

Department of

# Design and Construction Management



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## Department of Design and Construction Management

The Architecture and Construction Industry encompasses a wide range of career options. There are many excellent employment opportunities within this dynamic and growing industry. The educational programs offered by this department are designed to prepare students to fulfill challenging employment opportunities within the industry.

The department offers two degree programs; an Applied Associates of Science Degree in Architectural Technology (345) and an Integrated Bachelor of Science Degree in Construction Management (605). Both degrees offer a range of options that will allow students to customize their course of study to fulfill future employment ambitions. Both degrees also require a high level of academic and technical abilities, and students should have developed good math, science, art, and manual skills prior to enrollment in the program.

## Department Learning Outcomes

The outcomes state what the students will be able to do as a result of their participation in the program. Graduates of the Architecture and Construction Management will:

1. Be able to perform professional responsibilities independently, as a team member, and as part of a multi-disciplinary team.
2. Be able to apply sound communication, business, financial and ethical principles in the management of people and/or resources in the design and construction environment.
3. Understand architecture/construction processes, sciences, technology, materials and methods, and system assemblies and requirements.
4. Continue to grow intellectually and keep informed of new concepts and developments in architecture and/or construction.
5. Be prepared to make an immediate contribution to their chosen professions in a positive and meaningful way.

## Graduation Requirements

To receive either an AAS in Architectural Technology or a BS in Construction Management, a student will need to complete the prescribed course of study with a minimum GPA of 2.25 or higher. No grade less than a C- will be accepted for any major course requirement. Students wishing to complete a BS in Construction Management are required to complete at least two semester long full time internships. The internships are to be completed during the students "off track". Students who complete an AAS in Architectural Technology are required to complete a single internship.

## General Interest Courses

The department also offers woodworking classes of general interest open to the student body.

**Design and Construction Management**  
Brigham Young University-Idaho 2015-2016

| <b>AAS in Architectural Technology (345)</b> |           |                                   |   |
|--|-----------|-----------------------------------|---|
| <b>Core Courses</b>                          |           | <i>cont. from previous column</i> | <i>Program Notes:</i>   |
| <i>Take these courses:</i>                   |           | ARCH 285 3                        | <ul style="list-style-type: none"> <li>•No Double Counting of Major Courses</li> <li>•No Grade Less Than C- in Major Courses</li> </ul> |
| ARCH 100 1                                   |           | ARCH 290 3                        |   |
| ARCH 120 3                                   |           | ARCH 300 3                        |   |
| ARCH 180 3                                   |           | CONST 120 3                       |   |
| ARCH 190 3                                   |           | CONST 150 2                       |   |
| ARCH 201 3                                   |           | CONST 235 4                       |   |
| ARCH 220 3                                   |           | CONST 260 3                       |   |
| ARCH 270 3                                   |           | CONST 298 1                       |   |
| <i>cont. in next column</i>                  |           | ID 251 3                          |   |
|  |           | <u>44</u>                         |   |
| <b>Credit Requirements:</b>                  |           | <b>Tracks Available:</b>          |   |
| Foundations                                  | 17        | Fall-Winter                       | Yes   |
| Major  | <u>44</u> | Winter-Spring                     | Yes   |
| Total  | 61        | Spring-Fall                       | Yes   |

