

MADISON COUNTY PUBLIC SCHOOLS

Career & Technical Education

Course of Studies



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AGRICULTURAL EDUCATION

800610 FOUNDATIONS OF AGRICULTURE

Grades 9-12

1 Credit

This course covers a wide variety of information about agriculture and related fields. The intent is to allow the instructor to customize instruction to meet the needs of the student enrolled in the agricultural education program. Content areas include agribusiness operations, animal science and care, ecology and natural resource management, plant science and landscaping, and woodworking and basic mechanics. Instructors should select the content areas that will prepare students for the pathways offered in the school. The competencies for the selected content areas are considered essential for the course.

Certification: [Workplace Readiness](#)

CTSO: Future Farmers of America

High Quality Work-Based Learning Experience: Foundational Supervised Agriculture Experience

Plant Systems Pathway

8007 INTRO TO PLANTS

Grades 10-12

1 Credit

Prerequisite: Foundations of Agriculture

Students develop competencies in each of the major areas of the Plant Systems career pathway, including applied botany, plant propagation, and plant care and selection. Instructional content also includes an introduction to the various aspects of the plant systems industry. Students learn agricultural mechanics applicable to plant systems.

Certification: [Workplace Readiness](#)

CTSO: Future Farmers of America

High Quality Work-Based Learning Experience: Foundational Supervised Agriculture Experience; School-Based Enterprise SAE

803510 GREENHOUSE PLANT PRODUCTION & MANAGEMENT

Grades 10-12

1 Credit

Prerequisite: Intro to Plants

This course prepares students for postsecondary educational career programs and entry-level positions in the greenhouse plant production and management industry. Instruction includes industry safety in greenhouse plant production, development of plant production facilities, greenhouse management and operations, plant identification, the science of plant production, business management, and marketing skills.

Certification: [Greenhouse Operators Certification](#)

CTSO: Future Farmers of America

High Quality Work-Based Learning Experience: School-Based Enterprise SAE; AG Co-Op, AG Internship

Power, Structural and Technical Pathway

801910 AGRICULTURAL FABRICATION & EMERGING TECHNOLOGIES

Grades 10-12

1 Credit

Prerequisite: AG Education Preparation

Students will receive instruction in metal fabrication, including cutting, welding, and cold metalworking processes, for agricultural applications. The course will also include the investigation of emerging technologies used within the field of agriculture. Leadership and career skills will be incorporated throughout. Contextual instruction and student participation in co-curricular career and technical student organization (CTSO) activities will develop leadership, interpersonal, and career skills. High-quality work-based learning (HQWBL) will provide experiential learning opportunities related to students' career goals and/or interests, integrated with instruction, and performed in partnership with local businesses and organizations.

Certification: [Welding Assessment NOCTI](#) or [Agriculture Systems Technology](#) CTSO: Future Farmers of America

High Quality Work-Based Learning Experience: Foundational Supervised Agriculture Experience, AG Co-Op, AG Internship

8082 SMALL ENGINE REPAIR

Grades 11-12

1 Credit

Recommended Background: Ag Education Preparation

This course offers an intensive study of the operation, maintenance, and repair of small gasoline engines. Instructional topics include principles of operation of internal combustion engines, repair and service procedures, and disassembly, overhaul, and reassembly. Instruction may also include the operation of two-cycle and four-cycle engines commonly found on lawn mowers, garden tractors, snow blowers, rotary tillers, chainsaws, and other equipment. (Note: This course is offered every other year, to be offered next in the '24-'25 school year)

Certification: [2 Stroke](#) & [4 Stroke](#) Engine Repair

CTSO: Future Farmers of America

High Quality Work-Based Learning Experience: Foundational Supervised Agriculture Experience, AG Co-Op, AG Internship

803610 LANDSCAPING I**Grades 10-12****1 Credit****Prerequisite:** AG Education Preparation

Landscaping offers skilled workers satisfying career opportunities in varying working environments. The expanding and ever-evolving green industry requires skilled workers for high-demand occupations offering educational and leadership opportunities. This course focuses on preparing students for entry-level employment, postsecondary opportunities, and advancement in the landscape design, construction, and maintenance industries.

