

Department of

# Design and Construction Management



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<http://www.byui.edu/design-construction-management>

## 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 2014-2015

### AAS in Architectural Technology (345)

Take required Foundations courses (17 credits)

#### Major Requirements

*No Double Counting of Major Courses - No Grade Less Than C- in Major Courses*

<b>Architecture Core</b> Take these courses: ARCH 100           1 ARCH 120           3 ARCH 180           3 ARCH 190           3 ARCH 201           3 ARCH 220           3 ARCH 270           3 ARCH 285           3 ARCH 290           3 ARCH 300           3 CONST 120           3 CONST 150           2 (continued next column)	(continued from previous column) CONST 235           4 CONST 260           3 CONST 298           1 ID 251                3 <hr style="width: 50px; margin-left: auto; margin-right: 0;"/> 44	<b>Program Notes:</b>          
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**Total Major Credits=44**

This major is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- YES

### BS in Construction Management (605)

Take required Foundations courses

#### Major Requirements

*No Double Counting of Major Courses - No Grade Less Than C- in Major Courses*

<b>Construction Management Core</b> Take these courses during your first 2 semesters: ARCH 100           1 CONST 120           3 CONST 150           2 <hr style="width: 50px; margin-left: auto; margin-right: 0;"/> 6  Take these courses: ARCH 190           3 ARCH 270           3 CONST 235           4 CONST 260           3 CONST 298           1 CONST 320           2 CONST 330           3 CONST 350           3 CONST 370           3 CONST 380           3 CONST 400           3 CONST 420           3 CONST 430           3 (continued next column)	(continued previous column) CONST 470           3 CONST 498           1 CONST 499           3 <hr style="width: 50px; margin-left: auto; margin-right: 0;"/> 44  <b>Technical Elective Courses</b> Take 6 credits: ARCH 120           3 ARCH 180           3 ARCH 201           3 ARCH 220           3 ARCH 285           3 ARCH 290           3 ARCH 300           3 CONST 210           3 CONST 250           3 CONST 300           3 CONST 340           3 ID 251                3 <hr style="width: 50px; margin-left: auto; margin-right: 0;"/> 6	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center; padding-bottom: 5px;">Management Emphasis Courses</th> </tr> <tr> <th colspan="2" style="text-align: center; padding-bottom: 5px;">Select and complete 1 of the following options:</th> </tr> </thead> <tbody> <tr> <td style="width: 50%; vertical-align: top; padding: 5px;"> <b>Option 1 - 24 credits</b>                              Complete Business Minor 189 (See the Business Department of the catalog) <hr style="width: 50%; margin-left: auto; margin-right: 0;"/> 24                         </td> <td style="width: 50%; vertical-align: top; padding: 5px;"> <b>Option 2 - 24 credits</b>                              Complete this cluster                              6010 - Construction Management Business Management <hr style="width: 50%; margin-left: auto; margin-right: 0;"/> 12                               AND                               Complete 1 cluster                              6001 - Heavy Civil Industrial Construction                              6003 - Residential/Commercial Construction                              6012 - Construction Documents <hr style="width: 50%; margin-left: auto; margin-right: 0;"/> 12                         </td> </tr> </tbody> </table>	Management Emphasis Courses		Select and complete 1 of the following options:		<b>Option 1 - 24 credits</b> Complete Business Minor 189 (See the Business Department of the catalog) <hr style="width: 50%; margin-left: auto; margin-right: 0;"/> 24	<b>Option 2 - 24 credits</b> Complete this cluster 6010 - Construction Management Business Management <hr style="width: 50%; margin-left: auto; margin-right: 0;"/> 12  AND  Complete 1 cluster 6001 - Heavy Civil Industrial Construction 6003 - Residential/Commercial Construction 6012 - Construction Documents <hr style="width: 50%; margin-left: auto; margin-right: 0;"/> 12	<b>Program Notes:</b>          
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**Total Major Credits=80**

**Total Credits- 120**

This major is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- YES

## Construction Management Concentration (D 134)

Non Majors Only

### Concentration Requirements

*No Double Counting of Concentration Courses - No Grade Less Than C- in Concentration Courses*

