

**CTE PATHWAY COURSE DESCRIPTIONS 2019-2020****CLUSTER: ARTS, A/V TECHNOLOGY, AND COMMUNICATIONS****PATHWAY: Audio/Video Technology and Film****Course 1: Audio and Video Technology and Film (10.51810)**

This course will serve as the foundational course in the Audio & Video Technology & Film pathway. Topics covered may include, but are not limited to: terminology, safety, basic equipment, script writing, production teams, production and programming, lighting, recording and editing, studio production, and professional ethics.

**Course 2: Audio and Video Technology and Film II (10.51910)**

This one credit course is the second in a series of three that prepares students for a career in Audio Video Technology and Film production and/or to transfer to a postsecondary program for further study. Topics 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. Skills USA, the Georgia Scholastic Press Association, Technology Student Association (TSA) and Student Television Network are examples of, but not limited to, appropriate organizations for providing leadership training and/or for reinforcing specific career and technical skills and may be considered an integral part of the instructional program.

**Course 3: Audio and Video Technology and Film III (10.52010)**

This one-credit transition course is designed to facilitate student-led projects under the guidance of the instructor. Students work cooperatively and independently in all phases of production. Skills USA, the Georgia Scholastic Press Association, Technology Student Association (TSA), and Student Television Network are examples of, but not limited to, appropriate organizations for providing leadership training and/or for reinforcing specific career and technical skills and may be considered an integral part of the instructional program.

**PATHWAY: Animation & Digital Media****Course 1: Introduction to Digital Media (48.42100)**

Students in the Introduction of Digital Media course will learn the basic components of 2-D and 3D animation development from storyboarding elements to fundamental software capabilities. The course serves as an introduction to the animation history, keyboarding shortcuts, project filing, and career awareness. Instruction in this course focuses on storyboard creation, the physics and anatomy of motion, technology of animation, properties and use of color, cameras and lighting, fundamentals of modeling and animating, creating a portfolio and file management.

**Course 2: Principles and Concepts of Animation (48.42200)**

In Principles and Concepts of Animation, students will continue to develop and implement aesthetics of color selection, storyboarding in 2-D digital animation, and develop animatic creations from 2-D to 3-D. Students in this course will learn interface tools, the use of drawing tools, animating the camera, importing images from web sources and files, working with sound and lip syncing, understanding paths and motion design, and frame by frame animation creation relative to sequence planning and pacing. This course will allow students to build on previously learned storyboarding skills, develop scripts, determine character motivations, consider setting and motion variables, and learn other unique traits of animation through integrated activities. (Prerequisite: Introduction to Digital Media)

**Course 3: Advanced Animation, Game and app Design (48.42300)**

In this course students will continue working in 2-D and 3-D environments by importing 3-D models while working in 3-D space morphing, and inverse kinematics. While learning the basics of Game and APP design, the students will acquire knowledge of human and animal animations, apply the aesthetic and technical aspects of animation of characters, and analyze the physics and physicalization of action, weight, and timing. The course advances students' knowledge of sound integration into animated products; by focusing on skills that include lip-syncing, voice overs, and synchronization. Portfolio development will include animation reels and other products. Students will learn the processes of postproduction and will work both independently and in small production teams to manage the production pipeline for a 3-D project. (Prerequisites: Introduction to Digital Media, Principles and Concepts of Animation)

**PATHWAY: Graphic Design****Course 1: Introduction to Graphics and Design (48.56100)**

This course is designed as the foundational course for both the Graphics Production and Graphics Design pathways. The Graphics and Design course provides students with the processes involved in the technologies of printing, publishing, packaging, electronic imaging, and their allied industries. In addition, the Graphics and Design course offers a range of cognitive skills, aesthetics, and crafts that includes typography, visual arts, and page layout.

**Course 2: Graphic Design and Production (48.56200)**

As the second course in the Graphics Communication and Graphics Design Pathways, this course builds on knowledge and skills learned in the Introduction to Graphics and Design course and focuses on procedures commonly used in the graphic communication and design industries. Students will gain more experience in creative problem solving and the practical implementation of those solutions across multiple areas of graphic design and graphic communications. (Prerequisite: Introduction to Graphics and Design)

**Course 3: Advanced Graphic Design (48.52800)**

Students will continue to explore in an increasingly independent manner, the principles of design and layout procedures relating to the field of graphic design. Content will cover electronic systems and software programs used in graphic design, page composition, image conversion, and digital printing. Knowledge and skills in digital design and imaging will be enhanced through experiences that simulate the graphic design industry and school-based and work-based learning opportunities. (Prerequisites: Introduction to Graphics and Design, Graphic Design and Production)

