

BUILDING CONSTRUCTION (BCN)

BCN 1210C - Construction Materials (4 Credits)

Sources, properties and uses of construction materials.

BCN 1251C - Construction Drawing (3 Credits)

Students will learn the graphic skills necessary to effectively communicate in the construction industry and to acquire a basic understanding of construction drawings and details.

BCN 1930 - Construction Seminar (1 Credits)

Overview of Construction Management including preparation, terminology, career options and case studies.

BCN 2405C - Construction Mechanics (3 Credits)

Introduces the evaluation of structural behavior as it relates to buildings, the properties of structural materials and the structural behavior of load-resisting members. Primarily for building construction majors.

Prerequisite(s): ((PHY 2053 and PHY 2053L) or (PHY 2053 and PHY 2048L) or PHY 2053C) and BCN 1930

BCN 3218C - Construction Materials II (3 Credits)

To understand the sources, manufacturers, properties, and uses of materials in construction projects. Introduce building codes, construction documents, and environmental and legal constraints.

Prerequisite(s): BCN 1210C

BCN 3240C - Construction Methods and Equip (3 Credits)

Basic understanding of construction equipment and methods employed in different sectors: building; heavy; industrial; and utility construction. Factors affecting the selection of equipment, determination of ownership and operating costs, estimating earthwork quantities, calculation of equipment and fleet production, equipment and quality control in paving operations, and information resources pertinent to equipment management.

Prerequisite(s): BCN 3218C

BCN 3255 - Graphic Communication in Const (3 Credits)

Construction communication tools, including the use of computer-aided drafting (applications of 4-D modeling in construction), blueprint reading, free hand sketching, model building, piece-based simulations and the Internet.

Prerequisite(s): BCN 1251C

BCN 3431C - Structures for Const (3 Credits)

Examines the material properties, code requirements, analysis and construction procedures for steel and reinforced concrete structures.

Prerequisite(s): BCN 2405C

BCN 3521C - Electrical Systems (3 Credits)

Principles and practices of electrical and lighting systems used in residential, commercial and industrial applications. Emphasis is placed on coordination of the National Electrical Code (NEC), design, and installation of various systems in the building process.

Prerequisite(s): ((PHY 2053 and PHY 2053L) or (PHY 2053 and PHY 2048L) or PHY 2053C) and BCN 4612C

BCN 3590 - Sustainable Approach to Const (3 Credits)

Provides an overview of sustainable construction, the basic philosophical premises and concepts, the cutting edge in design and construction, methods of assessment, project delivery, economics, and green building evaluation systems. Students will learn the importance of sustainable construction and the emergence of green building concepts in the construction industry.

Prerequisite(s): BCN 1210C

Attribute(s): SCGR - Sustainability Course Grad Req, Sustainability Course Grad Req

BCN 3611C - Construction Estimating I (3 Credits)

Classification of work, quantity survey techniques and basic estimating principles applied to simple construction projects.

Prerequisite(s): BCN 1210C and BCN 3255

BCN 4237 - Roofing Construction (3 Credits)

Study and analysis of various building roof systems, including design, materials, estimating, safety, installation, inspection and maintenance.

Prerequisite(s): BCN 4612C (may be taken concurrently)

BCN 4252 - Building Information Modeling (3 Credits)

Learn current Building Information Modeling (BIM) software to identify design errors and improve the construction process.

Prerequisite(s): BCN 3255

BCN 4316 - Virtual Design & Construction (3 Credits)

This course explores the applications of virtual design and construction software and technology in construction scheduling and planning.

Prerequisite(s): BCN 4252

BCN 4423C - Temporary Structures (3 Credits)

Studies the temporary structures that contractors have to build in order to construct the primary structure. This includes formwork, scaffolding and equipment for hoisting materials, personnel and erecting structures. Apply basic surveying techniques for construction layout and control.

Prerequisite(s): BCN 3431C

BCN 4510C - Mechanical Systems (3 Credits)

Principles and practices of building piping systems, hydraulics and pumps, comfort conditioning systems for building, heating and refrigeration equipment, building code considerations, plan reading and cost estimation.

Prerequisite(s): ((PHY 2053 and PHY 2053L) or (PHY 2053 and PHY 2048L) or PHY 2053C) and BCN 4612C

BCN 4594 - Building Energy Modeling (3 Credits)

As energy becomes a more precious commodity, it's crucial to design and operate high performance buildings. A solid foundation of energy engineering and sustainability principles is essential to achieving these higher performance standards.

