BACHELOR OF SCIENCE IN CONSTRUCTION MANAGEMENT

COURSE DESCRIPTION

General Education Core

COMM 1332: Fundamentals of Public Speaking
Cr. 3. (1-2). Taught in large lecture and small group format. Beginning theory and practice of informative and persuasive communication.

ENGL 1303: Freshman Composition I
Cr. 3. (3-0). Prerequisite: score of 240 on the TASP Writing Test or its equivalent. Students who score below the minimum should enroll in ENGL 1300. Credit may not be received for both ENGL 1303 and 1309. Detailed study of the principles of rhetoric as applied in reading and writing expository essays.

ENGL 1304: Freshman Composition II
Cr. 3. (3-0). Prerequisite: ENGL 1303 or equivalent. Credit may not be received for both ENGL 1304 and 1310 or 1370. Detailed study of the principles of rhetoric as applied to analyzing and writing argumentative and persuasive essays; principles and methods of research, culminating in writing a substantial research paper.

HIST 1377: The United States to 1867
Cr. 3. (3-0). Credit in both HIST 1376 and HIST 1377 cannot be applied toward a degree. The social, economic, and political history of the United States to 1877.

HIST 1378: The United States Since 1877
Cr. 3. (3-0). Credit in both HIST 1378 and HIST 1379 cannot be applied toward a degree. The social, economic, and political history of the United States since 1877.

POLS 1336: U.S. and Texas Constitutions and Politics (formerly POLS 2333)
Cr. 3. (3-0). Credit may not be earned for both POLS 1336 and 1394. Introduction to the constitutions and politics of the United States and Texas, emphasizing constitutional structure, federalism, separation of powers, limited government, public opinion, elections, and civil liberties.

POLS 1337: U.S. Government: Congress, President, and Courts (formerly POLS 2334)
Cr. 3. (3-0). Credit may not be earned for both POLS 1337 and 1395. Introduction to the institutions of government with an emphasis on the congress, the president, and the federal courts.

Humanities Elective: Refer to class schedule for lists of courses that satisfy University requirements.

Visual/Performing Arts Elective: Refer to class schedule for lists of courses that satisfy University requirements.
Math and Physics

MATH 1313: Finite Mathematics with Applications
Cr. 3. (3-0). Prerequisite: credit for or placement out of MATH 1310. Students with prior credit for MATH 2331 (formerly 2431) or INDE 2331 will not receive credit for MATH 1313. May not apply to a major or minor in mathematics. Systems of linear equations, introduction to linear programming, mathematics of finance, topics in probability and statistics.

MATH 1330: Pre-calculus
Cr. 3. (3-0). Prerequisite: credit for or placement out of MATH 1310. Students with prior credit in MATH 1432 may not receive credit for MATH 1330. Functions, graphs, trigonometry, and analytic geometry.

MATH 1431: Calculus I
Cr. 4. (4-0). Prerequisite: MATH 1330. Calculus of rational functions, limits, derivatives, applications of the derivative, antiderivatives, the definite integral with applications, mean value theorem, fundamental theorem of calculus, and numerical integration.

PHYS 1301: Introductory General Physics I [PHYS 1401 with UH PHYS 1101]
Cr. 3. (3-0). Prerequisite: MATH 1330 or equivalent. Primarily for majors other than physics and engineering. Credit may not be applied toward a degree for both PHYS 1301 and 1321. Elementary principles of mechanics and thermodynamics.

PHYS 1302: Introductory General Physics II [PHYS 1402 with UH PHYS 1102]
Cr. 3. (3-0). Prerequisite: PHYS 1301. Primarily for majors other than physics and engineering. Credit may not be applied toward a degree for both PHYS 1302 and either PHYS 1321, 1322 or 2412. Electromagnetism and modern physics.

GEOL 1330: Physical Geology [GEOL 1403 with UH GEOL 1130]
Cr. 3. (3-0). Prerequisite: credit for, placement out of, or concurrent enrollment in MATH 1310 or MATH 1311. Principles of geology; emphasis on surface and internal processes of the earth.

Business and Management

ACCT 2331: Accounting Principles I - Financial
Cr. 3. (3-0). Fundamentals of financial accounting.

ACCT 2332: Accounting Principles II - Managerial
Cr. 3. (3-0). Prerequisite: ACCT 2331. Fundamentals of managerial accounting.

