CONSTRUCTION MANAGEMENT (CNST)

CONE 960 PROFESSIONAL PRACTICE (0 credits)
CONE 0960 is required of CONE majors prior to graduation. The work experience must be pre-approved by the faculty adviser in the CONE department. Work experience in a construction related work area.
Prerequisite(s)/Corequisite(s): Senior standing

CONE 8166 WOOD/CONTEMPORARY MATERIALS DESIGN (3 credits)
Design of structural timber, beams, columns, and connections. Introduction to applicable design philosophies and codes. Overview of materials design. Masonry, aluminum, and contemporary materials such as plastics and fiber reinforced systems and composite material groups. Design considerations, cost and constructability analysis. (Cross-listed with CONE 4160)
Prerequisite(s)/Corequisite(s): CIVE 341

CONE 8176 FORMWORK SYSTEMS (3 credits)
Design of structural timber, beams, columns, and connections. Introduction to applicable design philosophies and codes. Overview of materials design, masonry, aluminum, and contemporary materials such as plastics and fiber reinforced systems and composite material groups. Design considerations, cost and constructability analysis. (Cross-listed with CONE 4170)
Prerequisite(s)/Corequisite(s): CONE 4160; Pre/Co-req.: CIVE 441

CONE 8210 CONSTRUCTION RISK ASSESSMENT AND MANAGEMENT (3 credits)
The overall process of hazards risk management (risk identification, risk analysis, risk assessment, risk communication), risk based decision making and risk mitigation. Classification of building stock, defining vulnerability, risk assessment methods, assessing economic losses and cost benefit analysis. Case studies will be used to demonstrate the application of risk management principles/techniques in practice.
Prerequisite(s)/Corequisite(s): STAT 3800. Not open to non-degree graduate students.

CONE 8506 SUSTAINABLE CONSTRUCTION (3 credits)
Sustainable construction and its application to the green building industry. Topics include: the LEED certification process, sustainable building site management, efficient wastewater applications, optimizing energy performance, indoor environmental issues, performance measurement/verification, recycled content and certified renewable materials. (Cross-listed with CONE 4500)

CONE 8596 INTRODUCTION TO BUILDING INFORMATION MODELING (3 credits)
This course instructs CAD users on the effective use of Building Information Model (BIM) for integration of design, document and construction estimate. Topics include: model-based 3D design, file formats, interoperability, and MEP modeling. (Cross-listed with CONE 4590)
Prerequisite(s)/Corequisite(s): CNST 1120, or Graduate standing in AE, CIVE, CNST or CONE.

CONE 8666 HEAVY AND/OR CIVIL ESTIMATING (3 credits)
Estimating techniques and strategies for heavy and/or civil construction. Unit pricing, heavy and civil construction takeoffs and estimating, equipment analysis, overhead cost and allocations, estimating software and government contracts. (Cross-listed with CONE 4660).
Prerequisite(s)/Corequisite(s): CONE 3190 and CONE 3780 and CONE 4850

CONE 8816 HIGHWAY & BRIDGE CONSTRUCTION (3 credits)
The methods and equipment required in the construction of roads and bridges. Methods and equipment necessary for roads and bridges. Substructure and superstructures, precast and cast-in-place segments, and standard and specialized equipment. (Cross-listed with CONE 4810)
Prerequisite(s)/Corequisite(s): CONE 3190 or CNST 2410

CONE 8826 HEAVY AND/OR CIVIL CONSTRUCTION (3 credits)
History, theory, methods, and management principles of planning and executing heavy and/or civil projects. Emerging and new equipment capabilities. Economical use of equipment and management of costs associated with production. (Cross-listed with CNST 4820, CNST 8826, CONE 4820).
Prerequisite(s)/Corequisite(s): CNST 3790. Not open to non-degree graduate students.

CONE 8836 SUPPORT OF EXCAVATION (3 credits)
The design and placement of excavation supports according to OSHA requirements and industry standards. A variety of routine to moderately complex support systems. Open excavations, heet piling and cofferdams. Soil mechanics, lateral loads, hydrology, and pumping methods. (Cross-listed with CONE 4830)

CONE 8856 CONSTRUCTION PLANNING, SCHEDULING, AND CONTROLS (3 credits)
Planning and scheduling a project using the critical path methods (CPM) with computer applications. Project pre-planning, logic networks, precedence diagrams, time estimates, critical path, float time, crash programs, scheduling, short interval schedules, pull planning, and monitoring project activities. (Cross-listed with CNST 4850, CNST 8856, CONE 4850)
Prerequisite(s)/Corequisite(s): CNST 3780. Not open to non-degree graduate students.

CONE 8950 GRADUATE INTERNSHIP (3 credits)
Open only to Construction Management graduate students. Participation in a full-time summer internship with an approved Construction Engineering or Construction Management related entity. Includes weekly assignments and a final presentation that are designed to create interaction between the Construction entity and the intern, and associated with the business aspects of the entity. General topics include Business Plans, Marketing, Finance and Budgets, Contracts, Legal Issues and Professionalism. (Cross-listed with CNST 8950)
Prerequisite(s)/Corequisite(s): Permission. Not open to non-degree graduate students.

CONE 8990 SPECIAL TOPICS IN CONSTRUCTION ENGINEERING (1-6 credits)
Individual and small group investigation of special topics in construction engineering. A signed student-instructor learning contract is required. Topics vary.
Prerequisite(s)/Corequisite(s): Master of engineering in construction or related discipline and permission. Not open to non-degree graduate Students.

CONE 9990 DOCTORAL DISSERTATION (1-24 credits)
None provided
Prerequisite(s)/Corequisite(s): Admission to doctoral degree program and permission of supervisory committee chair. Not open to nondegree students.

