

# C<sup>4</sup> AREA CAREER CONNECTION

## GENERAL CTE

### **T1000 Preparing for College and Careers**

**Open to grade 9**

**1 semester, 1 credit per semester**

**Approximate cost per semester: TBD**

**Meets requirements: THD, AHD, Core 40 (Directed Elective or Elective), GS**

**Note: Required for high school graduation.**

**Qualifies for one of the F&CS waiver health credits.**

Preparing for College and Careers is the first piece of the "Pathways to Life" approach at East. The focus of Preparing for College and Careers is the impact of today's choices on tomorrow's possibilities. Topics to be addressed include twenty-first century life and career skills; higher order thinking, communication, leadership, exploration of personal aptitudes; examining multiple life roles and responsibilities as individuals and family members, building employment skills; management of personal and family financial resources; and computer and technology applications. This course includes review of the 16 national career clusters, in-depth investigation of one or more pathways, reviewing graduation plans, developing career plans, and developing personal career portfolios.

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## AGRICULTURAL SCIENCE CLUSTER

### **T60111 Principles of Agriculture (7117)**

**Open to grades 9-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40**

**Dual Credit Might be Available**

This course prepares students who are interested in the study of Agriculture. Students will complete projects and learning activities that focus on hands-on real-life situations in the study of; animals, plants, soil, food, and horticultural sciences. There will also be activities studying agricultural business management, landscape management, natural resources and careers in agriculture, leadership and supervised agricultural experience. An activity and project-based approach is used along with team building to enhance the effectiveness of the student learning activities.

### **T60121 Animal Science (5008)**

**Open to grades 10-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): Principles of Agriculture**

**Note: Fulfills Core 40 Science Credit**

**Dual Credit Might be Available**

This course is a year-long program that provides students with an overview of the field of animal science. Students participate in a large variety of activities and laboratory work including real and simulated animal science experiments and projects. All areas studied can be applied to both large and small animals. Topics addressed include: anatomy and physiology, genetics, reproduction, nutrition, aquaculture, careers related to the industry, and management practices for the care and maintenance of animals.

## **T60131 Advanced Life Science: Animals (5070)**

**Open to grades 11-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40, NCAA**

**Prerequisite(s): Principles of Agriculture, Animal Science**

**Note: Qualifies as a Quantitative Reasoning Course**

**Note: Fulfills Core 40 Science Credit**

**Dual Credit Might be Available**

Advanced Life Science: Animals is a standards-based, interdisciplinary science course that integrates biology, chemistry, and microbiology in an agricultural context. Students enrolled in this course formulate, design, and carry out animal-based laboratory and field investigations as an essential course component. Students investigate key concepts that enable them to understand animal growth, development, and physiology as it pertains to agricultural science. This course stresses the unifying themes of both biology and chemistry as students work with concepts associated with animal taxonomy, life at the cellular level, organ systems, genetics, evolution, ecology, and historical and current issues in animal agriculture. Students completing this will be able to apply the principles of scientific inquiry to solve problems related to biology and chemistry in highly advanced agricultural applications of animal development.

## **T60221 Natural Resources (5180)**

**Open to grades 10-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40, NCAA**

**Prerequisite(s): Principles of Agriculture**

**Note: Fulfills Core 40 Science Credit**

**Dual Credit Might be Available**

Natural Resources provides students with a foundation in natural resources. Hands-on learning activities in addition to leadership development, supervised agricultural experience and career exploration encourage students to investigate areas of environmental concern. Students are introduced to the following areas of natural resources; soils, the water cycle, air quality, outdoor recreation, forestry, rangelands, wetlands, animal wildlife, and safety.

## **T60231 Sustainable Energy (5229)**

**Open to grades 11-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40, NCAA**

**Prerequisite(s): Principles of Agriculture**

**Note: Fulfills Core 40 Science Credit**

Sustainable Energy is a two-semester course that broadens a student's understanding of environmentally friendly energies. In this course students will use a combination of classroom, laboratory, and field experiences to analyze, critique, and design alternative energy systems. Class content and activities center on renewability and sustainability for our planet. Topics covered in this course include the following types of alternative energies: solar, wind, geothermal, biomass and emerging technologies

## **T50021 Agribusiness Management (5002)**

**Open to grades 12**

**Recommendation (s): Introduction to Agriculture, Food, and Natural Resources**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40**

**Note: Qualifies for Quantitative Reasoning**

**Dual Credit Might be Available**

Agribusiness Management provides the foundation concepts in agricultural business and completes the agricultural pathway for many students. It is a two-semester course that introduces students to the principles of business organization and management from a local and global perspective, with the utilization of technology.

Concepts covered in the course include; accounting and record keeping, business planning and management, food and fiber, forms of business finance, management, sales and marketing, careers, leadership development. Students will demonstrate principles and techniques for planning, development, application and management of agribusiness systems through a supervised agriculture experience.

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## **BUSINESS CLUSTER**

### **T61111 Principles of Business Management (4562)**

(formerly Introduction to Business)

**Open to grades 9-11**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40**

**Dual Credit Might be Available**

Principles of Business Management examines business ownership, organization principles and problems, management, control facilities, administration, financial management, and development practices of business enterprises. This course will also emphasize the identification and practice of the appropriate use of technology to communicate and solve business problems and aid in decision making. Attention will be given to developing business communication, problem-solving, and decision-making skills using spreadsheets, word processing, data management, and presentation software.

### **61121 Accounting Fundamentals (4524)**

(formerly Introduction to Accounting)

**Open to grades 10-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): Principles of Business Management**

Accounting Fundamentals introduces the language of business using Generally Accepted Accounting Principles (GAAP) and procedures for proprietorships and partnerships using double-entry accounting. Emphasis is placed on accounting principles as they relate to both manual and automated financial systems. This course involves understanding, analyzing, and recording business transactions and preparing, analyzing, and interpreting financial reports as a basis for decision-making.

### **T61131 Advanced Accounting (4522)**

**Open to grades 11-12**

**2 semesters, 1 credit per semester**

**Prerequisite(s): Principles of Business Management, Accounting Fundamentals**

**Meets requirements of: THD, AHD, Core 40**

**Note: Qualifies as a Quantitative Reasoning course**

Advanced Accounting expands on the Generally Accepted Accounting Principles (GAAP) and procedures for various forms of business ownership using double-entry accounting covered in Accounting Fundamentals, including an emphasis on payroll accounting. Topics covered include calculating gross pay, withholdings, net pay, direct deposits, journalizing payroll transactions and preparing individual earnings records and payroll registers. Emphasis is placed on applying Generally Accepted Accounting Principles through hands-on practice with popular commercial accounting software packages that are currently used in business.

### **T61221 Management Fundamentals (7143)**

**Open to grades 10-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40, NCAA**

**Prerequisite: Principles of Business Management**

**Dual Credit Might be Available**

Management Fundamentals describes the functions of managers, including the management of activities and personnel. Describes the judicial system and the nature and sources of law affecting business. Studies contracts, sales contracts with emphasis on Uniform Commercial Code Applications, remedies for breach of contract and tort liabilities. Examines legal aspects of property ownership, structures of business ownership, and agency relationships.

### **T61331 Finance & Investment (5258)**

**Open to grades 10-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40, NCAA**

**Prerequisite(s): Principles of Business Management, Accounting Fundamentals**

Finance and Investments addresses the need of schools in areas that have workforce demand in the finance industry. It analyzes and synthesizes high-level skills needed for a multitude of careers in the banking and investment industry. Students learn banking, investments, and other finance fundamentals and applications related to financial institutions, business and personal financial services, investment and securities, risk management products, and corporate finance.

### **T51101 Personal Financial Responsibility (4540)**

**Open to grades 10-12**

**1 semester, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40**

**Note: Qualifies as a Quantitative Reasoning Course**

Personal Financial Responsibility addresses the identification and management of personal financial resources to meet the financial needs and wants of individuals and families, considering a broad range of economic, social, cultural, technological, environmental, and maintenance factors. This course helps students build skills in financial responsibility and decision making; analyze personal standards, needs, wants, and goals, identifying sources of income, savings, and investing; understand banking, budgeting, record-keeping and managing risk, insurance and credit card debt. A project-based approach and applications through authentic settings such as work based observations and service learning experiences are appropriate. Direct, concrete applications of mathematics proficiencies in projects are encouraged.