ECON 2304: Microeconomic Principles
Cr. 3. (3-0). Prerequisite: MATH 1310 or equivalent or consent of instructor. Individual consumer and firm behavior, supply and demand and the market determination or prices, production, and income. Includes government price ceilings, monopoly and antitrust, market failures and environmental pollution.
ECON 2305: Macroeconomic Principles
Cr. 3. (3-0). Prerequisite: MATH 1310 or equivalent or consent of instructor. Credit may not be earned in both ECON 2301 and 2305. Aggregate economy, inflation, recession, and economic policy. Economic growth, business cycle theory, and international trade.

GENB 4350: Business Law & Ethics (writing intensive course)
Cr. 3. (3-0). Prerequisite: Junior standing. General principles as they relate to ethics, law, property, agency, corporations, bankruptcy, mortgages, torts, and the Uniform Commercial Code.

TEL 3363: Technical Communications
Cr. 3. (3-0). Prerequisite: ENGL 1303 with grade of C or higher. Procedures and techniques of preparing technical memoranda, oral and written reports, manuals, and other source documents that fit the pattern of industrial and institutional communications.

Business Electives (Choose two from below)

MANA 3335: Introduction to Organizational Behavior and Management
Cr. 3. (3-0). Prerequisite: junior standing. Credit for both MANA 3335 and MANA 3333:3334 cannot be applied toward a degree. General management functions and the role of individual, group, and organizational behavior in the management process.

MARK 3336: Elements of Marketing Administration
Cr. 3. (3-0). Prerequisite: junior standing. Marketing orientation of the political, social, legal, and economic environments. Development of marketing programs incorporating these perspectives. Formulation of strategies for the design, pricing, channels, and promotion of products/services.

FINA 3332: Principles of Financial Management
Cr. 3. (3-0). Prerequisites: junior standing, ACCT 2331, MATH 1313 and 1314. Time value of money, principles of corporate financial management and investments.

SCM 3301: Service and Manufacturing Operations
Cr. 3. (3-0). Prerequisite: MATH 1313. Operations Management concepts and techniques: operations management strategy, total quality management, location and layout, forecasting, aggregate planning, materials management, just-in-time systems, scheduling, and project management in small and multinational manufacturing and service organizations.

Construction Major Requirements

CNST 1361: Construction Management I
Cr. 3. (3-0). Prerequisite: None. Overview of the construction industry, job market, roles and responsibilities, and common project management tools.

CNST 2351: Construction Estimating I
Cr. 3. (3-0). Prerequisites: Credit for or concurrent enrollment in CNST2321 or 2325 or consent
of instructor. Skills and tools necessary to prepare cost estimates for construction projects; focus on the blueprint reading and material quantity takeoff.

**CNST 3185: Construction Experience**  
Cr. 1. (1-0). Prerequisite: CNST 2351. Students will fulfill 400 hours of work experience to gain practical experience and professional skills prior to graduation. Includes an intensive writing experience in the form of a formal technical report describing the experience.

**CNST 3301: Construction Equipment and Methods**  
Cr. 3. (3-0). Prerequisite: CNST 2351. Construction equipment and selected construction methods including economy, selection, productivity of common construction equipment, and construction procedures for industrial and heavy civil construction.

**CNST 3331: Construction Planning and Scheduling**  
Cr. 3. (3-0). Prerequisite: CNST 2351. Planning, scheduling principles, and techniques common to construction projects utilizing industry standard scheduling software packages.

**CNST 3355: Strength of Construction Materials**  
Cr. 3. (3-0). Prerequisite: PHYS 1301 & MATH 1431. Fundamentals of construction engineering with respect to stress, strains, and deflection of structural components of buildings.

**CNST 3155: Construction Materials and Testing**  
Cr. 1. (0-2). Prerequisite: PHYS 1301 and MATH 1431. Properties and testing methods for common construction materials (wood, steel, and concrete).

**CNST 3372: Soil Mechanics and Foundations**  
Cr. 3. (3-0). Prerequisites: CNST 3355. Aspects of soils essential to a construction manager including soil classifications, methods of soil exploration, standard laboratory tests, and basic design and installation for shallow and deep foundation systems.

**CNST 4265: Construction Layout and Site Development**  
Cr. 2. (2-0). Prerequisites: MATH 1330. Basic surveying techniques, construction, layouts, fundamentals and regulations related to land development.

**CNST 4302: Construction Law & Ethics**  
Cr. 3. (3-0). Prerequisite: CNST 2341 or 2345. Basic understanding of the U.S. legal system and contractual issues that are significant to construction managers and addressing ethics in the construction industry.

