

FACILITIES OPERATIONS & MANAGEMENT (FOPS), AAS

At Dunwoody College of Technology, the Facilities Operations & Management program prepares graduates for a career in managing the complex, networked buildings and facilities that are part of the modern built environment.

Graduates gain expertise in building systems and operations, stakeholder relationships and communications, preventative and predictive maintenance, and project management. This approach is designed so graduates are able to pursue a variety of career paths in the facility management industry, including: asset management; technologies that interconnect building safety and security for the well being of occupants; and management of energy and space. Every building is different and requires a unique set of skills to manage the property.

Dunwoody's coursework focuses on a broad spectrum of topics in operations, property maintenance, electrical and mechanical systems, environmental health, and facilities management. Integrated throughout the curriculum is the concept of "Smart Buildings" – how to collect information from building systems, make decisions based on data, and best deploy resources. The Dunwoody campus is used as a living laboratory where students gain real experience in developing awareness and applying best practices to new, existing, and historic building systems and grounds. Environmental sustainability is woven throughout all of the classes so students apply sustainable concepts to all areas of the facility management industry.

Students learn to use a variety of software programs, including: computerized maintenance management systems (CMMS); REVIT and Visio for computer-aided design; Integrated Workforce Management Systems (IWMS); and building monitoring systems, which provide intelligent data for implementing sustainable solutions. In their first semester, students earn their EPA Section 608 certification and are prepared to sit for the Minnesota Special Engineers license (boiler exam) and in their second semester their OSHA30 General Industry card.

Students are also prepared in further semesters to pursue additional certifications such as the Association for Facilities Engineering's Certified Professional Maintenance Manager (CPMM), the International Facility Management Association's Facility Management Professional (FMP) certification, Professional Facility Management Institute's ProFM credential, or Building Owners & Managers Institute (BOMI) International's Facilities Management Administrator (FMA) designation.

Dunwoody's program has been designed consistent with the International Facilities Management Association's (IFMA) Facilities Management Accreditation Commission (FMAC) associate degree program standards and is planning to seek program accreditation.

Credential Earned: AAS

Length of Program: 2 years (4 semesters)

Classes Offered: Evening; Distance Learning; Hybrid

Available Starts: Fall Semester; Spring Semester

Accreditation: Seeking Program Accreditation from the Facilities Management Accreditation Commission

Bachelor's Completion Option(s): Construction Management (CMGT), Bachelor of Science (<https://catalog.dunwoody.edu/catalog-student-handbook/academic-programs/construction-sciences-building-technology/construction-management-cmgt-bachelor-science/>) |

Business Management Leadership (AMGT), Bachelor of Science (<https://catalog.dunwoody.edu/catalog-student-handbook/academic-programs/construction-sciences-building-technology/construction-management-cmgt-bachelor-science/>)

Program Outcomes

- Demonstrate the ability to triage (assess, isolate, stabilize, evaluate, and escalate) a wide variety of interconnected mechanical, electrical, and plumbing systems.
- Demonstrate time management strategies to prioritize the immediate needs of the facility.
- Demonstrate safe and proper use of tools, personal protection equipment, and on-the-job safety relating to each system.
- Demonstrate essential skills needed for preventive maintenance, repair, or installation.
- Interface with building management software.
- Demonstrate the concepts of leadership, customer service, planning, and project management.
- Understand Facilities Management history, practice, sectors, and profession in a societal and global context.

Degree Requirements

Code	Title	Credits
General Requirements		
COMM1150	Interpersonal Communication	3
ECON1000	Introduction to Micro & Macro Economics	3
HUMN3600	Critical Thinking & Creativity	3
MATH1000	Algebra & Trigonometry	3
PHIL2400	Introduction to Ethics	2
Social Sciences Elective		3
Natural Science w/Lab Elective		3
Technical Requirements		
CSBT1000	AEC Seminar	1
FMGT1000	Introduction to Facilities	2
FMGT1300	Occupational Safety & Health	2
FMGT1500	Building Envelope	3
FMGT1500	Building Envelope	3
CSBT2110	Building Codes	3
FMGT1100	Building Operations	3
FMGT2100	Property Maintenance & Management	3
FMGT2110	Introduction to Energy Management	3
FMGT2250	Sports & Venue Facility Management	3
FMGT2200	Facility Operations/Management Capstone	3
FMGT2210	Smart Buildings I	3
Technical Elective (Choose one course):		
CSBT1002	Construction Drafting	3
or CMGT1131 Construction Plans & Measurements		
FMGT1200	MEP Systems: Electrical	3
or CMGT2211 Integrated Environmental Systems		
FMGT1700	Special Engineer License Prep & EPA 608	1
or FMGT1701 Special Engineer License Prep & FMGT1702 and EPA 608 Technician Certification		
FMGT2010	Second Class Engineer License Prep	1
or FMGT2011 Facility Operations & Management Topics		

or CMGT1901 International AEC Fields & Practices

Total Credits

60

Courses

Descriptions

CMGT1131 | Construction Plans & Measurements | Lecture (3 Credits)

Interpret architectural and engineering graphics and conventions using construction documents to identify materials and calculate quantities.