Core Courses <i>Take these courses:</i>	Construction Technology Electives <i>Take 3 courses:</i>	Interdisciplinary Courses <i>Take these courses:</i>	<i>Program Notes:</i>
ARCH 100            1	CONST 210            3	IDS 398R            1-3	
ARCH 120            3	CONST 250            3	IDS 499 <u>  2</u>	
CONST 120           3	CONST 300            3	3	
CONST 150           2	CONST 340            3		
CONST 235           4	CONST 350            3		
CONST 260           3	CONST 370            3		
CONST 320           2	CONST 400            3		
CONST 330           3	CONST 420            3		
CONST 380           3	CONST 430 <u>  3</u>		
<u>                      24</u>	<u>                          9</u>		

**Concentration Credits=36**

This concentration is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- YES

## Architecture Concentration (D 139)

Non Majors Only

### Concentration Requirements

*No Double Counting of Concentration Courses - No Grade Less Than C- in Concentration Courses*

Core Courses <i>Take these courses:</i>	Construction Technology Electives <i>Take 6 credits:</i>	Interdisciplinary Courses <i>Take these courses:</i>	<i>Program Notes:</i>
ARCH 100            1	ARCH 270            3	IDS 398R            1-3	
ARCH 120            3	ARCH 285            3	IDS 499 <u>  2</u>	
ARCH 180            3	ARCH 300            3	3	
ARCH 190            3	CONST 235 <u>  4</u>		
ARCH 201            3	<u>                          6</u>		
ARCH 220            3			
ARCH 290            3			
CONST 120           3			
CONST 150           2			
ID 251 <u>  3</u>			
<u>                      27</u>			

**Concentration Credits=36**

This concentration is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- YES

**Design and Construction Management**  
**Brigham Young University-Idaho 2014-2015**

**Architecture and Construction Pre-approved Clusters**

No Double Counting of Major, Minor or Cluster Courses

<b>Heavy Civil Industrial Construction</b>		<b>6001</b>
<i>(For Construction Management Majors Only)</i>		
<i>Take these courses:</i>		
CONST 250	Steel Structure Systems	3
CONST 340	Land Surveying	3
<i>Take 6 credits:</i>		
ARCH 120	Computer Aided Design I	3
ARCH 290	Building Information Modeling II	3
ARCH 300	Sustainable Design/Construction	3
CONST 210	Finishing Systems	3
WELD 101	Welding Fundamentals	3
<b>Total Credits</b>		<b>12</b>

<b>Residential/Commercial Construction</b>		<b>6003</b>
<i>(For Construction Management Majors Only)</i>		
<i>Take these courses:</i>		
ARCH 120	Computer Aided Design I	3
CONST 210	Finishing Systems	3
<i>Take 2 courses:</i>		
ARCH 220	Computer Aided Design II	3
ARCH 290	Building Information Modeling II	3
ARCH 300	Sustainable Design/Construction	3
CONST 250	Steel Structural Systems	3
CONST 300	Cabinetmaking	3
CONST 340	Land Surveying	3
ID 251	Kitchen and Bath Design	3
WELD 101	Welding Fundamentals	3
<b>Total Credits</b>		<b>12</b>

<b>Construction/Business Management</b>		<b>6010</b>
<i>(For Construction Management Majors Only)</i>		
<i>Take 1 course:</i>		
ACCTG 180	Survey of Accounting	3
ACCTG 201	Financial Accounting	3
<i>Enrichment - Take 3 courses:</i>		
B 101 or	Principles of Business Management	3
B 211	Business Fundamentals I	4
B 225	Fundamentals of Real Estate	3
B 283	Introduction to Entrepreneurship	3
B 301	Financial Management	3
B 321 or	Organizational Effectiveness	3
B 370	Human Resources Management	3
B 341	Marketing Management	3
B 361	Production and Operations Management	3
B 413**	Advanced Real Estate	3
ECON 150	Economic Principles and Problems - Micro	3
MATH 221A or	Business Statistics	3
B 212*	Business Fundamentals II	4
<b>Total Credits</b>		<b>12</b>

\*B 212 has a prerequisite of B 211

\*\*B 413 has a prerequisite of B 225

<b>Construction Document</b>		<b>6012</b>
<i>(For Construction Management Majors Only)</i>		
<i>Take this course:</i>		
ARCH 120	Computer Aided Design I	3
<i>Take 9 credits:</i>		
ARCH 180	Presentation Graphics I	3
ARCH 201	Architecture Design	3
ARCH 220	Computer Aided Design II	3
ARCH 285	Presentation Graphics II	3
ARCH 290	Building Information Modeling II	3
ID 251	Kitchen and Bath Design	3
<b>Total Credits</b>		<b>12</b>

