Overview

The Interior Building Architecture Program provides students with a background in Architectural Drafting. Students who successfully complete the suggested program will be capable of doing detail and layout work normally expected of the drafting aide or technician. The program is designed to provide transfer opportunities in the Environmental Design and/or Construction Management disciplines as well as opportunities for students to qualify for employment in a variety of positions within related industries.

Degrees and Certificates Offered

A.S. in Building Information Modeling (BIM)
A.S. in Interior Building Architecture
Building Information Modeling (BIM) Certificate
Green Buildings Certificate
Interior Building Architecture Certificate

Associate Degrees

A.S. in Building Information Modeling (BIM)

This Degree program provides students with a background in Computer-Aided Drafting & Design (CADD) and Building Information Modeling (BIM) for application to the architectural building space and design of buildings, interior space analysis and design to facilitate selection of materials & products promoting energy conservation, ecologically sustainable building space and building design using Green Building/LEED point principles.

Students who successfully complete the suggested program will be capable of performing pre-modeling (massing), modeling, and developing drawing documents normally expected of architects, designers, and drafting technicians.

The program is designed to provide job market skills, and college transfer skill opportunities within the Architectural Design disciplines and/or Construction Management as well as opportunities for students to qualify for employment in a variety of positions within the related industries. Additionally, this program offers opportunities for working professionals to take these courses for professional development to update and improve their skills in the Building Information Modeling field.

Note: It is highly recommended that each student keep a complete record of semester work/projects (i.e., a portfolio) to present for evaluation by university/college program advisors and/or employers.

This degree program utilizes various Building Information Modeling (BIM) software components, such as Revit Architecture, MEP, and Structure to prepare students for careers and college transfer in the area of Interior Building Architecture, Architecture, and Building Information Modeling (BIM), with an emphasis in the Architectural Technology area.

Highlights: State-of-the-Art computer lab and software.

Catalog Date: January 1, 2022

Degree Requirements

<table>
<thead>
<tr>
<th>COURSE CODE</th>
<th>COURSE TITLE</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADT 300</td>
<td>Architectural Sketching and Modeling I</td>
<td>3</td>
</tr>
<tr>
<td>ADT 302</td>
<td>Architectural Sketching and Modeling II</td>
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</tr>
<tr>
<td>ADT 310</td>
<td>Architectural Computer-Aided Drawing I</td>
<td>3</td>
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<tr>
<td>ADT 314</td>
<td>Architectural 3D Modeling</td>
<td>3</td>
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<tr>
<td>ADT 320</td>
<td>Architectural Design Technology - Building Information Modeling (BIM) I</td>
<td>3</td>
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</tbody>
</table>
Course Code | Course Title | Units
---|---|---
ADT 324 | Architectural Design Technology - Building Information Modeling (BIM) III | 3
ADT 322 | Architectural Design Technology - Building Information Modeling (BIM) II | 3
ADT 326 | Architectural Design Technology - Building Information Modeling (BIM) IV | 3
ADT 498 | Work Experience in Architecture Design Technology | 0.5 - 4

Total Units: 24.5 - 28

The Building Information Modeling (BIM) Associate in Science (A.S.) degree may be obtained by completion of the required program, plus general education requirements, plus sufficient electives to meet a 60-unit total. See CRC graduation requirements.

Student Learning Outcomes

Upon completion of this program, the student will be able to:

- SLO #1: Research, evaluate and apply energy conservation, ergonomic considerations, American Disabilities Act (ADA), ecologically sustainable design solution and principles (Green Building/LEED) to design projects.
- SLO #2: Formulate, categorize and identify Green Building/LEED certified materials and systems for use in residential and commercial projects.
- SLO #3: Organize, categorize and illustrate the development of initial models into architectural design documents, individually or through work group methods.
- SLO #4: Demonstrate, summarize and recall visual and verbal note taking methods and apply the information into models and finalized residential and commercial project designs.
- SLO #5: Assess, compose and analyze architectural graphic information effectively to create solutions from a criteria matrix, bubble diagram and block diagramming methods.
- SLO #6: Choose, assemble and distinguish the necessary skills in developing marketable BIM/CADD skills for university transfer and the job market, through measurable methods in project development and presentations.

Career Information

Architectural Draftsperson, Designer/Technician, Planning Assistant, CADD Technician, BIM Technician, Facilities/Space Planner.

A.S. in Interior Building Architecture

This Associate Science program utilizes CADD and Building Information Modeling (BIM) software to prepare students for careers in the area of Interior Building Architecture, Architecture, with an emphasis in Architectural Design. Students who successfully complete the suggested program will be capable of performing pre-modeling (massing), modeling, and developing drawing documents normally expected of architects, designers, and technicians.