### **T51141 Marketing Fundamentals (5914)**

(formerly Principles of Marketing)

**Open to grades 10-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40**

**Dual Credit Might be Available**

**Prerequisite: Principles of Business Management**

Marketing Fundamentals provides a basic introduction to the scope and importance of marketing in the global economy. Course topics include the seven functions of marketing: promotion, channel management, pricing, product/service management, market planning, marketing information management, and professional selling skills. Emphasis is marketing content but will involve use of oral and written communications, mathematical applications, problem-solving, and critical thinking skills through the development of an integrated marketing plan and other projects.

### **T51131 Sports & Entertainment Marketing (5984)**

**Open to grades 11-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite: Marketing Fundamentals**

Sports and Entertainment Marketing is a specialized marketing course that develops student understanding of the sport/event industries, their economic impact, and products, distribution systems and strategies, pricing considerations, product/service management, and promotion. Students acquire an understanding and

appreciation for planning. Throughout the course, students are presented problem-solving situations for which they must apply academic and critical-thinking skills. Participation in cooperative education is an optional instructional method, giving students the opportunity to apply newly acquired marketing skills in the workplace.

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## **COMMUNICATIONS CLUSTER**

### **T52111 Design Fundamentals (4834)**

**Open to grades 9-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40**

**Note: Fulfills a FA credit**

**Dual Credit Might be Available**

Design Fundamentals introduces students to fundamental design theory. Investigations into design theory and color dynamics will provide experiences in applying design theory, ideas and creative problem solving in the areas of communication technology. Student experiences encompass aspects of art in communication, integration of art in communication and incorporate literacy and presentation skills.

### **T62311 & T62321 Graphic Design I (7140 & 7141)**

**Open to grades 10-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Recommendation(s): Design Fundamentals**

**Dual Credit Might be Available**

In Graphic Design I more emphasis will be placed on color and full color process printing. Larger sized projects to fit the larger offset presses will also be included. This course also includes organized learning experiences that incorporate a variety of visual art techniques as they relate to the design and execution of layouts and illustrations for advertising, displays, promotional materials, and instructional manuals. Instruction also covers advertising theory and preparation of copy, lettering, posters, and artwork in addition to incorporation of photographic images. Communication skills will be emphasized through the study of effective methods used to design commercial products that impart information and ideas. Advanced instruction might also include experiences in various printing processes as well as activities in designing product packaging and commercial displays or exhibits.

### **T62331 & T62341 Graphic Design II**

**Open to grades 11-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): Graphic Design & Layout I**

Graphic Design II will include organized learning experiences that focus on theory and laboratory activities in pre-press, press and finishing operations. Emphasis will be placed on elements of design and layout leading to computerized electronic image generation, plate preparation, pressroom operations and finishing techniques. Instructional activities will enhance students' language arts skills through the use of proofreading, spelling and punctuation exercises. The course will include actual production processes in conjunction with classroom assignments embracing the technologies of printing, publishing, packaging, electronic imaging and their allied industries.

### **T52032 Graphic Imaging Technology (5572)**

**Open to grades 12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): Graphic Design & Layout I**

Graphic Imaging Technology will include organized learning experiences that focus on theory and laboratory activities in pre-press, press and finishing operations. Emphasis will be placed on elements of design and layout

leading to computerized electronic image generation, plate preparation, pressroom operations and finishing techniques. Instructional activities will enhance students' language arts skills through the use of proofreading, spelling and punctuation exercises. The course will include actual production processes in conjunction with classroom assignments embracing the technologies of printing, publishing, packaging, electronic imaging and their allied industries.

## **T6240I Introduction to Animation (4790)**

**Open to grades 9-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40**

Introduction to Animation is a course designed to provide a foundational knowledge of the process behind 3D modeling and animation. This course explores the application of the tools, materials, and techniques used to design, produce, use, and evaluate animations. Students will produce traditional and digital media as they apply the principles of animation and design that they will learn in this course. This course will also explore the history of animation and its applications over the past several years. Major goals of this course include building foundational skills in 3D software, learning the workflow for creating 3D models and animation, and learning different ways to apply these tools and concepts to their creative work. Students will have the opportunity to learn industry-standard software including the Adobe Creative Suite, Autodesk Maya, Substance 3D Painter, Blender, and more. Students will utilize the principles of animation and a foundational understanding in 3D software in their creative projects.

## **T6241I & T6242I 3-D Animation I (7140 & 7141)**

**Open to grades 10-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Recommendation(s): Introduction to Animation**

**Dual Credit Might be Available**

3-D Animation I introduces and explores three-dimensional animation techniques used by the animation and graphics industry today. This course applies the use of 3-D computer animation, digital video output and a variety of computer technologies to produce digital images. Course assignments stress the use of current strategies to solve two-dimensional layout and three-dimensional modeling problems. Students will be responsible for the design, development and production of a graphics and video based digital animation product.

## **T6243I & T6244I 3-D Animation II**

**Open to grades 11-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): 3D Computer Animation & Visualization I**

**Dual Credit Might be Available**

3-D Animation II is the second year offering to follow 3-D Computer Illustration and Graphics. This is a continuation of the first-year program. Animation, modeling, graphics, engineering design, electronic publishing and illustration will be studied in greater detail. The student will plan and implement projects approved by the instructor. The projects should demonstrate an advanced level of design competency in computer graphics and be performed in consultation with the teacher and industry advisors. Collaboration with representatives of industry government agencies.

## **T52242 Interactive Media (5232)**

**Open to grades 12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): 3D Computer Animation & Visualization I**

**Dual Credit Might be Available**

Interactive Media is the second year offering to follow 3-D Computer Illustration and Graphics. This is a continuation of the first-year program. Animation, modeling, graphics, engineering design, electronic publishing and illustration will be studied in greater detail. The student will plan and implement projects approved by the instructor. The projects should demonstrate an advanced level of design competency in computer graphics and be performed in consultation with the teacher and industry advisors. Collaboration with representatives of industry government agencies.

### **T62101 Introduction to Radio & Television (4790)**

**Open to grades 9-12**

**\*meets at East**

**2 semesters, 1 credit hour per semester**

**Approximate cost per year: TBD**

**Meets requirements of THD, AHD, Core 40**

This course sets the foundation for good storytelling by introducing the concepts of radio and television broadcasting. All forms of television field production are taught, including how to properly shoot video, interview subjects, light scenes, write for broadcast, and care for equipment. Students will also learn how to properly edit both video and audio using the Adobe Creative Suite, including Premiere Pro and Audition. Hands-on experience in both the control room and the studio with the Carbonite video switcher, Xpression graphics, the audio mixer and studio cameras are also included. Radio instruction consists of training on industry standard software (WireReady), scripting for radio, interviewing, and an introduction to podcasting.

### **T62111 & T62121 Radio & Television I: East (7139 & 7306)**

**Open to grades 10-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Recommendation(s): Introduction to Radio & Television**

**Dual Credit Might be Available**

Radio and Television I concentrates on storytelling through the production and delivery of TV and radio format announcements. The television production process will be taught from start to finish. Students will learn directing, audio mixing, technical directing, studio camera operation, teleprompter operation, and video graphics. This will include extensive instruction on and use of the Carbonite Video Switcher and Xpression Graphics. Student crew members will often be required to cover events outside of the school day.

### **T62131 & T62141 Radio and Television II: East (5992)**

**Open to grades 11-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): Radio and Television I**

This course continues to develop and enhance storytelling competencies utilizing both media formats radio, and television. Emphasis is placed on scripting, on-air delivery, television producing, advanced editing, writing, and TV directing. Event coverage, news reporting, and full production projects are required in both mediums. Radio projects include the development, scheduling, production, and formatting of school announcements and podcasts. Note: Student crew members will often be required to cover events outside of the school day.

