DEPARTMENT OF CONSTRUCTION SCIENCE

The Department of Construction Science offers a Bachelor of Science degree in Construction Science and Management.

Admission to the Major in Construction Science and Management

Available openings within the Construction Science and Management (CSM) program are limited and, therefore, entry is competitive. Top-performing students from high school will be admitted directly into the major. Successful applicants entering the University from high school and transfer students that meet the department requirements will be admitted into Academic Studies (XACP) in the University College. Students in Academic Studies will be reviewed before registration each academic semester and students will be accepted to the Construction Science and Management major (CSM) based on their grade point average (GPA) and number of available seats.

Direct Admission Criteria

Applicants entering UTSA as Freshmen will be directly admitted to the Construction Science and Management (CSM) major if they:

- meet all UTSA undergraduate admission requirements, and
- are ranked in the top 10 percent of their high school class (no minimum SAT or ACT scores required), or
- are ranked in the top 25 percent of their high school class and have a minimum 1170 SAT* or 24 ACT score, or
- are ranked in the top 50 percent of their high school class and have a minimum 1220 SAT* or 25 ACT score.

* New SAT scores combine Evidence-Based Reading and Writing and Math.

Transfer students with less than 12 transferable semester credit hours will be directly admitted to the Construction Science and Management (CSM) major if they:

- meet all UTSA undergraduate admission requirements, and
- have a minimum transfer grade point average (GPA) of 3.0.

Transfer students with 12 or more transferable semester credit hours will be directly admitted to the Construction Science and Management (CSM) major if they:

- meet all UTSA undergraduate transfer admission requirements, and
- have a minimum transfer GPA of 3.1.

Freshmen and Transfer students who do not meet the above requirements, but meet UTSA's general admission requirements will be admitted to “Architecture, Construction and Planning Studies” in University College where students will be able to work towards meeting the prerequisites needed to declare Construction Science and Management as their major. Students in Architecture, Construction and Planning Studies will be reviewed before registration each academic semester and students will be accepted to the Construction Science and Management major (CSM) based on their grade point average (GPA) and number of available seats.

Students currently enrolled in UTSA who wish to change their major may apply to the Construction Science and Management major by submitting the “Change of Major Form” and “Unofficial Transcript” to the Construction Science Department located in the Monterey Building. Current UTSA students interested in Construction Science and Management are first considered by the Department for Academic Studies (XACP) admission and then considered for possible admission into the CSM program. Change of major applications will be reviewed before registration each academic semester. Students will be accepted to the major based on their GPA and number of available seats.

Students not accepted into the CSM program are encouraged to improve their GPA and re-submit the application.

Laptop Program

Students must have a laptop (notebook) computer upon entering the program. The computer should be upgrade-able in order to be of productive use for the duration of the academic program.

Student Work

The Department of Construction Science reserves the right to retain, exhibit, and reproduce work submitted by students. Work submitted for grading is the property of the College of Architecture, Construction and Planning and remains such until it is returned to the student.

Bachelor of Science Degree in Construction Science and Management

The Construction Science and Management degree combines courses in construction science, design and business to educate managers for the construction industry. The minimum number of semester credit hours required for the degree, including Core Curriculum requirements, is 120, at least 39 of which need to be at the upper-division level. Students obtaining a Bachelor of Science (B.S.) degree in Construction Science and Management pursue management careers in a wide variety of occupations throughout the construction industry. The degree also provides students with the opportunity to continue with their studies in a graduate program.

The curriculum prepares students to manage the construction process on the job site and effectively interact with architects, engineers, owners and other professionals who compose the team required by the complexities of modern construction projects. Project owners recognize the need for timely project delivery, indoor/outdoor environmental quality, and short-term and life-cycle costing. Therefore, the curriculum emphasizes environmentally sustainable building practice, project and cost controls, communication skills, understanding the technical aspects of construction and the construction process, and the application of information technology to the construction industry. In addition to the formal academic curriculum, students are required to complete a construction management internship in the building industry between their junior and senior years. The program maintains a close partnership with the construction industry to provide graduates with various opportunities.

All candidates seeking this degree must fulfill the Core Curriculum requirements and the degree requirements

Core Curriculum Requirements (42 semester credit hours)

Students seeking the B.S. degree in Construction Science and Management must fulfill University Core Curriculum requirements in the same manner as other students. The courses listed below satisfy
both degree requirements and Core Curriculum requirements; however, if these courses are taken to satisfy both requirements, then students may need to take additional courses in order to meet the minimum number of semester credit hours required for this degree.

