

# Sustainable Facilities Management

## Course outline

### **Module 1: Introduction to Sustainable Facilities Management**

Module 1: Introduction to Sustainable Facilities Management provides an overview of the principles and practices of sustainable facilities management. It covers topics such as energy efficiency, water conservation, waste management, green building design, and sustainable procurement. It also introduces the concept of life cycle assessment and provides an overview of the various tools and techniques used to assess the sustainability of facilities.

#### ***Lessons***

- Overview of Sustainable Facilities Management
- Understanding the Principles of Sustainable Facilities Management
- Assessing the Environmental Impact of Facilities Management
- Developing Sustainable Facilities Management Strategies
- Implementing Sustainable Facilities Management Practices
- Measuring and Monitoring Sustainable Facilities Management Performance
- Sustainable Procurement and Supply Chain Management
- Sustainable Building Design and Construction
- Sustainable Energy Management
- . Sustainable Waste Management
- . Sustainable Landscaping and Grounds Maintenance
- . Sustainable Water Management
- . Sustainable Transportation and Mobility
- . Sustainable Indoor Air Quality Management
- . Sustainable Building Maintenance and Operations
- . Sustainable Building Automation and Control Systems
- . Sustainable Building Security and Safety
- . Sustainable Building Materials and Products
- . Sustainable Building Finishes and Furnishings
- . Sustainable Building Certification and Compliance

#### **After completing this module, students will be able to:**

- Understand the principles of sustainable facilities management and the importance of sustainability in the built environment.
- Identify the key components of a sustainable facilities management system and the roles and responsibilities of stakeholders.
- Develop strategies to reduce energy consumption, water usage, and waste production in a facility.
- Implement best practices for sustainable facilities management, such as green cleaning, green

building design, and green procurement.

## **Module 2: Energy Efficiency and Conservation**

Module 2 of the Sustainable Facilities Management course focuses on energy efficiency and conservation. It covers topics such as energy audits, energy management systems, energy efficiency technologies, and energy conservation strategies. The module also provides an overview of the various energy efficiency standards and regulations that apply to facilities management.

### ***Lessons***

- Understanding Energy Efficiency and Conservation Strategies
- Implementing Energy Efficiency and Conservation Measures
- Assessing Energy Efficiency and Conservation Opportunities
- Developing an Energy Efficiency and Conservation Plan
- Establishing Energy Efficiency and Conservation Goals
- Analyzing Energy Efficiency and Conservation Performance
- Evaluating Energy Efficiency and Conservation Programs
- Identifying Energy Efficiency and Conservation Technologies
- Managing Energy Efficiency and Conservation Projects
- Financing Energy Efficiency and Conservation Initiatives

### **After completing this module, students will be able to:**

- Understand the principles of energy efficiency and conservation in the built environment.
- Identify and evaluate energy efficiency and conservation opportunities in existing and new facilities.
- Develop strategies to reduce energy consumption and improve energy efficiency.
- Implement energy efficiency and conservation measures in facilities.

## **Module 3: Sustainable Building Design and Construction**

Module 3 of the Sustainable Facilities Management course focuses on sustainable building design and construction. It covers topics such as green building materials, energy efficiency, water conservation, and indoor air quality. Students will learn how to design and construct buildings that are environmentally friendly and cost-effective. They will also gain an understanding of the various regulations and standards that must be met in order to achieve sustainability goals.

### ***Lessons***

- Understanding the Principles of Sustainable Building Design
- Evaluating the Environmental Impact of Building Materials
- Strategies for Minimizing Energy Consumption in Buildings
- Incorporating Renewable Energy Sources into Building Design
- Water Conservation Strategies for Buildings
- Sustainable Landscaping for Buildings
- Sustainable Building Certification Systems
- Sustainable Building Maintenance Practices

- Sustainable Building Retrofitting Strategies
- . Sustainable Building Design for Adaptability and Resilience

### **After completing this module, students will be able to:**

- Understand the principles of sustainable building design and construction, including the use of green building materials and energy-efficient technologies.
- Develop strategies for reducing the environmental impact of building construction and operations.
- Analyze the economic and environmental benefits of sustainable building design and construction.
- Implement sustainable building design and construction practices in a facility management context.

