CAREER TECH Program Courses

Accounting and Finance

4 credits Length of course: Junior & Senior Year

Program Course Offerings (All course must be taken in sequence and cannot be taken out of order):

Business Foundations Junior Level Course: This course introduces students to specializations within the Business Administrations, Finance, and Marketing Career Fields. Students will obtain knowledge and skills in fundamental business activities. They will acquire knowledge of business processes, economics, and business relationships. Students will use technology to synthesize and share business information. Employability skills, leadership and communications and personal financial literacy will be addressed.

Finance Foundations Junior Level Course: This is the first course specific to Finance. It introduces students to the specializations offered in the career field. Students will obtain fundamental knowledge and skills in accounting, banking services, corporate finance, insurance, and securities and investments. They will acquire knowledge of financial analysis and application, business law and ethics, economics, international business and business relationships. Knowledge management and information technology will be emphasized. Employability skills, leadership and communications will be incorporated in classroom activities.

Financial Services Junior Level Course: Students will develop knowledge and skills needed in the banking, insurance and investment industries. They will analyze banking products and services, determine ways in which insurance reduces risk, and calculate insurable losses. Students will also learn to sell financial products and build positive relationships with clients and colleagues. They will use financial ratios to evaluate company performance and select profitable investments for clients. Technology, employability skills, leadership and communications will be incorporate in classroom activities.

Financial Accounting Senior Level Course: Students will track, record, summarize, and report a business's financial transactions. They will develop financial documents, project future income and expenses, and evaluate the accuracy of a business's financial information. Students will also apply tools, strategies, and systems to evaluate a company's financial performance and monitor the use of financial resources. Technology, employability skills, leadership and communications will be incorporated in classroom activities.

Finance Capstone Senior Level: The capstone course provides opportunities for students to apply knowledge, attitudes and skills that were learned in a Finance program in a more comprehensive and authentic way. Capstones often include project-/problem-based learning opportunities that occur both in and away from school. Under supervision of the school and through community partnerships, students may combine classroom learning with work experience. This course can be delivered through a variety of delivery methods including cooperative education or apprenticeship.
The Finance Career Field includes technical and professional-level careers in Accounting, Financial, and Investment areas.

Nursing

4 credits Length of course: Junior & Senior year

Program Course Offerings (All course must be taken in sequence and cannot be taken out of order):

Patient Centered Care Senior Level Course: Students will apply psychomotor nursing skills needed to assist individuals in meeting basic human needs. Students will implement interventions following a nursing assistant plan of care. Students will collect patient's vital signs including temperature, pulse rate, respiration rate, and blood pressure. Students will perform phlebotomy procedures with emphasis on infection prevention, universal precautions, proper patient identification, specimen acquisition, handling, and processing. Additionally, students will observe patients' physical, mental, and emotional conditions and document any change.

Patient Centered Care and Diagnostics Senior Level Course: In this course, students establish and implement treatment plans while providing primary nursing care. Topics include pharmacology, phlebotomy, mental health

nursing and acute care nursing. Students use diagnostic techniques to develop patient health assessments. Emphasis is placed on the synthesis of information gathered through health history, observation, and the detection of deviations and variations from normal physical characteristics. In addition, students learn the legal and ethical principles needed to function within the scope of practice.

Principles of Allied Health Junior Level Course: In this, first course students will apply knowledge and clinical skills necessary to assess, plan, provide, and evaluate care to patients in varied healthcare settings. Students will apply first aid principles and techniques needed for response to choking, cardiopulmonary resuscitation, and other life-threatening emergencies. Emphasis will be placed on regulatory compliance, patient safety, pathophysiology, and medical interventions. Additionally, this course introduces psychomotor skills needed to assist individuals in meeting basic human needs.

Nutrition and Wellness Senior Level Course: Students will increase their knowledge of comprehensive health and wellness. Students will be able to identify the components of fitness and communicate the relationship between physical fitness, physical performance, injury prevention, and nutritional intake. Students will evaluate an individual's state of nutrition based upon the impact of personal choices and social, scientific, psychological and environmental influences. Further, students will calculate an individual's kilocalorie burn rate and recommend an ideal diet and physical fitness plan.

