



Program of Study Guide: **Facility Management**

Comprehensive guidelines and course standards for the Facility Management pathway

Office of College and Career Pathways

August 2025

MARYLAND STATE DEPARTMENT OF EDUCATION

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Document Control Information

Title:	Program of Study Guide: Facilities Management
Security Level:	Approved for Distribution
File Name:	CST_Facilities_Management

DOCUMENT HISTORY

Document Version	Date	Summary of Change
1.0	October 2024	Initial Document
2.0	January 2025	Revisions
3.0	March 2025	Revisions
4.0	May 2025	Revisions
5.0	June 2025	Revisions
6.0	August 2025	Revisions

Purpose

The purpose of this document is to communicate the required Career and Technical Education (CTE) academic standards for the Facilities Management Program of Study. The academic standards in this document are theoretical and performance based. The standards contain content from multiple state departments of education, industry related resources and have been reviewed and vetted by members of the Maryland business and industry community.

In addition to academic standards, the Maryland State Department of Education (MSDE) has incorporated into this document Labor Market Information (LMI) definitions and explanations for the Program of Study; program aligned Industry Recognized Credentials; and Work-Based Learning resources and requirements by course level.

Standards Sources

The following sources collectively support a progression of standards from an understanding of foundational building systems to project and team management. They preparing students for industry-aligned certifications like OSHA 30 and providing them with the necessary knowledge and skills for career readiness in construction and facility management fields.

1. IFMA Foundation Knowledge Base

- A. **Description:** Comprehensive educational materials aligned with the eleven core competencies of facility management, including case studies, technical guides, and best practices.
- B. **Use:** Primary source for all courses, especially for core competency instruction. Directly aligns with our program structure and certification preparation.
- C. **Source:** <https://foundation.ifma.org/>

2. OSHA 30-Hour Construction Industry Outreach Training Program

- A. **Description:** Standardized safety training curriculum covering construction industry safety and health hazards.
- B. **Use:** Essential for Courses 1 and 2, providing structured safety training content and certification preparation.
- C. **Source:** <https://www.osha.gov/training/outreach>

3. Building Owners and Managers Association (BOMA) Educational Resources

- A. **Description:** Industry-specific training materials focusing on building operations, maintenance, and management.
- B. **Use:** Supports technical content in Courses 1 and 2, particularly for building systems and maintenance procedures.
- C. **Source:** <https://www.boma.org/education>

4. ASHRAE Learning Institute

- A. **Description:** Technical education materials focusing on HVAC systems, building performance, and sustainability.
- B. **Use:** Provides detailed technical content for Course 2's building systems and sustainability units.
- C. **Source:** <https://www.ashrae.org/professional-development/learning-portal>

5. Project Management Institute Educational Foundation (PMIEF) Resources

- A. **Description:** Project management curriculum and resources adapted for various educational levels.
- B. **Use:** Supports Course 3's project management unit.
- C. **Source:** <https://pmief.org/>

6. US Green Building Council Education Platform

- A. **Description:** Sustainability-focused curriculum materials including LEED concepts and green building practices.
- B. **Use:** Supports sustainability units in Course 2.
- C. **Source:** <https://www.usgbc.org/education>

7. National Center for Construction Education and Research (NCCER)

- A. **Description:** Standardized construction and maintenance curriculum with industry credentials.
- B. **Use:** Provides foundational content for building systems and maintenance in Courses 1 and 2.
- C. **Source:** <https://www.nccer.org/>

8. Association for Facilities Engineering (AFE) Materials

- A. **Description:** Technical training materials focusing on plant and facility engineering systems.
- B. **Use:** Supports advanced technical content in Courses 2.
- C. **Source:** <https://www.afe.org/>

9. BuildingSmarts Alliance

- A. **Description:** Building Information Modeling (BIM) and technology integration curriculum.
- B. **Use:** Supports technology management units across all courses.
- C. **Source:** <https://www.buildingsmart.org/>

10. Energy Management Association (EMA)

- A. **Description:** Energy management and sustainability curriculum resources.
- B. **Use:** Supports sustainability units in Course 2.
- C. **Source:** <https://www.energymgmt.org/>

11. International Code Council (ICC) Education

- A. **Description:** Building codes and compliance training materials.
- B. **Use:** Supports regulatory compliance content across all courses.
- C. **Source:** <https://www.iccsafe.org/professional-development/>

Note: Teachers should verify current availability and access requirements for these resources, as some may require membership or subscription. Many organizations also offer educator discounts or free resources for academic use.