| <b>BS in Construction Management (605)</b>               |           |                                   |   |
|--|-----------|-----------------------------------|---|
| <b>Construction Management Core</b>                      |           | <i>cont. from previous column</i> | <i>Program Notes:</i>   |
| <i>Take these courses during your first 2 semesters:</i> |           | CONST 430 3                       | <ul style="list-style-type: none"> <li>•No Double Counting of Major Courses</li> <li>•No Grade Less Than C- in Major Courses</li> </ul> |
| ARCH 100 1   |           | CONST 470 3                       |   |
| CONST 120 3  |           | CONST 498 1                       |   |
| CONST 150 2  |           | CONST 499 3                       |   |
| <u>6</u>   |           | <u>44</u>                         |   |
| <i>Take these courses:</i>                               |           | <b>Technical Elective Courses</b> |   |
| ARCH 190 3   |           | <i>Take 6 credits:</i>            |   |
| ARCH 270 3   |           | ARCH 120 3                        |   |
| CONST 235 4  |           | ARCH 180 3                        |   |
| CONST 260 3  |           | ARCH 201 3                        |   |
| CONST 298 1  |           | ARCH 220 3                        |   |
| CONST 320 2  |           | ARCH 201 3                        |   |
| CONST 330 3  |           | ARCH 220 3                        |   |
| CONST 350 3  |           | ARCH 220 3                        |   |
| CONST 370 3  |           | ARCH 285 3                        |   |
| CONST 380 3  |           | ARCH 290 3                        |   |
| CONST 400 3  |           | ARCH 300 3                        |   |
| CONST 420 3  |           | CONST 210 3                       |   |
| <i>cont. in next column</i>                              |           | CONST 250 3                       |   |
|  |           | CONST 300 3                       |   |
|  |           | CONST 340 3                       |   |
|  |           | ID 251 3                          |   |
|  |           | <u>6</u>                          |   |
| <b>Credit Requirements:</b>                              |           | <b>Tracks Available:</b>          |   |
| Foundations  | 40        | Fall-Winter                       | Yes   |
| Major  | <u>80</u> | Winter-Spring                     | Yes   |
| Total  | 120       | Spring-Fall                       | Yes   |

| <b>Construction Management Concentration (D 134)</b> |    |  |   |
|--|----|--|---|
| Non Majors Only                                      |    |  |   |
| <b>Core Courses</b>                                  |    | <b>Construction Technology Electives</b> | <i>Program Notes:</i>   |
| <i>Take these courses:</i>                           |    | <i>Take 3 courses:</i>                   | <ul style="list-style-type: none"> <li>•No Double Counting of Concentration Courses</li> <li>•No Grade Less Than C- in Concentration Courses</li> </ul> |
| ARCH 100 1   |    | ARCH 190 3                               |   |
| ARCH 120 3   |    | CONST 210 3                              |   |
| CONST 120 3  |    | CONST 250 3                              |   |
| CONST 150 2  |    | CONST 300 3                              |   |
| CONST 235 4  |    | CONST 340 3                              |   |
| CONST 260 3  |    | CONST 350 3                              |   |
| CONST 320 2  |    | CONST 370 3                              |   |
| CONST 330 3  |    | CONST 400 3                              |   |
| CONST 380 3  |    | CONST 420 3                              |   |
| <u>24</u>  |    | CONST 430 3                              |   |
|  |    | <u>9</u>                                 |   |
| <b>Credit Requirements:</b>                          |    | <b>Tracks Available:</b>                 |   |
| Total  | 36 | Fall-Winter                              | Yes   |
|  |    | Winter-Spring                            | Yes   |
|  |    | Spring-Fall                              | Yes   |

**Design and Construction Management**  
Brigham Young University-Idaho 2015-2016

**Architecture Concentration (D 139)**

Non Majors Only

|   |  |  |  |
|---|--|--|--|
| <b>Core Courses</b><br><i>Take these courses:</i><br>ARCH 100      1<br>ARCH 120      3<br>ARCH 180      3<br>ARCH 190      3<br>ARCH 201      3<br>ARCH 220      3<br>ARCH 290      3<br>CONST 120      3<br>CONST 150      2<br>ID 251          3<br><hr/> 27 | <b>Construction Technology Electives</b><br><i>Take 6 credits:</i><br>ARCH 270          3<br>ARCH 285          3<br>ARCH 300          3<br>CONST 235          4<br><hr/> 6 | <b>Interdisciplinary Courses</b><br><i>Take these courses:</i><br>IDS 398R          1-3<br>IDS 499              2<br><hr/> 3 | <b>Program Notes:</b><br>• No Double Counting of Concentration Courses<br><br>• No Grade Less Than C- in Concentration Courses |
| <b>Credit Requirements:</b><br><br>Total                      36  |  | <b>Tracks Available:</b><br><br>Fall-Winter              Yes<br>Winter-Spring          Yes<br>Spring-Fall                Yes |  |