CONE 960 PROFESSIONAL PRACTICE (0 credits)
CONE 0960 is required of CONE majors prior to graduation. The work experience must be pre-approved by the faculty adviser in the CONE department. Work experience in a construction related work area.
Prerequisite(s)/Corequisite(s): Senior standing

CONE 8166 WOOD/CONTEMPORARY MATERIALS DESIGN (3 credits)
Design of structural timber, beams, columns, and connections. Introduction to applicable design philosophies and codes. Overview of materials design. Masonry, aluminum, and contemporary materials such as plastics and fiber reinforced systems and composite material groups. Design considerations, cost and constructability analysis. (Cross-listed with CONE 4160)
Prerequisite(s)/Corequisite(s): CIVE 341
CONE 8176 FORMWORK SYSTEMS (3 credits)
Design of structural timber, beams, columns, and connections. Introduction to applicable design philosophies and codes. Overview of materials design, masonry, aluminum, and contemporary materials such as plastics and fiber reinforced systems and composite material groups. Design considerations, cost and constructability analysis. (Cross-listed with CONE 4170)
Prerequisite(s)/Corequisite(s): CONE 4160; Pre/Co-req.: CIVE 441

CONE 8210 CONSTRUCTION RISK ASSESSMENT AND MANAGEMENT (3 credits)
The overall process of hazards risk management (risk identification, risk analysis, risk assessment, risk communication), risk based decision making and risk mitigation. Classification of building stock, defining vulnerability, risk assessment methods, assessing economic losses and cost benefit analysis. Case studies will be used to demonstrate the application of risk management principles/techniques in practice.
Prerequisite(s)/Corequisite(s): STAT 3800. Not open to non-degree graduate students.

CONE 8506 SUSTAINABLE CONSTRUCTION (3 credits)
Sustainable construction and its application to the green building industry. Topics include: the LEED certification process, sustainable building site management, efficient wastewater applications, optimizing energy performance, indoor environmental issues, performance measurement/verification, recycled content and certified renewable materials. (Cross-listed with CONE 4500)

CONE 8596 INTRODUCTION TO BUILDING INFORMATION MODELING (3 credits)
This course instructs CAD users on the effective use of Building Information Model (BIM) for integration of design, document and construction estimate. Topics include: model-based 3D design, file formats, interoperability, and MEP modeling. (Cross-listed with CONE 4590)
Prerequisite(s)/Corequisite(s): CNST 1120, or Graduate standing in AE, CIVE, CNST or CONE.

CONE 8666 HEAVY AND/OR CIVIL ESTIMATING (3 credits)
Estimating techniques and strategies for heavy and/or civil construction. Unit pricing, heavy and civil construction takeoffs and estimating, equipment analysis, overhead cost and allocations, estimating software and government contracts. (Cross-listed with CONE 4660).
Prerequisite(s)/Corequisite(s): CONE 3190 and CONE 3780 and CONE 4850

CONE 8816 HIGHWAY & BRIDGE CONSTRUCTION (3 credits)
The methods and equipment required in the construction of roads and bridges. Methods and equipment necessary for roads and bridges. Substructure and superstructures, precast and cast-in-place segments, and standard and specialized equipment. (Cross-listed with CONE 4810)
Prerequisite(s)/Corequisite(s): CONE 3190 or CNST 2410

CONE 8826 HEAVY AND/OR CIVIL CONSTRUCTION (3 credits)
History, theory, methods, and management principles of planning and executing heavy and/or civil projects. Emerging and new equipment capabilities. Economical use of equipment and management of costs associated with production. (Cross-listed with CNST 4820, CNST 8826, CONE 4820).
Prerequisite(s)/Corequisite(s): CNST 3790. Not open to non-degree graduate students.

CONE 8836 SUPPORT OF EXCAVATION (3 credits)
The design and placement of excavation supports according to OSHA requirements and industry standards. A variety of routine to moderately complex support systems. Open excavations, heet piling and cofferdams. Soil mechanics, lateral loads, hydrology, and pumping methods. (Cross-listed with CONE 4830)

CONE 8856 CONSTRUCTION PLANNING, SCHEDULING, AND CONTROLS (3 credits)
Planning and scheduling a project using the critical path methods (CPM) with computer applications. Project pre-planning, logic networks, precedence diagrams, time estimates, critical path, float time, crash programs, scheduling, short interval schedules, pull planning, and monitoring project activities. (Cross-listed with CNST 4850, CNST 8856, CONE 4850)
Prerequisite(s)/Corequisite(s): CONE 3780. Not open to non-degree graduate students.

CONE 8950 GRADUATE INTERNSHIP (3 credits)
Open only to Construction Management graduate students. Participation in a full-time summer internship with an approved Construction Engineering or Construction Management related entity. Includes weekly assignments and a final presentation that are designed to create interaction between the Construction entity and the intern, and associated with the business aspects of the entity. General topics include Business Plans, Marketing, Finance and Budgets, Contracts, Legal Issues and Professionalism. (Cross-listed with CNST 8950)
Prerequisite(s)/Corequisite(s): Permission. Not open to non-degree graduate students.

CONE 8980 SPECIAL TOPICS IN CONSTRUCTION ENGINEERING (1-6 credits)
Individual and small group investigation of special topics in construction engineering. A signed student-instructor learning contact is required. Topics vary.
Prerequisite(s)/Corequisite(s): Master of engineering in construction or related discipline and permission. Not open to non-degree Graduate Students.

CONE 8990 DOCTORAL DISSERTATION (1-24 credits)
None provided
Prerequisite(s)/Corequisite(s): Admission to doctoral degree program and permission of supervisory committee chair. Not open to nondegree students.