Certification: [Landscape Management Certification](#)

CTSO: Future Farmers of America

High Quality Work-Based Learning Experience: Foundational Supervised Agriculture Experience, AG Co-Op, AG Internship**803910 LANDSCAPING II****Grades 11-12****1 Credit****Prerequisite:** Landscaping I

Landscaping II offers skilled workers satisfying career opportunities in varying work environments. The expanding and ever-evolving green industry requires skilled workers for high-demand occupations that offer educational and leadership opportunities. This course focuses on preparing students for entry-level employment in the landscaping industry through hands-on experiences, to include landscape design, installation, and maintenance, incorporating technology, plant and soil science, and utilizing landscaping tools, equipment, and machinery.

Certification: [Certified Grounds Technician](#)

CTSO: Future Farmers of America

High Quality Work-Based Learning Experience: Foundational Supervised Agriculture Experience, AG Co-Op, AG Internship**Senior Capstone Experience****801420^{HW} OPERATING THE FARM BUSINESS****Grade 12****1 Credit****Prerequisite:** Teacher Recommendation

In this capstone course, students research successful business and management practices. Students explore the role of new and evolving technologies related to managing and operating an agricultural enterprise. Emphasis is placed on best management practices used in production agriculture, safety in an agricultural enterprise, and understanding agricultural markets.

High Quality Work-Based Learning Experience: Immersion Supervised Agriculture Experience; SAE Internship**Certification:** [Beef Quality Assurance](#) or [Production Agriculture Assessment](#) or [Principles of Livestock Selection & Examination Certification](#)

CTSO: Future Farmers of America

ARCHITECTURE & CONSTRUCTION

Construction Pathway

8515 BUILDING TRADES I

Grades 9-11

1 Credit

Building Trades I introduces students to skills in the four core areas of residential construction: masonry, carpentry, electricity, and plumbing. Students emphasize safety by earning the Construction Industry Occupational Safety and Health Administration (OSHA) 10 card as they build or repair residential structures, using a variety of materials and tools. Students will also learn current residential building codes associated with the trades. **CTSO:** SkillsUSA

Certification: [NCCER Core Craft](#) and [Construction Industry Occupational Safety and Health Administration](#)

8437 ARCHITECTURAL DRAWING & DESIGN

Grades 10-12

1 Credit

Prerequisite: Technical Drawing & Design

Students learn the principles of communicating architecture designs and increase their understanding of working drawings and construction techniques learned in Technical Drawing and Design. Experiences include residential and commercial building designs, rendering, model development, and structural detail developments. Students use computer-aided drawing and design (CADD) equipment and established standards or codes to prepare models for presentation. The course is especially beneficial to future architects, interior designers, or home builders.

Certification: [AutoCad for Design & Drafting](#)

CTSO: TSA

851610 BUILDING TRADES II

Grades 10-12

1 Credit

Prerequisite: Building Trades I

Recommended: Architectural Drawing & Design

Building Trades II teaches students advanced skills in masonry, carpentry, electricity, and plumbing. The class prepares students to synthesize these valuable skills to build or repair residential structures, using a variety of materials and tools. Students will also learn current residential building codes associated with the trades.

Certification: None

CTSO: SkillsUSA

852010 MOUNTAINEER CONSTRUCTION ENTREPRENEURSHIP

Grade 12

1 Credit

Prerequisite: Building Trades II, Teacher Recommendation and Application

Students will establish a construction school-based enterprise

Certification: None

CTSO: SkillsUSA

High Quality Work-Based Learning Experience: Externship

Design & Pre-Construction Pathway

853310 ELECTRICITY I

Grades 10-12

1 Credit

Students develop fundamental electrical skills to help them prepare for a career in the installation, operation, maintenance, and repair of residential, commercial, and industrial systems. Students will engage in hands-on activities in a lab setting. They will be introduced to residential wiring of houses and apartments; commercial wiring of retailers, schools, businesses, and hospitals; and industrial wiring of factories.