**Architecture and Construction Pre-approved Clusters**

No Double Counting of Major, Minor or Cluster Courses

|   |  |
|---|--|
| <p><b>Heavy Civil Industrial Construction</b>                      6001<br/>(For Construction Management Majors Only)<br/><i>Take these courses:</i><br/>                 CONST 250    Steel Structural Systems                      3<br/>                 CONST 340    Land Surveying                                      3<br/> <i>Take 6 credits:</i><br/>                 ARCH 120    Computer Aided Design I                      3<br/>                 ARCH 290    Building Information Modeling II              3<br/>                 ARCH 300    Sustainable Design/Construction              3<br/>                 CONST 210    Finishing Systems                                  3<br/>                 WELD 101    Welding Fundamentals                              3<br/> <hr/> <b>Total Credits</b>                                      12</p> <p><b>Residential/Commercial Construction</b>                6003<br/>(For Construction Management Majors Only)<br/><i>Take these courses:</i><br/>                 ARCH 120    Computer Aided Design I                      3<br/>                 CONST 210    Finishing Systems                                  3<br/> <i>Take 2 courses:</i><br/>                 ARCH 220    Computer Aided Design II                      3<br/>                 ARCH 290    Building Information Modeling II              3<br/>                 ARCH 300    Sustainable Design/Construction              3<br/>                 CONST 250    Steel Structural Systems                      3<br/>                 CONST 300    Cabinetmaking                                      3<br/>                 CONST 340    Land Surveying                                      3<br/>                 ID 251        Kitchen and Bath Design                        3<br/>                 WELD 101    Welding Fundamentals                              3<br/> <hr/> <b>Total Credits</b>                                      12</p> <p><b>Construction/Business Management</b>                    6010<br/>(For Construction Management Majors Only)<br/><i>Take 1 course:</i><br/>                 ACCTG 180    Survey of Accounting                              3<br/>                 ACCTG 201    Financial Accounting                              3<br/> <i>Enrichment - Take 3 courses:</i><br/>                 B 101 or     Introduction to Business                      3<br/>                 B 211        Business Fundamentals                              3<br/>                 B 225        Fundamentals of Real Estate                      3<br/>                 B 283        Small Business Creation                        3<br/>                 B 301        Financial Management                            3<br/>                 B 321 or     Organizational Effectiveness                    3<br/>                 B 370        Human Resource Management                    3<br/>                 B 341        Marketing Management                        3<br/>                 B 361        Production and Operations Management        3<br/>                 B 413**     Advanced Real Estate                            3<br/>                 ECON 150    Economic Principles and Problems - Micro    3<br/>                 MATH 221A or Business Statistics                    3<br/>                 B 212*      Business Statistics and Spreadsheet Analysis   4<br/> <hr/> <b>Total Credits</b>                                      12</p> <p>*B 212 has a prerequisite of B 211<br/>                 **B 413 has a prerequisite of B 225</p> | <p><b>Construction Document</b>                                    6012<br/>(For Construction Management Majors Only)<br/><i>Take this course:</i><br/>                 ARCH 120    Computer Aided Design I                      3<br/> <i>Take 9 credits:</i><br/>                 ARCH 180    Presentation Graphics I                        3<br/>                 ARCH 201    Architectural Design                            3<br/>                 ARCH 220    Computer Aided Design II                      3<br/>                 ARCH 285    Presentation Graphics II                        3<br/>                 ARCH 290    Building Information Modeling II              3<br/>                 ID 251        Kitchen and Bath Design                        3<br/> <hr/> <b>Total Credits</b>                                      12</p> <p><b>Cabinet and Furniture Making</b>                        6009<br/>(For Non Majors Only)<br/><i>Take these courses:</i><br/>                 ARCH 120    Computer Aided Design I                      3<br/>                 ARCH 190    Building Information Modeling I              3<br/>                 CONST 200    Furniture Making                                3<br/>                 CONST 300    Cabinetmaking                                    3<br/>                 ID 251        Kitchen and Bathroom Design                    3<br/> <hr/> <b>Total Credits</b>                                      15</p> <p><b>Design Thinking and Innovation</b>                        6011<br/>(For Non Majors Only)<br/><i>Take these courses:</i><br/>                 DCM 110     Design Thinking                                  3<br/>                 DCM 130     Design Relevance                                3<br/>                 DCM 140     Visualization &amp; Communication                3<br/>                 DCM 300     Collaborative Design                            3<br/> <hr/> <b>Total Credits</b>                                      12</p> <p><b>Construction Management</b>                                6013<br/>(For Non Majors Only)<br/><i>Take these courses:</i><br/>                 ARCH 100    Survey of Architecture and Construction        1<br/>                 CONST 120    Framing Systems                                3<br/>                 CONST 150    Methods and Materials                        2<br/> <i>Take a minimum of 6 credits:</i><br/>                 ARCH 120    Computer Aided Design I                      3<br/>                 ARCH 190    Building Information Modeling I              3<br/>                 ARCH 300    Sustainable Design and Construction        3<br/>                 CONST 235    Building Systems                                4<br/>                 CONST 320    Construction Safety                            2<br/>                 CONST 330    Construction Estimating                        3<br/>                 CONST 380    Project Management                            3<br/>                 CONST 400    Advanced Estimating and Bidding              3<br/> <hr/> <b>Total Credits</b>                                      12</p> |
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## Architecture and Construction Pre-approved Clusters

