



To: State Board of Education Members
From: PJ McGrew, Executive Director of the Governor's Workforce Cabinet
Re: Next Level Programs of Study Courses
Date: November 4, 2020

Background: In July 2018, the President signed into law Perkins V, which is the federal law governing Career and Technical Education. Within this law, were two items of particular importance:

1. **The definition of a CTE concentrator was amended** – the change primarily focused on moving away from credit accumulation to course completion. This required transitioning away from how students were designated as concentrators in Indiana.
2. **Programs of Study were required to be developed** – this stipulation required the eligible agency for Perkins to develop pathways for students without duplicative coursework across secondary and postsecondary participation. This is significant to understanding how secondary course standards align and map to postsecondary learning objectives and ensuring that students have the ability to earn postsecondary credit within secondary courses.

In July 2019, the agency eligible for Perkins shifted from the SBOE to the GWC. This was a result of the Cabinet's inclusion of multiple entities relevant to CTE. The Department of Education and SBOE (via the Superintendent of Public Instruction), Department of Workforce Development, the postsecondary eligible recipients of Perkins funding (Ivy Tech Community College and Vincennes University), Commission for Higher Education, representation from secondary eligible recipients (Indiana Association of Career and Technical Education Districts), and employers are all represented on the GWC. When Office of CTE staff transitioned from DOE to the GWC, the GWC obtained oversight for the development of new CTE courses for inclusion in the annual Course Titles and Descriptions available to schools and career centers.

The Governor's Workforce Cabinet has also been designated as the state's federally required workforce board. Every four years the federal Workforce Innovation and Opportunity Act (WIOA) requires state workforce boards to submit a plan outlining policies for implementing a number of federal programs and funding streams. States are able to submit a Combined WIOA plan that aligns a variety of activities across education, workforce, and human services.

Indiana's Combined WIOA plan was developed throughout 2019 and approved by the GWC in March 2020. **The Combined Plan included Indiana's Perkins plan, which outlined planned activities within CTE over the next several years, and was fully approved by each of the federal agencies involved on October 2, 2020.** The Perkins plan describes how Indiana will transition from Perkins IV to full implementation of Perkins V through the implementation of Next Level Programs of Study. This initiative will create consistency in student learning and outcomes within the CTE space regardless where that career and technical education occurs and was recently highlighted by a national career and technical education organization as a "[state highlight and promising innovation](#)".

This past January the GWC offered schools an opportunity to plan for and pilot these new Next Level Programs of Study courses that are directly aligned across secondary and postsecondary. There were over 30 school districts that participated in the planning phase of this work, and 12 were selected to pilot this redesigned CTE model this school year.

Current CTE Course Structure: Currently many of the Advanced CTE courses are allowed to be delivered for anywhere from 1 to 3 credits per semester. This current structure for CTE in the secondary space does not allow for all students to demonstrate the full depth and breadth of the content within CTE courses. Additionally, it results in students reaching concentrator status with anywhere from 4-12 credits, creating inconsistent outcomes for students.

New CTE Course Structure: In order to provide students, parents, counselors, educators (secondary and postsecondary) and employers with a more robust experience, the current advanced courses have been redesigned to allow for the full depth and breadth of the standards to be delivered in a new course format. As a result of 18 months’ worth of conversations with stakeholders across secondary and postsecondary career and technical education, **nearly 200 new CTE courses were developed to allow for more transparency and consistency in student learning.**

The new courses have been developed within a new structure where each Program of Study contains 4 core courses (Principles, Concentrator A, Concentrator B and a Capstone course). In instances where a Level 1 course currently exists, that course has been broken down into the first 3 courses of the Program of Study. Students will be required to complete the Principles, Concentrator A, and Concentrator B courses to achieve CTE concentrator status.

Advantages: This model provides a consistent structure for every pathway and will more clearly define the skills a student possesses when they become a CTE concentrator. This new structure aligns with the emphasis Perkins V places on course completion and ensures all students have the same experience if they are designated as CTE concentrators. Students will have the opportunity to better understand the topics of the course and schools will better know what the student has learned before transitioning to the next course in a sequence or for situations where a student transfers districts. More importantly, it will create an equitable experience for students regardless of whether they participate in CTE at their home school or a Career Center.

The new structure being piloted in 2020-2021, available for schools to opt-in during 2021-2022, and offered fully starting in 2022 – 2023 is shown below. The example shown is Construction Trades I – Carpentry.

Architecture and Construction: Construction Trades - Carpentry

Current Course Structure		
Construction Trades I Up to 3 Credits per semester		
New Course Structure		
Principles	Concentrator A	Concentrator B
Principles of Construction Trades 1 credit per semester	General Carpentry 1 credit per semester	Carpentry Framing & Finishing 1 credit per semester

Completed and Upcoming Communication/Outreach:

- a. **Principals and CTE Directors Working Group** – Office of CTE staff have continuously met with a group of Principals and CTE Directors during the development of Next Level Programs of Study and will continue to do so throughout implementation.
- b. **Presentation at School Boards Association Fall Meeting** – Office of CTE staff presented information at the ISBA Fall Conference in September.
- c. **Superintendent District Meetings** – GWC staff presented information to several regional convenings of Superintendents this fall.
- d. **Implementation Workshops** – Regional Workshops will occur across the state throughout the winter and spring in conjunction with the Principal’s Association.
- e. **Creation of Career Guide** – GWC/OCTE staff have developed a Career Guide to provide additional information about Next Level Programs of Study. The online version is available [here](#), and copies are being distributed to CTE districts in the upcoming weeks.

New Courses: The Programs of Study that will begin during the 2022 – 2023 school year will make use of the new Next Level Programs of Study courses moving forward. Outlined below are the CTE courses that will be available for use during the 2021-2022 school year should schools want to begin offering this new course structure early. These courses, along with Capstone courses and other courses still in development, will be included in the 2022 – 2023 Course Titles and Descriptions for use by all schools.

Should schools have any questions regarding these courses, how to begin implementing these courses, or the benefits to students when offering these courses, please [contact the Office of CTE](#) within the Governor’s Workforce Cabinet. Sign up to receive bi-weekly updates from the Office of CTE [here](#).



Course Titles and Descriptions

Career and Technical Education (CTE) Courses

2022-2023 School Year

Indiana Governor's Workforce Cabinet



The 2022-2023 CTE Course Titles and Descriptions includes over 200 new CTE courses as part of the Office of CTE's new Next Level Programs of Study initiative. Next Level Programs of Study (NLPS) courses will bring much needed consistency to Indiana's secondary CTE system through course sequences that are directly aligned to postsecondary certificate programs whenever possible. Exploratory courses like Preparing for College and Careers, Introductory courses, and Advanced Courses from previous years are still available to explore and prepare for career pathways. Next Level Programs of Study will provide students the opportunity to complete up to one year's worth of a postsecondary program through a four (4) course sequence. The first three courses of each program of study will consist of a principles course and two advanced courses required to earn CTE Concentrator status. The three courses may be taken individually or can be completed concurrently for programs that are able to offer extended training sessions. Beginning in the 2022-2023 school year, each program of study will also include a capstone course that may be taken for up to 6 credits.

The Office of CTE encourages schools to transition to the Next Level Programs of Study courses as soon as possible because of the inherent benefits the courses provide to students, including current and more relevant standards, greater number of dual credits, and dual credits aligned to specific credentials. However, schools will have the option to allow student cohorts to use any of the following options to earn concentrator status or complete a pathway.

- The Class of 2022 may use Perkins IV pathways or opt into Perkins V pathways with either current courses or Next Level Programs of Study courses.
- The Class of 2023 and 2024 must use Perkins V pathways with either current courses or Next Level Programs of Study courses.
- The Class of 2025 must use Perkins V pathways with Next Level Programs of Study courses.



4728 Robotics Design and Innovation

(RDI)

Robotics Design and Innovation allows students to design, program, and test innovative technological designs related to robotic systems. Topics involve mechanics, pneumatics, control technologies, computer fundamentals, and programmable control technologies. Students design, build, and optimize robots to perform a variety of predesignated tasks. Individuals or small teams may choose to participate in organized robotic competitions or develop their own events during the course. Upon completion of the course, learners will understand what technicians do in the workplace and how industry utilizes Mechatronics in advanced manufacturing.

- Recommended Grade: 9, 10, 11, 12
- Required Prerequisites: Principles of Advanced Manufacturing
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4796 Introduction to Advanced Manufacturing and Logistics

(INT ADV MFTG)

Introduction to Advanced Manufacturing and Logistics focuses on manufacturing systems with an introduction to advanced manufacturing and logistics and their relationship to society, individuals, and the environment. Students apply the skills and knowledge of using modern manufacturing processes to obtain resources and change them into industrial materials, industrial products and consumer products. Students investigate the properties of engineered materials. Students study six major types of material processes: casting and molding; forming; separating; conditioning; finishing; and assembling. After gaining a working knowledge of these materials, students are introduced to advanced manufacturing, logistics, and business principles that are utilized in today's advanced manufacturing industry. Students gain a basic understanding of tooling, electrical skills, operation skills, inventory principles, MSDS's, chart and graph reading and MSSC concepts. There is also an emphasis placed on the flow process principles, material movement, safety, and related business operations. Students have the opportunity to develop the characteristics employers seek as well as skills that will help them in future endeavors.

- Recommended Grade: 9, 10
- Required Prerequisites: none
- Recommended Prerequisites: none

- Credits: Credits: 1 or 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4880 Advanced Manufacturing: Special Topics

(ADV MFTG ST)

Advanced Manufacturing: Special Topics is an extended learning experience designed to address the advancement and specialization of careers within the career cluster through the provision of a specialized course for a specific workforce need in the school's region. The learning experience is at a qualified site, and is designed to give the student the opportunity to learn and practice technical skills; while working under the direction of the appropriately licensed professional. Throughout the course, students will focus on learning about employment opportunities and obtaining the knowledge, skills and attitudes essential for success in specific occupations. Course standards and curriculum must be tailored to the specific profession, preparing students to advance in this career field, and where applicable, provide students with opportunities for certification or dual credit. Participation in a related CTSO encourages the development of leadership, communication and career related skills, and opportunities for community service.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Advanced Manufacturing; CTE courses that would help prepare the student for success in this area.
- Credits: Credits: 1 semester course, up to 3 credits per semester, may be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

5606 Advanced Manufacturing II

(ADV MFTG II)

Advanced Manufacturing II builds on classroom and lab experiences students experienced in Advanced Manufacturing I. Domains include safety and impact, drafting principles, manufacturing programming, CAD/CAM and CNC technologies, automation and robotics, and careers in advanced manufacturing. Hands-on projects and team activities will allow students to apply learning on the latest industry technologies. Students continue this course with the goal of being a skilled machine operator, repair technician, or management at any company that produces goods and services using advanced manufacturing techniques. Work based learning experiences and industry partnerships are highly encouraged for an authentic industry experience.

- Recommended Grade: 12

- Required Prerequisites: Advanced Manufacturing I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

5608 Advanced Manufacturing I

(ADV MFTG I)

Advanced Manufacturing I is a course that includes classroom and laboratory experiences in two broad areas: Industrial Technology/Software Controls and Manufacturing Trends. Domains include safety and impact, electricity, manufacturing essentials, fluid power principles, mechanical principles, lean manufacturing, and careers in advanced manufacturing. Hands-on projects and team activities will allow students to apply learning on the latest industry technologies. Students take this course with the goal of being a skilled machine operator, repair technician, or working in management at any company that produces goods and services using advanced manufacturing techniques. Work based learning experiences and industry partnerships are highly encouraged for an authentic industry experience.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Advanced Manufacturing
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5610 Industrial Automation and Robotics I

(AUTO ROB I)

Industrial Automation and Robotics I, will introduce students to design and programming concepts in 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 fundamentals in industrial robotics basic programming and operations. Students will program an industrial robot through exploration of a teach pendant and use proper programming commands with hands-on utilization of an industrial robot. 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.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5612 Industrial Automation and Robotics II

(AUTO ROB II)

Industrial Automation and Robotics II, focuses on 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, as well as strategies for improving efficiency through automation. Students will study basic computer numerical controlled (CNC) machining and will combine automation and CNC machining to perform common industrial tasks. They will also apply knowledge to real world situations to create working solutions.

- Recommended Grade: 11, 12
- Required Prerequisites: Industrial Automation and Robotics I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

5686 Industrial Technical Maintenance I

(INDUST MAINT I)

Industrial Technical Maintenance I includes classroom and practical experiences that prepare students to apply technical knowledge and skills to repair and maintain industrial machinery and equipment. Instructional activities develop diagnostic and problem-solving skills related to electric circuits, wiring, motors, robotics, hydraulics, and pneumatics. Additional areas of instruction should include plumbing, rigging, basic machining, welding, and cutting.

- Recommended Grade: 11, 12
- Required Prerequisites: none

- Recommended Prerequisites: Introduction to Advanced Manufacturing
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5688 Industrial Technical Maintenance II

(INDUST MAINT II)

Industrial Technical Maintenance II builds on the practical experiences learned in Industrial Maintenance I and prepares students to apply technical knowledge and skills to repair and maintain more advanced industrial equipment, systems, and processes. Instructional activities develop diagnostic and problem-solving skills related to electric circuits, wiring, motors, robotics, hydraulics, and pneumatics. Additional areas of instruction should include plumbing, rigging, basic machining, welding, and cutting.

- Recommended Grade: 12
- Required Prerequisites: Industrial Technical Maintenance I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

5776 Welding Technology I

(WELD TECH I)

Welding Technology I includes classroom and laboratory experiences that develop a variety of skills in oxy-fuel cutting and Shielded Metal Arc welding. 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 through projects and exercises that teach students how to weld and be prepared for college and career success.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum

- Counts as a directed elective or elective for all diplomas

5778 Welding Technology II

(WELD TECH II)

Welding Technology II builds on the 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.

- Recommended Grade: 12
- Required Prerequisites: Welding Technology I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5782 Precision Machining I

(PCSN MACH I)

Precision Machining I provides 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 numerically controlled) machines.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Advanced Manufacturing
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

5784 Precision Machining II

(PCSN MACH II)

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.

- Recommended Grade: 12
- Required Prerequisites: Precision Machining I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

6146 Advanced Career & Technical Education, College Credit: Advanced Manufacturing

(ADV CTE CC AATC)

Advanced Career and Technical Education, College Credit is a course title covering any CTE advanced course offered for credit by an accredited post-secondary institution through an adjunct agreement with a secondary school. The intent of this course is to allow students to earn college credit for courses with content that goes beyond that currently approved for high school credit. This course may be used for any dual enrollment course, including a joint program of study involving a postsecondary partnership.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: CTE courses that would help prepare the student for success in this area.
- Credits: Credits: 1 semester course, up to 3 credits per semester, may be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

7100 Digital Manufacturing Systems

(DIG MAN SYS)

Digital Manufacturing Systems Fundamentals introduces learners to basic concepts of industrial computer-controlled systems. The learner explores various types of programmable logic controllers (PLC) and participates in lab experiments designed to introduce programming principles, electronic inputs and outputs (analog and digital), and communication between system components including Ethernet protocols. Upon completion of the course, learners will be able to explain how the control processes are utilized to automate manufacturing facilities.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Advanced Manufacturing
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7101 Gas Welding Processes

(GAS WEL PRC)

A course designed to cover the operation of Gas Metal Arc Welding (MIG) equipment. This will include all settings, adjustments and maintenance needed to weld with a wire feed system. Instruction on both short-arc and spray-arc transfer methods will be covered. Tee, lap, and open groove joints will be done in all positions with solid, fluxcore, and aluminum wire. Test plates will be made for progress evaluation. Schools will have the option to introduce students to both MIG and TIG welding rather than focusing solely on MIG welding.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Welding Technology
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7102 Industrial Electrical Fundamentals

(IND ELC FUN)

The Industrial Electrical Fundamentals course will introduce students to the National Electric Code and its application in designing and installing electrical circuits, selecting wiring materials

and devices, and choosing wiring methods. Students will also gain a general understanding of common types of electric motors.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Advanced Manufacturing; and Industrial Power Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7103 Industrial Power Fundamentals

(IN PWR FUN)

Industrial Power Fundamentals introduces students to the principles and components of fluid power and electricity. This includes current, voltage, resistance, power, inductance, capacitance, and transformers. Stresses the use of standard electrical tests, electrical equipment, and troubleshooting procedures. Students will also learn basic circuit design through the use of symbols and schematic diagrams to build a foundation for a career in fluid power technology. Safety procedures and practices are emphasized.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Advanced Manufacturing
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7104 Machinery Installation and Maintenance

(MACH INS MAIN)

Machinery Installation and Maintenance examines the procedures for the removal, repair and installation of machine components. The methods of installation, lubrication practices, and maintenance procedures for industrial machinery are analyzed. Also presented are the techniques involved in the calibration and repair of mechanical devices and the practice in computations pertaining to industrial machinery.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Advanced Manufacturing; and Industrial Power Fundamentals
- Recommended Prerequisites: none

- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7105 Machining Fundamentals

(MACH FUN)

Machining Fundamentals instructs students in shop safety, industrial terminology, and provides laboratory experience toward project completion on the conventional lathe, vertical and/or horizontal milling machine, and abrasive processing machines, including super abrasive technology processes. This course incorporates certification assessment for the National Institute of Metalworking Skills Manual Milling Certification.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Precision Machining
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

7106 Mechatronics Systems

(MECH SYS)

Mechatronics Systems covers the basic electrical and mechanical components and functions of a complex mechatronics system. Through a systems approach, students will learn about mechanical components which lead and support the energy through a mechanical system to increase efficiency and to reduce wear and tear. By understanding the complete system, students will learn and apply troubleshooting strategies to identify, localize and (where possible) to correct malfunctions. Preventive maintenance of mechanical elements and electrical drives as well as safety issues within the system will also be discussed.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Advanced Manufacturing; and Industrial Power Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7107 Precision Machining

(PREC MACH)

Precision Machining introduces and instructs students in all aspects of Computer Numeric Control (CNC) machine operation and setup. The student will set up and operate CNC mills and lathes utilizing set-up, production, in-process inspection, and preventive maintenance methods similar to what the student may experience in the present day work environment. This course prepares students to take the NIMS Level I CNC operations certification.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Precision Machining; and Machining Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

7108 Principles of Advanced Manufacturing

(PRIN ADV MAN)

Principles of Advanced Manufacturing is a course that includes classroom and laboratory experiences in Industrial Technology and Manufacturing Trends. Domains include safety and impact, manufacturing essentials, electricity, fluid power principles, mechanical principles, lean manufacturing, drafting principles, manufacturing programming, and careers in advanced manufacturing. Hands-on projects and team activities will allow students to apply learning on the latest industry technologies. Work-based learning experiences and industry partnerships are highly encouraged for an authentic industry experience.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Advanced Manufacturing
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7109 Principles of Precision Machining

(PRIN PREC MACH)

Principles of Precision Machining will instruct students in shop safety, industrial terminology, tools and machine tooling, measurement, and layout. Includes laboratory exercises to begin

project completion of turning, milling, and grinding applications. This course incorporates certification assessment for the National Institute of Metalworking Skills Measurement, Materials and Safety, Job Planning, Benchwork, and Layout Certification. Applies mathematics in solving engineering and design related problems in the areas of die design, fabrication, assembly, special machinery, die casting and molds. Emphasizes geometric dimensioning and applying tolerances.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Advanced Manufacturing
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7110 Principles of Welding Technology

(PRIN WEL TCH)

Principles of Welding Technology includes classroom and laboratory experiences that develop a variety of skills in oxy-fuel cutting and basic welding. This course is designed for individuals who intend to make a career as a Welder, Technician, 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 through projects and exercises that teach students how to weld and be prepared for postsecondary and career success.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Manufacturing
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7111 Shielded Metal Arc Welding

(SHLD MAW)

This course involves the theory and application of the Shielded Metal Arc Welding process. Process theory will include basic electricity, power sources, electrode selection, and all aspects pertaining to equipment operation and maintenance. Laboratory welds will be performed in basic weld joints with a variety of electrodes in the flat, horizontal and vertical positions.

Emphasis will be placed on developing the basic skills necessary to comply with AWS industry standards.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Welding Technology
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5002 Agribusiness Management

(AG BUS MGMT)

Agribusiness Management provides foundation concepts in agricultural business. 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, and leadership development. Students will demonstrate principles and techniques for planning, development, application and management of agribusiness systems through a supervised agriculture experience (work based learning) programs.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Agriculture, Food and Natural Resources
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as an elective or directed elective for all diplomas.
- Qualifies as a quantitative reasoning course

5008 Animal Science

(ANML SCI)

Animal Science is a two-semester program that provides students with an overview of the animal agriculture industry. Students participate in a large variety of activities and laboratory work including real and simulated animal science experiences and projects. All areas that the students study may be applied to both large and small animals. Topics to be covered in the course include: history and trends in animal agriculture, laws and practices relating to animal agriculture, comparative anatomy and physiology of animals, biosecurity threats and

interventions relating to animal and human safety, nutrition, reproduction, careers, leadership, and supervised agricultural experiences relating to animal agriculture.

- Recommended Grade: 10, 11
- Required Prerequisites: Principles of Agriculture
- Recommended Prerequisites: Introduction to Agriculture, Food and Natural Resources
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Fulfills a science course requirement for all diplomas
- Fulfills a physical science requirement for General Diploma

5056 Introduction to Agriculture, Food, and Natural Resources

(INT AGFNR)

Introduction to Agriculture, Food and Natural Resources is a two semester course that is highly recommended as a prerequisite to and as a foundation for all other agricultural classes.

Through hands-on learning activities, students are encouraged to investigate areas of agriculture. Students are introduced to the following areas of agriculture: animal science, plant and soil science, food science, horticultural science, agricultural business management, natural resources, agriculture power, structure, and technology, 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.

