

Moss Department of Construction Management

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Bachelor of Science in Construction Management

Degree Program Hours: 120

The undergraduate program in Construction Management is nationally accredited by the American Council for Construction Education. Its goal is to provide students with the knowledge and skills required for entry level supervisory or managerial positions in the construction industry. Graduates usually find employment as project managers, project schedulers, cost estimators, quality controllers or in managing their own construction firms.

Opportunities for employment or advancement exist in all areas of the construction industry including land development, home building, public building, industrialized building systems, commercial, industrial, marine and highway heavy construction, underwater and space age facilities, material and equipment sales and installations, and construction product research, development and sales.

Honorary and Professional Organizations

Sigma Lambda Chi: Sigma Lambda Chi is the national honor society for students in Construction. The purpose of Sigma Lambda Chi is to recognize students in Construction Management for outstanding scholastic achievement. The organization provides a service to the students by inviting guest lecturers, sponsoring student tutoring and undertaking a variety of service projects.

Student Chapter of the Associated General Contractors of America: The AGC is a national student organization sponsored by the Associated General Contractors. Its purpose is to increase student awareness of the construction industry, promote fellowship and professionalism and to provide service to the Department, University and Community. Membership is open to all

Construction related majors. Activities include sponsoring guest lecturers, attendance at local, regional and national AGC meetings and conferences, and undertaking a variety of service projects.

Student Chapter of the Associated Builders and Contractors: The ABC is a national student organization sponsored by the Associated Builders and Contractors. Its purpose is to increase student awareness of the construction industry, promote fellowship and professionalism and to provide service to the Department, University and Community. Membership is open to all Construction related majors. Activities include sponsoring guest lectures, attendance at local, regional and national ABC meetings and conferences, and undertaking a variety of service projects.

Student Chapter of the National Association of Women in Construction: This national student organization is sponsored by the National Association of Women in Construction. Its purpose is to promote knowledge of the construction industry and fellowship within the student body. Activities include monthly meetings with guest lecturers, field trips and a variety of service projects. The FIU student chapter of NAWIC was the first such chapter established in the United States. Membership is open to all construction related majors.

Program of Study

The four year program leading to a Bachelor of Science in Construction Management is for students who are interested in preparing for professional careers in construction management, operations, and related areas in the construction industry.

The Lower Division courses, i.e. Freshman and Sophomore levels, are selected to provide easy transfer for community college graduates. With proper planning, full time transfer students with an A.A. degree are able to complete the four year degree program in four remaining semesters at the University. Prospective community college transfer students should contact an advisor for program information and Lower Division transfer requirements.

Students already working full or part time, many with trades or construction licenses, are generally able to plan their program around job commitments and responsibilities. Faculty advisors are on hand days and evenings to assist students in course selection and scheduling.

Admission

The Moss Department of Construction Management encourages applications for admission from qualified students from all cultural, racial, religious or ethnic groups, regardless of gender.

Grade Point Average

Admission into the undergraduate program requires a minimum 2.0 grade point average. Students transferring from another university or community college should review the Florida International University Undergraduate Catalog for university policies, application procedures, and financial aid information. Prior to or upon admission, transfer students should also contact a Construction Management advisor to review transcripts and determine allowable transfer credits.

Transfer Credits

No grade below a 'C' in any required course is acceptable for transfer into the program. Lower Division courses (courses at the 1000 or 2000 level) designated as equivalent by the statewide course numbering system will be accepted by the Department as fulfilling the Upper Division requirements. Credits from these Lower Division courses may be used to offset Upper Division core credit requirements. Other 1000 and 2000 level courses designated as equivalent by a Department advisor may be accepted by the Department as fulfilling Upper Division requirements. When equivalent Lower Division courses are used to fulfill Upper Division course requirements a student will be required to complete an equal number of 3000 level (or above) credits from approved Departmental electives. Transfer credits above the 60 semester credit hours accepted from the community college system will not reduce the number of credit hours to be completed in the Upper Division, including electives, to earn a degree.

