

# CTAE PATHWAY GUIDE

## ALLIANCE ACADEMY FOR INNOVATION



1100 Lanier 400 Parkway, Cumming, GA 30040 | [www.forsyth.k12.ga.us/alliance](http://www.forsyth.k12.ga.us/alliance)

### Aerospace/ Flight Operations



**AEROSPACE/FLIGHT OPERATIONS** students will gain a fundamental knowledge base in aviation history and regulations, the basic principles of flight, aerospace careers, and factors influencing work systems, aerospace technologies, and basic aviation meteorology. This pathway provides a foundation that enables the student to apply the basics of aircraft navigation and utilize efficient communication methods for safe aircraft operations.

#### PATHWAY COURSES

Fundamental of Aerospace  
Flight Operations I  
Flight Operations II

#### CAREER CHOICES

Aerospace Engineers  
Air Traffic Controllers  
Aircraft Cargo Handling Supervisors  
Airfield Operations Specialists  
Aviation Safety Specialists  
Avionics Inspectors  
Commercial Pilots  
Flight Attendants  
Operations Technicians

**INDUSTRY CREDENTIAL (Credential of Value): Federal Aviation Administration Private Pilot Airplane Written Exam**

### Computer Science



**COMPUTER SCIENCE** students will prepare for entry-level, technical, and professional IT careers, including the design, development, implementation, and maintenance of computer systems and software, as well as knowledge of computer operating systems, programming languages, and software development required of cutting-edge technologies. Students will build a solid understanding and foundation of computer science which emphasis on computational thinking practices: connecting computing, developing computational artifacts, abstracting, analyzing problems and artifacts, communicating, and collaborating.

#### PATHWAY COURSES

Introduction to Digital Technology  
Computer Science Principles or AP CS Principles  
AP Computer Science

#### CAREER CHOICES

Computer Hardware Engineers  
Computer Network Architects  
Computer Programmers  
Computer System Analysts  
Database Administrators  
Information Security Analysts  
Information Systems Managers  
Network Administrators  
Software Developers  
Software Engineers  
Video Game Designers

**INDUSTRY CREDENTIAL (Credential of Value): Microsoft Technology Associate (MTA): Software Development Fundamentals**

### Criminal Investigations



**CRIMINAL INVESTIGATIONS** students will examine the basic concepts of law related to citizens' rights and the responsibilities, and students will receive instruction in critical skill areas including: communicating with diverse groups, conflict resolution, ethics, CERT (Citizens Emergency Response Training, or similar program), basic firefighting, report writing, terrorism, civil and criminal law. Starting with historical perspectives of the origin of the system, the pathway reviews the overall structure.

#### PATHWAY COURSES

Introduction to Law, Public Safety, Corrections, & Security  
Criminal Justice Essentials  
Criminal Investigations

#### CAREER CHOICES

Attorney  
Bailiff  
Border Patrol  
Correctional Officer/Jailer  
Crime Scene Investigator  
Detective  
Forensic Science Technician  
Judge  
Paralegal  
Parole Officer  
Police Officer  
Private Detective and Investigator  
Probation Officer  
Sheriff's Deputy  
State Trooper

**INDUSTRY CREDENTIAL (Credential of Value): NOCTI Criminal Justice**

**For more education on each pathway, download a complete Program of Study:**

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### Cybersecurity



**CYBERSECURITY** students will learn to understand, communicate, and adapt to a digital world as it impacts their personal life, society, and the business world. The pathway is designed to provide students the basic concepts and terminology of cybersecurity and for them to examine how the concept of security integrates into the importance of user involvement, security training, ethics, trust, application of cybersecurity practices and devices, and best practices management.

#### PATHWAY COURSES

Introduction to Digital Technology  
Introduction to Cybersecurity  
Advanced Cybersecurity

#### CAREER CHOICES

Administrative Support Workers Network  
Computer Network Support Specialist  
Computer Operators  
Computer Support Specialists  
Computer System Administrators  
Computer User Support Specialist  
First-Line Supervisors of Office  
Information Systems Managers  
Network System Administrators

**INDUSTRY CREDENTIAL (Credential of Value): Comp TIA Security +**

### Drone/Unmanned Aircraft Systems



**DRONE/UNMANNED AIRCRAFT SYSTEMS** provides students a fundamental knowledge base in aviation history and regulations, the basics of flight, aerospace careers, and factors influencing work. It provides students a foundation to earn a commercial license to pilot an unmanned aircraft system. Topics covered include the effects of weather on an unmanned aircraft, types and uses of unmanned aircraft, pre-flight planning and checks, FAA requirements, technology and remote instruction, radio communications, and more. Students have an opportunity to earn their remote pilot license by taking the FAA Part 107 Exam.

