Department of

Architecture & Construction

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Department of Architecture and Construction

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 the Architecture and Construction 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.

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 (Const 398 & Const 498). The internships are usually completed on the students "off track" between their Sophomore/ Junior and Junior/ Senior years. Students who complete an AAS in Architectural Technology are also required to complete an internship.

General Interest Courses.

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

AAS in Architectural Technology (345)

Take required Foundations courses

Major Requirements

No Double Counting of Major Courses - No Grade Less Than B- in Major Courses

Take these courses:

ARCH 100	3
ARCH 110	3
ARCH 160	3
ARCH 210	3
ARCH 260	3
ARCH 270	3
ARCH 280	3
CONST 120	3
CONST 260	3
CONST 330	3
ENG 319	3
MATH 111	2
	35

Take this course for 2 credits:

CONST 398R	1-2
	2

Take 8 credits:

CONST 210	3
CONST 230	3
CONST 240	3
CONST 250	3
CONST 298R	1-2
CONST 320	2
CONST 340	3
CONST 370	3
CONST 380	3
CONST 390R	0.5
CONST 450	3
HFED 140	3
HORT 230	3
ME 115	2
	8

Take 1 course:

ART 101	3
ART 102	2
	2

Take these courses:

GEOL 102	1
GEOL 104	3
	4

OR

Take these courses:

GEOL 111	3
GEOL 111L	1
	4

OR

Take these courses:

PH 105	4
	4

Program Notes:

Total Major Credits=51

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 B- in Major Courses

Take these courses:
(Students are required to complete 2 credits each of Const 398 and Const 498R)

ARCH 100	3
CONST 120	3
CONST 260	3
CONST 320	2
CONST 330	3
CONST 370	3
CONST 380	3
CONST 398R	1-2
CONST 420	3
CONST 430	3
CONST 450	3
CONST 498R	1-2
ENG 319	3
MATH 111	2
	38

Repeat 4 times:

CONST 390R	0.5
	2

Take 15 credits:

ARCH 110	3
ARCH 270	3
ARCH 280	3
CONST 210	2
CONST 230	3
CONST 240	3
CONST 250	3
CONST 298R	1-2
CONST 340	3
CONST 350	3
	15

Program Notes:

Students majoring in Construction Management are required to select either the Business Management Minor or a Business Management Cluster. If a Business Management cluster is chosen, an additional cluster must be chosen from the CM clusters list, which includes Commerical Construction, Residential Construction and Architectural clusters. Students wishing to "custom design" clusters will need to counsel with their Advisor.

Total Major Credits=55

This minor is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES

Architecture and Construction Pre-approved Clusters

(For Construction Management Majors Only)

Construction Management Business Management

Choose 1 Option

Option 1

Take this course:

ACCTG 180	Survey of Accounting	3
ACCTG 201	Financial Accounting	3
ACCTG 202	Managerial Accounting	3

Take 1 course:

B 101	Introduction to Business	3
B 283	Entrepreneurship Skills	3

OR

Option 2

Take these courses:

ACCTG 201	Financial Accounting	3
ACCTG 202	Managerial Accounting	3

AND

Enrichment - Take 2 courses:

B 201	Introduction to Finance	3
B 247	Principles of Marketing	3
B 370	Human Resource Management	3
B 380	Introduction to Internatioanal Business	2
B 413	Real Estate (Prereq B 201)	3
ECON 112	Economic Principles and Problems - Micro	3
FMAT 221	Business Statistics	3
	Total Credits	**12**

NOTE: Students may choose from one of the CM clusters below or they may establish a Specialized Cluster by selecting 12 credits from any of the other CM clusters. Clusters using classes that are not in the CM cluster lists need to be approved and signed by your academic advisor before beginning the coursework.

Commercial Construction

Take 12 Credits:

ARCH 270	Specifications	3
CONST 340	Fundamentals of Land Survey	3
CONST 350	Soils and Equipment	3
CONST 400	Advanced Estimating	3
GEOL 404	Environmental Geology	3
ME 105	Basic Welding	4
SPAN	Any Spanish Course	3-4
	Total Credits	**12**

Architecture

Take 12 Credits:

ARCH 110	Architectural Computer Aided Design	3
ARCH 160	Architectural Design and Drafting	3
ARCH 210	Advanced Architectural CAD	3
ARCH 260	Rendering and Perspective	3
ARCH 270	Specifications	3
ARCH 280	Building Information Modeling	3
ME 115	Computerized Technical Illustration	2
	Total Credits	**12**

Residential Construction

Take 12 Credits :

CONST 210	Finishing Systems	3
CONST 230	Mechanical Systems	3
CONST 240	Electrical Systems	3
CONST 250	Steel Structural Systems	3
CONST 300	Cabinetmaking	3
CONST 460	Residential Construction Practice	2
ME 105	Basic Welding	4
SPAN	Any Spanish Course	3-4
	Total Credits	**12**