MAT 1043 or MAT 1053 may be used to satisfy the core requirement in Mathematics.

ES 2023 and GEO 1013 should be used to satisfy the core requirement in Life and Physical Sciences.

ECO 2023 should be used to satisfy the core requirement in Social and Behavioral Sciences.

COM 2113 should be used to satisfy the Component Area Option requirement.

Core Curriculum Component Area Requirements (http://catalog.utsa.edu/undergraduate/bachelorsdegreeregulations/degreerequirements/corecurriculumcomponentarequirements/)

First Year Experience Requirement 3
Communication 6
Mathematics 3
Life and Physical Sciences 6
Language, Philosophy and Culture 3
Creative Arts 3
American History 6
Government-Political Science 6
Social and Behavioral Sciences 3
Component Area Option 3
Total Credit Hours 42

Degree Requirements

A. Construction Science and Management Program sequence. Must be completed with a grade of "C-" or better in each course.

1. Required courses in design, construction science, and project management:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSM 2113</td>
<td>Construction Materials and Methods</td>
<td>3</td>
</tr>
<tr>
<td>CSM 2143</td>
<td>Construction Materials and Testing</td>
<td>3</td>
</tr>
<tr>
<td>CSM 3113</td>
<td>Construction Surveying</td>
<td>3</td>
</tr>
<tr>
<td>CSM 3123</td>
<td>Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>CSM 3143</td>
<td>Structures I</td>
<td>3</td>
</tr>
<tr>
<td>CSM 4013</td>
<td>Construction Estimating I</td>
<td>3</td>
</tr>
<tr>
<td>CSM 4023</td>
<td>Construction Estimating II</td>
<td>3</td>
</tr>
<tr>
<td>CSM 4143</td>
<td>Structures II</td>
<td>3</td>
</tr>
<tr>
<td>CSM 4513</td>
<td>Project Management</td>
<td>3</td>
</tr>
<tr>
<td>CSM 4523</td>
<td>Project Planning and Scheduling</td>
<td>3</td>
</tr>
<tr>
<td>CSM 4533</td>
<td>Building Information Modeling for Construction Management</td>
<td>3</td>
</tr>
<tr>
<td>CSM 4613</td>
<td>Sustainable Building Practice</td>
<td>3</td>
</tr>
<tr>
<td>CSM 4623</td>
<td>Construction Safety</td>
<td>3</td>
</tr>
<tr>
<td>CSM 4633</td>
<td>Construction Law</td>
<td>3</td>
</tr>
<tr>
<td>CSM 4643</td>
<td>Mechanical, Electrical and Plumbing Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSM 4713</td>
<td>Construction Capstone</td>
<td>3</td>
</tr>
<tr>
<td>CSM 4933</td>
<td>Summer Internship</td>
<td>3</td>
</tr>
</tbody>
</table>

2. Required business and related courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 2013</td>
<td>Principles of Accounting I</td>
<td>3</td>
</tr>
</tbody>
</table>

B. Two prescribed or preapproved electives selected from the following list, with a grade of "C-" or better in each course:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSM 4913</td>
<td>Independent Study</td>
<td>3</td>
</tr>
<tr>
<td>CSM 4953</td>
<td>Special Studies in Construction Science and Management</td>
<td>3</td>
</tr>
<tr>
<td>FIN 3013</td>
<td>Principles of Business Finance</td>
<td>3</td>
</tr>
<tr>
<td>GEO 3343</td>
<td>Introduction to Geospatial Technologies</td>
<td>3</td>
</tr>
<tr>
<td>MGT 3003</td>
<td>Business Communication and Professional Development</td>
<td>3</td>
</tr>
<tr>
<td>MGT 3253</td>
<td>Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>MGT 4893</td>
<td>Management Strategy</td>
<td>3</td>
</tr>
<tr>
<td>MKT 3013</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MS 3043</td>
<td>Business Statistics with Computer Applications II</td>
<td>3</td>
</tr>
<tr>
<td>MS 3053</td>
<td>Management Science and Operations Technology</td>
<td>3</td>
</tr>
<tr>
<td>MS 3073</td>
<td>Business Intelligence and Analytics</td>
<td>3</td>
</tr>
<tr>
<td>MS 3403</td>
<td>Logistics Management</td>
<td>3</td>
</tr>
<tr>
<td>MSC 2012</td>
<td>Leadership and Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>PAD 3143</td>
<td>Urban and Regional Planning</td>
<td>3</td>
</tr>
<tr>
<td>SPN 2023</td>
<td>Intermediate Spanish II</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 78

B.S. in Construction Science and Management – Recommended Four-Year Academic Plan

Students are strongly encouraged to complete WRC 1013, WRC 1023, MAT 1043 or MAT 1053, and PHY 1603 in their first year.