Health Science Capstone Senior Level Course: The capstone course provides opportunities for students to apply knowledge, attitudes and skills that were learned in Health Sciences program in a more comprehensive and authentic way. Capstones often include project/problem based learning opportunities that occur both in and away from school. Under supervision of the school and through community partnerships, students may combine classroom learning with work experience. This course can be delivered through a variety of delivery methods including cooperative education or apprenticeship.

Criminal Justice

4 credits Length of course: Junior and Senior Year

The American Criminal Justice System Junior Level: Criminal Justice pathway traces the history, organization, and functions of local, state, and federal law enforcement. Students will study criminal behavior and constitutional and criminal law to crime and punishment. Students will learn law enforcement terminology, classifications, and elements of crime, and how various court systems are used to judge and punish offenders.

Police Work and Practice in Public Safety Junior Level Course: In this course, students will learn the skills necessary to prevent, detect and react to crime. Students will learn self-defense and subject control techniques, methods to conduct patrols, surveillance, and traffic procedures. Students will understand the ethical and legal responsibilities of police officers on patrol. Additionally, students will learn the operations of police and emergency telecommunication systems.

The Correction System and Services Senior Level Course: The correctional officer plays a critical role in the criminal justice system. In this course students will learn institutional rehabilitation and community corrections strategies that prepare them for work in a correctional setting. The student will learn the role and responsibilities of a correctional officer including processing inmates, maintaining security in a correctional setting, and understanding inmate mental health needs.

Security and Protective Services - Senior Level Course: Private Security is an ever-expanding industry that requires trained professionals that can detect, deter, and investigate crime. The course focuses on private security measures used to protect lives, property, and proprietary information. Students completing the Ohio Peace Officer Training Academy Private Security curriculum provided by an approved instructor will be eligible to sit for the OPOTA certification exam as a private security guard.

Criminal Justice Capstone - Senior Level Course: The course provides opportunities for students to apply knowledge, attitudes and skills that were learned in Law and Public Safety in a more comprehensive and authentic way. Capstones often include project/problem based learning opportunities that occur both in and away from school. Under supervision of the school and through community partnerships, students may combine classroom learning with work experience. This course can be delivered through a variety of delivery methods including cooperative education or apprenticeship.

Construction

4 credits Length of course: Junior and Senior Year

Program Course Offerings (All course must be taken in sequence and cannot be taken out of order):

Carpentry and Masonry Junior Level Course: This first course in the pathway will introduce to students the materials, methods, and equipment used in carpentry and masonry. Students will organize a project work sequence by interpreting plans and diagrams within a construction drawing set. They will layout and install basic wall, floor and roof applications. Students will perform introductory concrete applications including formwork, reinforcement, mixing, and finishing. Current advancements in technology, safety, applicable code requirements and correct practices are learned.

Structural Systems Junior Level Course: Students will learn procedures and techniques required for layout and framing of walls and ceilings, including roughing-in door and window openings, constructing corners and partitions; bracing walls and ceilings; and applying sheathing. Students will learn methods of roof, cold formed steel, and wood stair framing. Students will learn site and personal safety, material properties, design procedures, and code requirements for structural systems.

Structural Coverings and Finishes Senior Level Course: This course will address applications of interior and exterior finish work. Students will identify material properties and select for appropriate application. Students will install thermal and moisture protection including roofing, siding, fascia and soffits, gutters, and louvers. Students will install drywall; trim-joinery and molding and apply wall, floor and ceiling coverings and finishes. Throughout the course, the safe handling of materials, personal safety, prevention of accidents and the mitigation of hazards are emphasized.

Remodeling/Renovation Senior Level: Students will apply structural and mechanical skills to remodeling and renovations. In addition, students will learn the process of securing the required building permits, the management of subcontractors, and the coordination of formal building inspections. Students will troubleshoot design or logistics issues and provide possible solutions. Throughout the course, the safe handling of materials, personal safety, prevention of accidents and the mitigation of hazards are emphasized.

Construction Capstone Senior Level Course: The capstone course provides opportunities for students to apply knowledge, attitudes and skills that were learned in Construction programs in a more comprehensive and authentic way. Capstones often include project/problem based learning opportunities that occur both in and away from school. Under supervision of the school and through community partnerships, students may combine classroom learning with work experience. This course can be delivered through a variety of delivery methods including cooperative education or apprenticeship.