University Core Curriculum Requirements

Students entering the University with less than 36 semester credit hours will be required to meet the requirements of the University Core Curriculum, in addition to the Department Lower Division Core. Students should review the General Core Requirements in the undergraduate catalog.

Non Degree-Seeking

Students wishing to enroll in courses during the application process may do so as a non-degree seeking, special student. Students must consult an advisor for approval and complete a non-degree seeking enrollment waiver. Without this waiver and advisor approval, there is no guarantee that the courses taken will subsequently be accepted for graduation. No more than 15 semester credits of work taken as a non-degree seeking can be applied towards graduation. Students taking courses under the special student designation should consult other sections of this catalog for their pertinent regulations concerning the special student status.

General Regulations

Normal Loads

Students taking a minimum of 12 semester credit hours per semester are considered full time students. Students taking under 12 hours are considered part time and should be aware that certain University privileges and benefits may not be applicable to part time students. It is not recommended that students take more than 18 credit hours per term. Special exceptions may be made, at the option of the Department, in the case of students with a grade point average of 3.0 or greater. Students that meet this criteria wishing to take over 18 semester credit hours must have the approval of both the Chair of the Department and the Dean of the College of Engineering and Computing prior to registering.

Grades

The Moss Department of Construction Management requires a minimum grade of 'C' or better in all required courses and electives. This includes those required courses transferred from other institutions.

Grade of Incomplete

A grade of 'I' (Incomplete) may be granted, at the option of the Instructor, to a student who, due to serious, documented, and verifiable extenuating circumstances beyond his/her control is unable to complete the work required to obtain a grade for a course. Students wishing to receive an incomplete must meet with their professor and sign an agreement outlining what work must be completed to receive the final grade and when this work is due. Failure of the student to either complete the work required by the agreement or not meet the deadline prescribed in the agreement will result in the grade reverting to a grade of "F" (failing grade).

Independent Study

Students who wish to enroll in an independent study course must have the prior written approval of both the instructor and the Department Chair. Independent Study courses can not be substituted for required Lower or Upper Division departmental core courses or for elective courses.

Minor in Business

Construction Management students take courses in the College of Business Administration that may be applied towards a minor in Business, Marketing, or Entrepreneurship. Students interested in pursuing one of these options should consult the appropriate section of the catalog for details.

Credit By Examination

The Department does not generally offer credit by examination. A student with outstanding, exceptional and documented skills in a particular subject as well as an outstanding academic record may request credit by examination, and it is the option of the Department Faculty and the Department Chair whether to grant the request.

Credit For Non-College Learning

The Department does not award credit for non-college learning (life work experience).

Student Work

The Department reserves the right to retain any and all student work for the purposes of record, exhibition or instruction.

Normal Academic Progress

The student will have maintained normal academic progress when the student earns a minimum grade point average of 2.0 for all work attempted during a term, and an overall minimum of 2.0.

Course Sequence and Prerequisites

Course prerequisites are clearly indicated in this catalog and on the Undergraduate Program sheets, available in the Department office. In the event of a conflict between the program sheet and the catalog, the catalog requirements will prevail. It is the student's responsibility to ascertain that required prerequisites have been taken and passed prior to registering for a course. Failure to comply with prerequisite requirements may result in the student being dropped from a class.

Probation or Dismissal

Students who do not make satisfactory academic progress may be excluded from further registration. Students dismissed from the University for academic reasons will normally not be allowed to re-enroll for one year.

Class Attendance

Class attendance may be required and may be used for grade determination at the option of the instructor.

Graduation

In order to be eligible to graduate, the student must meet all University and Department requirements. The program of studies consists of a minimum of 32 Lower Division semester credit hours, including 11 semester credit hours that can be used to satisfy the University Core Curriculum, and 60 Upper Division semester credit hours. The total minimum program requirements for both Lower and Upper Divisions is 120 semester credit hours. The waiving of any required course shall not reduce the minimum of 120 semester credit hours required for graduation. A student entering as a freshman or a transfer student transferring without an AA degree from a state institution in Florida must complete the University Core Curriculum. In addition, all required Lower Division and Upper Division Construction Management courses and electives must be completed with a grade of 'C' or better. In order to graduate, a student must also have a minimum grade point average of 2.0, and have met the foreign language requirement.