The program is designed to provide job market skills, college transfer opportunities in the Interior Building Architecture, Architecture and/or Construction Management disciplines as well as opportunities for students to qualify for employment in a variety of positions within related industries. Additionally, this program offers opportunities for working professionals to take these courses for professional development to update and improve their skills in the interior building architecture field.

NOTE: It is highly recommended that each student keep a complete record of work to present for evaluation by university/college program advisors and/or employers.

This degree program utilizes CADD and Building Information Modeling software components, such as Revit Architecture, MEP, and Structure to prepare students for careers in Interior Building Architecture, Architecture, Building Information Modeling (BIM), with an emphasis in Architectural Technology field.

Highlights: State-of-the-art computer lab and software.

Catalog Date: January 1, 2022

Degree Requirements

Course Code | Course Title | Units
---|---|---
ADT 300 | Architectural Sketching and Modeling I | 3
ADT 302 | Architectural Sketching and Modeling II | 3
ADT 310 | Architectural Computer-Aided Drawing I | 3
ADT 314 | Architectural 3D Modeling | 3
ADT 320 | Architectural Design Technology - Building Information Modeling (BIM) I | 3
ADT 322 | Architectural Design Technology - Building Information Modeling (BIM) II | 3
ARCH 329 | Architectural Working Drawings | 4
CMT 112 | Construction Estimating | 3

Total Units: 25

The Interior Building Architecture Associate in Science (A.S.) degree may be obtained by completion of the required program, plus general education requirements, plus sufficient electives to meet a 60-unit total. See CRC graduation requirements.

Student Learning Outcomes

Upon completion of this program, the student will be able to:

- SLO #1: Research, evaluate and apply energy conservation, ergonomic considerations, American Disabilities Act (ADA), ecologically sustainable design solution and principles (Green Building/LEED) to design projects.
- SLO #2: Formulate, categorize and identify Green Building/LEED certified materials and systems for use in residential and commercial projects.
- SLO #3: Organize, categorize and illustrate the development of initial models into architectural design documents, individually or through work group methods.
- SLO #4: Demonstrate, summarize and recall visual and verbal note taking methods and apply the information into models and finalized residential and commercial project designs.
- SLO #5: Assess, compose and analyze architectural graphic information effectively to create solutions from a criteria matrix, bubble diagram and block diagramming methods.
- SLO #6: Choose, assemble and distinguish the necessary skills in developing marketable BIM/CADD skills for university transfer and the job market, through measurable methods in project development and presentations.
Career Information

Architectural Draftsperson, Designer/Technician, Planning Assistant, CADD Technician, BIM Technician, Facilities/Space Planner.

Certificates of Achievement

Building Information Modeling (BIM) Certificate

This Certificate program provides students with a background in Computer-Aided Drafting & Design (CADD) and Building Information Modeling (BIM) for application to the architectural building space and design of buildings, interior space analysis and design to facilitate selection of materials & products promoting energy conservation, ecologically sustainable building space and building design using Green Building/LEED point principles.

Students who successfully complete the suggested certificate will be capable of performing pre-modeling (massing, modeling, and developing drawing documents normally expected of architects, designers and drafting technicians.

The program is designed to provide job market skills and opportunities within the Architectural Design disciplines and/or Construction Management as well as opportunities for students to qualify for employment in a variety of positions within the related industries. Additionally, this certificate offers opportunities for working professionals to take these courses for professional development to update and improve their skills in the Building Information Modeling (BIM) field.

This certificate program utilizes various Building Information Modeling (BIM) software components, such as Revit Architecture, MEP, and Structure to prepare students for careers in the job market in the area of Interior Building, Architecture, Architecture, Building Information Modeling (BIM), with an emphasis in the Architectural Technology field.

NOTE: Highlights - State-of-the-Art computer lab and software.

Catalog Date: January 1, 2022

Certificate Requirements

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<td>ADT 322</td>
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<tr>
<td>ADT 498</td>
<td>Work Experience in Architecture Design Technology</td>
<td>0.5-4</td>
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</table>

Total Units: 18.5 - 22

Student Learning Outcomes

Upon completion of this program, the student will be able to:

- SLO #1: Research, evaluate and apply energy conservation, ergonomic considerations, American Disabilities Act (ADA), ecologically sustainable design solution and principles (Green Building/LEED) to design projects.
- SLO #2: Formulate, categorize and identify Green Building/LEED certified materials and systems for use in residential and commercial projects.
- SLO #3: Organize, categorize and illustrate the development of initial models into architectural design documents, individually or through work group methods.
- SLO #4: Demonstrate, summarize and recall visual and verbal note taking methods and apply the information into models and finalized residential and commercial project designs.
- SLO #5: Assess, compose and analyze architectural graphic information effectively to create solutions from a criteria matrix, bubble diagram and block diagramming methods.
- SLO #6: Choose, assemble and distinguish the necessary skills in developing marketable BIM/CADD skills for university transfer and the job market, through measurable methods in project development and presentations.