Engineering & Robotics

4 credits Length of course: Junior and Senior Year

Program Course Offerings (All course must be taken in sequence and cannot be taken out of order):

Principles of Manufacturing: Junior Level: Students will apply knowledge and skills required in the applications of standard manufacturing practices including planning, design, and visualization. Students will learn and apply skills related to interpreting drawings, creating documentation, and performing measurements. Additionally, students will use principles and techniques of Computer Numerical Control (CNC), employ scheduling and practice project evaluation.

Engineering Design Senior Level Course: Students will learn the application of the engineering design process. Topics include work-processes, optimization methods, design optimization and risk management tools. Students will use 2D and 3D modeling software to help them design solutions to proposed problems, document their work and communicate solutions. Additionally, students will interpret industry prints and create working drawings from functional models. Emphasis is given to experimental problem solving in real systems.

Machine Tools Senior Level Course: This course introduces students to all aspects of machining applications in manufacturing. They will be able to perform routine calculations, interpret basic drawings, begin the process of performing accurate measurements and be able to plan simple machining processes. Students will learn the fundamental principles and practices of cutting, drilling and grinding using modern machine tools, hand tools and precision measuring instruments.

Engineering Capstone: The capstone course provides opportunities for students to apply knowledge, attitudes and skills that were learned in an Engineering program in a more comprehensive and authentic way. Capstones often include project/problem based learning opportunities that occur both in and away from school. Under supervision of the school and through community partnerships, students may combine classroom learning with work experience. This course can be delivered through a variety of delivery methods including cooperative education or apprenticeship.

Exercise Science & Sports Medicine

4 credits Length of course: Junior & Senior year

Program Course Offerings (All course must be taken in sequence and cannot be taken out of order):

Medical Terminology Junior Level Course: This course focuses on the applications of the rules for constructing and defining medical terms with an emphasis on building a working medical vocabulary. Topics include using the appropriate abbreviations and symbols for anatomical, physiological and pathological classifications and the associated medical specialties and procedures. Students will decipher medical terms by identifying and using word elements with an emphasis on derivation, meaning, and pronunciation. Further, students will interpret and translate medical records and documents.

Fitness and Evaluation Assessment Senior Level Course: Students will complete comprehensive fitness evaluations and develop individualized training programs. Students will administer lab and field tests of cardiovascular endurance, body composition, joint flexibility and muscular strength, power, and endurance. Emphasis is placed on assessing body composition, neuromuscular flexibility, agility, balance, coordination, and proprioception. Additionally, students will identify components of physical fitness and communicate how physical activity impact health and wellness.

Exercise and Athletic Training Level Course: In this, first course students will apply procedures and techniques used in athletic training and in the care and rehabilitation of athletic injuries and therapeutic exercise. Topics include injury prevention, conditioning, and wound care techniques of the musculoskeletal system. Students will learn techniques in the analysis of mechanical factors related to human movement. In addition, current trends, technology, legal considerations, and the role of exercise science in relationship to other health fields will be emphasized.

Nutrition and Wellness Senior Level Course: Students will increase their knowledge of comprehensive health and wellness. Students will be able to identify the components of fitness and communicate the relationship between physical fitness, physical performance injury prevention, and nutritional intake, Students will evaluate an individual's state of nutrition based upon the impact of personal choices and social, scientific, psychological, and environmental influences. Further, students will calculate an individual's kilocalorie burn rate and recommend an ideal diet and physical fitness plan.

Exercise Science Capstone Senior Level Course: The capstone course provides opportunities for students to apply knowledge, attitudes and skills that were learned in Health Sciences program in a more comprehensive and authentic way. Capstones often include project/problem based learning opportunities that occur both in and away from school. Under supervision of the school and through community partnerships, students may combine classroom learning with work experience. This course can be delivered through a variety of delivery methods including cooperative education or apprenticeship.

Heating, Ventilation, and Air Conditioning (HVAC/R)

4 credits Length of course: Junior and Senior Year

The Heating, Ventilation, and Air Conditioning (HVAC) program is a step into the workforce! This program strives to duplicate the real work environment found in the heating and air conditioning industry. All the equipment used in lab is the actual equipment found on the job. Students will be given high skilled knowledge on the latest technology and a peek into the many different areas of the HVAC trade.