### **T62211 & T62221 Radio and Television I: BNN (7139 & 7306)**

### **T62231 & T62241 Radio and Television II: BNN (5992)**

**Open to grades 10, 11, 12**

**2 semesters, 2 credits per semester**

**Meets requirements: THD, AHD, Core 40**

**Prerequisite(s): Journalism I**

**Application, interview and portfolio required for crew positions.**

**Note: Student crew members are often required to spend several hours before and after-school.**

Radio and Television I & II provides instruction to develop and enhance competencies in various communication, marketing, media, production and technical functions and tasks performed by employees, including management personnel in TV broadcasting and telecommunications occupations. Students will participate in the CNHS videos and filmed magazine programs.

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## **COMPUTER TECHNOLOGY CLUSTER**

### **T53111 Information (Computer) Technology Support (5230)**

**Open to grades 9-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40**

Information Tech Support allows students to explore how computers work. Students learn the functionality of hardware and software components as well as suggested best practices in maintenance and safety issues. Through hands-on activities and labs, students learn how to assemble and configure a computer, install operating systems and software and troubleshoot hardware and software problems. Students should earn an industry-based certification at the end of the course.

### **T63111 Principles of Computer Science (7183)**

**Open to grades 9-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40**

**Note: Qualifies for Quantitative Reasoning**

**Note: Fulfills Core 40 Science Credit**

**Dual Credits Might be Available**

Computer Science introduces the structured techniques necessary for the efficient solution of business-related computer programming logic problems and coding solutions using Python and Linux. The fundamental concepts of programming are provided through explanations and effects of commands and hands-on utilization of lab equipment to produce accurate outputs. Topics include the CIA Triad, program flow-charting, pseudo coding, and hierarchy charts as a means of solving problems related to security. The course covers creating file layouts, program narratives, user documentation, and system flowcharts for business problems, input/output techniques, looping, modules, selection structures, file handling, and offers students an opportunity to apply skills in a laboratory/hands-on environment.

### **T63221 Information Technology Fundamentals (7180)**

**Open to grades 10-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): Principles of Computer Science**

**Dual Credits Might be Available**

Information Technology Fundamentals allows students to explore how computers work. Students learn the functionality of hardware and software components as well as suggested best practices in maintenance and safety issues. Through hands-on activities and labs, students learn how to assemble and configure a computer, install operating systems and software and troubleshoot hardware and software problems. Students should earn an industry-based certification at the end of the course.

### **T63631 Networking & Cybersecurity Operations (7182)**

**Open to Grades 11, & 12**

**2 Semesters, 1 Credit per Semester**

**Meet Requirements of THD, ADH, Core 40**

**Prerequisite(s) Principles of Computer Science & Information Technology Fundamentals**

Networking Fundamentals describes, explores and demonstrates how a network operates in our everyday lives. The course covers the technical pieces and parts of a network and also societal implications such as security and data integrity. Using hands-on lab work, this course offers students the critical information needed for a role as



an Information Technology professional who support computer networks. Concepts covered include the TCP/IP model, OS administration, designing a network topology, configuring the TCP/IP protocols, managing network devices and clients, configuring routers and switches, wireless technology and troubleshooting. Provides students the ability to implement, administer, and troubleshoot information systems that incorporate the Microsoft Windows clients and servers in an enterprise environment. Students will be introduced to managing applications, files, folders, and devices in a windows active directory environment.

### **T53122 Networking II: Servers (5257)**

**Open to grades 12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): Networking I**

Networking II: Servers focuses on learning the fundamentals of networking, routing, switching and related protocols. In this course, students learn both the practical and conceptual skills that build the foundation for understanding basic networking, routing and switching. Students are introduced to the two major models used to plan and implement networks: OSI and TCP/IP. The OSI and TCP/IP functions and services are examined in detail. Students will learn how a router addresses remote networks and determines the best path to those networks, employing static and dynamic routing techniques.

### **T63121 Cybersecurity Fundamentals (7179)**

**Open to grades 10-12**

**2 semesters, 1 credit hour per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): Principles of Computer Science**

**Note: Qualifies for Quantitative Reasoning**

**Note: Fulfills Core 40 Science Credit**

**Dual Credit Might be Available**

In this course, students learn and practice skills necessary to perform in the role of a Cybersecurity Specialist. Students will discuss the evolution of information security into cybersecurity and the relationship of cybersecurity to nations, businesses, society, and people. Laboratory and classroom components are used to cover key elements such as information security, systems security, network security, mobile security, and defense and mitigation techniques. The core concepts of confidentiality, integrity, and availability are covered. Students will be exposed to multiple cybersecurity technologies and learn how to analyze the threats, vulnerabilities and risks present in these environments. Students will also develop strategies to mitigate potential cybersecurity problems. Students will utilize the Project Lead the Way curriculum and have multiple opportunities to compete in state and national competitions.

### **T63131 Advanced Cybersecurity (7178)**

**Open to Grades 11, & 12**

**2 Semesters, 1 Credit per semester**

**Meet Requirements of THD, AHD, Core 40**

**Prerequisite(s) Principles of Computer Science & Cybersecurity Fundamentals**

Students will acquire the fundamentals of information and data security and understand the vulnerability most organizations have in their security systems with an emphasis on firewalls, security plans and Virtual Private Networks (VPNs). Discussions will include data security methods, authentication, network attacks, malicious code and viruses, wireless security, email and web security and disaster recovery. This course will also focus on the managerial aspects of information security and assurance. Topics covered include access control models, information security governance, and information security program assessment and metrics. Coverage on the foundational and technical components of information security is included to reinforce key concepts, such as security planning and contingencies, security policies, security management models and practices and ethics.

# **CONSTRUCTION ENGINEERING TECHNOLOGY CLUSTER**

## **T54001 Introduction to Architecture (5640)**

**Open to grades 9-12**

**2 semesters, 1 credit per semester**

**Meets requirements: THD, AHD, Core 40**

This course introduces students to the fundamental design and development aspects of architectural planning activities. Application and design principles are used in conjunction with mathematical and scientific knowledge. Computer software programs should allow students opportunities to design, simulate, and evaluate the construction of buildings and communities. Activities include the preparation of cost estimates as well as a review of regulatory procedures that would affect project design.

## **T64111 & T64121 Architectural Drafting and Design I (4802 & 7196)**

**Open to grades 10-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Recommendation(s): Introduction to Architecture**

**Note: Intro to Engineering Design (IED) credit embedded**

**Dual Credit Might be Available**

Architectural Drafting and Design I will provide students with a basic understanding of the detailing skills commonly used by a drafting technician. Areas of study include: lettering, sketching, proper use of equipment, geometric constructions with emphasis on orthographic (multi-view) drawings that are dimensioned and noted to ANSI standards. This course includes the creation and interpretation of construction documents. Methods of geometric construction, three-dimensional drawing techniques, and sketching will be presented as well as elementary aspects of residential design and site work. Areas of emphasis will include print reading and drawing. Another purpose of this introductory course is to provide students with a basic understanding of the features and considerations associated with the operation of a computer-aided design (CAD) system. Students will gain valuable hands-on experience with AutoCAD. They will be expected to complete several projects relating to command topics. Topics include: 2D drawing commands, coordinate systems, editing commands, paper and model space, inquiry commands, layers, plotting, text, and basic dimensioning. This course will also include Basic Architectural AutoCAD practices.

## **T64131 & T64141 Architectural Drafting and Design II (5652)**

**Open to grades 11-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): Architectural Drafting and Design I**

**Note: Qualifies as a Quantitative Reasoning course.**

**Dual Credit Might be Available**

Architectural Drafting and Design II presents a history and survey of architecture and focuses on creative design of buildings in a studio environment. Covers problems of site analysis, facilities programming, space planning, conceptual design, proper use of materials, selection of structure and construction techniques. Develops presentation drawings, and requires oral presentations and critiques. Generation of form and space is addressed through basic architectural theory, related architectural styles, design strategies, and a visual representation of the student's design process. This course will focus on advanced CAD features, including fundamentals of three-dimensional modeling for design and includes overview of modeling, graphical manipulation, part structuring, coordinate system, and developing strategy of modeling. Advanced CAD will enable the student to make the transition from 2D drafting to 3D modeling. Various Architectural software packages and applications may be used.

