Career, Technology, and Agriculture Education Department

COURSE PROGRAM GUIDE 2015-2016

Career Pathways:
Thomas County Central High School's P.R.E.P. Academy is proud to offer students the opportunity to pursue both educational and career goals by offering Career Pathways as defined in the Georgia High School Graduation Requirements. We currently offer 18 pathways in 7 different program areas.

A **Career Pathway** is a sequence of three or more courses that match a student's academic and career interests which provides hands-on training and skill building in a career area. Students who complete a Career Pathway will take an **End of Pathway Assessment** to earn a work-related credential in his or her chosen area of study.

CTAE courses described in this guide are listed by program area and pathway.

CTAE PATHWAYS

Program	Pathway	Courses
Agriculture, Food and Natural Resources	Food Animal Systems Pathway	• Basic Agricultural Science • Animal Science and Biotechnology • Agricultural Animal Production and Management
	Animal/Mechanical Systems Pathway	• Basic Agricultural Science • Agricultural Mechanics Technology I • Agricultural Animal Production and Management
	Forest Mechanical Systems Pathway	• Basic Agricultural Science • Agricultural Mechanics Technology I • Forest Science
	Forestry/Wildlife Systems Pathway	• Basic Agricultural Science • Forest Science • Wildlife Management
	Horticulture Mechanical Systems Pathway	• Basic Agricultural Science • General Horticulture and Plant Science • Agricultural Mechanics Technology I
	Plant and Landscape Systems Pathway	• Basic Agricultural Science • General Horticulture and Plant Science • Nursery and Landscape
	Agriculture Mechanics and Electrical Systems Pathway	• Basic Agricultural Science • Agricultural Mechanics Technology I • Agriculture Electricity and Electric Controls
	Horticulture and Forest Science Pathway	• Basic Agricultural Science • Forest Science • General Horticulture and Plant Science
	Horticulture and Animal Science Pathway	• Basic Agricultural Science • General Horticulture and Plant Science • Animal Science and Biotechnology
	Forestry and Animal Science Pathway	• Basic Agricultural Science • Forest Science • Animals Science and Biotechnology
Architecture and Construction	Welding Pathway	• Industry Fundamentals and Occupational Safety • Introduction to Metals • Welding I
Arts, AV/Technology & Communications	Audio-Video Technology and Film Pathway	• Audio and Video Technology and Film • Audio-Video Technology and Film II • Audio-Video Technology and Film III
Business Management and Administration	Business and Technology Pathway	• Introduction to Business and Technology • Business and Technology • Business Communications
	Entrepreneurship Pathway	• Introduction to Business and Technology • Legal Environment of Business • Entrepreneurship
Education and Training	Early Childhood Care and Education	• Early Childhood Education I • Early Childhood Education II • Early Childhood Education III or • ECE Internship
Health Science	Therapeutic Services Patient Care Pathway	• Introduction to Healthcare Science • Essentials of Healthcare • Patient Care Fundamentals
	Therapeutic Services Allied Health Pathway	• Introduction to Healthcare Science • Essentials of Healthcare • Allied Health and Medicine
Information Technology	Programming Pathway	• Introduction to Digital Technology • Computer Science Principles • Programming, Games, Apps and Society
Transportation, Distribution & Logistics	Automobile Maintenance and Light Repair Pathway	• Maintenance and Light Repair I • Maintenance and Light Repair II • Maintenance and Light Repair III

AGRICULTURE FOOD AND NATURAL RESOURCES

The agriculture department has many pathway options, including diversified pathways that include a variety of courses. Primary pathways are listed below. Check the table at the beginning of the CTAE section for courses used in diversified pathways.

Pathways: Food Animal Systems, Animal/Mechanical Systems, Forest Mechanical Systems, Forestry/Wildlife Systems, Horticulture Mechanical Systems, Plant and Landscape Systems, Agriculture Mechanics and Electrical Systems, Horticulture and Forest Science, Horticulture and Animal Science, Forestry and Animal Science

Basic Agricultural Science is the first course in all agriculture pathways.

Basic Agricultural Science and Technology	This course is designed as an introduction or support course for the Agriscience Pathway Program of Study. The course introduces the major areas of scientific agricultural production research; presents problem solving lessons and introductory skills and knowledge in agricultural science and agri-related technologies.

