DCP6231C | DCP4214 | Section LEED
Green Building Strategies | LEED Lab
6 Credits | Fall 2025

DCP4214 Green Building Strategies, LEED Lab has met all the essential UF Quality standards and received a total of **141/142** points. The course has received the **Exemplary** designation.

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Course Time & Location:	Tuesdays | Period 6-8 | 12:50 – 3:50 | Architecture Building, Room 411 Thursdays | Period 6-8 | 12:50 – 3:50 | Architecture Building, Room 411
Course Co/Prerequisite:	DCP3210 (or) another course in the topic area and approved by the instructor
Office hours:	Tuesdays | 8:30-10:30 am | Thursdays | 8:30-10:30 am | Or By appointment Rinker Hall, Room 322
Course Website:	DCP6231C/DCP4214 - Green Bldg Strategies (LEED Lab) for modules, announcements, assignments, discussions, lecture slides, readings, quizzes, and grades
Graduate students	*Apply **advanced analytical skills** in evaluating Net Zero Certification pathways for a campus or campus buildings. This includes the ability to assess and recommend strategies for the elimination of **Scope 1, Scope 2, and selected Scope 3 emissions**, using tools and resources from the Global Network for Zero **(GNFZ)** platform.* *In this syllabus, graduate-level deliverables and expectations are **clearly delineated in italics within the Final Project description** and are **highlighted in light gray.***

Strategies to Design and Build High Performance Sustainable Buildings

As part of UF's long-standing commitment to sustainability, LEED™ principles have guided the planning, design, construction, and operation of campus buildings since 2003. In this course, students will apply LEED™ v4 (BD+C) to a real-world campus project—this semester, the DCP Collaboratory—analyzing its sustainable design strategies through hands-on learning.

Class project, UF-653- DCP Collaboratory

Course Description

This multidisciplinary course introduces students to green strategies and technologies used in the design, construction, and operation of high-performance buildings. It is designed to equip students with the knowledge and skills needed to become effective communicators, critical thinkers, project managers, problem solvers, and collaborative team members in the field of sustainable built environments.

Students will explore sustainable design and construction principles through the lens of the Leadership in Energy and Environmental Design (LEED™) rating system, with an emphasis on both new construction and ongoing building operations. The course also highlights how green building practices align with the United Nations Sustainable Development Goals (UN SDGs).

This semester, the course will use the UF-653 DCP Collaboratory building as a living lab for hands-on learning and application of LEED™ v4 for Building Design and Construction (BD+C). Through real-world experience and project-based learning, students will gain valuable insight into sustainable development frameworks.

In addition, students will be challenged to think beyond LEED™, exploring pathways toward **Net Zero certification** as a critical step in addressing the global climate crisis. The course will introduce tools and resources from the Global Network for Zero, empowering students to apply Net Zero principles to building design, operation, and policy in alignment with climate action goals.

Successful completion of the course will prepare students to pursue the LEED™ v4 Green Associate (GA) and Accredited Professional (AP) credential exams.

Learning Objectives

By the end of this course, students will be able to:

- Compare and evaluate major green building rating systems, with an emphasis on the application of LEED™ v4 for Building Design and Construction (BD+C) to real-world projects.
- Assess and apply LEED™ v4 strategies across key categories: Location and Transportation, Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, and Indoor Environmental Quality.
- Utilize industry-standard tools and platforms, including ENERGY STAR Portfolio Manager, Target Finder, energy modeling software, Arc Skoru, LEED Online, Ecomedes, HelioScope, and utility metering and analytics to support sustainable design and performance evaluation.

- Analyze the full life cycle of a LEED-certified project—from conceptual design through construction, certification, and post-occupancy performance monitoring.
- Prepare for and pursue professional credentialing through the LEED™ v4 Green Associate (GA) and LEED™ v4 Accredited Professional (AP) exams.
- Challenge students to think beyond LEED™, exploring pathways toward Net Zero certification using tools and resources from the Global Network for Zero, in alignment with climate action and decarbonization goals. *Graduate students.*

Student Learning Outcomes (SLOs)

By the end of this course, students will be able to:

- **Demonstrate foundational knowledge and practical skills** essential for success in the green building industry.
- **Apply Net Zero certification frameworks** to support the development and operation of a low-emission, sustainable built environment. *Graduate students.*
- **Communicate effectively** through high-quality verbal presentations and professional written deliverables tailored to diverse audiences.
- **Prepare for and pursue professional LEED™ credentials**, including the Green Associate (GA) and/or Accredited Professional (AP) designations.
- **Collaborate effectively in multidisciplinary, team-based project environments**, simulating real-world sustainability and green building practice.

Required Text/Reading:

- No textbook required, but below links from USGBC, UN, and DOE are integrated into the course
- https://www.usgbc.org/guide/bdc , https://www.usgbc.org/leed https://www.usgbc.org/leed/why-leed, LEED Crosswalks
- LEED V4.1 information
- United Nations, Sustainable Development Goals (UN SDGs)
- https://www.solardecathlon.gov/building-science.html
- Global Network for Zero
- Weekly readings on Canvas

Course Format

Approach:

This course is structured around a real-world project setting, using a current on-campus building as a living lab. This semester, students will engage directly with the UF-653, DCP Collaboratory project, pursuing LEED certification, to apply course concepts in a practical, hands-on environment.