## **T54111 Introduction to Construction (4792)**

**Open to grades 9-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40**

Introduction to Construction is a course that will offer hands-on activities and real-world experiences related to the skills essential in residential, commercial and civil building construction. During the course students will be introduced to the history and traditions of construction trades. The student will also learn and apply knowledge of the care and safe use of hand and power tools as related to each trade. In addition, students are introduced to blueprint reading, applied math, basic tools and equipment, and safety. Students will demonstrate building construction techniques, including concrete and masonry, framing, electrical, plumbing, dry walling, HVAC, and painting as developed locally in accordance with available space and technologies. Students learn how architectural ideas are converted into projects and how projects are managed during a construction project in this course. Students study construction technology topics such as preparing a site, doing earthwork, setting footings and foundations, building the superstructure, enclosing the structure, installing systems, finishing the structure, and completing the site. Students also investigate topics related to the purchasing and maintenance of structures, special purpose facilities, green construction and construction careers.

## **T64211 & T64221 Construction Trades I (7130 & 7123)**

**Open to grades 10-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Recommendation(s): Introduction to Construction**

**Dual Credit Might be Available**

Construction Trades I includes classroom and laboratory experiences covering the formation, installation, maintenance, and repair of buildings, homes, and other structures. This course also covers the use of working drawings and applications from the print to the work. Students will explore the relationship of views and details, interpretation of dimension, transposing scale, tolerance, electrical symbols, sections, materials list, architectural plans, geometric construction, three-dimensional drawing techniques, and sketching. Elementary aspects of residential design and site work will also be covered. Areas of emphasis will include print reading and drawing, room schedules and plot plans. Students will examine the design and construction of floor and wall systems and develop the skills needed for layout and construction processes of floor and wall systems from blueprints and professional planning documents. Instruction will be given in the following areas, administrative requirements, definitions, building planning, foundations, wall coverings, roof and ceiling construction, and roof assemblies. Students will develop an understanding and interpretation of the Indiana Residential Code for one and two-family dwellings and safety practices including Occupational Safety and Health Administration's Safety & Health Standards for the construction industry.

## **T64231 & T64241 Construction Trades II (5578)**

**Open to grades 10-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): Construction Trades I**

**Dual Credit Might be Available**

This course builds on the topics covered in Construction Trades I and includes: formation, installation, maintenance, and repair of buildings, homes, and other structures including recent trends in the residential construction industry. Information is presented concerning materials, occupations, and professional organizations within the industry. Students will develop basic knowledge, skills, and awareness of interior trim. This course provides training in installation of drywall, moldings, interior doors, kitchen cabinets, and baseboard moldings. Students will also develop skills in the finishing of building exteriors. They will also explore skills in the installation of cornices, windows, doors and various types of sidings used in today's marketplace. Additionally, the course covers design and construction of roof systems and using framing squares for traditional rafter and truss roofing.

# **ENGINEERING MANUFACTURING**

## **T65101 Introduction to Industry: Engineering & Manufacturing (4800)**

**Open to grades 9-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40**

**Dual Credit Might be Available**

Introduction to Industry is a course that specializes in using modern technological processes, computers, design, and production systems in the production of products and structures through the use of automated production systems. Emphasis is placed on using modern technologies and on developing career related skills for electronics, manufacturing, precision machining, welding, and architecture career pathways. Students apply ingenuity using tools, materials, processes, and resources to create solutions as it applies in the electronics, manufacturing, precision machining, welding, and architecture. The content and activities should be developed locally in accordance with available advanced technologies in the school. Course content should address major technological content related to topics such as: Architectural drawing and print design, design documentation using CAD systems; assignments involving the interface of CAD, CNC, CAM, and CIM technologies; computer simulation of products and systems; publishing of various media; animation and related multimedia applications; 3-D modeling of products or structures; digital creation and editing of graphics and audio files; control technologies; and automation in the modern workplace.

## **T65211 PLTW Introduction to Engineering Design (4802)**

**Open to grades 9-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Recommendation(s): Algebra**

**Dual Credit Might be Available**

This is an introductory course which develops student problem solving skills using the design process. Students document their progress of solutions as they move through the design process. Students develop solutions using elements of design and manufacturability concepts. They develop hand sketches using 2D and 3D drawing techniques and Computer Aided Design (CAD).

## **T65221 PLTW Principles of Engineering (5644)**

**Open to grades 10-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Prerequisite(s): Introduction to Engineering Design**

**Recommendation(s): Algebra I and Geometry**

**Dual Credit Might be Available**

**Note: Qualifies as a Quantitative Reasoning course.**

**Note: Fulfills Core 40 Science Credit.**

This course focuses on the process of applying engineering, technological, scientific and mathematical principles in the design, production, and operation of products, structures, and systems. It is designed to provide students interested in engineering careers to explore experiences related to specialized fields such as civil, mechanical, and materials engineering. Students will engage in research, development, planning, design, production, and project management to simulate a career in engineering. The topics of ethics and the impacts of engineering decisions are also addressed. Classroom activities are organized to allow students to work in teams and use modern technological processes, computers, CAD software, and production systems in developing and presenting solutions to engineering problems.

## **T6523I PLTW Computer Integrated Manufacturing (5534)**

**Open to grades 11-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Recommendation(s): Algebra I, Geometry**

**Prerequisite(s): Introduction to Engineering Design and Principles of Engineering**

**Note: Qualifies as a Quantitative Reasoning course.**

This course applies principles of rapid prototyping, robotics, and automation. This course builds upon the computer solid modeling skills developed in Introduction of Engineering Design. Students will use computer controlled rapid prototyping and CNC equipment to solve problems by constructing actual models of their three-dimensional designs. Students will also be introduced to the fundamentals of robotics and how this equipment is used in an automated manufacturing environment. Students will evaluate their design solutions using various techniques of analysis and make appropriate modifications before producing their prototypes.

## **T6524I PLTW Digital Electronics (5538)**

**Open to grades 11-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Prerequisite(s): Introduction to Engineering Design and Principles of Engineering**

**Note: Qualifies as a Quantitative Reasoning course.**

**Dual Credit Might be Available**

This is a course of study in applied digital logic that encompasses the design and application of electronic circuits and devices found in video games, watches, calculators, digital cameras, and thousands of other devices. Instruction includes the application of engineering and scientific principles as well as the use of Boolean algebra to solve design problems. Using computer software that reflects current industry standards, activities should provide opportunities for students to design, construct, test, and analyze simple and complex digital circuitry software that will be used to develop and evaluate the product design. This course engages students in critical thinking and problem-solving skills, time management and teamwork skills.

## **T6531I & T6532I Automation & Robotics I (7108 & 7103)**

**Open to grades 10-12**

**2 semesters, 2 credit per semester**

**Meets requirements of: THD, AHD, Core 40**

**Recommendation(s): Introduction to Industry: Engineering & Manufacturing, Introduction to Engineering Design**

**Dual Credit Might be Available**

Industrial Automation and Robotics I introduces students to a curriculum covering the multi-craft skills needed by Industrial technicians to complete the complex and varied tasks for the career. Students will gain skills to design and build basic robots that use sensors and actuators to solve specific problems and complete specific tasks. This will include introductory programming autonomous mode. Students will also learn to program a humanoid robot, tethered and in autonomous mode, able to react to specific circumstances and perform human-like tasks when programming is complete. This course will provide fundamental knowledge and skills in basic lasers, pneumatics, hydraulics, mechanics, basic electronics and programmable logic controllers along with an understanding of career pathways in this sector. The year one curriculum will include General Industry: OSHA 10 safety certification.