- Recommended Grade: 9
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 or 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5070 Advanced Life Science, Animals (L)

(ALS ANIML)

Advanced Life Science: Animals is a two-semester course that provides students with opportunities to participate in a variety of activities including laboratory work. Students will explore concepts related to history and trends in animal agriculture as related to animal welfare, husbandry, diseases and parasites, laws and practices relating to handling, housing, environmental impact, global sustainable practices of animal agriculture, genetics, breeding practices, biotechnology uses, and comparative knowledge of anatomy and physiology of animals used in animal agriculture.

- Recommended Grade: 11, 12
- Required Prerequisites: Principles of Agriculture
- Recommended Prerequisites: Introduction to Agriculture; Animal Science; Food and Natural Resources; Biology; Chemistry; Integrated Chemistry Physics
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as an elective or directed elective for all diplomas.
- Fulfills a science requirement for all diplomas.
- Qualifies as a quantitative reasoning course

5072 Advanced Life Science: Foods

(ALS FOODS)

Advanced Life Science: Foods is a course that provides students with opportunities to participate in a variety of activities including laboratory work. This is a standards-based, interdisciplinary science course that integrates biology, chemistry, and microbiology in the context of foods and the global food industry. Students enrolled in this course formulate, design, and carry out food-base laboratory and field investigations as an essential course component. Students understand how biology, chemistry, and physics principles apply to the composition of foods, the nutrition of foods, food and food product development, food processing, food safety and sanitation, food packaging, and food storage. Students completing this course will be able to apply the principles of scientific inquiry to solve problems related to biology, physics, and chemistry in the context of highly advanced industry applications of foods.

- Recommended Grade: 11, 12
- Required Prerequisites: Principles of Agriculture
- Recommended Prerequisites: Chemistry; Biology; Introduction to Agriculture; Food and Natural Resources; Food Science; Nutrition and Wellness; Advanced Nutrition and Wellness
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as an elective or directed elective for all diplomas.
- Fulfills a science requirement for all diplomas.
- Qualifies as a quantitative reasoning course

5074 Advanced Life Science, Plants and Soils (L)

(ALS PLT/SL)

Advanced Life Science: Plants and Soils is a two semester course that provides students with opportunities to participate in a variety of activities including laboratory work. Students study concepts, principles, and theories associated with plants and soils. Knowledge gained enables them to better understand the workings of agricultural and horticultural practices. They recognize how plants are classified, grow, function, and reproduce. Students explore plant genetics and the use of plants by humans. They examine plant evolution and the role of plants in ecology. Students investigate, through laboratories and fieldwork, how plants function and how soil influences plant life.

- Recommended Grade: 11, 12
- Required Prerequisites: Principles of Agriculture
- Recommended Prerequisites: Introduction to Agriculture; Plant and Soil Science; Food and Natural Resources; Biology; Chemistry
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as an elective or directed elective for all diplomas.
- Fulfills a science requirement for all diplomas.
- Qualifies as a quantitative reasoning course

5088 Agriculture Power, Structure, and Technology

(AG POW)

Agriculture Power, Structure and Technology is a two semester, up to six credits, lab intensive course in which students develop an understanding of basic principles of tool selection, operation, maintenance, and management of agricultural equipment in concert with the utilization of technology. Topics covered include: safety, problem-solving/troubleshooting, electricity, plumbing, concrete, carpentry, metal technology, engines, emerging technologies, leadership development, supervised agricultural experience, and career opportunities in the area of agriculture power, structure, and technology.

- Recommended Grade: 10, 11
- Required Prerequisites: Principles of Agriculture
- Recommended Prerequisites: Introduction to Agriculture, Food and Natural Resources
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5102 Food Science

(FOOD SCI)

Food Science is a two semester course that provides students with an overview of food science and the role it plays in the securing of a safe, nutritious, and adequate food supply. A project-based approach is utilized in this course, along with laboratory, team building, and problem solving activities to enhance student learning. Students are introduced to the following areas of horticulture science: food processing, food chemistry and physics, nutrition, food microbiology, preservation, packaging and labeling, food commodities, food regulations, issues and careers in the food science industry.

- Recommended Grade: 10, 11
- Required Prerequisites: Principles of Agriculture
- Recommended Prerequisites: Introduction to Agriculture, Food and Natural Resources
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas.
- Fulfills a Life Science or Physical Science requirement for the General Diploma

5132 Horticultural Science

(HORT SCI)

Horticulture Science is a two semester course that provides students with a background in the field of horticulture. Coursework includes hands-on activities that encourage students to investigate areas of horticulture as it relates to the biology and technology involved in the production, processing, and marketing of horticultural plants and products. Students are introduced to the following areas of horticulture science: reproduction and propagation of plants, plant growth, growth-media, management practices for field and greenhouse production, marketing concepts, production of plants of local interest, greenhouse management, floral design, and pest management. Students participate in a variety of activities including extensive laboratory work usually in a school greenhouse.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Agriculture
- Recommended Prerequisites: Introduction to Agriculture, Food and Natural Resources
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas.
- Fulfills a Life Science or Physical Science requirement for the General Diploma

5136 Landscape Management I

(LAND MGMT I)

Landscape Management is a two semester course that provides the student with an overview of the many career opportunities in the diverse field of landscape management. Students are introduced to the procedures used in the planning and design of a landscape using current technology practices, the principles and procedures involved with landscape construction, the determination of maintenance schedules, communications and management skills necessary in landscaping operations, and the care and use of equipment utilized by landscapers. Upon completion of the program, students have the opportunity to become Indiana Landscape Industry Certified through a state approved program.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Agriculture, Food and Natural Resources
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as an elective or directed elective for all diplomas
- Qualifies as a quantitative reasoning course

5137 Landscape Management II

(LAND MGMT II)

Landscape Management II is a two semester course that extends the content and skills of Landscape Management and provides the student with in-depth exploration of the many career opportunities in the diverse field of landscape management. Students continue to build knowledge and skill in the procedures used in landscape planning and design using current industry standards and practices. Extended laboratory experiences include application of the principles and procedures involved especially in the Midwest and Great Lakes areas with landscape construction; turf management; scheduling and oversight of landscape maintenance; weed control; non-pathogenic and disease prevention, diagnosis, and treatment; communications; management skills necessary in landscaping operations; and the use and maintenance of equipment utilized by landscapers. Students should also participate in leadership development, supervised agricultural experience and career exploration activities in the area of landscape management.

- Recommended Grade: 12
- Required Prerequisites: Landscape Management I
- Recommended Prerequisites: Plant and Soil Science or Horticulture Science

- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credit(s) per semester, 6 credits maximum
- Counts as an elective or directed elective for all diplomas
- Qualifies as a quantitative reasoning course

5170 Plant and Soil Science

(PLT SL SCI)

Plant and Soil Science a two semester course that provides students with opportunities to participate in a variety of activities including laboratory and field work. Coursework includes hands-on learning activities that encourage students to investigate areas of plant and soil science. Students are introduced to the following areas of plant and soil science: plant growth, reproduction and propagation, photosynthesis and respiration, diseases and pests of plants and their management, biotechnology, the basic components and types of soil, soil tillage, and conservation.

- Recommended Grade: 10, 11
- Required Prerequisites: Principles of Agriculture
- Recommended Prerequisites: Introduction to Agriculture, Food and Natural Resources
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Fulfills a science course requirement for all diplomas
- Fulfills a Physical Science requirement for the general diploma

5180 Natural Resources

(NAT RSS)

Natural Resources is a two semester course that provides students with a background in environmental science and conservation. Course work includes hands-on learning activities that 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, minerals, interrelationships between humans and natural systems, wetlands, wildlife, safety, careers, leadership, and supervised agricultural experience programs.

- Recommended Grade: 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Agriculture, Food and Natural Resources
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum

- Fulfills a science course requirement for all diplomas
- Counts as a directed elective or elective for all diplomas

5211 Veterinary Careers I

(VET CRS I)

Veterinary Careers I is a lab intensive course that introduces students to animal care and veterinary medicine. Through classroom and field experiences, students will attain the necessary skills to demonstrate standard protocols that are used in veterinary careers. This course also provides students with the knowledge, attitudes, and skills needed to make the transition from high school, to post-secondary opportunities, and to work in a variety of health science careers. Students are encouraged to focus on self-analysis to aid in their career selection. Job seeking and job maintenance skills, personal management skills, and completion of the application process for admission into a post-secondary program are also areas of focus. Participation in HOSA or FFA encourages development of leadership, communication, and career related skills, and opportunities for community service.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Animal Science; Advanced Life Science Animals
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5212 Veterinary Careers II

(VET CRS II)

Veterinary Careers II is an extended laboratory experience designed to provide students with the opportunity to assume the role of a veterinary assistant, and practice technical skills previously learned in the classroom; all while working at a qualified clinical site under the direction of licensed veterinarians. These sites may include animal clinics, hospitals or research laboratories. Throughout this course, students will focus on learning about the healthcare system and employment opportunities at a variety of entry levels; an overview of the healthcare delivery systems, healthcare teams and legal and ethical considerations; and obtaining the knowledge, skills and attitudes essential for providing basic care in veterinary clinics, hospitals and other related locations. Additionally, students will learn essential job related skills that include; monitoring and caring for animals before and after surgery; maintaining and sterilizing surgical instruments; cleaning and disinfecting kennels and operating rooms; providing emergency first aid to animals; giving medication to animals; appropriate techniques for collecting specimens and performing routine lab tests; and feeding and bathing

animals. This course also provides students with the knowledge, attitudes, and skills needed to make the transition from high school, to post-secondary opportunities, and to work in a variety of health science careers. Students are encouraged to focus on self-analysis to aid in their career selection. Job seeking and job maintenance skills, personal management skills, and completion of the application process for admission into a post-secondary program are also areas of focus. Participation in HOSA or FFA encourages the development of leadership, communication and career related skills, and opportunities for community service.

- Recommended Grade: 12
- Required Prerequisites: Health Science Education I or Veterinary Careers I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5228 Supervised Agricultural Experience (SAE)

(SAE)

Supervised Agricultural Experience (SAE) is designed to provide students with opportunities to gain experience in the agriculture field(s) in which they are interested. Students will experience and apply what is learned in the classroom, laboratory and training site to real-life situations with a standards-based plan for learning. Students work closely with their agriculture teacher(s), parents and/or employers to get the most out of their SAE program. This course can be offered each year as well as during the summer session. Curriculum content and competencies need to be varied so that school year and summer session experiences are not duplicative.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Agriculture, Food and Natural Resources
- Credits: Credits: 1 semester course, 1 credit per semester, 8 credits maximum
- Counts as a directed elective or elective for all diplomas.

5229 Sustainable Energy Alternatives

(SUS NRG)

Sustainable Energy Alternatives 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. Leadership development, supervised agricultural experiences, and career exploration opportunities are explored in the field. Sustainable energy is also included.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Agriculture, Food and Natural Resources; Natural Resources
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Fulfills a science course requirement for all diplomas
- Counts as a directed elective or elective for all diplomas

6130 Advanced Career & Technical Education, College Credit: Agriculture

(ADV CTE CC AG)

Advanced Career and Technical Education, College Credit is a course title covering any CTE advanced course offered for credit by an accredited post-secondary institution through an adjunct agreement with a secondary school. The intent of this course is to allow students to earn college credit for courses with content that goes beyond that currently approved for high school credit. This course may be used for any dual enrollment course, including a joint program of study involving a postsecondary partnership.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: CTE courses that would help prepare the student for success in this area.
- Credits: Credits: 1 semester course, up to 3 credits per semester, may be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

6150 Agriculture: Special Topics

(AG ST)

Agriculture: Special Topics is an extended learning experience designed to address the advancement and specialization of careers within the career cluster through the provision of a specialized course for a specific workforce need in the school's region. The learning experience is at a qualified site, and is designed to give the student the opportunity to learn and practice technical skills; while working under the direction of the appropriately licensed professional. Throughout the course, students will focus on learning about employment opportunities and

obtaining the knowledge, skills and attitudes essential for success in specific occupations. Course standards and curriculum must be tailored to the specific profession, preparing students to advance in this career field, and where applicable, provide students with opportunities for certification or dual credit. Participation in a related CTSO encourages the development of leadership, communication and career related skills, and opportunities for community service.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Agriculture, Food, and Natural Resources
- Credits: Credits: 1 semester course, up to 3 credits per semester, may be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

7112 Agriculture Structures Fabrication and Design

(AG ST FAB DES)

Agricultural Structures Fabrication and Design is a two-semester course that focuses on metal work and agricultural structures. This course will allow students to develop skills in welding and metalworking such as metal identification and properties, metal preparation, use of oxy-acetylene torch, plasma cutting and cutting operations, arc welding, MIG welding, TIG welding. This course will also allow students to develop skills in construction in regard to the ag industry such as carpentry, masonry, etc.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Agriculture
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective credits for all diplomas

7113 Crop Management

(CROP MAN)

Crop Management will provide an understanding of plant nutrient requirements and how to provide for those needs to achieve efficient crop production through classroom and lab-based instruction. Students will understand proper fertilizer materials, application methods and techniques. Instruction on soil analysis by demonstrating proper soil testing techniques which will be used to create fertility plans for proposed crops. Integrated pest management and the evaluation of various pest controls with minimal impact on the environment will also be an emphasis of the course.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Agriculture
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective credits for all diplomas

7114 Greenhouse and Soilless Production

(GRN S PROD)

Greenhouse and Soilless Production is a two-semester course that provides an overview of structural designs and uses of enclosed structures (greenhouses) to grow various plants and food. The course will focus on discussing different types of enclosed structures, management systems, and growing systems used to produce plants and food. The course will also present an overview of soilless growing systems such as hydroponics, aquaponics, aeroponics and fogponics. Students will utilize the school greenhouse as part of this course.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Agriculture
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective credits for all diplomas

7115 Landscape and Turf Management

(LAND TUR MAN)

Landscape and Turf Management is a two-semester course that provides the student with an overview of the many career opportunities in the diverse field of landscape and turf management. Students are introduced to the procedures used in the planning and design of a landscape using current technology practices, the principles and procedures involved with landscape construction, the determination of maintenance schedules, communications, and management skills necessary in landscaping operations, and the care and use of equipment utilized by landscapers. Upon completion of the program, students have the opportunity to become Indiana Landscape Industry Certified through a state approved program.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Agriculture
- Recommended Prerequisites: none

- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective credits for all diplomas

7116 Precision Agriculture

(PREC AG)

Precision Agriculture describes the purpose and concepts of precision agriculture and precision farming through classroom and lab-based instruction. It involves understanding and operation of the various precision agriculture tools including GPS, GIS, and VRT. Students will learn how to collect data, analyze data and use the information to make decisions. Provides an understanding and justifications that demonstrate the economic and environmental benefits of precision agriculture. The Precision Agriculture course also incorporates the use of UAVs. Students will demonstrate UAV competency and handling in order to achieve the Part 107 UAS certification.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Agriculture
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective credits for all diplomas

7117 Principles of Agriculture

(PRIN AG)

Principles of Agriculture is a two-semester course that will cover the diversity of the agricultural industry and agribusiness concepts. Students will develop an understanding and the role of agriculture in the United States and globally. Topics covered in the course range from animals, plants, food, natural resources, ag power, structures and technology, as well as careers.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective credits for all diplomas

4792 Introduction to Construction

(INT CONST)

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.

- Recommended Grade: 9, 10
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 or 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4830 Construction Trades: Electrical I

(CONST ECT I)

Construction Trades: Electrical I includes classroom and laboratory experiences focused on the installation and repair of the electrical and wiring systems of physical structures. This course includes instruction on the reading of technical drawings and their application in construction processes. Topics include the relationship between views and details, interpretation of dimension, transposing scale, tolerance, electrical symbols, sections, material lists, architectural plans, room schedules and plot plans. This course covers both AC and DC circuits. Studies include electron theory, Ohm's Law, Watt's Law, Kirchhoff's Law, series circuits, series-parallel circuits, and other electrical concepts. Students will use the underlying scientific principles related to electricity, to complete construction projects. Mathematical principles will be used to solve electrical problems. Students will also interpret health, safety, and welfare standards and codes as dictated by local, state or federal agencies.

- Recommended Grade: 11, 12

- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Construction
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4832 Construction Trades: Electrical II

(CONST ECT II)

Construction Technology: Electrical II includes classroom and laboratory experiences in residential wiring. This includes electrical service, metering equipment, lighting, switches, outlets and other common components. The course also covers methods of installation and maintenance of the residential wiring system in accordance with the current National Electrical Code. Additionally, it presents methods and techniques for troubleshooting appliances, motors, motor controls, relay wiring, commercial wiring and industrial wiring systems. It also covers wiring methods and material selection for commercial and industrial wiring systems. Studies include mechanical installation of hardware as well as electrical design and layout. Instruction in thinking critically to analyze, synthesize, and evaluate technical problems and information will also be covered as it relates to health, safety, and welfare standards and codes as dictated by local, state or federal agencies

- Recommended Grade: 12
- Required Prerequisites: Construction Trades: Electrical I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

5350 Introduction to Housing and Interior Design

(INT HSINT DES)

Introduction to Housing and Interior Design is an introductory course essential for those students interested in academic enrichment or a career within the housing, interior design, or furnishings industry. This course addresses the selection and planning of designed spaces to meet the needs, wants, values and lifestyles of individuals, families, clients, and communities. Housing decisions, resources and options will be explored including factors affecting housing choices and the types of housing available. Developmental influences on housing and interior environments will also be considered. Basic historical architectural styling and basic furniture styles will be explored as well as basic identification of the elements and principles of design.

Design and space planning involve evaluating floor plans and reading construction documents while learning to create safe, functional, and aesthetic spaces. Presentation techniques will be practiced to thoroughly communicate design ideas. Visual arts concepts including aesthetics, criticism, history and production, are addressed. Direct, concrete mathematics proficiencies will be applied. A project-based approach will be utilized requiring higher order thinking, communication, leadership and management processes as housing and interior design content is integrated into the design of interior spaces while meeting specific project criteria. This course provides the foundation for further study and careers in the architecture, construction, housing, interior design, and furnishings industries.

- Recommended Grade: 9,10, 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 or 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Fulfills a Fine Arts requirement for the Core 40 Academic Honors Diploma

5352 Housing and Interior Design Careers I

(HIDC I)

Housing and Interior Design Careers I prepares students for occupations and higher education programs of study related to the entire spectrum of career clusters that encompass careers related to housing, interiors, and furnishings. Topics include commercial applications of principles of design to creating aesthetic and functional residential and commercial environments; human, non-human, community, family, and financial resources for housing; housing and interiors materials and products; client-centered designing, drafting, blue printing, and space planning; rendering, elevations, and sketching; historical, technological, and environmental impacts on housing and interiors; zoning, building codes, regulations, and accessibility guidelines, and their impact on housing related outcomes. Ethical, legal, and safety issues as well as helping processes and collaborative ways of working with others are to be addressed. Intensive laboratory experiences with commercial applications are a required component of this course of study. Work based experiences in the housing, interiors, and/or furnishings industries are strongly encouraged.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Preparing for College and Careers; Introduction to Housing and Interior Design
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5460 Housing and Interior Design Careers II

(HIDC II)

Housing and Interior Design Careers II prepares students for occupations and higher education programs of study related to the entire spectrum of career clusters that encompass careers related to housing, interiors, and furnishings. Topics include commercial applications of principles of design to creating aesthetic and functional residential and commercial environments, human, non-human, community, family, and financial resources for housing, housing and interiors materials and products, client-centered designing, drafting, blue printing, and space planning; rendering, elevations, and sketching; historical, technological, and environmental impacts on housing and interiors; zoning, building codes, regulations, and accessibility guidelines, and their impact on housing related outcomes. Ethical, legal, and safety issues as well as helping processes and collaborative ways of working with others are to be addressed. Intensive laboratory experiences with commercial applications are a required component of this course of study. Work based experiences in the housing, interiors, and/or furnishings industries are strongly encouraged.

- Recommended Grade: 12
- Required Prerequisites: Housing and Interior Design Careers I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5495 Construction Trades: Heavy Equipment II

(CONST HVEQ II)

Construction Technology Heavy Equipment II builds on the concepts learned in Heavy Equipment I. Students will explore more complex operations with various land-moving and construction equipment within the context of OSHA and industrial operation and safety standards. Emphasis should be placed on controlling equipment to perform specific operations per industry standards and on basic troubleshooting and maintenance procedures.

- Recommended Grade: 12
- Required Prerequisites: Construction Trades: Heavy Equipment I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5496 Construction Trades: HVAC I

(CONST HVAC I)

Construction Technology: HVAC I includes classroom and laboratory experiences focused on heat generation, ventilation, and cooling/refrigeration systems. This course introduces scientific and mathematical principles applicable in the installation, operation, and maintenance of HVAC systems. Types of units, parts, basic controls, functions, and applications will be covered. Additional topics include tool and meter use, temperature measurement, heat flow, the combustion process, and pipe installation practices. This course also emphasizes health, safety, and welfare standards/codes as mandated by professional and governmental agencies.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Construction
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5497 Construction Trades: Heavy Equipment I

(CONST HVEQ I)

Construction Technology Heavy Equipment I introduces students to basic heavy equipment operations. Students will learn how to control various land-moving and construction equipment. Emphasis should be placed on appropriate OSHA equipment safety standards. Students will be able to identify when to use specific equipment and know the appropriate operation and safety standards associated with it. Additional emphasis should be placed on performing simple operations with equipment such as basic excavation and debris movement.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Construction
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5498 Construction Trades: HVAC II

(CONST HVAC II)

Construction Technology: HVAC II builds on concepts introduced in HVAC I. This course will emphasize reading blueprints and other technical documents, as well as troubleshooting common mechanical and electrical problems encountered when servicing HVAC systems. Additional topics include combustion testing, venting and air requirements, electrical control systems, and electrical motor basics. Students will hone their science and math skills in HVAC system installation, maintenance, or repair projects.