Delivery Method:

The course uses a blended learning approach that includes:

- Interactive lectures and class discussions
- Field trips to LEED-certified buildings on campus
- Hands-on learning activities and in-class demonstrations
- Team-based project work
- Guest speakers from industry and academia
- Student presentations and reflective writing
- Quizzes and knowledge checks
- **Weekly Reflections** to synthesize learning and track personal and professional growth

Paperless Activities and Assignments

This course is designed to operate in a fully paperless format, using Canvas (e-learning) as the central platform for all course communication, materials, assignments, and assessments.

Canvas will be used for:

- Announcements and weekly course updates
- Access to lecture slides, readings, and resources
- Submission of assignments, papers, projects, presentations, and videos
- Online quizzes and discussion boards

Student Responsibilities:

- Regularly check the Canvas course site for weekly materials, announcements, and presentation content
- Set up Canvas notifications to ensure timely receipt of all course announcements and messages
- Submit all coursework electronically through Canvas by the posted deadlines

Updated and consolidated

UF ACADEMIC POLICIES & RESOURCES

Class Project

This semester, the class will be working on **UF 653, DCP Collaboratory**, a new building/project on campus. The class is divided into **four teams, see below**. Each team will present their part during the final presentation. However, each team will work on **all aspects** of the project from start to finish during the semester.

Each team will have a **rotating team manager (bi-weekly)** responsible for overseeing weekly deliverables, ensuring on-time submission, leading team discussion and weekly reflection, and finalizing the weekly presentation.

Each team will develop a **PowerPoint presentation at the end of each module** integrating relevant **UN SDGs**. These will become part of the **cumulative final presentation**. The purpose of the weekly presentation is to reflect on student learning and application.

At the end of the semester, each team will present a **shortened version** of their cumulative presentation, highlighting their approach, strategies, tools, skills, and technologies used to optimize the DCP Collaboratory and providing recommendations for taking the project to **Net Zero certification**.

Final Project / Teams' Presentation:

- Each team must identify **UN SDGs** related to their topic and its application to the class project.
- Teams must also make **recommendations for UF buildings and campus-wide improvements**.
- The **Energy Team** must include strategies for achieving **Net Zero Energy**.

Class Teams:

• **Energy Efficiency Team:** Present strategies and technologies for achieving Net Zero Energy including energy types, envelope, HVAC systems, lighting, plug load, renewable energy, commissioning, and tools/skills needed. Complete Energy & Atmosphere credits submission with backup documentation. Include LEED v4.1 substitutions and related SDGs.

• **Indoor Environmental Quality and Sustainable Sites Team:** Present strategies and technologies for site management (landscape, rainwater, heat island, lighting) and IEQ (air quality, ventilation, thermal comfort, etc.). Complete IEQ and Site credit submissions with backup documentation. Include LEED v4.1 substitutions and related SDGs.

• **Water Efficiency and Transportation Team:** Present strategies and technologies for water efficiency (indoor/outdoor) and transportation. Include tools, approach, and skills. Complete Water Efficiency and Transportation credit submissions with documentation. Include LEED v4.1 substitutions and related SDGs.

• **Materials & Resources, Innovation, and Regional Priority Team:** Present strategies and technologies for material selection, waste, and innovation. Include tools, approach, and skills. Complete Materials & Resources. credit submissions with documentation. Include LEED v4.1 substitutions and related SDGs.

Team/Project Manager's responsibilities:

- Lead the discussion in the breakout sessions that covers LEED, net-zero energy and SDGs
- Ensure the weekly PowerPoint presentation is completed for each module and submitted on time.
- Manage and update the LEED checklist, credits, and prerequisites documents and upload them to Canvas.

Additional Graduate Assignment
Net Zero Certification Assessment Using the Global Network for Zero platform

Assignment Title:
Net Zero Certification Pathway Assessment for a Campus Building
Objective:
Students will conduct a Net Zero certification readiness assessment of a selected campus building using the Global Network for Zero (GNFZ) framework and tools. The assignment will evaluate the building's current greenhouse gas (GHG) footprint, assess its Net Zero potential, and recommend strategies for reducing Scope 1, 2, and key Scope 3 emissions, while integrating climate action with the UN Sustainable Development Goals (UN SDGs).

Deliverables

1. Building Profile (1–2 pages)

- Name, location, year built, building type, size (sq. ft.)
- Hours of operation, occupancy, LEED or other certifications (if applicable)
- Utility providers and building systems overview

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2. GHG Emissions Assessment

Use available data or Global Network of Zero tools or reasonable assumptions to develop a baseline of:

- Scope 1: On-site combustion (e.g., natural gas, diesel, boilers)
- Scope 2: Purchased electricity (based on utility data or ENERGY STAR estimates)
- Scope 3 (at least two categories):
  - Commuting (faculty, staff, and student estimates)
  - Waste management (landfill vs. recycling rates)
  - Embodied carbon in building materials (if data is available or building was recently renovated)
  - Procurement or food-related emissions (optional)

  Include:
- Emissions estimates in metric tons CO_2e
- Tools used (GHG Protocol tools, ENERGY STAR Portfolio Manager, EPA WARM, etc.)
- Data sources and assumptions clearly stated

  LEED building information, or LEED zero guide

Introduction to Global Network for Zero (GNFZ)

