the Passive House Institute US (PHIUS) and Net-Zero Energy Building (NZEB) certification programs.

**CLO 7:** Analyze the PHIUS and NZEB certified projects as successful case studies, to extrapolate the design guidelines, principles, and implications (as lessons learned) to integrate them in the energy-efficient building design and construction for a sustainable future.

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<sup>1</sup> Building-integrated photovoltaic (BIPV)

<sup>2</sup> Building-integrated Wind Turbine (BIWT)

<sup>3</sup> Passive House Institute US (PHIUS)

<sup>4</sup> Net Zero Energy Building (NZEB)

<sup>5</sup> <https://sustainabledevelopment.un.org/post2015/transformingourworld>

**COURSE CONTENT OUTLINE:**

<b>Module 1</b>	Week 1: Introduction and Syllabus Review
<b>Module 2</b>	Week 2: Built Environment and Climate Change: Status, Challenges and Opportunities
<b>Module 3</b>	Week 3: Sustainable Development: Definition, Dimensions, and Goals
<b>Module 4</b>	Week 4: Energy-Efficient (EE) Buildings: Toward a Sustainable Future
<b>Module 5</b>	Week 5: The Concept of Passive House (Passivhaus): Definition, History, and Benefits
	Week 6: The Basics (Key Elements) of Passive Design of Buildings
	Week 7: Five Principles of Passive House Design and Construction
	Week 8: Passive House Institute US (PHIUS) Certification Program
	Week 9: Case Studies: PHIUS-Certified Projects Review (Lessons Learned)
<b>Module 6</b>	Week 10: Net-Zero Energy Building (NZEB): Definitions, Background, and Classifications
	Week 11: Integrated Design Fundamental and Process
	Week 12: The Essential Elements and Principles for Net-Zero Buildings
	Week 13: Net-Zero Energy Building (NZEB) Certification Program
	Week 14: Case Studies: NZEB-Certified Projects Review (Lessons Learned)
-----	Week 15: Wrap Up and Course Review
	Week 16: Final Exam (Comprehensive)

**MODULE LEARNING OBJECTIVES (MLOs):**

Upon completion of each module the student will be able to:

<b>Module 1:</b> Introduction and Syllabus Review	Week 1	<p><b><u>MLO 1-1:</u></b> Explain the impacts of population growth and human activities on natural resources and environment. (CLO 1)</p> <p><b><u>MLO 1-2:</u></b> Discuss the possible solutions, techniques, and strategies to prevent climate change and energy crisis. (CLO 1, CLO 2)</p> <p><b><u>MLO 1-3:</u></b> Identify the concept of energy-efficient and net-zero energy buildings to reduce energy demand and GHG emissions for a sustainable future. (CLO2, CLO 3, CLO 5)</p>
<b>Module 2:</b> Built Environment and Climate Change: Status, Challenges and Opportunities	Week 2	<p><b><u>MLO 2-1:</u></b> Describe the role of buildings as the largest contributor to climate change. (CLO 1)</p> <p><b><u>MLO 2-2:</u></b> Discuss the salient features of energy use and greenhouse gas (GHG) emissions from building use and construction. (CLO 1)</p>
<b>Module 3:</b> Sustainable Development: Definition, Background, Dimensions, and Goals (UN SDGs)	Week 3	<p><b><u>MLO 3-1:</u></b> Describe the concept of sustainable development as a complex and interconnected challenge requiring multiple perspectives and problem-solving strategies. (CLO 2)</p> <p><b><u>MLO 3-2:</u></b> Explain the UN sustainable development goals (UN SDGs) and their importance for future community development. (CLO 2)</p> <p><b><u>MLO 3-3:</u></b> Highlight the benefits of green buildings to achieve the UN SDGs. (CLO 2, CLO 3, CLO 4, CLO 5)</p>