## **T6533I & T6534I Automation & Robotics II (5612)**

**Open to grades 11, 12**

**2 semesters, 2 credit per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): Automation and Robotics I**

**Recommendation(s): Introduction to Industrial Technology, Introduction to Manufacturing, Introduction to Engineering Design**

**Note: Qualifies as a Quantitative Reasoning course.**

**Dual Credit Might be Available**

Industrial Automation and Robotics II includes the study of industrial robots, programming PLC's, automating cells, advanced programming and designing/building task-oriented robots. Students will engage in active learning, critical thinking and problem solving through advanced robotic procedures and processes. Students will learn industrial robotic programming languages, strategies for automating to improve efficiencies and be introduced to advanced programming languages that are common in local industry. Students will study basic computer numerical controlled (CNC) machining and will combine automation and CNC machining. They will apply information in real world situations to create working solutions and will complete projects, including building robots to perform tasks in autonomous mode and analyze their own career pathway plans in this sector.

**T55222 Electronics and Computer Technology II (5694)**

**Open to grades 12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): T55212 Electronics and Computer Technology I**

**Note: Qualifies as a Quantitative Reasoning course.**

**Dual Credit Might be Available**

Electronics and Computer Technology II provides the opportunity for students to continue with foundational electronic concepts including circuit analysis and digital electronics modules. After completing the two additional foundational modules, students may choose to focus on one of the optional modules that can include more intense instruction, research, specialized projects, and internships. The optional modules include industrial technology, emerging electronic technologies, residential and commercial electronic communication, and automation. The content of this class is designed to provide the State of Indiana with a trained workforce in emerging technologies career pathways that will make a significant contribution to the Indiana economy. Industry certifications and additional post-secondary education are critical components of this pathway. Classroom, laboratory, and work-based experiences in the fundamental electronics concepts of circuit analysis and digital electronics as well as one of the optional modules will incorporate safety, technical writing, mathematics, and customer service.

**T65411 & T65421 Precision Machining I (7109 & 7105)**

**Open to grades 10-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Recommendation(s): Introduction to Industry: Engineering & Manufacturing**

**Note: Qualifies as a Quantitative Reasoning course.**

**Dual Credit Might be Available**

Precision Machining I is designed to provide students with a basic understanding of the precision machining processes used in industry, manufacturing, maintenance, and repair. The course instructs the student in industrial safety, terminology, tools and machine tools, measurement and layout. Students will become familiar with the setup and operation of power saws, drill presses, lathes, milling machines, grinders and an introduction to CNC (computer controlled) machines.

**T65431 & T65441 Precision Machining II (5784)**

**Open to grades 11-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisites: Precision Machining I**

**Note: Qualifies as a Quantitative Reasoning course.**

Precision Machining II is a more in-depth study of skills learned in Precision Machining I with a stronger focus in CNC setup/operation/programming. Classroom activities will concentrate on precision set-up and inspection work as well as machine shop calculations. Students will develop skills in advanced machining and measuring parts involving tighter tolerances and more complex geometry. A continued focus on safety will also be included.

### **T65511 & T65521 Welding I (7110 & 7111)**

**Open to grades 10-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Recommendation(s): Introduction to Industry**

**Dual Credit Might be Available**

Welding I includes classroom and laboratory experiences that develop a variety of skills in Oxy-fuel Cutting and Shielded Metal Arc Welding (SMAW). This course is designed for individuals who intend to make a career as a Welder, Technician, Sales, Designer, Researcher or Engineer. Emphasis is placed on safety at all times. OSHA standards and guidelines endorsed by the American Welding Society (AWS) are used. Instructional activities emphasize properties of metals, safety issues, blueprint reading, electrical principles, welding symbols, and mechanical drawing.

### **T65531 & T65541 Welding II (5778)**

**Open to grades 11-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): Welding I**

**Dual Credit Might be Available**

Welding Technology II builds on the Gas Metal Arc Welding, Flux Cored Arc Welding, Gas Tungsten Arc Welding, Plasma Cutting and Carbon Arc skills covered in Welding Technology I. Emphasis is placed on safety at all times. OSHA standards and guidelines endorsed by the American Welding Society (AWS) are used. Instructional activities emphasize properties of metals, safety issues, blueprint reading, electrical principles, welding symbols, and mechanical drawing through projects and exercises that teach students how to weld and be prepared for college and career success.

### **T55111 Mechanical Drafting CAD/CAM (4836)**

**Open to grades 10-12**

**2 semesters, 1 credit hour per semester**

**Recommendation(s): Intro to Engineering Design, or Precision Machining II, or Computer Integrated Manufacturing, or Introduction to Industry: Engineering & Manufacturing**

**Dual Credit Might be Available**

This course provides students with a basic understanding of the skills commonly used by engineers to design and prototype parts. Areas of study include: computer-aided drafting, three-dimensional modeling, working drawings, machine tool programming and machine tool set-up. Students will gain valuable hands-on experience with CAD/CAM software and a variety of automated machine tools. They will be expected to complete several projects (increasing in difficulty) relating to product design and development, automated programming, and operation of machine tools. Mechanical Drafting CAD/CAM is a project-based, hands-on introduction for students interested in advanced manufacturing careers.

# HEALTH SCIENCES CLUSTER

## Project Lead the Way (PLTW) Biomedical Sciences

The Project Lead the Way Biomedical Sciences program is a dynamic high school program which uses real-world problems to engage and challenge students. Students interested in math, science and the human body will find the PLTW Biomedical Sciences program a great introduction to numerous medical fields. It also teaches how the skills they learn are used in the biomedical sciences.

**\*In order to earn a Technical Honors Diploma in PLTW Biomedical Sciences, students must also take Medical Terminology and earn Dual Credit.**

### **T66111 PLTW: Principles of Biomedical Science (5218)**

**Open to grades 9-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Prerequisite(s): Enrolled in Biology**

**Note: Fulfills Core 40 Science Credit**

Students explore the concepts of human medicine and are introduced to research processes, using applied math and science to solve problems. Hands-on, interactive projects enable students to investigate human body systems and various health conditions, including heart disease, diabetes, sickle-cell disease, hypercholesterolemia and infectious diseases. Key biological concepts include homeostasis, metabolism, inheritance of traits, feedback systems and defense against disease. Engineering principles such as the design process, feedback loops, fluid dynamics and the relationship of structure to function will be included where appropriate.

### **T66121 PLTW: Human Body Systems (5216)**

**Open to grades 10-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Prerequisite(s): Principles of Biomedical Sciences**

**Note: Fulfills Core 40 Science Credit**

Students will learn anatomy and physiology of the human body through a hands-on approach. Using real-world cases, students take the role of a biomedical professional to work together to solve medical mysteries. Hands-on, interactive projects include designing experiments, investigating the function and structures of the human body through dissections, clay modeling, laboratory analysis and data acquisition software usage to monitor body functions such as reflex, muscle movement and lung capacities. Students will learn to assess and monitor the body systems and how they work together.

### **T66131 PLTW: Medical Interventions (5217)**

**Open to grades 11-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Prerequisite(s): Principles of Biomedical Sciences, Human Body Systems and/or Anatomy and Physiology**

**Note: Fulfills Core 40 Science Credit**

Students investigate various medical interventions that extend and improve the quality of life including gene therapy, pharmacology, surgery, prosthetics, rehabilitation and supportive care. The course explores the design and development of various medical interventions such as vascular stents, cochlear implants and prosthetic limbs. In addition, students review the history of organ transplants and gene therapy and stay updated on cutting-edge developments via current scientific literature. Using 3D imaging, data acquisition software and current scientific research, students design a product that can be used as a medical intervention.