**CLUSTER: BUSINESS MANAGEMENT AND ADMINISTRATION****PATHWAY: Business and Technology****Course 1: Introduction to Business and Technology (07.44130)**

Introduction to Business and Technology is the foundational course for Business and Technology, Entrepreneurship, and Human Resources Management pathways. The course is designed for high school students as a gateway to the career pathways above, and provides an overview of business and technology skills required for today's business environment. Knowledge of business principles, the impact of financial decisions, and technology proficiencies demanded by business combine to establish the elements of this course. Emphasis is placed on developing proficient fundamental computer skills required for all career pathways. Students will learn essentials for working in a business environment, managing a business, and owning a business. The intention of this course is to prepare students to be successful both personally and professionally in an information-based society. 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. Employability skills are integrated into activities, tasks, and projects throughout the course standards to demonstrate the skills required by business and industry.

**Course 2: Business and Technology (07.44100)**

How is technology used to solve business problems and communicate solutions? 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. Students will use spreadsheet and database software to manage data while analyzing, organizing and sharing data through visually appealing presentation. (Prerequisite: Introduction to Business and Technology)

**Course 3: Business Communications (07.45100)**

What message are you sending when you speak, write, and listen? As one of the most important skills for employers, students will explore the value of communication in their personal and professional life. The digital presence and impact of written and visual communication in a technological society will be addressed. 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. (Prerequisites: Introduction to Business and Technology, Business and Technology)

**PATHWAY: Entrepreneurship****Course 1: Introduction to Business and Technology (07.44130)**

Introduction to Business and Technology is the foundational course for Business and Technology, Entrepreneurship, and Human Resources Management pathways. The course is designed for high school students as a gateway to the career pathways above, and provides an overview of business and technology skills required for today's business environment. Knowledge of business principles, the impact of financial decisions, and technology proficiencies demanded by business combine to establish the elements of this course. Emphasis is placed on developing proficient fundamental computer skills required for all career pathways. Students will learn essentials for working in a business environment, managing a business, and owning a business. The intention of this course is to prepare students to be successful both personally and professionally in an information-based society. 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. Employability skills are integrated into activities, tasks, and projects throughout the course standards to demonstrate the skills required by business and industry.

**Course 2: Legal Environment of Business (06.41500)**

Legal Environment of Business addresses statutes and regulations affecting businesses, families, and individuals. All students will benefit with the knowledge of business law as they will eventually assume roles as citizens, workers, and consumers in their communities and in society at large. 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. Various forms of technologies will be highlighted to expose students to the emerging technologies impacting the business world. Professional communication skills and practices, problem-solving, ethical and legal issues, and the impact of effective presentation skills are expanded in this course to prepare students to be college and career ready. Employability skills are integrated into activities, tasks, and projects throughout this course to demonstrate skills required by business and industry. (Prerequisite: Introduction to Business and Technology)

**Course 3: Entrepreneurship (06.41600)**

How do you turn an idea into a business? Experience just that in this course! Entrepreneurship focuses on recognizing a business opportunity, starting a business, operating and maintaining a business. Students will be exposed to the development of critical thinking, problem solving, and innovation in this course as they will either be the business owner or individuals working in a competitive job market in the future. Integration of accounting, finance, marketing, business 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. Engaging students in the creation and management of a business and the challenges of being a small business owner will be fulfilled in this course. Various forms of technologies will be used to expose students to resources and application of business principles for starting, operating and maintaining a business. Professional communication skills and practices, problem-solving, ethical and legal issues, and the impact of effective presentation skills are enhanced in this course to prepare students to be college and career ready. Employability skills are integrated into activities, tasks, and projects throughout the course standards to demonstrate the skills required by business and industry. (Prerequisites: Introduction to Business and Technology, Legal Environment of Business)

**CLUSTER: Finance****PATHWAY: Financial Services****Course 1: Introduction to Business and Technology (07.44130)**

Introduction to Business and Technology is the foundational course for Business and Technology, Entrepreneurship, and Human Resources Management pathways. The course is designed for high school students as a gateway to the career pathways above, and provides an overview of business and technology skills required for today's business environment. Knowledge of business principles, the impact of financial decisions, and technology proficiencies demanded by business combine to establish the elements of this course. Emphasis is placed on developing proficient fundamental computer skills required for all career pathways. Students will learn essentials for working in a business environment, managing a business, and owning a business. The intention of this course is to prepare students to be successful both personally and professionally in an information-based society. 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. Employability skills are integrated into activities, tasks, and projects throughout the course standards to demonstrate the skills required by business and industry.