- **GNFZ Handbook**
- **Understanding Scope, 1, 2, & 3 emissions**
- **Using GNFZ Platform for assessment**

  Corporate Standard | GHG Protocol
- Net Zero resources

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3. Net Zero Readiness Assessment

Using the Global Network for Zero platform:

- Evaluate where the building stands today in relation to Net Zero certification
- Identify carbon reduction strategies across Scope 1, 2, and selected Scope 3 emissions
- Discuss building electrification potential, efficiency upgrades, renewables (onsite or offsite), and potential offset needs
- Link findings to relevant UN SDGs

  Global Network for Zero, review platform and assessment

  Develop net zero action plan , Net Zero Plan Template

  GNFZ Resources
  - **Understanding collecting data and using the emission factor**

Additional Graduate Assignment: Net Zero Certification Assessment Using the Global Network for Zero (Cont.)

4. Certification Roadmap & Recommendations

- Outline a proposed Net Zero pathway for the building:
  - Short-term (1–2 years): Quick wins and data gathering
  - Mid-term (3–5 years): Major retrofits and renewable integration
  - Long-term (by 2030): Full certification readiness
- Include considerations of:
  - LEED and WELL synergy (if applicable)
  - Health and equity co-benefits
  - Potential funding or incentive pathways
- Conclude with 3–5 recommendations for campus-wide application

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5. Presentation (10–15 slides)

- Summarize project findings, key strategies, and your proposed path to Net Zero
- Include visual data, graphs, and key performance metrics
- Present during class (individual or team, per instructor direction)

Report Requirements

The report should clearly explain your building selection, baseline data and assumptions, emissions breakdown (Scope 1, 2, and selected Scope 3), Net Zero certification feasibility, and a realistic action plan to meet Global Network for Zero standards. Support all recommendations with data and cite all sources.

Length:

- 5–7 pages (double-spaced), not including references, charts, or appendices
- Approximately 1,500–2,000 words

Format:

- Title page with student name, course, building name, and submission date
- Headings for each section:
  - Building Overview
  - GHG Emissions Assessment
  - Net Zero Readiness
  - Certification Roadmap & Recommendations
  - UN SDG Alignment
- Use tables, charts, and graphics where applicable (especially for energy data and emissions summaries)
- Citations required for all data and references (APA or your preferred format)

Tools & Resources

- Global Network for Zero
- GHG Protocol – Scope 1, 2, and 3 Guidance
- ENERGY STAR Portfolio Manager / Target Finder
- EPA WARM Model (Waste)
- Carbon Leadership Forum EC3 (for embodied carbon estimates)
- Arc Skoru, HelioScope, LEED v4.1 credit references (if applicable)

Appendices (optional but encouraged):
- Raw data tables
- GHG emissions calculations
- Screenshots of tools used (e.g., GNFZ platform interface)
- Any relevant LEED or ENERGY STAR documentation used for reference

Grading Criteria (100 points)

Component	Points
Building Profile & Data Quality	10
GHG Baseline – Scope 1 & 2	15
Scope 3 Analysis (minimum 2 categories)	15
Net Zero Readiness Assessment	20
Certification Pathway & Recommendations	20
Presentation Clarity & Depth	15
Writing Quality & Data Documentation	5

Due Date: December 3, 2025
Submission: PDF report + slide deck uploaded to Canvas
Presentation: December 3, 2025

Assignments and Grading

Assignment details, deliverables, due dates, and grades are published on Canvas

Grading Category	*Additional Details*	*Points*
Attendance	Required	5
Readings (Individual)	Readings, and checklist assessment (points vary) (0-15) • Weekly & Module-Based	15
Discussion (Individual)	Discussions (points vary) (0-15) • Weekly & Module-Based	15
Presentations (Team)	PowerPoint presentation (points vary) (0-15) • Weekly & Module-Based	15
Exams	• Mid-term (15) • Final (15)	30
Final Project	Final Class Presentation including UN SDGs and Net-Zero Energy Building.	20
Final Project, Graduate students	***Net Zero Certification assessment for a campus building.***	20
	Total	**100**

Grade and Grading Policy:

Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
Numeric Grade	93-100	90-92	87-89	83-86	80-82	77-79	73-76	70-72	67-69	63-66	60-62	0-59
Quality Points	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.67	1.33	1.0	0.67	0.0

Classroom Expectations

- **Be present.** Your full attention benefits both your own learning and your classmates' experience.
- **Come prepared.** Complete all readings and videos in advance to contribute meaningfully to class activities and discussions.
- **Engage actively.** This course relies on thoughtful participation and collaborative exchange of ideas related to the sustainable built environment.
- **Bring your computer** to every class session for coursework and project work.
- **Silence and stow cell phones** unless they are being used to support class activities.
- **Listen respectfully** without interrupting others.
- **Provide quality feedback.** We will discuss what constitutes "quality" feedback in class.
- **Respect differing opinions,** even if you disagree.
- **Keep an open mind.** Be willing to learn something new and reconsider your views.
- **Allow space for others.** Don't monopolize discussions; ensure everyone has a chance to speak.
- **Revise your thinking** as you gain new insights and information.
- **Consider multiple perspectives** when analyzing issues.
- **Use preferred names and pronouns.** Show respect for all identities.
- **Avoid offensive language** in all forms of communication.

