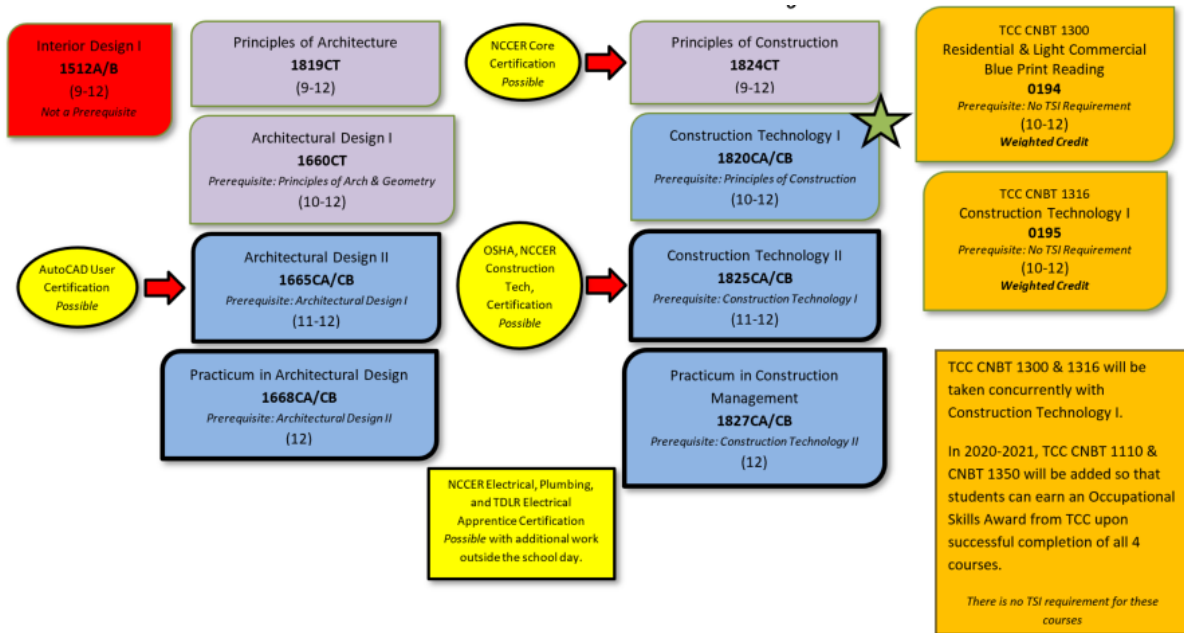


# Architecture & Construction Program of Study



# ARCHITECTURE & CONSTRUCTION

## Endorsement: Business & Industry



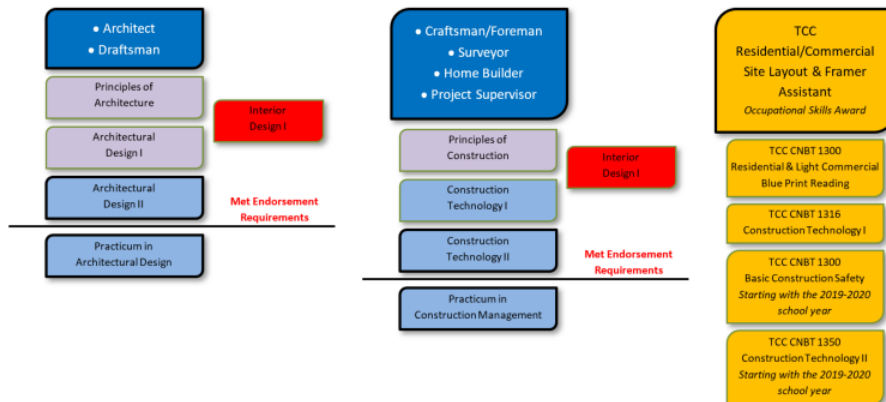
Certification Requirement
The district will pay 100% of the cost of the certification test if students can show mastery by:
Passing a certification practice test
Maintaining an 80+ overall course average at the time of the certification test
If students don't meet the requirements above, they must pay 100% of the cost of the certification test

★ Certificate of Excellence can be earned for this course.

