

## COURSES

### PDF CONSTRUCTION MANAGEMENT

#### CEM100 Fundamentals of Construction Management 3 Credits

Provides an overview of the construction industry roles, responsibilities, and risks from perspectives of owners, constructors, designers, financial institutions, and government agencies. Study of construction process techniques and applications.

#### CEM330 Soils and Foundations for Construction 3 Credits

Additional prerequisite: CONS 114. Introduction to basic concepts of soils and foundations including compaction, compressibility, settlement, shear strength and site investigations.

#### CEM350 Facility Systems Design and Construction I 3 Credits

Additional prerequisites: CONS 109 and MATH 126 Introduces mechanical systems for facilities including HVAC systems, plumbing, electrical, communications and other systems used in the process of utility services. Provides detailed instruction on how to analyze needs, determine the related scope of work, design and construction of these systems.

#### CEM432 Temporary Construction Structures 3 Credits

Additional prerequisites: CONS 109 and MATH 126. Introduces the analysis, design, and construction of temporary structures including formwork, false work, shoring, rigging, and access units. Addresses cost analysis, load and pressure calculations and safety considerations and requirements.

#### CEM451 Construction Estimating 3 Credits

Additional prerequisites: CONS 109 and MATH 126 Covers principles and procedures used in estimating construction costs. Includes application of quality determination, estimate pricing, specifications, subcontractor and supplier solicitation, risk assessment and risk analysis, and final bidding preparation. Computer based estimating software used for semester project.

#### CEM452 Construction Cost Control 3 Credits

Additional prerequisites: ACC 201 and MATH 126 Covers construction cost management including productivity and cost reporting/analysis concepts. Includes financial/cost issues/cash flow for the construction firm including reporting methods and percentage of completion techniques. Covers performance/profitability enhancement, earned value management, construction bonding and insurance issues, and firm and job-site analysis.

#### CEM453 Construction Scheduling 3 Credits

Additional Prerequisites: CONS 109, 281, and MATH 126 Provides an overview of scheduling and resource optimization. Includes short-interval scheduling, Gantt charts, linear, and matrix scheduling formats. Covers network techniques including CPM and PERT concepts and calculations and computer applications using Microsoft Project.

#### CEM454 Heavy Construction Methods and Equipment 3 Credits

Additional prerequisites: CEM 330 and MATH 126 Covers characteristics, capabilities, limitations, uses, and selection techniques for heavy construction methods and equipment process planning, simulation, fleet operations, and maintenance programs

#### CEM455 Construction Management Practice 3 Credits

Additional prerequisites CEM 451, CEM 452, and CEM 453: Includes direction and operation of construction organizations with examination of general contracting, design-build, and construction management methods. Covers synthesis of project management concepts, applications, and limitations through case studies and semester projects.

#### CEM456 Construction Management Capstone 3 Credits

Additional prerequisites or corequisites: CEE 462 and CEE 463 Provides an integration of all elements of the construction management undergraduate education, from inception to contract award, and applying them to selected construction projects. Introduces contemporary construction industry issues into student projects.

#### CEM485 Construction Law and Contracts 3 Credits

Additional prerequisites: CONS 118 Provides information on legal problems in the construction process. Covers stipulated sum, unit price, cost-plus contracts, construction lien rights and bond rights, scope of work issues, builders risk issues, risk-shifting, and case studies.