UF Netiquette – Communication Courtesy
All members of the class are expected to follow rules of common courtesy in all email messages, discussions, and chats. For guidance, refer to UF's Netiquette policy.
https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx .

Other Resources

- USGBC Resources, https://www.usgbc.org/resources
- Calculators, https://www.usgbc.org/resources?LEED+Resources=%5B%22Calculators%22%5D
- Certification, https://www.usgbc.org/resources?LEED+Resources=%5B%22Calculators%22%5D
- LEED Checklists, https://www.usgbc.org/resources/checklist-leed-v4-building-design-and-construction
- Standards, https://www.usgbc.org/resources?LEED+Resources=%5B%22Standards%22%5D
- Tools, https://www.usgbc.org/resources?Education+Resources=%5B%22Toolkit%22%5D
- LEED case studies, https://www.usgbc.org/resources?Education+Resources=%5B%22LEED+Case+Studies%22%5D
- LEED candidate's handbook, https://www.usgbc.org/resources?Credentialing+resources=%5B%22Candidate+Handbooks%22%5D
- LEED GA exam, https://www.usgbc.org/articles/prepare-your-leed-green-associate-exam
- https://www.usgbc.org/sites/defauL&T/files/LEED%20v4%20BDC_07.25.19_current.pdf
- GSA, https://sftool.gov/
- Making tight envelope, https://www.buildinggreen.com/sites/defauL&T/files/ebn/TBGR_26-08.pdf
- BuildingGreen, Homepage, *UF membership access* | https://www.buildinggreen.com/ Knowledge Base | https://www.buildinggreen.com/knowledge-base Product Guidance | https://www.buildinggreen.com/product-guidance
- Green Building Advisor, Homepage | https://www.greenbuildingadvisor.com/ Green Basics | https://www.greenbuildingadvisor.com/green-basics
- My Florida Home Energy, Homepage | http://www.myfloridahomeenergy.com/ Find Help | http://www.myfloridahomeenergy.com/help/
- U.S. Green Building Council, ***UF membership access*** | www.usgbc.org
- LEED User, ***UF membership access*** | www.leeduser.buildinggreen.com
- Zero Energy Home Ready program, https://www.energy.gov/eere/buildings/zero-energy-ready-home- program
- Office of Energy Efficiency & Renewable Energy, https://www.energy.gov/eere/office-energy- efficiency-renewable-energy
- U.S. Department of Energy, Building science education Series, https://www.solardecathlon.gov/building-science.html
- U.S. Department of Energy, Solar Decathlon, https://www.solardecathlon.gov/education-resources.html
- GNFZ Resources

See Canvas for Additional Course Information and resources

Course Modules

The general course modules and key topics are summarized below. All courses include readings, assignments, discussions, PowerPoint slides, quizzes, and the final project is fully organized within **Canvas** and may be subject to change as needed.

Each module on Canvas is organized by **date** and includes clear guidance on what students are expected to complete **before class**, **during class**, and **after class**. All required readings, tools, and resources are directly linked within the modules for easy access. Assignments are embedded within each module along with due dates and submission portals.

Each module includes:

- Module learning objectives and related **Student Learning Outcomes (SLOs)**
- Assigned readings and resources
- Weekly deliverables (assignments, discussions, or quizzes)
- **Weekly reflection presentations** and guest speakers
- Step-by-step instructions for the **Final Project**, including evaluation rubrics for assignment and discussions

A summarized view of course topics is provided below. Refer to **Canvas** for detailed instructions throughout the semester.

Weekly Class Schedule

Date	Topics
Module 0: Course Overview	
TH, 8/21	- Welcome & Introduction - Review syllabus, course resources, UF resources and policies - Review use of Canvas, course files, material, and paperless approach - Review green building rating systems including: • Green Glob • BREAM • ASHRAE 189 • Living Building Challenge • International Green Construction Code (IGCC) • Florida Green Building Coalition (FGBC) • WELL Building Standards ○ International WELL Building Institute (IWBI) ○ WELL, V2 checklist • Global Network for Zero (GNFZ)

	- UF campus sustainability overview and status • 100 + green and LEED certified Buildings on campus • UF Office of Sustainability - Introduction to United Nations Sustainable Development Goals, UN SDGs - UN SDGs 2021 report; global, US, and other regions of the world - US State Sustainable Development Report 2021 - DOE Building Science Education Series - U.S. Department of Energy, Solar Decathlon, https://www.solardecathlon.gov/education-resources.html **Teams** - Divide the class into teams • Identify project team managers (rotating every 2 weeks), members, roles & responsibilities, semester schedule for each team by the team and post it on team's Canvas page • Navigate GATORCLOUD, use it as a free resource

Module 1: Introduction to Green Building/LEED & Net-Zero Energy Buildings

T, 8/26	➢ Instructor's presentation on the module **Reading:** - Introduction to LEED rating system and Green Buildings • U.S. Green Building Council (USGBC) • Green Business Certificate Inc. (GBCI) • DOE Building Science Education Series • Global Network for Zero (GNFZ) - Introduction to alignment within the rating systems and main resources: • Leadership in Energy and Environmental Design (LEEDV4) ○ Its application to the built environment ○ https://www.usgbc.org/search ○ LEED V4, LEED V4 checklist
	○ LEED V4.1 • UN SDGs • WELL Building Standards and LEED and UN SDGs • LEED™ v4.0 and WELL v2 crosswalk tool (Equivalent or Aligned), • WELLv2 crosswalk in general • LEED User, https://leeduser.buildinggreen.com/uf • GSA, General Services Administration, sustainability and building decarbonization • Building Green, https:// www.buildinggreen.com/ **Establish USGBC Account**, https://www.usgbc.org/registration/create-user **Establish Global Network for Zero account,** Global Network for Zero

