CTAE PATHWAY GUIDE
DENMARK HIGH SCHOOL

645 Mullinax Road, Alpharetta, GA 30004 | www.forsyth.k12.ga.us/dhs

Artificial Intelligence

ARTIFICIAL INTELLIGENCE students study the simulation of intelligent behavior in computers. Artificial Intelligence sits at the intersection and synergy of critical components from a variety of fields including programming, data science, mathematical reasoning, creative problem solving, ethics, and applied experiences. Students in the AI pathway will apply professional software development tools and processes to create functional, real-world applications of Artificial Intelligence using machine learning.

PATHWAY COURSES
- Foundations of Artificial Intelligence
- Artificial Intelligence Concepts
- Artificial Intelligence Applications

CAREER CHOICES
- Big Data Engineer/Architect
- Business Intelligence Developer
- Computer Vision Engineer
- Data Mining/Analysis
- Data Scientist
- Machine Learning Engineer
- Natural Language Processing Engineer
- Researcher/Research Scientist
- Robotics Engineer
- Software/AI Engineer
- Software Architect

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

Cloud Computing

CLOUD COMPUTING students will develop an overall understanding of cloud computing, cloud concepts, core services, security, architecture, and support. Technical content includes designing, developing, and deploying a virtual private network, creating a cloud environment that is scalable, and demonstrating safe use of big data. Students will also dive deeply into cloud computing best practices and learn how cloud computing helps users develop a global infrastructure.
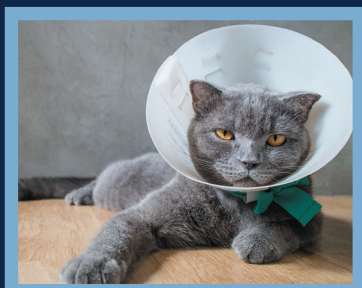
PATHWAY COURSES
- Introduction to Software Technology
- Computer Science Principles or AP CS Principles
- Cloud Computing

CAREER CHOICES
- Software Engineer
- Cloud Engineer
- Data Engineer
- System Engineer
- Full Stack Developer
- Java Developer
- Data Scientist
- Systems Administrator
- .NET Developer
- Front-end Developer

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

Companion Animal Systems

COMPANION ANIMAL SYSTEMS students will learn the major areas of scientific agricultural production and research and learn problem solving lessons, introductory skills, and knowledge in agricultural science and agri-related technologies. This pathway also introduces students to the scientific principles that underlie the breeding and husbandry of agricultural animals, and the production, processing, and distribution of agricultural animal products. Students will also learn skills and concepts involved with the care and management of companion animals.

PATHWAY COURSES
- Basic Agriculture Science
- Animal Science and Biotechnology
- Small Animal Care

CAREER CHOICES
- Agricultural Animal
- Agricultural Inspector
- Agriculture Teacher
- Animal Breeder
- Animal Care and Service Worker
- Animal Scientist
- Biological Technician
- Nonfarm Animal Caretaker
- Ranch Manager
- Veterinarian
- Veterinary Assistant
- Veterinary Technician

INDUSTRY CREDENTIAL (Credential of Value): Precision Animal Science II

For more education on each pathway, download a complete Program of Study:
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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. Students will also gain knowledge of computer operating systems, programming languages, and gain knowledge of required 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 A

CAREER CHOICES
- Computer Hardware Engineer
- Computer Network Architect
- Computer Programmer
- Computer System Analyst
- Database Administrator
- Information Security Analyst
- Information Systems Manager
- Network Administrator
- Software Developer
- Software Engineer
- Video Game Designer

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

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Culinary Arts

CULINARY ARTS students will complete a variety of skills required by the restaurant and food industry such as knife skills, cooking techniques, menu planning, food purchasing and costing, food safety and sanitation, and front of the house service. The pathway allows students to develop in-depth knowledge and hands-on skill mastery of culinary arts and allows them to refine hands-on production of the classic fundamentals in the commercial kitchen.
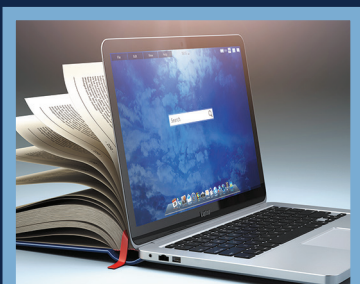
PATHWAY COURSES
- Introduction to Culinary Arts
- Culinary Arts I
- Culinary Arts II