Pathway: Food Animal Systems

Animal Science and Biotechnology	This course is designed to introduce students to the scientific principles that underlie the breeding and husbandry of agricultural animals, and the production, processing, and distribution of agricultural animal products. This course introduces scientific principles applied to the animal industry; covers reproduction, production technology, processing, and distribution of agricultural animal products.
Agricultural Animal Production and Management	The goal of this course is to provide all students instruction in establishing and managing agricultural animal enterprises; includes instruction in selecting, breeding, feeding, caring for and marketing beef and dairy cattle, horses, swine, sheep, and poultry.

Pathway: Forestry Wildlife Systems

Forest Science	This course provides entry-level skills for employment in the forest industry and for further study. The course covers establishing forests by natural and artificial means, maintaining and surveying forests, identifying and protecting trees, practicing silviculture, measuring trees and land, mapping, preparing for timber sales and harvest, employing multiple-use resource management, keeping records, and figuring taxes.
Wildlife Management	This course introduces students to the principles of wildlife management and conservation and to opportunities for further education and careers in the field of wildlife biology. The course includes instruction in the history of wildlife management, habitat assessment and management predator-prey relationships, wildlife species biology and identification, the role of hunting in conservation, game and fish laws and regulations, and the application of scientific principles to managing wildlife habitat and populations.

Pathway: Plant and Landscape Systems

General Horticulture and Plant Science	The course introduces the major concepts of plant and horticulture science. Students will explore concepts related to plant growth and reproduction processes.
Nursery and Landscape	This course is designed to provide students with the basic skills and knowledge utilized by the green industry in nursery production and management and landscape design and management.

Pathway: Agriculture Mechanics and Electrical Systems

Agricultural Mechanics Technology I	This laboratory course is designed to provide students with introductory level experiences in selected major areas of agricultural mechanics technology which may include wood working, agricultural structures, electrical wiring, electric arc welding, oxy/fuel cutting and welding processes, and power equipment operation and maintenance.
Agriculture Electricity and Electric Controls	This laboratory course is designed to provide students with introductory level experiences in selected areas of agricultural mechanics technology associated with the design and installation of electric motor and non-motor load electrical circuits designed for use in agricultural structures, and agricultural industry applications.

Additional Agricultural Elective:

Sustainable Agriculture ***10th, 11th and 12th grades***

This course is designed to introduce students to the concepts of sustainability related to agriculture production. Students will learn how to implement production and marketing practices that are profitable and environmentally sound while meeting the needs of both the present and future generations.

Agriculture Careers:

Ecologist	Field Inspector	Animal Nutritionist	Wildlife Biologist
Park Ranger	Fish Farmer	Crop Consultant	USDA Inspector
Botanist	Safety Engineer	Game Warden	Tractor Mechanic

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ARCHITECTURE AND CONSTRUCTION

Pathway: Welding

Industry Fundamentals and Occupational Safety	This course prepares students with the basic knowledge to function safely on or around a construction site and in the industry in general. This course explains the safety obligations of workers, supervisors, and managers to ensure a safe workplace, including OSHA standards. It also includes the basic knowledge and skills needed in the following areas: construction math, hand and power tools used in the field, general blueprints, and basics of rigging safety.
Introduction to Metals	Introduction to Metals is designed to acquaint students with the three major technical occupations (welding, sheet metal, and machining). The various activities equip high school students with the skills needed to select a metal industry occupation, enter the work force, and continue to advance in one of these specialized metals occupations. Experiences include an introduction to the basic requirements of each of these fields, exposure to the structure and nature of career opportunities, and an introduction to types of training and skills required and the use of specialized tools, equipment, and materials.
Welding I	This course is designed to provide students with the basic knowledge and safe operating skills needed to demonstrate proper set of equipment in oxyfuel, shielded metal arc welding (SMAW), and gas metal arc welding (GMAW). The students will perform oxyfuel cuts using acetylene and propane gases. The students will select electrodes and performs welds using SMAW and GMAW to current industry standards. Welding symbols will be used to interpret detailed drawing used for fabrication.

