

CTAE PATHWAY GUIDE

ALLIANCE ACADEMY FOR INNOVATION

1100 Lanier 400 Parkway, Cumming, GA 30040 | 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 Software 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

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 Hardware 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 +

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

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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

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

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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 Software 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

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

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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)

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

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International Business



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

Law Enforcement/Forensic Science



LAW ENFORCEMENT/FORENSIC SCIENCE 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, basic firefighting, report writing, terrorism, civil and criminal law. Students will learn investigative techniques and crime scene investigation skills using the scientific method.

PATHWAY COURSES

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

CAREER CHOICES

Coroner
Detective
Evidence Technician
Fingerprint Technician
Forensic Investigator
Forensic Pathologist
Forensic Psychologist
Medical Examiner
Police Officer
Sheriff's Officer
Special Agent

INDUSTRY CREDENTIAL (Credential of Value): NOCTI Criminal Justice

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 & 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

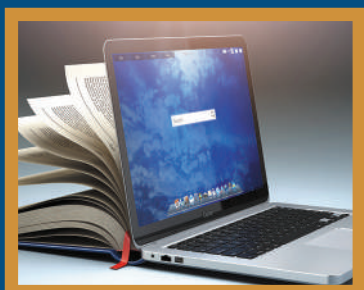
Introduction to Government and Public Administration
Government Public Administration:
State and Federal Issues
Government Public Administration:
Local and State Issues

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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