<b>Cabinet and Furniture Making</b>		<b>6009</b>
<i>(For Non Majors Only)</i>		
<i>Take these courses:</i>		
ARCH 120	Computer Aided Design I	3
ARCH 190	Building Information Modeling I	3
CONST 200	Furniture Making	3
CONST 300	Cabinetmaking	3
ID 251	Kitchen and Bathroom Design	3
<b>Total Credits</b>		<b>15</b>

<b>Design Thinking and Innovation</b>		<b>6011</b>
<i>(For Non Majors Only)</i>		
<i>Take these courses:</i>		
DCM 110	Design Thinking	3
DCM 130	Design Relevance	3
DCM 140	Visual Thinking	3
DCM 300	Collaborative Design Studio	3
<b>Total Credits</b>		<b>12</b>

<b>Construction Management</b>		<b>6013</b>
<i>(For Non Majors Only)</i>		
<i>Take these courses:</i>		
ARCH 100	Introduction to Architecture and Construction Management	1
CONST 120	Framing Systems	3
CONST 150	Methods and Materials	2
<i>Take a minimum of 6 credits:</i>		
ARCH 120	Computer Aided Design I	3
ARCH 190	Building Information Modeling I	3
ARCH 300	Sustainable Design and Construction	3
CONST 235	Building Systems	4
CONST 320	Construction Safety	2
CONST 330	Construction Estimating	3
CONST 380	Project Management	3
CONST 400	Advance Estimating and Bidding	3
<b>Total Credits</b>		<b>12</b>

<b>Building Information Modeling</b>		<b>6014</b>
<i>(For Non Majors Only)</i>		
<i>Take these courses:</i>		
ARCH 100	Introduction to Architecture and Construction Management	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>

<b>Architecture</b>		<b>6015</b>
<i>(For Non Majors Only)</i>		
<i>Take these courses:</i>		
ARCH 100	Introduction to Architecture and Construction Management	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	Architecture 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>

## Course Descriptions

## Credits\*

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

Architecture and Construction Management are exciting and rewarding professional careers. This course introduces you to much of what is involved in choosing these careers as your program of study. During the semester, architecture and Construction management faculty inform you of the many and varied career paths possible within the professions and what they teach in their respective courses of instruction. You will also be introduced to each major's required Professional Development Plan.  
(Winter, Spring, Fall)

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

Prerequisites: ARCH 100 and CONST 120

Understanding construction documents is a most fundamental skill needed in the construction industry. This course guides you 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. A project manual will also be explored for general understanding of technical specifications and contractual obligations used in construction.  
(Winter, Spring, Fall)

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

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, you will be able to learn techniques in sketching, perspective, and hand rendering to enhance your creative design thinking. You will also gain an understanding of basic color theory.  
(Every other semester)

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

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

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

Prerequisites: ARCH 120 and ARCH 180

The Architectural design process is greater than people realize and will take a lifetime to discover. During this semester, you will explore basic architectural design theory, including architectural design principles, elements, and ordering systems. Through the course of the semester, you will be able to demonstrate proficient skills in architectural design, drawing, model making, writing, and reflecting on your work and the work of others.  
(Every other semester)

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

Prerequisite: ARCH 120

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

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

Prerequisites: CONST 120 and ARCH 100

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 limited to, subjects like coordinating drawings and specifications, bidding requirements, construction contracts, methods of specifying, substitutions, and warranties. This information is required to take and pass the Construction Document Technology (CDT) certification test.  
(Winter, Spring, Fall)

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

Prerequisites: ARCH 120 and ARCH 180

You will have a wonderful opportunity to move beyond 2D construction documentation and be introduced to computer 3D visualization. This will allow you to produce highly visual and realistic images of your designs. You will be heavily involved in a number of different industry standard programs such as Sketchup, Piranisi, and Photoshop; to help create, interact with, and view 3D digital models.  
(Every other semester)

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

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.  
(Winter, Spring, Fall)

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

Prerequisite: ARCH 100

Sustainability means ensuring that our actions and decisions today do not inhibit the opportunities of future generations. As populations increase and development continues to expand, traditional construction practices threaten to adversely affect our environment and economies. This course introduces you to green building practices that are revolutionizing the way we design and construct buildings for a sustainable future. You 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.  
(Every other semester)