Welding Careers:		
Welder	Boilermaker	Welding Inspector
Sheet Metal Worker	Welding Engineer	Metal Fabricator

AUDIO-VIDEO TECHNOLOGY AND COMMUNICATIONS

Pathway: Audio & Video Technology & Film

Audio & Video Technology & Film I	This is the introductory class for the AVTF pathway. It focuses on the use of basic production equipment to produce industry standard broadcasts. Students will focus on terminology, safety, set up and use of basic equipment, script writing, and field production.
Audio & Video Technology & Film II	Topics in this course include Planning, Writing, Directing and Editing a Production; Field Equipment Functions; Operational Set-Up and Maintenance; Advanced Editing Operations; Studio Productions; Performance; Audio/Video Control Systems; Production Graphics; Career Opportunities; and Professional Ethics.

Audio & Video Technology & Film III	This course is designed to facilitate student-led projects under the guidance of the instructor. Students work cooperatively and independently in all phases of production.

Additional Broadcast Video Production Electives:

Broadcast & Video Production Applications ***11th & 12th Grade***
Students in this course continue to create projects, but also develop a portfolio of their compiled work in the advanced AVTF classes. The portfolios are packaged and sent to colleges and/or universities that offer broadcasting or mass media as a program area. These portfolios are submitted in the hopes of securing consideration for scholarship opportunities that might exist within those schools/programs.

Broadcast & Video Production Lab ***10th, 11th & 12th Grade***
Students are offered the opportunity to hone their skills garnered in the advanced AVTF classes through independently guided projects and opportunities. These projects and opportunities include work through local radio stations, development and production of community and school oriented projects, movie production, interviews, and portfolio development. ***Instructor approval required.***

Broadcasting Careers:

Audio/Video Equipment Technician	Broadcast Technician	Sound Engineer
Radio and Television Announcer	Broadcast News Analyst	Technical Director
Television Producer	Reporters	Video Editor

BUSINESS MANAGEMENT AND ADMINISTRATION

Pathways: Small Business Development and Administrative Information Support

Introduction to Business & Technology is the first course in all business pathways.

Introduction to Business & Technology	This is a foundations course which introduces students to employability skills needed to be successful in business. Students will utilize computer skills to create, edit and publish industry standard documents related to various facets of business including communication, management, finance, human resources and entrepreneurship.

Pathway: Business and Technology

Business & Technology	Business and Technology is designed to prepare students with the knowledge and skills to be an asset to the collaborative, global, and innovative business world of today and tomorrow. Mastery use of spreadsheets and the ability to apply leadership skills to make informed business decisions will be a highlight of this course for students. Publishing industry appropriate documents to model effective communication and leadership will be demonstrated through project based learning.

Business Communication	Students will create, edit, and publish professional-appearing business documents with clear and concise communication. Creative design, persuasive personal and professional communications will be applied through research, evaluation, validation, written, and oral communication. Leadership development and teamwork skills will be stressed as students work independently and collaboratively. Presentation skills will be developed and modeled for students master presentation software in this course.

Pathway: Entrepreneurship

Legal Environment of Business	In this course students will get an overview of business law while concentrating on the legal aspects of business ownership and management. Legal issues addressed include court procedures, contracts, torts, consumer law, employment law, environmental law, international law, ethics, and the role of the government in business. Students will not only understand the concepts, but will also apply their knowledge to situations and defend their actions, decisions, and choices.
Entrepreneurship	Entrepreneurship focuses on recognizing a business opportunity, starting a business, operating, and maintaining a business. Integration of accounting, finance, marketing, management, legal and economic environments will be developed throughout projects in this course. Working to develop a business plan that includes structuring the organization, financing the organization, and managing information, operations, marketing, and human resources will be a focus in the course.

Additional Business Electives:

Digital Design ***11th & 12th Grade***

Using web design as the platform for product design and presentation, students will create and learn digital media applications using elements of text, graphics, animation, sound, video and digital imaging for various format. The digital media and interactive media projects developed and published showcase the student skills and ability. Emphasis will be placed on effective use of tools for interactive multimedia production including storyboarding, visual development, project management, digital citizenship, and web processes. Students will create and design web sites that incorporate digital media elements to enhance content of web site. ***Instructor approval required.***

Business Careers:

Entrepreneur	Business Manager	Office Manager
Lawyer	Human Resource Manager	Paralegal
Computer Operator	Advertising Manager	Stock Broker
Computer Programmer	Graphic Arts Designer	Secretary

EDUCATION AND TRAINING

Pathway: Early Childhood Care and Education

This pathway has two options for the third course.