Course Descriptions — Credits*

ARCH 100 Construction Documents (3:3:1)
Introduction to blueprint reading and UDS symbology, CSI specifications, construction terminology, codes, and the construction process. Evaluation of working drawings, specifications, and codes.
(Fall, Winter, Spring)

ARCH 110 Architectural Computer Aided Design (3:2:4)
Prerequisite: Arch 100, Const 120 or concurrent enrollment.
This is an introductory course in the use of computer aided design in architecture. Through the use of computer graphics systems and industry standard software, students will learn to draw and develop residential construction documents and building models. Drawings include floor plans, sections, elevations, details, plot plans, and schedules.
(Fall, Winter, Spring)

ARCH 160 Architectural Design and Drafting (3:2:4)
Prerequisite: Arch 100 and Arch 110 (Arch 110 could be taken simultaneously)
Construction document preparation of residential and commercial projects using the design process, sketching, and manual drafting skills. A major emphasis of this course will be the schematic design phase of the design process.
(Winter, Spring)

ARCH 210 Advanced Architectural Computer Aided Design (3:2:4)
Prerequisite: Arch 100, Arch 110, Arch 160
This is beginning course in the use of Building Information Modeling in architecture. Through the use of computer graphics systems and industry standard software (AutoCAD and Revit Architecture) students will learn to develop and refine a complete set of construction documents. This course will also examine various construction materials and methods and their relationship to specific design intentions. The course will begin with the initial functional/conceptual diagram and examine its refinement through building codes, structural principles, material properties, and systems integration. Learning is project focused with the various software commands and features being taught as needed to complete the assigned projects. Students will work both individually and in groups.
(Fall, Winter)

ARCH 260 Rendering and Perspective (3:3:3)
Prerequisite: Arch 100, Arch 160
Rendering and perspective is a course dealing with basic perspective fundamentals required for freehand perspective drawing. It also includes the technical principles of perspective required to layout precise perspective constructions. The course will help build basic light, color, and rendering vocabulary required for quality drawing presentations.
(Fall, Winter)

ARCH 270 Specifications (3:3:0)
Prerequisite: Arch 100, Arch 160, Const 120, Sophomore status
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.
(Fall, Winter, Spring)

ARCH 280 Building Information Modeling (3:2:2)
Prerequisite: Arch 110, Const 120, Arch 210, and Const 330 (can be taken concurrently).
Building Information Modeling (BIM) means to create a virtual model of a building that can be used for quantity take offs, design decisions, interference checking, construction document generation, rendering and presentation, etc. You will use standard building components (families), modify standard components and create your own components. Each building component is represented by smart objects that "know how" to relate to one another and can contain extensive information about their own characteristics. You will create schedules (detailed lists) of components that can be used for quantity take offs and estimating. You will create rendered views of your model.

Basic knowledge of 2D and 3D CAD, Excel spreadsheets, and construction methods is assumed. Learning is project focused with the various commands and features being learned as needed to complete the assignments.

You will develop useful strategies for life-long learning that will enable you to approach new CAD versions or programs with confidence.
(Fall, Winter)

CONST 100 Basic Woodworking (3:2:2)
Fee: $40.00
Basic woodworking is a study of woodworking skills for both the novice and more advanced woodworker. The course will study project planning and design, wood and wood products, safe operation of hand and power tools, and joinery techniques.
(Fall, Spring)

CONST 110 Home Maintenance (3:2:2)
Fee: $10.00
Prerequisite: Non-majors only
A basic consumer course to help future homeowners understand how the basic structural, mechanical, and electrical systems work in a home. Students will gain a better understanding of modern home ownership and home maintenance through classroom and laboratory experience.
IAs schedule allows)

CONST 120 Framing Systems (3:2:2)
Prerequisite: An in-depth understanding of construction documents or concurrent enrollment in Arch 100 is necessary.
A study of construction materials and methods of constructing structures. Classroom, lab experiences and construction site tours give students an understanding of building frame parts, procedures and applications of materials. Construction tool safety, codes, blueprint reading and application, conventional and innovative framing technology for residential and commercial construction will be emphasized.
(Fall, Winter, Spring)

CONST 200 Advanced Woodworking (3:2:4)
Prerequisite: Const 100
Advanced woodworking is a study of practices, materials, methods, and techniques used in the design and construction of fine wood furniture. Emphasis will be placed on materials and fine joinery techniques.
(Fall, Spring)

CONST 210 Finishing Systems (3:2:3)
Prerequisite: CONST 120, Arch 100.
A study of construction materials and methods of exterior and interior building finishing systems. Classroom and lab experiences give students an understanding of finishing procedures and applications of materials. Construction materials, terminology, codes, blueprint reading, installation methods, and material quantity takeoffs will be emphasized.
(Fall, Winter)

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.
(Fall, Winter, Spring)

* Credit Description (Credit Hours : Lecture Hours per week : Lab Hours per week)

CONST 240 Electrical Systems (3:2:2)

Prerequisite: Arch 100

Study of materials, design of circuits and inspection for electrical heat, light and power installation in homes and small buildings. The class covers the National Electrical Code (NEC) and applicable local codes. The course applies the NEC as a standard for the layout and installation of residential electrical systems. Basic electrical theory will be presented and applications and basic wiring skills will be introduced.
(Fall, Winter, Spring)

