

Construction Course Online

Gain a thorough understanding of the building construction process, from initial site work to final system installations. Learn the essential skills to navigate every phase of construction and prepare students for careers in the construction industry.

Group classes in Live Online and onsite training is available for this course. For more information, email partnerships@vdc.edu or visit: <https://vdc.edu/courses/construction-fundamentals-course>



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Course Outline

This package includes these courses

- Site Utilities & Foundation Construction Course Online (10 Hours)
- Building Structure Course Online (10 Hours)
- Building Enclosure Course Online (10 Hours)
- Interiors and Finish Work Course Online (10 Hours)
- Fundamentals of MEP for Buildings Course Online (20 Hours)
- Building Construction Fire Protection Course Online (10 Hours)

Site Utilities & Foundation Construction Course Online

Master the foundational knowledge and skills needed to excel in construction site preparation and foundation placement. In this first course of the [Construction Fundamentals course series](#), you will learn about the construction team and the on-site construction activities, different types of soils and subsurface conditions, the equipment and the heavy equipment we use on a site – scrapers, dozers, excavators and more, clearing and grubbing the site, installing the site utilities, preparing for our building, with Earth work and excavation support, and installing foundations. You will also learn about the history of concrete, concrete as a material, and grade beams and foundations. This course is designed to equip you with the knowledge necessary to tackle real-world challenges. Learn how to evaluate structural components, make informed design decisions, and apply industry standards to ensure safety, stability, and efficiency.

- Key concepts of site utilities, including water, sewer, and drainage systems.
- Best practices for planning and performing earthwork, such as excavation, soil compaction, and grading.
- Detailed overview of foundation systems, including shallow and deep foundations.
- How to analyze and interpret soil reports to guide foundational decisions.
- Methods for ensuring site safety and compliance with construction codes and standards.
- Techniques for coordinating utility installations with other site development activities.
- Insights into sustainable site development to minimize environmental impact.

Building Structure Course Online

Strengthen your knowledge of building structures and lay a solid foundation for your professional success in the construction industry. The second course of the [Construction Fundamentals course series](#) provides an in-depth overview of key concepts, techniques, and best practices for understanding and designing structural systems. The Building Structure course provides an in-depth overview of key concepts, techniques, and best practices for understanding and designing structural systems. Whether you are an aspiring professional or looking to enhance your current expertise, this course is designed to equip you with the knowledge necessary to tackle real-world challenges. Learn how to evaluate structural components, make informed design decisions, and apply industry standards to ensure safety, stability, and efficiency.

- The fundamentals of structural systems and how they support and distribute loads in a building.
- Key concepts of material properties, such as strength, durability, and load-bearing capacities.
- Techniques for analyzing structural stability and identifying potential risks.
- How to interpret structural drawings and effectively communicate with engineers and construction teams.
- The principles of sustainable building practices to optimize performance and reduce environmental impact.
- Real-world applications of structural codes and regulations for safety and compliance.

Building Enclosure Course Online

Enhance your expertise in construction by understanding one of the most critical aspects of any building—its enclosure. The building enclosure, often called the building envelope, is a vital element in maintaining comfort, energy efficiency, and structural integrity. This is the third course of the [Construction Fundamentals course series](#) designed to equip you with comprehensive knowledge of how to create reliable, durable, and efficient building enclosures that protect and perform. You will learn about the building envelope, maintaining the integrity of the building, keeping water out, ultimately controlling the building's temperature and humidity, and the most commonly used cold-formed steel stud systems for exterior walls. You will also learn valuable information about cladding systems and curtain walls, roofing systems, and glass window systems. By the end of this course, you'll know how to approach a building enclosure project holistically while considering sustainability, environmental factors, and industry best practices.

- The primary functions and components of a building enclosure, including walls, roofs, and foundations.
- The principles of thermal, moisture, and air control to create energy-efficient enclosures.
- How to select appropriate materials and systems based on climate, budget, and building use.
- Techniques to identify and mitigate common problems in building enclosures, such as moisture intrusion and thermal bridging.
- Best practices for sustainable design and construction of enclosures to reduce environmental impact.
- Collaboration and coordination among professionals to optimize the building enclosure's performance during different phases of construction.
- Real-world case studies of building enclosures to illustrate challenges, solutions, and successful outcomes.