No Double Counting of Major, Minor or Cluster Courses

| Building Information Modeling |   | 6014      |
|-------------------------------|---|-----------|
| <i>(For Non Majors Only)</i>  |   |           |
| <i>Take these courses:</i>    |   |           |
| ARCH 100                      | Survey of Architecture and Construction | 1         |
| ARCH 120                      | Computer Aided Design I                 | 3         |
| ARCH 190                      | Building Information Modeling I         | 3         |
| ARCH 290                      | Building Information Modeling II        | 3         |
| CONST 120                     | Framing Systems                         | 3         |
| <b>Total Credits</b>          |   | <b>13</b> |

| Architecture                 |   | 6015      |
|------------------------------|---|-----------|
| <i>(For Non Majors Only)</i> |   |           |
| <i>Take these courses:</i>   |   |           |
| ARCH 100                     | Survey of Architecture and Construction | 1         |
| ARCH 120                     | Computer Aided Design I                 | 3         |
| ARCH 180                     | Presentation Graphics I                 | 3         |
| <i>Take 2 courses:</i>       |   |           |
| ARCH 190                     | Building Information Modeling I         | 3         |
| ARCH 201                     | Architectural Design                    | 3         |
| ARCH 220                     | Computer Aided Design II                | 3         |
| ARCH 285                     | Presentation Graphics II                | 3         |
| ID 251                       | Kitchen and Bath Design                 | 3         |
| <b>Total Credits</b>         |   | <b>13</b> |

| Interior Design              |   | 6016      |
|------------------------------|---|-----------|
| <i>(For Non Majors Only)</i> |   |           |
| <i>Take these courses:</i>   |   |           |
| ARCH 120                     | Computer Aided Design I                       | 3         |
| HFED 140                     | Introduction to Architecture: Interior Design | 3         |
| ID 240                       | Space Planning I                              | 3         |
| <i>Take 1 course:</i>        |   |           |
| ARCH 180                     | Presentation Graphics I                       | 3         |
| ART 110                      | Drawing I                                     | 3         |
|                              |   | <b>12</b> |

### Course Descriptions

### Credits\*

#### ARCH 100 Survey of Architecture and Construction (1:1:0:0)

Architecture and Construction Management are exciting and rewarding professional careers. This course helps students choose a career within their program of study. During the semester, Architecture and Construction Management faculty will inform students of the many and varied career paths possible within the professions and what they teach in their respective courses of instruction. Students will also be introduced to each major's required Professional Development Plan.  
(Fall, Winter, Spring)

#### ARCH 120 Computer Aided Design I (3:2:3:0)

Prerequisites: CONST 120 and ARCH 100

Understanding construction documents is a most fundamental skill needed in the construction industry. This course guides students through the process of understanding and creating construction documents for small commercial and residential buildings. Learning begins with basic instruction in computer aided drafting (CAD) to produce and refine working drawings while developing skills for reading and interpreting building plans, sections, elevations, assemblies, and details.  
(Fall, Winter, Spring)

#### ARCH 180 Presentation Graphics I (3:2:4:0)

With the combination of the mind and the pen, the Architect or designer can communicate ideas effectively to himself/herself or others with a quick stroke. During the semester, students will learn techniques in sketching, perspective, and hand rendering to enhance their creative design thinking. Students will also gain an understanding of basic color theory.  
(Offered every other semester.)