This document is intended for use by educational administrators and practitioners. A similar document is available for each state-approved CTE Program of Study.

Course Descriptions

Course Level	Course Information	Description
Required Core: Course 1	Introduction to Facilities Management SCED: Pending Grades: 9-12 Prerequisite: None Credit: 1	This foundational course introduces students to the core principles of facilities management while emphasizing workplace safety. Students develop fundamental knowledge of building systems, maintenance procedures, and occupant services. The course begins OSHA 30 Construction certification preparation and establishes essential professional communication skills. Through hands-on projects and practical exercises, students learn to perform basic facility inspections, maintain building systems, and implement safety protocols. This course lays the groundwork for advanced facilities management concepts while ensuring students develop a strong safety mindset.
Required Core: Course 2	Building Systems SCED: Pending Grades: 10-12 Prerequisite: Introduction to Facilities Management Credit: 1	Building upon foundational knowledge, this course deepens students' understanding of complex building systems while completing OSHA 30 Construction certification requirements. Students master advanced maintenance procedures, sustainability practices, and building automation systems. Through practical applications, students learn to diagnose system issues, implement preventive maintenance programs, and utilize facility management technology. The course emphasizes environmental responsibility and technological solutions in modern facility operations. Students complete their OSHA 30 certification and develop comprehensive safety management skills.

Course Level	Course Information	Description
Optional Flex: Course 1	Business and Risk Management SCED: Pending Grades: 11-12 Prerequisite: Building Systems Credit: 1	This course transitions students from technical operations to management principles, focusing on the business aspects of facilities management. Students develop skills in budget preparation, quality management, and risk assessment. Through case studies and projects, students learn to create financial reports, develop risk management strategies, and implement quality control systems. The course emphasizes project management methodology and leadership fundamentals, preparing students to oversee facility operations effectively. Students develop critical thinking skills necessary for facility management decision-making and strategic planning.

Course Level	Course Information	Description
Optional Flex: Course 2	Career Connected Learning I SCED: Pending Grades: 11-12 Prerequisite: See Course Description Credits: 1-3	<u>Prerequisites:</u> 1. Alignment to the student's 6-Year Plan 2. Completion of: a. Minimum two sequential courses in a CTE pathway, OR b. Minimum two years of the same world language; OR c. Minimum two sequential courses in a comprehensive arts program; OR d. Inclusion in the IEP/504 transition plan with supporting documentation (as required) 3. Endorsement from an educator, mentor, employer, or career coach 4. No more than one course recovery credit in core subjects is needed by the student. This flexible, work-based learning course introduces students to real-world applications of classroom knowledge and technical skills through on-the-job experiences and reflective practices. Students engage in career exploration, skill development, and professional networking by participating in youth apprenticeships, registered apprenticeships, pre-apprenticeships, internships, capstone projects, or other approved career-connected opportunities. Variable credit (1–3) accommodates the required on-the-job training hours and related instruction. By integrating industry standards, employability skills, and personalized learning goals, Career Connected Learning I equips students to make informed career decisions, develop a professional portfolio, and build a strong foundation for success in postsecondary education, training, or the workforce.

Course Level	Course Information	Description
Optional Flex: Course 3	Career Connected Learning II SCED: Pending Grades: 11-12 Prerequisite: Career Connected Learning I Credits: 1-3	Building on the foundational experiences of Career Connected Learning I, this advanced work-based learning course provides students with deeper on-the-job practice, leadership opportunities, and refined career exploration. Students continue to enhance their technical and professional skills, expanding their industry networks and aligning personal goals with evolving career interests. Variable credit (1–3) remains aligned with the required training hours and related instruction. Through elevated responsibilities and skill application, Career Connected Learning II prepares students to confidently transition into higher-level postsecondary programs, apprenticeships, or the workforce.

Dual Enrollment and Career Connected Learning Experiences Must be Aligned to the CTE Core.