Certification: [NCCER Core Craft](#)

CTSO: SkillsUSA

853410 ELECTRICITY II

Grades 11-12

1 Credit

Prerequisite: Electricity I

Students will continue to develop skills in the installation, operation, maintenance, and repair of residential, commercial, and industrial electrical systems. Students will also study electrical theory and mathematical problems related to electricity; apply requirements of the National Electrical Code (NEC); select and install conductors; examine lighting, communication, and power systems; and work with conduits and raceways, panelboards, switchboards, grounding systems, and generators.

Certification: [Electrical Construction Technology](#)

CTSO: SkillsUSA

BUSINESS

6115 PRINCIPLES OF BUSINESS & MARKETING

Grades 9-12

1 Credit

Students discover the roles of business and marketing in the free enterprise system and the global economy. Students examine basic financial concepts of banking, insurance, credit, taxation, and investments to provide a strong background for making sound decisions as consumers, wage earners, and citizens. The real-world effects of technology, effective communication, and interpersonal skills is evident throughout the course. This course also supports career-development skills and explores career options.

Certification: [Workplace Readiness](#)

CTSO: FBLA

General Management Pathway

6135 BUSINESS MANAGEMENT

Grades 10-12

1 Credit

Prerequisite: Principles of Business & Marketing

Students study basic management concepts and leadership styles as they explore business ownership, planning, operations, marketing, finance, economics, communications, the global marketplace, and human relations. Quality concepts, project management, problem solving, and ethical decision making are an integral part of the course

Certification: [Workplace Readiness](#)

CTSO: FBLA

909310 ENTREPRENEURSHIP

Grades 11-12

1 Credit

Prerequisite: Business Management or Teacher Recommendation

This course introduces students to the exciting world of creating, owning, and launching their own business. Students will learn concepts and techniques for planning an entrepreneurial venture, using design thinking and business model development. Students will learn about financial statements, marketing principles, sales and customer service, and basic economic principles for successful operation. Contextual instruction and student participation in co-curricular career and technical student organization (CTSO) activities will develop leadership, interpersonal, and career skills.

Certification: [Entrepreneurship and Small Business \(ESB\) Examination](#) CTSO: FBLA

6120 ECONOMICS & PERSONAL FINANCE *Graduation Requirement*

Grades 11-12

1 Credit

Students learn how economies and markets operate and how the U.S. economy is interconnected with the global economy. Additionally, students learn how to navigate financial decision making and to make informed decisions relating to career exploration, budgeting, banking, credit, insurance, spending, financing postsecondary education, taxes, saving and investing, buying/leasing a vehicle, and living independently. Students also learn the importance of investing in themselves to gain valuable knowledge and skills. Development of financial literacy skills and an understanding of economic principles will provide the basis for responsible citizenship, more effective participation in the workforce, and career success. The course incorporates all economics and financial literacy objectives included in the Code of Virginia §22.1-200-03B.

Certification: [W.I.S.E. Financial Literacy](#)

CTSO: FBLA

Middle School Course Offerings

12151 MAKE IT YOUR BUSINESS

Grade 8

Students design, establish, and operate a small-group or class business, producing a service or product that meets an identified school or community need. Emphasis is placed on the introduction and application of business terminology, basic entrepreneurship concepts, and fundamental business principles. Basic academic skills (mathematics, science, English, and history/social science) are integrated into this course. Contextual instruction and student participation in co-curricular career and technical student organization (CTSO) activities will develop leadership, interpersonal, and career skills.

CTSO: FBLA

High Quality Work-Based Learning Experience: School Based Enterprise

HEALTH & MEDICAL SCIENCES

8302 INTRO TO HEALTH & MEDICAL SCIENCES

Grades 10-11

1 Credit

This course introduces the student to a variety of healthcare careers and develops basic skills required in all health and medical sciences. It is designed to help students understand the key elements of the U.S. healthcare system and to learn basic healthcare terminology, anatomy and physiology for each body system, pathologies, diagnostic and clinical procedures, therapeutic interventions, and the fundamentals of traumatic and medical emergency care. Throughout the course, instruction emphasizes safety, cleanliness, asepsis, professionalism, accountability, and efficiency within the healthcare environment. Students also begin gaining job-seeking skills for entry into the health and medical sciences field.