- Recommended Grade: 12
- Required Prerequisites: Construction Trades: HVAC I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

5578 Construction Trades II

(CONST TRA II)

Construction Trades II builds on the formation, installation, maintenance, and repair skills learned in Construction Trades I. Information on materials, occupations, and professional organizations within the industry will be covered. Students will develop basic knowledge, skills, and awareness of interior trim and the installation of drywall, moldings, interior doors, kitchen cabinets, and baseboard moldings. Students will also develop exterior finishing competencies. The course includes instruction on the installation of cornices, windows, doors and various types of sidings currently used in industry. Studies will also focus on the design and construction of roof systems and the use of framing squares for traditional rafter and truss roofing.

- Recommended Grade: 12
- Required Prerequisites: Construction Trades I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course.

5580 Construction Trades I

(CONST TECH I)

Construction Trades I classroom and laboratory experiences involve the formation, installation, maintenance, and repair of buildings, homes, and other structures. A history of construction, future trends and career options, reading technical drawings and transforming those drawings into physical structures are covered. 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 will be presented as well as elementary aspects of residential design and site work. 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 layout and floor construction skills. Blueprints and other professional planning documents will also be covered. 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 Safety and Health Standards for the construction industry.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Construction
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5592 Building and Facilities Management I

(BF MGMT I)

Building and Facilities Management I is an instructional program that prepares students to service a variety of structures including commercial and institutional buildings. This course provides instruction in basic maintenance and repair skills related to air conditioning, heating, plumbing, electrical, and other mechanical systems. Emphasis should be placed on the use of hand and power tools and the selection and use of appropriate professional supplies needed for care, repair and maintenance. Students will reinforce their mathematical skills through the practical study of measurement units, ratios, area, and volume calculations. Scientific knowledge will be enhanced through the emphasis on environmental concerns and chemical and electrical safety instruction. Language skills will be strengthened through oral and written work intended to improve students' abilities to communicate with supervisors, colleagues, and clients.

- Recommended Grade: 10, 11, 12

- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Construction
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5593 Building and Facilities Maintenance I

(BF MANT I)

Building and Facilities Maintenance I prepares students to perform routine care and maintenance activities in commercial and institutional buildings. Activities should include classroom and laboratory experiences in all phases of the care and cleaning of buildings. Emphasis should be placed on the selection and use of professional supplies needed for care and maintenance as well as Occupation Safety and Health Administration (OSHA) safety standards and appropriate guidelines in working with various chemicals and processes.

- Recommended Grade: 11
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Construction
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5594 Building and Facilities Maintenance II

(BF MANT II)

Building and Facilities Maintenance II builds on skills learned in Building and Facilities Maintenance I and encompasses instruction in basic upkeep and repair skills related to the mechanical systems within structures. Emphasis should be placed on the use of hand and power tools and the selection and use of appropriate supplies needed for care, repair and maintenance. Students will reinforce their mathematical skills through the practical study of measurement units, ratios, area, and volume calculations. Scientific knowledge will be enhanced through the emphasis on environmental concerns and chemical and electrical safety instruction. Language skills will be strengthened through oral and written work intended to improve students' abilities to communicate with supervisors, colleagues, and clients.

- Recommended Grade: 12
- Required Prerequisites: none
- Recommended Prerequisites: Building and Facilities Maintenance I

- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5595 Building Facilities and Management II

(BF MGMT II)

Building and Facilities Management II Introduces students to the tools, processes and procedures needed to maintain the various HVAC, plumbing and electrical systems found in all buildings and facilities. Students will learn basic operation and troubleshooting techniques for these systems with an emphasis placed on utilizing appropriate maintenance standards to increase the working life of these systems. Additionally, a focus should be placed on modern automated facility efficiency systems.

- Recommended Grade: 12
- Required Prerequisites: Building and Facilities Management I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5654 Architecture and Construction: Special Topics

(ARCH CNS ST)

Architecture and Construction: Special Topics is an extended learning experience designed to address the advancement and specialization of careers within the career cluster through the provision of a specialized course for a specific workforce need in the school's region. The learning experience is at a qualified site, and is designed to give the student the opportunity to learn and practice technical skills; while working under the direction of the appropriately licensed professional. Throughout the course, students will focus on learning about employment opportunities and obtaining the knowledge, skills and attitudes essential for success in specific occupations. Course standards and curriculum must be tailored to the specific profession, preparing students to advance in this career field, and where applicable, provide students with opportunities for certification or dual credit. Participation in a related CTSO encourages the development of leadership, communication and career related skills, and opportunities for community service.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Construction

- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

6132 Advanced Career & Technical Education, College Credit: Architecture and Construction

(ADV CTE CC AC)

Advanced Career and Technical Education, College Credit is a course title covering any CTE advanced course offered for credit by an accredited post-secondary institution through an adjunct agreement with a secondary school. The intent of this course is to allow students to earn college credit for courses with content that goes beyond that currently approved for high school credit. This course may be used for any dual enrollment course, including a joint program of study involving a postsecondary partnership.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: CTE courses that would help prepare the student for success in this area.
- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

7118 Advanced Civil Construction

(ADV CIV CON)

Advanced Civil Construction builds upon the knowledge and skills learned in the fundamentals course and covers the second half of NCCER Heavy Highway Construction Level 1. Its modules cover topics such as rigging practices, crane safety and emergency procedures, basic principles of cranes, and crane communications. The NCCER Heavy Highway Construction Level 1 certificate and wallet card will also be awarded upon successful completion of this course.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Construction Trades
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7119 Advanced Electrical

(ADV ELEC)

Advanced Electrical covers topics such as alternating current, motors: theory and application, electric lighting, conduit bending, and pull and junction boxes. The second part of the course will cover topics such as conductor installations, cable tray, conductor terminations and splices, grounding and bonding, circuit breakers and fuses, control systems and fundamental concepts. Students will be ready to complete the NCCER Electrical Level 2 certificate upon successful completion of the course.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Construction Trades; and Electrical Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7120 Advanced Plumbing and Pipefitting

(ADV PLB PIPE)

Advanced Plumbing and Pipefitting prepares students for more advanced installations including structural penetrations, insulations, and water heaters. Additionally, students will gain a better understanding of basic electricity and fuel systems that are required for these advanced installations.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Construction Trades; and Plumbing and Pipefitting Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7121 Civil Construction Fundamentals

(CIV CON FUN)

Civil Construction Fundamentals covers the first half of NCCER Heavy Highway Construction Level 1. Its modules cover topics such as orientation to the trade, identification of equipment used in heavy highway construction, heavy highway construction safety, work-zone safety, soils, site work, excavation math, and interpreting civil drawings. The NCCER Heavy Highway

Construction Level 1 certificate will not be awarded until the student successfully completes both this course and Advanced Civil Construction.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Construction Trades
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7122 Construction Trades: Framing and Finishing

(CON TRD FR FIN)

Construction Trades: Framing and Finishing covers NCCER Carpentry Framing and Finishing Level 2. Its modules cover topics such as commercial drawings, roofing applications, thermal and moisture protection, exterior finishing, cold-formed steel framing, drywall installation and finishing, doors and door hardware, suspended ceilings, window, door, floor, and ceiling trim, and cabinet installation.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Construction Trades; and Construction Trades: General Carpentry
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7123 Construction Trades: General Carpentry

(CON TRD GC)

Construction Trades: General Carpentry covers the NCCER Carpentry Level 1. Its modules cover topics such as building materials, fasteners, adhesives, hand and power tools, introduction to construction drawings, specifications, layout, floor systems, wall systems, ceiling joist and roof framing, basic stair layout, and introduction to building envelope systems.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Construction Trades
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7124 Electrical Fundamentals

(ELEC FUN)

This course covers NCCER Electrical Level 1. Its modules cover topics such as orientation to the electrical trade, electrical safety, introduction to electrical circuits, electrical theory, introduction to the National Electrical Code, device boxes, hand bending, raceways and fittings, conductors and cables, basic electrical construction drawings, residential electrical services, and electrical test equipment. The NCCER Electrical Level 1 certificate and wallet card will also be awarded upon successful completion of this course.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Construction Trades
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7125 HVAC Fundamentals

(HVAC FUN)

HVAC Fundamentals introduces fundamentals applicable to the heating and refrigeration phases of air conditioning. Includes types of units, parts, basic controls, functions, and applications. Emphasizes practices, tool and meter use, temperature measurement, heat flow, the combustion process and piping installation practices. Covers the basic sequence of operation for gas, oil and electric furnaces. Introduction to compression systems used in mechanical refrigeration including the refrigeration cycle and system components. Introduces safety procedures, proper use of tools used to install and service refrigeration equipment, refrigerant charging and recovery, system evacuation, calculating superheat and subcooling and using a refrigerant temperature/pressure chart. This course will use lecture, lab and online simulation to prepare students for the nationally recognized certification exam as part of the outcome assessment learning objectives.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of HVAC
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7126 HVAC Service

(HVAC SER)

HVAC Service continues the study of air conditioning and refrigeration along with the procedures used to analyze mechanical and electrical problems encountered when servicing heating systems. Students will better understand compressors, metering devices, system recharging, refrigerant recovery, basics of motor types, equipment installation and troubleshooting practices as they apply to air conditioning and refrigeration systems. Additionally, students will be able to understand electrical schematics and connection diagrams, combustion testing, venting and combustion air requirements, sequence of operation, heating controls, troubleshooting techniques, installation practices, basic codes applying to furnace codes, and service procedures. This course will use lecture, lab and online simulation to prepare students for the nationally recognized certification exam as part of the outcome assessment learning objectives.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of HVAC, HVAC Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7127 Interior Design Fundamentals

(INT DES FUN)

This course provides students with an overview of the field of environmental design. Exercises include small scale space analysis and functional planning based on user needs, application of the principles of design, furniture arrangement and selection, materials and finishes considerations and presentation techniques. Content also provides an intensive study of textiles from fiber sources, identification and classification to finish and sustainable qualities. Also introduces the study of interior textile fabrications including window treatments, upholstery, carpet and wall coverings.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Interior Design
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7128 Materials, Finishes, and Design

(MAT FIN DES)

This course examines the physical properties and characteristics of furniture, materials, finishes, and architectural detailing. Content addresses environmental issues and problems in specifying, estimating, and installing these materials. Study also involves the requirements and space planning for kitchens and baths, utilizing industry standards.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Interior Design; and Interior Design Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7129 Plumbing and Pipefitting Fundamentals

(PLB PIPE FUN)

Plumbing and Pipefitting Fundamentals will build on the knowledge and skills developed in the principles course. Students will gain a better understanding of a variety of plumbing materials and fittings. As well as focus on common plumbing installations including piping, drains, fixtures and valves.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Construction Trades
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7130 Principles of Construction Trades

(PRIN CON TR)

Principles of Construction Trades covers the NCCER Core Curriculum and is a prerequisite to most other construction courses. Its modules cover topics such as basic safety, communication skills, and introduction to construction drawings; all basic skills needed to continue education in the construction program.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none

- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7131 Principles of Heating, Ventilation, and Air Conditioning (HVAC)

(PRN HVAC)

Principles of Heating, Ventilation and Air Conditioning (HVAC) This covers many of the topics needed for students to be successful in the mechanical construction industry. Its modules include history of HVAC industry, OSHA 10-hour construction industry training, communication and customer service skills. This course will also cover basic electricity concepts.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7132 Principles of Interior Design

(PRIN INT DES)

This course provides students with an overview of skills and strategies necessary to reach their educational, career, and life objectives. Topics include time management, study skills, learning styles, campus and community resources, critical thinking, utilization of technology, career skills, and diversity in society. Content also 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, critical peer evaluation, and presentation skills. The course provides an understanding of conventional and green building practices, building structures, residential construction techniques, building materials and plan reading. Includes building codes, sustainable design practices, and the preparation of site and construction plans, elevations, sections, three-dimensional drawings details and hand renderings as they relate to construction and presentation drawings.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum

- Counts as a directed elective or elective for all diplomas

7133 Principles of Plumbing and Pipefitting

(PRIN PLB PIPE)

Principles of Plumbing and Pipefitting covers much of the NCCER Level I curriculum for Plumbing and is a prerequisite to future plumbing courses. Its modules cover topics such as an introduction to the plumbing profession, basic safety, tools used in the plumbing trade, an introduction to plumbing drawings, and all basic skills needed to continue education in the plumbing program.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4516 Computer Illustration and Graphics

(COMP ILL GRPH)

Computer Illustration and Graphics introduces students to the computer's use in visual communication. The focus of the course is on basic computer terminology and use, mastering fundamental skills, and developing efficient working styles. These skills are then developed by creating work with imaging, drawing, interactive, and page layout software. The course 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. This course also covers advertising theory and preparation of copy, lettering, posters, vector illustrations, graphics and logos, and artwork in addition to incorporation of photographic images. Communication skills will be emphasized through the study of effective methods used to design products that impart information and ideas. Advanced instruction might include experiences in silk screening and air brush techniques as well as activities in designing product packaging and commercial displays or exhibits.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Digital Applications and Responsibility
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4576 Arts, AV Tech and Communication: Special Topics

(AAVTC ST)

Arts, AV Tech and Communication: Special Topics is an extended learning experience designed to address the advancement and specialization of careers within the career cluster through the provision of a specialized course for a specific workforce need in the school's region. The learning experience is at a qualified site, and is designed to give the student the opportunity to learn and practice technical skills; while working under the direction of the appropriately licensed professional. Throughout the course, students will focus on learning about employment opportunities and obtaining the knowledge, skills and attitudes essential for success in specific occupations. Course standards and curriculum must be tailored to the specific profession, preparing students to advance in this career field, and where applicable, provide students with opportunities for certification or dual credit. Participation in a related CTSO encourages the development of leadership, communication and career related skills, and opportunities for community service.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Communication
- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

4790 Introduction to Communications

(INT COMM)

Introduction to Communications is a course designed to provide a foundational knowledge of identifying and using modern communication to exchange messages and information. This course explores the application of the tools, materials, and techniques used to design, produce, use, and assess systems of communication. Students will produce graphic and electronic media as they apply communication technologies. This course will also explore the various technical processes used to link ideas and people through the use of electronic and graphic media. Major goals of this course include an overview of communication technology; the way it has evolved, how messages are designed and produced, and how people may profit from creating information services and products. Students will explore mass media communication processes including radio and television broadcasting, publishing and printing activities, telecommunication networks, recording services, computer and data processing networks, and other related systems. Students will use the design process to solve design projects in each communication area.

- Recommended Grade: 9, 10
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 or 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4834 Design Fundamentals

(DES FUND)

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 area of communication technology. Student learning experiences encompass art history, art criticism, aesthetics, and production, which lead to the creation of portfolio-quality works. Students reflect upon and refine their work; explore cultural and historical connections; analyze, interpret, theorize, and make informed judgments about artwork and the nature of art in areas of communication; relate art to other disciplines and discover opportunities for integration; and incorporate literacy and presentational skills.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Communications
- Credits: Credits: 1 or 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Fulfills a Fine Arts requirement for the Core 40 Academic Honors Diploma

5232 Interactive Media

(INT MEDIA)

Interactive Media prepares students for careers in business and industry working with interactive media products and services which includes the entertainment industries. This course emphasizes the development of digitally-generated or computer-enhanced products using multimedia technologies. Students will develop an understanding of professional business practices including the importance of ethics, communication skills, and knowledge of the “virtual workplace.”

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Communications; Digital Applications and Responsibility

- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5232 Applied Interactive Media

(INT MEDIA)

Applied Interactive Media prepares students for careers in business and industry working with interactive media products and services; which includes the entertainment industries. This course emphasizes the development and use of digitally generated or computer-enhanced products. Students will develop an understanding of professional business practices including the importance of ethics, communication skills, and knowledge of the “virtual workplace”.

- Recommended Grade: 11,12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits:
- Counts as an elective or Employability requirement for the Certificate of Completion

5380 Introduction to Fashion & Textiles

(FSHNTX)

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, aesthetics, criticism, history and production; 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. Direct, concrete mathematics proficiencies will be applied. Service learning and other authentic applications are strongly recommended. This course provides the foundation for continuing and post-secondary education in fashion, textile, and apparel-related careers.

- Recommended Grade: 9, 10, 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none

- Credits: Credits: 1 or 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Fulfills a Fine Arts requirement for the Core 40 Academic Honors Diploma

5420 Fashion & Textiles Careers I

(FSHN TXT I)

Fashion and Textiles Careers I prepares students for occupations and higher education programs of study related to the entire spectrum of careers in the fashion industry. This course builds a foundation that prepares students to enter the Fashion Careers II course. 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 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. A standards-based plan guides the students' field experiences. Students are monitored in their field experiences by the Education Professions II teacher. Articulation with post-secondary programs is encouraged.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Preparing for College and Careers; Introduction to Fashion and Textiles Foundations; Entrepreneurship and Marketing courses
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5421 Fashion & Textiles Careers II

(FSHNTX II)

Fashion and Textiles Careers II prepares students for occupations and higher education programs of study related to the entire spectrum of careers in the fashion industry. This course builds a foundation that prepares students to enter into higher education programs of study related to the entire spectrum of the career clusters that encompass careers in fashion, apparel, and other textiles management, production, and services. Major topics include: fashion design, application of design elements and principles, the business of fashion designers, evaluating manufacturing processes, reviewing distribution processes in the fashion industry, garment costs and business math, reviewing the processes from fiber production to items of

clothing being worn, overall review of the textile and apparel industry, fashion promotion, dynamics of fashion demand, writing fashion copy, investigation of fashion designers, customer relations and best practices, fashion merchandising, operational costs, forecasting trends, use of technology in 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. Student experiences may be either school-based or "on-the-job" or a combination of the two. Work based experiences in the fashion industry are strongly encouraged. A standards-based plan guides the students' experiences. This course is a core component of four-year career plans for the career clusters of Personal & Commercial Services; Manufacturing & Processing; and Art, A/V Technology & Communications. It is recommended for students with interests in apparel, textiles, and fashion career pathways and provides the foundation for continuing study. Students are monitored in their experiences by the Fashion Careers II teacher. Articulation with post- secondary programs is encouraged.

- Recommended Grade: 12
- Required Prerequisites: Fashion and Textiles Careers I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5530 3D Computer Animation and Visualization

(3D CMP AN)

3D Computer Animation and Visualization prepares students to use computer applications and related visual and sound imaging techniques to create and manipulate images and information. The course includes instruction in three-dimensional solid model creation, sketching, and storyboarding, time and motion study, color and lighting studies, and camera positioning. Using current computer animation software that reflects industry standards, students should produce projects for commercial applications in one or more of the following areas: engineering, architectural, or industrial design; marketing; video production; internet design; electronic gaming; and, education and training.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Computers in Design and Production
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5550 Graphic Design and Layout

(GRAPH DES LT)

Graphic Design and Layout 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.

- Recommended Grade: 11, 12
- Required Prerequisites: NLPS- Principles of Visual Communication
- Recommended Prerequisites: Computer Illustration and Graphics
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5570 Commercial Photography

(COMM PHOTO)

Commercial Photography is an organized learning experience that includes theory, laboratory, and studio work as each relates to all phases of camera use, photographic processing, and electronic photographic editing. Instruction covers the topics of composition and color dynamics; contact printing and enlarging; developing film; lighting techniques and meters; large and medium format cameras and other current photographic equipment used for portrait, commercial, and industrial photography. Focus is placed on camera operation and composition related to traditional photographic principles and also tools and creative effects for editing and/or enhancing photographs. Instruction emphasizes the planning, development, and production of materials that visually communicate ideas and information.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Communications
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5572 Graphic Imaging Technology

(GRAPH TECH)

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 student's 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.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Computer Illustration and Graphics
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5986 Radio and Television I

(RAD TV I)

Radio and Television I focuses on communication, media and production. Emphasis is placed on career opportunities, production, programming, promotion, sales, performance, and equipment operation. Students will also study the history of communication systems as well as communication ethics and law. Students will develop oral and written communication skills, acquire software and equipment operation abilities, and integrate teamwork skills. Instructional strategies may include a hands-on school-based enterprise, real and/or simulated occupational experiences, job shadowing, field trips, and internships.

- Recommended Grade: 11,12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Communications
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5992 Radio and Television II

(RAD TV II)

Radio and Television II prepares students for admission to television production programs at institutions of higher learning. Students train on professional equipment creating a variety of video projects. During this second-year program students integrate and build on first-year curriculum while mastering advanced concepts in production, lighting and audio.