First Year

First Semester (Fall or Spring)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIS 1203</td>
<td>Academic Inquiry and Scholarship (core)</td>
<td>3</td>
</tr>
<tr>
<td>MAT 1043 or MAT 1053</td>
<td>Introduction to Mathematics (core) or Mathematics for Business</td>
<td>3</td>
</tr>
<tr>
<td>WRC 1013</td>
<td>Freshman Composition I (core)</td>
<td>3</td>
</tr>
<tr>
<td>American History core</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Language, Philosophy and Culture core</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 15

Spring

Second Semester (Fall or Spring)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES 2023 or GEO 1013</td>
<td>Introduction to Environmental Science II (core) or The Third Planet</td>
<td>3</td>
</tr>
<tr>
<td>PHY 1603</td>
<td>Algebra-based Physics I</td>
<td>3</td>
</tr>
<tr>
<td>WRC 1023</td>
<td>Freshman Composition II (core)</td>
<td>3</td>
</tr>
</tbody>
</table>
American History core 3
Creative Arts core 3
Credit Hours 15

Second Year

Fall

Third Semester (Fall or Spring)

CSM 2113 Construction Materials and Methods 3
CSM 3123 Technical Communication 3
COM 2113 Public Speaking 3
GEO 1013 or ES 2023 Introduction to Environmental Science II 3
MGT 3013 Introduction to Organization Theory, Behavior, and Management 3
Credit Hours 15

Spring

Fourth Semester (Fall or Spring)

CSM 2143 Construction Materials and Testing 3
CSM 4513 Project Management 3
CSM 4533 Building Information Modeling for Construction Management 3
CSM 4623 Construction Safety 3
STA 1053 Basic Statistics 3
Credit Hours 15

Summer

CSM 3113 Construction Surveying 3
Credit Hours 3

Third Year

Fall

Fifth Semester (Fall or Spring)

ACC 2013 Principles of Accounting I 3
CSM 3143 Structures I 3
CSM 4013 Construction Estimating I 3
CSM 4643 Mechanical, Electrical and Plumbing Systems 3
ECO 2003 or ECO 2023 Economic Principles and Issues (core) or Introductory Microeconomics 3
Credit Hours 15

Spring

Sixth Semester (Fall or Spring)

CSM 4023 Construction Estimating II 3
CSM 4143 Structures II 3
CSM 4523 Project Planning and Scheduling 3
CSM 4633 Construction Law 3
FIN 3003 Survey of Finance 3
Credit Hours 15

Summer

CSM 4933 Summer Internship 3
Credit Hours 3

Fourth Year

Fall

Seventh Semester (Fall or Spring)

CSM 4613 Sustainable Building Practice 3
GBA 2013 Legal, Social and Ethical Issues in Business 3
POL 1013 Introduction to American Politics (core) 3
Prescribed Elective 3
Credit Hours 15

Spring

Eighth Semester (Fall or Spring)

BLW 3013 Business Law 3
CSC 4713 Construction Capstone 3
POL 1133 or POL 1213 Texas Politics and Society (core) or Civil Rights in Texas and America 3
Prescribed Elective 3
Credit Hours 15
Total Credit Hours 120

1. Students are strongly encouraged to complete MAT 1043 or MAT 1053 and PHY 1603 in their first year.
2. Students are strongly encouraged to complete CSM 2113, CSM 3123, CSM 4513, and CSM 4533 in their second year.

Construction Science and Management (CSM) Courses

CSM 2113. Construction Materials and Methods (3-0) 3 Credit Hours. Prerequisite: Enrollment as an Architecture, Interior Design, or Construction Science and Management major or permission of instructor. Introduction to materials, methods, equipment and sequences of the construction process including structural elements, components, and assemblies. Course Fees: SAP1 $25; STSA $15.