#### ARCH 190 Building Information Modeling I (3:2:2:0)

This course involves the act of creating a virtual model of a building that can be used for making design decisions, construction document creation, and rendered presentations. Students will learn the principles of virtual modeling using Sketchup and Revit software. Both 2D and 3D presentations will be produced throughout this course. Simple computer rendering techniques will be explored to discover building material and lighting possibilities.  
(Fall, Winter, Spring)

#### ARCH 201 Architectural Design (3:2:4:0)

Prerequisites: ARCH 120 and ARCH 180

The Architectural design process is more complex than people realize and will take a lifetime to discover. During this semester, students will explore basic architectural design theory, including architectural design principles, elements, and ordering systems. Throughout the semester, students will be able to demonstrate proficient skills in architectural design, drawing, model making, writing, and reflecting on their work and the work of others.  
(Offered every other semester.)

#### ARCH 220 Computer Aided Design II (3:2:2:0)

Prerequisite: ARCH 120

This is a course in construction document creation (full set of plans) using Computer Aided Drafting (AutoCAD). Emphasis will be placed on detailing and the refinement of all CAD skills.  
(Fall, Winter, Spring)

#### ARCH 270 Construction Documents (3:2:2:0)

Prerequisites: CONST 120 and ARCH 100

Course Requirements: Sophomore Standing Only

This course will provide in-depth information about the preparation and content of documents within a project manual. It will define and explain different types of contracts and specifications. How to write specifications will be taught and practiced during the course of the class. It will include, but not be limited to, subjects like coordinating drawings and specifications, bidding requirements, construction contracts, methods of specifying, substitutions, and warranties.  
(Fall, Winter, Spring)

#### ARCH 285 Presentation Graphics II (3:2:4:0)

Prerequisites: ARCH 120 and ARCH 180

In this course students will have the opportunity to move beyond 2D construction documents and be introduced to computer 3D visualization. This will allow students to produce highly visual and realistic images of their designs. Students will be heavily involved in a number of different industry standard programs such as Sketchup, Piranisi, Lumion, and Photoshop; to help create, interact with, and view 3D digital models.  
(Offered every other semester.)

#### ARCH 290 Building Information Modeling II (3:2:2:0)

Prerequisite: ARCH 190

This is a continuation of ARCH 190, Building Information Modeling I, and is designed to teach the collaborative functionality of BIM software. While ARCH 190 focuses on the basic tools to create BIM models, this course strives to increase student proficiency in 3D modeling and focuses on the role and opportunities of BIM to improve construction productivity. This course will emphasize virtual modeling using Autodesk Revit and information management using Navisworks Manage that can be used for making design decisions, document decisions, document generation, quality take-offs, scheduling, and interference checking.  
(Offered every other semester.)

#### ARCH 300 Sustainable Design and Construction (3:3:0:0)

Prerequisite: ARCH 100

In this course, students will learn how the actions and decisions made today do not inhibit the opportunities of future generations. As populations increase and development continues to expand, traditional construction practices threaten to adversely affect the environment and economies. This course introduces students to green building practices that are revolutionizing the way buildings are designed and constructed for a sustainable future. Students will investigate sustainable strategies that enhance energy efficiency, reduce dependence on natural resources, and create healthy indoor environments. The LEED rating system will be introduced and used to assess sustainable building strategies.  
(Offered every other semester.)

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**CONST 100 Basic Woodworking**

**(3:1:4:0)**

Total Course Fees: \$60.00

This course provides students an introductory experience in woodworking. At the completion of this course, students will be able to safely use a variety of woodworking tools. Students will learn designing and estimating skills for small projects. They will have experience in selecting, cutting, and milling lumber, and will use both hand and power tools in learning proper joining techniques. Students will also select finishing materials and employ correct finishing techniques. This course will be beneficial to those considering woodworking as a vocation in the construction or cabinetmaking industries as well as those pursuing woodworking as a hobby.

