

Construction Fundamentals Bundle

Gain a thorough understanding of the building construction process, from initial site work to final system installations. This bundle equips you with 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.nobledesktop.com/courses/construction-fundamentals-bundle>



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Course Outline

This package includes these courses

- Site Utilities, Earthwork & Foundation (10 Hours)
- The Building Structure (10 Hours)
- The Building Enclosure (10 Hours)
- Interiors and Finish Site Work (10 Hours)
- Mechanical, Electrical, Plumbing & AV-Tel-Data (20 Hours)
- Fire Protection, Startup/Testing & Closeout (10 Hours)

Site Utilities, Earthwork & Foundation

Learn about the roles played by the design & construction team. Learn how the site is prepared, the types of equipment used, different types of soil conditions & why various building foundations are used.

- 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.
- Installing foundations.

The Building Structure

Learn about the cranes used, designing a building structure, the structural systems & how building load is analyzed and factored into the design. Receive an in-depth study of cast-in-place & precast concrete and structural steel.

- Explore different types of cranes and the projects they are best suited for.
- Understand how cast-in-place concrete is constructed and its advantages on-site.

- Discover the benefits and uses of precast concrete for efficient and durable building solutions.
- Gain insight into the evolution of steel as a key material in construction.
- Learn how steel is used in structural systems and why it's chosen for specific projects.
- Explore the applications and benefits of masonry and tilt-up concrete in building projects.

The Building Enclosure

Learn about the building envelope, cold-formed steel stud systems, cladding systems, curtain walls, roofing systems and glass window systems. Learn how the building envelope keeps water out and controls temperature & humidity.

- The building envelope.
- Maintaining the integrity of the building.
- Keeping water out.
- Ultimately controlling the building's temperature and humidity.
- The most commonly used cold-formed steel stud systems for exterior walls.
- Cladding systems and curtain walls.
- Roofing systems.
- Glass window systems.

Interiors and Finish Site Work

Learn about wall types, interior partitions, drywall and drywall finishes and construction sequencing. Learn about construction sequences for curbs, asphalt paving & landscaping.

- The different types of wall 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.
- The sequence for installing specialties and furniture options.

Mechanical, Electrical, Plumbing & AV-Tel-Data

This course is an in-depth study about MEP and building systems, including thermal comfort, indoor air quality, HVAC controls & how plumbing, electrical & emergency distribution systems function.

- 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.
- Components of the electrical distribution system.
- Emergency and standby power.

Fire Protection, Startup/Testing & Closeout

Learn many details about fire suppression systems, life-safety requirements, installing elevators, building commissioning, certificate of occupancy and project closeout.

- Wet-pipe fire suppression system.
- Dry-pipe fire suppression system.
- The purpose and components of a fire alarm system.
- Fire alarm inputs, controls and outputs.
- Elevator types and construction sequencing.
- Final MEP system activities.
- The purpose of commissioning.
- The process to turnover a building and the requirements for post-occupancy.