### **CONST 100 Basic Woodworking (3:1:4)**

Course Fees: \$60.00

This course provides students an introductory experience in woodworking. At the completion of this course the students will be able to safely use a variety of woodworking tools. The students will learn designing and estimating skills for small projects. They will have experience in selecting, cutting, and milling lumber. They will use both hand and power tools in learning proper joining techniques. They will 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.  
(Winter, Spring, Fall)

### **CONST 120 Framing Systems (3:2:3)**

Co-requisite: 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.  
(Winter, Spring, Fall)

### **CONST 150 Construction Methods and Materials (2:2:0)**

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 built environment and gives students an overview of all facets of construction including soils, concrete, wood, structural steel, mechanical and electrical systems, finished, etc.  
(Winter, Spring, Fall)

### **CONST 200 Furniture Making (3:2:4)**

Prerequisites: 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 heirloom quality furniture.  
(Every other semester)

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**Brigham Young University-Idaho 2014-2015**

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**CONST 210 Finishing Systems (3:2:3)**

Prerequisites: CONST 120 and ARCH 100

The purpose of this course is to give the student a basic understanding of the design, materials, and methods of finishing systems used in the building construction industry. (Every other semester)

**CONST 230 Mechanical Environmental Systems (3:2:2)**

Prerequisite: ARCH 100

Materials design, installation, and applications of building service systems, including supply systems, waste removal systems; heating ventilation, air conditioning; heating loads, air distribution, equipment selection; energy efficient, and solar construction; building codes. (Winter, Spring, Fall)

**CONST 235 Building Systems (4:3:3)**

Prerequisite: CONST 150

Demystify the systems that provide light, power and comfort to your living environment as you discover what they are and how they operate based on laws of thermodynamics, electricity and fluids. Increase your understanding of electrical, HVAC and plumbing methods, and how they fit into the construction process. Gain confidence in sizing requirements based on the demands of the systems. (Winter, Spring, Fall)

**CONST 240 Electrical Systems (3:2:2)**

Prerequisite: ARCH 100

Demystify the systems that provide light, power, and comfort to your living environment as you discover what they are and how they operate based on laws of thermodynamics, electricity, and fluids. Increase your understanding of electrical, HVAC, and plumbing methods, and how they fit into the construction process. Gain confidence in sizing requirements based on the demands of the system. (Winter, Spring, Fall)

**CONST 250 Steel Structural Systems (3:2:2)**

Prerequisite: CONST 260

This course is a study of steel construction technology including steel frame construction of light gauge and heavy structural steels. Classroom and lab experiences will include construction methods, materials, connection design, prints, symbols, tools and equipment, joining methods, welding processes and skills, inspection, codes, specifications, quality control, safety, and nomenclature. (Every other semester)

**CONST 260 Statics and Strength of Materials (3:3:0)**

Prerequisite: CONST 120

The course provides an introduction to force systems in static equilibrium and an elemental understanding of strengths of material, or 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. (Winter, Spring, Fall)

**CONST 280 Methods and Materials (3:3:0)**

Prerequisites: ARCH 100 and CONST 120

A study of building construction materials, methods and equipment. (Winter, Spring, Fall)

**CONST 290R Special Problems (0.5-3:0:0)**

Repeatable Course: may earn maximum of 3.5 credits

With department permission

Selected problem solving in a variety of construction and architectural areas. May involve special assignment, student competitions, laboratory, and on-the-job experience. (Winter, Spring, Fall)

**CONST 298 Beginning Internship (1:0:0)**

Prerequisites: CONST 150 or CONST 280

An internship is a cooperative program between BYU-Idaho Architecture 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 not wait until after graduation to complete their internship courses and are encouraged to begin as early as possible. (Winter, Spring, Fall)

**CONST 300 Cabinetmaking (3:2:3)**

Prerequisite: ARCH 190

Cabinetmaking is a study of the materials and methods used in professional cabinetmaking. The class 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. It will also cover the safe setup and operation of professional cabinetmaking equipment. (Every other semester)

**CONST 320 Construction Safety (2:2:0)**

Course Fees: \$5.00

Prerequisite: ARCH 100 and CONST 120

Employee safety is critical to the successful completion of any construction project! This course introduces you 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, you will receive an OSHA 30-hour construction course completion card. (Winter, Spring, Fall)

