POINTFUL EDUCATION

LEED Green Associate

Syllabus

» Course Overview

This course introduces students to the LEED process. LEED, or Leadership in Energy and Environmental Design, is the global standard for green building certification. Throughout the course, students will gain an understanding of the various components of green building. The theme of sustainability and sustainable construction is woven throughout each module both in terms of physical environment and as it pertains to LEED certification.

» Course Outline by Module

Module 1	Introduction to the LEED Process	**Module 5**	Energy and Atmosphere
Module 2	Integrative Strategies	**Module 6**	Materials and Resources
Module 3	Location, Transportation, and Sustainable Sites	**Module 7**	Indoor Environmental Quality
Module 4	Water Efficiency	**Module 8**	Project Surroundings, Public Outreach, and Exam Preparation

» Module Overview and Learning Objectives

Module 1. Introduction to the LEED Process

Welcome to LEED Green Associate! In this module, we're going to start with some of the basics. You'll become familiar with the United States Green Building Council and the Green Business Certification Inc. We'll talk about how both nonprofit companies have missions and visions that promote LEED. LEED stands for Leadership in Environmental Design. It promotes the frameworks by which buildings are designated green and cost-efficient. We'll review the LEED rating systems and development process. We'll also discuss LEED credit and impact categories. We'll wrap up the module talking about the certification process itself. Let's go!

***Learning Objectives*:** In this module, students will:

- Understand the mission, vision and non-profit role of USGBC/GBCI
- Identify the structure and scope of each LEED rating system
- Evaluate the LEED development process
- Understand credit and Impact categories
- Outline the LEED certification process and other rating systems

Module 2. Integrative Strategies

In this section, our primary focus will be on the integrative process. You'll learn that this process is crucial in LEED and green building because of the natural and necessary relationship among building systems. LEED professionals must collaborate and find synergy among their respective groups and roles in the building process. Approximately eight questions on your LEED accreditation exam are dedicated to the integrative process. It may not seem like a lot, but out of 100 questions covering a multitude of topics, the integrative process is an eighth of the entire exam. It's a highly important facet of LEED and one with which you should spend a lot of time familiarizing yourself. We'll talk about project teams and the breakdown of team members and their roles. Each role has various education and training requirements, so we'll discuss those as well. We'll close out the module learning about LEED standards.

***Learning Objectives*:** In this module, students will:

- Understand the Integrative process
- Evaluate the duties and roles of project team members
- Identify the education requirements for each integrative team member
- Analyze the standards that support LEED

Module 3. Location, Transportation, and Sustainable Sites

This module will focus on identifying suitable sites for building LEED-certified structures. In addition to simply choosing a space, a number of things are considered. We'll explore things like what must go into the selection of a site. We'll cover brownfield sites - what they are, how they are planned, and how they are developed. We'll talk about alternative modes of transportation, specifically for rural areas that may not have access. We'll discuss the challenges of finding and creating a sustainable site for development including maintaining existing natural habitats, capturing rainwater, and connecting communities.

***Learning Objectives*:** In this module, students will:

- Identify the thought components of site selection
- Investigate alternative transportation types, access, and quality
- Evaluate the infrastructure and design of alternative transportation
- Identify the thought components of site assessment
- Evaluate the components of site design and development

Module 4. Water Efficiency

Water efficiency is a key component of LEED certification and green building in general. Conservation of water and the identification of ways to be more efficient with its usage are highly necessary for an environment where all resources need to be treated as precious. In this module, we'll discuss graywater - what is it, how is it used? You'll learn about irrigation options as they pertain to rainwater harvesting. We'll talk about how landscaping can be utilized for water efficiency. We'll talk about both outdoor and indoor alternatives for water efficiency. You'll learn about the appliances and fixtures that can cut water usage. Finally, we'll talk about how to measure water efficiency throughout the lifecycle of a LEED certified building.