<p><b>Module 4:</b> Energy-Efficient (EE) Buildings: Toward a Sustainable Future</p>	<p>Week 4</p>	<p><b>MLO 4-1:</b> Define the concept of energy efficiency and highlight its importance in the building sector. (CLO 3)  <b>MLO 4-2:</b> Highlight the benefits of energy-efficient buildings from a sustainability perspective. (CLO 2, CLO 3)  <b>MLO 4-3:</b> Discuss design strategies to improve energy efficiency in high-performance buildings for a sustainable future. (CLO 2, CLO 3, CLO 6, CLO 7)</p>
<p><b>Module 5:</b> The Concept of Passive House (Passivhaus): Definition, History, Benefits, The Key Elements (Basics) of Passive Buildings Design, Five Principles of Passive House Design and Construction, PHIUS Certification Program, and PHIUS - Certified Projects Review (Case Studies)</p>	<p>Week 5</p>	<p><b>MLO 5-1:</b> Describe the concept of Passive House (Passivhaus) as a high-performance building design approach. (CLO 4)  <b>MLO 5-2:</b> Explain the historical background of Passive House. (CLO 3, CLO 4)  <b>MLO 5-3:</b> Identify the advantages of a passive house including higher air quality and consistent interior temperatures. (CLO 4)  <b>MLO 5-4:</b> Discuss the Passive House protocol, necessary skills, and composition of the design team. (CLO 4, CLO 6)</p>
	<p>Week 6</p>	<p><b>MLO 5-5:</b> Explain passive solar heating design strategies in energy-efficient buildings including building location, layout and orientation on the site, etc. (CLO 3, CLO 4, CLO 7)  <b>MLO 5-6:</b> Discuss the passive cooling and ventilation techniques such as fixed/operable external shading, thermal mass, wind towers, etc. (CLO 3, CLO 4, CLO 7)  <b>MLO 5-7:</b> Explain daylighting design principles for passive buildings including space planning, high ceilings, window size and placement, light shelves, clerestories, etc. (CLO 3, CLO 4, CLO 7)</p>
	<p>Week 7</p>	<p><b>MLO 5-8:</b> Explain the passive house design principle #1: Continuous insulation. (CLO 4, CLO 6, CLO 7)  <b>MLO 5-9:</b> Discuss the passive house design principle #2: Superinsulation and airtight construction. (CLO 4, CLO 6, CLO 7)  <b>MLO 5-10:</b> Describe the passive house design principle #3: High-performance glazing. (CLO 4, CLO 6, CLO 7)  <b>MLO 5-11:</b> Express the passive house design principle #4: Thermal-bridge-free in architectural interface details. (CLO 4, CLO 6, CLO 7)  <b>MLO 5-12:</b> Discuss the passive house design principle #5: Heat recovery ventilation (HRV) system. (CLO 4, CLO 6, CLO 7)</p>
	<p>Week 8</p>	<p><b>MLO 5-13:</b> Explain the Passive House Institute US (PHIUS) certification process and timeline. (CLO 4, CLO 6)  <b>MLO 5-14:</b> Describe the challenges and benefits of applying PHIUS+ Passive House certification for different types/scales of project. (CLO 4, CLO 6)  <b>MLO 5-15:</b> Identify the health and wellness benefits of building to the PHIUS+ Passive House Standard. (CLO 4, CLO 6)</p>
	<p>Week 9</p>	<p><b>MLO 5-16:</b> Identify some of the successful PHIUS-certified buildings as case studies. (CLO 6, CLO 7)</p>