LEGEND					
Fill Color	Length	Credit	Fill Color	Length	Credit
	18 weeks	1		HC - 18 weeks	0.5
	36 weeks	2-3		HC - 36 weeks	1
	College Course			Advanced Course	

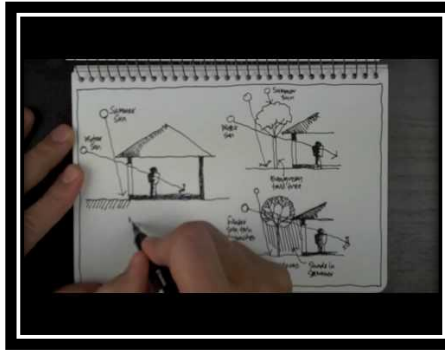
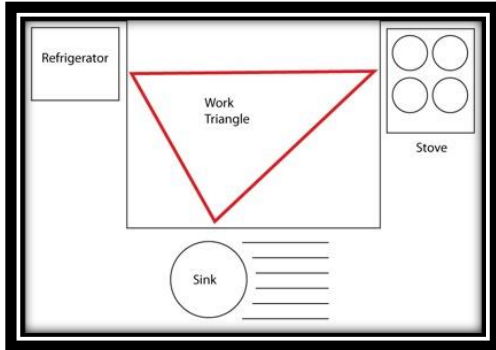
To earn an endorsement, an MISD student must complete a coherent sequence for 4 or more credits that consist of 2 courses in the same program of study including at least 1 advanced CTE course

## Architecture & Construction Recommended Career Pathways



To earn an endorsement, an MISD student must complete a coherent sequence for 4 or more credits that consist of 2 courses in the same program of study including at least 1 advanced CTE course

# Principles of Architecture



**Prerequisite:** None

**Course:** 1819CT

**Credits:** 1

**Length:** 18 weeks

**Placement:** 9-12

## Course Description

Do you like to create things? You can learn to draw in AutoCAD (Automated Computer Aided Design). Learn to use all the architecture tools: drafting table, drawing board, compass, protractor, T-square, French curve and architect's scale. If you like creating houses, landscaping or interior design, you need to enroll in the Principles of Architecture class. Learn to design a floor plan in AutoCAD and Revit (the computer aided design software). Learn how to design residential and commercial blueprints. Students will receive a technology credit by taking this course.

## Student Activities

Students will learn about careers in the architecture industry. Students will learn how to become an Architect, construction manager and urban designer. Students will learn about professional skills. Students will learn how the architect industry and quality work are put together. Students will learn how to be team players. Students will learn how to read an architect's scale. Students will learn essential skills like: communication, networking, workplace documents and how to build an architect portfolio. Students will learn about industry safety. Students will complete hands-on drawings in AutoCAD and Revit software. Students' activities will apply towards the AutoCAD/Revit certification.

## Organizations



SkillsUSA is a partnership of students, teachers and industry working together to ensure America has a skilled workforce.

# Principles of Construction



**Prerequisite:** None

**Course:** 1824CT

**Credits:** 1

**Length:** 18 weeks

**Placement:** 9-12

## Course Description

Principles of Construction is intended to provide an introduction and lay a solid foundation for those students entering the construction or craft skilled areas. The course provides a strong knowledge of construction safety, construction mathematics, common hand and power tools, plus Materials Handling. This course also provides communication and employability skills to assist the student in obtaining and maintaining employment. Certification Modules for each unit of study are obtainable from NCCER. Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.

## Student Activities

Students will work on individual performance tasks identified in the NCCER certification curriculum as well as individual and small group projects utilizing common building materials, blueprints plus hand and power tools to reinforce the curriculum through project-based learning.

## Certifications

NCCER Core Certification Possible  
Student Cost: \$20

Certification paid for by CTE if student has an 80+ GPA in course and passes a practice test

## Additional Considerations

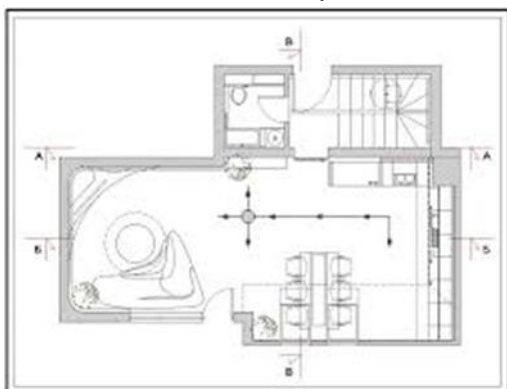
Students need fine motor skills and mobility. Students handle sharp objects and use power tools.

If seeking certification, curriculum cannot be modified.



# Interior Design

## (Home Campus Only)



**Prerequisite:** None

**Course:** 1512A/B

**Credits:** 1

**Length:** 36 weeks

**Placement:** 9-12

## Course Description

This laboratory course teaches students to use knowledge and skills related to interior and exterior environments, construction, and furnishings to compete in industry, increase productivity and make wise consumer decisions. This technical course addresses psychological, physiological and sociological needs of individuals by enhancing the environments in which they live and work.

