

# Architecture and Construction

Earn the Business and Industry endorsement by completing four credits within the CTE Architecture and Construction Cluster, including one advanced course, as noted by **(ADV)**.

## Architecture Design Pathway

### Course List:

- Principles of Architecture
- Architectural Design I
- Architectural Design II **(ADV)**
- Practicum in Architectural Design **(ADV)**

## Electrical Technician Pathway

### Course List:

- Principles of Construction
- Agriculture Mechanics
- Applied Mathematics for Technical Professionals
- Electrical Technician I
- Electrical Technician II **(ADV)**

## Construction Tech Pathway

### Course List:

- Principles of Construction
- Construction Technology I
- Construction Technology II **(ADV)**

## Course Selection Notes:

- Courses vary between home campus and Guthrie Center
- Some courses satisfy Math graduation requirements
- Some courses offer dual credit through Houston Community College

## Certifications Available in Cluster:

- Autodesk Certified User: AutoCad
- Autodesk Certified User: REVIT
- HCC Electrical Helper Certificate Level 1
- OSHA 10 Hour
- NCCER Core NCCER Electrical Level 1

# Architectural Design Pathway (Guthrie)

Earn the Business and Industry endorsement by completing four credits within the CTE Architecture and Construction Cluster, including one advanced course, as noted by **(ADV)**.

## Principles of Architecture AND Architectural Design I

Course ID: CTAC13/13004600 &  
CTAC12/13004210  
Credit: 2.0 (1.0 + 1.0)

Learn the design, history, techniques, and tools related to production of drawings, renderings, and scaled models for architectural purposes. Explore technical drafting; learn beginning computer aided drafting skills and lettering styles, how to read a blueprint and how to edit a set of commercial tenant improvement documents. Begin developing a student portfolio.

- **Must be taken consecutively in one school year**
- **PR: Completion/concurrent enrollment of Geometry**
- **Recommended PR: Art**



## Architectural Design II (ADV)

Course ID: CAC22 A&B/13004700  
Credit: 2.0

Study residential design; including building codes, site plans, interior design, room relationships and sizes, exterior design, conservation and environmental design and framing methods. Create projects for student portfolio including design, presentation using computer-aided drawing skills and building scaled models.

- **PR: Completion of Architectural Design I**



## Practicum Architectural Design (ADV)

Course ID: CAC82 A&B/13004800  
Credit: 2.0

Participate in a supervised practical application of architectural design through classroom learning and a paid or unpaid work experience. Acquire employability skills and experience for pursuit of career opportunities in architectural design. Create a senior design project for student portfolio using the Autodesk Revit program.

- **PR: Completion of Architectural Design II**

### Pathway Notes:

- A paid work experience in this pathway may be available through the Guthrie Center Internship class

### Certification Available:

Autodesk Certified User: AutoCad  
Autodesk Certified User: REVIT

# Electrical Technician Pathway (Guthrie)

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## Partnership with TRIO Electric

*The TRIO Electrician Pre-Apprenticeship Program at the Guthrie Center is an outstanding way for you to get a head start in the high-demand, high skill field of electrical work.*

*Beginning junior year, students take classes at Guthrie taught by a master electrician. Year one of program includes both Electrical Technician 1 and Mathematics for Technical Professionals concurrently.*

*Students work in a paid internship during the summer between 11<sup>th</sup> and 12<sup>th</sup> grade, and earn dual credit from Houston Community College while completing courses at the Guthrie Center.*

## Applied Mathematics for Technical Professionals \*

Course ID: CTPM60/12701410  
Credit: 1.0

Learn and apply a problem-solving model that incorporates analysis, formulating a plan, determining a solution, justifying the solution, and evaluating the reasonableness of the solution as related to the electrical industry. This includes mental math, estimation, and number sense to generate solutions and make connections and predictions, as used by electricians in the field.

- **PR: Completion of Algebra I**
- **Concurrent with Electrical Technician I**

AND

## Electrical Technician I

Course ID: CTAC35/13005600  
Credit: 1.0

Acquire the knowledge and skills related to safety, electrical theory, tools, codes, installation of electrical equipment, and the reading of electrical drawings, schematics, and specifications in the electrical industry.

- **Concurrent with Mathematics for Technical Professionals**

## Electrical Technician II (ADV)

Course ID: CAC45 A&B/13005700  
Credit: 2.0

Apply electrical concepts in safety, electrical theory, tools, codes, installation of electrical equipment, alternating current and direct current motors, conductor installation, installation of electrical services, and electric lighting installation.

- **PR: Completion of Electrical Technician 1 and Mathematics for Technical Professionals**

## Pathway Notes:

- Principles of Construction, which is available at NHS and SWHS is a recommended course prior to entering the Electrical Technician pathway.
- Agricultural Mechanics, which is available at Guthrie Center is a recommended course prior to entering the Electrical Technician pathway.
- \* Satisfies a high school Mathematics graduation requirement

## Certification Available:

Red Cross First Aid/CPR  
OSHA 10 Hour  
Scissor Lift Operator Certification  
HCC Electrical Helper Certificate Level 1

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# Construction Tech Pathway

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## Principles of Construction

Course ID: CAC10 A&B/13004220  
Credit: 1.0

Learn construction safety, mathematics, drawings as well as common hand and power tools used in general maintenance of residential and commercial property. Identify, plan and solve real problems using knowledge of construction practices.



## Construction Technology I

Course ID: CAC14 A&B/13005100  
Credit: 2.0

Expand knowledge and skills in construction related to safety tool usage, building materials, codes and building framing. Learn about other construction trades including electrical, plumbing and HVAC.



## Construction Technology II (ADV)

Course ID: CAC24 A&B/13005200  
Credit: 2.0

Expand construction skills and explore interior and exterior finish out skills and cabinetry. Create simulated projects in other construction trades including electrical, plumbing and HVAC.

- **PR: Completion of Construction Technology 1**

### Pathway Notes:

- Pathway available at NHS and SWHS. Verify specific course availability with campus Counselor.

### Certification Available:

OSHA 10 Hour  
NCCER Core