		<p><b><u>MLO 5-17:</u></b> Analyze PHIUS-certified project cases to extrapolate the design guidelines, principles, and implications. (CLO 6, CLO 7)</p>
<p><b>Module 6:</b> Net-Zero Energy Building (NZEB): Definition, Background, and Classifications, Integrated Design Fundamental and Process, The Essential Elements and Principles, NZEB Certification Program, and NZEB-Certified Projects Review (Case Studies)</p>	Week 10	<p><b><u>MLO 6-1:</u></b> Define the concept of Net-Zero (NZ) from different perspectives including the CHBA’s definition of Net Zero, Net Zero Ready Homes, etc. (CLO 3, CLO 5)</p> <p><b><u>MLO 6-2:</u></b> Explain the concept of Net-Zero energy buildings (NZEB) and assumptions such as grid connections, fuel switching, and renewable energy credits. (CLO 3, CLO 5)</p> <p><b><u>MLO 6-3:</u></b> Outline the historical background and importance of Net-Zero energy buildings (NZEB). (CLO 3, CLO 5)</p> <p><b><u>MLO 6-4:</u></b> Discuss the energy supply options and priorities including, low energy buildings, renewable energy generated within the building footprint, renewable energy generated within the boundary of the building site, off-site renewable energy used to generate energy on site, purchase renewable energy generated off site. (CLO 3, CLO 5, CLO 7)</p> <p><b><u>MLO 6-5:</u></b> Identify the building-integrated systems such as BIPV, BIWT, etc. in net-zero energy buildings. (CLO 3, CLO 5, CLO 7)</p> <p><b><u>MLO 6-6:</u></b> Identify the net-zero energy buildings (NZEB) classifications. (CLO 3, CLO 5, CLO 6, CLO 7)</p>
	Week 11	<p><b><u>MLO 6-7:</u></b> Highlight the critical components of an integrated design process for creating net-zero projects. (CLO 5, CLO 6, CLO 7)</p> <p><b><u>MLO 6-8:</u></b> Discuss the integrative process as a whole system thinking approach. (CLO 5, CLO 7)</p> <p><b><u>MLO 6-9:</u></b> Recognize the role of each passive house design team members with different expertise. (CLO 5, CLO 7)</p> <p><b><u>MLO 6-10:</u></b> Demonstrate the acquired knowledge associated with the collecting and analyzing site-specific data to develop the most efficient design solutions at the lowest cost. (CLO 5, CLO 6, CLO 7)</p>
	Week 12	<p><b><u>MLO 6-11:</u></b> List the four main control layers of a net-zero building to achieve the higher levels of performance. (CLO 5, CLO 7)</p> <p><b><u>MLO 6-12:</u></b> Explain thermal control layer characteristics such as R value, thermal bridging, insulation, etc. (CLO 5, CLO 7)</p> <p><b><u>MLO 6-13:</u></b> Discuss air-control layer as a system of materials to control airflow through a building enclosure between indoor and outdoor. (CLO 5, CLO 7)</p> <p><b><u>MLO 6-14:</u></b> Explain the water-control layer as a continuous layer that is designed, installed, or acts to form the rainwater boundary. (CLO 5, CLO 7)</p>
	Week 13	<p><b><u>MLO 6-15:</u></b> Identify some of the successful NZEB-certified buildings as case studies. (CLO 6, CLO 7)</p> <p><b><u>MLO 6-16:</u></b> Analyze NZEB-certified project cases to extrapolate the design guidelines, principles, and implications (CLO 5, CLO 6, CLO 7)</p>

### **REQUIRED TEXT:**

1. Piraccini, S. and Fabbri, K. 2017. Building a Passive House: The Architect's Logbook. Springer.
2. Maclay, B. 2014. The New Net Zero: Leading-Edge Design and Construction of Homes and Buildings for a Renewable Energy Future, Chelsea Green Publishing, ISBN: 978-1603584487.
- In addition to the textbooks, some additional materials will be provided including posted documents, weblinks, online articles, and videos as online resources that are available for eLearning students.

### **RECOMMENDED TEXT:**

1. Iyengar, K. 2015. Sustainable Architectural Design: An Overview, Routledge.
2. Corner, D., Fillinger, J., Kwok, A. 2017. Passive House Details: Solutions for High-Performance Design, Routledge.
3. James, M. 2015. Net-Zero Energy Buildings Passive House+ Renewables, Low Carbon Productions.
4. Attia, Shady. 2018. Net-Zero Energy Buildings (NZEB): Concepts, Frameworks and Roadmap for Project Analysis and Implementation. Butterworth-Heinemann.