## **T66141 PLTW: Biomedical Innovation (5219)**

**Open to grades 12**

**2 semesters, 1 credit per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Prerequisite(s): Principles of Biomedical Sciences, Human Body Systems and/or Anatomy and Physiology, and Medical Interventions**

Biomedical Innovation is the fourth and final Project Lead the Way Biomedical Science course. It is intended to follow the third course, Medical Interventions. In this capstone course students will design and conduct experiments related to the diagnosis, treatment and prevention of disease or illness. They will apply their knowledge and skills to answer questions or to solve problems related to the biomedical sciences. They will work to design an effective emergency room, explore human physiology and design a medical innovation. They will investigate public health issues and forensic autopsy. They may work with a mentor or advisor from a university, hospital, physician's office or industry as they complete class projects.

## **T66101 Medical Terminology (5274)**

**Open to grades 11-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Prerequisite(s): Enrolled in Biology**

**Note: Same credit embedded in Health Science Education I: Nursing**

**Dual Credit Might be Available**

Learn a new language in this two- semester elective. Students will learn to define and use medical terminology correctly and will become proficient in pronouncing and spelling medical terms. Students will utilize videos, presentations and hands-on experiences to enhance learning. This course will provide a solid foundation in medical terminology for any student considering a health career.

## **DENTAL**

**\*In order to earn a Technical Honors Diploma in Dental, students must also take Medical Terminology and earn Dual Credit.**

## **T66311 & T66321 Dental Careers I (7186 & 7316)**

**Open to grades 10-12**

**2 semesters, 2 credit hours per semester**

**Meets requirements of: THD, AHD, Core 40**

**Recommendation(s): Principles of Biomedical Sciences or Human Body Systems**

This course provides entry level training for a career in the profession of dentistry. Dental Careers I offers hands-on experience as well as classroom instruction. Emphasis is placed on the clinical environment, chair-side procedures, dental materials, placing restorations, equipment/instrument identification, tray set-ups, sterilization, and characteristics of microorganisms and disease control. In addition, oral, head and neck anatomy, basic embryology, histology, tooth morphology, charting dental surfaces, and illness are all introduced. Simulated in-school laboratories are included to provide opportunities for students to further develop clinical skills and the appropriate ethical behavior. Students will have the opportunity to complete a 4 - 8 hour dental office observation during this course.

## **T66331 & T66341 Dental Careers II (5204)**

**Open to grades 11-12**

**2 semesters, 2 credit hours per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): Dental Careers I**

This course provides the student with more extensive training as a Dental Professional. There is an excellent opportunity for employment experience toward college technical training. The student will perform more complex procedures during Dental Careers II in our simulated in-school laboratory such as placing restorations,

orthodontic, endodontic, radiography, surgical, prosthodontic and periodontal specialty skills and procedures. Students may be eligible to participate in an off-campus externship experience in a local dental office during the second semester.

## **NURSING**

### **T6621I & T6622I Health Science Education I: Nursing (7168 & 5274)**

**Open to grades 10-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Recommendation(s): PLTW Principles of Biomedical Sciences and/or PLTW Human Body Systems**

**Note: Embedded Medical Terms credit**

**Dual Credit Might be Available**

This course provides entry level training in nursing assisting and introduction to medical assisting. At the completion of this course, students may receive certification as a Certified Nursing Assistant (C.N.A.) through the Indiana State Department of Health. Students may receive certification in CPR/AED for the Professional Rescuer. During the school year students learn hands-on skills in the classroom and simulated laboratory. These skills include: infection control measures, patient hygiene, nutrition, vital signs, patient movement, etc. Following training on the skills mentioned, students receive clinical (on-the-job) experience in nursing or continue in the classroom for introduction to medical assisting. Clinical placement is designed to allow the student to gain clinical experience towards the 75 hours required for the state C.N.A. exam. Following the first year of introduction to medical assisting the student is given the opportunity to continue to nursing year II. The student will then complete the required skills to have the opportunity to study for the certification exam to become a medical assistant. The first year of the nursing program provides a wide range of entry level health care skills that gives students a solid foundation for transitioning into post-secondary programs or career placement.

### **T6623I & T6624I Health Science Education II: Nursing (5284)**

**Open to grades 11, 12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): Health Science Education I: Nursing**

This course offers an overview of human anatomy, physiology, disease process, and treatment with an emphasis on healthcare employability skills, teamwork, and communication. Students have the opportunity to learn advanced skills and explore a variety of nursing and allied health careers. Through a combination of course work and clinical (on-the-job) experience closely related to the area of their interest(s), students are given the opportunity to test to become an NHA Certified Clinical Medical Assistant (CCMA). Clinical placement begins early in the school year and continues through the end of the year. Nursing II offers a wonderful opportunity for students to create custom training (on-the-job), unique to their specific interests, while enhancing their foundation for advanced employment and/or post-secondary education in the health career fields.

## **VETERINARY**

**\*In order to earn a Technical Honors Diploma (under NLPS) in Veterinary, students must also take Animal Science and earn Dual Credit.**

**\*In order to earn a Technical Honors Diploma (under Perkins V) in Veterinary, students must also take Animal Science and ALS: Animals and earn Dual Credit in both.**

### **T6641I & T6642I Veterinary Careers I (7280 & 7281)**

**Open to grades 10-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Recommendation(s): Animal Science, Advanced Life Science: Animals, PLTW Principles of Biomedical Sciences, PLTW Human Body Systems, Medical Terminology**

This course provides entry level training as a Veterinary Assistant for students pursuing careers as Veterinarians, Veterinary Technicians, Veterinary Assistants, or other careers involving animals. The focus of the first semester is classroom and laboratory training. The student will have the opportunity to practice assisting with the physical exam, veterinary nursing care, animal restraint and assisting with surgical procedures. Second semester students will have the opportunity to receive clinical (on-the-job) training within the professional community. Clinical training placements include veterinary offices, animal shelters, humane societies, groomers and animal behavior and training facilities. Students have the opportunity to receive certification in CPR/AED for the Professional Rescuer.

### **T6643I & T6644I Veterinary Careers II (5212)**

**Open to grades 11-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

This course curriculum offers medical office training. Students also have the opportunity to advance learning in the veterinary field through clinical (on-the-job) training. Clinical placement begins early in the school year and continues until the end of the year. Health Careers Training -Veterinary Assisting Year Two offers a wonderful opportunity for students to gain in-depth exposure to their potential health career as well as providing a solid foundation for employment and college/technical education.

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## **HUMAN SERVICES CLUSTER**

### **T5732I Interpersonal Relationships (5364)**

**Open to grades 9-12**

**1 semester, 1 credit per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Qualifies for one of the F&CS waiver health credits.**

This course provides the knowledge and skills needed for positive and productive relationships in career, community, and family settings. Designed for teens who would like a better understanding of human behavior through knowing themselves as individuals, topics include communication skills, career goals, self-esteem, relationships, values clarification, and conflict resolution. This is one of three (3) classes that may be taken as a group in lieu of Health & Safety.

### **T5735I Adult Roles and Responsibilities (5330)**

**Open to grades 11-12**

**1 semester, 1 credit per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Qualifies for one of the F&CS waiver health credits.**

Adult Roles and Responsibilities is recommended for all students as a career sequence course for students with interest in family and community services, personal and family finance, and similar areas. This course is designed to equip students with knowledge and skills needed to successfully handle the daily living challenges of adult life. Students will develop skills to build more meaningful, lasting relationships. They will explore many of the issues that challenge the individual family in today's society. Students complete projects and class activities involving consumer decision-making about housing, clothing, nutrition and wellness, transportation, and family financial management.

### **T5736I Introduction to Housing and Interior Design (5350)**

**Open to grades 9-12**

**1 semester, 1 credit**

**Meets requirements of: AHD, THD, CORE 40**

**Fulfills a Fine Arts credit for AHD**

Introduction to Housing and Interior Design is a one semester hands-on course designed for students interested in exploring and learning about interiors and housing styles. Topics include choosing a place to live, study of color, elements of design, furniture arrangement, floor plans, choosing backgrounds-walls, floors, windows, decorating and housing careers. This course is filled with many design and craft type projects. This class may be taken as a fine art credit.