(Fall, Winter, Spring)

**CONST 120 Framing Systems**

**(3:2:3:0)**

Corequisite: ARCH 100

This course is a study of the fundamentals of construction, tools, materials, codes, procedures, and industry practices used in the construction of building structures. Topics include scope and application of construction drawings, codes, site layout, foundation, floors, stairs, walls, and roof for a small building structure and the software to produce such. Classroom discussions and lab experiences give students an understanding of the construction process from site selection and excavation to completion of building structure.

(Fall, Winter, Spring)

**CONST 150 Construction Method and Material**

**(2:2:0:0)**

Prerequisites: ARCH 100 and CONST 120

This course replaces Construction 280 Methods and Materials. It provides an introduction to the materials and construction methods used in the building environment and gives students an overview of all facets of construction including soils, concrete, wood, structural steel, mechanical and electrical systems, finished, etc.

(Fall, Winter, Spring)

**CONST 200 Furniture Making**

**(3:2:4:0)**

Prerequisite: ARCH 190

A course in advanced woodworking techniques used in design and construction of fine furniture. Emphasis will be placed on the design, materials, and joinery techniques utilized in the creation of a vanity. Because of the variable nature of the styles and materials used in the construction of the vanity, the cost for this project will vary with the minimal cost being approximately \$100.

(Offered every other semester.)

**CONST 210 Finishing Systems**

**(3:2:3:0)**

Prerequisites: CONST 120 and ARCH 100

The purpose of this course is to give students a basic understanding of the design, materials, and methods of finishing systems used in the building construction industry.

(Offered every other semester.)

**CONST 235 Building Systems**

**(4:3:3:2)**

Prerequisites: CONST 150

Students will understand the systems that provide light, power, and comfort to one's living environment as they discover what they are and how they operate based on laws of thermodynamics, electricity, and fluids. This course will increase a student's understanding of how electrical, HVAC, and plumbing methods fit into the construction process. Students will gain confidence in sizing requirements based on the demands of the systems.

(Fall, Winter, Spring)

**CONST 250 Steel Structural Systems**

**(3:3:0:0)**

Prerequisite: CONST 260

This course is a study of steel construction of heavy structural steels. It includes study of Metallurgy in order to understand metal's properties, behavior and performance. Steel construction methods and materials will be explored through document reading and 3-D modeling.

(Offered every other semester.)

**CONST 260 Statics and Strength of Materials**

**(3:3:0:0)**

Prerequisite: CONST 120

This course provides an introduction to force systems in static equilibrium and an elemental understanding of the strengths of material, the relationship between applied loads and the internal forces and deformations induced in the structural element. Major topics that are covered in the course include forces, moments, couples, free body diagrams, trusses, frames, centroids, moment of inertia, stress, strain, deformation and load, shear, and moment diagrams.

(Fall, Winter, Spring)

**CONST 290R Special Problems**

**(0.5-3:0:0:0)**

Repeatable Course: May earn maximum of 3.5 credits

Course Requirement: Instructor Approval Required

Students, in this course, will learn problem solving in a variety of construction and architectural areas. This course may involve special assignments, student competitions, laboratory.

(Fall, Winter, Spring)

**CONST 298 Beginning Internship**

**(1:0:0:0)**

Internship Fees: \$78 (LDS) \$156 (non-LDS) per credit

Exempt from tuition, but charged this independent course fee

Prerequisites: CONST 150

An internship is a cooperative program between BYU-Idaho Design and Construction Department and approved Experience Providers (employers). Professional internships correlate actual work experience in the building construction industry with the architecture and construction coursework. Internships approved by the internship coordinator provide students with knowledge of career opportunities and actual work experience in preparation for employment after graduation. The ideal internship would take place during the student's off-track semester and be a full time, paid, employment opportunity. The length of time for your internship experience is intended to be equal to a 14 week semester, 40 hours per week or approximately 560 hours. Students should complete this internship course no later than between their Sophomore and Junior years for Construction Management degree seeking students and between Freshman and Sophomore years for those seeking an Associate degree in Architecture.