## **Module 4: Sustainable Materials and Resources Management**

Module 4 of the Sustainable Facilities Management course focuses on sustainable materials and resources management. It covers topics such as the principles of sustainable materials management, the environmental impacts of materials, and strategies for reducing the environmental impacts of materials. It also covers topics such as the selection of sustainable materials, the reuse and recycling of materials, and the management of hazardous materials. The module provides an overview of the principles and practices of sustainable materials and resources management, and provides students with the knowledge and skills to effectively manage materials and resources in a sustainable manner.

### ***Lessons***

- Understanding Sustainable Materials and Resources Management
- Evaluating Sustainable Materials and Resources Management Strategies
- Implementing Sustainable Materials and Resources Management Practices
- Assessing the Impact of Sustainable Materials and Resources Management
- Developing Sustainable Materials and Resources Management Plans
- Managing Sustainable Materials and Resources in the Built Environment
- Exploring Sustainable Materials and Resources Management Technologies
- Analyzing Sustainable Materials and Resources Management Regulations
- Investigating Sustainable Materials and Resources Management Opportunities
- . Establishing Sustainable Materials and Resources Management Goals

### **After completing this module, students will be able to:**

- Understand the principles of sustainable materials and resources management and their application in the built environment.
- Identify and evaluate sustainable materials and resources management strategies and techniques.
- Develop and implement sustainable materials and resources management plans.
- Analyze the environmental, economic, and social impacts of sustainable materials and resources management.

## **Module 5: Sustainable Waste Management**

Module 5 of the Sustainable Facilities Management course focuses on sustainable waste management. It covers topics such as waste reduction, reuse, recycling, composting, and hazardous waste management.

It also provides an overview of the regulations and best practices for sustainable waste management. The module provides students with the knowledge and skills to develop and implement sustainable waste management plans for their facilities.

## ***Lessons***

- Understanding the Basics of Sustainable Waste Management
- Developing a Sustainable Waste Management Plan
- Implementing Sustainable Waste Management Practices
- Measuring and Evaluating Sustainable Waste Management Performance
- Reducing Waste Through Reuse and Recycling
- Managing Hazardous Waste in a Sustainable Way
- Understanding the Role of Composting in Sustainable Waste Management
- Exploring the Benefits of Sustainable Waste Management
- Analyzing the Impact of Sustainable Waste Management on the Environment
- Exploring the Role of Technology in Sustainable Waste Management

## **After completing this module, students will be able to:**

- Understand the principles of sustainable waste management and the importance of reducing, reusing, and recycling waste.
- Identify the different types of waste and the appropriate methods for disposing of them.
- Develop strategies for reducing waste and increasing recycling in a facility.
- Implement waste management policies and procedures to ensure compliance with local and national regulations.

## **Module 6: Sustainable Landscaping and Grounds Maintenance**

Module 6 of the Sustainable Facilities Management course focuses on sustainable landscaping and grounds maintenance. It covers topics such as water conservation, soil health, plant selection, and integrated pest management. It also provides guidance on how to create and maintain a sustainable landscape that is both aesthetically pleasing and ecologically beneficial.

## ***Lessons***

- Understanding Sustainable Landscaping Principles
- Designing Sustainable Landscapes
- Implementing Sustainable Landscaping Practices
- Sustainable Landscape Maintenance
- Sustainable Irrigation Strategies
- Sustainable Turf Management
- Sustainable Plant Selection
- Sustainable Soil Management
- Sustainable Pest Management
- Sustainable Stormwater Management
- Sustainable Lighting Strategies
- Sustainable Waste Management
- Sustainable Landscape Design for Climate Change

- . Sustainable Landscape Design for Wildlife Habitat
- . Sustainable Landscape Design for Pollinator Habitat
- . Sustainable Landscape Design for Water Conservation
- . Sustainable Landscape Design for Energy Efficiency
- . Sustainable Landscape Design for Accessibility
- . Sustainable Landscape Design for Low-Maintenance
- . Sustainable Landscape Design for Community Engagement

**After completing this module, students will be able to:**

- Understand the principles of sustainable landscaping and grounds maintenance, including the use of native plants, water conservation, and soil health.
- Develop an understanding of the importance of integrated pest management and the use of organic fertilizers and pesticides.
- Develop an understanding of the principles of sustainable turf management, including the use of drought-tolerant grasses and the use of organic fertilizers and pesticides.
- Develop an understanding of the principles of sustainable landscape design, including the use of native plants, water conservation, and soil health.