**COURSE ACTIVITIES/ TEACHING STRATEGIES:** The course will use a mix of brief lectures, readings, videos, films, and other instructional strategies for online courses such as virtual field trips and guided tours to engage students more in learning and provide opportunities for them to move from consumers to creators. **Students are required to take one (1) exams, three (3) module self-assessment quizzes, and seven (7) module assignments** in different types of literature review, research essay/ paper, project presentation, etc. where they can exercise independent studies, either alone or in group of three. **five (5) module online discussion forums/ Wikis** are also designed to be a part of class, to encourage students to explore a topic in detail and exchange ideas on the energy-efficiency in buildings, passive design strategies, net-zero energy building systems, renewable energy technologies, Passive House Institute US (PHIUS) and Net-Zero Energy Building (NZEB) certifications, etc. Students are required to access information such as grades, lecture presentations, lecture outlines, readings, supplemental materials, videos, tools, the blog, assignments, discussions, and other resources will be available on Blackboard.

### **ADDITIONAL UNIQUE ASPECTS OF COURSE:**

1. **Addressing the UN' Sustainable Development 3, 7, 8, 9, 11, 12, 13 Goals**<sup>6</sup>, this interdisciplinary course focuses on the passive design and net-zero buildings as energy-efficient sustainable solutions, to provide the opportunity for students to move from consumers to creators, to successfully manage their energy budgets, reducing fossil fuel usage, GHG emissions and other contributors to climate change, as well as improving comfort, health and well-being for a sustainable future.
2. With a focus on **Passive House Institute US (PHIUS)** certification program, requirements, and process, it (in part) prepares students for the Passive House Institute US (PHIUS) exam or becoming a Certified Passive House Designers/Consultants (CPHD/C®).
3. This course highlights the **mission of department of geography and environmental sustainability at SUNY Oneonta**, to “give students the geographic and/or environmental sustainability knowledge and skills they need to interpret social, physical and environmental influences at local, regional and global scales”<sup>7</sup>. This course encourages students to integrate passive strategies and net-zero energy systems in their design projects, developing energy-efficiency buildings to improve communities, countries, and the world, while showcasing SUNY Oneonta’s commitment to sustainability.
4. This course also fulfills the **SUNY General Education attributes NS3** to help students to “understand the methods scientists use to explore natural phenomena, including observation, hypothesis development, measurement and data collection, experimentation, evaluation of evidence, and employment of mathematical analysis; and application of scientific data, concepts, and models in one of the natural sciences”<sup>8</sup>.

<sup>6</sup> <https://sustainabledevelopment.un.org/post2015/transformingourworld>

<sup>7</sup> <https://suny.oneonta.edu/geography-environmental-sustainability>

<sup>8</sup> <https://suny.oneonta.edu/academic-advisement/general-education>

## **COURSE REQUIREMENTS:**

### **GENERAL REQUIREMENTS:**

- **Course Format:** This course is delivered completely online asynchronously (so you will need consistent, reliable access to the Internet) via Blackboard. The tools that are part of Blackboard (grading, information posting, emails, etc.) will be used for administration and general communication. A discussion board will be the primary tool for interaction within the class. Microsoft Office, Adobe Acrobat, Google Earth, etc. will be used to develop and view materials as well as demonstrate concepts being discussed or presented. Media to be used will include digital documents, video and audio. The media will be a combination of instructor developed material as well as material available in print or web based. The tools and media are selected in conjunction with each course module and the associated learning objectives. Course components include online material, multimedia, threaded discussions and e-mail. This course is primarily **asynchronous (not “real time”)**; please keep in mind that each module is designed to be completed within the designated timeframe and will include specific "due dates" for each part of the module's assignments.
- **Attendance Policy:** Success in this course is dependent on your active participation and engagement throughout the course. You need consistent, reliable access to the Internet via Blackboard, as it delivers online using an asynchronous (not “real time”) format. As such, students are required to complete all assignments by the due date, and to actively participate in class discussions. Additionally, students are expected to:
  - Log on at least three times a week – on different days in order to completely weekly assignments, assessments, discussions and/or other weekly deliverables as directed by the instructor and outlined in the syllabus;
  - Participate in the weekly threaded discussions, this means that, in addition to posting a response to the thread topic presented, students are expected to respond to each other and comment and questions from the instructor and/or other students;

If you find that you cannot meet the class' minimum discussion requirements due to such a circumstance, please contact your instructor as soon as possible. Students will not be marked present for the course in a particular week if they have not posted on the discussion forum and/or submit assignment/essay or complete assessment if administered in that week.