- Recommended Grade: 12
- Required Prerequisites: Radio and Television I
- Recommended Prerequisites: none
- Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

6134 Advanced Career & Technical Education, College Credit: Arts, AV Tech and Comm

(ADV CTE CC AATC)

Advanced Career and Technical Education, College Credit is a course title covering any CTE advanced course offered for credit by an accredited post-secondary institution through an adjunct agreement with a secondary school. The intent of this course is to allow students to earn college credit for courses with content that goes beyond that currently approved for high school credit. This course may be used for any dual enrollment course, including a joint program of study involving a postsecondary partnership.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: CTE courses that would help prepare the student for success in this area.
- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

7134 Advanced Graphic Design

(ADV GR DES)

This course addresses the issues pertinent to the proper and creative use of type and the enhancement of communication. Covers the history of type, typographic terminology, design, attention to aesthetics, common sense, and how we read. It introduces students to a full range

of image input technology and manipulation including conventional photography, digital imaging, and computer scanners. Students will learn to communicate concepts and ideas through various imaging devices. Projects emphasize an appreciation of the practical use of type, explore composition, and foster creativity.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Visual Communication; and Graphic Design and Layout
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7135 Audio and Video Production

(AUD VID PROD)

Audio and Video Production provides an in-depth study on audio and video production techniques for radio, television, and digital technologies. Students will learn skills necessary for audio production and on-air work used in radio and other digital formats. Additionally, experience will be gained in the development of the video production process; including skills in message development, directing, camera, video switcher, and character generator operations.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Radio & TV
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7136 Intermediate Photography

(INTM PHOTO)

This course further develops advanced camera skills and black and white photographic vision. Special attention is placed on the practice and theory of the zone system. The course introduces special techniques and digital processes while refining black and white printing and processing skills. It will also emphasize good composition and the use of photography as a communication tool. Additionally, this course develops photographic skills out in the field. Focus will be placed on a variety of situations, on-location, which photographers may be faced with in the photographic profession. Possibilities include photographing state parks, the zoo,

sporting events, theatrical productions, concerts, botanical gardens, and metropolitan areas. The course introduces equipment and techniques unique to photographing out in the field.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Visual Communication; and Visual Communication Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7137 Mass Media Performance

(MASS MED PERF)

Students will study the theory and practice in the voice and visual aspects of radio and television performance. In addition, this course introduces the skills used to acquire and deliver news stories in a digital media format. Students will learn how to research issues and events, interview news sources, interact with law enforcement and government officials, along with learning to write in a comprehensive news style.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Radio & TV
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7138 Motion Graphics

(MOT GRAPH)

This course introduces students to a full range of image input technology and manipulation including conventional photography, digital imaging, and computer scanners. Students will learn to communicate concepts and ideas through various imaging devices. Study explores composition and fosters creativity. Additionally, this course examines the virtual world of 2-D and how it can be applied as an illustration and animation element in multimedia. Students explore navigation, modeling, rendering, animation, and camera and lighting techniques

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Visual Communication; and Visual Communication Fundamentals
- Recommended Prerequisites: none

- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7139 Principles of Radio and TV

(PRIN RAD TV)

Principles of Radio & TV provides an introduction to the fundamentals of digital production. Students will develop basic skills in digital production techniques for audio, video, studio, and field production.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7140 Principles of Visual Communication

(PRIN VIS COMMS)

This course introduces students to fundamental design theory and fundamental computer graphics in visual communications. Investigations into design theory and color dynamics will provide experiences in applying design theory, ideas and creative problem solving, critical peer evaluation, and presentation skills. This course will include basic computer terminology and use, mastering fundamental skills, and developing efficient working styles. These skills are further developed through work with vector-based, raster-based, and page layout software used in the professional visual communications industry.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7141 Visual Communication Fundamentals

(VIS COMMS FUN)

This course is an introduction to the field of video technology. Students will learn the basics of planning, shooting, editing and post-producing video and sound. Projects include exercises in technical and creative skills application, equipment usage and production techniques.

Additionally, this course covers basic photographic theory and technique. Includes image capture, processing, various output methods and physics of light. Study of cameras, lenses, exposure, characteristics of photographic media and output

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Visual Communication
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4508 Technical/Business Communication

(TECH BUS COMM)

Technical/Business Communications provides students with the communication and problem-solving skills to function effectively in the workplace. Areas study include written/oral/visual communication, listening, informational reading, Internet research/analysis, and electronic communication. Concepts addressed will included adapting communication to the situation, purpose, and audience. Students produce documents related employee handbooks, instructional manuals, employment communication, organizational communication, business reports, and social/professional situations using word processing, presentation, multimedia, and desktop publishing software.

- Recommended Grade: 11,12
- Required Prerequisites: none
- Recommended Prerequisites: Digital Applications and Responsibility
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4512 Business Math

(BUS MATH)

Business Math is a course designed to prepare students for roles as entrepreneurs, producers, and business leaders by developing abilities and skills that are part of any business environment. A solid understanding of math including algebra, basic geometry, statistics, and probability provides the necessary foundation for students interested in careers in business and skilled trade areas. The content includes mathematical operations related to accounting, banking and finance, marketing, and management. Instructional strategies should include simulations, guest speakers, tours, Internet research, and business experiences.

- Recommended Grade: 10, 11
- Required Prerequisites: Algebra I
- Recommended Prerequisites: none
- Credits: Credits: 1 to 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as an elective or directed elective for all diplomas
- Fulfills a Mathematics requirement for the General Diploma or Certificate of Completion only.
- Qualifies as a quantitative reasoning course

4512 Applied Business Math

(BUS MATH)

Applied Business Math is a course designed to prepare students for roles as entrepreneurs, producers, and business leaders by developing abilities and skills that are part of any business environment. A solid understanding of application of money management skills, navigating industry specific technology and apps, establishing and managing budgets, and maintaining inventory for products and other necessary skills that provides the foundation for students interested in careers in business related fields and everyday life. The content includes basic mathematical operations related to accounting, banking and finance, marketing, management, and retail. Instructional strategies should include simulations, guest speakers, tours, Internet research, and business experiences

- Recommended Grade: 10, 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits:
- Counts as an elective for the Certificate of Completion
- Fulfills a Mathematics requirement for the Certificate of Completion
- Qualifies as a quantitative reasoning course

7218 Technical Math

(TECH MATH)

Technical Math is designed to help students develop mathematical reasoning and real-world skills in analyzing verbal and written descriptions, translating them into algebraic, geometric, trigonometric and statistical statements and applying them to solve problems in fabrication, manufacturing, and business. The course will include at least six lab activities or projects to allow faculty and students to apply mathematics principles to work-related situations.

- Recommended Grade: 10, 11
- Required Prerequisites: Algebra I
- Recommended Prerequisites: none
- Credits: Credits: 1 to 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as directed elective or elective for all diplomas

4518 Introduction to Business

(INTO BUSS)

Introduction to Business introduces students to the world of business, including the concepts, functions, and skills required for meeting the challenges of operating a business in the twenty-first century on a local, national, and/or international scale. The course covers business management, entrepreneurship, marketing fundamentals, and business ethics and law. The course develops business vocabulary and provides an overview of business and the role that business plays in economic, social, and political environments.

- Recommended Grade: 9, 10
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 to 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4522 Advanced Accounting

(ADV ACC)

Advanced Accounting expands on the Generally Accepted Accounting Principles (GAAP) and procedures for proprietorships and partnerships using double-entry accounting covered in Introduction to 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.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Accounting Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

4524 Accounting Fundamentals

(INTO ACCT)

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.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective all diplomas

4558 Global Economics

(GLOB ECON)

Global Economics is a course that provides students with an understanding of their role as consumers and producers in domestic and global economies. This course enables students to understand how the economic system operates while comprehending their role in that system. Students deal with public policy, international economics, microeconomics, and macroeconomics in comparing economic systems and using selected economic measures.

Instructional strategies may include development of a school-based enterprise, case studies, field trips, guest speakers, job shadowing, simulations, Internet research, and business experiences.

- Recommended Grade: 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 semester course, 1 credit per semester, 1 credit maximum
- Counts as a directed elective or elective for all diplomas
- May count as the one credit of the Economics graduation requirement
- Qualifies as a quantitative reasoning course (NOTE: Will no longer be considered a quantitative reasoning course after 2021-2022)

4560 Business Law and Ethics

(BUS LAW ETH)

Business Law and Ethics provides an overview of the legal system in the business setting. Topics covered include: basics of the judicial system, contract, personal, employment and property law. Application of legal principles and ethical decision-making techniques are presented through problem-solving methods, case review, and situational analyses.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 to 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4562 Principles of Business Management

(BUS MGMT)

Principles of Business Management focuses on the roles and responsibilities of managers as well as opportunities and challenges of ethically managing a business in the free-enterprise system. Students will attain an understanding of management, team building, leadership, problem-solving steps and processes that contribute to the achievement of organizational goals. The management of human and financial resources is emphasized.

- Recommended Grade: 11,12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Business
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5258 Banking and Investment Capstone

(BANK INVEST)

Banking and Investment Capstone 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. The course provides students with work based learning experiences to acquire and apply knowledge and skills in one or more careers in the industry.

- Recommended Grade: 12
- Required Prerequisites: Introduction to Accounting; and Advanced Accounting
- Recommended Prerequisites: Algebra II
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

5268 Administrative and Office Management

(ADV BUS)

Administrative and Office Management prepares students to plan, organize, direct, and control the functions and processes of a firm or organization and to perform business-related functions. Students are provided opportunities to develop aptitudes and apply skills and knowledge in the areas of business administration, management, and finance. Individual experiences will be based upon the student's career and educational goals.

- Recommended Grade: 12
- Required Prerequisites: Principles of Business Management or Marketing Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-2 credits per semester, 4 credits maximum
- Counts as a directed elective or elective for all diplomas

5601 Supply Chain Management and Logistics

(SCM LGST)

Supply Chain Management and Logistics is a study of the basic concepts included in the field of logistics and supply chain management. Topics covered include: supply chain management,

customer service, transportation, purchasing, inventory, and warehouse management and introduces students to the various components of logistics. Topics will include logistics systems, supply chain management, order, demand inventory and warehouse management, and the control systems and automated components of logistics systems. The course also focuses on the terminology of supply chain management including the history, integration into the business plan, partnerships, profits and saving potential, sources of supply and other issues concerning supply chain management and operating environments. This course includes MSSC concepts required to earn the CLA/CLT MSSC certification.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5602 Warehouse Operations and Materials Handling

(WOMH)

Warehouse Operations and Materials Handling introduces the physical components of finished product handling. The focus is on the methods, mechanical equipment, systems and related controls used to achieve these functions. Topics covered include product receiving, storage methods, order picking, inventory control, lean concepts, packaging, and palletizing. Operating and maintaining material handling equipment in a safe and efficient manner in an industrial setting is stressed. The course applies these concepts to develop a work environment that promotes continuous improvement, eliminates waste, reduces operating cost, improves quality, and achieves measurable improvement in customer satisfaction.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Advanced Manufacturing and Logistics
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5914 Marketing Fundamentals

(PRN MRKT)

Marketing Fundamentals provides a basic introduction to the scope and importance of marketing in the global economy. Emphasis is placed on oral and written communications, mathematical applications, problem-solving, and critical thinking skills as they relate to advertising/promotion/selling, distribution, financing, marketing-information management, pricing, and product/service management.

- Recommended Grade: 11,12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5918 Strategic Marketing

(STRT MRKT)

Strategic Marketing builds upon the foundations of marketing and applies the functions of marketing at an advanced level. Students will study the basic principles of consumer behavior and examine the application of theories from psychology, social psychology, and economics. The relationship between consumer behavior and marketing activities will be reviewed.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: NLPS- Principles of Business; and Marketing Fundamentals
- Recommended Prerequisites: Principles of Business Management or Marketing Fundamentals
- Credits: Credits: 2 semester course, 2 semesters required, 1-2 credits per semester, 4 credits maximum
- Counts as a directed elective or elective for all diplomas

5962 Merchandising

(MERCH)

Merchandising is a specialized marketing course providing instruction of marketing practices that support the sale of products to retail consumers. Emphasis is placed on oral and written communications, problem solving and critical thinking skills as they relate to product design, selling, pricing, distribution, retail promotion, visual merchandising, retail cycles, retail theories,

and career opportunities in the retail industry. This course can focus on a specific retail sector, such as fashion, sporting goods, or electronics.

- Recommended Grade: 11, 12
- Required Prerequisites: Marketing Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 1 to 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5966 Entrepreneurship and New Ventures Capstone

(ENT VENT CAP)

Entrepreneurship and New Ventures Capstone introduces entrepreneurship and develops skills and tools critical for starting and succeeding in a new venture. The entrepreneurial process of opportunity recognition, innovation, value proposition, competitive advantage, venture concept, feasibility analysis, and “go to” market strategies will be explored through mini-case studies of successful and unsuccessful entrepreneurial start-ups. Additionally, topics of government and legal restrictions, intellectual property, franchising location, basic business accounting, raising startup funding, sales and revenue forecasting, and business plan development will be presented through extensive use of word processing, spreadsheet and presentation software.

- Recommended Grade: 12
- Required Prerequisites: a minimum of 4 credits of introductory or advanced career and technical education courses from the Business and Marketing career cluster: Introduction to Business, Introduction to Entrepreneurship, Principles of Business Management, Marketing Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5967 Introduction to Entrepreneurship

(INTO ENTR)

Introduction to Entrepreneurship provides an overview of what it means to be an entrepreneur. Students will learn about starting and operating a business, marketing products and services, and how to find resources to help in the development of a new venture. This course is ideal for students interested in starting their own art gallery, salon, restaurant, etc.

- Recommended Grade: 9, 10
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 to 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5968 Business, Marketing and Entrepreneurship: Special Topics

(BME ST)

Business, Marketing, and Entrepreneurship: Special Topics is an extended learning experience designed to address the advancement and specialization of careers within the career cluster through the provision of a specialized course for a specific workforce need in the school's region. The learning experience is at a qualified site, and is designed to give the student the opportunity to learn and practice technical skills; while working under the direction of the appropriately licensed professional. Throughout the course, students will focus on learning about employment opportunities and obtaining the knowledge, skills and attitudes essential for success in specific occupations. Course standards and curriculum must be tailored to the specific profession, preparing students to advance in this career field, and where applicable, provide students with opportunities for certification or dual credit. Participation in a related CTSO encourages the development of leadership, communication and career related skills, and opportunities for community service.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Business or Introduction to Entrepreneurship
- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

5982 Marketing in Hospitality and Tourism

(MKT HOSP)

Marketing in Hospitality and Tourism is a specialized course that develops student understanding of marketing in the hospitality, travel, and tourism industry. Students gain experiences marketing-information management, pricing, product/service management, promotion, and selling in the hospitality, travel, and tourism

- Recommended Grade: 11, 12
- Required Prerequisites: Marketing Fundamentals

- Recommended Prerequisites: none
- Credits: Credits: 1 to 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5984 Sports and Entertainment Marketing

(SPRT ENT MRK)

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.

- Recommended Grade: 11, 12
- Required Prerequisites: Marketing Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 1 to 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

6142 Advanced Career & Technical Education, College Credit: Business, Marketing, and Entrepreneurship

(ADV BUS CC BME)

Advanced Career and Technical Education, College Credit is a course title covering any CTE advanced course offered for credit by an accredited post-secondary institution through an adjunct agreement with a secondary school. The intent of this course is to allow students to earn college credit for courses with content that goes beyond that currently approved for high school credit. This course may be used for any dual enrollment course, including a joint program of study involving a postsecondary partnership.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: CTE courses that would help prepare the student for success in this area.
- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits

- Counts as a directed elective or elective for all diplomas

7142 Advanced Supply Chain Management

(ADV SUP CH MAN)

Advanced Supply Chain Management will build upon the knowledge and skills developed in the fundamentals course by focusing on specific aspects of Supply Chain Management such as procurement, operations management, and transportation systems.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Business, Supply Chain Management Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7143 Business Administration Fundamentals

(BUS ADM FUN)

Business Administration Fundamentals describes the functions of managers, including the management of activities and personnel. Students will also study key Marketing concepts including environmental analysis, marketing research, consumer behavior, segmenting, targeting, positioning, branding, product management, price strategy, supply chain management, integrated marketing communications, and market analytics. Students will be asked to apply management and marketing principles through the development of a business plan.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Business
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7144 Business Office Communications

(BUS OFF COMM)

The Business Office Communications course emphasizes the analysis of business communication environments and the use of communications standards to direct the choice of oral and written communication methods and techniques. It includes practice in writing a

variety of messages used to communicate in business and industry with an emphasis on the potential impact of the message on the receiver as a basis for planning and delivering effective business communications. Through projects and the development of messages students will develop their knowledge and skills for the use of Microsoft Word and Microsoft PowerPoint.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Business Operations and Technology
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7145 Digital Marketing

(DGTL MARK)

Digital Marketing provides an introduction to the world of e-commerce and digital marketing media. The course covers how to integrate digital media and e-commerce into organizational and marketing strategy. Students will explore e-commerce applications and the most popular digital marketing tactics and tools. Emphasizes familiarity with executing digital media, understanding the marketing objectives that digital media can help organizations achieve, and establishing and enhancing an organization's digital marketing presence.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Business, Marketing Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7146 Digital Record Keeping

(DGTL REC KEEP)

Students will study activities required for records filing and storage, methods for managing records systems, and managing the administration of the life-cycle of business essential records. Students will use Microsoft Excel to sort and search records, combine files, produce reports, and to extract data from a file will be presented. This course is designed to include creating and formatting worksheets, using formulas and basic functions, creating charts, and printing professional-looking reports. Additionally students will use Microsoft Access to create a database and to manage a database through the creation and modification of a query. Students will also be expected to produce reports from the information.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Business Operations and Technology
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7147 Entrepreneurial Financial Management

(ENT FIN MAN)

Entrepreneurial Financial Management will help students identify and evaluate the various sources available for funding a new enterprise; demonstrate an understanding of financial terminology; read, prepare, and analyze basic financial statements; estimating capital requirements and risk, exit strategies; and prepare a budget for their business, including taxes and personnel costs. In addition, the student should be able to explain the importance of working capital and cash management. The student should also be able to identify financing needs, and prepare sales forecasts.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Entrepreneurship
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7148 Entrepreneurial Marketing and Management

(ENT MAR MAN)

Entrepreneurial Marketing and Management is targeted to students interested in creating and growing their own businesses. The course will focus on key marketing strategies particularly relevant for new ventures. Students will apply marketing concepts to entrepreneurial company challenges, which include creating and nurturing relationships with new customers, suppliers, distributors, employees and investors; and understand the special challenges and opportunities involved in developing marketing strategies "from the ground up."

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Entrepreneurship
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum

- Counts as a directed elective or elective for all diplomas

7149 Insurance Fundamentals

(INS FUN)

Insurance Fundamentals presents an introduction to professions within the insurance industry. The course includes an overview of the insurance industry, types of coverage that exist, insurance processes and expected outcomes. Students will also gain an understanding of the selling process including the psychology of selling and will develop skills through a series of selling situations.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Business
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7150 Money and Banking

(MON BANK)

Money and Banking addresses the needs 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. The course provides students with work based learning experiences to acquire and apply knowledge and skills in one or more careers in the industry.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Business
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7151 Personal and Property Insurance

(PER PROP INS)

Personal and Property Insurance provides an understanding of the basic principles of personal and property and liability insurance. Students will analyze personal loss exposures and insurance including homeowners and other dwelling coverages, personal liability, inland marine, auto, life, health insurance, and financial planning.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Business, Insurance Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7152 Principles of Business

(PRIN BUS)

Principles of Business examines American business including business ownership, organization principles and problems, management, control facilities, administration, financial management, and development practices of American 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 Microsoft Word, Excel, Access, and PowerPoint.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7153 Principles of Business Operations and Technology

(PRIN BUS OP TECH)

The Principles of Business Operations and Technology course will prepare students to plan, organize, direct, and control the functions and processes of a firm or organization and be successful in a work environment. Students are provided opportunities to develop attitudes and

apply skills and knowledge in the areas of business administration, management, and finance. Individual experiences will be based upon the student's career and educational goals.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7154 Principles of Entrepreneurship

(PRIN ENTR)

Principles of Entrepreneurship focuses on the characteristics of a successful entrepreneur and the creation of a business concept. The course helps students explore the answers to questions about what is on the entrepreneur journey before the idea is launched in the world. Is your idea worth pursuing? What are the risks in starting a business? The course helps students apply what they have learned from the content when they write a Personal Vision Statement, a Business Concept Statement, and an Elevator Pitch.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7155 Supply Chain Management Fundamentals

(SUP CH MAN FUN)

Supply Chain Management Fundamentals is a study of the various components of logistics and the strategic supply chain concepts included in the field of logistics and supply chain management. Topics covered include: supply chain strategy, planning and design, customer service, transportation, purchasing, forecasting, inventory and warehouse management. Also discussed are global supply chain management, managing supply chain risk and financial control of logistics performance.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Business
- Recommended Prerequisites: none

- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4540 Applied Personal Financial Responsibility

(PRS FIN RSP)

Applied 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 and apply skills in financial literacy and responsible decision making. Content includes analyzing personal standards, needs, wants, and goals; identifying sources of income, and navigating technology for money management. A project based approach and applications through authentic settings such as work based observations, service learning experiences and community-based instruction are appropriate. Direct, concrete applications of basic mathematics proficiencies in projects are encouraged.

- Recommended Grade: 9,10,11,12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits:
- Counts as an elective for the Certificate of Completion
- Qualifies as an Applied Math course for the Certificate of Completion

4540 Personal Financial Responsibility

(PRSFINRSP)

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.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: none

- Recommended Prerequisites: none
- Credits: Credits: 1 credit per semester, 1 credit maximum
- Counts as a directed elective or elective for all diplomas Qualifies as a quantitative reasoning course

5237 CTSO Leadership Development in Action

(LEAD DEV)

Leadership Development in Action is a project-based course in which students integrate higher order thinking, communication, leadership, and management processes to conduct Career and Technical Student Organization (CTSO) leadership projects at the local, state, or national level. Each student will create a vision statement, establish standards and goals, design and implement an action plan and timeline, reflect on accomplishments, and evaluate results.