## Student Activities

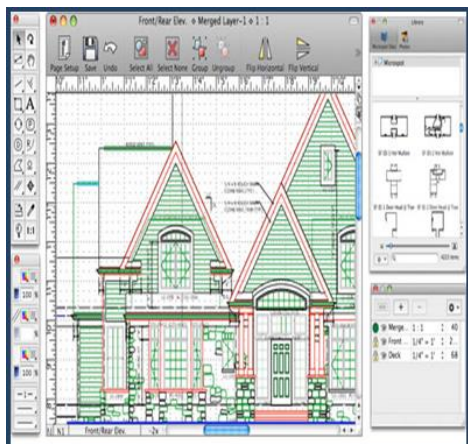
This course includes activities of designing floor plans, arranging furniture, selecting furniture, equipment and accessories using the elements and principles of design during the process. Sketches of various interiors and exteriors will be drawn. Cost analysis and budgeting for interior designs will be calculated.

## Student Organization





# Architectural Design I



**Prerequisite:** Principles of Architecture AND Geometry

**Course:** 166OCT

**Credits:** 1

**Length:** 18 weeks

**Placement:** 10-12

## Course Description

Do you like to draw? Do you like to make things for your room? Learn to draw in AutoCAD (Automated Computer Aided Design) and learn to use all the architecture tools: drafting table, drawing board, compass, protractor, T-square, French curve and architect's scale. If you like drawing or sketching, you need to enroll in the Architecture Design program. Learn to design a floor plan (rooms in your house) in AutoCAD and learn to make a model of your house.

## Student Activities

In class, you will learn to draw letters used by Architects. Students will learn how to use a tape measure to measure rooms, houses and buildings. Students will draw a picture of their parents' houses which is called the floor plan and elevations views. Students will learn how to draw orthographic projections and multi-view drawings using all of the architect's tools. Students will learn to draw two-dimensional drawings on the computer using AutoCAD. The final product in the Architecture Design I class is to draw a floor plan on  $\frac{1}{4}$ " graph paper and build a model house using foam board.

## Organizations

### Additional Considerations

Students must have successfully completed Algebra I and Geometry without modification.



SkillsUSA is a partnership of students, teachers and industry working together to ensure America has a skilled workforce.

# Construction Technology I



**Prerequisite:** Principles of Construction

**Course:** 1820CA/CB

**Credits:** 2

**Length:** 36 weeks

**Placement:** 10-12

## Course Description

The next course in sequence for the Construction Endorsement is Construction Technology, where carpentry is the primary focus. Carpenters construct, erect, install and repair structures and fixtures made from wood and other materials. Skill enhancement projects using hand and power tools develop life-long skills to prepare students to enter the industry or continue their education.

## Student Activities

Students will work in small groups on projects that emphasize the skills related to common building materials, hand & power tools, drawings, specs and layout, floor, wall, ceiling & roof systems & framing, building envelope and basic stair layout.

## TCC Dual Credit Opportunity



TCC CNBT 1300 Residential & Light Commercial Blue Print Reading & TCC CNBT 1316 Construction Technology I can be taken concurrently with this class. There is no TSI requirement, but students must register and pay tuition by TCC deadline.

## Certificate of Excellence



Students can earn a Certificate of Excellence by achieving a specific list of real world skills related to this course. For the list of skills, please visit [goo.gl/9VM3a9](http://goo.gl/9VM3a9)

## Organizations

**SkillsUSA** is a partnership of students, teachers and industry working together to ensure America has a skilled workforce. SkillsUSA helps each student excel.

Surveying, Plumbing, Carpentry, Electrical, TeamWorks, Masonry



## Additional Considerations

Students need fine motor skills and mobility. Students handle sharp objects and use power tools.

# Architectural Design II



**Prerequisite:** Architectural Design I

**Course:** 1665CA/1665CB    **Credits:** 2    **Length:** 36 weeks    **Placement:** 11-12

## Course Description

In Advanced Architectural Design, students gain advanced knowledge and skills specific to those needed to enter a career in architecture and construction or prepare a foundation toward a postsecondary degree in architecture, construction science, drafting, interior design or landscape architecture. Advanced Architectural Design includes the advanced knowledge of design, design history, techniques and tools related to the production of drawings, renderings and scaled models for commercial or residential architectural purposes.

## Student Activities

Students draw a survey, site, plot, foundation, floor, electrical and roofing plans for their custom residential home design in AutoCAD. Students will design the front, sides and rear elevation views for their residential custom home. Students will also draw interior elevation sectional views of the kitchen and fireplace and will draw windows and door schedules. Students will then draw the construction of the wall and roof framing. The finished product will be used to complete a model of the student's custom residential home using balsa wood and a 3-D construction kit.

## Certifications

AutoCAD Certification Possible  
Student Cost: \$100

Certification paid for by CTE if student has an 80+ GPA in course and passes a practice test

If seeking certification, curriculum cannot be modified.

## Organizations



SkillsUSA is a partnership of students, teachers and industry working together to ensure America has a skilled workforce.