**Course 2: Financial Literacy (07.42600)**

Students need to be informed about their financial responsibilities today and to prepare for the real choices ahead. In this course they will learn about career decisions, money management, financial security, credit management, resource management, risk management, and consumer rights and responsibilities. Business partnerships with financial companies, guest speakers, field trips, and work-based learning

activities can be incorporated in this course. Mastery of these standards through project-based learning and leadership development activities of Future Business Leaders of America (FBLA) will help prepare students with a competitive edge for the global marketplace.

### **Course 3: Banking, Investing, and Insurance (07.43100)**

Students will be introduced to the basics of the banking system, as well as the foundations of personal and business finance through discussions, hands-on projects, guest speakers, and field trips. Students will gain an understanding of the role finance plays in business and their personal lives. In addition, business partnerships will be formed with local banks and the business community to bring real world applications into the classroom. Topics to be covered include, but are not limited to financial planning, investing, tax preparation and planning, banking concepts, business ownership, and credit basics.

## **CLUSTER: HEALTH SCIENCE**

### **PATHWAY: Therapeutic Services**

#### **Course 1: Introduction to Healthcare Science (25.52100)**

Introduction to Healthcare Science is the foundational course for all Health Science pathways and is a prerequisite for all other Healthcare Science pathway courses. This course will enable students to receive initial exposure to the many Healthcare Science careers as well as employability, communication, and technology skills necessary in the healthcare industry. The concepts of human growth and development, interaction with patients and family members, health, wellness, and preventative care are evaluated, as well as the legal, ethical responsibilities of today's healthcare provider. Fundamental healthcare skills development is initiated including microbiology, basic life support and first aid. This course will provide students with a competitive edge to be the better candidate for either entry into the healthcare global marketplace and/or the post-secondary institution of their choice to continue their education and training.

#### **Course 2: Essentials of Healthcare (25.44000)**

Anatomy and Physiology is a vital part of most healthcare post-secondary education programs. 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. (Prerequisite: Introduction to Healthcare)

#### **Course 3: 4 possible choices**

##### **Allied Health and Medicine (25.43700)**

This course is designed to offer students (juniors or seniors) 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. These options may be determined by community need, available resources, and/or student interest, etc. (Prerequisites: Introduction to Healthcare, Essentials of Healthcare)

##### **Emergency Medical Responder**

The Emergency Medical Responder (EMR) course prepares the student to provide 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). The course is a blend of lecture, hands on lab/learning, and practical scenario-based learning/testing. (Prerequisites: Introduction to Healthcare, Essentials of Healthcare)

##### **Medical Office/Medical Assisting**

Medical assistants are often the first to greet and help patients, and can help set the stage for a patient's experience. Coursework will emphasize: office protocol, appointment scheduling, medical records, electronic records, medical office equipment, medical law, physician/patient/assistant relationship, medical office in litigation, as well as ethics, bioethical issues and HIPAA. (Prerequisites: Introduction to Healthcare, Essentials of Healthcare)

**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 such as the Occupational Health and Safety Administration (OSHA), Center for Disease Control (CDC), and the Department of Health and Human Services (HHS) with a specific focus on the Omnibus Budget Reconciliation Act of 1987 (OBRA) and the Health Insurance Portability and Accountability Act of 1996 (HIPAA). Upon completion of this course and its prerequisites, this course meets the Certified Nurse Assistant curriculum content as specified by the Georgia Medical Care Foundation. Students meeting all academic, attendance, and age requirements may sit for the Georgia Registry's Examination. Successful completion of the Georgia Registry Examination allows students to seek employment in the state of Georgia as a Certified Nurse Assistant. (Prerequisites: Introduction to Healthcare, Essentials of Healthcare)

**Phlebotomy**

Coursework is appropriate for students who wish to pursue a career in healthcare with a focus on collection of blood and processing blood and body fluids. Students gain entry level skills and knowledge to be able to pass the Phlebotomy Technician exam, (Prerequisites: Introduction to Healthcare, Essentials of Healthcare)

**CLUSTER: HOSPITALITY & TOURISM****PATHWAY: Culinary Arts - Dual Enrollment Courses with SCTC (Center of Innovation)****Fundamentals of Culinary Arts****Culinary Safety and Sanitation****Foundations of Cooking Principles****Foundations of Cooking Techniques****CLUSTER: HUMAN SERVICES****PATHWAY: Food and Nutrition****Course 1: Nutrition & Wellness (20.41610)**

Food, Nutrition and Wellness is the foundational course in the nutrition and food science pathway. The focus of the course is centered on healthy food and lifestyle choices. Students will investigate the interrelationship of food, nutrition and wellness to promote good health.