### **SPECIFIC REQUIREMENTS:**

1. **Exams/Quizzes:** There will be **one (1) exam** (see the attached course schedule for the exam dates). In addition, there will be **three (3) self-assessment quizzes**. Quiz material will be drawn from the previous discussions and assigned readings. Exam/quizzes will consist of a mix of multiple choice, true/false, and short answer questions about the material covered in that unit.
2. **Discussions/Forums:** Students are required to participate in **five (5) online discussion forums/Wikis** as a part of class, to explore a topic in detail and exchange ideas. Attendance by way of online participation is considered in the calculation of the student's final grade, as each activity is assigned a value and is counted toward the student's final grade. The instructor reserves to issue a failing grade for lack of online presence in this course.
3. **Homework Assignments:** Students are required to conduct **seven (7) assignments**. All assignments should be completed independently unless they are specifically indicated as a team assignment by your instructor (directions for the homework assignments and group assignments will be made available on Blackboard). Students are expected to complete all assigned readings prior to each class; these may include materials supplemental to the textbook posted on Blackboard. Students must always properly cite their sources and properly credit all words, thoughts and images to the original author. Students are also responsible for completing all assignments by due dates and times. Due dates will be announced when the assignment becomes available on the Blackboard calendar. You have to submit your assignments in Microsoft Word or PDF format using the Blackboard Assignment tool (digital drop boxes) on Blackboard (please plan ahead in case there are technical difficulties) unless there are extenuating circumstances, **emailed papers will not be accepted**.

\*\*\*NOTE: I always aim to have assignments graded within a week of the due date, often sooner. If you don't see a score within a week, please check to make sure it was received. DO NOT WAIT until the end of the semester to check. To iterate, I will not accept missing material or reconsider missing grades after the final class.

**LATE ASSIGNMENT/ MAKE-UP TEST POLICY:** All assignments must be submitted online on Blackboard on the due date announced unless otherwise noted by the instructor. If you cannot submit work on time, let me know beforehand and we'll make alternate arrangements. Unexcused late work will only be accepted for up to one week after the due date, with reduced credit.

**METHOD OF EVALUATION & BASIS OF FINAL COURSE GRADE DETERMINATION:**

**Assessment Methods:**

- Professor will regularly interact with the students through discussion forums, and provide feedback validating their understanding of the fundamental course material delivered through posted readings and videos and posts, papers and projects presented by other students. Discussions will be evaluated utilizing an associated Discussion Board Participation rubric and assigned points for each discussion forum.
- Posted module assignments will be discussed and critiqued by the professor and other students. The student will be evaluated utilizing an associated Written Assignment Assessment rubric and assigned points for each assignment.
- Self-assessment quizzes will be provided in seven modules to assist the student in assessing their understanding of the reading assignments. All quizzes are graded items and their weights are indicated in the course.

\*\*\*NOTE: All rubrics and their associated assessment criteria will be available to the student.

**Course Grading:** Your final letter grade is determined on a **percentage-based scale**. Please don't assume that percentages from other classes guarantee a particular final grade in this class. You can track your progress throughout the semester by adding up points you've earned out of the total possible.