CSM 2143. Construction Materials and Testing. (3-0) 3 Credit Hours. Prerequisites: CSM 2113, PHY 1603, and enrollment as a Construction Science and Management major or permission of instructor. Analysis of materials and methods used in the design and construction process with a particular emphasis on quality control, quality assurance, and testing including soils, concrete, steel, masonry, and wood. Course Fees: SAP1 $25; STSA $15.

CSM 3113. Construction Surveying. (3-0) 3 Credit Hours. Prerequisite: Enrollment as a Construction Science and Management major or permission of instructor. Practical applications of surveying, including distance, grade and angular measurements, surveying equipment and its application to construction layout and control, surveying documentation and fieldwork. (Formerly CSM 3111. Credit cannot be earned for both CSM 3113 and CSM 3111.) Course Fees: SAP1 $25; STSA $15.

CSM 3123. Technical Communication. (3-0) 3 Credit Hours. Prerequisites: MAT 1043 or MAT 1053 and enrollment as a Construction Science and Management major or permission of instructor. Visualization, interpretation and communication of graphical geometry in construction design and engineering; graphical analysis of problems; plan reading; computer aided design, and fundamentals of information modeling software; introduction to common quantitative tools in construction. Course Fees: SAP1 $25; STSA $15.
CSM 3143. Structures I. (3-0) 3 Credit Hours.
Prerequisites: PHY 1603 and enrollment as a Construction Science and Management major or permission of instructor. Introduction to the physical principles that govern classical statics and strengths of materials through the design of concrete, timber, and steel components of structures. Course Fees: SAP1 $25; STSA $15.

CSM 4013. Construction Estimating I. (3-0) 3 Credit Hours.
Prerequisites: CSM 2113 and CSM 3123. Introduction to estimating procedures for buildings related to quantity surveying, cost of materials and labor, life-cycle costs, and applicable software. (Formerly ARC 4013. Credit cannot be earned for both CSM 4013 and ARC 4013.) Generally offered: Spring. Course Fees: SAP1 $25; STSA $15.

CSM 4023. Construction Estimating II. (3-0) 3 Credit Hours.
Prerequisites: CSM 2143 and CSM 4013. Continuation of CSM 4013 with emphasis on pricing work, subcontracting, and bidding strategies utilizing applicable software. (Formerly ARC 4023. Credit cannot be earned for both CSM 4023 and ARC 4023.) Generally offered: Fall, Spring. Course Fees: SAP1 $25; STSA $15.

CSM 4143. Structures II. (3-0) 3 Credit Hours.
Prerequisite: CSM 3143. Analysis and design of structural members in steel, reinforced concrete, reinforced masonry and their relationship to design and construction. Course Fees: SAP1 $25; STSA $15.

CSM 4513. Project Management. (3-0) 3 Credit Hours.
Prerequisite: CSM 3123. Introduction to project management of the construction process and integration with allied professions. Introduction to applicable software. (Formerly ARC 4613. Credit cannot be earned for both CSM 4513 and ARC 4613.) Generally offered: Fall, Spring. Course Fees: SAP1 $25; STSA $15.

CSM 4523. Project Planning and Scheduling. (3-0) 3 Credit Hours.
Prerequisite: CSM 4513. Continuation of CSM 4513 with emphasis on scheduling and project delivery methods utilizing applicable software. (Formerly ARC 4623. Credit cannot be earned for both CSM 4523 and ARC 4623.) (Formerly titled “Construction Management II.”) Generally offered: Fall, Spring. Course Fees: SAP1 $25; STSA $15.

CSM 4533. Building Information Modeling for Construction Management. (3-0) 3 Credit Hours.

CSM 4613. Sustainable Building Practice. (3-0) 3 Credit Hours.
Prerequisite: Enrollment as a Construction Science and Management major or permission of instructor. Ethics and application of environmental sustainability practice in building construction. Introduction to U.S. Green Building Council LEED program standards, methods, and procedures as applied to construction documents interpretation and construction. Generally offered: Fall, Spring. Course Fees: SAP1 $25; STSA $15.

CSM 4623. Construction Safety. (3-0) 3 Credit Hours.
Prerequisite: Enrollment as a Construction Science and Management major or permission of instructor. Development and management of safety programs, worker's compensation, OSHA compliance, safety policies, standards, and record keeping. Course Fees: SAP1 $25; STSA $15.