CMGT1901 | International AEC Fields & Practices | Travel Study (1 Credit)

Introduction to the international aspects of architecture, engineering, and construction industries. Emphasis on inter-cultural communication, cultural intelligence, and globalization of technology. Traditional classroom sessions (held before travel) include lectures, seminar discussions, case studies, participatory activities, and guest speaker presentations. Coursework during travel is primarily experiential based and includes fieldwork, group projects and community based service-learning. Travel expenses are incurred by the student.

CMGT2211 | Integrated Environmental Systems | Lecture (3 Credits)

Examine mechanical, electrical, plumbing and fire protection systems using case studies to coordinate the integration of these disciplines.

CSBT1000 | AEC Seminar | Seminar (1 Credit)

Introduction to the academic and classroom culture. Develop a proficiency in communication skills including research, oral presentation, writing, and collaboration.

CSBT1002 | Construction Drafting | Lec/Lab (3 Credits)

Implement construction graphics and conventions using hand drafting and drawing software.

CSBT2110 | Building Codes | Lecture (3 Credits)

Select and apply appropriate federal, state/provincial and municipal codes, standards and accessibility guidelines using industry standards with an emphasis on Life Safety Codes and the ADA to prepare for licensing exams, meet with codes officials, and to design spaces that enhance the health, safety and welfare of the general public.

FMGT1000 | Introduction to Facilities | Lecture (2 Credits)

Aspects of the facilities management industry are presented using interviews with practicing professionals, site tours, textbook studies and exploratory reflections to illustrate the many opportunities available as a professional.

FMGT1200 | MEP Systems: Electrical | Lec/Lab (3 Credits)

Explore mechanical and electrical theories for a foundational understanding of how these systems interact within a building. Laboratory exercises emphasize troubleshooting processes for electrical circuits and HVAC systems. Determine how a facilities team can safely maintain and monitor a building's electrical and HVAC systems.

FMGT1700 | Special Engineer License Prep & EPA 608 | Seminar (1 Credit)

Prepare to pass the Minnesota Special Engineer's license exam. Introduction to high and low pressure boilers used in steam and hot water heating, high-pressure, high temperature hot water boilers used in heating or process installations, and small mechanical-drive steam turbines. Topics: boiler functions, operations, safety, controls, hot water systems, steam systems, and the identification of boiler fittings. MN Statute 326B.972 requires an individual operating a boiler, steam engine, or steam turbine to hold a license for the grade covering that boiler, steam engine, or steam turbine. Also, preparation for the EPA's Section 608 Technician Certification allowing technicians to work with and handle refrigerants in common air conditioners and HVAC units. The EPA 608 Technician Certification is required by Section 608 of the Federal Clean Air Act for anyone who maintains, services, repairs, or disposes of equipment which could release ozone depleting refrigerants into the atmosphere.

FMGT1701 | Special Engineer License Prep | Seminar (0 Credits)

Prepare to pass the Minnesota Special Engineer's license exam. Introduction to both high and low pressure boilers used in steam and hot water heating, high-pressure, high temperature hot water boilers used in heating or process installations, and small mechanical-drive steam turbines. Topics include boiler functions, operations, safety, controls, hot water systems, steam systems, and the identification of boiler fittings. MN Statute 326B.972 requires an individual operating a boiler, steam engine, or steam turbine to hold a license for the grade covering that boiler, steam engine, or steam turbine.

FMGT1702 | EPA 608 Technician Certification | Seminar (0 Credits)

Prepare to pass the EPA's Section 608 Technician Certification exam. The EPA's Section 608 Technician Certification allows technicians to work with and handle refrigerants in common air conditioners and HVAC units. The EPA 608 Technician Certification is required by Section 608 of the Federal Clean Air Act for anyone who maintains, services, repairs, or disposes of equipment which could release ozone depleting refrigerants into the atmosphere. Exam is hosted on Dunwoody's campus and given by a registered proctor.

FMGT1300 | Occupational Safety & Health | Lecture (2 Credits)

Examine the principles of facility safety and identify health hazards based on the Occupational Safety and Health Administration (OSHA) 1910 General Industry Standards and MNOSHA Laws and Rules. Emphasis is on hazard identification, avoidance, and control and prevention to develop strategies to prevent injuries to workers, occupants, and guests. Students successfully completing 30 hours of designated training topics receive an OSHA 30 General Industry card.