Industry-Recognized Credentials and Career-Connected Learning

The *Blueprint for Maryland's Future* and the High School Level of a Registered Apprenticeship

The Maryland State Department of Education recognizes the high-school level of a Registered Apprenticeship (RA), defined as a State-approved Registered Apprenticeship begun during high school in which students complete at least 144 hours of related technical instruction and 250 hours of paid on-the-job training before graduation, with the remaining required apprenticeship hours completed post-graduation, as the gold standard of Career Connected Learning.

The CTE Committee of the Governor's Workforce Development Board, in alignment with federal apprenticeship standards, requires 144 hours of RTI for all high school RA participants, and the Apprenticeship Maryland Program (AMP) defines the minimum RTI as **one course credit equivalent**. This high-school-level Registered Apprenticeship is the preferred career-connected learning option for students to meet the Blueprint's goal that 45% of public high school graduates complete either the high-school level of a Registered Apprenticeship or another industry-recognized credential.

To the extent practicable, the greatest number of students should achieve this goal through participation in a high-school level Registered Apprenticeship, with schools ensuring these requirements are scheduled, completed, and documented for transcript and reporting purposes.

To the extent practicable, the greatest number of students should achieve this goal through the high-school level of a Registered Apprenticeship.

Career-Connected Learning Resources		
Course 1: Career Awareness	Course 2: Career Preparation	Flex Courses: Career-Connected Learning
- Industry Visits - Guest Speakers - Participation in Career and Technical Student Organizations - Postsecondary Visits – Program Specific Site Tours - Mock Interviews	- All of Career Awareness plus the following: - Job Shadow - Employer Mentoring	- Registered Apprenticeship - Internship - School-Based Enterprise - Employer-Directed Capstone

Industry-Recognized Credentials

By the end of Building Systems: OSHA 30 Construction, CPR/First Aid

Optional Credentials (via the Flex Course options): preparation for IFMA Facilities Management credential

Labor Market Information: Definitions and Data

Labor market information (LMI) plays a crucial role in shaping Career and Technical Education (CTE) programs by providing insights into industry demands, employment trends, and skills gaps. This data helps education leaders assess the viability of existing programs and identify opportunities for new offerings. By aligning CTE programs with real-time labor market needs, schools can better prepare students for in-demand careers and ensure that resources are effectively utilized to support pathways that lead to high-quality, sustainable employment.

Standard Occupational Code (SOC) and Aligned Industry:

Indicator	Definition	Pathway Labor Market Data
High Wage¹	Those occupations that have a 25th percentile wage equal to or greater than the most recent MIT Living Wage Index for one adult in the state of Maryland, and/or leads to a position that pays at least the median hourly or annual wage for the DC-VA-MD-WV Metropolitan Statistical Area (MSA). <i>Note: A 25th percentile hourly wage of \$24.74 or greater is required to meet this definition.</i>	Standard Occupational Code: 11-3013: Facility Managers Hourly Wage/Annual Salary: 25 th Percentile: \$33.63/\$69,950 50 th Percentile: \$44.99/\$93,579 75 th Percentile: \$60.61/\$126,069
High Skill	Those occupations located within the DC-VA-MD-WV Metropolitan Statistical Area (MSA) with the following education or training requirements: completion of an apprenticeship program; completion of an industry-recognized certification or credential; associate's degree, bachelor's degree, or higher.	Typical Entry-Level Education: Facility managers typically require some level of post-secondary education. This is usually accompanied by on-the-job training.
In-Demand	Annual growth plus replacement, across all Maryland occupations, is <u>405</u> openings between 2024-2029.	Annual Openings 410

Lightcast Data Updated August 2025

¹ Living Wage Calculator: <https://livingwage.mit.edu/states/24>

Labor Market Information Data Source

Lightcast Q4 2024 Data Set. Lightcast occupation employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates are also affected by county-level Lightcast earnings by industry. Foundational data for the state of Maryland is collected and reported by the Maryland Department of Labor.