## **Module 7: Sustainable Lighting and HVAC Systems**

Module 7 of the Sustainable Facilities Management course focuses on sustainable lighting and HVAC systems. It covers topics such as energy efficient lighting, HVAC system design, and energy management systems. It also provides an overview of the various technologies available to reduce energy consumption and improve indoor air quality. The module also provides an introduction to the principles of green building design and the importance of sustainability in facilities management.

### ***Lessons***

- Overview of Sustainable Lighting and HVAC Systems
- Energy Efficiency Strategies for Lighting and HVAC Systems
- Design Considerations for Sustainable Lighting and HVAC Systems
- Maintenance and Troubleshooting of Sustainable Lighting and HVAC Systems
- Cost-Benefit Analysis of Sustainable Lighting and HVAC Systems
- Regulatory Requirements for Sustainable Lighting and HVAC Systems
- Case Studies of Sustainable Lighting and HVAC Systems
- Emerging Technologies in Sustainable Lighting and HVAC Systems
- Best Practices for Sustainable Lighting and HVAC Systems
- . Life Cycle Analysis of Sustainable Lighting and HVAC Systems

**After completing this module, students will be able to:**

- Understand the principles of sustainable lighting and HVAC systems and their impact on energy efficiency.
- Analyze the various types of lighting and HVAC systems available and their associated costs.
- Develop strategies for implementing sustainable lighting and HVAC systems in a facility.
- Evaluate the effectiveness of sustainable lighting and HVAC systems in terms of energy savings

and environmental impact.

## **Module 8: Sustainable Water Management**

Module 8 of the Sustainable Facilities Management course focuses on sustainable water management. It covers topics such as water conservation, water reuse, water quality, and water efficiency. It also provides an overview of the various strategies and technologies available to help facilities managers reduce their water consumption and improve their water management practices.

### ***Lessons***

- Understanding the Principles of Sustainable Water Management
- Assessing Water Use in Facilities
- Implementing Water Conservation Strategies
- Developing Water Management Plans
- Evaluating Water Efficiency Technologies
- Managing Stormwater Runoff
- Understanding Water Reuse and Recycling
- Exploring Water-Saving Landscaping Practices
- Investigating Water-Saving Plumbing Fixtures
- . Analyzing Water Metering and Monitoring Systems

### **After completing this module, students will be able to:**

- Understand the principles of sustainable water management and the importance of water conservation.
- Identify and assess water-related risks and develop strategies to mitigate them.
- Develop and implement water management plans that are tailored to the specific needs of the facility.
- Implement water-saving technologies and practices to reduce water consumption and improve water efficiency.

## **Module 9: Sustainable Transportation and Parking**

Module 9 of the Sustainable Facilities Management course focuses on sustainable transportation and parking. It covers topics such as the importance of sustainable transportation, the benefits of green transportation, and strategies for reducing parking demand. It also provides an overview of the various types of sustainable transportation options available, as well as the challenges and opportunities associated with implementing sustainable transportation and parking solutions.

### ***Lessons***

- The Benefits of Sustainable Transportation
- Strategies for Implementing Sustainable Transportation
- The Role of Public Transportation in Sustainable Facilities Management
- The Impact of Automated Vehicles on Sustainable Transportation
- The Role of Electric Vehicles in Sustainable Transportation

- Strategies for Optimizing Parking for Sustainable Facilities Management
- The Role of Carpooling in Sustainable Transportation
- The Role of Bike-Sharing in Sustainable Transportation
- The Role of Ride-Sharing in Sustainable Transportation
- The Role of Telecommuting in Sustainable Transportation

### **After completing this module, students will be able to:**

- Understand the principles of sustainable transportation and parking, including the benefits of reducing vehicle emissions and increasing the use of alternative transportation.
- Develop strategies to reduce the environmental impact of transportation and parking, such as encouraging carpooling, providing bike racks, and creating incentives for public transportation use.
- Analyze the costs and benefits of different transportation and parking options, such as electric vehicles, car sharing, and ride-hailing services.
- Implement sustainable transportation and parking policies and programs, such as providing incentives for alternative transportation use, creating bike lanes, and providing preferential parking for electric vehicles.