CAREER CHOICES
- Cake Designer
- Caterer
- Chef and Head Cook
- Dining Room Management
- Food and Beverage Director
- Food Services Manager
- Food Stylist and Photographer
- Food Writer and Critic
- Kitchen Manager
- Pastry Chef
- Personal Chef
- Restaurant Entrepreneur

INDUSTRY CREDENTIAL (Credential of Value): American Culinary Federation (ACFEF) Secondary Culinary Graduate

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Education as a Profession

EDUCATION 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
- Education as a Profession I
- Education as a Profession II
- Education as a Profession Practicum

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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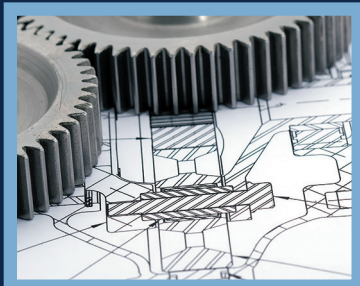https://www.gadoe.org/Curriculum-Instruction-and-Assessment/CTAE/Pages/Programs-of-Study.aspx

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Engineering and Technology

ENGINEERING AND TECHNOLOGY students will combine hands-on projects and rigorous curriculum to be prepared for challenging postsecondary engineering and technology problems; and build solid technical writing, comprehension, calculation, problem-solving, and technical skills. Students are encouraged to take relevant math and science courses, such as advanced algebra, chemistry, calculus, geometry, trigonometry, physics, design, and engineering concepts.

PATHWAY COURSES
- Foundations of Engineering and Technology
- Engineering Concepts
- Engineering Applications

CAREER CHOICES
- Civil Engineer
- Designer
- Drafter
- Electrical Engineer
- Industrial Engineer
- Machinist
- Manufacturing
- Materials Engineer
- Mechanical Engineer
- Quality Control Inspector

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

Entrepreneurship

ENTREPRENEURSHIP students focus on recognizing a business opportunity, starting a business, operating and maintaining a business. Students will align business goals that focus on planning, organizing, coordinating, and controlling the resources needed to produce and provide goods and/or services that lead to owning and operating a small business. They will learn statutes and regulations affecting businesses, families, and individuals.

PATHWAY COURSES
- Introduction to Business and Technology
- Legal Environment of Business
- Entrepreneurship

CAREER CHOICES
- Advertising and Promotion Manager
- Business Manager
- Chief Executive Officer
- Claims Adjuster or Examiner
- Computer Systems Analyst
- Cost Estimator
- Database Administrator
- Financial Analyst or Manager
- Network and Computer System
- Paralegal and Legal Assistant
- Personal Financial Advisor
- Training and Development Manager

INDUSTRY CREDENTIAL (Credential of Value): NOCTI General Management

Fashion, Merchandising, and Retail Management

FASHION, MERCHANDISING, AND RETAIL MARKETING students will be introduced to the retail industry including the fundamentals of fashion marketing, key marketing concepts essential to every business, types of businesses involved in the industry, and an array of career opportunities. Students will develop skills in such areas as fashion economics, marketing segmentation and target marketing, product selection and buying, and inventory system. The pathway will also help them develop skills necessary for managing pricing, visual merchandising, advertising, special promotions, professional sales, and customer service.

PATHWAY COURSES
- Marketing Principles
- Fashion, Merchandising, and Retailing Essentials
- Advanced Fashion, Merchandising, and Retailing

CAREER CHOICES
- Advertising and Promotions Manager
- Brand Managers
- Entrepreneur/Company Owner
- Fashion Designer
- General Merchandise Manager
- Merchandise Analyst
- Manufacturer's Sales Representative
- Online Merchant
- Product Developer
- Retail Buyer
- Visual Merchandiser
- Wholesale and Retail Buyer

INDUSTRY CREDENTIAL (Credential of Value): MBA Standard Marketing Program of Study/End of Program HS Exam

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Financial Services

FINANCIAL SERVICES students will focus on recognizing a business opportunity, starting a business, operating and maintaining a business. Students will align business goals that focus on planning, organizing, coordinating, and controlling the resources needed to produce and provide goods and/or services that lead to owning and operating a small business. Methods for measuring the financial performance of financial institutions and investments are also analyzed.