TH, 8/28	**In class breakout session:** - Each team reviews and discusses the module topics - **Each team develops a PowerPoint presentation** summarizing the module and the intent of the rating systems, DOE programs, and UN SDGs.
	Guest Speaker: UF Energy Management Coordinator
	Assignment #1, reading summary (individual assignment) ***Assignment #1, discussion on Canvas (individual assignment)*** ***Assignment #1, PowerPoint presentation summarizing the module (team assignment)***

Module 2: Introduction to the class project

T, 9/2	➢ Instructor's presentation on the module **Reading links on Canvas:** - Introduction to UF-653, DCP Collaboratory, class project • Review project program development, Owner's Project Requirement (OPR), and Basis of Design (BOD) • Building drawings; Civil, Landscape, architectural and MEP and specifications -How to start a LEED project • Identify key strategies the project team should consider to project goals • Integrative process and Design Charrette • Getting Started • Rating system selection • Assess LEED™ V4.0 checklist and identify substitution credits with LEED™ V4.1 and the class project including: • Calculating occupancy, Full time equivalent (FTE), part-time, transient, and peak occupancy • Establish LEED boundary, use Google Earth or ArcGIS • Assessing Minimum Program Requirements (MPR) and Pre-requisites • Introduction to LEED online • Registering LEED project - Review DOE Net-Zero components and application to the project **Tools:** • ArcGIS or Google Earth • *LEEDuser* • *LEED v4.0* • LEED V4.1 • *LEEDonline.com* • *DOE Building Science*
	Guest Speaker: UF/PDC Construction Sustainability Coordinator

TH, 9/4	**In class breakout session:** - Each team reviews the module topics - Identify key strategies the project team should consider for the class project based on the project goals, location, and requirements - Review LEED v4 checklist for the class project - How to develop backup documentation - **Each team develops a PowerPoint presentation** summarizing the module, identifying the project elements and application of LEED, DOE Net-Zero and related SDGs
	Assignment #2, reading summary (individual assignment) ***Assignment #2, discussion on Canvas module (individual assignment)*** ***Assignment #2, PowerPoint presentation summarizing the module (team assignment)*** ***Module learning assessment via Poll quiz questions on Zoom***
Module 3: Location and Transportation (L&T)	
T, 9/9	➢ Instructor's presentation on the module **Reading links on Canvas:** - Location & Transportation overview - Strategies used for the site selection, density, and transportation options - Neighborhood Development Location, parking, and pedestrian access - Green Vehicles - Building Civil drawings and specifications - ***Complete requirements for L&T*** **Tools:** - ArcGIS or Google Earth - Walk Score - *LEEDuser* - *Arc* - *LEED v4.0* reference guide for L&T assessment - LEED V4.1 - *LEEDonline.com* - *DOE Building Science*
	Guest Speaker: Collaboratory Architect/Designer
TH, 9/11	**In class breakout session:** - Each team reviews the module topics - Identify and discuss key strategies the project team should consider meeting requirements for L&T - Review LEED v4 checklist, L&T for the class project - Develop backup documentation for credits attempted - **Each team develops a PowerPoint presentation** summarizing the module, identifying approaches & strategies used, tools & skills learned, application of the Net-Zero Energy Building the project and including SDGs related to this module

	Assignment #3, reading summary (individual assignment) ***Assignment #3, discussion on Canvas module (individual assignment)*** ***Assignment #3, PowerPoint presentation summarizing the module (team assignment)*** ***Module learning assessment via Poll quiz questions on Zoom***

Module 4: Sustainable Site (SS) Approach

T, 9/16	➢ Instructor's presentation on the module **Reading links on Canvas module:** - Site assessment, development, and open spaces - Landscape - Green roof - Rainwater management - Heat island effect - Outdoor light pollution - Building Civil and landscape drawings and specifications - ***Complete requirements for SS*** **Tools:** - ArcGIS or Google Earth - *LEEDuser* - *LEED v4.0* reference guide for SS assessment - LEED V4.1 - *LEEDonline.com* - *DOE Building Science*
	Guest Speaker: Collaboratory Landscape Architect/Designer
TH, 9/18	**In class breakout session:** - Each team reviews the module topics - Identify and discuss key strategies the project team should consider meeting requirements for SS - Review LEED v4 checklist, SS for the class project - Develop backup documentation for credits attempted - **Each team develops a PowerPoint presentation** summarizing the module, identifying approaches & strategies used, tools & skills learned, application of the Net-Zero Energy Building to the project and include SDGs related to this module
	Assignment #4, reading summary on Canvas module and heat island effect reduction calculation (individual assignment) ***Assignment #4, discussion on Canvas module (individual assignment)*** ***Assignment #4, PowerPoint presentation summarizing the module (team assignment)*** ***Module learning assessment via Poll quiz questions on Zoom***