## **T5770I Introduction to Fashion and Textiles (5380)**

**Open to grades 9-12**

**2 semester, 2 credit**

**Meets requirements of: AHD, THD, CORE 40**

**Fulfills a Fine Arts credit for AHD**

Introduction to Fashion and Textiles is an introductory course for those students interested in academic enrichment or a career in the fashion, textile, and apparel industry. This course addresses knowledge and skills related to design, production, acquisition, and distribution in the fashion, textile, and apparel arena. The course includes the study of personal, academic, and career success; careers in the fashion, textile, and apparel industry; factors influencing the merchandising and selection of fashion, textile, and apparel goods and their properties, design, and production; and consumer skills. A project-based approach integrates instruction and laboratory experiences including application of the elements and principles of design; selection, production, alteration, repair, and maintenance of apparel and textile products; product research, development, and testing; and application of technical tools and equipment utilized in the industry. This class may be taken as a fine art credit.

## **T6771I & T6772I Fashion and Textiles I (730I)**

**Open to grades 10-12**

**2 semesters, 2 credit per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Recommendation(s): Introduction to Fashion & Textiles**

Advanced Fashion and Textiles is a year-long course that prepares students for occupations and higher education programs of study related to the entire spectrum of careers in the fashion industry. Major topics include review of the dimensions of clothing, investigation of design elements and principles, evaluating manufacturing process, reviewing the processes from fiber production to items of clothing being worn, overall review of the textile and apparel industry, investigation of fashion designers, customer relations and best practices, fashion merchandising, forecasting trends, the impact of social media on the fashion industry, and career exploration and experience. A project-based approach with commercial/industry applications is a key component of this course of study.

## **T5739I Sports Nutrition and Wellness (5340)**

**Open to grades 9-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: AHD, THD, CORE 40**

Sports Nutrition and Wellness is a course which provides an extensive study of nutrition. Sports Nutrition and Wellness is an especially appropriate course for students interested in careers in the medical field, athletic training and dietetics. This course is designed to benefit the nutritional needs for all students, but especially athletes. Topics include: simple food preparation, individual dietary needs, nutrition information and analysis, pre-game and recovery foods/drinks.

## **T676I I Advanced Life Science: Foods (5072)**

**Open to grades 11-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Note: Fulfills Core 40 Science Credit**

Advanced Life Science: Foods is a standards-based, interdisciplinary science course that integrates biology, chemistry, and microbiology in an agricultural context. Students enrolled in this course formulate, design, and carry out food-based laboratory and field investigations as an essential course component. Students investigate key concepts that enable them to understand how biology, chemistry, and physics principles apply to the composition of foods, food nutrition and development, food processing, and storage. Students completing this will be able to apply the principles of scientific inquiry to solve problems related to biology and chemistry in highly advanced agricultural applications of food. This class counts as a 1 science credit per semester.

## **T5744I Child Development (5360)**

**Open to grades 9-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: AHD, THD, CORE 40**

Semester one students will experience an introductory course that is especially relevant for students interested in careers that draw on knowledge of children, child development, and nurturing of children. It includes the study of prenatal development and birth; growth and development of children; child care giving and nurturing; and support systems for parents and caregivers.

Semester two includes the study of professional and ethical issues in child development; child growth and development; child development theories, research, and best practices; child health and wellness; special conditions affecting children; and career exploration in child development and nurturing. This is one of the three classes that may be taken as a group in lieu of Health & Safety. Students participate in an in-school lab gaining experience with young children through participation and observation.

## **T6731I & T6732I Early Childhood Education I (7160 & 7158)**

**Open to grades 11-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Recommended: Child Development/Advanced Child Development**

**Dual Credit Might be Available**

Early Childhood Education I prepares students for employment in early childhood education and related careers that involve working with children from birth to 8 years (3rd grade) and provides the foundations for study in higher education that leads to early childhood education and other child-related careers. Major course topics include: career paths in early childhood education; promoting child development and learning; building family and community relationships; observing, documenting, and assessing to support young children and families; using developmentally effective approaches; using content knowledge to build meaningful curriculum, and becoming an early childhood education professional. The course addresses planning and guiding developmentally appropriate activities for young children in various childcare settings; developmentally appropriate practices of guidance and discipline; application of basic health, safety, and nutrition principles when working with children. Intensive experiences in one or more early childhood settings, resumes, and career portfolios are required components. High school students while under the supervision of the instructor will lead a preschool for children ages 3 – 4 years during the first semester of the class. Students will be placed in community early childhood centers during the second semester.

## **T6733I & T6734I Early Childhood Education II (5406)**

**Open to grades 11-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): Early Childhood Education I**

**Dual Credit Might be Available**

ECE II is a sequential course that builds on the foundational knowledge and skills of Early Childhood Education I, which is a required prerequisite. In ECE II students further refine and develop the skills of lesson planning and directly working with children. The course standards parallel the expectations and documentation required for Child Development Associate (CDA) credentialing. Extensive experiences in one or more early childhood education settings are required to earn Dual Credit and will need to be completed on the student's own time. (A minimum total of 480 hours must be accrued in ECE I and ECE II). These experiences may be either school-based (100 hours provided in class) or "on-the-job" in community-based early childhood education centers, or in a combination of the two.

## **T6741I & T6742I Education Professions I (716I & 7157)**

**Open to grades 11-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Recommendation(s): Child Development/Advanced Child Development**

**Dual Credit Might be Available**

Education Professions I is an exciting hand-on exploration of learning that prepares students for employment in education and related careers and provides the foundation for study in higher education. An active learning approach incorporates communication, leadership and management skills into the study of education and related careers. The course of study includes, but is not limited to: the teaching profession, the learner and the learning process, planning instruction, learning environment, and instructional and assessment strategies. Exploratory field experiences in classroom setting and career portfolios are required components. A standards-based plan guides the students' field experiences. Students are monitored in the field experiences by the Education Professions teacher. Students should be motivated toward exploring a career in education or related careers, have a good attendance record and be willing to accept numerous responsibilities while interning in an elementary or middle school classroom. Students who enjoy working with children will love the activities and experiences in this class. Articulation with postsecondary programs is encouraged.

## **T6743I & T6744I Education Professions II (5404)**

**Open to grades 11- 12**

**2 semesters, 2 credits per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Prerequisite(s): Education Professions I**

**Dual Credit Might be Available**

Designed for returning Teacher Education students, this course is a continuation of Education Professions I. The course prepares students for employment in education and related careers and provides the foundation for study in higher education in these career areas. An active learning approach incorporates communication, leadership and management skills into the study of education and related careers. The course of study includes, but is not limited to: the teaching profession, the learner and the learning process, planning instruction, learning environment, and instructional and assessment strategies. Extensive field experiences in one or more classroom settings, resumes, and career portfolios are required components. Students are monitored in their field experiences by the Education Professions II teacher. Articulation with postsecondary programs is encouraged.

## **T5750I Introduction to Cosmetology (7175)**

**Open to grades 9-10**

**2 semesters, 1 credit hour per semester**

**Meets requirements of: THD, AHD, Core 40**

Introduction to Cosmetology will allow students to explore the basic fundamentals of hairstyling, nail care, skincare, salon safety, and salon business management through engaging hands-on activities, guest presentations, and live demonstrations. Students will develop a strong foundational knowledge about the varied career opportunities in the cosmetology industry. This is a great preparation course for anyone interested in learning more about hairstyling techniques or for those interested in pursuing the full C<sup>4</sup> Cosmetology program, which can lead to an Indiana Cosmetology License.

## **T67112 & T67122 Cosmetology I (7330 & 7331)**

**Open to grades 11-12**

**2 semesters, 4 credits per semester at McDowell (4 periods) + Extra Clock Time until 5:30 p.m., Monday-Friday**

**Approximate cost per year: \$531.62 + uniform, labels and lock**

**Meets requirements of: THD, AHD, Core 40**

**Recommendation(s): Interpersonal Relationships**

**Prerequisite(s): Application and/or interview may be required.**

**Dual Credit Might be Available**

Cosmetology I offers an introduction to cosmetology with emphasis on basic practical skills and theories including roller control, quick styling, shampooing, hair coloring, permanent waving, facials, manicuring business and personal ethics, and bacteriology and sanitation. In the second semester greater emphasis is placed on the application and development of these skills. The State of Indiana requires a total of 1500 hours of instruction for licensure. This class is in session until 5:30 p.m.