Methodology for High Wage Calculations

To combine labor market data across multiple Standard Occupational Classifications (SOCs), a weighted average approach was used to ensure accurate representation of the marketplace. Median wages for each SOC were weighted based on their respective employment levels, reflecting the relative demand for each occupation. This method ensures that occupations with higher employment contribute proportionately to the overall wage calculation. Additionally, job openings from all relevant SOCs were summed to determine the total projected demand. For example, if Mechanical Engineers account for 67% of total employment and Electrical Engineers for 33%, their respective wages are weighted accordingly, and job openings are aggregated to provide a comprehensive view of labor market opportunities. This approach delivers a balanced and accurate representation of both wages and employment demand for the program.

Methodology for In-Demand Calculations

The baseline for annual job openings, taking into account new positions and replacement positions, was determined by taking the average of all annual job openings between 2024 and 2029 across all 797 career sectors at the 5-digit SOC code level. For the 2024-2029 period, average job openings (growth + replacement) is 405.

Course Standards: Introduction to Facility Management

1. GENERAL REQUIREMENTS. This course is recommended for students in Grades 9-12.

2. INTRODUCTION

- A. Career and Technical Education (CTE) instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.
- B. The Construction Career Cluster prepares students for careers in designing, planning, and building sustainable infrastructure. This field includes architects, engineers, construction managers, and skilled trades professionals.
- C. The Facilities Management Program of Study prepares students for careers in commercial building management through a comprehensive curriculum aligned with industry standards. Throughout this four-course sequence, students master the eleven core competencies established by the International Facility Management Association (IFMA), while earning their OSHA 30 Construction certification. Students develop practical skills in building systems operation, safety management, sustainability practices, and business operations. By program completion, students can perform building systems maintenance, implement safety protocols, manage facility operations, analyze financial data, and develop strategic facility plans. The program prepares students for entry-level facilities management positions and provides foundational knowledge for the Certified Facility Manager (CFM) credential.
- D. This foundational course introduces students to the core principles of facilities management while emphasizing workplace safety. Students develop fundamental knowledge of building systems, maintenance procedures, and occupant services. The course begins OSHA 30 Construction certification preparation and establishes essential professional communication skills. Through hands-on projects and practical exercises, students learn to perform basic facility inspections, maintain building systems, and implement safety protocols. This course lays the groundwork for advanced facilities management concepts while ensuring students develop a strong safety mindset.
- E. Students will participate in at least two Career-Connected Education and Work-Based Learning experiences in this course, which might include informational interviews or job shadowing relevant to the program of study.
- F. Students are encouraged to participate in extended learning experiences through aligned Career and Technical Student Organizations (CTSOs). CTSOs are a cocurricular requirement in the Carl D. Perkins Act, and alignment to CTSO activities is an expectation for CTE programs in the state of Maryland.

3. KNOWLEDGE AND SKILLS

- A. The student demonstrates the necessary skills for career development, maintenance of employability, and successful completion of course outcomes. The student is expected to:**
 - 1. Identify and demonstrate positive work behaviors that enhance employability and job advancement, such as regular attendance, promptness, proper attire, maintenance of a clean and safe work environment, and pride in work.
 - 2. Demonstrate positive personal qualities such as flexibility, open-mindedness, initiative, active listening, and a willingness to learn.
 - 3. Employ effective reading, writing, and technical documentation skills.

4. Solve problems using critical thinking techniques and structured troubleshooting methodologies.
5. Demonstrate leadership skills and collaborate effectively as a team member.
6. Implement safety procedures, including proper handling of hardware and following appropriate safety guidelines.
7. Exhibit an understanding of legal and ethical responsibilities in the IT field, following data privacy laws and best practices for security.
8. Demonstrate time-management skills and the ability to prioritize tasks in a technical setting.

B. The student identifies various career pathways in the facilities management field. The student is expected to:

1. Develop a career plan that includes the necessary education, certifications, job skills, and experience for specific roles in facility management.
2. Create a professional resume and portfolio that reflect skills, projects, certifications, and recommendations.
3. Demonstrate effective interview skills for roles in the construction and facility management fields.