Authentic, independent application through CTSO student-directed programs or projects, internship, community-based study, or in-depth laboratory experience is required. Research and development, interdisciplinary projects, and/or collaboration with post-secondary faculty, community agencies, or organizations are appropriate approaches. Instructor must be a current chapter advisor of an Indiana-recognized CTSO. State and national membership in an Indiana recognized CTSO is required of any student enrolled in this course. Service learning experiences are highly recommended. Achievement of applicable Career and Technical Education (CTE), academic, and employability standards will be documented through a required student portfolio.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Preparing for College and Careers and a sequence of courses relevant to the student's CTSO, depending on area of concentration; or permission of instructor through an application process.
- Credits: Credits: 1 credit per semester, up to 6 semesters, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5239 Career & Technical Education Pilot Course: (Insert title descriptive of course content)

(CTE PILOT)

Career and Technical Education Pilot Course is a course title that would be used for enrollment reporting purposes by schools that are piloting a new Career and Technical Education course. Schools must apply to the Indiana Department of Education for a non-standard course waiver and propose a course description and standards, explain how the pilot course relates to an

existing or innovative pathway, and provide a rationale describing business and industry need and support. Schools are to follow the pilot course framework and provide feedback at the end of the pilot year on that framework to the Department and the related pathway panel.

- Recommended Grade: 9, 10, 11, 12
- Required Prerequisites: Determined by the CTE Nonstandard Course Waiver
- Recommended Prerequisites: none
- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Determined via the CTE Nonstandard Course Waiver process

5394 Preparing for College and Careers

(PREP CC)

Preparing for College and Careers addresses the knowledge, skills, and behaviors all students need to be prepared for success in college, career, and life. The focus of the course 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, and management processes; exploration of personal aptitudes, interests, values, and goals, examining multiple life roles and responsibilities as individuals and family members, planning and building employability skills, transferring school skills to life and work; and managing personal resources. This course includes reviewing the 16 national career clusters and Indiana's College and Career Pathways, in-depth investigation of one or more pathways, reviewing graduation plans, developing career plans, and developing personal and career portfolios. A project based approach, including computer and technology applications, cooperative ventures between school and community, simulations, and real world experiences, is recommended.

- Recommended Grade: 9
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 to 2 semester course, 1 credit per semester, 2 credits maximum
- Only 1 credit may count toward CTE Concentrator Status for Perkins IV Pathways
- Qualifies as one of the FACS courses a student can take to waive the Health & Wellness graduation requirement. To qualify for a waiver, a student must take three of the approved courses. For more information, please see 511 IAC 6-7.1-4(c)(6).

5394 Applied Preparing for College and Careers

(PREP CC)

Applied Preparing for College and Careers addresses the knowledge, skills, and behaviors all students need to be prepared for success in college, career, and life. The focus of the course 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, and management processes; exploration of personal aptitudes, interests, values, and goals; examining multiple life roles and responsibilities as individuals and family members, planning and building employability skills; transferring school skills to life and work, and managing personal resources. This course includes reviewing the 16 national career clusters and Indiana's College and Career Pathways, in- depth investigation of one or more pathways, reviewing graduation plans, developing career plans, and developing personal and career portfolios. A project-based approach, including computer and technology applications, cooperative ventures between school and community, simulations, and real life experiences, is recommended.

- Recommended Grade: 9,10,11,12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits:
- Counts as an elective or Employability for the Certificate of Completion

0 Career Exploration Internship

(CARR EXP)

The Career Exploration Internship course is a paid or unpaid work experience in the public or private sector that provides for workplace learning in an area of student career interests. Unlike the work-based Learning capstone course in which students gain expertise in a specific occupation, the career exploration internship is intended to expose students to broad aspects of a particular industry or career cluster area by rotating through a variety of work sites or departments. In addition to their workplace learning activities, students participate in 1) regularly scheduled meetings with their classroom teacher, or 2) a regularly scheduled seminar with the teacher for the purpose of helping students make the connection between academic learning and their work-related experiences. Specific instructional standards tied to the career cluster or pathway and learning objectives for the internship must be written to clarify the expectations of all parties – the student, parent, employer, and instructor.

- Recommended Grade: 9, 10, 11, 12
- Required Prerequisites: none

- Recommended Prerequisites: Preparing for College and Careers; Career Information and Exploration
- Credits: Credits: 1 semester course, 1-3 credits per semester, 6 credits maximum
- A minimum of 85 hours of workplace and classroom activities are required for one credit; 170 hours are required for the two credits. Of the 85 or 170 hours, 18 to 36 hours (at least
- Counts as a directed elective or elective for all diplomas

0 Applied Career Exploration Internship

(CARR EXP)

The Applied Career Exploration Internship course is a paid or unpaid work experience in the public or private sector that provides for workplace learning in an area of student career interest. Unlike a cooperative education program in which students gain expertise in a specific occupation, the career exploration internship is intended to expose students to broad aspects of a particular industry or career cluster area by rotating through a variety of work sites or departments. In addition to their workplace learning activities, students participate in 1) regularly scheduled meetings with their classroom teacher, or 2) a regularly scheduled seminar with the teacher for the purpose of helping students make the connection between academic learning and their work-related experiences. Specific instructional standards tied to the career cluster or pathway and learning objectives for the internship must be written to clarify the expectations of all parties – the student, parent, employer, and instructor.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits:
- Counts as an Employability Requirement, Capstone Course or elective for the Certificate of Completion

5974 Work Based Learning Capstone

(WBL)

Work Based Learning Capstone is a stand-alone course that prepares students for college and career. Work-Based Learning means sustained interactions with industry or community professionals in real workplace settings, to the extent practicable, or simulated environments at an educational institution that foster in-depth, first hand engagement with the tasks required of a given career field, that are aligned to curriculum and instruction. Work Based Learning Capstone experiences occur in workplaces and involve an employer assigning a student meaningful job tasks to develop his or her skills, knowledge, and readiness for work. A clear

partnership agreement and training plan is developed by the student, teacher, and workplace mentor/supervisor to guide the student's work-based experiences and assist in evaluating achievement and performance. Related Instruction shall be organized and planned around the activities associated with the student's individual job and career objectives in a pathway and shall be taught during the same semester the student is participating in the work-based experience. For a student to become employable, the related instruction should cover: (a) employability skills, and (b) specific occupational competencies.

- Recommended Grade: 12
- Required Prerequisites: Complete at least one advanced career and technical education course from a program or program of study. Worksite placement must align to the student pathway.
- Recommended Prerequisites: none
- Credits: Credits: 1 semester course, 1-3 credits per semester, 6 credits maximum
- A minimum of 85 hours of workplace and classroom activities are required for one credit; 170 hours are required for the two credits. Of the 85 or 170 hours, 18 to 36 hours (at least
- Counts as a directed elective or elective for all diplomas

5974 Applied Work Based Learning Capstone

(WBL)

Applied Work Based Learning Capstone is an instructional strategy that can be implemented as a stand-alone course or a component of any CTE course that prepares students for college and career. This strategy builds individual students' skills and knowledge within the area of interest. A standards based training plan is developed by the student, teacher, and workplace mentor to guide the student's work based learning experiences and assist in evaluating progress and performance, whether WBL is a stand-alone course or a component of a discipline-specific CTE course.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits:
- Counts as an Employability Requirement, Capstone Course or elective for the Certificate of Completion

6148 Apprenticeship

(APPSHIP)

Apprenticeships are defined as intensive work-based learning opportunities that generally last from one to six years and provide a combination of on-the-job training and formal classroom instruction. They are intended to support progressive skill acquisition and lead to postsecondary credentials and, in some cases, degrees. Apprenticeships often involve 2,000 to 10,000 on-the-job hours. Students 16-years-old or older may qualify for an apprenticeship. Per the Indiana General Assembly, any apprenticeship program must be registered under the federal National Apprenticeship Act (29 U.S.C. 50 et seq.) or another federal apprenticeship program.

- Recommended Grade: 11, 12
- Required Prerequisites: Dependent on program requirements
- Recommended Prerequisites: Complete at least one advanced career and technical education course from a program or program of study.
- Credits: Credits: 1 semester course, May be taken for successive semesters
- A minimum of 85 hours of workplace and classroom activities are required for one credit; 170 hours are required for the two credits. (1-12 credits)
- Counts as a directed elective or elective for all diplomas

6162 Cooperative Education

(COOP EDU)

Cooperative Education is an approach to employment training that spans all career and technical education program areas through school-based instruction and on the job training. Time allocations are a minimum of fifteen hours per week of on-the-job training and approximately five hours per week of school-based instruction, focused on employability skills development. Additionally, all state and federal laws and regulations related to student employment and cooperative education must be followed.

- Recommended Grade: 12
- Required Prerequisites: none
- Recommended Prerequisites: Preparing for College and Careers, two credits in a career and technical education course
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

6162 Applied Cooperative Education

(COOP EDU)

Applied Cooperative Education is an approach to employment training that spans all career and technical education program areas through school-based instruction and on the job training. Time allocations are a minimum of fifteen hours per week of on-the-job training and approximately five hours per week of school-based instruction, focused on employability skills development. Additionally, all state and federal laws and regulations related to student employment and cooperative education must be followed.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits:
- Counts as an Employability Requirement or elective for the Certificate of Completion

7156 Technical Skills Development

(TECH SKL DEV)

The Technical Skills Development course may be used to provide students with the opportunity to apply the technical knowledge and skills learned in a Concentrator A or B course through additional real world learning experiences such as lab activities, project based learning or a work-based learning experience. Students must be co-enrolled in a Concentrator A and/or B course in order to be enrolled in the Technical Skills Development course.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Concurrently enrolled in a Next Level Programs of Study Concentrator A and/or B course.
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5404 Education Professions II

(ED PROF II)

Education Professions II 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 that utilizes higher order thinking, communication, leadership, and management processes is recommended in order to integrate suggested topics 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. A standards-based plan guides the students' field experiences. Students are monitored in their field experiences by the Education Professions II teacher. Articulation with post-secondary programs is encouraged.

- Recommended Grade: 12
- Required Prerequisites: Education Professions I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5406 Early Childhood Education II

(ECE II)

Early Childhood Education II 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. 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, develop, and document the knowledge, skills, attitudes, and behaviors gained in the foundational course. Major topics of ECE II include: overview of the Child Development Associate (CDA) credential, safe and healthy learning environment, physical and intellectual competence, social and emotional development, relationships with families, program management, and professionalism. The course standards parallel the expectations and documentation required for Child Development Associate (CDA) credentialing. These include rigorous levels of self-critique and reflection, performance assessments by instructors, parents, and other professionals, comprehensive assessment of knowledge through a standardized exam, and other professional documentation. Extensive experiences in one or more early childhood education settings are required: a minimum total of 480 hours must be accrued in ECE I and ECE II. These experiences may be either school-based or "on-the-job" in community-based early childhood education centers, or in a combination of the two. A standards-based plan for each student guides the early childhood education experiences. Students are monitored in these experiences by the Early Childhood Education II teacher. Dual credit agreements with post-secondary programs are encouraged.

- Recommended Grade: 12
- Required Prerequisites: Early Childhood Education I

- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5408 Education Professions I

(ED PROF I)

Education Professions I provides the foundation for employment in education and related careers and prepares students for study in higher education. An active learning approach that utilizes higher order thinking, communication, leadership, and management processes is recommended in order to integrate suggested topics 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 settings and career portfolios are required components. A standards-based plan guides the students' field experiences.

Students are monitored in their field experiences by the Education Professionals I teacher. Articulation with post-secondary programs is encouraged.

- Recommended Grade: 11,12
- Required Prerequisites: none
- Recommended Prerequisites: Nutrition and Wellness; Child Development, Advance Child Development; and Interpersonal Relationships
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5412 Early Childhood Education I

(ECE 1)

Early Childhood Education 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. A project-based approach that utilizes higher order thinking, communication, leadership, and management processes is recommended in order to integrate the study of suggested topics. 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 provides an overview of the history, theory, and foundations of early childhood education as well as exposure to types of programs, curricula, and services available to young children. Students examine basic principles of child development, importance of family, licensing, and elements of quality care of young children. 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, an overview of management and operation of licensed child care facilities or educational settings, child care regulations and licensing requirements, and employability skills. Intensive experiences in one or more early childhood settings, resumes, and career portfolios are required components. A standards-based plan for each student guides the laboratory/field experiences. Students are monitored in their laboratory/field experiences by the Early Childhood Education teacher. Student laboratory/field experiences may be either school-based or "on-the-job" in community-based early childhood education centers or in a combination of the two. Dual credit agreements with post-secondary programs are encouraged.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Nutrition and Wellness; Child Development; and Advanced Child Development
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5976 Education and Training: Special Topics

(ET ST)

Education and Training: Special Topics is an extended learning experience designed to address the advancement and specialization of careers within the career cluster through the provision of a specialized course for a specific workforce need in the school's region. The learning experience is at a qualified site, and is designed to give the student the opportunity to practice technical skills previously learned in the classroom all while working under the direction of the appropriately licensed professional. Throughout the course, students will focus on learning about employment opportunities at a variety of entry levels, an overview of the career cluster, teams, and legal and ethical considerations; and obtaining the knowledge, skills and attitudes essential for success in specific occupations. Course standards and curriculum must be tailored to the specific profession, preparing students to advance in this career field, and where applicable, provide students with opportunities for certification or dual credit. This course also provides students with the knowledge, attitudes, and skills needed to make the transition from high school, to post-secondary opportunities, and to work in a variety of careers. Students are

encouraged to focus on self-analysis to aid in their career selection. Job seeking and job maintenance skills, personal management skills, and completion of the application process for admission into a post-secondary program are also areas of focus. Participation in a related CTSO encourages the development of leadership, communication and career related skills, and opportunities for community service.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

6140 Advanced Career & Technical Education, College Credit: Education and Training

(ADV CTE CC ET)

Advanced Career and Technical Education, College Credit is a course title covering any CTE advanced course offered for credit by an accredited post-secondary institution through an adjunct agreement with a secondary school. The intent of this course is to allow students to earn college credit for courses with content that goes beyond that currently approved for high school credit. This course may be used for any dual enrollment course, including a joint program of study involving a postsecondary partnership.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: CTE courses that would help prepare the student for success in this area.
- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

7157 Child and Adolescent Development

(CHLD ADL DEV)

Child and Adolescent Development examines the physical, social, emotional, cognitive, and moral development of the child from birth through adolescence with a focus on the middle years through adolescence. Basic theories of child development, biological and environmental foundations of development, and the study of children through observation and interviewing techniques are explored. The influence of parents, peers, the school environment, culture and

the media are discussed. An observation experience up to 20 hours may be required for completion of this course. This course has been approved to be offered for dual credit. Students pursuing this course for dual credit are still required to meet the minimum prerequisites for the course and pass the course with a C or better in order for dual credit to be awarded.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Teaching
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diploma

7158 Early Childhood Education Curriculum

(EAR CHD ED CUR)

Early Childhood Education Curriculum examines developmentally appropriate environments and activities in various childcare settings while exploring the varying developmental levels and cultural backgrounds of children. Students may be required to complete observations and field experiences with children as related to this course.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Early Childhood
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diploma

7159 Early Childhood Education Guidance

(EAR CHD ED GD)

This course allows students to analyze developmentally appropriate guidance, theory and implementation for various early care and education settings. It also provides a basic understanding of the anti-bias/multicultural emphasis in the field of early childhood. Students may be required to complete observations and field experiences with children as related to this course.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Early Childhood
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum

- Counts as a directed elective or elective for all diploma

7160 Principles of Early Childhood Education

(PRIN EAR CH ED)

This course provides students with an overview of skills and strategies necessary to successfully complete a certificate. Additionally, it provides an overview of the history, theory, and foundations of early childhood education as well as exposure to types of programs, curricula and services available to young children. This course also examines basic principles of child development, Developmentally Appropriate Practices (DAP), importance of family, licensing, and elements of quality care of young children with an emphasis on the learning environment related to health, safety, and nutrition. Students may be required to complete observations and field experiences with children as related to this course.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7161 Principles of Teaching

(PRIN TEACH)

This course provides a general introduction to the field of teaching. Students will explore educational careers, teaching preparation, and professional expectations as well as requirements for teacher certification. Current trends and issues in education will be examined. A volunteer experience of a minimum of 20 hours is required for successful completion of this course. This course has been approved to be offered for dual credit. Students pursuing this course for dual credit are still required to meet the minimum prerequisites for the course and pass the course with a C or better in order for dual credit to be awarded.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7162 The Exceptional Child

(EXC CHILD)

This course provides an introduction to teaching the exceptional child. Includes theories and practices for producing optimal developmental growth. This course develops teaching techniques, explores public policy, inclusion, early intervention, and learns about individual education plans and associated laws (IEPs). Explores the types of special needs and provides opportunities through field experience to practice methods for helping children within special education and gifted/talented programs. A volunteer experience of up to 20 hours in an educational environment may be required as part of this course.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Teaching; and Child and Adolescent Development
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5330 Adult Roles and Responsibilities

(ADULTROLES)

Adult Roles and Responsibilities is recommended for all students as life foundations and academic enrichment, and as a career sequence course for students with interest in family and community services, personal and family finance, and similar areas. This course builds knowledge, skills, attitudes, and behaviors that students will need as they complete high school and prepare to take the next steps toward adulthood in today's society. The course includes the study of interpersonal standards, lifespan roles and responsibilities, individual and family resource management, and financial responsibility and resources. A project-based approach that utilizes higher order thinking, communication, leadership, management processes, and fundamentals to college and career success is recommended in order to integrate these topics into the study of adult roles and responsibilities. Direct, concrete mathematics and language arts proficiencies will be applied. Service learning and other authentic applications are strongly recommended. This course provides the foundation for continuing and post-secondary education in all career areas related to individual and family life.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 semester course, 1 credit per semester, 1 credit maximum

- Qualifies as one of the FACS courses a student can take to waive the Health & Wellness graduation requirement, in place of either Human Development and Wellness or Interpersonal Relationships. To qualify for the Health and Wellness waiver, a student must

5330 Applied Adult Roles and Responsibilities

(ADULTROLES)

Applied Adult Roles and Responsibilities is recommended for all students as life foundations and academic enrichment for students with interest in family and community services, personal and family finance, and similar areas. This course builds knowledge, skills, attitudes, and behaviors that students will need as they complete high school and prepare to take the next steps toward adulthood in today's society. The course includes the study of interpersonal standards, lifespan roles and responsibilities, individual and family resource management, and financial responsibility and resources. A project or community-based approach that utilizes problem solving skills, communication, leadership, self-determination skills, management processes, and fundamentals to college, career and community membership success. Service learning and other authentic applications are strongly recommended.

- Recommended Grade: 9, 10, 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits:
- Counts as an elective or Employability Requirement for the Certificate of Completion

5334 Consumer Economics

(CONS ECON)

Consumer Economics enables students to achieve high standards and competencies in economic principles in contexts of high relevancy and applicability to their individual, family, workplace, and community lives. A project-based approach that utilizes higher order thinking, communication, leadership, and management processes is recommended in order to integrate suggested topics into the study of consumer economics issues. The course focuses on interrelationships among economic principles and individual and family roles of exchanger, consumer, producer, saver, investor, and citizen. Economic principles to be studied include scarcity, supply and demand, market structure, the role of government, money and the role of financial institutions, labor productivity, economic stabilization, and trade. Depending on needs and resources, this course may be taught in a local program. In schools where it is taught, it is recommended for all students regardless of their career pathway, in order to build basic economics proficiencies. Students understand how biology, chemistry, and physics principles

apply to the composition of foods, the nutrition of foods, food product development, food processing, food safety and sanitation, food packaging, and food storage. Students completing this course will be able to apply the principles of scientific inquiry to solve problems related to biology, physics, and chemistry in the context of highly advanced industry applications of foods.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 credit per semester, 1 credit maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

5334 Applied Consumer Economics

(CONS ECON)

Applied Consumer Economics enables students to apply economic principles to their individual, family, workplace, and community lives. A project-based approach that utilizes higher order thinking, communication, leadership, self-determination, and management processes is recommended to strengthen the understanding and application of consumer economics issues. The course focuses on interrelationships among economic principles and individual and family roles of exchanger, consumer, producer, saver, investor, and citizen. Economic principles to be studied include scarcity, supply and demand, market structure, the role of government, money and the role of financial institutions, labor productivity, economic stabilization, and trade.

- Recommended Grade: 9, 10, 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits:
- Counts as an Employability or Social Studies requirement for the Certificate of Completion

5342 Nutrition and Wellness

(NTRN WLNS)

Nutrition and Wellness is an introductory course valuable for all students as a life foundation and academic enrichment; it is especially relevant for students interested in careers related to nutrition, food, and wellness. This is a nutrition class that introduces students to only the basics of food preparation so they can become self-sufficient in accessing healthy and nutritious foods. Major course topics include nutrition principles and applications; influences on nutrition and wellness; food preparation, safety, and sanitation; and science, technology, and careers in

nutrition and wellness. A project-based approach that utilizes higher order thinking, communication, leadership, management processes, and fundamentals to college and career success is recommended in order to integrate these topics into the study of nutrition, food, and wellness. Food preparation experiences are a required component. Direct, concrete mathematics and language arts proficiencies will be applied. This course is the first in a sequence of courses that provide a foundation for continuing and post-secondary education in all career areas related to nutrition, food, and wellness

- Recommended Grade: 9, 10
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 credit per semester, 1 credit maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as one of the FACS courses a student can take to waive the Health & Wellness graduation requirement. To qualify for the Health and Wellness waiver, a student must take three of the appro

5342 Applied Nutrition and Wellness

(NTRN WLNS)

Applied Nutrition and Wellness is an introductory course valuable for all students as a life foundation and academic enrichment. This is a nutrition class that introduces students to only the basics of food preparation so they can become self-sufficient in accessing healthy and nutritious foods. Major course topics include nutrition principles and applications; influences on nutrition and wellness; food preparation, safety, and sanitation; and science, technology, and careers in nutrition and wellness. A project-based approach that utilizes higher order thinking, communication, leadership, self-determination, and management processes, and fundamentals to college and career success is recommended in order to integrate these topics into the study of nutrition, food, and wellness. Food preparation experiences are a required component. Direct, concrete mathematics and language arts proficiencies will be applied.