#### PATHWAY COURSES

Fundamentals of Aerospace  
Flight Operations I  
Unmanned Aircraft Systems

#### CAREER CHOICES

Unmanned Aircraft Vehicle (UAV) Pilot  
Public Safety/Emergency Services  
Surveyors and Mapping Technicians  
Television, Video, and Film Camera  
Operators and Editors  
Photographers  
Delivery Services  
Insurance and Claim Research

**INDUSTRY CREDENTIAL (Credential of Value): FAA Drone License Program | Part 107**

### Energy Systems



**ENERGY SYSTEMS** students will explore the relationship between force, work, energy, and power and study the characteristics, availability, conversion, control, transmission, and storage of energy and power. The pathway will guide students to examine and apply the principles of electrical, fluid, and mechanical power. Students research renewable, nonrenewable, and inexhaustible resources and conservation efforts as part of this pathway.

#### PATHWAY COURSES

Foundations of Energy Technologies  
Energy and Power: Technology  
Appropriate and Alternative Energy Technologies

#### CAREER CHOICES

Electricians  
Electrical Engineer  
Electrical Power-Life Installers and Repairs  
Electronics Technicians  
Engineering Technicians  
Equipment, Cable, Line Installers  
Equipment, Cable, Line Repairers  
Hazardous Waste Technicians  
Industrial Production Manager  
Mining Engineers  
Petroleum Engineers  
Pipefitters/ Pipe Layers  
Power Plant Operators  
Value/Regulator Repairers

**INDUSTRY CREDENTIAL (Credential of Value): NOCTI Engineering & OSHA 10**

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### Financial Technologies (FinTech)



**FINANCIAL TECHNOLOGIES (FinTech)** students will explore what new financial technologies are emerging and how technological advances in data analytics are enabling innovation in the financial industry. Through this pathway students examine new services and business models in various areas of banking, insurance, and financial asset management. Various forms of technologies and internet research will be highlighted to expose students to the resources available within financial technology.

#### PATHWAY COURSES

Introduction to Financial Technology  
Financial Technologies and Services  
Coding for FinTech

#### CAREER CHOICES

Account Manager  
Analytics Specialist  
Business Development Manager  
Business Systems Analyst  
Data Scientist  
Database Administrator  
Email Marketing Specialist  
Product Manager  
Salesforce Administrator  
Senior NET Developer  
Software Engineer/Developer

**INDUSTRY CREDENTIAL (Credential of Value):** Not Yet Approved by the Georgia Department of Education

### Firefighting



**FIREFIGHTING** students will learn essential components needed for fire and emergency services. Students will be prepared for exploring firefighting, emergency medical responder, and public safety communications. After completing this course, the student will be able to sit for the exam to certify as a Firefighter I per National Fire Protection Association (NFPA®) 1001, Standard for Fire Fighter Professional Qualifications. This course is also based on the Basic Firefighting Training Program from the GA Public Safety Training Center (GPSTC).

#### PATHWAY COURSES

Introduction to Law, Public Safety, Corrections and Security  
Essentials of Fire and Emergency Services  
Applications of Firefighting

#### CAREER CHOICES

Forest Fire Inspectors  
Forest Fire Prevention Specialists  
Private Detectives and Investigators  
Fire Inspectors  
Firefighters  
First Line Prevention Workers  
First Line Supervisors

**INDUSTRY CREDENTIAL (Credential of Value):** FEMA Emergency Management Institute "Are You Ready"

### Game Design



**GAME DESIGN** students will gain an understanding of the fundamental principles used at every stage of the game creation process. First, game genres and modes of play are explored in terms of the psychology of incentives, motivation to play, and social networking. Next, virtual characters and non-player characters are reviewed from concept drawing to 2D and 3D art, rigging, and animation. Next, level design, storytelling, and animation are added to develop a virtual world around the characters.

#### PATHWAY COURSES

Introduction to Digital Technology  
Computer Science Principles  
Game Design: Animation and Simulation

#### CAREER CHOICES

Audio Engineer  
Computer Systems Managers  
Computer Game Designer  
Computer Programmer  
Information Systems Managers  
Multimedia Artists and Animators  
Software Developer  
Technology Support Specialist  
Video Game Tester

**INDUSTRY CREDENTIAL (Credential of Value):** Unity Certified Associate: Game Developer

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### Graphic Design



**GRAPHIC DESIGN** students will learn processes involved in the technologies of printing, publishing, packaging, electronic imaging, and their allied industries. Students will also gain more experience in creative problem solving and the practical implementation of those solutions across multiple areas of graphic design and graphic communications. Content will cover electronic systems and software programs used in graphic design, page composition, image conversion, and digital printing.