<b>Course Grading:</b>		<b>Total Percentage</b>
Final Exam (Comprehensive)	20%	25%
Self-assessment quizzes	3@5% each	15%
Assignments	7@5% each	35%
Discussion forums and Wiki Participation	5@5% each	25%
<b>Total</b>		<b>100%</b>

**Distribution:** The distribution of your final grade will be based on the following:

A 90-100 B 80-89 C 70-79 D 60-69 F Below 60

Please do not email to ask if I will give you extra points or if you can complete missing assignments or extra credit after grades are posted (especially since I am required to submit final grades to the Registrar within 48 hours of the exam).

**STUDENTS WITH DISABILITIES:** All individuals who are diagnosed with a disability are protected under the Americans with Disabilities Act, and Section 504 of the Rehabilitation Act of 1973. As such, you may be entitled to certain accommodations within this class. If you are diagnosed with a disability, please make an appointment to meet with Accessibility Resources, 133 Milne Library, ext. 2137. All students with the necessary supporting documentation will be provided appropriate accommodations as determined by the Accessibility Resources Office. It is your responsibility to contact Accessibility Resources and concurrently supply me with your accommodation plan, which will inform me exactly what

accommodations you are entitled to. You will only receive accommodations once you provide me with an Accessibility Resources accommodation plan. Any previously recorded grades will not be changed.

**ACADEMIC INTEGRITY:** You are expected to know and abide by SUNY Oneonta’s Academic Integrity Policy<sup>7</sup>. Plagiarism in any form—including copying and pasting text from websites or other materials without using quotation marks and/or referring to information without properly crediting sources—will not be tolerated. If you unethically copy the work of another student or outside source, you will receive NO CREDIT for the entire assignment.

**COURSE SCHEDULE:**

<b>Module</b>	<b>Topic</b>	<b>Task to Complete</b>	<b>Due Date</b>
<b>Week 1</b> (1/25-1/31)	Introduction and Syllabus Review	W1_Ice Breaker (DB)	1/28
		W1_Discussion Board	1/31
<b>Week 2</b> (2/1-2/7)	Built Environment and Climate Change: Status, Challenges and Opportunities	W2_Discussion Board	2/7
<b>Week 3</b> (2/8-2/14)	Sustainable Development: Definition, Dimensions, and Goals	W3_Assignment	2/14
<b>Week 4</b> (2/15-2/21)	Energy-Efficient (EE) Buildings: Toward a Sustainable Future	W4_ Quiz	2/21
<b>Week 5</b> (2/22-2/28)	The Concept of Passive House (Passivhaus): Definition, History, and Benefits	W5_ Assignment	2/28
<b>Week 6</b> (3/1-3/7)	The Basics (Key Elements) of Passive Design of Buildings	W6_ Assignment	3/7
<b>Week 7</b> (3/8-3/14)	Five Principles of Passive House Design and Construction	W7_ Assignment	3/14
<b>Week 8</b> (3/15-3/21)	Passive House Institute US (PHIUS) Certification Program	W8_ Quiz	3/21
<b>Week 9</b> (3/22-3/28)	Case Studies: PHIUS-Certified Projects Review (Lessons Learned)	W9_ Wiki	3/28
<b>Week 10</b> (3/29-4/4)	Net-Zero Energy Building (NZEB): Definition, Background, and Classifications	W10_ Assignment	4/4
<b>Week 11</b> (4/5-4/11)	Integrated Design Fundamental and Process	W11_ Assignment	4/11
<b>Week 12</b> (4/12-4/18)	The Essential Elements and Principles for Net-Zero Buildings	W12_ Assignment	4/18
<b>Week 13</b> (4/19-4/25)	Net-Zero Energy Building (NZEB) Certification Program	W13_ Quiz	4/25
<b>Week 14</b> (4/26-5/2)	Case Studies: NZEB-Certified Projects Review (Lessons Learned)	W14_ Wiki	5/2
<b>Week 15</b> (5/3-5/9)	Wrap Up and Course Review	-----	5/9
<b>Week 16</b> (5/10-5/16)	Final Exam (Comprehensive)	-----	5/16

\*DB: Discussion Board Participation

<sup>7</sup> <http://www.oneonta.edu/development/judicial/code.pdf>