CSM 4633. Construction Law. (3-0) 3 Credit Hours.
Prerequisite: Enrollment as a Construction Science and Management major or permission of instructor. Legal and ethical aspects of construction contracts, bonds, insurance, and bidding. Owner, architect, contractor, and subcontractor relationships. Generally offered: Fall, Spring. Course Fees: SAP1 $25; STSA $15.

CSM 4643. Mechanical, Electrical and Plumbing Systems. (3-0) 3 Credit Hours.
Prerequisites: CSM 4533 or permission of instructor. Building systems with an emphasis on design, installation and control of heating, ventilation and cooling, plumbing and drainage, electrical, fire and lightning protection systems. Generally offered: Fall. Course Fees: DL01 $75; SAP1 $25; STSA $15.

CSM 4713. Construction Capstone. (3-0) 3 Credit Hours.
Prerequisites: CSM 4623, CSM 4523, CSM 4633, and CSM 4643. Senior capstone project emphasizing integration of the design and construction processes. Project delivery systems, project development, estimating, scheduling and project controls of various types of construction projects. Generally offered: Fall, Spring, Summer. Course Fees: DL01 $75; SAP1 $25; STSA $15.

CSM 4911. Independent Study. (0-0) 1 Credit Hour.
Prerequisites: Permission in writing (form available) of the instructor, the student's advisor, the Department Chair, and the Dean of the College in which the course is offered. Scholarly research under the direction of a faculty member. May be repeated for credit, but not more than 6 semester credit hours of independent study, regardless of discipline, may apply to a bachelor's degree. Generally offered: Fall. Course Fees: SAP1 $25; STSA $5.

CSM 4913. Independent Study. (0-0) 3 Credit Hours.
Prerequisites: Permission in writing (form available) of the instructor, the student's advisor, the Department Chair, and the Dean of the College in which the course is offered. Scholarly research under the direction of a faculty member. May be repeated for credit, but not more than 6 semester credit hours of independent study, regardless of discipline, may apply to a bachelor's degree. Course Fees: SAP1 $25; STSA $5.

CSM 4931. Summer Internship. (0-0) 1 Credit Hour.
Prerequisite: CSM 4623. This is a full-time, on-site, construction work experience. Supervision by qualified construction manager and intern mentor to prepare the intern for building construction management functions. Instructor prior approval of details for individual work experience required. Must be repeated for credit and taken in consecutive five-week summer sessions. Generally offered: Summer. Course Fees: SAP1 $25; STSA $5.

CSM 4932. Internship. (0-0) 2 Credit Hours.
Prerequisite: CSM 4623. This is a part-time, on-site, construction work experience. Supervision by qualified construction manager and intern mentor to prepare the intern for building construction management functions. Instructor prior approval of details for individual work experience required. Generally offered: Fall, Spring. Course Fees: SAP1 $25; STSA $10.

CSM 4933. Summer Internship. (0-0) 3 Credit Hours.
Prerequisite: CSM 4623. This is a full-time, on-site, construction work experience during summer semester. Supervision by qualified construction manager and intern mentor to prepare the intern for building construction management functions. Instructor prior approval of details for individual work experience required. Course Fees: SAP1 $25; STSA $15.
CSM 4943. Internship I. (0-0) 3 Credit Hours.
Prerequisite: CSM 4623. This is a part-time, on-site, construction work experience during fall or spring semesters. Supervision by qualified construction manager and intern mentor to prepare the intern for building construction management functions. Instructor prior approval of details for individual work experience required. Course Fees: SAP1 $25; STSA $15.

CSM 4946. Internship II. (0-0) 6 Credit Hours.
Prerequisite: CSM 4623. This is a full-time, on-site, construction work experience during fall or spring semesters. Supervision by qualified construction manager and intern mentor to prepare the intern for building construction management functions. Instructor prior approval of details for individual work experience required. Course Fees: SAP1 $25; STSA $30.

CSM 4953. Special Studies in Construction Science and Management. (0-6) 3 Credit Hours.
Prerequisite: Consent of instructor. An organized course offering the opportunity for specialized study not normally or not often available as part of the regular course offerings. Special Studies may be repeated for credit when the topics vary, but not more than 3 hours for CSM 4951, 6 hours for CSM 4953, or 12 hours for CSM 4956, regardless of discipline, will apply to a bachelor's degree. Course Fees: SAP1 $25; STSA $15.