HVAC students will work on different projects on and off campus during the school year. They will be taught to work with copper by cutting, bending, soldering, and brazing to make leak tight joints. Students will learn to read and install from wiring diagrams. As part of the hands-on lab experience, students will: fabricate sheet metal ducts using bending and forming equipment, charge air conditioning systems with refrigerant, and learn to read gauges to evaluate the system, and remove and replace parts within the systems, heating and air conditioning units.

After completing the program, students have taken jobs as service technicians, furnace/air conditioning installers, or sheet metal installers/fabricators. Some students have used their learned skills to take jobs in the electrical and plumbing trades. Another option for student completing HVAC program, is to take the skills and continue their education at the college level. College credit is available as is a $3,000 scholarship upon successful completion.

Heating & Cooling Systems Junior Level Course: Students will apply principles of heating and cooling to the installation, troubleshooting and maintenance of residential and commercial Heating, Ventilation, and Air conditioning/Refrigeration (HVAC/R) Systems.

Sheet Metal 301 Junior Level Course Junior Level Course: The fundamentals of the sheet metal trade are the emphasis of this course. Students will learn components of a ductwork system and use architect and engineer's scales to read and interpret construction drawings for material calculations and selection. Students will layout sheet-metal patterns using parallel line, radial line, and triangular development procedures. Students will, also fabricate edges, joints, seams, and notches; seal and insulate; and install ductwork systems and accessories.

Mechanical Electrical and Plumbing Systems Senior Course: Students learn physical principles and fundamental skills across mechanical systems in construction. Students will select materials, assemble, and test basic electrical circuits. Students will select materials and assemble simple copper and plastic plumbing applications for both supply and drains. They will perform simple maintenance of electric motors, electric fixtures and plumbing fixtures. Students will be able to select and install basic ductwork components and learn the operation and maintenance of heating and cooling equipment.

HVAC Refrigeration Senior Level Course: Students will install, troubleshoot and service residential and commercial refrigeration systems. Students will learn laws of thermodynamics, pressure and temperature relationships, the refrigeration cycle, and refrigerant management. Students will address hydronic systems, chilled water systems, package units, and cooling towers.

HVAC Construction Pre-Apprenticeship/Capstone: The capstone course provides opportunities for students to apply knowledge, attitudes and skills that were learned in Construction programs in a more comprehensive and authentic way. Capstones often include project/problem based learning opportunities that occur both in and away from school. Under supervision of the school and through community partnerships, students may combine classroom learning with work experience. This course can be delivered through a variety of delivery methods including cooperative education or apprenticeship.

Manufacturing

4 credits Length of course: Junior and Senior year

Program Course Offerings (All course must be taken in sequence and cannot be taken out of order):

Machining with Industrial Lathes: Junior Level Course: This course directs the student in the safe use of different types of manual industrial lathes. Students will use these machine tools to shape, pattern, bore, thread and polish metal and other materials. Students will apply their knowledge of product characteristics, perform necessary

calculations, use precision measuring instruments and make all adjustments needed to fabricate products to print dimensions. Students will be able to identify operational problems and provide routine care and maintenance to the lathe.

Machining with Industrial Milling Machines: Junior Level Course: In this course, students are directed in the safe use of manual milling machines. Students apply their knowledge of product characteristics, perform necessary calculations, and use precision measuring instruments and layout equipment to mill products to print dimensions. Students will use these machine tools to shape, cut, drill and bore metal and other materials. Students will be able to identify operational problems and provide routine care and maintenance to the manual mill.

Machine Tools: Senior Level Course: This course introduces students to all aspects of machining applications in manufacturing. They will be able to perform routine calculations, interpret basic drawings, begin the process of performing accurate measurements and be able to plan simple machining processes. Students will learn the fundamental principles and practices of cutting, drilling and grinding using modern machine tools, hand tools and precision measuring instruments.

Computer Numerical Control Technology with Industrial Mills and Lathes: In this course, students will use computer numerical control (CNC) programming to mill products comprised of various materials. Students will prepare numerical control programs in positioning systems using standard industrial G and M codes. They will program computerized numerical control mills and lathes.