Career Information

Architectural Draftsperson, Designer/Technician, Planning Assistant, CADD Technician, BIM Technician, Facilities/Space Planner.

Green Buildings Certificate

The purpose of this certificate is to develop job skills and an understanding of green strategies for high performance buildings and livable communities. It is focused at students and professionals in the fields of architecture; construction; building management; construction management; building inspection; design technology; landscape; and planning, who want to acquire a comprehensive knowledge of an integrated, economic life-cycle approach to the design of the built environment. It includes study of green rating systems, material choices and environmental strategies for a livable, sustainable future.

Catalog Date: January 1, 2022

Certificate Requirements

<table>
<thead>
<tr>
<th>COURSE CODE</th>
<th>COURSE TITLE</th>
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</table>
ARCH 342  Introduction to Green Buildings  3
CMT 310  Materials of Construction  3

**A minimum of 12 units from the following:**  12

<table>
<thead>
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<tbody>
<tr>
<td>ARCH 332</td>
<td>Design Awareness (3)</td>
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<tr>
<td>ARCH 334</td>
<td>Advanced Design in Three Dimensions (3)</td>
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<td>ADT 320</td>
<td>Architectural Design Technology - Building Information Modeling (BIM) I (3)</td>
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<td>Architectural Design Technology - Building Information Modeling (BIM) II (3)</td>
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<tr>
<td>BIT 150</td>
<td>California Energy Code – Building Energy Efficiency Standards (3)</td>
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<tr>
<td>CONST 143</td>
<td>Photovoltaic Systems (3)</td>
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<td>ECON 306</td>
<td>Environmental Economics (3)</td>
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<tr>
<td>GEOG 302</td>
<td>Environmental Studies &amp; Sustainability (3)</td>
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<tr>
<td>GEOG 305</td>
<td>Global Climate Change (3)</td>
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<tr>
<td>GEOG 306</td>
<td>Weather and Climate (3)</td>
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</tr>
</tbody>
</table>

**Total Units:** 18

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**Student Learning Outcomes**

Upon completion of this program, the student will be able to:

- **PSLO 1:** Establish meaningful ethical, social and environmental objectives for buildings and communities based on the values of energy and resource conscious design.
- **PSLO 2:** Compare and contrast societal and economic implications of utilizing renewable and non-renewable energy sources.
- **PSLO 3:** Compare and contrast the effect of contextual issues and evaluate their impact on energy consumption, environment and the beneficial experience of interior and exterior spaces.
- **PSLO 4:** Identify and articulate issues related to the choice of various building, landscape and environmental systems; ideate responsive solutions; and compare the alternatives in making effective, sustainable decisions.
- **PSLO 5:** Analyze and calculate energy use to make informed, environmentally-sound and economic choices to satisfy human needs for comfort and aesthetics.
- **PSLO 6:** Explain the concepts of resource conservation and waste reduction and make sustainable design choices related to materials and construction.
- **PSLO 7:** Develop a comprehensive understanding of green rating systems, livable communities strategies and the ability to apply these concepts in decision-making.
- **PSLO 8:** Demonstrate independent learning, teamwork and continuing education habits that will help to encourage a lifelong pursuit of knowledge.
- **PSLO 9:** To use a teamwork process to identify issues, analyze criteria, research and apply learned principles to synthesize solutions to specific design projects.
- **PSLO 10:** To demonstrate habits of visual note making and independent research by developing a sketch and notebook to record learning.

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**Career Information**

This certificate helps to develop the knowledge base related to sustainable green buildings and environments for the careers of architecture, construction, construction management, building inspection, horticulture, landscape architecture and architectural design technology.

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**Interior Building Architecture Certificate**

This certificate program utilizes CADD and Building Information Modeling (BIM) software to prepare students for careers in the area of Interior Building Architecture with an emphasis in Architectural Design.

Students who successfully complete the suggested program will be capable of performing pre-modeling (massing), modeling, and developing drawing documents normally expected of architects, designers and drafting technicians.

The program is designed to provide job market skills and opportunities within the Architectural Design disciplines and/or Construction Management as well as opportunities for students to qualify for employment in a variety of positions within the related industries. Additionally, this program offers opportunities for working professionals to take these courses for professional development to update and improve their skills in the interior building architecture field.