#### **PATHWAY COURSES**

Introduction to Graphics and Design  
Graphic Design and Production  
Advanced Graphic Design

#### **CAREER CHOICES**

Advertising and Promotions Managers  
Art Directors  
Commercial and Industrial Designers  
Creative Designer  
Fashion Design  
Film and Video Editors  
Graphic Designer  
Illustration  
Interior Designers  
Multimedia Artist and Animators  
Photography  
3D Animation

**INDUSTRY CREDENTIAL (Credential of Value): NOCTI Visual Communications & Interactive Media Design**

### Healthcare – Emergency Medical Responder



#### **HEALTHCARE – EMERGENCY MEDICAL RESPONDER**

students will be provides initial stabilizing care to the sick or injured prior to the arrival of Emergency Medical Services Professionals (EMS), and to assist EMS personnel in transporting patients for definitive care at an appropriate hospital/facility. Major areas of instruction include Introductory Medical Terminology and Anatomy & Physiology; Responder Safety; Incident Command; Blood-borne Pathogen Training; Basic Physical Assessment; and Treatment of Trauma and Medical Emergencies; Cardiopulmonary Resuscitation and the use of Automatic External Defibrillators (AEDs).

#### **PATHWAY COURSES**

Introduction to Healthcare Science  
Essentials of Healthcare Science  
Emergency Medical Responder

#### **CAREER CHOICES**

Emergency Nurse  
EMT and Paramedic  
Firefighter  
Licensed Practical Nurse  
Paramedic Technologist  
Registered Nurse

**INDUSTRY CREDENTIAL: FEMA Emergency Management Institute Certification , National Registry of Emergency Medical Technicians (NREMT)**

### Healthcare – Emergency Medical Technician



#### **HEALTHCARE – EMERGENCY MEDICAL TECHNICIAN**

prepares students to provide basic emergency medical care and transportation for critical and emergent patients who access the emergency medical system. This individual possesses the basic knowledge and skills necessary to provide patient care and transportation. Emergency Medical Technicians perform interventions with the basic equipment typically found on an ambulance. The Emergency Medical Technician is a link from the scene to the emergency health care system.

#### **PATHWAY COURSES**

Introduction to Healthcare Science  
Essentials of Healthcare Science  
Emergency Medical Technician

#### **CAREER CHOICES**

Air Ambulances  
Clinics  
Colleges and Universities  
Critical Care Transport Units  
Fire Departments  
Hospital Ambulance Services  
Hospital Emergency Departments  
Law Enforcement Agencies  
Physician Practices  
Public and Private Ambulance Services  
Surgery Centers

**INDUSTRY CREDENTIAL: Emergency Medical Technician (EMT)**

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### Hospitality and Tourism



**HOSPITALITY AND TOURISM** students will learn about the basics of marketing and business in relation to the hospitality, recreation, and tourism industry in the U.S. and abroad. Students will study destination geography, world economies, and historical timelines related to major segments of the hospitality industry. The vital roles of group, convention and meeting planning, human relations, communications and ethics will be discussed along with the recreation industry segment. Students will also demonstrate skills in handling legal and liability issues and human resources functions.

#### PATHWAY COURSES

Marketing Principles  
Hospitality, Recreation, and Tourism Essentials  
Hospitality, Recreation, and Tourism Management

#### CAREER CHOICES

Catering Manager  
Country Club Management  
Cruise Director  
Entrepreneur  
Golf Course Management  
Hotel Management  
International Tourism  
International Hotel Management  
Sales Representative  
Social Media Marketer  
Tourism Director  
Travel Agent  
Travel Blogger  
Travel Planner

**INDUSTRY CREDENTIAL (Credential of Value): NOCTI Travel & Tourism**

### International Business and Finance



**INTERNATIONAL BUSINESS** provides students essentials for working in an international business environment, managing a business, and owning a business. Key concepts emphasized include global awareness, entrepreneurship, and cultural competency. Studies also include real, specific, historical cases from international businesses and analyze how those businesses have handled certain situations. The use of case studies will allow students to use the knowledge gained to analyze and evaluate decisions made by real international businesses.

#### PATHWAY COURSES

Introduction to International Business  
Global Awareness and Cultural Competency  
International Business Concepts

#### CAREER CHOICES

Economist  
Foreign Exchange Trader  
International Marketing Manager  
Logistics Manager  
International Trade/Customs Manager  
International Foreign Policy Advisor  
Foreign Service Officer  
Trade Specialist  
Import/Export Coordinator  
Supply Chain Manager  
Sales Executive  
International Accountant

**INDUSTRY CREDENTIAL (Credential of Value): Not Yet Approved by the Georgia Department of Education**

### Legal Services – Applications of Law



**LEGAL SERVICES – APPLICATIONS OF LAW** students will be provided with an overview of the judicial process and role in our constitutional system of government. This course focuses on substantive law, both criminal and civil law, as well as the application of the law to factual scenarios. Students will learn the basic concepts of criminal law in order to analyze factual scenarios and apply criminal law to justify an appropriate criminal charge and the presence of possible defenses.