**CONST 330 Construction Estimating (3:2:4)**

Prerequisite: CONST 150

The purpose of CONST 330 (Construction Estimating) 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. (Winter, Spring, Fall)

**CONST 340 Land Surveying (3:2:3)**

Prerequisites: CONST 260 or FDMAT 112

Theory and use of instruments dealing with measurements pertaining to plane surveying. Application of surveying methods of practical problems. (Winter, Spring, Fall)

**CONST 350 Soils (3:2:2)**

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, the materials presented in this course 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. (Winter, Spring, Fall)

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

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. Our study of concrete also includes a 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. The knowledge and skills developed during the course will be both theoretical as well as practical. (Winter, Spring, Fall)

**CONST 380 Project Management (3:3:0)**  
 Prerequisites: CONST 298  
 Students in this course learn the objectives that define a successful project using varying delivery methods in commercial building construction. Students learn what and how to use the tools the project manager uses to successfully manage the construction of a building project.  
 (Winter, Spring, Fall)

**CONST 400 Advanced Estimating and Bidding (3:2:2)**  
 Prerequisite: CONST 330  
 The purpose of Const 400 Estimating and Bidding is to help students contemplating a career as an estimator to further gain knowledge and skills required to estimate in building 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.  
 (Winter, Spring, Fall)

**CONST 420 Construction Scheduling (3:3:0)**  
 Prerequisite: 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.  
 (Winter, Spring, Fall)

**CONST 430 Construction Law (3:3:0)**  
 Prerequisites: 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.  
 (Winter, Spring, Fall)

**CONST 470 Construction BIM (3:2:2)**  
 Prerequisites: ARCH 190 and CONST 498R  
 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.  
 (Winter, Spring, Fall)

**CONST 498 Construction Internship (1:0:0)**  
 Prerequisites: CONST 320, CONST 298, CONST 380  
 An advanced level internship program between BYU-Idaho Architecture and Construction Department and approved Experience Providers (employers). Advanced level professional 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 will provide students with knowledge of career opportunities and actual work experience in preparation for employment after graduation.  
 (Winter, Spring, Fall)

**CONST 499 Capstone:Construction Principles and Practices (3:3:0)**  
 Prerequisite: CONST 498  
 The 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, mechanic's liens, and safety.  
 (Winter, Spring, Fall)

**DCM 110 Design Thinking (3:3:0)**  
 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 mindset in a relaxed and creative atmosphere. Aesthetic or artistic ability is not required to successfully achieve the learning outcomes of this course.  
 (Winter, Spring, Fall)

**DCM 130 Design Relevance (3:3:0)**  
 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.  
 (Winter, Spring, Fall)

**DCM 140 Visualization and Communication (3:3:0)**  
 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.  
 (Winter, Spring, Fall)

**DCM 300 Collaborative Design (3:3:0)**  
 Prerequisites: DCM 110, 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.  
 (Winter, Spring, Fall)

**ID 100R Design Seminar (1:0:2)**  
 Repeatable Course: may earn maximum of 8 credits  
 Course Fees: \$70.00  
 Required each semester for all Interior Design majors, this course is designed to strengthen and enrich Interior Design courses and expose students to the professional design world. Arranged class presentations by guests and other activities support the ASID (American Society of Interior Designers) Student Chapter, the NKBA (National Kitchen and Bath Association) Student Chapter, and EGB (Emerging Green Builders). Membership in the ASID Student Chapter is included; membership in other supported organizations are voluntary. Student service (peer teaching and learning experiences and participation in a portfolio review are required each semester.  
 (Winter, Spring, Fall)

**ID 237 Visual Communication III (2:0:4)**  
 Course Fees: \$10.00  
 Prerequisite: ID 136  
 A course to assist students in honing their visual thinking and communication skills. ID 237 is designed to help design students improve and master quick sketching and drawing to enhance the design process. Emphasis is especially focused on communication scale and proportion. To accomplish this, the human figure and proportions will be used as the measuring unit.  
 (This course is not currently offered.)

**ID 250 Space Planning II (3:2:2)**  
 Course Fees: \$15.00  
 Prerequisites: ID 238, ID 240, and ID 237  
 A course consisting of studio exercises in the planning, design and layout of residential kitchens and baths in accordance with the NKBA (National Kitchen and Bath Association) guidelines and presentation standards.  
 (This course is not currently offered.)