Students should contact an advisor at least one semester prior to their projected graduation and request a review of his or her file. At the start of the final semester the student is required to complete an Application for Graduation. (See catalog for additional information on graduation procedures and scheduling.) If for any reason a student fails to graduate in the semester after applying for graduation, they must reapply.

It is the student's responsibility to ascertain that all requirements for graduation have been met.

Foreign Language Requirement

Students must meet the University Foreign Language Requirement. Refer to the appropriate sections in the Catalog's General Information for Admission and Registration and Records.

Undergraduate Curriculum

The following courses comprise the undergraduate curriculum leading to a degree of Bachelor of Science in Construction Management. Except for the Environmental Control courses, those numbered 'I' shall be taken before courses numbered 'II'. Some credits of the Lower Division Core can be used to satisfy University Core requirements.

University Requirements

First time students or transfer students with less than 36 credit hours must meet the University's core requirements as outlined in this catalog.

Common Prerequisite Courses and Equivalencies

| <u>FIU Course(s)</u> | <u>Equivalent Course(s)</u> |
|----------------------|---------------------------------|
| GLY 1010/GLY 1010L | GLYX010/GLYX010L or GLYX030C |
| BCN 1272 | BCNX272 |
| BCN 2210 | BCNX210 |

| | |
|-------------------------------------|-----------------------------------|
| BCN 2253 | BCNX253 |
| BCN 2405 | BCNX405 |
| BUL 4310 | BULX320 or BULX241 or BULX310 |
| MAC 2233 or MAC 2311 or MAC 1147 | MACX233 or MACX311 or MAC X147 |
| PHY 2053, PHY 2048L | PHYX053/X048L or |
| ECO 2013 or ECO 2023 | PHYX005/X005L |
| ACG 3024 | ECOX013 or ECOX023 |

| | |
|----------|--|
| STA 2023 | ACGX021 or ACGX024 |
| BCN 2280 | ACGX001 |
| SPC 2608 | STAX023 BCNXX280 or SURX101 SPCX600 or COMX000 or SPCX608 |

Courses which form part of the statewide articulation between the State University System and the Florida College System will fulfill the Lower Division Common Prerequisites.

Please visit <https://cpm.flvc.org> for a current list of state-approved common prerequisites.

Program Lower Division Courses

| | | |
|-----------|--|---|
| GLY 1010 | Physical Geology | 3 |
| GLY 1010L | Physical Geology Lab | 1 |
| BCN 2210 | Construction Materials and Methods | 3 |
| BCN 2253 | Building Construction Drawing | 3 |
| BUL 4310 | The Legal Environment of Business | 3 |
| MAC 2233 | Calculus For Business | 3 |
| | Or | |
| MAC 2311 | Calculus I | 4 |
| | Or | |
| MAC 1147 | Precalculus Algebra & Trigonometry | 4 |
| | Or | |
| MAC 1114 | Trigonometry | 3 |
| PHY 2053 | Physics without Calculus | 4 |
| PHY 2048L | Physics Laboratory | 1 |
| ECO 2013 | Principles of Macroeconomics | 3 |
| | or | |
| ECO 2023 | Principles of Microeconomics | 3 |
| ACG 3024 | Introduction to Accounting for Managers and Investors | 3 |
| STA 2023 | Statistics for Business and Economics | 3 |
| BCN 2280 | Construction Surveying | 3 |
| SPC 2608 | Public Speaking | 3 |
| BCN 1272 | Plans Interpretation | 3 |
| BCN 2405 | Structural Design I | 3 |