## **Module 10: Sustainable Purchasing and Procurement**

Module 10 of the Sustainable Facilities Management course focuses on sustainable purchasing and procurement. It covers topics such as understanding the principles of sustainable procurement, identifying and evaluating sustainable products and services, and developing and implementing sustainable procurement policies. The module also provides guidance on how to measure and report on the success of sustainable procurement initiatives.

### ***Lessons***

- Understanding Sustainable Purchasing and Procurement Principles
- Evaluating Suppliers for Sustainability
- Developing Sustainable Procurement Strategies
- Implementing Sustainable Purchasing and Procurement Practices
- Measuring and Reporting on Sustainable Purchasing and Procurement
- Managing Risk in Sustainable Purchasing and Procurement
- Leveraging Technology for Sustainable Purchasing and Procurement
- Understanding the Role of Sustainable Purchasing and Procurement in Facility Management
- Analyzing the Impact of Sustainable Purchasing and Procurement on Facility Performance
- Exploring Sustainable Procurement Opportunities in the Marketplace

### **After completing this module, students will be able to:**

- Understand the principles of sustainable purchasing and procurement and how they can be applied to facilities management.
- Develop strategies to reduce the environmental impact of purchasing decisions.
- Identify and evaluate sustainable suppliers and products.
- Implement sustainable purchasing and procurement policies and procedures.

# Module 11: Sustainable Building Operations and Maintenance

Module 11 of the Sustainable Facilities Management course focuses on the operations and maintenance of sustainable buildings. It covers topics such as energy efficiency, water conservation, indoor air quality, and waste management. It also provides an overview of the tools and techniques used to ensure that sustainable buildings are operated and maintained in an efficient and cost-effective manner.

## **Lessons**

- Understanding the Principles of Sustainable Building Operations and Maintenance
- Developing Sustainable Building Maintenance Strategies
- Implementing Sustainable Building Maintenance Practices
- Evaluating the Impact of Sustainable Building Maintenance
- Managing Sustainable Building Maintenance Resources
- Utilizing Sustainable Building Maintenance Technologies
- Understanding the Role of Building Automation Systems in Sustainable Building Maintenance
- Analyzing the Cost-Benefit of Sustainable Building Maintenance
- Understanding the Role of Building Envelope in Sustainable Building Maintenance
- . Understanding the Role of Indoor Air Quality in Sustainable Building Maintenance
- . Understanding the Role of Lighting in Sustainable Building Maintenance
- . Understanding the Role of Water Efficiency in Sustainable Building Maintenance
- . Understanding the Role of Renewable Energy in Sustainable Building Maintenance
- . Understanding the Role of Waste Management in Sustainable Building Maintenance
- . Understanding the Role of Green Cleaning in Sustainable Building Maintenance

## **After completing this module, students will be able to:**

- Understand the principles of sustainable building operations and maintenance.
- Develop strategies to reduce energy consumption and improve efficiency.
- Implement best practices for sustainable building operations and maintenance.
- Monitor and evaluate the performance of sustainable building operations and maintenance.

# Module 12: Sustainable Building Performance Monitoring and Reporting

Module 12 of the Sustainable Facilities Management course focuses on the monitoring and reporting of sustainable building performance. It covers topics such as energy and water use, indoor air quality, and waste management. Students will learn how to develop and implement a monitoring and reporting system to track and report on the performance of their building. They will also gain an understanding of the importance of data collection and analysis in order to make informed decisions about the sustainability of their building.

## **Lessons**

- Introduction to Sustainable Building Performance Monitoring and Reporting
- Understanding Building Performance Metrics
- Developing Sustainable Building Performance Reports
- Utilizing Building Performance Data to Improve Sustainability



- Analyzing Building Performance Data for Energy Efficiency
- Strategies for Improving Building Performance
- Integrating Building Performance Monitoring into Facility Management
- Leveraging Building Performance Data for Sustainable Facility Management
- Automating Building Performance Monitoring and Reporting
- . Best Practices for Sustainable Building Performance Monitoring and Reporting

**After completing this module, students will be able to:**

- Understand the principles of sustainable building performance monitoring and reporting.
- Develop strategies for monitoring and reporting on the performance of sustainable buildings.
- Analyze the data collected from sustainable building performance monitoring and reporting systems.
- Implement best practices for sustainable building performance monitoring and reporting.