Early Childhood Education I	This course addresses early childhood care, education, and development issues that include guiding the physical, cognitive, creative, social, emotional, and moral development of children. This course of study includes planning and guiding developmentally appropriate practices for working with young children, including career paths, principles and theories of child development, the creation of a developmentally appropriate learning environment, collaborative relationships and guidance, lesson planning, and appropriate response to cultural diversity and students with special needs.
Early Childhood Education II	This course provides a history of education, licensing and accreditation requirements, and foundations of basic observation practices and applications. Early childhood care, education, and development issues are also addressed and include health, safety, and nutrition education; certification in CPR/First Aid/Fire Safety; information about child abuse and neglect; symptoms and prevention of major childhood illnesses and diseases; and prevention and control of communicable illnesses.

and either

Early Childhood Education III	This course provides in-depth study of early brain development and its implications for early learning, appropriate technology integration, and developmentally appropriate parenting and child guidance trends. Also addressed are collaborative parent/teacher/child relationships and guidance, child directed play, the changing dynamics of family culture and diversity, the causes and effects of stress on young children, and infant nutrition.

or

Early Childhood Education Practicum	The practicum offers a candidate in the Early Childhood Education career pathway a field experience under the direct supervision of a certified early childhood educator (mentor). The practicum stresses observing, analyzing, and classifying activities of the mentor and comparing personal traits with those of successful early childhood educators. The candidate intern will develop a portfolio of their skills, plan and teach a lesson or lessons, understand and practice confidentiality as it pertains to the teaching profession, meet the needs of students with special needs, maintain the safety of the students, practice professionalism, and demonstrate ethical behavior. ***Instructor approval required.***

Additional Family and Consumer Science Elective:

Food and Nutrition through the Lifespan ***11th and 12th Grade***

This is an advanced course in food and nutrition that addresses the variation in nutritional needs at specific stages of the human life cycle: lactation, infancy, childhood, adolescence, and adulthood including old age. The most common nutritional concerns, their relationship to food choices and health status and strategies to enhance well-being at each stage of the lifecycle are emphasized. This course provides knowledge for real life and offers students a pathway into dietetics, consumer foods, and nutrition science careers with additional education at the pose-secondary level.

Family and Consumer Science Careers:		
Preschool Teacher	Child Psychologist	Registered Dietician
Social Director	Human Services Worker	Convention Planner
Teacher Aide	Caterer	Dietary Aide

HEALTH SCIENCE

Pathways: Therapeutic Services – Patient Care Services and Therapeutic Services – Allied Health

The first two courses in these pathways are the same.

Introduction to Healthcare Science	This course will enable students to receive initial exposure to Healthcare Science skills and attitudes applicable to the healthcare industry. The concepts of health, wellness, and preventative care are evaluated, as well as, ethical and legal responsibilities of today's healthcare provider. Fundamental healthcare skills development is initiated including medical terminology, microbiology, and basic life support. Students are required to meet both national and intrastate professional guidelines as designated by applicable regulatory agencies such as the Occupational Health and Safety Administration (OSHA) and Center for Disease Control (CDC).
Essentials of Healthcare	The Essentials of Healthcare is a medical-focused anatomy course addressing the physiology of each body system, along with the investigation of common diseases, disorders and emerging diseases. The prevention of disease and the diagnosis and treatment that might be utilized are addressed, along with medical terminology related to each system. This course provides an opportunity to demonstrate technical skills that enforce the goal of helping students make connections between medical procedures and the pathophysiology of diseases and disorders.

Pathway: Patient Care Services

Patient Care Fundamentals	This course is designed to provide students interested in the careers that involve patient care with entry level skills most commonly associated with the career Nursing Assistant. The students are required to meet both national and intrastate professional guidelines as designated by applicable regulatory agencies. Students meeting all academic, attendance, and age requirements may sit for the Georgia Registry's Examination.

Pathway: Allied Health

Allied Health and Medicine	This course is designed to offer students the opportunity to become effective and efficient multi-skilled healthcare providers as they develop a working knowledge of various allied health opportunities. Students focusing on a career path in the healthcare field may apply classroom/lab knowledge and skills in the clinical setting as they participate in direct or simulated client care. The curriculum allows instructors to provide options for classroom/student growth opportunities in area(s) of interest to the student.