**Course 2: Food for Life (20.41400)**

Food for Life 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 elderly. 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 post-secondary level. (Prerequisite: Food, Nutrition, and Wellness)

**Course 3: Food Science (20.41810)**

Food science integrates many branches of science and relies on the application of the rapid advances in technology to expand and improve the food supply. Students will evaluate the effects of processing, preparation, and storage on the quality, safety, wholesomeness, and nutritive value of foods. Building on information learned in Nutrition and Wellness and Chemistry, this course illustrates scientific principles in an applied context, exposing students to the wonders of the scientific world. Related careers will be explored. (Prerequisites: Food, Nutrition, and Wellness, Food for Life)

**CLUSTER: INFORMATION TECHNOLOGY****PATHWAY: Computer Science****Course 1: Introduction to Digital Technology (11.41500)**

Introduction to Digital Technology is the foundational course for Web & Digital Communications, Programming, Advanced Programming, Information Support & Services, and Network Systems pathways. 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. Employability skills are integrated into activities, tasks, and projects throughout the course standards to demonstrate the skills required by business and industry. Various forms of technologies will be highlighted to expose students to the emerging technologies impacting the digital world. Professional communication skills and practices, problem-solving, ethical and legal issues, and the impact of effective presentation skills are taught in this course as a foundational knowledge to prepare students to be college and career ready. The knowledge and skills taught in this course build upon each other to form a comprehensive introduction to digital world.

### **Course 2: AP Computer Science Principles (11.01900)**

AP Computer Science Principles offers a multidisciplinary approach to teaching the underlying principles of computation. The course will introduce students to the creative aspects of programming, abstractions, algorithms, large data sets, the Internet, cybersecurity concerns, and computing impacts. AP Computer Science Principles also gives students the opportunity to use current technologies to create computational artifacts for both self-expression and problem solving. Together, these aspects of the course make up a rigorous and rich curriculum that aims to broaden participation in computer science. (Prerequisite: Introduction to Digital Technology)

### **Course 3: AP Computer Science A (11.01600)**

AP Computer Science A is equivalent to a first-semester, college-level course in computer science. The course introduces students to computer science with fundamental topics that include problem solving, design strategies and methodologies, organization of data (data structures), approaches to processing data (algorithms), analysis of potential solutions, and the ethical and social implications of computing. The course emphasizes both object-oriented and imperative problem solving and design using Java language. These techniques represent proven approaches for developing solutions that can scale up from small, simple problems to large, complex problems. The AP Computer Science A course curriculum is compatible with many CS1 courses in colleges and universities. (Prerequisites: Introduction to Digital Technology and AP Computer Science Principles)

### **Course 3: Internet of Things/Embedded Computing - Dual Enrollment courses with Clayton State University (Center of Innovation)**

Learn how programming and machines interact & how machines autonomously interact with each other - ie. personal devices, smart cars, intelligent factories, etc. This is a 3rd level Information Technology Pathway class -- only taught at the COI. It is a full year, double period course. Students will have the opportunity to work on projects with support from business/industry partners. Transportation to COI will be provided if needed. (Prerequisites: Introduction to Digital Technology and AP Computer Science Principles)

### **PATHWAY: Web and Digital Design**

#### **Course 1: Introduction to Digital Technology (11.41500)**

Introduction to Digital Technology is the foundational course for Web & Digital Communications, Programming, Advanced Programming, Information Support & Services, and Network Systems pathways. 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. Employability skills are integrated into activities, tasks, and projects throughout the course standards to demonstrate the skills required by business and industry. Various forms of technologies will be highlighted to expose students to the emerging technologies impacting the digital world. Professional communication skills and practices, problem-solving, ethical and legal issues, and the impact of effective presentation skills are taught in this course as a foundational knowledge to prepare students to be college and career ready. The knowledge and skills taught in this course build upon each other to form a comprehensive introduction to digital world.