**ID 251 Kitchen and Bath Design (3:2:3)**  
 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 & Bath Association) guidelines and presentation standards.  
 (Winter, Spring, Fall)

**ID 295 Lighting (3:3:0)**  
 Prerequisite: ID 240  
 A course designed to introduce the student to the principles of lighting design, lighting systems, light sources, communication of lighting design and specification, and practical application of learned principles in project format.

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(This course is not currently offered.)

**ID 300 Presentation Studio Skills II (1:0:2)**

Repeatable Course: may earn maximum of 2 credits

Prerequisites: ID 101, ID 137, and ID 238

Series of mini-classes designed to introduce students to topics and skills of specialization not focused on in other courses. Special topics is a group of rotating mini-classes whose subjects will be determined based on the needs of the Department and the students.  
(This course is not currently offered.)

**ID 341 Space Planning III (3:2:2)**

Course Fees: \$15.00

Prerequisites: ID 250 and ID 276

An intermediate course designed to provide students experience in research development, programming and schematic design development, problem solving, space planning, furniture layout, fabric and finish material selection/calculation/specification, and practical competencies in commercial design. Barrier-free, passive solar, and the use of sustainable products will be addressed.  
(This course is not currently offered.)

**ID 355 Contract Design I (3:2:2)**

Course Fees: \$15.00

Prerequisites: ID 341, ID 380, and ID 295

This course is designed to give students intermediate experience in research development and practical competencies in contract design. Accessibility guidelines and building codes will be emphasized with special attention to restaurant and business occupancies. Sales training and presentation skills will be introduced and practiced throughout the course.  
(This course is not currently offered.)

**ID 380 Historical Arch and Furniture (3:3:0)**

Course Fees: \$5.00

A survey of the historical development of architecture, furniture, and furnishings from prehistory to the Industrial Revolution.  
(This course is not currently offered.)

**ID 381 Contemporary Arch and Furniture (3:3:0)**

Course Fees: \$5.00

Prerequisite: ID 380

A survey of the development of contemporary architecture, furniture, and furnishings from the Industrial Revolution to the present.  
(This course is not currently offered.)

**ID 384 Advanced Visual Presentation (2:0:4)**

Course Fees: \$10.00

Majors only

This advanced course is designed to give students experience creating and photographing architectural models. A foundation in techniques and material selection will be taught. Projects will include computer generated and hand crafted models.  
(This course is not currently offered.)

**ID 385 Business Principles (3:3:0)**

Prerequisites: ID 276 and ID 341

This course is designed to introduce the student to the business aspect of interior design. Information will be presented regarding procedural forms and professional practices for the interior designer, i.e., ethics, contracts, fee bases, purchase orders, letters of agreement, business formations, and terminology relating to the interior design business practice. \*Resume writing, interviewing and job seeking skills for the job market will also be addressed. \*NKBA business procedures will be discussed.  
(This course is not currently offered.)

**ID 398R Internship (3:0:0)**

Majors only

Four week (160 hours) supervised work experience with a professional design firm. For those specializing in kitchen and bath design, internship is recommended with a certified kitchen designer (CKD) or bath designer (CBD).

(This course is not currently offered.)

**ID 460 Contract Design II (3:2:2)**

Course Fees: \$15.00

Prerequisite: ID 355

This course is designed to provide students advanced experience in contract design, design teams and research development. The course will begin with a basic space planning methodology and culminate in a research driven design project. Topics addressed will include: personality and vocational test, social networks, teaching methodology, classroom technology, video conferencing, systems furniture, Green building design, building systems, and commercial building codes and guidelines including ADA.  
(Fall)

**ID 465 Portfolio (2:0:4)**

Preparation of portfolio for the job search. Twelve projects required. Resume included.

Required last semester prior to graduation. Digital format required.  
(Winter)

**ID 499 Comprehensive Project (4:3:2)**

Course Fees: \$10.00

Prerequisites: ID 381, ID 385, and ID 460

This course is designed to test the student's cumulative knowledge of their interior design education. The course is based around an 80,000 square foot hospital/extended care facility design scenario. Students will produce a complete set of interior contract documents including but not limited to: floor plans, elevations, schedules, details, reflected ceiling plans, and furniture plans. The students will also produce a project book with written contracts, performance specifications, and furniture/finish specification sheets. Throughout the course students will participate in timed exams covering the NCIDQ body of knowledge.  
(Winter)