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

Prerequisite: Arch 100

A study of steel construction technology including steel frame construction of light guage and heavy structural and tube steels. Classroom and lab experiences will include construction methods, materials, connection design, prints, symbols, tools and equipment, joining methods, welding processes and skills, coded, specifications, quality, safety and nomenclature.
(Fall, Winter)

CONST 260 Statics & Strength of Materials (3:3:0)

Prerequisite: Arch 100, Math 111, Const 120

The course provides an introduction to force systems in static equilibrium and an elemental understanding of strength 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 fee body diagrams, trusses, frames, centroids, stress, strain, deformation and load, shear and moment diagrams.
(Fall, Winter, Spring)

CONST 290 Special Problems (1-4:0:0)

Prerequisite: Approved after consultation with Instructor in charge.

Selected problem solving in a variety of construction and architectural areas. May involve special assignment, laboratory, and on-the-job experience.

CONST 298R Internship (1-2:0:0)

Prerequisite: For Students with less than 60 credit hours

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.
(Fall, Winter, Spring)

CONST 300 Cabinetmaking (3:2:4)

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.
(Winter, Spring)

CONST 320 Construction Safety (2:2:0)

Prerequisite: Arch 100

This course introduces students to OSHA policies, procedures, and standards, as well as construction safety and health principles. Topics include scope and application of OSHA construction standards. Special emphasis will be placed on the most common safety hazards in the construction industry. Upon successful course completion, the student will receive an OSHA construction safety and health 30-hour course certification card.
(Fall, Winter, Spring)

CONST 330 Construction Estimating (3:3:3)

Prerequisite: CONST 120, ARCH 100

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.
(Fall, Winter, Spring)

CONST 340 Fundamentals of Land Surveying (3:2:4)

Prerequisite: Math 111

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

CONST 350 Soils & Equipment (3:2:2)

Prerequisite: Arch 100

An introduction to soil mechanics. Soils classification. Soils exploration and testing. Cost and control of excavating, hauling, grading, compacting, lifting, and other heavy equipment.
(Fall, Winter, Spring)

CONST 370 Concrete & Masonry Construction (3:2:2)

Prerequisite: Arch 100

A study of concrete construction technology including footings, foundations, cement types, admixtures, mixing, forming, reinforcing, placement, curing, testing, hot and cold weather applications. Materials and methods used in modern masonry construction. Applicable building codes will be reviewed.
(Fall, Winter, Spring)

CONST 380 Project Management (3:3:0)

Prerequisite: Arch 100, Const 310, or concurrent registration.

Project Management is an introduction to onsite management and control of construction projects including overall project management, the management of people, materials and time, and the management of financial resources.
(Fall, Winter, Spring)

CONST 390R Construction Seminar (0.5:1:0)

Prerequisite: Completed 45 hours coursework. Sophomore status

Construction 390R is a Junior/Senior level lecture series which will introduce students to relevant topics and leaders within the construction industry. Possible topics to be covered include: estimating, scheduling, safety, team building, sales, and marketing. Additional topics such as developing internship and employment opportunities, interviewing, resume and letter writing, and salary negotiations, will also be covered.
(Fall, Winter, Spring)

CONST 398R Junior Internship (1-2:0:0)

Prerequisite: For students with less than 90 credit hours.

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.
(Fall, Winter, Spring)

CONST 400 Advanced Estimating & Bidding (3:3:3)

Prerequisite: Arch 100, Const 330

The purpose of Const 400 Advanced Estimating 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.
(Fall, Spring)

* Credit Description (Credit Hours : Lecture Hours per week : Lab Hours per week)

CONST 420 Construction Scheduling (3:2:2)

Prerequisite: Arch 100, Const 310, Const 330, Const 498

This course is an introduction to concepts of construction project scheduling, including: planning and developing efficient construction schedules, methods of preparing construction schedules, and using schedules to efficiently manage job resources and control costs.

(Fall, Winter, Spring)

CONST 430 Construction Law (3:3:0)

Prerequisite: Arch 100, Const 310, Const 330, Const 498

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 450 Construction Management (3:3:0)

Prerequisite: Arch 100, Const 498

An introduction to organizing, controlling, and directing operations of construction companies including business ownership and management, company organization, business methods, bonds, insurance, safety, building and land use regulations, and labor relations.

(Fall, Winter, Spring)

CONST 460 Residential Construction Practices (2:2:0)

Prerequisite: Arch 100, Const 120, Const 220, and Const 330.

An overview of construction management practices in residential construction. Focuses on construction and contracting methods, productivity, work activity sequencing, and company organizations. Leadership and communication skills, construction ethics will also be covered.

(Fall, Spring)

CONST 498 Construction Internship (1-2:0:0)

Prerequisite: Final internship prior to employment

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.

(Fall, Winter, Spring)

* Credit Description (Credit Hours : Lecture Hours per week : Lab Hours per week)