

COURSE DESCRIPTION FOR THE CONSTRUCTION MANAGEMENT CASSES

Course Title	Course Catalogue Description
CONS 1010 – Topics in Construction	Fall. Introduction to career objectives in a seminar setting with construction professionals. Introduces team building, professional practices, current issues in construction through readings and discussions of construction trade journals. Two hours lecture. Extra fee.
CONS 2350 – Introduction to Construction	Fall, Spring. Basic concepts of construction management and technology, including office organization, building construction techniques, surveying, building materials, plan reading and estimating. One and one-half hours lecture, three hours laboratory. Extra fee.
CONS 2590 – Construction Document Reading	Fall and Spring. An introductory course to construction document reading. Provides a basic working knowledge of construction drawings, design and construction mathematics, specifications, material submittal process, building codes, and material quantity take-off. Prerequisite: CONS 2350. Extra Fee.
CONS 2800 – Topics in Construction	Topics, trends and inquiry related to the Construction Management field including theory, technology, and professional practice utilizing systems, processes, equipment, materials and/or construction operations. May be repeated on approval of adviser up to 6 hours. Freshman or Sophomore standing.
CONS 3060 – Residential Construction	Spring. Residential and light commercial construction, including principles of project organization, market and site analyses, cost estimating, scheduling, financial management, construction techniques, contracting and marketing. One and one-half hour lecture, three hours laboratory. Prerequisites: Matriculated in CMT, AED. Extra fee.
CONS 3180 – Construction Surveying	Fall. Detailed study of surveying, including field work, with equipment such as transit, level and tape. Emphasis on closure. One and one-half hours of lecture and three hours of laboratory. Prerequisites: Matriculated in CMT, AED. Extra fee.
CONS 3350 – Construction Materials and Testing	Fall and Spring. Materials and testing as used in commercial construction. Emphasis on foundation, site work, soils and concrete. One and one-half hours of lecture and three hours laboratory. Prerequisite: Matriculated in CMT, AED. Extra fee.
CONS 3360 – Structural Design	Fall, Spring. Introduction of the principles of Statics and Strength of Materials. Standard methods of comparing actual stresses to allowable stresses will be used to size structural members. Emphasis on floor framing systems, columns and connections in steel and wood per design codes. Two hours of lecture and two hours of laboratory. Prerequisites: PHYS 2010 and Matriculated in CM, AED. Extra Fee.
CONS 3370 – Mechanical, Electrical, and Plumbing Systems in Buildings	Spring. Mechanical and electrical systems of buildings which include heating, ventilating, air conditioning cooling (HVAC), plumbing, firefighting, and electrical systems of buildings and in production processes. Methods, materials and problems encountered in installing mechanical systems are stressed. Two hours of lecture and two hours laboratory. Prerequisite: Matriculated in CM, AED. Extra fee.

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CONS 3380 – Steel, Concrete, and Masonry Design	Spring. Sizing and massing techniques to assist the design professional in preliminary layout and design. The course will present design concepts and supplement the design process with tables and charts. Expose students to computer application used in the industry for design of structural steel, structural concrete and masonry - load and non-load bearing walls. Prerequisites: CONS 3360 and Matriculated in CM, AED. Credit will not be given for both CONS 3380 and 4060.
CONS 3590 - Estimating and Cost Control	Fall, Spring. Take-off, costing and pricing for typical construction project. Preparation of final bid document including all material, labor, equipment, overhead costs, and profit margin. Two hours of lecture and two hours of laboratory. Prerequisites: CONS 2590 and Matriculated in CM, AED. Extra fee.
CONS 3710 – Building Information Modeling (BIM) for Constructors	Fall/Spring. A hands-on introduction to BIM. Students are introduced to the general concepts of virtual design and construction using commercially available software. Comparison of traditional design and construction practices to BIM is explored. Prerequisites: ARCH 2710 and CONS 2390. Matriculated in CM, AED.
CONS 4000 – LEED and Lean Fundamentals	Fall and Spring. Fundamentals of green building, sustainable design, sustainable construction, US Green Building Council "Leadership in Energy and Environmental Design" (LEED), lean design, lean construction, and green lean. Prerequisite: Junior or Senior standing or consent of instructor.
CONS 4060 – Temporary and Concrete Structures for Construction	Fall, Spring. Design and construction of concrete structures. Placement of temporary formwork including sheathing, bracing and shores. Design of concrete slabs, beams and columns. Concrete Forming Systems with a focus on Constructability. Brief review of Masonry Techniques. Three hours of lecture. Prerequisites: CONS 3360 and Matriculated in CM. AED.
CONS 4110 – Construction Safety and Health Management	Fall and Spring. This course will cover a broad spectrum of Occupational Safety and Health. It covers progressive management systems and effect on profit. The course will include the history of safety and health, the industry regulations, program development and implementation, hazard analysis, work-related injuries, and safety topics through hands-on training and government documents. The student may receive 30-hour OSHA card. Prerequisites: Junior Standing; CMT Major only or consent of instructor.
CONS 4350 – Construction Methods and Practices	Fall and Spring. Advanced course in commercial construction emphasizing superintendent's role in planning, inspecting, expediting and supervising construction operations. One and one-half hours of lecture and three hours laboratory. Prerequisite: Matriculated in CMT, AED. Extra fee.
CONS 4370 – Construction Equipment	Fall. Equipment factors related to construction operations. Ownership and operating costs and productivity of major construction equipment; frequent down-time items. One and one-half hours of lecture and three hours laboratory. Prerequisite: Matriculated in CMT, AED. Extra fee.