Module 5: Water Efficiency (WE) strategies

T, 9/23	➢ Instructor's presentation on the module **Reading links on Canvas module:** - Water conservation overview - Indoor and outdoor water conservation strategies and technologies - Water use assessment, reduce demand, apply strategies to decrease consumption - Net zero water - Building MEP drawings and specification (Plumbing only) - ***Complete requirements for WE***
	Guest Speaker: Introduction to BIM (Building Information Modeling)
	Tools: - Indoor water use reduction calculator - Outdoor water use reductio calculator - Ecomedes - *LEEDuser* - *Arc* - *LEED v4.0* reference guide and checklist for WE assessment - LEED V4.1 - *LEEDonline.com* - *DOE Building Science*
TH, 9/25	**In class breakout session:** - Each team reviews the module topics - Identify and discuss key strategies the project team should consider meeting requirements for WE - Review LEED v4 checklist, WE for the class project - Develop backup documentation for credits attempted - **Each team develops a PowerPoint presentation** summarizing the module, identifying approaches & strategies used, tools & skills learned, application of the Net-Zero Energy Building to the project and include SDGs related to this module
	Guest Speaker: Applying BIM (Building Information Modeling) to a project
	Assignment #5, reading summary on Canvas module and Indoor & out water use reduction calculations and Ecomedes with ROI example for one flow and one flush fixture (individual assignment) ***Assignment #5, discussion on Canvas module (individual assignment)*** ***Assignment #5, PowerPoint presentation summarizing the module (team assignment)*** ***Module learning assessment via Poll quiz questions on Zoom***

Module 6: Energy & Atmosphere (EA), Building Systems, and Net Zero Energy

T, 9/30

➢ **Instructor's presentation on the module**

Reading links on Canvas module:

- Energy conservation overview
- Energy efficiency and conservation strategies
- Energy molding, ASHRAE 90.1
- DOE Building Science Education
  - Module 1: Building and Energy
- ***Building MEP drawings and specification (mechanical and lighting only)***
- ***Complete requirements for EA***

Tools:

- *Energy Star Portfolio Manager*
- *LEEDuser*
- *Arc*
- *LEED v4.0* reference guide and checklist for EA assessment
- LEED V4.1
- *LEEDonline.com*
- *DOE Building Science*

Guest Speaker: Ecomedes

TH, 10/2

➢ **Instructor's presentation on the module**

Introduction to the zero energy Buildings

- DOE Building Science Education
  - Module 2: Zero Energy Buildings

In class breakout session:

- Each team reviews the module topics
- Review DOE building and energy
- Identify and discuss key strategies the project team should consider for energy conservation
- Review LEED v4 checklist, EA for the class project
- Develop backup documentation for credits attempted
- **Each team develops a PowerPoint presentation** summarizing the module, identifying approaches & strategies used, tools & skills learned, application of Net-Zero Energy Building the project and including SDGs related to this module

Assignment #6, complete Energy Star Portfolio Manager for the class project ***(individual assignment)***
Assignment #6, discussion on Canvas module (individual assignment)
Assignment #6, PowerPoint presentation summarizing the module (team assignment)

Module learning assessment via Poll quiz questions on Zoom

Mid-term exam, October 4, 2024

Graduate students complete Scope 1 & 2 emissions for their projects and entry to the GNFZ platform.

Module 7: Building Systems and Commissioning

T, 10/7	➢ **Instructor's presentation on the module** **Reading links on Canvas module:** **Introduction to the zero energy Buildings** - DOE Building Science Education ○ Module 3: Building Envelop - Building envelops design and specifications - Building envelops commissioning - Building architecture drawings - ***Complete requirements for EA*** **Tools:** - *Energy Star Target Finder* - *LEEDuser* - *LEED v4.0* - LEED V4.1 - *LEEDonline.com*
TH, 10/9	➢ **Instructor's presentation on the module** **Introduction to the zero energy Buildings** - DOE Building Science Education ○ Module 4: HVAC Systems - HVAC drawing and specification
	In class breakout session: - Each team reviews the module topics - Identify key strategies the project team should consider for optimized building HVAC - Review LEED v4 checklist, EA for the class project - Develop backup documentation for credits attempted - **Each team develops a PowerPoint presentation** summarizing the module, identifying approaches & strategies used, tools & skills learned, application of the Net-Zero Energy Building to the project and include SDGs related to this module -
	Guest Speaker: Commissioning Envelop, MEP
	Assignment #7, complete Energy Star Target Finder for the class project (individual assignment) ***Assignment #7, discussion on Canvas module (individual assignment)*** ***Assignment #7, PowerPoint presentation summarizing the module (team assignment)*** ***Module learning assessment via Poll quiz questions on Zoom***

Module 8: Building Systems and Commissioning (Cont.)