Healthcare Careers:		
Registered Nurse	Health Educator	Dental Hygienist
Occupational Therapist	Physical Therapist	Pediatrician
Laboratory Technician	Surgical Technologist	Surgeon

INFORMATION TECHNOLOGY

Pathway: Programming

Introduction to Digital Technology	Introduction to Digital Technology is the foundational course for the Programming pathway. This course is designed for high school students to understand, communicate, and adapt to a digital world as it impacts their personal life, society, and the business world. Exposure to foundational knowledge in hardware, software, programming, web design, IT support, and networks are all taught in a computer lab with hands-on activities and project-focused tasks. Students will not only understand the concepts, but apply their knowledge to situations and defend their actions/decisions/choices through the knowledge and skills acquired in this course. The knowledge and skills taught in this course build upon each other to form a comprehensive introduction to digital world.
Intermediate Programming	The goal of this course is to deepen students understanding of computing. Students will learn key concepts of software engineering, graphical user interface, and user interface design. Students will gain a deeper understanding of basic data structures and use them to solve more complex problems in a collaborative manner.
Programming, Games, Apps and Society	To Be Offered 2016-2017

Programming Careers:		
Web Developers	Computer System Analyst	Software Developers
Computer Hardware Engineer	Computer Network Architect	CIS Manager

TRANSPORTATION, DISTRIBUTION AND LOGISTICS

Pathway: Automotive Maintenance and Light Repair

MLR I	Students in this course will learn the basic skills needed to gain employment as a maintenance and light repair technician. Students will be exposed to courses in automotive preventative maintenance and servicing and replacing brakes, and steering and suspension components. The hours completed in this course are aligned with ASE/NATEF standards and are a base for the entry-level technician.
MLR II	This course will expand on concepts in the first course including intermediate automotive preventative maintenance and servicing skills, as well as replacing brakes, and steering and suspension components. Students will also learn general electrical system diagnosis, electrical theory, basic test requirements, and determining necessary action. In addition, students will learn how to evacuate and recharge air-conditioning systems using the proper refrigerant.
MLR III	Students will advance their knowledge and skills as maintenance and light repair technicians by continuing their study of automotive preventative maintenance and servicing using classroom instruction, on-line modules and live work in the lab.

Additional Automotive Elective:

Automotive Service Technology Internship ***12th Grade***

In this internship, students have the opportunity to practice finished work and develop problem solving skills. Students practice adaptability to job equipment and technology and exhibit progressive productivity and acceptable job performance. ***Instructor approval required.***

Automotive Careers:		
Automotive Technician	Heavy Equipment Operator	Electric Motor Technician
Aircraft Mechanic	Machinery Mechanic	Truck Driver

WORK-BASED LEARNING

Work-based learning is an educational approach that uses the workplace to provide students with knowledge and skills that help them connect school experiences to real-life work activities. Work-based learning is available to seniors who are on track for graduation and meet the other prerequisites set by the program.

An **application** is required and may be obtained from Mrs. Ausley in the P.R.E.P. Academy office.

Work-Based Learning Options:

Youth Apprenticeship	This work-based learning program is a 1-, 2-, or 3-hour credit elective for qualifying juniors and seniors. **Requirements:** Enrollment in one or more specific-related course(s) articulated to a postsecondary degree or certificate program within an occupational area.
Co-Operative Education	This work-based learning program is a 1-, 2-, or 3-hour credit elective for qualifying juniors and seniors. **Requirements:** Enrollment in one or more course(s) related to the occupational area.

CTAE COURSES FOR SCIENCE CREDIT

We currently offer three CTAE courses that satisfy the fourth science requirement for high school graduation and have been approved by the Board of Regents as a fourth science course. This means these courses are accepted by Georgia colleges and universities as a science credit for admissions purposes.

These courses are:
- General Horticulture and Plant Science (Agriculture, Plant Science Pathway)
- Animal Science Technology (Agriculture, Animal Science Pathway)
- Food & Nutrition Through the Lifespan (Family and Consumer Science)

We offer four CTAE courses that satisfy the fourth science requirement for high school graduation, but have not been approved by the Board of Regents as a fourth science course needed for college admission.

These courses are:
- Forest Science (Agriculture, Forestry/Natural Resources Pathway)
- Wildlife Management (Agriculture, Forestry/Natural Resources Pathway)
- Introduction to Healthcare Science (Healthcare Science, Nursing Pathway)

Information updated from the Georgia Department of Education (February 20, 2013).