Prerequisite(s): BCN 3590

BCN 4612C - Estimating II (3 Credits)

Analysis and determination of cost of construction operations including applicable indirect and overhead costs and the preparation of bid proposals for commercial construction projects. A cost-control system is introduced and implemented with sample field-generated problems.

Prerequisite(s): BCN 3611C

BCN 4709C - Const Project Management (3 Credits)

Introduction to project delivery methods and the underlying principles for choosing the appropriate system. Recognizing the complexity of the preconstruction process including conceptual estimating and scheduling, life cycle costing, constructability reviews, value engineering, risk management, and special contract requirements. Understanding management and administration of a construction project. Topics to be discussed include project initiation, planning, control and closeout; scope/quality, budget and schedule definition; team organization, and other issues throughout the project life cycle.

Prerequisite(s): BCN 4720

BCN 4720 - Const Planning and Control (3 Credits)

Computer application of cost and manpower estimates as construction scheduling and management techniques.

Prerequisite(s): STA 2023 and BCN 3611C

BCN 4730 - Construction Safety Health&Env (3 Credits)

Construction safety issues, concerns, requirements, and procedures. The analysis includes costs, planning, administration, inspection, prevention, loss control and drug-free place. Understanding of the major health and environmental issues encountered on construction sites.

Prerequisite(s): BCN 1210C

BCN 4740 - Construction Law & Contracts (3 Credits)

Basic construction contracts, specifications, and law. Discussion of the application of contract principles to construction contracts, together with a detail summary of specifications and other documents which form an essential part of construction contracts. Legal issues arising from design and construction services, focusing on risk management and liability awareness.

Prerequisite(s): BUL 3130 and (BCN 4753C or REE 3043 or REE 3433)

BCN 4753C - Construction Finance (3 Credits)

Basic principles and applications of project financing and construction finance with an emphasis on the acquisition and management of construction loans, mortgages, bonds and construction accounting. Understand the contractor's balance sheet.

Prerequisite(s): ACG 2021

BCN 4787 - Const Capstone (3 Credits)

A construction project is simulated with each student being responsible for designing, developing, estimating, scheduling, contracting and administering the work for the completion of a small commercial, residential or light industrial project.

Prerequisite(s): BCN 3240C and BCN 4252 and BCN 4612C and BCN 4720 and BCN 4730 and BCN 4753C

BCN 4935 - Special Topics in Const (3 Credits)

Special areas of study in construction management.

Prerequisite(s): BUL 3130 and BCN 4612C

BCN 4949 - Internship in Const (1-3 Credits)

Employment in construction management. Requires advanced approval. Internship work reports and presentation required.

Prerequisite(s): BUL 3130 and BCN 4612C

Attribute(s): WBLI - Work based learning indicator

BCN 6315 - Advanced Const Technology (3 Credits)

An in-depth study of advanced technologies for construction management.

BCN 6581 - Building Energy Modeling (3 Credits)

As energy becomes a more precious commodity, it's crucial to design and operate high performance buildings. A solid foundation of energy engineering and sustainability principles is essential to achieving these higher performance standards.

BCN 6618 - Comprehensive Estimating (3 Credits)

Classification of work and quantity survey techniques. Analysis and determination of costs of construction operations including direct and overhead costs, cost analysis, and preparation of bid proposals.

BCN 6705 - Construction Management (3 Credits)

Existing and emerging systems for designing, planning, and construction of projects. Changing roles, relationships, and responsibilities of the parties involved.

BCN 6722 - Advanced Planning and Control (3 Credits)

Time-cost relationships for various construction operations.

BCN 6748 - Construction Law (3 Credits)

Formation of a company, licensing, bid process, contracts, plans and specifications, mechanics liens, insurance bonds, and remedies as they relate to the building constructor and construction manager. Case studies.

BCN 6755 - Advanced Construction Finance (3 Credits)

Financial management of a construction company using and analyzing income statements and balance sheets, budgeting, cash flow, and cost reporting systems.

BCN 6790 - Const Methods Improvements (3 Credits)

Methods of analyzing and evaluating construction techniques to improve project performance. An in-depth study of productivity concepts, data collection, analysis of productivity data and factors affecting productivity, and means for improving production.

BCN 6874 - Equipment and Methods (3 Credits)

Theory and practice of heavy construction planning, methods, project management. Project control from conception through construction phase. This includes procurement of all parties to the contract. Heavy / civil plans reading; nuances of planning, estimating and bidding a unit-price contract; procurement of materials and equipment, with emphasis on supply chain integrity by avoiding counterfeit construction items.