Certification: [First Aid/CPR/AED](#)

CTSO: HOSA

Therapeutic Services Pathway

8360 NURSE AIDE I

Grades 11-12

1 Credit

Prerequisite: Taking concurrently with Nurse Aide II

Recommended Background: Introduction to Health & Medical Sciences

Nurse Aide I, offered as an occupational preparation course beginning at the 11th-grade level, is regulated under the Virginia Board of Nursing. It emphasizes the study of nursing occupations as related to the healthcare system. Students study growth and development across the lifespan, simple body structure and function, and medical terminology. They are introduced to concepts of infection prevention and disease processes. Students receive entry-level skill training in patient-nurse aide relationships; measuring and recording of vital signs; cardiopulmonary resuscitation; and general patient care. Work-based learning may be offered as part of this course. The Nurse Aide I course introduces students to careers in nursing, health professions, and STEM-H professions. Students must maintain American Heart Association's Cardiopulmonary Resuscitation (CPR) & Emergency Cardiovascular Care (ECC) training during this course.

High Quality Work-Based Learning Experience: Clinical Experience

Certification: [Certified Nurse Aide](#)

CTSO: HOSA

8362 NURSE AIDE II

Grades 11-12

1 Credit

Prerequisite: Taking concurrently with Nurse Aide I

Nurse Aide II is an occupational preparation course emphasizing body systems and diseases as related to advanced clinical care of the acute medical-surgical patient, the chronically ill, and the elderly. Students receive skills training and hands-on clinical experiences in a healthcare setting. Work-based learning in a healthcare facility is part of the course. Students must maintain American Heart Association's Cardiopulmonary Resuscitation (CPR) & Emergency Cardiovascular Care (ECC) training during this course. This course requires students to meet the Virginia Board of Nursing required clock hours to be eligible to take the National Nurse Aide Assessment Program (NNAAP) exam. Additionally, this course includes the approved opiate competencies for health and medical sciences education.

High Quality Work-Based Learning Experience: Clinical Experience

Certification: [Certified Nurse Aide](#)

CTSO: HOSA

Diagnostic Services Pathway

7660 SPORTS MEDICINE I

Grades 11-12

1 Credit

Prerequisite: Approval via Application

Recommended: Introduction to Health & Medical Sciences and Human Anatomy

In this course, students earn a certification in First Aid/CPR/AED. The course introduces students to topics such as human anatomy and physiology, nutrition, biomechanics, medical terminology, injuries and illnesses, and legal and ethical issues in sports medicine. Students also examine prospective careers in the sports medicine field. Upon successful completion of this course, students are eligible to take Sports Medicine II and pursue certification as a personal trainer.

High Quality Work-Based Learning Experience: Job Shadowing

Certification: [First Aid/CPR/AED](#)

CTSO: HOSA

766210 SPORTS MEDICINE II**Grades 12****1 Credit****Prerequisite:** Sports Medicine I

Upon successful completion of this course, students will be eligible to take the National Academy of Sports Medicine-Certified Personal Trainer (NASM-CPT) exam. This course builds upon basic knowledge acquired in Sports Medicine I on topics such as exercise physiology, biomechanics, exercise program design, and injury prevention, assessment, treatment, and management. Students prepare for a career in sports medicine, including completing an internship.

High Quality Work-Based Learning Experience: Job Shadowing**Certification:** [Performance Enhancement Specialization](#)

CTSO: HOSA

830310^{HW} PATIENT CARE TECHNICIAN**Grades 12****1 Credit****Prerequisite:** Nurse Aide II

Offered as an occupational course after the completion of Nurse Aide at the 12th-grade level, Patient Care Technician emphasizes the study of nursing occupations as related to the healthcare system. Students study normal growth and development, simple body structure and function, medical terminology, and are introduced to microbes and disease. Upon completion of the course, students will have mastered the skills needed to perform electrocardiograms (ECGs); execute basic medical, lab, and exam procedures; draw blood; and provide basic patient/client care. Students will be eligible to take the National Certification Exams to become Certified ECG Technicians, and Certified Patient Care Technicians.