- Recommended Grade: 9, 10, 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits:
- Counts as an Employability Requirement or elective for the Certificate of Completion

5360 Advanced Child Development

(ADVCHLDDEV)

Advanced Child Development is for those students interested in life foundations, academic enrichment, and/or careers related to knowledge of children, child development, and nurturing of children. This course addresses issues of child development from ages four through age eight (grade three). It builds on the Child Development course, which is a prerequisite. Advanced Child Development 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; teaching and guiding children; special conditions affecting children; and career exploration in child development and nurturing. A project-based approach that utilizes higher order thinking, communication, leadership, management, and fundamentals to college and career success is recommended in order to integrate these topics into the study of child development. Direct, concrete mathematics and language arts proficiencies will be applied.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Child Development
- Credits: Credits: 1 or 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5362 Child Development

(CHLD DEV)

Child Development is an introductory course for all students as a life foundation and academic enrichment; it is especially relevant for students interested in careers that draw on knowledge of children, child development, and nurturing of children. This course addresses issues of child development from conception/prenatal through age 3. It includes the study of prenatal development and birth; growth and development of children; child caregiving and nurturing; and support systems for parents and caregivers. A project-based approach that utilizes higher order thinking, communication, leadership, management processes, and fundamentals to college and career success is recommended in order to integrate these topics into the study of child development. Direct, concrete mathematics and language arts proficiencies will be applied. Authentic applications such as introductory laboratory/field experiences with young children and/or service learning that build knowledge of children, child development, and nurturing of children are strongly recommended. This course provides the foundation for continuing and post-secondary education in all career areas related to children, child development, and nurturing of children.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: none

- Recommended Prerequisites: none
- Credits: Credits: 1 credit per semester, 1 credit maximum
- Directed elective or elective for all diplomas

5364 Applied Interpersonal Relationships

(INTRP RLT)

Applied Interpersonal Relationships is an introductory course that is relevant for students interested in careers that involve interacting with people and for everyday life relationships. This course addresses knowledge and skills needed for positive and productive relationships in career, community, and family settings. Major course topics include communication skills; leadership, self-determination, teamwork, and collaboration; conflict prevention, resolution, and management; building and maintaining relationships; and individual needs and characteristics and their impacts on relationships. A project or community-based approach is recommended in order to apply these topics of interpersonal relationships. This course provides a foundation for all careers and everyday life relationships that involve interacting with people both inside and outside of a business/organization, including team members, clients, patients, customers, the general public, family and friends.

- Recommended Grade: 9, 10, 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits:
- Counts as an Employability Requirement or elective for the Certificate of Completion

5364 Interpersonal Relationships

(INTRP RLT)

Interpersonal Relationships is an introductory course that is especially relevant for students interested in careers that involve interacting with people. It is also valuable for all students as a life foundation and academic enrichment. This course addresses knowledge and skills needed for positive and productive relationships in career, community, and family settings. Major course topics include communication skills; leadership, teamwork, and collaboration; conflict prevention, resolution, and management; building and maintaining relationships; and individual needs and characteristics and their impacts on relationships. A project-based approach that utilizes higher order thinking, communication, leadership, and management processes, and fundamentals to college and career success is recommended in order to integrate these topics into the study of interpersonal relationships. Direct, concrete language arts proficiencies will be applied. Service learning and other authentic applications are strongly recommended. This course provides a foundation for continuing and post-secondary education for all career areas

that involve interacting with people both inside and outside of a business/organization, including team members, clients, patients, customers, and the general public.

- Recommended Grade: 10, 11
- Required Prerequisites: NONE
- Recommended Prerequisites: none
- Credits: Credits: 1 to 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas; local programs have the option of offering a second version of the course that is focused more on family relations. Such a course may be differentiated from the regular course offering by using a

5366 Human Development and Wellness

(HUMAN DEV)

Human Development and Wellness is valuable for all students as a life foundation and academic enrichment; it is especially relevant for students interested in careers impacted by individuals' physical, social, emotional, and moral development and wellness across the lifespan. Major topics include principles of human development and wellness; impacts of family on human development and wellness; factors that affect human development and wellness; practices that promote human development and wellness; managing resources and services related to human development and wellness; and career exploration in human development and wellness. Life events and contemporary issues addressed in this course include (but are not limited to) change; stress; abuse; personal safety; and relationships among lifestyle choices, health and wellness conditions, and diseases. A project-based approach that utilizes higher order thinking, communication, leadership, and management processes is recommended in order to integrate the study of these topics. Authentic applications through service learning are encouraged.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 or 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as one of the FACS courses a student can take to waive the Health & Wellness graduation requirement. To qualify for the Health and Wellness waiver, a student must take three of the app

5366 Applied Human Development and Wellness

(HUMAN DEV)

Applied Human Development and Wellness is valuable for all students as a life foundation and academic enrichment. Course content includes individuals' physical, social, emotional, and moral development and wellness across the lifespan. Major topics include principles of human development and wellness; impacts of family on human development and wellness; factors that affect human development and wellness; practices that promote human development and wellness; managing resources and services related to human development and wellness; and career exploration in human development and wellness. Life events and contemporary issues addressed in this course include (but are not limited to) change; stress; abuse; personal safety; and relationships among lifestyle choices, health and wellness conditions, and diseases. A project or community-based approach that utilizes problem solving skills, communication, leadership, self-determination skills, and management processes is recommended in order to apply and generalize these skills in authentic settings.

- Recommended Grade: 9, 10, 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits:
- Counts as an Employability Requirement or elective for the Certificate of Completion

5203 Dental Careers I

(DENTCRRS I)

Dental Careers I prepares the student for an entry-level dental assisting position. Emphasis is placed on the clinical environment, chair-side assisting, 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 and/or extended laboratory experiences are also included to provide opportunities for students to further develop clinical skills and the appropriate ethical behavior. Leadership skills are developed and community service opportunities are provided through participation in HOSA. Students have the opportunity to compete in a number of competitive events at both the state and national level.

- Recommended Grade: 11,12
- Required Prerequisites: none
- Recommended Prerequisites: Nutrition and Wellness

- Credits: Credits: 2 semester course, 2 semesters required, 3 credits per semester, maximum of 6 credits
- Counts as a directed elective or elective for all diplomas

5204 Dental Careers II

(DENTCRRS II)

Knowledge of the administrative planning, bookkeeping, recall programs, banking, tax records, computer software, insurance, office practice and management as related to the dental office. In addition, students will practice Oral and Maxillofacial Surgery, Periodontics, Endodontics, Prosthodontics, Pediatric Dentistry, and Orthodontics. Opportunity for increased skill development in clinical support and business office procedures is routinely provided. The importance of the clinical behavior of materials and biological factors are also stressed.

Leadership skills are developed and community service opportunities are provided through participation in HOSA. Students have the opportunity to compete in a number of competitive events at both the state and national level.

- Recommended Grade: 12
- Required Prerequisites: Dental Careers I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 3 credits per semester, maximum of 6 credits
- Counts as a directed elective or elective for all diplomas

5214 Health Science Education II: Pharmacy

(HSE II PHARM)

Health Science Education II: Pharmacy is an extended laboratory experience designed to provide students with the opportunity to assume the role of pharmacy technician and practice technical skills previously learned in the classroom; all while working at the student's choice of clinical site and under the direction of licensed pharmacists. These sites may include pharmacies found in grocery and drug stores, or in long term facilities. Throughout the course, students will focus on learning about the healthcare system and employment opportunities at a variety of entry levels; an overview of the healthcare delivery systems, healthcare teams, and legal and ethical considerations; and obtaining the knowledge, skills and attitudes essential for providing basic care in a variety of healthcare settings. Additionally, students will build their essential job related skills to; record patient information, count tablets and measure medications, mix medications or ointments, package and label prescriptions, accept payment and process insurance claims, and do routine pharmacy tasks such as organizing medications, inventory, taking phone calls, cleaning, and customer service. This course also provides

students with the knowledge, attitudes, and skills needed to make the transition from school to work in health science careers. Students are encouraged to focus on self-analysis to aid in their career selection. Job seeking and job maintenance skills, personal management skills, and completion of the application process for admission into a post-secondary program are also areas of focus. Participation in HOSA encourages the development of leadership, communication and career related skills, and opportunities for community service.

- Recommended Grade: 12
- Required Prerequisites: none
- Recommended Prerequisites: Health Science Education I
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, maximum of 6 credits.
- Counts as a directed elective or elective for all diplomas

5215 Health Science Education II: Physical Therapy

(HSE II PT)

Health Science Education II: Physical Therapy is an extended laboratory experience designed to provide student with the opportunity to assume the role of a physical therapy assistant and practice technical skills previously learned in the classroom while working at qualified clinical sites and under the direction of licensed physical therapists. These sites may include extended care facilities, hospitals, home health agencies and a variety of other healthcare settings. Throughout the course, students will focus on learning about the healthcare system and employment opportunities at a variety of entry levels within healthcare; an overview of the healthcare delivery systems, healthcare teams and legal and ethical considerations; and obtaining the knowledge, skills and attitudes essential for providing basic care in a variety of healthcare settings. Additionally, students will build their essential job related skills to; help patients perform specific exercises; use massage and stretching techniques for treatment, aide patients with devises for movement; observe patient progress; educate patients and families; assist in cleaning treatment areas; and provide clerical assistance. This course also provides students with the knowledge, attitudes, and skills needed to make the transition from high school, to post-secondary opportunities, and to work in a variety of health science careers. Students are encouraged to focus on self-analysis to aid in their career selection. Job seeking and job maintenance skills, personal management skills, and completion of the application process for admission into a post-secondary program are also areas of focus. Participation in HOSA encourages the development of leadership, communication and career related skills, and opportunities for community service.

- Recommended Grade: 12
- Required Prerequisites: none
- Recommended Prerequisites: Health Science Education I

- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, maximum of 6 credits.
- Fulfills a science course requirement for all diplomas
- Counts as a directed elective or elective for all diplomas

5216 Human Body Systems

(HUMAN SYST)

Human Body Systems is a course designed to engage students in the study of basic human physiology and the care and maintenance required to support the complex systems. Using a focus on human health, students will employ a variety of monitors to examine body systems (respiratory, circulatory, and nervous) at rest and under stress, and observe the interactions between the various body systems. Students will use appropriate software to design and build systems to monitor body functions. NOTE: This course aligns with the PLTW Human Body Systems curriculum. Use of the PLTW Curriculum may require additional training and membership in the PLTW network.

- Recommended Grade: 10
- Required Prerequisites: Principles of the Biomedical Sciences
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Fulfills a science requirement for all diplomas

5217 Medical Interventions

(MED INTERV)

Medical Interventions is a course that studies medical practices including interventions to support humans in treating disease and maintaining health. Using a project-based learning approach, students will investigate various medical interventions that extend and improve quality of life, including gene therapy, pharmacology, surgery, prosthetics, rehabilitation, and supportive care. Students will also study the design and development of various interventions. Lessons will cover the history of organ transplants and gene therapy with additional readings from current scientific literature addressing cutting edge developments. NOTE: This course aligns with the PLTW Medical Interventions curriculum. Use of the PLTW Curriculum may require additional training and membership in the PLTW network.

- Recommended Grade: 11

- Required Prerequisites: Principles of the Biomedical Sciences; and Human Body Systems or Anatomy and Physiology
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Fulfills a science requirement for all diploma types

5218 Principles of Biomedical Sciences

(PRIN BIOMED)

Principles of the Biomedical Sciences provides an introduction to this field through “hands-on” projects and problems. Student work involves the study of human medicine, research processes and an introduction to bioinformatics. Students investigate the human body systems and various health conditions including heart disease, diabetes, hypercholesterolemia, and infectious diseases. A theme through the course is to determine the factors that led to the death of a fictional person. After determining the factors responsible for the death, the students investigate lifestyle choices and medical treatments that might have prolonged the person’s life. Key biological concepts included in the curriculum are: 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. The course is designed to provide an overview of all courses in the Biomedical Sciences program and to lay the scientific foundation necessary for student success in the subsequent courses. NOTE: This course aligns with the PLTW Principles of Biomedical Sciences curriculum. Use of the PLTW Curriculum may require additional training and membership in the PLTW network.

- Recommended Grade: 9
- Required Prerequisites: Biology I or concurrent enrollment in Biology I is required
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Fulfills a science requirement for all diplomas

5219 Biomedical Innovations

(BIO INN)

Biomedical Innovation is a capstone course designed to give students the opportunity to design innovative solutions for the health challenges of the 21st Century as they work through progressively challenging open-ended problems, addressing topics such as clinical medicine, physiology, biomedical engineering, and public health. Students have the opportunity to work on an independent project and may work with a mentor or advisor from a healthcare or post-secondary industry. Throughout the course, students are expected to present their work to an adult audience that may include representatives from the local business and healthcare community. NOTE: This course aligns with the PLTW Biomedical Innovations curriculum. Use of the PLTW Curriculum may require additional training and membership in the PLTW network.

- Recommended Grade: 12
- Required Prerequisites: Principles of the Biomedical Sciences; and Human Body Systems or Anatomy and Physiology, and Medical Interventions
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5272 Introduction to Health Science Careers

(INTRO HS CAREERS)

Introduction to Health Science Careers is an exploratory course designed to provide students with an opportunity to investigate all aspects of the health science industry. Students will receive an introduction to healthcare systems and examine a variety of pathways in health science, and reflect on their own knowledge, skills and interests, to begin to narrow the areas within health science they want to continue exploring, in preparation for further study in Health Science I

- Recommended Grade: 9, 10
- Required Prerequisites: none
- Recommended Prerequisites: Preparing for College and Careers
- Credits: Credits: 1 or 2 semester course, 1 credit per semester, maximum of 2 credits
- Counts as a directed elective or elective for all diplomas

5274 Medical Terminology

(MED TERMS)

Medical Terminology prepares students with language skills necessary for effective, independent use of health and medical reference materials. It includes the study of health and medical abbreviations, symbols, and Greek and Latin word part meanings, all taught within the context of body systems. This course builds skills in pronouncing, spelling, and defining new words encountered in verbal and written information in the healthcare industry. Students have the opportunity to acquire essential skills for accurate and logical communication, and interpretation of medical records. Emphasis is on forming a foundation of a medical vocabulary including; appropriate and accurate meaning, spelling, and pronunciation of medical terms, and abbreviations, signs, and symbols.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, maximum of 2 credits
- Counts as a directed elective or elective for all diplomas

5276 Anatomy and Physiology

(A & P)

Anatomy & Physiology is a course in which students investigate concepts related to Health Science, with emphasis on interdependence of systems and contributions of each system to the maintenance of a healthy body. It introduces students to the cell, which is the basic structural and functional unit of all organisms, and covers tissues, integument, skeletal, muscular and nervous systems as an integrated unit. Through instruction, including laboratory activities, students apply concepts associated with Human Anatomy & Physiology. Students will understand the structure, organization and function of the various components of the healthy body in order to apply this knowledge in all health related fields.

- Recommended Grade: 11,12
- Required Prerequisites: none
- Recommended Prerequisites: Biology
- Credits: Credits: 1 to 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Fulfills a Core 40 Science course requirement for all diplomas

5282 Health Science Education I

(HLTH ED I)

Health Science Education I is a course designed to provide a foundation of skills development to specific health careers including; patient care, nursing care, dental care, animal care, medical laboratory, and public health. Students will also receive an introduction to healthcare systems, anatomy, physiology, and medical terminology. Laboratory experiences with industry applications are organized and planned around the activities associated with the student's career objectives. Job seeking and job maintenance skills, personal management skills, self-analysis to aid in career selection and completion of the application process for admission into a post-secondary program of their choice are also included in this course. Participation in HOSA encourages the development of leadership, communication and career related skills, and opportunities for community service.

- Recommended Grade: 11
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Health Science Careers
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, maximum of 2 credits
- Counts as a directed elective or elective for all diplomas

5284 Health Science Education II: Nursing

(HSE II NURS)

Health Science Education II: Nursing is an extended laboratory experience designed to provide students with the opportunity to assume the role of nurse assistant. Student have the opportunity to learn, and then to practice those technical skills previously learned in the classroom at qualified clinical sites while under the direction of licensed nurses. These sites may include extended care facilities, hospitals and home health agencies. Throughout the course, students will focus on learning about the healthcare system and employment opportunities at a variety of entry levels of the healthcare field; an overview of the healthcare delivery systems, healthcare teams and legal and ethical considerations; and obtaining the knowledge, skills and attitudes essential for providing basic care in a variety of healthcare settings. Additionally, students will build their essential job related skills such as providing appropriate personal care to patients; reporting necessary information to nursing staff; operating and monitoring medical equipment; teaching and assisting patients and families with the management of their illness or injury; and performing general health screenings. This course provides students with the knowledge, attitudes, and skills needed to make the transition from high school, to post-secondary opportunities, and to work in a variety of health science careers. Students are encouraged to focus on self-analysis to aid in their career selection. Job seeking and job

maintenance skills, personal management skills, and completion of the application process for admission into a post-secondary program are also areas of focus. Participation in HOSA encourages the development of leadership, communication and career related skills, and opportunities for community service.

- Recommended Grade: 12
- Required Prerequisites: none
- Recommended Prerequisites: Health Science Education I
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, maximum of 6 credits
- Counts as a directed elective or elective for all diplomas

5286 Health Science Education II: Special Topics

(HSE II ST)

Health Science Education II: Special Topics is an extended laboratory experience designed to address the advancement and specialization of healthcare careers through the provision of a specialized course for a specific healthcare workforce need in the school's region. Practicum is at a qualified clinical site, and is designed to give the student the opportunity to practice technical skills previously learned in the classroom; all while working under the direction of the appropriately licensed healthcare professional. Throughout the course, students will focus on learning about the healthcare system and employment opportunities at a variety of entry levels; an overview of the healthcare delivery systems, healthcare teams, and legal and ethical considerations; and obtaining the knowledge, skills and attitudes essential for providing basic care in a variety of healthcare settings. Additionally, students will build their essential job related skills for providing basic care appropriate for their healthcare setting and audience. Course standards and curriculum must be tailored to the specific healthcare profession, preparing students to advance in this career field, and where applicable, provide students with opportunities for certification or dual credit. This course also provides students with the knowledge, attitudes, and skills needed to make the transition from high school, to post-secondary opportunities, and to work in a variety of health science careers. Students are encouraged to focus on self-analysis to aid in their career selection. Job seeking and job maintenance skills, personal management skills, and completion of the application process for admission into a post-secondary program are also areas of focus. Participation in HOSA encourages the development of leadership, communication and career related skills, and opportunities for community service.

- Recommended Grade: 12
- Required Prerequisites: none
- Recommended Prerequisites: Health Science Education I

- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, maximum of 6 credits.
- Counts as a directed elective or elective for all diplomas

5288 Health Science Education II: Medical Forensics

(HSE II FOREN)

Health Science Education II: Medical Forensics is a course designed to prepare students to assume the role of a forensic examiner assistant through the practice and application of previously learned technical skills. Some of those skills include information learned about healthcare and delivery systems, employment opportunities, medical terminology, and legal and ethical considerations of working in the healthcare field. While under the direction of licensed Forensic Examiners, and in an extended work based learning laboratory experience, students are prepared with the knowledge, skills and attitudes essential for basic forensics.

- Recommended Grade: 12
- Required Prerequisites: none
- Recommended Prerequisites: Health Science Education I
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, maximum of 6 credits.
- Counts as a directed elective or elective for all diplomas

5290 Health Science Education II: Athletic Training

(HSE II ATH)

Health Science Education II: Athletic Training is an extended laboratory experience at a qualified clinical site designed for students to assume the role of an athletic trainer assistant and practice using the technical skills and information previously learned in the classroom. This course prepares students with the knowledge, skills and attitude essential for providing basic care under the direction of licensed Athletic Trainers. Throughout this course, students will focus on learning about the healthcare system and employment opportunities at a variety of entry levels, an overview of healthcare delivery systems, and legal and ethical considerations of working in the healthcare field.