Course Title	Course Catalogue Description
CONS 4590 - Construction Estimating Computer Applications	Fall and Spring. Computer applications of construction estimating programs in the areas of materials, methods and management. Two hours lecture, two hours laboratory. Prerequisite: CONS 3590 and matriculated student in construction management. Extra fee.
CONS 4400 – Construction Contracting	Fall, Spring. Type of construction procurement, contracts and specifications important to project management. Subcontracting, insurance, bonds, mechanics liens and labor relations. Concepts applied to cases. Two hours lecture, two hours laboratory. Prerequisite: Matriculated in CM, AED, AMO, or ATM. Approved for Distance
CONS 4420 – Construction Scheduling	Fall and Spring. Management utilizing critical path method, activity on arrow, Gantt charts and PERT techniques. Planning, scheduling, control, resource allocation and least-cost expediting using computers. Two hours lecture, two hours laboratory. Prerequisites: CONS 3200 and Matriculated in CM, AED, AMO, or ATM. Extra fee.
CONS 4470 – Trenchless Technology Construction	Spring. Introduction to the different trenchless techniques including identification and quantification of the different components of each technique along with their advantages and disadvantages. One and one-half hours lecture, three hours laboratory. Prerequisite: Matriculated in CMT, AED. Extra fee. Credit cannot be earned in both CONS 4470 and CONS 5470.
CONS 4700 – Construction Capstone Project	Fall, Spring. Formulate a construction project manual using several software packages. The comprehensive manual includes schedule, quantity survey, estimate, project management considerations and a panel defense. Prerequisites: CONS 4590 or CONS 4420 and Matriculated in CM, AED. Extra fee.
CONS 4800 – Topics in Construction	Topics, trends and inquiry related to the Construction Management field including theory, technology, and professional practice utilizing systems, processes, equipment, materials and/or construction operations. May be repeated on approval of adviser up to 6 hours. Junior or Senior standing.
CONS 4900 – Problems in Construction Technology	For advanced students wanting to conduct intensive study of selected problems in construction technology. May be repeated. Prerequisite: Consent of instructor and Matriculated in CMT, AED.
CONS 5470 – Advanced Trenchless Technology Construction	Spring. In depth coverage of the different trenchless techniques including identification and quantification of the different components of each trenchless technique along with their advantages and disadvantages. One and a half hours lecture, three hours laboratory. Credit cannot be earned in both CONS 4470 and CONS 5470.
CONS 6410 – Contracts and Disputes Resolution	Early recognition of actual or potential legal problems with an overview of the legal aspects of contracting and construction. Explore contract administration, uncover details about risk management, and avoid litigation. Explore alternative dispute resolution techniques including mediation, arbitration, and litigation settlement techniques.

Course Title	Course Catalogue Description
CONS 6420 – Construction Program Management	Principles and practical concepts essential to managing complex construction projects. Advanced construction project planning, scheduling, control, resource allocation, and earned value analysis using Primavera Project Management software. Quality management, procurement management, and cost-time trade off. Extra fee.
CONS 6430 – Advanced Estimating, Bidding Strategy, and Cost Control	Subcontract scoping, quantity take-off, unit cost calculation, budgeting, and bidding strategy for buildings and heavy civil projects along with computerized estimating techniques such as Excel, HCSS, and Timberline.
CONS 6450 – Negotiation in the Engineering Environment	Examination of negotiation theories, strategies, and tactics as applied to transactions in the construction and technological environments. Establishment of win-win environment in dealing with the project parties by adopting creative means to solve problems and resolve disputes. Practice through negotiation case studies, scenarios, and role playing.