C. The student develops technology and digital literacy skills. The student is expected to:

1. Use technology as a tool for research, organization, communication, and problem-solving.
2. Use digital tools, including computers, mobile devices, collaboration platforms, and cloud services, to access, manage, and create information.
3. Demonstrate foundational technology skills by operating basic office software, utilizing simple building control interfaces, and implementing digital safety documentation systems while developing proficiency in standard facility management software platforms.
4. Understand ethical and legal considerations for technology use, including the principles of data protection, copyright, and responsible technology use.

D. The student integrates core academic skills into facilities management practices. The student is expected to:

1. Demonstrate the use of clear communication techniques, both written and verbal, that are consistent with industry standards.
2. Apply fundamental mathematical skills including basic measurements of length, area, and volume for building spaces, calculate material quantities for maintenance tasks, and use percentages to interpret building occupancy rates. Basic geometric concepts are utilized to understand building layouts and space utilization.
3. Identify and explain basic principles of building science, including fundamental electricity concepts such as voltage and current, HVAC operation principles of heat transfer and air flow, and material science applications in building components. They apply basic chemical safety principles when working with cleaning and maintenance products.

E. The student demonstrates understanding of foundational concepts in Facilities Management. The student is expected to:

1. Explain the primary responsibilities and duties of facility managers in various building types.
2. Analyze current industry trends and their impact on career opportunities in facility management.

3. Compare and contrast different roles within the facilities management organizational structure.
4. Describe the relationship between facility management and organizational success.

F. The student analyzes occupancy and human factors in facility management. The student is expected to:

1. Evaluate the components of an effective workplace environment.
2. Develop basic protocols for delivering occupant services.
3. Apply fundamental occupant health and safety principles to common workplace scenarios.
4. Design simple solutions to improve workplace ergonomics and comfort.

G. The student examines operations and maintenance fundamentals. The student is expected to:

1. Identify the major components of building systems and infrastructure.
2. Create basic preventive maintenance schedules for common facility equipment.
3. Demonstrate proper use and maintenance of fundamental facility tools and equipment.
4. Explain the relationship between building systems and occupant comfort.

H. The student applies safety principles and OSHA guidelines. The student is expected to:

1. Interpret basic safety principles and their application in facility management.
2. Demonstrate proper selection and use of personal protective equipment (PPE).
3. Apply tool safety protocols in various maintenance scenarios.
4. Complete the first portion of OSHA 30 Construction certification requirements.
5. Conduct basic safety inspections using OSHA guidelines.

I. The student understands related licensing requirements for trades performing work in facilities. The student is expected to:

1. Identify the requirements for Maryland, DC, Virginia, and Pennsylvania licensure in various related trades (Plumbing, HVACR, Electrical, etc.)
2. Identify the different levels of professional certification within these areas.

J. The student interprets construction drawings and specifications. The student is expected to:

1. Identify basic components and features of construction drawings.
2. Differentiate between various types of construction drawings.

K. The student develops professional communication skills. The student is expected to:

1. Create professional written communications for various facility management scenarios.
2. Demonstrate effective stakeholder communication strategies.
3. Prepare accurate maintenance and incident reports.
4. Utilize appropriate technical terminology in facility management communications.

L. The student develops professional workplace behaviors and skills. The student is expected to:

1. Understand the importance of consistent attendance, punctuality, and professional communication.
2. Evaluate construction business opportunities and workforce entry strategies.
3. Apply critical thinking skills to solve workplace problems.

4. Demonstrate appropriate social skills in professional settings to include customer service interactions that communicate the problem, potential solutions, and create positive customer experiences.