High Quality Work-Based Learning Experience: Clinical Experience**Certification:** [Certified EKG Technician](#) and [Patient Care Technicians](#)

CTSO: HOSA

HUMAN SERVICES

8229 NUTRITION AND WELLNESS

Grades 9-12

1 Credit

Students enrolled in Nutrition and Wellness focus on understanding wellness, investigating principles of nutrition, using science and technology in food management, ensuring food safety, planning menus and preparing food, and exploring careers in the field of nutrition and wellness. Critical thinking and practical problem solving are emphasized.

NOTE: In this course, students will be preparing and tasting a variety of foods and beverage products. These foods and beverages may contain ingredients that cause an allergic reaction in some individuals. Students with known food allergies are encouraged to carefully consider the severity of his/her allergies before selecting this course. The communication of any such allergies to the instructor is the responsibility of the student and parent. The School Division cannot guarantee that identified allergens will NOT be used in the course by either the instructor or other students.

Certification: Option to take [ServSafe](#)

CTSO: FCCLA

Education & Training Pathway

828510 EARLY CHILDHOOD, EDUCATION AND SERVICES I

Grades 10-12

1 Credit

Students prepare to be primary providers of home-, family-, or institution-based childcare services by focusing on the planning, organizing, and conducting of meaningful play and learning activities; child monitoring and supervision; recordkeeping and referral procedures; and work-based learning experiences in on-site labs, local daycare centers, elementary schools, and other institutions under the supervision of the instructor. Students also prepare for continuing education leading to careers in early childhood fields (e.g., medical, social services, education).

Certification: [Workplace Readiness](#)

CTSO: FCCLA

828610 EARLY CHILDHOOD, EDUCATION AND SERVICES II

Grades 11-12

1 Credit

Prerequisite: ECEES I (Effective 24-25 SY)

Former Service Learning Course

Students focus on occupational skills needed by personnel employed in early childhood-related careers, such as education, medical/health care, social services, counseling, psychology, and entrepreneurship. Work-based learning experiences in on-site labs, early childhood development centers, elementary schools, and other institutions under the supervision of the instructor are required.

Certification: [Para Professional Teacher Certification](#)

CTSO: FCCLA

9062DE VA TEACHERS FOR TOMORROW I DE 201

Grades 11-12

1 Credit

Prerequisite: 2.7 cumulative gpa, teacher recommendation and approval via application

Virginia Teachers for Tomorrow (VTfT) I fosters student interest, understanding, and appreciation of the teaching profession and allows secondary students to explore careers in the education and training career cluster and related pathways. Students build a foundation for teaching; learn the history, structure, and governance of teaching; apply professional teaching techniques in classroom and field experiences; and reflect on their teaching experiences. Note: DE fees are associated with this course.

Certification: [Para Professional Teacher Certification](#)

CTSO: FCCLA

9072DE VA TEACHERS FOR TOMORROW II DE 202

Grades 12

1 Credit

Prerequisite: Virginia Teachers for Tomorrow I

Students continue to explore careers in the education and training career cluster and related pathways. This course provides hands-on opportunities for students to examine careers in education, observe professional practice, and apply professional standards and educational theory. In an authentic practicum experience, students will be able to teach lessons, manage classrooms, create learning opportunities, and build their professional portfolio in the process. Note: DE fees are associated with this course.

Certification: [Praxis Core Academic Skills for Educators Test](#)

CTSO: FCCLA

Cosmetology Pathway

874510 COSMETOLOGY I

Grade 11

4 Credits

In this introductory course, students study hair, skin, and nails and their related care. Students are grounded in theory as they prepare to practice procedures in a clinical lab setting or classroom, using manikins for manipulative skill practice. The first-year course emphasizes personal safety, professionalism, and sanitation and disinfection of equipment and facilities. Students develop skills in shampooing and conditioning hair, as well as styling and cutting hair. They are introduced to chemical texture services and develop skills in manicure and pedicure procedures. Students must satisfy a minimum of 840 hours of instruction in a two-year coherent sequence of courses to be eligible to take the Board for Barbers and Cosmetology licensing examination.