Upper Division Courses

| | | |
|----------|---|---|
| BCN 3027 | Principles of Construction Management | 3 |
| BCN 3730 | Construction Safety | 3 |
| BCN 3740 | Legal Aspects of Construction | 3 |
| BCN 3761 | Construction Documentation and Communication – GL | 3 |
| BCN 3762 | Building Codes and Quality Control | 3 |
| BCN 4431 | Structural Design II | 3 |
| BCN 3611 | Construction Cost Estimating I | 3 |
| BCN 4612 | Construction Cost Estimating II | 3 |
| BCN 3720 | Construction Scheduling I | 3 |
| BCN 4724 | Construction Scheduling II | 3 |
| BCN 3753 | Financial Management of Construction Organizations | 3 |
| BCN 3727 | Construction Sitework and Equipment | 3 |
| BCN 4465 | Temporary Structures in Construction | 3 |
| BCN 4561 | Environmental Control in Buildings I | 3 |

| | | |
|----------|-------------------------------------|---|
| BCN 4703 | Management of Construction Projects | 3 |
| BCN 4910 | Senior Project | 3 |
| MAN 3022 | Introduction to Management | 3 |
| XXX XXXX | Electives | 9 |

Electives

Students can take up to eleven credits as electives. Nine of these elective credits must be 3000-4000 level courses selected in consultation with the Undergraduate Advisor, including at least six credits from construction management and up to 3 credits can be from business/management.

Sample Program of Study

The following is a sample program of study for a student seeking to earn a degree of Bachelor of Science in Construction Management. The reader is reminded that all students entering a university in the State University System with fewer than 60 credit hours are required to earn at least nine credit hours prior to graduation by attending one or more summer terms at a state university.

Bachelor of Science in Construction Management**Degree Program Hours: 120****Undergraduate Program**

The following analysis assumes that the student enters the university from high school or with less than 36 credits and no foreign language experience.

First Semester: (16)

| | | |
|----------------|------------------------------|---|
| ENC 1101 | Writing and Rhetoric I | 3 |
| SLS 1501 | First Year Experience | 1 |
| MAC 2233 | Calculus For Business | 3 |
| ECO 2013 | Principles of Macroeconomics | 3 |
| | or | |
| ECO 2023 | Principles of Microeconomics | 3 |
| SPC 2608 | Public Speaking | 3 |
| Social Science | (Group One or Two) | 3 |

Second Semester: (15)

| | | |
|------------|-------------------------|---|
| ENC 1102 | Writing and Rhetoric II | 3 |
| GLY 1010 | Physical Geology | 3 |
| GLY 1010L | Physical Geology Lab | 1 |
| Humanities | (UCC-Group One or Two) | 3 |
| BCN 1272 | Plans Interpretation | 3 |
| XXX XXXX | Elective | 2 |

Third Semester: (15)

| | | |
|------------|---|---|
| ACG 3024 | Introduction to Accounting for Managers and Investors | 3 |
| BCN 3027 | Principles of Construction Management | 3 |
| BCN 2210 | Construction Materials and Methods | 3 |
| Humanities | (UCC Group One or Two) | 3 |
| BCN 3761 | Construction Documentation and Communication – GL | 3 |

Fourth Semester: (17)

| | | |
|-----------|---------------------------------------|---|
| PHY 2053 | Physics w/o Calculus | 4 |
| PHY 2048L | General Physics Lab | 1 |
| STA 2023 | Statistics for Business and Economics | 3 |
| BCN 2253 | Building Construction Drawing | 3 |
| BCN 2280 | Construction Surveying | 3 |
| BCN 3730 | Construction Safety | 3 |

Fifth Semester: (15)

| | | |
|----------|------------------------------------|---|
| BCN 2405 | Structural Design I | 3 |
| BCN 3762 | Building Codes and Quality Control | 3 |
| BCN 3611 | Construction Estimating I | 3 |
| XXX XXXX | Elective | 3 |
| BUL 4310 | The Legal Environment of Business | 3 |

Sixth Semester: (15)

| | | |
|----------|-------------------------------------|---|
| BCN 3720 | Construction Scheduling I | 3 |
| BCN 3727 | Construction Sitework and Equipment | 3 |
| BCN 3740 | Legal Aspects of Construction | 3 |
| BCN 4612 | Construction Estimating II | 3 |
| BCN 4431 | Structural Design II | 3 |