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**Commercial Construction Track**

**CNST 1330: Graphics I**  
Cr. 3. (3-0). Prerequisite: None. Lettering, geometric construction, multi-view and auxiliary
projections, sections and connections, dimensioning, and isometric and oblique pictorials. Manual and computer aided drawing techniques.

**CNST 1301: Construction Materials and Methods**
Cr. 3. (3-0). Prerequisite: Credit for or concurrent enrollment in CNST 1361 and CNST 1330 or 1315. Basic building materials and systems used in constructing buildings, bridges, and infrastructure projects.

**CNST 2321: Mechanical and Electrical Systems**
Cr. 3. (3-0). Prerequisite: CNST 1301 or 1325. Planning and construction of mechanical and electrical systems common to construction projects.

**CNST 2341: Construction Documents**
Cr. 3. (3-0). Prerequisite: CNST 2321 or consent of instructor. Bidding documents and contract documents commonly used in construction projects and an understanding of the hierarchy/relationships among these documents.

**CNST 3205: Construction Safety Management**
Cr. 2. (2-0). Prerequisite: CNST 3301. OSHA regulations and industry practices related to creating and maintaining safe construction sites. Students will be eligible to sit for the 10-hour OSHA safety certification exam.

**CNST 3351: Construction Estimating II**
Cr. 3. (3-0). Prerequisites: CNST 2351. Skills and tools necessary to prepare formal bids for construction projects, focusing on the pricing, indirect costs, bid analysis, and use of computer aided software.

**CNST 4311: Structural Steel and Timber Construction**
Cr. 3. (3-0). Prerequisites: CNST 3355. Design aspects of temporary structures using steel and timber standard shapes/components involving the application of the AISC Code and also the design of wood formwork systems.

**CNST 4331: Construction Management II**
Cr. 3. (3-0). Prerequisites: CNST 3205, 3331 and CNST 3351. Capstone course to develop a formal construction proposal. Level 1 Associate Constructor (AC) exam administered by the American Institute of Constructors (AIC) is required.

**CNST 4341: Project Controls**
Cr. 3. (3-0). Prerequisites: CNST 4331. Integrates skills and knowledge taught in the program including the crucial construction management activities that take place from the time a contract is awarded until the contract is closed out.

**CNST 4381: Reinforced Concrete and Building Codes**
Cr. 3. (3-0). Prerequisites: CNST 3355. Application of the ACI 318 building code to construct, analyze, and inspect reinforced concrete members and formwork.
Process & Industrial Track

CNST 1315: Project Drawings and Graphics
Cr. 3. (3-0). Prerequisites: None. Reading drawings and graphics for process and industrial type projects.

CNST 1325: Process and Industrial Construction
Cr. 3. (3-0). Prerequisites: Credit for or concurrent enrollment in CNST 1361 and 1315 or 1330. Construction methods and materials common to the installation of process and industrial projects.

CNST 2325: Process and Industrial Subsystems
Cr. 3. (3-0). Prerequisites: CNST 1325 or consent of instructor. Mechanical and electrical systems common in process and industrial projects.

CNST 2345: Contract Documents for Capital Projects
Cr. 3. (3-0). Prerequisites: CNST 2325 or consent of instructor. Contract administration and legal documents common in process and industrial projects.

CNST 3210: Safety for Industrial Projects
Cr. 2. (2-0). Prerequisite: CNST 3301. Industry practices related to creating and maintaining safe construction sites for process and industrial projects.

CNST 3365: Cost Estimating for Capital Projects
Cr. 3. (3-0). Prerequisites: CNST 2351. Cost estimating of process and industrial projects including FEED and definitive estimates.

CNST 4315: Steel Construction
Cr. 3. (3-0). Prerequisites: CNST 3355. Steel properties, standard shapes, design, and installation of steel elements common to process and industrial projects such as tanks, pipes, and pipe supports.

CNST 4335: Capital Projects Development
Cr. 3. (3-0). Prerequisites: CNST 3205, 3331 and 3365. Leadership, techniques, and practices. Level 1 Associate Constructor (AC) exam administered by the American Institute of Constructors (AIC) is required.

CNST 4345: Reinforced Concrete Structures
Cr. 3. (3-0). Prerequisites: CNST3355. Design and installation of concrete elements common to process and industrial projects such as slabs, beams, heavy concrete pours, short columns, and pedestals.

CNST 4385: Field Operations for Capital Projects
Cr. 3. (3-0). Prerequisites: CNST4335. Site utilization, project execution plans, progress measurements, analyzing field data, and close-out of process and industrial projects.