T, 10/14	➢ **Instructor's presentation on the module** **Reading links on Canvas module:** **Introduction to Net- Zero Energy Buildings** - DOE Building Science Education o Module 5: Lighting Systems - Lighting design and specifications inside and outside - Lighting audit and commissioning - ***Building MEP drawings and specification (mechanical and lighting only)*** - ***Complete requirements for EA*** **Tools:** - *Energy Star Portfolio Manager* - *LEEDuser* - *LEED v4.0* reference guide and checklist for EA assessment - LEED V4.1 - *LEEDonline.com*
	Guest Speaker: Collaboratory Contractor, Stellar Construction
TH, 10/16	➢ **Instructor's presentation on the module** **Introduction to the zero energy Buildings** - DOE Building Science Education o Module 6: Plug and Process Load - Building plug load review and specification - Review energy modeling for plug load **In class breakout session:** - Each team reviews the module topics - Identify key strategies the project team should consider for plug load - Review LEED v4 checklist, EA for the class project - Develop backup documentation for credits attempted - **Each team develops a PowerPoint presentation** summarizing the module, identifying approaches & strategies used, tools & skills learned, application of the Net-Zero Energy Building to the project and include SDGs related to this module
	Assignment #8, assessment and calculations for lighting results from Ecomedes (individual assignment) ***Assignment #8, discussion on Canvas module (individual assignment)*** ***Assignment #8, PowerPoint presentation summarizing the module (team assignment)*** ***Module learning assessment via Poll questions on Zoom***

Module 9: Commissioning and Renewable Energy

T, 10/21

➢ **Instructor's presentation on the module Reading links on Canvas module: Introduction to the zero energy Buildings**

- DOE Building Science Education
  - Module 8: Renewable Energy and Net Zero Energy Building
- Renewable energy types, PV for the project
- Review drawings and specifications for renewable energy for class project
- Renewable energy and commissioning
- Building MEP drawings and specifications
- ***Complete requirements for EA***

Tools:

- *HelioScope*
- *LEEDuser*
- *LEED v4.0* reference guide
- LEED V4.1
- *LEEDonline.com*

Guest Speaker: Renewable energy, Moss

TH, 10/23

In class breakout session:

- Each team reviews the module topics
- Identify key strategies the project team should consider for the class project based on the project goals
- Review LEED v4 checklist, EA for the class project
- Develop backup documentation for credits attempted
- **Each team develops a PowerPoint presentation** summarizing the module, identifying approaches & strategies used, tools & skills learned, application of the Net-Zero Energy Building to the project and include SDGs related to this module

Assignment #9, HelioScope design with ROI for class project (individual assignment)
Assignment #9, discussion on Canvas module (individual assignment)
Assignment #9, PowerPoint presentation summarizing the module (team assignment)

Module learning assessment via Poll quiz questions on Zoom

Module 10: Materials and Resources (MR)

T, 10/28

➢ **Instructor's presentation on the module**

Reading links on Canvas module:

- Material use overview.
- Material specification considering post and pre consumer contact, EPD and HPD
- Construction and demolition waste management planning
- Design for deconstruction
- Material life cycle
- ***Complete requirements for MR***

Tools:

- Material Calculator
- *LEEDuser*
- *LEED v4.0* reference guide
- *LEED V4.1*
- *LEEDonline.com*

	Guest Speaker: Siemens systems (BAS, Lighting, IEQ sensors)
TH, 10/30	**In class breakout session:** - Each team reviews the module topics - Identify key strategies the project team should consider for the class project based on the project goals - Review LEED v4 checklist, MR for the class project - Develop backup documentation for credits attempted - **Each team develops a PowerPoint presentation** summarizing the module, identifying approaches & strategies used, tools & skills learned, application of Net-Zero Energy Building the project and including SDGs related to this module
	Assignment #10, Develop construction waste management plan (individual assignment) ***Assignment #10, discussion on Canvas module (individual assignment)*** ***Assignment #10, PowerPoint presentation summarizing the module (team assignment)*** ***Module learning assessment via Poll quiz questions on Zoom***
Module 11: Indoor Environmental Quality (IEQ)	
T, 11/4	➢ **Instructor's presentation on the module** **Reading links on Canvas module:** - Strategies for healthy building - ASHREA 62.1, ventilation - ASHREA 55, thermal comfort - Acoustic, daylight, views - Low emitting materials - Air quality management during construction - Building MEP drawings (mechanical) - ***Complete requirements for IEQ*** **Tools:** - *LEEDuser* - *Arc* - *LEED v4.0* reference guide and checklist for IEQ assessment - *LEEDonline.com* - Canvas team page for organizing the backup documentation for IEQ
	LEED project field trip, Malachowsky Hall for Data Science & Information Technology
TH,11/6	**In class breakout session:** - Each team reviews the module topics
	- Identify key strategies the project team should consider for the class project based on the project goals, location, and requirements - Review LEED v4 checklist, IEQ for the class project - Develop backup documentation for credits attempted - **Each team develops a PowerPoint presentation** summarizing the module, identifying approaches & strategies used, tools & skills learned, application of the Net-Zero Energy Building to the project and include SDGs related to this module
	Assignment #11, Develop IEQ plan during construction (individual assignment) ***Assignment #11, discussion on Canvas module (individual assignment)*** ***Assignment #11, PowerPoint presentation summarizing the module (team assignment)*** ***Module learning assessment via Poll quiz questions on Zoom***

Module 12: Innovation and Regional Priority (RP)

T, 11/11	**Holiday, Veterans Day**
	Guest Speaker: Kristy Walson, Branch Pattern
TH, 11/13	➢ **Instructor's presentation on the module** **Reading links on Canvas module:** - Strategies for innovative approach - Pilot credits - Exemplary performance ***Complete requirements for Innovation and RP*** **In class breakout session:** - Each team reviews the module topics - Identify key strategies the project team should consider for the class project based on the project goals, location, and requirements - Review LEED v4 checklist, Innovation and RP for the class project - Develop backup documentation for credits attempted - **Each team develops a PowerPoint presentation** summarizing the module, identifying approaches & strategies used, tools & skills learned. Reflection on the semester