- Recommended Grade: 12
- Required Prerequisites: none
- Recommended Prerequisites: Health Science Education I
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, maximum of 6 credits.
- Counts as a directed elective or elective for all diplomas

6138 Advanced Career & Technical Education, College Credit: Health Science

(ADV CTE CC HSCI)

Advanced Career and Technical Education, College Credit is a course title covering any CTE advanced course offered for credit by an accredited post-secondary institution through an adjunct agreement with a secondary school. The intent of this course is to allow students to earn college credit for courses with content that goes beyond that currently approved for high school credit. This course may be used for any dual enrollment course, including a joint program of study involving a postsecondary partnership.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: CTE courses that would help prepare the student for success in this area.
- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

7163 Central Service Technician Fundamentals

(CEN SER TEC FUN)

This course introduces students to the field of central service and prepares students to identify surgical instruments by category type and use. Students will learn the principles and importance of the flow of material along with the environmental control factors affecting the central service department. The student will differentiate between equipment management systems and compare out-sourcing and insourcing.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Healthcare
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, maximum of 2 credits
- Counts as a directed elective or elective for all diplomas

7164 Certified Clinical Medical Assistant (CCMA)

(CERT CL MED AST)

The Certified Clinical Medical Assistant course will prepare students for the National Healthcare Association CCMA exam. Instruction includes taking and recording vital signs, preparing patients for examination, patient education, and assisting the physician during the exam. The

collecting and preparation of laboratory specimen and basic laboratory test will be covered. Prepares for the administration of medication, venipuncture, ECG, and wound care. Provides a basic understanding of the clinical and administrative duties and responsibilities pertinent to medical offices. Includes instruction in medical correspondence and records, case histories of patients, filing, telephone procedures, appointment scheduling, receptionist duties, and processing mail. Written, verbal and nonverbal communications according to patient needs are covered as well as documentation and associated legal and ethical boundaries.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Healthcare, Medical Terminology
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7165 Emergency Medical Tech

(EMT)

This course is based on the training program developed by the Department of Transportation and the Emergency Medical Services Commission of Indiana. It covers theories, techniques and operational aspects of pre-hospital emergency care within the scope and responsibility of the emergency medical technician (EMT). It requires laboratory practice and clinical observation in a hospital emergency room and ambulance. Successful completion of the course meets national requirements to test for certification as an NREMT.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Healthcare; and Medical Terminology
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7166 Healthcare Specialist: CNA

(HC SPEC CAN)

The Healthcare Specialist: CNA prepares individuals desiring to work as nursing assistants with the knowledge, skills and attitudes essential for providing basic care in extended care facilities, hospitals and home health agencies under the direction of licensed nurses. The course will introduce students to the disease process and aspects of caring for a long-term care resident with dementia. Individuals who successfully complete this course are eligible to apply to sit for

the Indiana State Department of Health (ISDH) certification exam for nursing assistants. This course meets the minimum standards set forth by the ISDH for Certified Nursing Assistant training and for health care workers in long-term care facilities.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Healthcare
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7167 Pharmacy Tech

(PHARM TECH)

This course introduces the student to the foundational principles, career concepts, and entry-level skills and duties typically performed by a pharmacy technician in community/retail, hospital/health system, and other pharmacy practice settings. Classroom and lab activities provide opportunities for demonstration of knowledge, understanding, and proficiency in technical and customer service applications related to the role and scope of practice of a pharmacy technician. Essential pharmacy calculations are presented with emphasis on the development of problem-solving skills for safe pharmacy practices.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Healthcare; and Healthcare Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7168 Principles of Healthcare

(PRIN HLCR)

Principles of Healthcare content includes skills common to specific health career topics such as patient nursing care, dental care, animal care, medical laboratory, public health, and an introduction to healthcare systems. Lab experiences are organized and planned around the activities associated with the student's career objectives.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none

- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5340 Advanced Nutrition and Wellness

(ADV NTRN WEL)

Advanced Nutrition and Wellness is a course which provides an extensive study of nutrition. This course is recommended for all students wanting to improve their nutrition and learn how nutrition affects the body across the lifespan. Advanced Nutrition and Wellness is an especially appropriate course for students interested in careers in the medical field, athletic training and dietetics. This course builds on the foundation established in Nutrition and Wellness, which is a required prerequisite. This is a project-based course; utilizing higher-order thinking, communication, leadership and management processes. Topics include extensive study of major nutrients, nutritional standards across the lifespan, influences on nutrition/food choices, technological and scientific influences, and career exploration in this field. Laboratory experiences will be utilized to develop food handling and preparation skills; attention will be given to nutrition, food safety and sanitation. This course is the second in a sequence of courses that provide a foundation for continuing and post-secondary education in all career areas related to nutrition, food, and wellness.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Nutrition and Wellness
- Credits: Credits: 1 or 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5344 Biochemistry of Foods

(BIOCHEM FOOD)

Biochemistry of Foods is a two semester course that provides students with opportunities to participate in a variety of activities including laboratory work. This is an in-depth study of the application of scientific principles integrating biology, chemistry, and microbiology in the context of foods and the global food industry. Students enrolled in this course formulate, design, and carry out food-based laboratory and field investigations as an essential course component.

Students understand how biology, chemistry, and physics principles apply to the composition of foods, the nutrition of foods, food product development, food processing, food safety and sanitation, food packaging, and food storage. Students completing this course will be able to

apply the principles of scientific inquiry to solve problems related to biology, physics, and chemistry in the context of highly advanced industry applications of foods.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Biology, Chemistry, Nutrition and Wellness; Advanced Nutrition and Wellness
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Fulfills a science requirement for all diplomas
- Qualifies as a quantitative reasoning course

5346 Culinary Arts and Hospitality II: Culinary Arts

(CUL HOSP II: CUL ARTS)

Culinary Arts and Hospitality II: Culinary Arts prepares students for occupations and higher education programs of study related to the entire spectrum of careers in the food industry, including (but not limited to) food production and services; food science, dietetics, and nutrition; and baking and pastry arts. Major topics for this advanced course include: basic baking theory and skills, introduction to breads, introduction to pastry arts, nutrition, nutrition accommodations and adaptations, cost control and purchasing, and current marketing and trends. Instruction and intensive laboratory experiences include commercial applications of principles of nutrition, aesthetic, and sanitary selection; purchasing, storage, preparation, and service of food and food products; using and maintaining related tools and equipment; baking and pastry arts skills; managing operations in food service, food science, or hospitality establishments; providing for the dietary needs of persons with special requirements; and related research, development, and testing. Intensive laboratory experiences with commercial applications are a required component of this course of study. Student laboratory experiences may be either school-based or "on-the-job" or a combination of the two. Advanced Culinary Arts builds upon skills and techniques learned in Culinary Arts and Hospitality Management, which must be successfully completed before enrolling in this advanced course. Work based experiences in the food industry are strongly encouraged. A standards-based plan guides the students' laboratory and work based experiences. Students are monitored in these experiences by the Advanced Culinary Arts teacher. Articulation with post-secondary programs is encouraged.

- Recommended Grade: 12
- Required Prerequisites: Culinary Arts and Hospitality I
- Recommended Prerequisites: none

- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5438 Introduction to Culinary Arts and Hospitality

(INT CUL HOS)

Introduction to Culinary Arts and Hospitality 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 that 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.

- Recommended Grade: 9, 10
- Required Prerequisites: none
- Recommended Prerequisites: Nutrition and Wellness; Advanced Nutrition and Wellness
- Credits: Credits: 1-2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5440 Culinary Arts and Hospitality I

(CULART HOSP)

Culinary Arts and Hospitality I prepares students for occupations and higher education programs of study related to the entire spectrum of careers in the hospitality industry. This course builds a foundation that prepares students to enter the Advanced Culinary Arts or Advanced Hospitality courses. Major topics include: introduction to the hospitality industry; food safety and personal hygiene; sanitation and safety; regulations, procedures, and emergencies; basic culinary skills; culinary math; and food preparation techniques and applications; principles of purchasing, storage, preparation, and service of food and food products; ; apply basic principles of sanitation and safety in order to maintain safe and healthy food service and hospitality environments; use and maintain related tools and equipment; and apply management principles in food service or hospitality operations. Intensive laboratory experiences with commercial applications are a required component of this course of study. Student laboratory experiences may be either school-based or "on-the-job" or a combination of the two. Work based experiences in the food industry are strongly encouraged. A standards-based plan guides the students' laboratory experiences. Students are monitored in their

laboratory experiences by the Culinary Arts and Hospitality teacher. Articulation with post-secondary programs is encouraged.

- Recommended Grade: 11,12
- Required Prerequisites: none
- Recommended Prerequisites: Nutrition and Wellness; Introduction to Culinary Arts and Hospitality
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, maximum of 2 credits
- Counts as a directed elective or elective for all diplomas

5456 Nutrition Science Careers I

(NUT SCI CAR I)

Nutrition Science Careers I is an instructional program that introduces students to careers in nutrition, dietetics, food science, food research and development, and related careers. The course of study includes topics and issues in nutrition; food science topics and issues; topics related to management of daily living needs of individuals and families; nutrition and foods for children and the elderly; topics related to cleaning and maintenance, purchasing, and food preparation; managing operations in food production, food science, or food research and development establishments; related research, development, and testing. Intensive laboratory experiences with industry applications are a required component of this course of study. Work based experiences in food and nutrition science careers are strongly encouraged

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Nutrition and Wellness; Advanced Nutrition and Wellness; Advanced Life Science Foods; or Biochemistry of Foods
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, maximum of 2 credits
- Counts as a directed elective or elective for all diplomas

5457 Nutrition Science Careers II

(NUT SCI CAR II)

Nutrition Science Careers II builds on content and skills of Nutrition Science Careers I and prepares students for careers in and higher education programs related to nutrition, dietetics, food science, food research and development, and related careers that focus on assisting individuals and families in managing their personal, family, and social needs regarding nutrition, diet, and foods. The course of study includes, but is not limited to: advanced topics and issues

in nutrition; advanced food science topics and issues; food and nutrition for individuals and families with special needs and disadvantaging conditions; topics related to management of daily living needs of individuals and families; nutrition and foods in child care and convalescent care; topics and issues related to maintaining the food supply; topics related to cleaning and maintenance, purchasing, and food preparation; managing operations in food production, food science, or food research and development establishments; providing for the dietary needs of persons with special requirements; related research, development, and testing. Ethical, legal, and safety issues as well as helping processes and collaborative ways of working with others are to be addressed. Intensive laboratory experiences with industry applications are a required component of this course of study. Work based experiences in food and nutrition science careers are strongly encouraged. This course provides the foundation for study in higher education that leads to related careers.

- Recommended Grade: 12
- Required Prerequisites: Nutrition Science Careers I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5458 Culinary Arts and Hospitality II: Hospitality Management

(CUL HOSP II: HOS MGMT)

Culinary Arts and Hospitality II: 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. A standards-based plan for each student guides the industry experiences. Students are monitored in their industry experiences by the Advanced Hospitality Management teacher. Industry experiences may be either school-based or “on the job” in community-based hospitality settings, or in a combination of the two.

- Recommended Grade: 11,12
- Required Prerequisites: none
- Recommended Prerequisites: Nutrition and Wellness; Introduction to Culinary Arts & Hospitality

- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

6120 Advanced Career & Technical Education, College Credit: Hospitality and Human Services

(ADV CTE CC HHS)

Advanced Career and Technical Education, College Credit is a course title covering any CTE advanced course offered for credit by an accredited post-secondary institution through an adjunct agreement with a secondary school. The intent of this course is to allow students to earn college credit for courses with content that goes beyond that currently approved for high school credit. This course may be used for any dual enrollment course, including a joint program of study involving a postsecondary partnership.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: CTE courses that would help prepare the student for success in this area.
- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

6152 Hospitality and Human Services: Special Topics

(HHS ST)

Hospitality and Human Services: Special Topics is an extended learning experience designed to address the advancement and specialization of careers within the career cluster through the provision of a specialized course for a specific workforce need in the school's region. The learning experience is at a qualified site, and is designed to give the student the opportunity to learn and practice technical skills; while working under the direction of the appropriately licensed professional. Throughout the course, students will focus on learning about employment opportunities and obtaining the knowledge, skills and attitudes essential for success in specific occupations. Course standards and curriculum must be tailored to the specific profession, preparing students to advance in this career field, and where applicable, provide students with opportunities for certification or dual credit. Participation in a related CTSO encourages the development of leadership, communication and career related skills, and opportunities for community service.

- Recommended Grade: 11, 12

- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

7169 Culinary Arts

(CUL ARTS)

Culinary Arts is designed to teach the necessary skills for proper recruiting, staffing, training, and management of employees at various levels. The course will help prepare the student for the transition from employee to supervisor. It will help the student evaluate styles of leadership, and develop skills in human relations and personnel management. This course will also presents fundamentals of baking science, terminology, ingredients, weights and measures, and proper use and care of equipment. Students will produce yeast goods, pies, cakes, cookies, and quick breads.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Hospitality; and Food Theory and Nutrition
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7170 Diet Therapy

(DIET THPY)

This course presents the basic principles of nutrition; the role nutrients play in maintaining good health as well as their effect on certain disease states. Students will learn to modify diets to meet various nutritional needs and to plan menus using modified diet principles. This course teaches students to develop an in-depth understanding of the principles of diet therapy. Students will learn to assess patients' nutritional needs, develop care plans, and implement a delivery system. Students will also learn documentation skills required by Centers for Medicare and Medicaid Services (CMS).

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Hospitality; and Food Theory and Nutrition
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum

- Counts as a directed elective or elective for all diplomas

7171 Food Theory and Nutrition

(FD THRY NUT)

Food Theory & Nutrition students will learn the fundamentals of food preparation, service procedures, and safety practices in the food service industry including proper operation techniques for equipment. This course also provides a background and history of the hospitality industry and introduces the student to the broad spectrum of hospitality/food service organizations and career opportunities. Students will be familiarized with the organizational structure and basic functions of departments. Additionally, this course introduces the characteristics, functions and food sources of the major nutrient groups and how to maximize nutrient retention in food preparation and storage. Students will be made aware of nutrient needs throughout the life cycle and to apply those principles to menu planning and food preparation.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Hospitality
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7172 Hospitality Management

(HOSP MAN)

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.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Hospitality
- Recommended Prerequisites: none

- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7173 Principles of Hospitality

(PRIN HOSP)

Principles of Hospitality is designed to develop an understanding of the hospitality industry and career opportunities, and responsibilities in the food service and lodging industry. Introduces procedures for decision making which affects operation management, products, labor, and revenue. Additionally, this course will help students learn basic principles of sanitation and safety in order to maintain a safe and healthy food service environment. It presents laws and regulations related to safety, fire, and sanitation and how to adhere to them in the food service operation.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5336 Human and Social Services I

(HUMN SRVS I)

Human and Social Services I is an introductory/exploratory course for students interested in careers in human and community services and other helping professions. Areas of exploration include family and social services, youth development, and adult and elder care, and other for-profit and non-profit services. This project-based course will help students integrate higher order thinking, communication, leadership, and management processes to conduct investigations in human and social services at the local, state, national, or global/world level. Research and development, interdisciplinary projects, and/or collaboration with post-secondary faculty, community agencies or organizations, or student organizations are appropriate approaches.

Students will be introduced to human and social services professions through presentations from a variety of guest speakers, job shadowing, field trips and introductory and exploratory field experiences. Case studies, role play, and application of professional codes of ethics will be utilized reflecting the challenges of working in diverse communities. Service learning

experiences are highly recommended. Achievement of applicable FACS, academic, and employability competencies will be documented through a student portfolio.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Nutrition and Wellness, Interpersonal Relationships, Child Development or Human Development and Wellness
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5462 Human and Social Services II

(HUMN SRVS II)

Human and Social Services II is a core component of the Family and Human Services pathway. The course prepares students for occupations and higher education programs related to assisting individuals and families in meeting their potential. Through work based experiences, students apply the knowledge and skills developed in the Human Services Foundations course. Concentration areas include family and social services, youth development, and adult and elder care. Ethical, legal, and safety issues, as well as helping processes and collaborative ways of working with others, will be addressed. Learning experiences will involve analysis of the influence of culture and socioeconomic factors on individual choices and opportunities, service delivery models, and theoretical perspectives. Intensive laboratory/field experiences in one or more human social service agencies are a required component of this course. Student laboratory/field experiences may be either school-based, if available, or “on the job” in community-based agencies, or a combination of the two. A standards-based plan guides the students’ laboratory/field experiences. Students are monitored in their laboratory/field experiences by the Human and Social Services II teacher. Achievement of applicable standards will be documented through a student portfolio. Articulation with post-secondary programs is encouraged.

- Recommended Grade: 12
- Required Prerequisites: Human and Social Services I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5802 Cosmetology I

(CSMTLGY I)

Cosmetology I offers an introduction to cosmetology with an emphasis on basic practical skills and theories including roller control, quick styling, shampooing, hair coloring, permanent waving, facials, manicuring, business and personal ethics, 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.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Interpersonal Relationships
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as directed elective or elective for all diplomas

5806 Cosmetology II

(CSMTLGY II)

Cosmetology II builds on concepts learned in Cosmetology I with an emphasis on 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.

- Recommended Grade: 12
- Required Prerequisites: Cosmetology I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

7174 Disability Services

(DIS SERV)

Disability Services provides background knowledge of the field of intellectual and developmental disabilities and issues pertaining to the field. It covers topics such as: Historical development, Service availability and approaches to intellectual and developmental disabilities, Disability ranges and assessment, Availability of community resources and help, and Social, legal and ethical issues.

- Recommended Grade: 10, 11, 12

- Required Prerequisites: Principles of Human Services
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7175 Introduction to Cosmetology and Barbering

(INT COS BARB)

The Introduction to Cosmetology and Barbering course will provide students the opportunity to explore various aspects of Cosmetology and Barbering careers and business practices. In addition, students will gain an understanding of the variety of services provided by a salon including hairstyling, skin care, and nail care.

- Recommended Grade: 9, 10
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 or 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7176 Principles of Human Services

(PRIN HUM SERV)

Principles of Human Services explores the history of human services, career opportunities, and the role of the human service worker. Focuses on target populations and community agencies designed to meet the needs of various populations. Course includes a required job shadowing project in a Human Services setting. This course will also encourage cultural awareness and appreciation of diversity. Focuses on cultural variations in attitudes, values, language, gestures, and customs. Includes information about major racial and ethnic groups in the United States.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7177 Relationships and Emotions

(REL EMO)

Relationship & Emotions examines the key elements of healthy relationships. Explores the main problems that damage relationships. Presents research findings on successful and unsuccessful relationships. Examines how couples can improve intimacy, romance, and emotional connection. Explores the impact of one's emotional and relationship history on current and future romantic relationships. Presents practical, scientific-based skills for improving relationships. Additionally this course offers practical and useful information for people who have experienced loss. Students have the opportunity to evaluate their own experiences and attitudes toward loss and grief.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Human Services
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4528 Digital Applications and Responsibility

(DIG APPS RESP)

Digital Applications and Responsibility prepares students to use technology in an effective and appropriate manner in school, in a job, or everyday life. Students develop skills related to word processing, spreadsheets, presentations, and communications software. Students learn what it means to be a good digital citizen and how to use technology, including social media, responsibly. Students expand their knowledge of how to use digital devices and software to build decision-making and problem-solving skills. Students should be provided with the opportunity to seek industry-recognized digital literacy certifications.

- Recommended Grade: 9, 10, 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 to 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4528 Applied Digital Applications and Responsibility

(DIG APPS RESP)

Applied Digital Applications and Responsibility prepares students to use technology in an effective and appropriate manner in school, in a job, or everyday life. Students develop skills related to word processing, spreadsheets, presentations, and communications software and may use highly specialized or individualized technology or software. Students learn what it means to be a good digital citizen and how to use technology, including social media, responsibly. Students expand their knowledge of how to use digital devices and software to build decision-making and problem-solving skills. Students may be provided with the opportunity to seek industry-recognized digital literacy certifications.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits:
- Counts as an elective or Employability requirement for the Certificate of Completion

4574 Web Design

(WEB DESIGN)

Web Design is a course that provides instruction in the principles of web design using HTML/XHTML and current/emerging software programs. Areas of instruction include audience analysis, hierarchy layout and design techniques, software integration, and publishing. Instructional strategies should include peer teaching, collaborative instruction, project-based learning activities, and school community projects.

- Recommended Grade: 11,12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Communications; Digital Applications and Responsibility
- Credits: Credits: 1 to 2 semester course, 1 credit per semester, 2 credits maximum
Credits:
- Counts as a directed elective or elective for all diplomas

4578 Information Technology: Special Topics

(IT ST)

Information Technology: Special Topics is an extended learning experience designed to address the advancement and specialization of careers within the career cluster through the provision

of a specialized course for a specific workforce need in the school's region. The learning experience is at a qualified site, and is designed to give the student the opportunity to learn and practice technical skills; while working under the direction of the appropriately licensed professional. Throughout the course, students will focus on learning about employment opportunities and obtaining the knowledge, skills and attitudes essential for success in specific occupations. Course standards and curriculum must be tailored to the specific profession, preparing students to advance in this career field, and where applicable, provide students with opportunities for certification or dual credit. Participation in a related CTSO encourages the development of leadership, communication and career related skills, and opportunities for community service.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Computer Science
- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

4588 Networking II: Infrastructure

(NET II INFRA)

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.

- Recommended Grade: 12
- Required Prerequisites: Networking I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5230 Information Technology Support I

(IN TECH SUPP)

Information Technology 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.

- Recommended Grade: 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: Digital Applications and Responsibility; and/or Introduction to Computer Science
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5231 Information Technology Support II

(INTO ENTR)

Information Technology Support II, Capstone is designed for students to showcase the knowledge gained from the Information Technology Pathway. Through troubleshooting hardware, software, and networks, students solve problems through a variety of real-world IT problems. Throughout the course, students communicate with other team members and document progress to fix a variety of devices

- Recommended Grade: 11, 12
- Required Prerequisites: Information Technology Support
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5234 Networking I

(NET I)

Networking I introduces students to local and wide area networks, home networking, networking standards using the IEEE/OSI Model, network protocols, transmission media and network architecture/ topologies. Security and data integrity are introduced and emphasized throughout this course, which offers students the critical information needed to successfully move into a role as an IT professional supporting networked computers. Concepts covered will include TCP/IP client administration, planning a network topology, configuring the TCP/IP protocol, managing network clients, configuring routers and hubs, as well as creating a wireless LAN.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Information Technology Support I

- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5245 Networking II: Cybersecurity Capstone

(NETII)

Networking II: Cybersecurity is a capstone experience of the Network Support Pathway. It builds upon a base knowledge of Information Technology as gained through lower level courses such as IT support and Networking I. This particular capstone course concentrates on the Security field within networking, also called the cybersecurity field. 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.

- Recommended Grade: 12
- Required Prerequisites: Networking I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5257 Networking II: Servers

(NET II SERV)

Networking II: Servers focuses on the software skills needed to manage a network. Students will learn and practice the skills necessary to perform in the role of a network administrator. They will be able to accomplish fundamental network management tasks on a server such as set up of computer network services, create users and appropriate login scripts, develop groups, set the server remotely, set up security, backup/restore the server and setup/maintain clients.