Manufacturing Capstone: Senior Level Course: The capstone course provides opportunities for students to apply knowledge, attitudes and skills that were learned in a Manufacturing program in a more comprehensive and authentic way. Capstones often include project/problem based learning opportunities that occur both in and away from school. Under supervision of the school and through community partnerships, students may combine classroom learning with work experience. This course can be delivered through a variety of delivery methods including cooperative education or apprenticeship.

Teacher Academy

4 Credits Length of course: Junior and Senior Year

Foundations of Education and Training: In this first course in the career field, students will examine the goals of education and training as well as environments in which education and training are delivered. They will identify learners' and stakeholders' roles, rights, and responsibility in educational systems; assess legal and ethical issues related to education; and determine careers of interest in education and training. Employability skills and state requirements for becoming an educator will also be addressed.

Child and Adolescent Development: Students will examine and apply the theoretical foundations of human growth and development to child and adolescents. Additionally, learners will determine children's learning styles; stages of social, emotional, cognitive and physical development; and needed accommodations in educational settings. Throughout the course, family and community engagement, cultural influences on learners and language growth and development will be emphasized.

Education Principles: In this first course in the pathway, students will research the historical perspectives and theories of education used in the forming of their own personal education philosophy. Students will assess legal, ethical, and organizational issues. Additionally, students will assess developmental appropriate practices and identify challenging issues associated with teaching children with diverse needs. Career planning, professional guidelines and ethical practices will also be emphasized.

Communities, Schools, and Stakeholders: Students will examine the relationship of families, communities and schools in the growth and development of learners. They will implement strategies to actively involve families and communities in child development and learning, determine community resources and services available to families and schools, and act as advocates for students and learning. Throughout this course, working with socially, culturally, linguistically diverse families will be emphasized.

Education and Training Capstone: The capstone course provides opportunities for students to apply knowledge, attitudes and skills that were learned in their teacher academy program in a more comprehensive and authentic way. Capstones often include project/problem based learning opportunities that occur both in and away from school. Under supervision of the school and through community partnerships, students may combine classroom learning with work experience. This course can be delivered through a variety of delivery methods including cooperative education or apprenticeship.

Digital Design

4 credits Length of course: Junior and Senior year

Program Course Offerings (All course must be taken in sequence and cannot be taken out of order):

Visual Creation 301 Junior Level Course - Subject Code: 340315: A keen eye for detail, art elements, design principles and styles of art are essential to the world of visual communications. Students learn proper composition with such principles as color theory, typography and drawing. They create designs targeted for the Internet and for two- or three-dimensional products while adhering to copyright laws and deadlines.

Visual Distribution 301 Junior Level Course - Subject Code: 340330: Students analyze customer preferences to determine product creation, production and delivery. From a four-color vehicle wrap to a spot varnish that adds spark to an annual report cover, students learn techniques to enhance product uniqueness in the graphic arts industry. They compare the differences of customer impact between using traditional mass distribution to individual consumer targeting. Among strategies engaged are Variable Data Imaging (VDI), Quick Response (QR) codes and e-mail blasts.

Digital Print Design 401 Senior Level Course - Subject Code: 340320: Starting with understanding target audiences, demographics, product shelf life and sustainability students create designs for two- or three-dimensional products. Using workflow processes, they lay out newsletters, posters, business cards and other products. They create logo and package designs for corporate branding, marketing and advertising. Critical thinking is engaged in multiple-level critiques.

Digital Image Editing 401 Senior Level Course - Subject Code: 340120: This course focuses on manipulating images for final output through print and Web-based production. Students obtain a brief perspective on analog image editing and delve into the world of editing digital photos, illustrations and other artwork. They learn to adjust resolution and exposure, modify color, compress data and format and manage files. Students will use problem-solving strategies and work collaboratively to complete the creative process with artists, printers and Web developers.

Visual Design and Imaging Capstone – Optional - Subject Code: 340009: Students apply Arts and Communication program knowledge and skills in a more comprehensive and authentic way. Capstones are project/problem-based learning opportunities that occur both in and away from school. Under supervision of the school and through partnerships, students combine classroom learning with work experience to benefit themselves and others. These can take the form of mentorship employment, cooperative education, apprenticeships and internships.