# Construction Technology II



**Prerequisite:** Construction Technology I

**Course:** 1825CA/1825CB **Credits:** 2

**Length:** 36 weeks

**Placement:** 11-12

## Course Description

This advanced course is designed to prepare students for an entry-level position in the Construction Industry. The course focuses on two major mechanical building trades: Plumbing and Electrical, plus Advanced Framing Systems and Masonry.

## Student Activities

Students will work in small teams to construct “live trainers” where they apply carpentry skills to frame/erect their “classroom”. They will install all the plumbing for a bathroom, as well as a full breaker panel including 4 circuits of ‘live’ electrical needs. Their trainer will be inspected as if it were a jobsite under construction. When available, students may travel to Habitat for Humanity jobsites to apply their skills on a future home!

## Certifications

NCCER Construction Tech Certification Possible

Student Cost: \$20

OSHA Certification Possible

Student Cost: \$25

Certification paid for by CTE if student has an 80+ GPA in course and passes a practice test

If seeking certification, curriculum cannot be modified.

## Additional Considerations

Students need fine motor skills and mobility.  
If seeking certification, curriculum cannot be modified.

## Organizations

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Surveying, Plumbing, Carpentry, Electrical, TeamWorks, Masonry



# Practicum in Architectural Design



**Prerequisite:** Architectural Design II

**Course:** 1668CA/1668CB

**Credits:** 2

**Length:** 36 weeks

**Placement:** 12

## Course Description

This course is set up for a student pursuing a career in architecture to work in the afternoon and get school credit. The practicum course is a paid or unpaid internship for students participating in the Architecture Design program. A student must have an architecture-related job no later than the first two weeks of class to get credit for the practicum class. Student must adhere to all workplace rules and regulations and have a positive report from the employer.

## Student Activities

For students interested in high-tech, fast-paced and lucrative work in the architecture industry, Architecture can not only provide you with a solid education while you are in high school, but also offer you the opportunity of a paid internship under an experienced architect with a local architecture firm. This will provide you with the skills needed to build a great career in the architecture industry.

## Organizations



**SkillsUSA** is a partnership of students, teachers and industry working together to ensure America has a skilled workforce. SkillsUSA helps each student excel. Students involved in SkillsUSA can compete in District 4, Texas State and International competitions.

## Additional Considerations

If a student does not have transportation, opportunities will be limited.

# Practicum in Construction Management



**Prerequisite:** Construction Technology II

**Course:** 1827CA/1827CB    **Credits:** 2    **Length:** 36 weeks

**Placement:** 12

## Course Description

This internship course is a senior-level capstone practicum experience that aligns with construction career pathways. The main goal of this program is to provide students with industry experience, networking opportunities and education that supersede the classroom. A student must have a construction-related job no later than the first two weeks of class to get credit for the practicum class. Please note the following important facts pertaining to this course:

- Students must have a valid Texas driver's license and provide their own transportation.
- This course is supervised by an Intern Coordinator in conjunction with an Intern Sponsor.
- Candidates will be evaluated on professionalism, participation, and responsibility.
- Students will present and defend a final project to a panel of experts, meeting the requirements for the Distinguished Achievement Program (DAP).

## Additional Considerations

If a student does not have transportation, opportunities will be limited.



# Architecture & Construction

## Certifications

Name	Course	Provider	Cost
NCCER Core	Principles of Construction	National Center for Construction Education & Research	Student Pays: \$ 10 BBIA Pays: \$ 10
There is no minimum age requirement for this certification and students are tested at the Construction Lab at BBCTA. There are 7 modules to complete and students must perform hands-on applications associated with the modules. Each module has an independent test that is multiple choice with no time limit. Students must fill out registration and sign a release form. Students must successfully pass all 7 module tests and complete all hands-on applications successfully to earn this certification.			
OSHA	Construction Technology II	CareerSafe Online	Student Pays: \$ 12.50 BBIA Pays: \$ 12.50
The OSHA certification is an online 10 hour course. Students may access the course in class or at home with internet access. The course is broken up into modules with a test at the end of each module. Students must pass with a 70 or above in 3 attempts or less.			
NCCER Construction Technology	Construction Technology II	National Center for Construction Education & Research	Student Pays: \$ 10 BBIA Pays: \$ 10
Students must have successfully completed NCCER Core before they can begin the NCCER Construction Technology certification. There is no minimum age requirement for this certification and students are tested at the Construction Lab at BBCTA. There are 17 modules to complete and students must perform hands-on applications associated with the modules. Each module has an independent test that is multiple choice with no time limit. Students must fill out registration and sign a release form. Students must successfully pass all 17 module tests and complete all hands-on applications successfully to earn this certification.			
AutoCAD	Architectural Design II	Autodesk	Student Pays: \$ 100
Advance your career by becoming an Autodesk AutoCAD Certified User. Whether you're a student or a professional, this software certification will validate your skills, fulfill academic and industry requirements, and boost your design career.			