Note: It is highly recommended that each student keep a complete record of semester work/projects (i.e., a portfolio) to present for evaluation by employers.

This degree program utilizes various Building Information Modeling (BIM) software components, such as Revit MEP and Structure to prepare students for careers in Interior Building Architecture, Architecture, Building Information Modeling (BIM), with an emphasis in the Architectural Technology area.

**Catalog Date:** January 1, 2022

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**Certificate Requirements**

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<td>ADT 310</td>
<td>Architectural Computer-Aided Drawing I</td>
<td>3</td>
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<td>ADT 320</td>
<td>Architectural Design Technology - Building Information Modeling (BIM) I</td>
<td>3</td>
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<tr>
<td>ADT 322</td>
<td>Architectural Design Technology - Building Information Modeling (BIM) II</td>
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<tr>
<td>ARCH 320</td>
<td>Architectural Design and Communication I</td>
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<tr>
<td>ARCH 321</td>
<td>Architectural Design and Communication II</td>
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<tr>
<td>CMT 310</td>
<td>Materials of Construction</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Units:** 25
Student Learning Outcomes

Upon completion of this program, the student will be able to:

- SLO #1: Research, evaluate and apply energy conservation, ergonomic considerations, American Disabilities Act (ADA), ecologically sustainable design solution and principles (Green Building/LEED) to design projects.
- SLO #2: Formulate, categorize and identify Green Building/LEED certified materials and systems for use in residential and commercial projects.
- SLO #3: Organize, categorize and illustrate the development of initial models into architectural design documents, individually or through work group methods.
- SLO #4: Demonstrate, summarize and recall visual and verbal note taking methods and apply the information into models and finalized residential and commercial project designs.
- SLO #5: Assess, compose and analyze architectural graphic information effectively to create solutions from a criteria matrix, bubble diagram and block diagramming methods.
- SLO #6: Choose, assemble and distinguish the necessary skills in developing marketable BIM/CADD skills for university transfer and the job market, through measurable methods in project development and presentations.

Career Information

Architectural Draftsperson, Designer/Technician, Planning Assistant, CADD Technician, BIM Technician, Facilities/Space Planner.

Architecture Design Technology (ADT) Courses

ADT 300 Architectural Sketching and Modeling I

| Units:  | 3 |
| Hours: | 36 hours LEC; 54 hours LAB |
| Prerequisite: | None. |
| Transferable: | CSU |
| Catalog Date: | January 1, 2022 |

This course instructs students from the beginning level of hand sketching, instrument drawing of architectural graphic and digital modeled images. The course is designed for understanding how to draw existing structures, new structures and interior spaces, Green Building Design-Sustainability environments of Interior Building Architecture, Building Information Modeling, and Building Construction. It guides students from hand sketched graphic concepts through digital modeling in formulating project forms, and spaces. A software application, such as SketchUp® will be utilized at the end of the course as the primary tool for the development of framing plans for an introduction to ADT 302 course.

ADT 301 Introduction to Architectural Design Technology

| Units:  | 3 |
| Hours: | 36 hours LEC; 54 hours LAB |
| Prerequisite: | None. |
| Transferable: | CSU |
| Catalog Date: | January 1, 2022 |

Introduction to Architectural Design Technology (ADT) is a foundational course for students interested in a career within the Architecture, Engineering and Construction (AEC) industry. The course covers introductory skills needed for success in completing the ADT degree. Students will explore the role of the architectural / building technologist in the AEC industry and the current best practices for use of technology in building design and construction. Upon completion of this course, students will be able to identify potential roles for employment and will be able to utilize various tools and instruments to create freehand, technical and digital drawings for communication of various types of graphics and drawings required in industry. A completed portfolio of work will be required.

ADT 302 Architectural Sketching and Modeling II

| Units:  | 3 |
| Hours: | 36 hours LEC; 54 hours LAB |
| Prerequisite: | ADT 300 |
| Advisory: | ADT 300 |
| Transferable: | CSU |
| C-ID: | C-ID ARTS 205 |
| Catalog Date: | January 1, 2022 |

This course instructs students at an intermediate level of sketching, 3D digital design, Green Building/LEED® (Leadership in Energy and Environmental Design) principles in building design, Green Building/LEED® material certification, selection and application to models, 3D surface modeling and site development. The course is designed to facilitate further development to refining the student's design and research skills by specifying, certifying, and applying Green Building/LEED® materials and design concept principles to structures, interior architectural elements, site selection and development. A software application such as SketchUp® will be utilized as the primary software to refine and further develop detail concepts and techniques in 3D-digital modeling.