Sample Activities may go here

Crosswalk with Curriculum and IRC

Course Standards: Building Systems

1. **GENERAL REQUIREMENTS.** This course is recommended for students in Grades 10-12.
2. **INTRODUCTION**
 - A. Career and Technical Education (CTE) instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.
 - B. The Construction Career Cluster prepares students for careers in designing, planning, and building sustainable infrastructure. This field includes architects, engineers, construction managers, and skilled trades professionals.
 - C. The Facilities Management Program of Study prepares students for careers in commercial building management through a comprehensive curriculum aligned with industry standards. Throughout this four-course sequence, students master the eleven core competencies established by the International Facility Management Association (IFMA), while earning their OSHA 30 Construction certification. Students develop practical skills in building systems operation, safety management, sustainability practices, and business operations. By program completion, students can perform building systems maintenance, implement safety protocols, manage facility operations, analyze financial data, and develop strategic facility plans. The program prepares students for entry-level facilities management positions and provides foundational knowledge for the Certified Facility Manager (CFM) credential.
 - D. Building upon foundational knowledge, this course deepens students' understanding of complex building systems while completing OSHA 30 Construction certification requirements. Students master advanced maintenance procedures, sustainability practices, and building automation systems. Through practical applications, students learn to diagnose system issues, implement preventive maintenance programs, and utilize facility management technology. The course emphasizes environmental responsibility and technological solutions in modern facility operations. Students complete their OSHA 30 certification and develop comprehensive safety management skills.
 - E. Students will participate in at least two Career-Connected Education and Work-Based Learning experiences in this course, which might include informational interviews or job shadowing relevant to the program of study.
 - F. Students are encouraged to participate in extended learning experiences through aligned Career and Technical Student Organizations (CTSOs). CTSOs are a cocurricular requirement in the Carl D. Perkins Act, and alignment to CTSO activities is an expectation for CTE programs in the state of Maryland.
3. **KNOWLEDGE AND SKILLS**

A. The student demonstrates the necessary skills for career development, maintenance of employability, and successful completion of course outcomes. The student is expected to:

1. Identify and demonstrate positive work behaviors that enhance employability and job advancement, such as regular attendance, promptness, proper attire, maintenance of a clean and safe work environment, and pride in work.
2. Demonstrate positive personal qualities such as flexibility, open-mindedness, initiative, active listening, and a willingness to learn.
3. Employ effective reading, writing, and technical documentation skills.
4. Solve problems using critical thinking techniques and structured troubleshooting methodologies.
5. Demonstrate leadership skills and collaborate effectively as a team member.
6. Implement safety procedures, including proper handling of hardware and following cybersecurity guidelines.
7. Exhibit an understanding of legal and ethical responsibilities in the IT field, following data privacy laws and best practices for security.
8. Demonstrate time-management skills and the ability to prioritize tasks in a technical setting.

B. The student identifies various career pathways in the facilities management field. The student is expected to:

1. Develop a career plan that includes the necessary education, certifications, job skills, and experience for specific roles in facility management.
2. Create a professional resume and portfolio that reflect skills, projects, certifications, and recommendations.
3. Demonstrate effective interview skills for roles in the construction and facility management field.

C. The student develops technology and digital literacy skills. The student is expected to:

1. Use technology as a tool for research, organization, communication, and problem-solving.
2. Use digital tools, including computers, mobile devices, collaboration platforms, and cloud services, to access, manage, and create information.
3. Analyze building automation systems by programming and operating HVAC controls, lighting systems, and preventive maintenance software, while evaluating environmental monitoring data to optimize building performance.
4. Understand ethical and legal considerations for technology use, including the principles of data protection, copyright, and responsible technology use.

D. The student integrates core academic skills into facility management practices. The student is expected to:

1. Demonstrate the use of clear communication techniques, both written and verbal, that are consistent with industry standards.
2. Analyze numerical data from building automation systems, calculate complex efficiency ratios, and evaluate geometric and trigonometric relationships in building systems. They compute measurements for preventive maintenance scheduling and develop quantitative analyses of system performance.

3. Analyze thermodynamic principles in HVAC operations, evaluate chemical interactions in building systems such as water treatment, and apply physics concepts to understand mechanical system operations. They examine environmental factors affecting building performance through scientific analysis.

E. The student analyzes advanced operations and maintenance concepts. The student is expected to:

1. Diagnose common problems in complex building systems including HVAC, electrical, and plumbing.
2. Develop comprehensive preventive maintenance schedules for building systems and equipment.
3. Implement work order management systems to track and prioritize maintenance tasks.
4. Evaluate building automation system data to optimize building performance.
5. Analyze maintenance records to identify patterns and predict potential system failures.

F. The student masters advanced safety protocols and completes OSHA certification. The student is expected to:

1. Complete all requirements for OSHA 30 Construction certification.
2. Develop site-specific safety protocols for maintenance and construction activities.
3. Create emergency response procedures for various facility crisis scenarios.
4. Conduct comprehensive site safety audits using OSHA guidelines.
5. Design safety training programs for facility staff and contractors.
6. Evaluate incident reports to determine root causes and preventive measures.