Module 13: LEED Exam Review

T, 11/18	**Reading links on Canvas module:** - Review GA exam registration - Prepare for LEED GA Exam - LEED v4 Green Associate Candidate Handbook - Guide to the LEED Green Associate V4 Exam from UF Library - Continuing education for credential maintenance - Practice samples of the 100 questions for the LEED GA exam **In class breakout session:** - Each team reviews the module topics - Identify key strategies to prepare for the LEED GA exam - Practice LEED GA exam registration **Review DOE Building Science Education Series** - Module 7, Additional/Optional Resources

Module 14: Review class project

TH, 11/20

Each team reviews:

- The module topics
- Reflect on the LEED process for the class project and application Net Zero Energy Building
- Review the tools used
- Review the skills learned
- Review the LEED project administration process
- Crosswalk LEED and synergies
- Review UN SDGs applied
- Review DOE Net Zero Energy Building
- Each team reviews the semester long cumulative presentation and drives a simplified presentation for the final presentation **w/o the details and step by step credits approach**

In class breakout session:

- Each team reviews the final presentation
- Each team lists the tools and skills learned
- **Practice the final presentation**

Final exam due, November 21, 2025

Thanksgiving Holiday, 11/24 - 11/28

Module 15: Final presentations

T, 12/2

The final presentation to the Building Owner, occupants, and other campus stakeholders. This presentation is a simplified version of the semester long weekly cumulative PowerPoint (simplified to address each category's approaches, strategies, technologies, Net-Zero Building, and UN SDGs. In addition, each team makes a case on why use "LEED Building Standards and pursue Net Zero Energy Building".

See below final presentation guidelines for the class, undergraduate and graduate.

Additional Graduate Students' Presentation

Final Presentation Guidelines: Global Network for Zero (GNZ) Assessment Project

Overview: Students will conduct a greenhouse gas (GHG) emissions assessment using the **Global Network for Zero (GNZ)** platform. The presentation should showcase the selected **organization's or building** emissions profile, identify key areas for improvement, and propose a decarbonization action plan.

Presentation Format

- **Team size:** 1–2 students
- **Duration:** 10–15 minutes + 3–5 minutes Q&A
- **Slides:** Max 10–15 slides
- **Deadline:** Submit final slides & report by December 3, 2025.

Required Content

1. Introduction

- Brief overview of the organization or project selected
- Reason for selection and relevance

2. GHG Emissions Assessment

- Scope 1 (direct emissions)
- Scope 2 (indirect from purchased energy)
- Scope 3 (select relevant categories: travel, commuting, waste, etc.)
- Data sources, assumptions, and GNZ platform outputs

3. GNZ Certification Analysis

- GNZ rating or category achieved
- Gaps in data or performance

4. Decarbonization Action Plan

- At least one short-term and one long-term action
- Actions prioritized by feasibility and impact
- Alignment with science-based targets/net zero pathways

5. Reflections & Skills

- Challenges faced and how they were addressed
- What you learned from the project
- Skills gained (e.g., data literacy, system thinking)

Deliverables

- **Slide deck** (PDF or PowerPoint)
- **Optional:** GNZ screenshots or outputs to supplement slides

Undergraduate

Final Presentation Assignment Overview

Each student team will deliver a **final presentation to the Building Owner, occupants, and other campus stakeholders**. The goal is to clearly communicate your proposed strategies to apply LEED BD+C to a project in a way that is accessible, engaging, and persuasive to a non-technical audience.

Presentation Format

- **Team Size: 4 members**
- **Audience:** Building owner, occupants, UF campus stakeholders
- **Format:** A **simplified version** of your semester-long cumulative PowerPoint
- **Duration:** 15-20 minutes per team including 3 minutes Q/A

Content Requirements

Your presentation must clearly address the following:

1. **Each LEED category**:
   - Summarize your **approaches, strategies, and technologies** for each major LEED category (e.g., Location & Transportation, Sustainable Site, Energy & Atmosphere, Water Efficiency, Indoor Environmental Quality, etc.)
2. **Net Zero Energy Building strategies**:
   - Show how your design leads to **Net Zero energy** performance (Scope 1, 2, and selected Scope 3 emissions)
3. **Connection to UN Sustainable Development Goals (UN SDGs)**:
   - Highlight how your building design supports **relevant SDGs**
4. **Advocacy for LEED and Net Zero**:
   - Make a compelling case for **why the building owner should adopt LEED standards** and pursue a **Net Zero Energy Building** certification
5. **Occupant and Community Benefits**
   - Comfort, health, cost savings, long-term resilience
   - Education or community impact (if any)
6. **Why LEED and Net Zero Matter**
   - Make a strong case from a stakeholder perspective
   - Address myths or concerns (e.g., cost, complexity)
7. **Closing Summary**
   - Key takeaways
   - Final recommendation to the building owner
8. **Q&A Slide**

Evaluation Criteria

- Clarity of communication
- Relevance to audience (non-technical stakeholders)
- Integration of course concepts (LEED, Net Zero, UN SDGs)
- Quality of visuals and storytelling
- Team collaboration and delivery

Suggested Slide Deck Structure (10–15 slides)