ADT 304 Office & Commercial Space Planning

| Units:  | 3 |
| Hours: | 36 hours LEC; 54 hours LAB |
| Prerequisite: | None. |
| Transferable: | CSU |
| Catalog Date: | January 1, 2022 |

This course instructs students at the basic to intermediate level in office, commercial and residential space planning, Title 24 and general building code requirements. Concepts covered will develop skills in space programming, criteria schematics and matrices, bubble diagrams, space planning and layout, building materials, code requirements and applications to the design
ADT 310 Architectural Computer-Aided Drawing I

This course covers the introductory study in Architectural Computer-Aided Drawing/Design with specific emphasis in the architectural field. Course subject areas will include but not be limited to identifying CADD components, working in the Windows environment, creating and saving files, entity geometry, editing features, MLine 'Styles', Layer convention properties, text/font 'Styles', layering creation, dimensioning and dimension 'Styles', Model and Paper Space environments, plotting, and Plot 'Styles'. The subject content will cover the development of architectural floor plans, foundation plans & foundation 'details', electrical plans, subdivision plans and others drawings as they relate to the architectural field of study. Students will learn how to develop professional architectural drawing file documentation through the preparation and plotting (printing) presentation.

ADT 314 Architectural 3D Modeling

This course covers the introduction to 3-dimensional modeling and rendering for building structures and spatial analysis studies, Green Building/LEED® (Leadership in Energy and Environmental Design) material and guidelines application. Course subject areas will include shapes, splines, meshes, light, shadows, models, materials, scene creation, animations, and creating exterior and interior architectural and construction objects with software such as 3ds Max Design®.

ADT 320 Architectural Design Technology - Building Information Modeling (BIM) I

This course instructs students in the beginning level of Building Information Modeling as it relates to parametric building modeling for architectural interiors and building space using software such as AutoDesk's Revit® Architecture. The content is a first level introduction course to data-generated Parametric Building Modeling for architectural design and drawing, also known as Building Information Modeling (BIM). Professionals in the design/construction field may have work and/or academic experience to waive any pre-requisites.

ADT 322 Architectural Design Technology - Building Information Modeling (BIM) II

This course instructs students to the intermediate level of parametric modeling and management of architectural interiors and exteriors, building space management/design using software such as Autodesk's Revit®. The content is a second level course introduction to data-generated parametric building modeling “document drawing”, also known as Building Information Management that surpasses pencil and CADD generated architectural drawings.

ADT 324 Architectural Design Technology - Building Information Modeling (BIM) III

This course instructs students in the intermediate level of Building Information Modeling as it relates to parametric modeling and Green Building/LEED® (Leadership in Energy and Environmental Design) for ‘Building Systems’ drawing and design using software such as Autodesk's Revit® MEP. The content is a second level course introduction to data-generated Parametric Building Modeling software for Mechanical, Electrical, and Plumbing systems; Illustrating how the MEP (Mechanical-Electrical-Plumbing) software drawing designs integrate with Revit® Architecture and/or Revit® Structure.
ADT 326 Architectural Design Technology - Building Information Modeling (BIM) IV

This course instructs students in the intermediate level of Building Information Modeling as it relates to parametric modeling and Green Building/LEED® (Leadership in Energy and Environmental Design) guidelines for structural drawing and design using software such as AutoDesk's Revit® Structure. The content is a first level introduction course of data-generated Parametric Building Modeling software for Structures; illustrating how the Structure software drawing designs integrate with Revit® Architecture and/or Revit® MEP.

ADT 495 Independent Studies in Architectural Design Technology

An independent studies project involves an individual student or small group of students in study, research, or activities beyond the scope of regularly offered courses. See the current catalog section of "Special Studies" for full details of Independent Studies.

ADT 498 Work Experience in Architecture Design Technology

This course provides students with opportunities to develop marketable skills in preparation for employment in their major field of study or advancement within their career. It is designed for students interested in work experience and/or internships in transfer level degree occupational programs. Course content includes understanding the application of education to the workforce, completion of required forms which document the student's progress and hours spent at the work site; and developing workplace skills and competencies. Appropriate level learning objectives are established by the student and the employer. During the semester, the student is required to participate in a weekly orientation and 37.5 hours of related paid work experience, or 30 hours of unpaid work experience for 0.5 unit. An additional 37.5 or 30 hours of related work experience is required for each additional 0.5 units. Students may take up to 16 units total across all Work Experience course offerings. This course may be taken up to four times when there are new or expanded learning objectives. Only one Work Experience course may be taken per semester.

ADT 499 Experimental Offering in Architecture Design Technology

This is the experimental courses description.