

# Construction Design and Management (2016)

## Introduction to Construction Design and Management 1.CDM

- 1 Discuss potential careers and the education needed in Construction Design and Management 1.CDM.1
- 2 Understand the interdependence of architectural designers, skilled trades and construction managers 1.CDM.2
- 3 Demonstrate the use of computer-aided design (CAD) and drafting tools 1.CDM.3
- 4 Read and develop technical drawings, including understanding types of plans used in construction 1.CDM.4
- 5 Demonstrate the use of design principles and understanding of materials in developing basic plans 1.CDM.5
- 6 Understand construction methods and materials, including building codes, safety regulations, and components of Green Construction 1.CDM.6
- 7 Develop a series of plans and documentation for multiple design projects. 1.CDM.7

## Principles of Construction Design and Management 2.CDM

- 1 Understand principles of construction management and the design-build-maintain process, including technical requirements, cost estimating, and quality control 2.CDM.1
- 2 Read and develop technical drawings, including understanding types of plans used in construction; 2.CDM.2
- 3 Demonstrate the use of computer-aided design (CAD) and drafting tools (2-D and 3-D drawings); 2.CDM.3
- 4 Demonstrate the use of design principles and understanding of materials in construction surveying and the development of architectural plans; 2.CDM.4
- 5 Understand construction methods and materials, including building codes, safety regulations, and components of Green Construction; 2.CDM.5
- 6 Understand the use of new technologies and innovations in the design and build process, including energy efficiency standards and Building Information Modeling (BIM); 2.CDM.6

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**7 Conduct a carbon footprint analysis and energy audit for an existing structure;** 2.CDM.7

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**8 Develop technical drawings for mechanical and electrical systems;** 2.CDM.8

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**9 Develop a portfolio, including a series of plans and documentation for a one-story structure.** 2.CDM.9

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**Advanced Design and 3-D Modeling** 3.CDM

**1 Understand principles of construction management and the design-build-maintain process, including technical requirements, cost estimating, and quality control;** 3.CDM.1

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**2 Read and develop technical drawings, including understanding types of plans used in construction;** 3.CDM.2

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**3 Demonstrate the use of computer-aided design (CAD) and drafting tools (2-D and 3-D drawings);** 3.CDM.3

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**4 Demonstrate the use of design principles and understanding of materials in developing architectural plans;** 3.CDM.4

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**5 Understand construction methods and materials, including building codes, safety regulations, and components of Green Construction;** 3.CDM.5

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**6 Understand the use of new technologies and innovations in the design and build process, including energy efficiency standards and Building Information Modeling (BIM);** 3.CDM.6

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**7 Conduct a carbon footprint analysis and energy audit for an existing structure;** 3.CDM.7

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**8 Develop technical drawings for mechanical and electrical systems; and** 3.CDM.8

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**9 Develop a portfolio, including a series of plans and documentation for a one-story structure.** 3.CDM.9

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**Advanced Construction Management** 4.CDM

**1 Document principles of construction management and the design-build-maintain process, including technical requirements, cost estimating, and quality control;** 4.CDM.1

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**2 Develop a series of technical drawings, including site plans, mechanical systems, building plans, and a BIM design for a completed project;** 4.CDM.2

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**3 Demonstrate the use of advanced design principles and understanding of the design-build process;** 4.CDM.3

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**4 Document construction methods and materials, including compliance to building codes, safety regulations, and principles of Green Construction and energy efficiency;** 4.CDM.4

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- 5 Incorporate the use of new technologies and innovations in the design and build process, including energy efficiency standards, modular construction and Building Information Modeling (BIM);** 4.CDM.5
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- 6 Demonstrate the use of construction estimating and contracting to develop a project schedule;** 4.CDM.6
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- 7 Document construction management requirements including project schedules, environmental safety requirements, quality control, cost-benefit analysis, and labor relations; and** 4.CDM.7
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- 8 Develop a portfolio, including a series of plans and documentation for a full site development project.** 4.CDM.8