Seventh Semester: (15)

| | | |
|----------|--------------------------------------|---|
| BCN 4465 | Temporary Structures | 3 |
| BCN 4703 | Management of Construction Projects | 3 |
| BCN 4724 | Construction Scheduling II | 3 |
| BCN 4561 | Environmental Control in Buildings I | 3 |
| XXX XXXX | Elective | 3 |

Eighth Semester: (12)

| | | |
|----------|--|---|
| BCN 3753 | Financial Management of Construction Organizations | 3 |
| BCN 4910 | Senior Project | 3 |
| MAN 3022 | Introduction to Management | 3 |
| XXX XXXX | Elective | 3 |

Minor in Construction Management

The Department offers an undergraduate minor in Construction Management for students in other disciplines. For admission to the minor, students need to be fully admitted to their major and must have a 2.25 GPA.

Students opting for a minor in Construction Management must complete the following courses:

| | |
|----------|-------------------------------------|
| BCN 1272 | Plans Interpretation |
| BCN 3611 | Construction Estimating I |
| BCN 3720 | Construction Scheduling I |
| BCN 3730 | Construction Safety |
| BCN 3762 | Building Codes and Quality Control |
| BCN 4703 | Management of Construction Projects |

Note: Required prerequisites must be taken for all courses in the minor.

Combined BS/MS in Construction Management Degree Pathway

Students who pursue a BS degree in Construction Management, completed 75 credits and have an overall GPA of at least a 3.2 GPA may apply to enroll in the combined BS/MS pathway in Construction Management upon recommendation from the undergraduate advisor. Students should complete all lower division courses to be considered for this degree pathway. The student must also meet the admission criteria for the graduate degree program and the University Graduate School. Students need only apply once to the combined degree pathway, but the application

must be submitted to Graduate Admissions before the student starts the last 30 credits of the bachelor's degree program. A student admitted to the combined degree pathway will be considered to have undergraduate status until the student applies for graduation from their bachelor's degree program. Upon conferral of the bachelor's degree, the student will be granted graduate status and be eligible for graduate assistantships.

Students enrolled in the pathway may count up to nine credit hours of BCN graduate courses towards the electives of the BS degree. A minimum grade of B is required for all graduate courses counted for both the BS and MS degrees. Only graduate courses with formal lectures can be counted for both degrees. The students are responsible for confirming the eligibility of each course with the Undergraduate Advisor.

The combined BS/MS pathway has been designed to be a continuous program. However, upon completion of all the requirements of the undergraduate program, students will receive their BS degrees. Students in this pathway have up to one year to complete the master's degree after receipt of the bachelor's degree. Students who fail to meet this one year post BS requirement or who elect to leave the combined pathway at any time and earn only the BS degree will have the same access requirements to regular graduate programs as any other student, but will not be able to use the nine credits in both the bachelor's and master's degrees.

Students interested in the pathway should consult with the Undergraduate Advisor on their eligibility for admission. The students should also meet the Graduate Program Director to learn about the graduate program and available courses before completing the application form online

Course Descriptions

Definition of Prefixes

BCN-Construction.

Courses that meet the University's Global Learning requirement are identified as GL.

BCN 1251 Building Construction Drawing (3). The laboratory application of Methods and Materials of Construction I. Students study plans, elevations, sections, and details appropriate to light construction.

BCN 1272 Plans Interpretation (3). Building construction plans interpretation of working drawings for residential, commercial building, and civil construction.

BCN 1520 Practical Electricity and Electrical Circuits (1-5). Basic concepts of electricity. D.C. and A.C. sinusoidal sources. Resistance. Ohms Law. Analysis of simple resistive circuits. Kirchhoff's Laws. True R.M.S. Values. Power in resistive circuits. Complex nos. Impedance. Basic instrumentation.

BCN 1522 Electrical Wiring in Residential Construction (1-5). Introduction to residential wiring. Conductors, insulators. Color code. Safety. Ground. National Electrical Code. South Florida Building Code. Practical applications. Measurement devices.