### **T67132 & T67142 Cosmetology II (5806)**

**Open to grade 12**

**2 semesters, 4 credits per semester at McDowell (4 periods) + Extra Clock Time until 5:30 p.m., Monday-Friday**

**Approximate cost per year: \$22.00 + uniform, labels and lock**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): Cosmetology I**

**Dual Credit Might be Available**

Cosmetology II will cover the development of advanced skills in styling, hair coloring, permanent waving, facials and manicuring. Students will also study anatomy and physiology, professionalism, and salon management in relation to cosmetology. This class session meets until 5:30 p.m.

### **T57210 Introduction to Culinary Arts (5438)**

**Open to grades 9-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: AHD, THD, CORE 40**

Introduction to Culinary Arts and Hospitality Management is recommended for all students regardless of their career cluster or pathway, in order to build basic culinary arts knowledge and skills. It is especially appropriate for students with an interest in careers related to Hospitality, Tourism, and Culinary Arts. A project-based approach utilizes higher order thinking, communication, leadership, and management processes is recommended. Topics include basic culinary skills in the foodservice industry, safety and sanitation, nutrition, customer relations and career investigation. Students are able to explore this industry and examine their own career goals in light of their findings. Laboratory experiences that emphasize industry practices and develop basic skills are required components of this course.

### **T67211 & T67221 Culinary Arts I (7173 & 7171)**

**Open to grades 10-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Recommendation(s): Introduction to Culinary Arts & Hospitality I**

**Dual Credit Might be Available**

The Culinary Arts program offers unique opportunities for students interested in careers in the hospitality and restaurant industry. Students investigate a variety of possible professions in food, lodging, recreation or travel-related services. Units of instruction include basic culinary skills, service skills, food production skills, baking and pastry skills, marketing, purchasing, and management skills. The program can be individualized to meet any student's needs and offers an excellent opportunity for employment and can allow the student to qualify for a national certification from the National Restaurant Association. Students continuing their education at a post-secondary level will have the opportunity to qualify for articulation agreements with both regional and national colleges and universities. On-the-job training in the community may be available to qualified students. Students can also become involved in the American Culinary Federation and participate in regional or state Skills USA - VICA competitions.

### **T67231 & T67241 Culinary Arts II (5458)**

**Open to grades 11-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: AHD, THD, Core 40**

**Prerequisite(s): Culinary Arts and Hospitality I**

Advanced Hospitality Management prepares students for employment in the hospitality industry. It provides the foundations for study in higher education that leads to a full spectrum of hospitality careers. This is a broad-based course that introduces students to all segments of hospitality, what it includes, and career opportunities that are available; provides a survey of management functions, highlighting basic theories and facts; and exposes students to current trends and current events within the industry. Three major goals of this course are for students to be able to: Identify current trends in hotel and restaurant management, distinguish the difference between hospitality and tourism, and state differences in front of the house versus back of the house. Intensive experiences in one or more hospitality industry settings are a required component of the course.

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## **PROTECTIVE SERVICES**

### **T67501 Introduction to Public Safety (7190)**

**Open to grades 9-10**

**2 semesters, 1 credit per semester**

**Meets requirements of: ADH, THD, CORE 40**

Introduction to Public Safety and First Responders introduces students to a variety of careers available and areas of interest including Fire Science, Criminal Justice, Homeland Security, Environmental Health and Safety, and Emergency Medical Services. The course is designed to help students create a career plan for the Public Safety sector which includes certification requirements and hiring practices.

### **T67511 & T67521 Criminal Justice I (7193 & 7191)**

**Open to grades 11-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Recommendation(s): Introduction to Public Safety**

**Dual Credit Might be Available**

Criminal Justice I Introduces specialized classroom and practical experiences related to public safety occupations such as law enforcement, loss prevention services, and homeland security. This course provides an introduction to the purposes, functions, and history of the three primary parts of the criminal justice system as well as an introduction to the investigative process. Oral and written communication skills should be reinforced through activities that model public relations and crime prevention efforts as well as the preparation of police reports. This course provides the opportunity for dual credit for students who meet postsecondary requirements for earning dual credit and successfully complete the dual credit requirements of this course.

### **T67531 & T67541 Criminal Justice II (5824)**

**Open to grade 12**

**2 semesters, 2 credits per semester**

**Meets requirements of: THD, AHD, Core 40**

**Prerequisite(s): Criminal Justice I**

**Dual Credit Might be Available**

Criminal Justice II introduces students to concepts and practices in controlling traffic as well as forensic investigation at crime scenes. Students will have opportunities to use mathematical skills in crash reconstruction and analysis activities requiring measurements and performance of speed/acceleration calculations. Additional activities simulating criminal investigations will be used to teach scientific knowledge related to anatomy, biology, and chemistry as well as collection of evidence and search for witnesses, developing and questioning suspects, and protecting the integrity of physical evidence found at the scene and while in transit to a forensic science laboratory. Procedures for the use and control of informants, inquiries keyed to basic leads, and other information-gathering activity and chain of custody procedures will also be reviewed.

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# **TRANSPORTATION CLUSTER**

## **T5503I Introduction to Transportation (4798)**

**Open to grades 9-12**

**2 semesters, 1 credit per semester**

**Meets requirements of: THD, AHD, Core 40**

### **Dual Credit Might be Available**

Introduction to Transportation is an introductory course designed to help students become familiar with fundamental principles in modes of land, sea, air, and space transportation, including basic mechanical skills and processes involved in transportation of people, cargo and goods. Students will gain and apply knowledge and skills in the safe application, design, production, and assessment of products, services, and systems as it relates to the transportation industries. Content of this course includes the study of how transportation impacts individuals, society, and the environment. This course allows students to reinforce, apply, and transfer their academic knowledge and skills to a variety of interesting and relevant transportation related activities, problems, and settings.

## **T6821I & T6822I Automotive Services Technology I (7213 & 7212)**

**Open to grades 10-12**

**2 semesters, 2 credit per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Recommendation(s): Introduction to Transportation**

### **Dual Credit Might be Available**

Automotive Services Technology I is a one year course that encompasses the sub topics of the ASE identified areas of Steering & Suspension, Electricity and HVAC. This one-year course offering may be structured in a series of two topics per year offered in any combination of instructional strategies of semester based or yearlong instruction. Additional areas of manual transmissions and differentials, automatic transmissions, and engine repair shall be covered as time permits. This one-year offering meets the ASE program certifications for the two primary areas offered. This course provides the opportunity for dual credit for students who meet postsecondary requirements and successfully complete the dual credit requirements. Mathematical skills will be reinforced through precision measuring and cost estimation activities. Scientific principles taught include the study of viscosity, friction, thermal expansion, and compound solutions. Written and oral skills will also be emphasized to help students communicate with customers, colleagues, and supervisors.

## **T6823I & T6824I Automotive Services Technology II (5546)**

**Open to grades 11-12**

**2 semesters, 2 credits per semester**

**Meets requirements of: AHD, THD, CORE 40**

**Prerequisite(s): Automotive Services Technology I**

### **Dual Credit Might be Available**

Automotive Services Technology II is a one-year course that encompasses the sub topics of the ASE identified areas of Braking Systems and Engine Performance. This one-year course offering may be structured in a series of two topics per year offered in any combination of instructional strategies of semester based or yearlong instruction. Additional areas of manual transmissions /differentials, automatic transmissions, air conditioning, and engine repair should be covered as time permits. This one-year offering must meet the ASE program certifications for the two primary areas offered in this course. Mathematical skills will be reinforced through precision measuring and cost estimation activities. Scientific principles taught include the study of viscosity, friction, thermal expansion, and compound solutions. Written and oral skills will also be emphasized to help students communicate with customers, colleagues, and supervisors.