G. The student implements sustainability practices in facility operations. The student is expected to:

1. Analyze building energy consumption patterns and identify conservation opportunities.
2. Develop water conservation strategies for various facility types.
3. Create waste reduction and recycling programs for facility operations.
4. Calculate the environmental impact of facility operations aligned to Maryland's Building Energy Performance standards (BEPs).
5. Propose cost-effective sustainable solutions for building operations.
6. Evaluate the effectiveness of environmental management systems.

H. The student utilizes facility management technology systems. The student is expected to:

1. Operate building management systems to control facility operations.
2. Analyze data from building sensors and monitoring systems.
3. Implement maintenance management software for work order tracking.
4. Create reports using facility management software tools.
5. Evaluate the effectiveness of different technology solutions for facility management.

Sample Activities may go here

Crosswalk with Curriculum and IRC

Course Standards: Business and Risk Management

1. **GENERAL REQUIREMENTS.** This course is recommended for students in Grades 10-12.
2. **INTRODUCTION**
 - A. Career and Technical Education (CTE) instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.
 - B. The Construction Career Cluster prepares students for careers in designing, planning, and building sustainable infrastructure. This field includes architects, engineers, construction managers, and skilled trades professionals.
 - C. The Facilities Management Program of Study prepares students for careers in commercial building management through a comprehensive curriculum aligned with industry standards. Throughout this four-course sequence, students master the eleven core competencies established by the International Facility Management Association (IFMA), while earning their OSHA 30 Construction certification. Students develop practical skills in building systems operation, safety management, sustainability practices, and business operations. By program completion, students can perform building systems maintenance, implement safety protocols, manage facility operations, analyze financial data, and develop strategic facility plans. The program prepares students for entry-level facilities management positions and provides foundational knowledge for the Certified Facility Manager (CFM) credential.
 - D. This course transitions students from technical operations to management principles, focusing on the business aspects of facilities management. Students develop skills in budget preparation, quality management, and risk assessment. Through case studies and projects, students learn to create financial reports, develop risk management strategies, and implement quality control systems. The course emphasizes project management methodology and leadership fundamentals, preparing students to oversee facility operations effectively. Students develop critical thinking skills necessary for facility management decision-making and strategic planning.
 - E. Students will participate in at least two Career-Connected Education and Work-Based Learning experiences in this course, which might include informational interviews or job shadowing relevant to the program of study.
 - F. Students are encouraged to participate in extended learning experiences through aligned Career and Technical Student Organizations (CTSOs). CTSOs are a cocurricular requirement in the Carl D. Perkins Act, and alignment to CTSO activities is an expectation for CTE programs in the state of Maryland.
3. **KNOWLEDGE AND SKILLS**
 - A. **The student demonstrates the necessary skills for career development, maintenance of employability, and successful completion of course outcomes. The student is expected to:**
 1. Identify and demonstrate positive work behaviors that enhance employability and job advancement, such as regular attendance, promptness, proper attire, maintenance of a clean and safe work environment, and pride in work.
 2. Demonstrate positive personal qualities such as flexibility, open-mindedness, initiative, active listening, and a willingness to learn.
 3. Employ effective reading, writing, and technical documentation skills.

4. Solve problems using critical thinking techniques and structured troubleshooting methodologies.
5. Demonstrate leadership skills and collaborate effectively as a team member.
6. Implement safety procedures, including proper handling of hardware and following appropriate safety guidelines.
7. Exhibit an understanding of legal and ethical responsibilities in the IT field, following data privacy laws and best practices for security.
8. Demonstrate time-management skills and the ability to prioritize tasks in a technical setting.

B. The student identifies various career pathways in the facilities management field. The student is expected to:

1. Develop a career plan that includes the necessary education, certifications, job skills, and experience for specific roles in facility management.
2. Create a professional resume and portfolio that reflect skills, projects, certifications, and recommendations.
3. Demonstrate effective interview skills for roles in the construction and facility management fields.