BCN 2210 Construction Materials and Methods (3). A study of the origins, production and uses of construction materials such as concrete, steel, aluminum, wood, brick, and stone. A combination of structural and non-structural, interior and exterior materials and assemblies will be examined.

BCN 2253 Building Construction Drawing (3). Prepare plans, elevations and sections appropriate to general construction using computer assisted modeling techniques. Prerequisite: BCN 1272.

BCN 2280 Construction Surveying (3). Principles and practices of surveying as it applies to building construction.

BCN 2405 Structural Design I (3). Applications of the principals of statics and strength of materials to engineering problems of equilibrium, strength and stiffness. Topics include equilibrium of forces, stress, strain, beams and col. Prerequisites: MAC 1147 or MAC 1114, PHY 2053, 2048L.

BCN 3027 Principles of Construction Management (3). Covers the construction industry with emphasis on the principles of construction management.

BCN 3240 Construction Equipment (3). Methods, procedures, and equipment used in residential, commercial, and heavy construction. Equipping the construction plant. Production value analysis. Work effectiveness studies.

BCN 3441C Fundamentals of Concrete Properties and Testing (4). This course examines effects of concrete-making materials on the properties of fresh and hardened concrete. Topics include: cement and aggregates properties and testing; analysis of concrete strength. Prerequisites: BCN 3443 or departmental approval.

BCN 3442C Concrete Construction Methods (3). This course covers forming, shoring, placing and reinforcing operations. Cast-in-place foundations, pavements, slabs, structural frames, and others. Prerequisite: BCN 3441C.

BCN 3443 Introduction to the Concrete Industry (3). Overview of the history, careers, job functions, and professional organizations in the concrete industry. Topics include: overview of the concrete industry, history, components, production and uses.

BCN 3444 Applications of Concrete in Construction (3). A detailed study of the many uses of concrete in the construction of buildings, and other facilities. Unique problems faced by materials suppliers, contractors and design professionals. Prerequisite: BCN 3442C.

BCN 3445 Management of Concrete Products I (3). This course provides student with a basic understanding of managing the ordering and delivery process common to all concrete products including planning, organizing and controlling schedule. Prerequisites: BCN 3444 or departmental approval.

BCN 3446 Management of Concrete Products II (3). This course provides basic understanding of managing the manufacturing process common to all concrete products production facilities including planning, organizing, and controlling production. Prerequisites: BCN 3444 or departmental approval.

BCN 3447 Concrete Problems: Prevention, Diagnosis and Resolution (3). Course involves preventing and diagnosing problems related to concrete production, testing, construction and performance. Identification of causes of concrete problems, and resolution methods. Prerequisites: BCN 3444 or departmental approval.

BCN 3611 Construction Cost Estimating I (3). Principles and practices of estimating providing application and drill in surveying quantities of labor and materials for general construction projects: excavation, concrete and formwork, carpentry, masonry, structural steel, lath and plaster, interior finishes. Prerequisites: BCN 1272 and BCN 2210.

BCN 3640 Economic Planning for Construction (3). Nature of construction costs, funding sources and arrangements, capital requirements, bonding, insurance, risk and contingency evaluation, general office operations, and bidding procedures.

BCN 3720 Construction Scheduling I (3). Critical Path and Precedence Diagram Methods in construction planning and scheduling, including: resource management, cashflow, PERT, time compression and scheduling updating. Prerequisite: STA 2023.

BCN 3727 Construction Sitework and Equipment (3). Exposition and critical analysis of practical and sequential aspects of converting raw land to finished product. Course will define various steps and discuss equipment and techniques of accomplishment. Prerequisites: BCN 2210.

BCN 3730 Construction Safety (3). Introduces occupational safety hazards associated with the construction industry. Emphasis placed on recognition, evaluation, and control of safety hazards particularly as they relate to the Occupational Safety and Health Act.