## **Module 13: Sustainable Facility Planning and Design**

Module 13 of the Sustainable Facilities Management course focuses on the planning and design of sustainable facilities. It covers topics such as green building design, energy efficiency, water conservation, and waste management. It also provides an overview of the various tools and techniques used to create sustainable facilities. The module provides an understanding of the principles of sustainable facility planning and design, and how to apply them in practice.

### ***Lessons***

- Understanding the Principles of Sustainable Facility Planning and Design
- Assessing the Environmental Impact of Facility Design
- Strategies for Minimizing Energy Consumption in Facility Design
- Incorporating Renewable Energy Sources into Facility Design
- Integrating Sustainable Materials into Facility Design
- Designing for Accessibility and Universal Design
- Creating Sustainable Landscapes for Facilities
- Developing Sustainable Waste Management Strategies
- Implementing Sustainable Water Management Strategies
- . Integrating Sustainable Technologies into Facility Design

**After completing this module, students will be able to:**

- Understand the principles of sustainable facility planning and design, including the use of green building materials and energy-efficient systems.
- Develop strategies for incorporating sustainable design elements into existing and new facilities.
- Analyze the environmental, economic, and social impacts of sustainable facility planning and design.
- Evaluate the effectiveness of sustainable facility planning and design initiatives.

## **Module 14: Sustainable Facility Management Strategies and Practices**

Module 14 of the Sustainable Facilities Management course provides an overview of strategies and practices for managing facilities in a sustainable manner. It covers topics such as energy efficiency, water conservation, waste management, and green building design. It also provides guidance on how to develop and implement sustainable facility management plans.

## ***Lessons***

- Understanding the Principles of Sustainable Facility Management
- Developing a Sustainable Facility Management Plan
- Implementing Sustainable Facility Management Practices
- Measuring and Evaluating Sustainable Facility Management Performance
- Integrating Sustainable Facility Management into Corporate Strategies
- Leveraging Technology for Sustainable Facility Management
- Managing Sustainable Facility Resources
- Understanding the Impact of Sustainable Facility Management on the Environment
- Developing Sustainable Facility Management Policies and Procedures
- . Understanding the Role of Facility Management in Sustainable Development

## **After completing this module, students will be able to:**

- Understand the principles of sustainable facility management and how to apply them in practice.
- Develop strategies to reduce energy consumption and waste in a facility.
- Identify and implement best practices for sustainable facility management.
- Develop a plan to monitor and evaluate the effectiveness of sustainable facility management initiatives.

## **Module 15: Sustainable Facility Management Certification and Accreditation**

Module 15 of the Sustainable Facilities Management course provides an overview of certification and accreditation for sustainable facility management. It covers topics such as the importance of certification and accreditation, the different types of certifications and accreditations available, and the process of obtaining certification and accreditation. It also provides guidance on how to maintain certification and accreditation.

## ***Lessons***

- Overview of Sustainable Facility Management Certification and Accreditation
- Benefits of Sustainable Facility Management Certification and Accreditation
- Types of Sustainable Facility Management Certifications and Accreditations
- Requirements for Sustainable Facility Management Certification and Accreditation
- Strategies for Achieving Sustainable Facility Management Certification and Accreditation
- Challenges of Sustainable Facility Management Certification and Accreditation
- Case Studies of Sustainable Facility Management Certification and Accreditation
- Best Practices for Sustainable Facility Management Certification and Accreditation
- Regulatory Requirements for Sustainable Facility Management Certification and Accreditation
- . Cost-Benefit Analysis of Sustainable Facility Management Certification and Accreditation

**After completing this module, students will be able to:**

- Understand the principles of sustainable facility management and how to apply them in practice.
- Develop strategies to reduce energy consumption and waste in a facility.
- Identify and implement best practices for sustainable facility management.
- Develop a plan for obtaining certification and accreditation for a facility.