(Fall, Winter, Spring)

**CONST 300 Cabinetmaking**

**(3:2:3:0)**

Prerequisite: ARCH 190

This course is a study of the materials and methods used in professional cabinet making. Students will study designing, planning, cost estimating, materials, and construction techniques for kitchen, bathroom, and other built-in type of cabinets using both traditional and metric construction methods. This course will also cover the safe setup and operation of professional cabinetmaking equipment.

(Offered every other semester.)

**CONST 320 Construction Safety**

**(2:2:0:0)**

Prerequisites: ARCH 100 and CONST 120

Students will learn how employee safety is critical to the successful completion of any construction project. This course introduces students to OSHA policies, procedures, and standards, as well as construction safety and health principles. Special emphasis will be placed on recognizing the most common safety hazards in the construction industry. Upon satisfying attendance requirements, students will receive an OSHA 30-hour construction course completion card.

(Fall, Winter, Spring)

**CONST 330 Construction Estimating**

**(3:2:4:0)**

Prerequisites: CONST 150

The purpose of this course is to introduce the student to the principles of construction cost estimates, including organizing and planning an estimate, developing material and labor databases, preparing accurate quantity takeoffs, and developing an understanding of overhead and profit.

(Fall, Winter, Spring)

**CONST 340 Land Surveying**

**(3:2:3:0)**

Prerequisites: CONST 260 or FDMAT 112

In this course, students will learn the theory and use of instruments dealing with measurements pertaining to plane surveying. Application of surveying methods of practical problems will be discussed.

(Fall, Winter, Spring)

**CONST 350 Soils**

**(3:2:2:0)**

Prerequisite: CONST 260

The purpose of this course is to introduce students to the nature of soils and to illustrate how soil materials may influence certain construction operations. This course is an introduction to soil materials, soil methods, and the materials presented in this course that will provide the basic background for understanding soil behavior and how construction specifications relate to it. The cost and control of excavating, hauling, grading, compacting, lifting, and the use of other heavy equipment will also be discussed.

(Fall, Winter, Spring)

**CONST 370 Concrete and Masonry Construction (3:2:2:0)**

Prerequisite: CONST 260

This course is a hands-on introduction to the construction materials called concrete and masonry. Topics of study include: fundamentals of concrete, cement manufacturing, hydrations, cement types, admixtures, mixing reinforcement, placement, finishing, curing testing, shrinkage, and hot and cold weather applications. Students will also look at concrete elements such as footings, foundations, beams, slabs, and framing systems. Although concrete and masonry are designed by engineers and tested in the field by technicians, construction managers should understand what these professionals do in order to properly oversee construction practice so as to meet project specifications. Both classroom and laboratory experiences will assist students in gaining knowledge and skills in concrete and masonry technology.

(Fall, Winter, Spring)

**CONST 380 Project Management (3:3:0:0)**

Prerequisites: CONST 298

Students in this course learn the objectives that define a successful project using varying delivery methods in commercial building construction. Students will learn how to use the tools the project manager uses to successfully manage the construction of a building project.

(Fall, Winter, Spring)

**CONST 400 Advanced Estimating and Bidding (3:2:2:0)**

Prerequisite: CONST 330

The purpose of this course is to help students prepare to gain knowledge and skills required to estimate in construction. An in depth analysis of estimating methods, fundamental skills, the estimator's responsibilities, and computer software applications for construction cost estimates, are covered. Evolving estimating methods will also be introduced.

(Fall, Winter, Spring)

**CONST 420 Construction Scheduling (3:3:0:0)**

Prerequisites: CONST 298 and CONST 330

Students in this course learn the styles and techniques of creating a construction schedule by breaking down the project scope and developing schedule activities, durations, and a network of logical relationships to calculate projected start and finish dates.

(Fall, Winter, Spring)

**CONST 430 Construction Law (3:3:0:0)**

Prerequisite: CONST 380

The purpose of this course is to provide an introduction to contract law and the legal requirements and regulations associated with the operation of a construction company and execution of construction projects.

(Fall, Winter, Spring)

**CONST 470 Construction BIM (3:2:2:0)**

Prerequisites: ARCH 190 and CONST 498

This is an advanced course that will prepare students to use Building Information Modeling (BIM) Technology in the designing, planning, estimating, scheduling, coordination, administration, and management of constructive projects. Topics to be covered include: the building information business model, the BIM coordination process and preparing a coordination plan, using the building model to prepare accurate quantity takeoffs and construction estimates, the development of project schedules and controls from the building model, clash detection and the use of building model in the creation of construction projects, and building information modeling tools in job site administration.