BCN 3740 Legal Aspects of Construction (3). Legal and business aspects of engineering contracts and specifications in the construction industry. Analysis, study of precedents, and application of contract clauses, including changes, changed conditions, termination, disputes, payments, risk and insurance, inspection, liquidated damages, and technical requirements. Prerequisites: BCN 3027.

BCN 3753 Financial Management of Construction Organizations (3). Accounting for construction operations; labor, materials, equipment, and overhead costs. Money management, depreciation, taxes, loans, profit/losses analysis. Prerequisites: ACG 3024 or equivalent.

BCN 3761 Construction Documentation and Communication – GL (3). Writing and transmitting construction documentation for technical and legal requirements for construction projects in a global context. Stresses development of verbal and written communication skills. Prerequisite: BCN 1272 or equivalent.

BCN 3762 Building Codes and Quality Control (3). Study of building codes required by local, county, and state levels and their relation to quality control. Prerequisite: BCN 2210 and BCN 3002.

BCN 3949 Industry Internship (0-6). This course provides an opportunity for students to gain supervised, practical work experience in their particular field of interest within the industry. Prerequisites: Consent of advisor and Department Chair.

BCN 4255C Building Information Modeling (3). Introduce and explore the application of Building Information Modeling (BIM) both as a product and a process in building construction. Prerequisite: BCN 2253, BCN 3611, BCN 3720

BCN 4431 Structural Design II (3). Intro to the material properties, allowable stresses, codes and standards for the design of reinforced concrete, pre-stressed concrete, reinforced masonry structures and the design of steel structures. Prerequisites: BCN 2210, BCN 2405 , PHY 2053, PHY 2048L.

BCN 4462 Structural Design III (3). Introduction to the material properties, allowable stresses, applicable codes and standards for the design of reinforced concrete, prestressed concrete and reinforced masonry structures. Prerequisites: BCN 4431.

BCN 4465 Temporary Structures in Construction (3). Material properties, allowable stresses, applicable codes and standards for timber structures and the theory and practice of the planning, design, erection and maintenance of temporary structures. Prerequisites: BCN 2210, BCN 2405 .

BCN 4561 Environmental Control in Buildings I (3). A study of the concepts of thermal and plumbing systems in residential and commercial buildings, including code provisions and cost estimates. Prerequisite: BCN 2210.

BCN 4564 Environmental Control in Buildings II (3). Concepts and practices of electrical systems in the construction of residential and commercial buildings, including code provisions and cost estimates. Prerequisites: PHY 2053 and PHY 2048L.

BCN 4570 Sustainable Approach to Construction – GL (3). This course presents a study of the concepts and techniques of sustainable construction. An in depth review of sustainable materials and construction techniques will be covered. Prerequisite: BCN 4561.

BCN 4612 Construction Cost Estimating II (3). Quantity take-offs and pricing, and the application of computing techniques in construction estimating. Prerequisites: BCN 3611 and BCN 3727.

BCN 4703 Management of Construction Projects (3). Management of construction project field operations and procedures as they relate to contract management, planning, control, coordination, quality, safety, documentation, and resource management. Prerequisites: BCN 3720, BCN 3730, BCN 3611.

BCN 4724 Construction Scheduling II (3). The application of advanced computerized planning, scheduling, and simulation techniques to construction operations, processes, and control. Prerequisites: BCN 3720 and BCN 3611.

BCN 4794 Quality Control in Construction (3). Quality control as governed by the job inspector, contractor superintendent, architect-engineer, building official, and governmental agencies and requirements. Prerequisites: BCN 3762 or equivalent.

BCN 4905 Directed Independent Studies (VAR). Specialized intensive study in an area of special interest to the student. Prerequisites: Permission of the instructor and the Department Chair.

BCN 4906 Special Topics (3). For a group of students who wish an intensive study of a topic not otherwise offered in the University. Prerequisites: Permission of the instructor and the Department Chair.

BCN 4910 Senior Project (3). This course requires the senior level construction management student to work on a project designed to integrate the knowledge acquired in multiple topics within the undergraduate curriculum. Prerequisites: BUL 4310 and all required BCN courses except BCN 3753.