

# Construction Science (CONS)

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## Courses

**CONS 3301 Construction Estimating: 3 semester hours.**

Classification of work and quantity survey techniques. Basic estimating applied to simple construction projects. Creation of bills of materials and quantity take-offs.

**CONS 3353 Managing Construction Operations: 3 semester hours.**

Managing construction operations from concepts of project selection, estimating, bidding, scheduling, subcontracting practices, cost tracking, project documentation, construction bonds, insurance, payments and the elements of close out. Special emphasis on the development of professional communication skills through student prepared multi-media presentations.

**CONS 3363 Surveying and Soils: 3 semester hours.**

Principles of surveying; use of surveying instruments, topographical surveys and traverses; field practice and computations. Basic considerations of site management and soils considerations for construction projects.

Prerequisites: MATH 2318 or MATH 2183.

**CONS 4341 Residential Construction: 3 semester hours.**

Residential construction processes, scheduling, subcontracting, financing, estimating, project control and current trends in site selection, design and energy efficiency.

**CONS 4342 Commercial Construction: 3 semester hours.**

Focus on the project management of commercial construction projects ranging from high rise office buildings to small tilt-wall and pre-engineered buildings; topics include project acquisitions, mobilization, management, and close out.

**CONS 4344 Highway/Heavy Construction: 3 semester hours.**

Focus on the various aspects of highway/heavy construction; topics include earthmoving and paving equipment and utilization principles, pavement design and placement methods, unit price bidding methods, and a project case study.

**CONS 4345 Facilities Management: 3 semester hours.**

Focus on the various aspects of facilities management; includes budgeting for operations and management, energy management, change management, design-build changes, in house versus outsource maintenance, and contracting options.

**CONS 4346 Construction Internship: 3 semester hours.**

Approved internship in the construction industry.

**CONS 4355 Construction Delivery Systems: 3 semester hours.**

Methods and management techniques utilized in the building process.

**CONS 4360 Construction Labor and Safety: 3 semester hours.**

Constitutional and legal basis of labor relations in the construction industry; craft and trade unions; dual and merit shop operations; contractor-union agreements; safety on the job site; OSHA and related regulations.

**CONS 4363 Construction Law and Ethics: 3 semester hours.**

Delineation of contracts used in the construction industry; emphasis on understanding the functions and interrelationships of documents; review of law applied to the industry; application of the contract, and law to case studies; introduction to resources and analytical process used by construction professionals; ethics in the construction industry.

**CONS 4374 Building Information Modeling: 3 semester hours.**

Introduction to the fundamentals of Building Information Modeling and how they apply to the design and construction industry and a technology enabled workforce. Introduction to the methods of creation, evaluation and exchange of Building Information Models. Leveraging BIM and 4D modelling for construction optimization and sustainable building initiatives.

Prerequisites: ARCH 2223.

**CONS 4375 Scheduling and Mobilization: 3 semester hours.**

Project scheduling procedures to include computer applications and resource leveling; project types, office and field planning required to initiate the work; equipment and construction methods selection processes and an examination of contractual mandates specified.

**CONS 4377 Construction Project Controls: 3 semester hours.**

Introduction of students to construction related financial documents; includes schedule of values, labor and operations cost reports, and construction budgets, trace construction dollar flow from time sheet to balance sheet.

**CONS 4395 Mediation: 3 semester hours.**

Construction conflict resolution with focus on negotiation, mediation, arbitration alternatives to litigation will be addressed. The processes and skill sets professionals must possess to effectively engage in alternative dispute resolution strategies will be covered through lectures, writing assignments, readings and role playing.

***CONS 4397 Special Topics: 3 semester hours.***

The study of specialized fields of construction science as they relate to contemporary issues. Topics vary by semester. Course may be repeated for credit when topic varies.

***CONS 4399 Independent Study: 1-3 semester hour.***

Individual reading, research and/or field work in selected topics.