FMGT1400 | Facility Programming & Design | Lec/Lab (3 Credits)

Techniques for analyzing design program requirements and optimizing space. Develop plans that satisfy programmatic needs and use space efficiently. Examine building codes, fire safety, and barrier-free designs as essential components of laying out a workable interior space. Practice basic drafting techniques on current industry software.

FMGT1500 | Building Envelope | Lecture (3 Credits)

Introduction to aspects of building assemblies relative to their energy performance, moisture control, durability and maintainability of enclosure systems. Examine roofs, curtain walls, insulation. Research existing buildings through various means to achieve a broad knowledge of varying strategies for managing a building envelope.

FMGT1100 | Building Operations | Lec/Lab (3 Credits)

Represent the organization's brand experience by providing various services for occupants. Interconnected systems and processes such as shipping and receiving, key management, property grounds, storage strategies, safety, housekeeping standards of care, food service, and waste management are paramount to meet the expectations of guests, tenants, owners, and users.

FMGT2100 | Property Maintenance & Management | Lec/Lab (3 Credits)

Best practices for efficient and effective triage of maintenance and other occupant requests through work orders. Planning for prescriptive and predictive maintenance of systems. Sustainable solutions and asset management. Laboratory exercises emphasize using and managing related tools and resources for various assets and systems.

FMGT2110 | Introduction to Energy Management | Lec/Lab (3 Credits)

Explore principles of energy management in commercial and institutional applications. Analyze theories for a foundational understanding of energy use in facilities. Learn the role of energy measurement in various types of buildings and the key characteristics that enable effective energy efficiency. Laboratory experiments and exercises emphasize triage processes and best practices for energy management systems.

Prerequisite(s): FMGT1200 Or CMGT1131

FMGT2250 | Sports & Venue Facility Management | Lecture (3 Credits)

Examine the principles and practices associated with managing a public assembly venue, such as a stadium, arena, theater or convention center. Characterize the nature of the venue business and its operations. Explore roles and responsibilities of a facility manager in this unique sector.

FMGT2200 | Facility Operations/Management Capstone | Capstone (3 Credits)

Apply facilities management theories, topics, and applications to a final project. Work consists of a project proposal, development of coordinating documents, and final presentation.

Prerequisite(s): COMM1030

FMGT2210 | Smart Buildings I | Lec/Lab (3 Credits)

Explore how we advance the productivity and safety of occupants while improving the operational efficiency of buildings through intelligent, integrated green building technologies. Introduction to a number of systems associated with building automation, energy management, and connectivity to global systems. Laboratory exercises focus on building management systems and interconnected components. Emphasis is on sustainable outcomes by decreasing the carbon footprint of a building.

Prerequisite(s): FMGT1200 And FMGT2110

FMGT2010 | Second Class Engineer License Prep | Seminar (1 Credit)

Prepare to pass the Minnesota Second Class Engineer license exam. Review of low pressure boilers used in steam and hot water heating. Topics include MN license requirements, inspections, documentation, boiler functions, operations, safety, controls, feedwater systems, and the identification of boiler fittings. MN Statute 326B.972 requires an individual operating a boiler, steam engine, or steam turbine to hold a license for the grade covering that boiler, steam engine, or steam turbine. Students must have 1 year of licensed experience to sit for the exam.

FMGT2011 | Facility Operations & Management Topics | Seminar (1 Credit)

Presentation and examination of topics in facilities operations and management selected to develop a deeper awareness of current trends, issues, and emerging technologies. Supplemented by readings, discussions and papers.

COMM1150 | Interpersonal Communication | Lecture (3 Credits)

Analyze the process of interpersonal communication as a dynamic and complex system of interactions. Integrate interpersonal communication theory into work, family and social relationships. Apply fundamental tools needed to provide quality customer service. Decision making, problem solving, and managing customer service processes are emphasized.

General Education: Communications

COMM1030 | Project Communication | Lecture (3 Credits)

Create effective communication strategies critical to project success using language and methodology to assess project communication needs, plan for meeting those needs, and effectively communicate project status and forecasts to all stakeholders throughout the project life cycle.

General Education: Communications

ECON1000 | Introduction to Micro & Macro Economics | Lecture (3 Credits)

Fundamental economic issues and theories are explored through discussion and research. Current events, policy perspectives, and case studies are used to process and apply economics to everyday life.

General Education: Social Sciences

MATH1000 | Algebra & Trigonometry | Lecture (3 Credits)

Real numbers and polynomials, exponents and radicals, fractional equations; proportions and linear equations; trigonometric functions, solutions of triangles, radians, trig functions graphs, vectors, and basic identities.

General Education: Mathematics

PHIL2400 | Introduction to Ethics | Lecture (2 Credits)

The development of ethical standards as related to the individual, government, business, and society. Current legislation is examined from the perspective of its moral and ethical roots with considerations and standards influencing personal and business decisions.

General Education: Humanities