C. The student develops technology and digital literacy skills. The student is expected to:

1. Use technology as a tool for research, organization, communication, and problem-solving.
2. Use digital tools, including computers, mobile devices, collaboration platforms, and cloud services, to access, manage, and create information.
3. Synthesize business and analytics technologies by developing advanced spreadsheet solutions, implementing project management systems, and creating data-driven analyses for risk assessment and financial planning in facility operations.
4. Understand ethical and legal considerations for technology use, including the principles of data protection, copyright, and responsible technology use.

D. The student integrates core academic skills into facility management practices. The student is expected to:

1. Demonstrate the use of clear communication techniques, both written and verbal, that are consistent with industry standards.
2. Synthesize complex financial calculations for budgeting and cost analysis, incorporating statistical analyses of facility performance metrics. They evaluate probability concepts for risk assessment and develop comprehensive cost-benefit analyses for facility improvements and operations.
3. Evaluate scientific principles related to materials degradation and lifecycle analysis, analyze environmental impact using scientific metrics, and apply engineering principles in facility system assessment. They develop and implement testing protocols based on scientific principles for quality control.

E. The student applies finance and business principles to facility management. The student is expected to:

1. Develop operational budgets for facility management departments.
2. Create capital planning proposals for major facility improvements.
3. Execute procurement processes for facility services and equipment.
4. Analyze facility service contracts for cost-effectiveness and scope compliance.

5. Calculate life-cycle costs for building systems and equipment.
6. Evaluate financial statements to make data-driven facility management decisions.
7. Implement cost-control measures while maintaining service quality.

F. The student implements performance and quality management systems. The student is expected to:

1. Design quality management systems for facility operations.
2. Develop key performance indicators (KPIs) for facility services.
3. Create quality control procedures for maintenance operations.
4. Analyze performance metrics to identify areas for improvement.
5. Implement continuous improvement processes using industry-standard methodologies.
6. Design performance evaluation systems for facility service providers.

G. The student develops comprehensive risk management strategies. The student is expected to:

1. Conduct facility risk assessments using standard methodologies.
2. Create emergency preparedness plans for various facility crisis scenarios.
3. Develop business continuity plans for critical facility operations.
4. Design facility resilience strategies to address potential threats.
5. Implement risk mitigation measures for identified facility hazards.
6. Create emergency response protocols for facility staff.
7. Evaluate insurance requirements and coverage for facility operations.

H. The student applies project management principles to facility operations. The student is expected to:

1. Develop project scopes and objectives for facility improvements.
2. Create project schedules using standard project management tools.
3. Estimate project costs and develop project budgets.
4. Implement project control systems to monitor progress and costs.
5. Evaluate project outcomes against established objectives.
6. Manage stakeholder communications throughout project lifecycles.

I. The student demonstrates leadership skills in facility management. The student is expected to:

1. Apply team management principles to facility operations.
2. Implement decision-making frameworks for facility management challenges.
3. Create change management strategies for facility initiatives.
4. Develop communication plans for facility projects and changes.
5. Demonstrate conflict resolution techniques in facility management scenarios.

RIASEC Alignment

Based on the Facilities Management program content and the RIASEC model, this program would most appeal to students with the following primary traits:

1. Realistic (R): The program heavily emphasizes hands-on work with building systems, tools, and equipment. Students need to be comfortable with mechanical and technical aspects of building operations.
2. Conventional (C): The program requires attention to detail, organizational skills, and systematic approaches to documentation, maintenance scheduling, and regulatory compliance.
3. Enterprising (E): The program includes significant business and leadership components, especially in later courses where students learn to manage teams, budgets, and projects.

The ideal student would likely have a RCE or REC code combination because:

- They enjoy practical, hands-on work (R) as evidenced in the technical systems management aspects
- They are detail-oriented and systematic (C) as needed for maintenance scheduling, documentation, and compliance
- They have leadership inclinations (E) necessary for the management aspects of facility operations

This aligns with the facilities management profession, which requires:

- Technical competence (R)
- Systematic organization and attention to detail (C)
- Business and people management skills (E)

Looking at the related pathways in the RIASEC documentation, our program aligns well with:

- Industrial and Engineering Technology
- Business
- Health Services (in terms of building operations for healthcare facilities)