Students must travel to Orange County Public Schools to take this course; transportation is provided to students and there are course fees applied for their Cosmetology Kit. The kit cost is approximately \$300 (the cosmetology kit is the student's to keep after the course). Please note that students will spend half of their school day at Orange County Public Schools.

874610 COSMETOLOGY II

Grade 12

4 Credits

Prerequisite: Cosmetology I

In this continuing course, students build on their theoretical foundation of general sciences and practices in cosmetology to increase proficiency in hair cutting and styling on live models, with attention to professionalism, client consultation, safety, and infection control. Students are trained in safe chemical processes related to permanent waves, relaxers, lightening, and coloring hair. In addition, students learn to care for skin, hands, and feet, developing experience in providing facials, manicures, pedicures, and nail enhancements. Students will be introduced to a business management unit with a focus on managing the salon. Students must satisfy a minimum of 840 hours of instruction in a two-year coherent sequence of courses to be eligible to take the Board for Barbers and Cosmetology licensing examination.

Students must travel to Orange County Public Schools to take this course; transportation is provided to students and there are course fees applied for their Cosmetology Kit. The kit cost is approximately \$300 (the cosmetology kit is the student's to keep after the course). Please note that students will spend half of their school day at Orange County Public Schools.

Middle School Course Offerings

19903 [FAMILY CONSUMER SCIENCES I](#)

Grades 6

Family and Consumer Sciences Exploratory I students will prepare to be life-ready as they manage individual, family, career, and community roles and responsibilities.

Certification: None

CTSO: FCCLA

19258 [CAREER INVESTIGATIONS](#)

Grades 7

This course will help students identify and demonstrate the workplace skills that employers desire in their future employees. Students analyze their personal assets; explore career clusters, career pathways, or occupations; and draft an Academic and Career Plan based on their academic and career interests.

Certification: None

INFORMATION TECHNOLOGY

Information Support & Services Pathway

6612 COMPUTER INFORMATION SYSTEMS

Grades 9-12

1 Credit

Students apply problem-solving skills to real-life situations through word processing, spreadsheets, databases, multimedia presentations, and integrated software activities. Students work individually and in groups to explore computer concepts, operating systems, networks, telecommunications, emerging technologies, and career opportunities related to the information technology field.

Certification: Microsoft Office Suite Certifications: [Powerpoint](#)

CTSO: FBLA

6613 ADVANCED COMPUTER INFORMATION SYSTEMS

Grades 10-12

1 Credit

Prerequisite: Computer Information Systems

Students apply problem-solving skills to real-life situations through advanced integrated software applications, including printed, electronic, and web publications. Students work individually and in groups to explore advanced computer maintenance activities, website development, programming, networking, emerging technology, and employability skills.

Students enhance computer information technology skills through the use of advanced integrated applications to create documents, publications, and websites including complex graphs, customized reports, and multimedia presentations. In addition to implementing programming and executing network activities, students also will practice the maintenance, management, and troubleshooting of systems; legal and ethical issues are explored; preparation is given for industry certifications; and employability skills are developed.

Certification: Microsoft Office Suite Certifications: [Word](#) and [Excel](#)

CTSO: FBLA

6631 DESIGN, MULTIMEDIA AND WEB TECHNOLOGIES

Grades 10-12

1 Credit

Prerequisite: Computer Information Systems

Students apply creativity and technology to create visual design, multimedia projects, and web projects, using industry-standard software. Work-based learning experiences allow students to apply layout and design techniques in real-world situations. Students create portfolios that include a résumé, certifications earned, and a variety of projects produced in the course.

Certification: [Adobe Certified Professional Examinations](#)

CTSO: FBLA

6670 INFORMATION TECHNOLOGY FUNDAMENTALS

Grades 9-11

1 Credit

Information Technology Fundamentals introduces the essential technical and professional skills required for students to pursue programs leading to professional careers and information technology certifications. The course introduces skills related to digital technology, digital applications, maintenance/upgrading/troubleshooting, and networking fundamentals. Students also explore ethical issues related to computers and Internet technology and examine webpage and game design.