#### PATHWAY COURSES

Introduction to Law, Public Safety, Corrections and Security  
Essentials of Legal Services  
Applications of Law

#### CAREER CHOICES

Attorneys  
Correction Officers & Jailers  
Court Reporters  
Criminal Investigators  
Information Security  
IT Specialists  
Paralegals and Legal Assistants  
Police Officers  
Public Safety Communication  
Security and Protective Services

**INDUSTRY CREDENTIAL (Credential of Value): Not Yet Approved by the Georgia Department of Education**

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### Mechatronics



**MECHATRONICS** students will be introduced to direct current concepts and applications, pneumatic system fundamentals, and programmable logic controllers (PLCs). Topics include electrical laws and principles, magnetism, series, parallel, and simple combination DC circuits, pneumatic system principles and components, and PLC installation and programming. They will also learn about alternating current theory and applications of varying sine wave voltages and current, motor theory and operating principles, control devices, symbols and schematic diagrams, preventative maintenance and troubleshooting.

#### PATHWAY COURSES

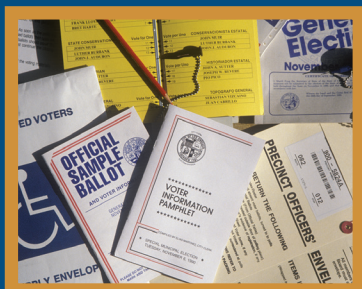
Introduction to Mechatronics  
AC Theory, Electric Motors, and Hydraulic Systems  
Semiconductors Mechanical Sys, & Pump and Piping Systems

#### CAREER CHOICES

Chemical Plant and System Operators  
Commercial Equipment Repairers  
Computer User Support Specialists  
Electrical and Electronics Repairers  
Electronics Engineering Technicians  
Industrial Engineers  
Industrial Engineering Technicians  
Industrial Equipment Repairers  
Industrial Machinery Mechanics

**INDUSTRY CREDENTIAL (Credential of Value):** NOCTI Mechatronics – Level 1 and OSHA 10

### Public Management and Administration



**PUBLIC MANAGEMENT AND ADMINISTRATION** students focus on planning and performing government functions at the local, state and federal levels, including governance, national security, foreign service, planning, revenue and taxation, and regulations. Government and public administration workers plan, coordinate and manage a huge range of services to ensure that organizations run efficiently, economically and equitably.

#### PATHWAY COURSES

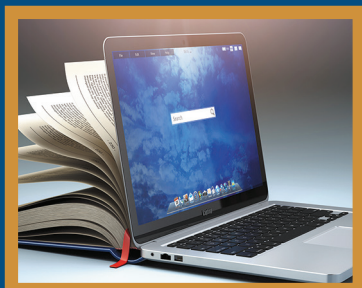
Introduction to Government and Public Administration  
Government Public Administration:  
State and Federal Issues  
Government Public Administration:  
Local and State Issues

#### CAREER CHOICES

Congressional Aide/Lobbyist  
County Commissioner  
City and State Officials  
Cryptographer  
Intelligence Analyst  
Foreign Service Officer  
Census Clerk  
Tax Examiner/Tax Clerk  
Internal Revenue Investigator  
Assessor/Auditor  
Cargo Inspector/Border Inspector  
Court Administrator or Clerk  
City or County Clerk/Manager

**INDUSTRY CREDENTIAL (Credential of Value):** Not Yet Approved by the Georgia Department of Education

### Teaching as a Profession



**TEACHING AS A PROFESSION** students will learn to plan, manage, and provide education and training services, and related learning support services such as administration, teaching/training, administrative support, and professional support services. They will be engaged in observations, interactions, and analyses of critical and contemporary educational issues and investigate issues influencing the social and political contexts of educational settings in Georgia and the United States and actively examines the teaching profession from multiple vantage points both within and outside of the school.

#### PATHWAY COURSES

Examining the Teaching Profession  
Contemporary Issues in Education  
Teaching as a Profession Internship

#### CAREER CHOICES

Adult Educator  
After-School Program Supervisor  
Coach  
Education Evaluator  
Educational and Teacher Aide  
K-12 School Teacher  
Media Specialist  
Post-Secondary Vocational Education  
Recreation Attendant  
School Administration  
Special Education Teacher

**INDUSTRY CREDENTIAL (Credential of Value):** NOCTI Teaching as a Profession (College EDUC 2110 Credit in Georgia)

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