PATHWAY COURSES
- Introduction to Business and Technology
- Financial Literacy
- Banking, Investing and Insurance

CAREER CHOICES
- Accountant
- Auditor
- Business Teacher
- Claims Adjuster
- Financial Project Specialist
- Financial Planner
- Insurance Sales Agent
- Research
- Sales and Service

INDUSTRY CREDENTIAL (Credential of Value): NOCTI Financial & Investment Planning

Healthcare - Allied Health and Medicine

HEALTHCARE - ALLIED HEALTH AND MEDICINE exposes students to the healthcare industry and jobs offered in a variety of establishments: hospitals, nursing and residential care facilities, physicians, dental, and other health practitioners offices, home health care services, outpatient care centers, ambulatory health care services and medical and diagnostic laboratories.

PATHWAY COURSES
- Introduction to Healthcare Science
- Essentials of Healthcare
- Allied Health and Medicine

CAREER CHOICES
- Clinical Laboratory Technician
- Dental Hygienist
- EMT
- Medical Doctor
- Medical Laboratory Technician
- Orthopedic Technologist
- Paramedic
- Pediatrician
- Pharmacist
- Physical Therapist
- Radiologic Technologist
- Surgical Technologist

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

Marketing and Management

MARKETING AND MANAGEMENT students will focus on managing the processes responsible for identifying, anticipating, and satisfying customer requirements in a manner that is profitable for the business. Student skills include management and entrepreneurship, marketing, buying and merchandising, marketing communications and promotion, professional sales, marketing information management and research, channel management, global marketing, and internet/online marketing.

PATHWAY COURSES
- Marketing Principles
- Marketing and Entrepreneurship
- Marketing Management

CAREER CHOICES
- Advertising Account Executive
- Communications Specialist
- Customer Service Representative
- Entertainment Marketer
- Insurance Agent
- Logistics Specialist
- Market Research Analyst
- Marketing Specialist
- Media Buyer
- Product Development Management
- Public Relations Specialist

INDUSTRY CREDENTIAL (Credential of Value): MBA Standard Marketing Program of Study/End of Program HS Exam

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Sports and Entertainment Marketing

SPORTS AND ENTERTAINMENT MARKETING students will learn about the major segments of the sports and entertainment industry and the social and economic impact the industry has on the local, state, national, and global economies. The products and services offered to consumers and the impact of marketing on these products and services are examined. Students will also have opportunities to develop managerial and analytical skills and deepen their knowledge in sports/entertainment marketing.

PATHWAY COURSES
- Marketing Principles
- Introduction to Sports and Entertainment Marketing
- Advanced Sports and Entertainment Marketing

CAREER CHOICES
- Agent
- Communications Specialist
- Customer Service Representative
- Demonstrator and Product Promoter
- Entertainment Marketer
- Entrepreneur
- Market Research Analyst
- Marketing Specialist
- Media Buyer
- Product Development Management
- Public Relations Specialist

INDUSTRY CREDENTIAL (Credential of Value): MBA Standard Marketing Program of Study/End of Program HS Exam

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Veterinary Science

VETERINARY SCIENCE students will learn the major areas of scientific agricultural production and research and learn problem solving lessons, introductory skills, and knowledge in agricultural science and agri-related technologies. This pathway also covers the basics of animal care. Topics covered include disease, parasites, feeding, shelter, grooming, and general animal care.

PATHWAY COURSES
- Basic Agricultural Science
- Animal Science and Biotechnology
- Veterinary Science

CAREER CHOICES
- Animal Physical Therapist
- Animal Welfare Specialist
- Animal Care Specialist
- Artificial Insemination Technician
- Breed Association Sales/Promotion
- Cell Culture Specialist
- Companion Animal Breeder
- Companion Animal Nutrition Specialist
- Dairy Unit Herdsman/Manager
- Embryo Transfer Technician
- Veterinarian
- Veterinary Tech

INDUSTRY CREDENTIAL (Credential of Value): Precision Veterinary Assistant

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