Certification: [IC3 Digital Literacy Certification Tests](#)

CTSO: FBLA

Programming Pathway

664010 PROGRAMMING

Grades 10-12

1 Credit

Prerequisite: Computer Information Systems or IT Fundamentals

Students in the Programming course explore programming concepts, use algorithmic procedures, implement programming procedures with one or more standard languages, and master programming fundamentals. Coding is used throughout the course. Graphical user interfaces may be used as students design and develop interactive multimedia applications, including game programs. In addition, students employ hypertext markup language (HTML) or JavaScript to create web pages. Students develop their employability skills through a variety of activities.

Certification: [Entry Level Python Programmer](#)

CTSO: FBLA

664110^{HW} PROGRAMMING ADVANCED**Grades 11-12****1 Credit****Prerequisite:** Programming

Building on their foundation of programming skills, Advanced Programming students use object-oriented programming to develop database applications, interactive multimedia applications including game applications, mobile applications, and web applications. Students continue to develop their employability skills as they research pathways for continuing education and careers in the information technology industry and engage in various career-building activities.

Certification: [Associate in Python Programmer](#)

CTSO: FBLA

MARKETING

6115 PRINCIPLES OF BUSINESS & MARKETING

Grades 9-12

1 Credit

Students discover the roles of business and marketing in the free enterprise system and the global economy. Students examine basic financial concepts of banking, insurance, credit, taxation, and investments to provide a strong background for making sound decisions as consumers, wage earners, and citizens. The real-world effects of technology, effective communication, and interpersonal skills is evident throughout the course. This course also supports career-development skills and explores career options.

Certification: [Workplace Readiness](#)

CTSO: FBLA

Marketing and Communications Pathway

812510 DIGITAL & SOCIAL MEDIA MARKETING

Grades 9-12

1 Credit

Prerequisite: Principles of Business & Marketing

This course introduces students to digital and social media marketing. Students explore principles, strategies, tools, and tactics related to consumers, branding, advertising, and promotions. Students explore how success is measured in a digital and social media marketing campaign. This course emphasizes ethics, laws, and security. Students also investigate business and marketing plans, as well as careers in digital and social media marketing. This course reinforces mathematics, science, English, and history and social science Standards of Learning.

Certification: [Fundamental Marketing Concepts Assessment](#)

CTSO: DECA

817510 SPORTS & ENTERTAINMENT MARKETING

Grades 9-12

1 Credit

Prerequisite: Principles of Business & Marketing

Students will learn how products are developed, branded, and sold. They will analyze industry trends and gain hands-on experience in the marketing of goods, services, and ideas and be prepared for success in postsecondary education and employment. Topics include professionalism in the workplace, product planning and positioning, promotion, pricing, selling, economic issues, and changes in the marketplace.

Certification: [Fundamental Marketing Concepts Assessment](#)

CTSO: DECA

Marketing Management Pathway

813210 MARKETING MANAGEMENT

Grades 11-12

1 Credit

Prerequisite: Principles of Business & Marketing

This course is designed for high school students who plan to attend college with a concentration in marketing, business, or management and/or who have plans to manage or own a business. Students will be exposed to all aspects of marketing and management, including branding, digital marketing, promotion, communication, and career opportunities in marketing.

Certification: [CLEP: Principles of Marketing](#)

CTSO: DECA

SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS

8435 TECHNICAL DRAWING & DESIGN

Grades 9-12

1 Credit

In this foundational course, students design, sketch, and make technical drawings, models, or prototypes of real design problems while learning the language of technical drawing and design. The course introduces the language of graphic communication to all science, technology, engineering, and mathematics (STEM) students and is especially recommended for those planning a future in engineering and architecture.

Certification: [Workplace Readiness](#)

CTSO: TSA

Engineering & Technology Pathway

8437 ARCHITECTURAL DRAWING & DESIGN

Grades 10-12

1 Credit

Prerequisite: Technical Drawing & Design

Students learn the principles of communicating architecture designs and increase their understanding of working drawings and construction techniques learned in Technical Drawing and Design. Experiences include residential and commercial building designs, rendering, model development, and structural detail developments. Students use computer-aided drawing and design (CADD) equipment and established standards or codes to prepare models for presentation. The course is especially beneficial to future architects, interior designers, or home builders.