(Fall, Winter, Spring)

**CONST 498 Construction Internship (1:0:0:0)**

Internship Fees: \$78.00 (LDS) \$156.00 (non-LDS) per credit

Exempt from tuition, but charged this independent course fee

Prerequisites: CONST 298 and CONST 320 and CONST 380

An internship is a cooperative program between BYU-Idaho Design and Construction Department and approved Experience Providers (employers). Advanced level internships correlate actual work experience in the management of people and resources in the construction/architecture industry with the architecture and construction coursework. Internships approved by the internship coordinator provide students with knowledge of career opportunities and actual work experience in preparation for employment after graduation. The ideal internship would take place during the student's off-track semester and be a full time, paid employment opportunity. The length of time for your internship experience is intended to be equal to a 14 week semester, 40 hours per week or approximately 560 hours. Students should complete this internship course no later than between their Junior and Senior years.

(Fall, Winter, Spring)

**CONST 499 Capstone: Construction Principles (3:3:0:0)**

Prerequisite: CONST 498

This course provides an introduction to construction company and risk management. Company management topics include business ownership, licensing laws, company organization, business plans, accounting, financial records, advertising, labor relations, purchase orders, and bids. Risk management topics include project delivery systems, contract relationships, contract provisions and commercial terms, insurance, surety bonds, mechanics liens, and safety.

(Fall, Winter, Spring)

**DCM 110 Design Thinking (3:3:0:0)**

Design Thinking is quickly becoming the problem-solving method used by leading consulting firms such as IDEO®, Frog Design®, and Adaptive Path® to produce innovative solutions to complex human-centered problems. This course introduces students to the process used in the Design Thinking mind-set in a relaxed and creative atmosphere. Aesthetic or artistic ability is not required to successfully achieve the learning outcomes of this course.

(Fall, Winter, Spring)

**DCM 130 Design Relevance (3:3:0:0)**

This course is designed to give students a contextual foundation in the who, what, why, where, when, and how in the creation of qualitative solutions to design problems. In this course students will develop aesthetic and logical judgement as they explore problem solving scenarios throughout history. Students will experience and discuss human interface as it relates to the products and services they use every day.

(Offered every other semester.)

**DCM 140 Visualization Communication (3:3:0:0)**

This course will provide students with the tools to communicate effectively, individually, or in groups within any discipline. Students will learn the visual communication skills of drawing and sketching, brainstorming and mind mapping, and building rapid prototypes from diverse materials and tools. Students will also be introduced to the concept of communication using logic, order, process, negotiation, and compromise.

(Offered every other semester.)

**DCM 300 Collaborative Design (3:3:0:0)**

Prerequisites: DCM 110 and DCM 130 and DCM 140

This capstone course is designed to test the students abilities to design think, communicate effectively, and apply aesthetic and logical judgment as they solve real-world problems. Students will work in small diverse groups in an open laboratory of innovation. The level of complexity will increase for each design problem leading up to the wicked problem that has incomplete, contradictory, and changing requirements.

(Offered every other semester.)

**ID 240 Space Planning I (3:1:4:0)**

Prerequisites: (HFED 140 and ART 110) or (ARCH 180 and ARCH 120)

This course is a beginning course in residential space planning. Foundational concepts discussed include programming, concept development, problem solving, space planning and design communication. Students will be introduced to furniture, finish, and product specification with supporting schedules.

(Fall, Winter, Spring)

**ID 251 Kitchen and Bath Design (3:2:3:0)**

Prerequisite: ARCH 120

In this introductory design course, students will gain a fundamental knowledge of design vocabulary and concepts as they apply to the design of residential kitchens and baths. Students will research current trends in kitchen and bath design, and determine cabinet styles, nomenclature, and storage concepts. They will focus on the planning, design, and layout of residential kitchens and baths in accordance with the NKBA (National Kitchen and Bath Association) guidelines and presentation standards.

(Fall, Winter, Spring)