Interiors and Finish Work Course Online

This course focuses on the detailed work that brings a project to completion, emphasizing both interior finishes and site components for buildings, the fourth course of the [Construction Fundamentals course series](#). You will learn about the different types of walls and interior partitions, the sequence of building interior partitions, different types of drywall and drywall finishes, the construction sequence for finishes, different options for paint, flooring, ceilings, and casework, and the sequence for installing specialties and furniture options. You will also learn valuable information about variables to consider when designing

asphalt paving, construction sequences for curb, gutter, and asphalt paving, hardscape options including paths, drives and walls, construction sequencing for landscaping, and other items to complete the site work.

- **Overview of Building Interiors and Finish Processes:** Learn about the intricate steps involved in completing building interiors, from drywall installation to painting, millwork, and flooring.
- **Site Finishing Components and Landscaping:** Understand the principles of exterior site work, including paving, hardscapes, landscaping, and site furniture installation.
- **Material Selection and Application:** Explore the variety of materials used in finishes, their properties, and their best applications to ensure durability and aesthetic appeal.
- **Coordination and Communication Skills:** Master the techniques needed to communicate effectively with design, construction, and subcontractor teams to execute finishing phases seamlessly.
- **Quality Assurance and Inspection Standards:** Gain expertise in assessing project quality, ensuring compliance with design specifications, and performing final inspections.
- **Budgeting and Scheduling for Finishes:** Learn to manage budgets and timelines specific to the finishing phases of a construction project.

Fundamentals of MEP for Buildings Course Online

Understanding MEP systems is a critical foundation for the success of any construction or design project. This is the fifth course of our [Construction Fundamentals course series](#). This course introduces the essentials of Mechanical, Electrical, and Plumbing (MEP) systems—crucial elements that ensure building functionality, energy efficiency, and structural safety. You will learn about thermal comfort, indoor air quality, the types and major components of a mechanical system, the purpose of HVAC controls, how plumbing systems function, domestic water, drain, waste and vent lines, common electrical terminology, components of the electrical distribution system, emergency and standby power. Whether you're new to the industry or seeking to deepen your knowledge, this course covers key concepts and practices used in the design and construction of modern buildings.

- **Mechanical Systems:** Discover the fundamentals of HVAC (Heating, Ventilation, and Air Conditioning) and how these systems contribute to occupant comfort and building performance.
- **Electrical Systems:** Explore the components of building electrical systems, including power distribution, lighting, and low voltage systems such as AV, telecom, and data.
- **Plumbing Systems:** Learn the principles of water supply, drainage, and waste systems and their role in maintaining hygiene and safety in buildings.
- **Design Coordination:** Understand how MEP systems integrate within a project and the importance of designing for efficiency, sustainability, and cost-effectiveness

Building Construction Fire Protection Course Online

This course is designed to provide students with a comprehensive understanding of fire protection systems in the context of building construction. This is the last course of the [Construction Fundamentals course series](#). Focused on startup, testing, and closeout phases of construction, the course equips you with the knowledge and skills required to ensure fire protection systems are designed, installed, and maintained to industry standards. You will learn about wet-pipe fire suppression systems, dry-pipe fire suppression systems, the purpose and components of a fire alarm system, fire alarm inputs, controls, and outputs, typical life-safety requirements, elevator types and construction sequencing, final MEP system activities, and the purpose of commissioning. Through practical applications and detailed discussions, you will explore the critical role of fire protection in construction projects and gain insight into compliance with safety codes and regulations.

- Essentials of fire protection system design and installation.
- The process of startup, testing, and inspection of fire protection systems.
- Key regulatory requirements and standards for fire safety compliance.
- Techniques for documenting system performance and ensuring quality assurance.
- Troubleshooting and resolving common issues during system commissioning.
- Communication strategies for collaborating with engineers, inspectors, and stakeholders.