#### **Course 2: Digital Design (11.45100)**

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. Various forms of technologies will be used to expose students to resources, software, and applications of media. Professional communication skills and practices, problem-solving, ethical and legal issues, and the impact of effective presentation skills are enhanced in this course to prepare students to be college and career ready. Employability skills are integrated into activities, tasks, and projects throughout the course standards to demonstrate the skills required by business and industry. (Prerequisite: Introduction to Digital Technology)

#### **Course 3: Web Design (11.45200)**

Can you think of any company that does not have a web presence? Taking this course will equip students with the ability to plan, design, and create a web site. Students will move past learning how to write code and progress to designing a professional looking web site using graphical authoring tools that contains multimedia elements. Working individually and in teams, students will learn to work with web page layout and graphical elements to create a professional looking web site. Various forms of technologies will be used to expose students to resources, software, and applications of web design. Professional communication skills and practices, problem-solving, ethical and legal issues, and the impact of effective presentation skills are enhanced in this course to prepare students to be college and career ready. Employability skills are integrated into activities, tasks, and projects throughout the course standards to demonstrate the skills required by business and industry. (Prerequisites: Introduction to Digital Technology, Digital Design)

## **CLUSTER: MARKETING**

### **PATHWAY: Marketing and Management**

#### **Course 1: Marketing Principles (08.47400)**

Marketing Principles is the foundational course for the Marketing and Management, Fashion Merchandising and Buying, and Marketing Communications and Promotion Pathways. Marketing Principles addresses all the ways in which marketing satisfies consumer and business needs and wants for products and services. Students develop a basic understanding of Employability, Foundational and Business Administration skills, Economics, Entrepreneurship, Financial Analysis, Human Resources Management, Information Management, Marketing, Operations, Professional Development, Strategic Management, and Global Marketing strategies. Instructional projects with real businesses, work-based learning activities including School-Based Enterprises, and DECA application experiences should be incorporated in this course. Prerequisite for this course is advisor approval.

#### **Course 2: Marketing and Entrepreneurship (08.44100)**

Marketing and Entrepreneurship is the second course in the Marketing and Management Career Pathway. Marketing and Entrepreneurship begins an in-depth and detailed study of marketing while also focusing on management with specific emphasis on small business ownership. This course builds on the theories learned in Marketing Principles by providing practical application scenarios which test these theories. In addition, Marketing and Entrepreneurship focuses on the role of the supervisor and examines the qualities needed to be successful.

#### **Course 3: Marketing Management (08.44200)**

Marketing Management is the third course in the Marketing and Management pathway. Students assume a managerial perspective by applying economic principles in marketing, analyzing operation's needs, examining channel management and financial alternatives, managing marketing information, pricing products and services, developing product/service planning strategies, promoting products and services, purchasing, and professional sales. This course also includes global marketing where students analyze marketing strategies employed in the United States versus those employed in other countries.

## **CLUSTER: SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS**

### **PATHWAY: Engineering and Technology**

#### **Course 1: Foundations of Engineering and Technology (21.42500)**

The Foundations of Engineering and Technology is the introductory course for the Engineering and Technology Education pathways. This STEM driven course provides the students with an overview of engineering and technology including the different methods used in the engineering design process developing fundamental technology and engineering literacy. Students will demonstrate the skills and knowledge they have learned through various project based activities while using an engineering design process to successfully master the "E" in STEM.

#### **Course 2: Engineering Concepts (21.47100)**

Engineering Concepts is the second course in the Engineering and Technology Pathway. Students will learn to design technical solutions to engineering problems using a whole systems approach to engineering design. Students will demonstrate the application of mathematical tools, teamwork, and communications skills in solving various design challenges, while maintaining a safe work environment. (Prerequisite: Foundations of Engineering and Technology)

#### **Course 3: Engineering Applications (21.47200)**

Engineering Applications is the third course in the Engineering and Technology Pathway. Students will apply their knowledge of Science, Technology, Engineering, and Math (STEM) to develop solutions to technological problems. Solutions will be developed using a combination of engineering software and prototype production processes. Students will use market research, cost benefit analysis, and an understanding of the design cycle to create and present design, marketing, and business plans for their solutions. A capstone project will

allow students to demonstrate their depth of knowledge of the engineering design process and prepare them for future opportunities in the field of engineering. (Prerequisites: Foundations of Engineering and Technology, Engineering Concepts)

**More information can be found at the Fayette County [Career and Technical Education webpage](#) > Pathways**

**and at the [2019-2020 CTE Career Planner](#)**