***Learning Objectives*:** In this module, students will:

- Identify the green alternatives for outdoor water efficiency
- Identify the green alternatives for indoor water efficiency
- Evaluate the types and quality of indoor water-efficient appliances and fixtures
- Understand water performance management over the lifetime of a structure

Module 5. Energy and Atmosphere

In this module, you'll learn about the structural integrity of a building. Specifically, we'll discuss building loads. This is the pressure that is exerted on various parts of a structure. The need to construct a home or building that takes into account all of the factors that can exert it cannot be understated. Think of your own home and all that it has to withstand. You'll learn about steps that are taken within a project to design for energy efficiency. Heating, cooling, and water usage have to be planned out long before a structure is built. We'll discuss various types of power and renewable energy sources. It is essential that project teams find renewable sources of energy that can be sustained over the life of a structure and beyond. Finally, we'll talk about climate change and what the future can look like if immediate and lasting changes are not implemented.

***Learning Objectives*:** In this module, students will:

- Identify the components of building loads
- Identify the green alternatives for outdoor energy efficiency as well as energy auditing
- Analyze alternative and renewable energy practices
- Understand energy performance management over the lifetime of a structure
- Evaluate environmental concerns associated with energy management

Module 6. Humans and AI

The name of this module lets you know that we'll be talking about the materials that are used when creating green buildings and pursuing LEED credits. But, we're going a step further. We're going to talk about the recycling and reuse of entire structures. This is called adaptive reuse. You'll not only learn about best practices when it comes to reusing and refurbishing entire buildings but the contents of those buildings as well; things like furniture,

appliances, plumbing, and other materials. You'll discover the steps that must be taken to reuse these materials. While it's possible to use things as they exist, there are often measures to be taken to prepare them for reuse in another structure. We'll also cover life-cycle assessment. Let's face it, when we're talking about sustainability, we're talking about a long-term solution. So it's imperative to talk about the entire life of the building or material - how will it age? What factors need to be considered when using it? How long will it last? Lastly, we'll talk about waste. An enormous amount of waste is produced during building projects. Just as it is crucial to plan, design, and build a structure that is green and sustainable, the practices used during its construction to reduce waste and be mindful of the building's surroundings is equally as important.

***Learning Objectives*:** In this module, students will:

- Describe the need for reuse of materials and resources
- Evaluate life-cycle impacts including life-cycle assessment
- Identify the types of waste
- Analyze the components of a waste management plan
- Evaluate the need for purchasing and disclosures as related to the EPP

Module 7. Indoor Environmental Quality

In this module, we'll focus on indoor environmental quality. This includes not only particles or pollutants in the air but also things like daylight, noise pollution, ventilation, heating and cooling, as well as a number of other conditions. You'll learn about some of the risk factors that can be problematic for indoor environments. You'll discover some of the major sources of poor indoor air quality as well as ways to counteract those sources. You'll learn about green alternatives for improving indoor air quality and finding the best, sustainable solutions for the overall improvement of air quality. We'll discuss lighting and how green alternatives can be used in place of traditional sources of indoor illumination. You'll learn about the acoustics of an indoor environment and how they can contribute to the positive or negative quality of the overall indoor environment. Finally, we'll cover how health and safety are impacted by all of these factors.

***Learning Objectives*:** In this module, students will:

- Identify the risk factors to indoor air quality
- Identify the green alternatives for indoor air quality
- Understand the need and value of lighting quality and the various green alternatives
- Identify the green alternatives of acoustics
- Evaluate the value and tools to support occupant comfort, health, and satisfaction

Module 8. Project Surroundings, Public Outreach, and Exam Preparation

This module will bring together several of the concepts that you've learned throughout the course. The built environment plays a large part in LEED and in the world overall. The green practices that are outlined in building codes, green design methods, and LEED credits are essential to better align the built and natural environments. After this module, you will better understand green building from an economic and business perspective. The final lesson in the module will help you prepare for the LEED Green Associate exam by outlining what to expect and the best way to prepare.

***Learning Objectives*:** In this module, students will:

- Evaluate the environmental impacts of the built environment
- Understand the relationship between LEED and codes
- Analyze the values of sustainable design
- Understand the need for regional green design and construction measures
- Understand the structure and requirements of the LEED Green Associate Certification Exam