Certification: [AutoCad for Design & Drafting](#)

CTSO: TSA

8436 ENGINEERING DRAWING & DESIGN

Grades 10-12

1 Credit

Prerequisite: Technical Drawing & Design

Recommended: Architectural Drawing & Design

Students use graphic language for product design, technical illustration, evaluation of designs, and engineering drawings. They increase their understanding of drawing techniques learned in Technical Drawing and Design (8435/8434) and Architectural Drawing and Design (8437/8492). Students use computers, calculators, and descriptive geometry and adhere to established standards to solve design problems. They work in teams to design solutions for an identified need and to produce parts on a 3D printer.

Certification:

CTSO: TSA

846010 MODELING & SIMULATION TECHNOLOGY

Grades 10-12

1 Credit

Prerequisite: Technical Drawing & Design

Students will explore the use of modeling and simulation (M&S), as well as game development concepts and software, to solve real-world problems in multiple domain areas. Activities will include developing, evaluating, and testing engineering designs, employing geospatial data, observing and analyzing physics simulations, designing games for educational purposes, and designing and creating visualization systems with three-dimensional (3D) models. Students will develop an understanding of the concepts, systems, processes, tools, and implications of the field of M&S and associated design and visualization technologies.

Certification:

CTSO: TSA

Middle School STEM Course Offerings

21051 INTRO TO TECHNOLOGY & ENGINEERING

Grade 6

Students combine resources and techniques to create systems, attaining comprehension of how technological systems work. Students will explore, design, analyze, and evaluate technological systems. By simulating systems and assessing their impacts, students gain insight into how to approach the problems and opportunities of a technological world. Students will also explore technology-oriented careers.

Certification: None

CTSO: TSA

21001 TECHNOLOGICAL SYSTEMS

Grade 7

Students use the engineering design process to guide them through various hands-on activities and projects, utilizing safe use of tools, materials, and techniques to solve problems. Students explore their relationship to technology and engineering, and how technology affects the world around them, as well as careers in the fields of technology and engineering.

Certification: None

CTSO: TSA

21099 INVENTIONS & INNOVATIONS

Grade 8

Students apply the engineering design process to plan, build, and communicate inventions or innovations that address contemporary technological problems facing them, their community, and the world. This hands-on course allows students to apply creativity and innovation that emphasizes working in teams and the safe use of technological and engineering tools and equipment.

Certification: None

CTSO: TSA

MCHS HIGH QUALITY WORK-BASED LEARNING

OFF-CAMPUS EXPERIENCES

MCHS STUDENT INTERNS

INTERNSHIP

Grades 11-12

1 Credit

Internship is a HQWBL experience that places the student in a real workplace environment. This placement allows the student to develop and practice career-related knowledge and skills for a specific career field related to the student's career interests, abilities, and goals. Internships are connected to classroom learning, and are accompanied by structured reflection activities. Student interns are guided by a formal, written training plan that defines specific academic and workplace skills to be mastered. A student must be enrolled in a CTE course that aligns with the career cluster of their internship during the same academic year.

Required Internship Hours

To receive a credit toward graduation for the internship, students should achieve a minimum of 280 hours for the school year. Many students will exceed 280 hours. Internships of fewer than 280 hours may be completed, but students will not receive credit beyond the credit earned for the related CTE course.

Internship experiences of 280 hours or more must be continuous throughout the school year even if the classroom instruction is a block class in a single semester. The students must be placed by the HQWBL coordinator/teacher/point-of-contact in jobs related to their career goals and adequate supervision must be provided, including workplace visits, employer evaluations, or regular communication with employers and students throughout the year. Students must adhere to the regulations and guidelines.

HIGH QUALITY WORK-BASED LEARNING EXPERIENCES

All CTE courses will provide contextual instruction and student participation in co-curricular career and technical student organization (CTSO) activities will develop leadership, interpersonal, and career skills. High-quality work-based learning (HQWBL) will provide experiential learning opportunities related to students' career goals and/or interests, integrated with instruction, and performed in partnership with local businesses and organizations.