- Recommended Grade: 12
- Required Prerequisites: Networking I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

6022 Advanced Career & Technical Education, College Credit: Information Technology

(ADV CTE CC IT)

Advanced Career and Technical Education, College Credit is a course title covering any CTE advanced course offered for credit by an accredited post-secondary institution through an adjunct agreement with a secondary school. The intent of this course is to allow students to earn college credit for courses with content that goes beyond that currently approved for high school credit. This course may be used for any dual enrollment course, including a joint program of study involving a postsecondary partnership.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: CTE courses that would help prepare the student for success in this area.
- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

7178 Advanced Cybersecurity

(ADV CYBSEC)

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, e-mail 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.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Computers and Informatics; and Cybersecurity Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7179 Cybersecurity Fundamentals

(CYBSEC FUN)

This course introduces fundamental networking protocols and their hierarchical relationship in the context of conceptual Information Communication Technology (ICT) frameworks. Students will learn how networked hosts and applications communicate across networks. Emphasis is placed on security throughout the entire SDLC (Systems Development Life Cycle).

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Computers and Informatics
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7180 Information Technology Fundamentals

(INFO TECH FUN)

Information Technology Fundamentals provides the necessary competencies required for an entry-level Information Technology professional. Students will have the knowledge required to assemble components based on customer requirements, install, configure and maintain devices/software for end users, understand the basics of networking and security, properly and safely diagnose, resolve and document common hardware and software issues while applying troubleshooting skills. Students will also learn appropriate customer support, understand the basics of virtualization, desktop imaging, and deployment. This course should also prepare students for the CompTia A+ Certification Exam.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Computers and Informatics
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7181 Information Technology Support and Service

(INFO TEC SUP SER)

Advanced Information Technology will provide students with the fundamental concepts in networking and cybersecurity. Students are introduced to the principles and concepts of

computer networking, covering the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. Students will be able to troubleshoot routers and switches and resolve common issues. The students will also explore the field of Cyber Security/Information Assurance focusing on the technical and managerial aspects of the discipline. Students will be introduced to the basic terminology, concepts, and best practices of computer/network security and the roles and responsibilities of management/security personnel. The students will learn the technologies used and techniques involved in creating a secure computer networking environment including authentication and the types of attacks against an organization.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Computers and Informatics
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7182 Networking Fundamentals

(NTWK FUN)

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.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Computers and Informatics; and Information Technology Fundamentals
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7183 Principles of Computers and Informatics

(PRIN COMP INFO)

Principles of Computers and Informatics introduces students to terminology, concepts, theory and fundamental skills used to implement information systems. Topics include the history and trends of computing, operating systems, database technology, security, cloud implementations and other concepts associated with applying the principles of good information management to the organization. Additionally, students will be introduced to algorithms, logic development and flowcharting as tools used to document computer logic through the use of basic scripting and simple programming code.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7184 Software Development

(SOFT DEV)

Software Development introduces students to concepts and practices of programming languages and software development. Students are introduced to algorithms and development tools used to document/implement computer logic. Discusses the history of software development, the different types of programming such as real time processing, web/database applications, and different program development environments. Concepts will be applied using different programming languages, and students will develop and test working programs in an integrated system.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Computers and Informatics
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7185 Website and Database Development

(WEB DATA DEV)

Website and Database Development will provide students a basic understanding of the essential Web and Database skills and business practices that directly relate to Internet technologies used in Web site and Database design and development. Students will learn to develop Web sites using Hypertext Markup Language (HTML) and Cascading Style Sheets (CSS). Additionally students will be introduced to the basic concepts of databases including types of databases, general database environments, database design, normalization and development of tables, queries, reports, and applications. Students will be familiarized with the use of ANSI Standard Structured Query Language. Students will be introduced to data concepts such as data warehousing, data mining, and BIG Data. Students will develop a business application using database software such as Microsoft Access.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Computers and Informatics
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5210 Emergency Medical Services

(EMS)

Emergency Medical Services prepares students for a state certification which may lead to a career in Emergency Medical Services. Examples of those careers include Emergency Medical Technician and Paramedic. This course is designed for persons desiring to perform emergency medical care. Theories, techniques, and operational aspects of pre-hospital emergency care, within the scope and responsibility of the basic emergency medical technician are covered in this course. Students will learn to recognize the seriousness of the patient's condition, use the appropriate emergency care techniques and equipment to stabilize the patient, and safely transport them to the hospital. The handling of victims of hazardous materials accidents is also addressed in this course. Opportunities for laboratory practice and clinical observation in a hospital emergency room and ambulance are also included to provide occasions for students to further develop clinical skills and the appropriate ethical behavior. Leadership skills are developed and community service opportunities are provided through participation in HOSA. Students have the opportunity to compete in a number of competitive events at both the state and national level.

- Recommended Grade: 12

- Required Prerequisites: none
- Recommended Prerequisites: Health Science Education I
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, maximum of 6 credits
- Counts as a directed elective or elective for all diplomas

5820 Fire and Rescue I

(FIRE RSCU I)

Fire and Rescue I; Every year, fires and other emergencies take thousands of lives and destroy property worth billions of dollars. Firefighters and emergency services workers help protect the public against these dangers by rapidly responding to a variety of emergencies. They are frequently the first emergency personnel at the scene of a traffic accident or medical emergency and may be called upon to put out a fire, treat injuries or perform other vital functions. The Fire and Rescue curriculum may include five Indiana state fire certifications: (1) Mandatory, (2) Firefighter I, (3) Firefighter II, (4) Hazardous Materials Awareness, and (5) Hazardous Materials Operations. An additional two industry certifications may be earned by adding (6) First Responder, and (7) Emergency Medical Technician-Basic to the curriculum.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Interpersonal Relationships
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5822 Criminal Justice I

(CRIME I)

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 post-secondary requirements for earning dual credit and successfully complete the dual credit requirements of this course.

- Recommended Grade: 11, 12

- Required Prerequisites: none
- Recommended Prerequisites: Interpersonal Relationships
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5824 Criminal Justice II

(CRIME II)

Criminal Justice II introduces students to concepts and practices in traffic control 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, 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 activities and chain of custody procedures will also be reviewed. Current trends in criminal justice and law enforcement will also be covered.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Criminal Justice I
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5826 Fire and Rescue II

(FIRE RSCU II)

Fire and Rescue II builds on skills learned in Fire and Rescue I. The Fire and Rescue curriculum may include five Indiana state fire certifications: (1) Mandatory, (2) Firefighter I, (3) Firefighter II, (4) Hazardous Materials Awareness, and (5) Hazardous Materials Operations. An additional two industry certifications may be earned by adding (6) First Responder, and (7) Emergency Medical Technician-Basic to the curriculum.

- Recommended Grade: 12
- Required Prerequisites: Fire and Rescue I
- Recommended Prerequisites: none

- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

6136 Advanced Career & Technical Education, College Credit: Public Safety

(ADV CTE CC PS)

Advanced Career and Technical Education, College Credit is a course title covering any CTE advanced course offered for credit by an accredited post-secondary institution through an adjunct agreement with a secondary school. The intent of this course is to allow students to earn college credit for courses with content that goes beyond that currently approved for high school credit. This course may be used for any dual enrollment course, including a joint program of study involving a postsecondary partnership.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: CTE courses that would help prepare the student for success in this area.
- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

6154 Public Safety: Special Topics

(PS ST)

Public Safety: Special Topics is an extended learning experience designed to address the advancement and specialization of careers within the career cluster through the provision of a specialized course for a specific workforce need in the school's region. The learning experience is at a qualified site, and is designed to give the student the opportunity to learn and practice technical skills; while working under the direction of the appropriately licensed professional. Throughout the course, students will focus on learning about employment opportunities and obtaining the knowledge, skills and attitudes essential for success in specific occupations. Course standards and curriculum must be tailored to the specific profession, preparing students to advance in this career field, and where applicable, provide students with opportunities for certification or dual credit. Participation in a related CTSO encourages the development of leadership, communication and career related skills, and opportunities for community service.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none

- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

7186 Advanced Fire Fighting

(ADV FIRE FGHT)

Advanced Fire Fighting builds on skills learned in Fire Fighting Fundamentals. The Fire and Rescue curriculum may include five Indiana state fire certifications: (1) Mandatory, (2) Firefighter I, (3) Firefighter II, (4) Hazardous Materials Awareness, and (5) Hazardous Materials Operations. An additional two industry certifications may be earned by adding (6) First Responder, and (7) Emergency Medical Technician-Basic to the curriculum.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Public Safety and Hazmat Awareness
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7187 Advanced Paralegal Studies

(ADV PARA ST)

Advanced Paralegal Studies introduces the student to legal research resources including: constitutions, statutory codes and annotations, administrative encyclopedias, treatises, legal periodicals, practice manuals, and form books. Students are introduced to various finding tools for accessing information in these resources. Students will learn proper legal citation form, citation services, and research strategy. Projects include a series of graded law library research assignments teaching the student how to use this variety of materials to research both primary and secondary legal authorities using methodologies for research in either print or online sources, and updating material to insure the most up-to-date research possible. This course will also focus on the Indiana Trial Rules, court rules, local rules, and small claims; specifically knowing the Rules of Civil Procedure, and how they apply to each part of a case. Topics include: filing requirements, the rules regarding service of process, calculation of deadlines, motion practice, discovery, trials, and relief from judgements.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Paralegal Studies
- Recommended Prerequisites: none

- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7188 Courts and Corrections

(CRT CORR)

Courts and Corrections introduces topics related to the adjudication process in criminal cases, including arraignments and preliminary hearings, suppression hearings, trials, sentencing, juvenile court, and probation and parole. Reviews the role of criminal justice personnel in court processes. This course also examines the American correctional system; the study of administration of local, state, and federal correctional agencies. The examination includes the history and development of correctional policies and practices, criminal sentencing, jails, prisons, alternative sentencing, prisoner rights, rehabilitation, and community corrections including probation and parole. Current philosophies of corrections and the debates surrounding the roles and effectiveness of criminal sentences, institutional procedures, technological developments, and special populations are discussed.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Criminal Justice; and Law Enforcement & Awareness
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7189 Fire Fighting Fundamentals

(FIRE FGHT FUN)

Fire Fighting Fundamentals is for those students who are seeking certification as a firefighter. This course will introduce the student to NFPA 1001 which serves as the standard of measurement for all fire fighters in North America. Introduced students to fire service terminology, history and basic firefighting skills needed to complete and pass all requirements designed by the Department of Homeland Security for Basic, Mandatory and Fire Fighter I. Furthermore, students will study fire protection systems, firefighter safety and survival. Students will also learn what fire is, the chemical hazards of combustion and related byproducts of fire. Fire department organization, administration, operations, and basic strategies and tactics will be covered.

- Recommended Grade: 10, 11, 12

- Required Prerequisites: Principles of Public Safety and Hazmat Awareness
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7190 Introduction to Public Safety and First Responders

(IN PS FRST RESP)

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.

- Recommended Grade: 9, 10
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 or 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7191 Law Enforcement and Cultural Awareness

(LAW ENF CLT AWR)

Law Enforcement and Cultural Awareness introduces fundamental law enforcement operations and organization. Includes the evolution of law enforcement at federal, state, and local levels. Emphasizes the study of American criminal justice problems and systems in historical and cultural perspectives, as well as discussing social and public policy factors affecting crime.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Criminal Justice
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7192 Paralegal Fundamentals

(PARA FUN)

Paralegal Fundamentals is designed to improve the student's ability to write at a professional level, with appropriate attention to grammar, sentence structure, and style. Students will become familiar with basic legal terminology. This course will develop the student's legal writing skills, including how to write sharp, clear prose and become more proficient and efficient at composing, organizing and summarizing a wide variety of legal written documents. The student will be exposed to various legal writing techniques that are used in drafting a wide variety of legal documents. A strong emphasis is placed on proper legal writing methodology and formatting.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Paralegal Studies; and Advanced Paralegal Studies
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7193 Principles of Criminal Justice

(PRIN CR JUST)

Principles of Criminal Justice covers the purposes, functions, and history of the three primary parts of the criminal justice system: law enforcement, courts, and corrections. This course further explores the interrelationships and responsibilities of these three primary elements of the criminal justice system. It will critically examine the history and nature of the major theoretical perspectives in criminology, and the theories found within those perspectives. Analyzes the research support for such theories and perspectives, and the connections between theory and criminal justice system practice within all the major components of the criminal justice system. Demonstrates the application of specific theories to explain violent and non-violent criminal behavior on both the micro and macro levels of analysis.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7194 Principles of Paralegal Studies

(PRIN PARA ST)

Principles of Paralegal Studies introduces the student to a broad understanding of the American legal system. Students will engage with and learn about the various court structures, the key players within the system, and how our rules and laws are made, enforced, interpreted and applied. The course will cover substantive legal topics and provide hands-on learning regarding legal research, legal writing, case briefing, interviewing skills, and profession ethics. The course will examine the rules of professional conduct that apply to all legal professionals including: the American Bar Association Model Rules of Professional Conduct, the Indiana Rules of Professional Conduct, the American Bar Association Guidelines for the Utilization of Legal Assistants, and various other sets of rules of conduct created by paralegal associations

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7195 Principles of Public Safety and Hazmat Awareness

(PRIN PS HAZ AWR)

Principles of Public Safety provides the student with an overview of the requirements necessary to complete a degree in Public Safety; including an overview of faculty expectations and support that is offered to students in this program. Students are introduced to the degree requirements and are guided through the completion of an Individual Academic Plan. Students are introduced to Student Retention Services, Library System and Research, Writing Tutorial Services, and Career Services for assistance in successfully completing projects throughout the course and degree program. Areas of interest include Fire Science, Homeland Security, Environmental Health and Safety, and Emergency Medical Services. In addition to these competencies students will also cover an array of topics under hazmat awareness and operations including: hazardous materials definitions; regulations; statistics; properties and hazards; hazardous materials identification; incident management priorities; strategic goals and tactical objectives; personal protective equipment; contamination and decontamination; incident- specific strategies and tactics; terrorists and other criminal activities.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none

- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4788 Engineering and Technology: Special Topics

(ENG TECH ST)

Engineering and Technology: Special Topics is an extended learning experience designed to address the advancement and specialization of careers within the career cluster through the provision of a specialized course for a specific workforce need in the school's region. The learning experience is at a qualified site, and is designed to give the student the opportunity to learn and practice technical skills; while working under the direction of the appropriately licensed professional. Throughout the course, students will focus on learning about employment opportunities and obtaining the knowledge, skills and attitudes essential for success in specific occupations. Course standards and curriculum must be tailored to the specific profession, preparing students to advance in this career field, and where applicable, provide students with opportunities for certification or dual credit. Participation in a related CTSO encourages the development of leadership, communication and career related skills, and opportunities for community service.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

4794 Introduction to Design Processes

(INT DES PRO)

Introduction to Design Processes is a course that specializes in modern design and engineering processes with a focus on creative problem solving in developing, testing, communicating, and presenting post-evaluation of products. Students use the design process to analyze research, develop ideas, and produce products solutions. This process gives a framework through which they design, manufacture, test, and present their ideas. Students will demonstrate and utilize design principles and elements for visual presentation. Designing aspects will also cover aesthetics, ergonomics, the environment, safety, and production. The design process is a core-learning tool for many courses enabling the student to solve problems in a systematic, logical and creative manner. Students develop a good understanding of the way the process helps

them think creatively and develop aesthetic ideas. The design process encourages the students to engage in higher level thinking to create solutions for many types of problems.

- Recommended Grade: 9, 10
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 or 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4800 Computers in Design & Production

(COMP DES)

Computers in Design and Production 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.

- Recommended Grade: 9, 10
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 or 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4801 Computer Science I

(COM SCI I)

Computer Science I introduces the structured techniques necessary for the efficient solution of business-related computer programming logic problems and coding solutions into a high-level language. 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 program flow-charting, pseudo coding, and hierarchy charts as a means of solving problems. The course covers creating file layouts, print charts, program narratives, user documentation, and system flowcharts for business problems; algorithm development and review, flowcharting, input/output techniques, looping, modules, selection structures, file handling, control breaks, and offers students an opportunity to apply skills in a laboratory environment.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Computer Science
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Fulfills a science course requirement for all diplomas
- Qualifies as a quantitative reasoning course

4802 Introduction to Engineering Design

(INT ENG DES)

Introduction to Engineering Design is a fundamental pre-engineering course where students become familiar with the engineering design process. Students work both individually and in teams to design solutions to a variety of problems using industry standard sketches and current 3D design and modeling software to represent and communicate solutions. Students apply their knowledge through hands-on projects and document their work with the use of an engineering notebook. Students begin with completing structured activities and move to solving open-ended projects and problems that require them to develop planning, documentation, communication, and other professional skills. Ethical issues related to professional practice and product development are also presented. NOTE: This course aligns with the PLTW Introduction to Engineering Design curriculum. Use of the PLTW curriculum may require additional training and membership in the PLTW network.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4803 Introduction to Computer Science

(INTO CS)

Introduction to Computer Science allows students to explore the world of computer science. Students will gain a broad understanding of the areas composing computer science. Additionally, there is a focus on the areas of computer programming, gaming/mobile development, and artificial intelligence/robotics.

- Recommended Grade: 9, 10
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 to 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4818 Environmental Sustainability

(ENV SUS)

Environmental Sustainability is a specialization course that builds upon prior knowledge learned in previous engineering and science courses. Students investigate and design solutions in response to current challenges such as providing the world with clean and abundant drinking water, an adequate food supply, and renewable energy. Students are introduced to environmental issues and use the engineering design process to design, build, and test potential solutions. This course engages critical thinking and problem-solving skills as students apply and extend their knowledge through designing experiments, managing projects, conducting research, and creating presentations to communicate solutions.

- Recommended Grade: 11, 12
- Required Prerequisites: Introduction to Engineering Design and/or Principles of Engineering
- Recommended Prerequisites: Biology
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Fulfills a science course requirement for all diplomas
- If PLTW curriculum is used, PLTW training is required of the teacher.

4836 Mechanical Drafting and Design I

(MECH DD I)

Mechanical Drafting and Design I provides students with a basic understanding of the detailing skills commonly used by drafting technicians. 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 also provides a basic understanding of the features and considerations associated with the operation of a computer-aided design (CAD) system. Students will gain hands-on experience with Auto CAD. 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.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Computers in Design and Production
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4838 Mechanical Drafting and Design II

(MECH DD II)

Mechanical Drafting and Design II covers working drawings both in detailing and assembly. Topics include: fastening devices, thread symbols and nomenclature, surface texture symbols, classes of fits, and the use of parts lists, title blocks and revision blocks. This course will also focus on advanced CAD features, including fundamentals of three-dimensional modeling for design. An overview of modeling, graphical manipulation, part structuring, coordinate system, and developing strategies of modeling will also be included. Advanced CAD will enable the student to make the transition from 2D drafting to 3D modeling. Students will draw and calculate three-dimensional problems. Theory and methods include graphic developments and the relationships between points, lines and planes, curved lines and surfaces, intersections, and development. Computer software and hardware experiences, as they relate to drafting and design, will be covered.

- Recommended Grade: 12
- Required Prerequisites: Mechanical Drafting and Design I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum

- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

5236 Computer Science II

(CS II PROG)

Computer Science II explores and builds skills in programming and a basic understanding of the fundamentals of procedural program development using structured, modular concepts. 67 Indiana Department of Education High School Course Titles and Descriptions Coursework emphasizes logical program design involving user-defined functions and standard structure elements. Discussions will include the role of data types, variables, structures, addressable memory locations, arrays and pointers, and data file access methods. An emphasis on logical program design using a modular approach, which involves task-oriented program functions.

- Recommended Grade: 11, 12
- Required Prerequisites: Computer Science I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Fulfills a science course requirement for all diplomas
- Qualifies as a quantitative reasoning course

5249 Computer Science III: Software Development Capstone

(CS III SD)

Computer Science III: Software Development focuses on gaining knowledge and acquiring competencies in the processes, techniques and tools used to develop production quality software. The course framework aligns with professional standards and situates software development within the context of a software project, providing focus on requirements development and management, project scheduling, project success metrics, code design, development and review principles, testing procedures, release and revision processes, and project archival. An additional topic provides exposure to career opportunities within the software development field. The final product of this capstone experience is a working software product that adheres to industry standards.

- Recommended Grade: 12
- Required Prerequisites: Computer Science I
- Recommended Prerequisites: Computer Science II

- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Fulfills a science course requirement for all diplomas
- Qualifies as a quantitative reasoning course

5250 Computer Science III: Databases

(CS III DATA)

Computer Science III: Databases introduces students to the basic concepts of databases including types of databases, general database environments, and the importance of data to the business world. Discussion with hands-on activities will include database design, normalization of tables, and development of tables, queries, reports, and applications. Students will be familiarized with the use of ANSI Standard Structured Query Language. Discussions will include database administration and data maintenance. Students will be introduced to data concepts such as data warehousing, data mining, and BIG Data. Students will develop a business application using database software such as Microsoft Access. Students will be required to demonstrate skills such as team building, work ethic, communications, documentation, and adaptability.

- Recommended Grade: 11, 12
- Required Prerequisites: Computer Science I
- Recommended Prerequisites: Computer Science II
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Fulfills a science course requirement for all diplomas
- Qualifies as a quantitative reasoning course

5251 Computer Science III: Informatics

(CS III INFO)

Computer Science III: Informatics introduces the student to terminology, concepts, theory, and fundamental skills used to implement information systems and functions in a wide variety of applications from small businesses to large enterprise organizations. Topics include the history of and trends in computing, operating systems, security, cloud implementations and other concepts associated with applying the principles of good information management to the organization.

- Recommended Grade: 11, 12

- Required Prerequisites: Computer Science I
- Recommended Prerequisites: Computer Science II
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Fulfills a science course requirement for all diplomas
- Qualifies as a quantitative reasoning course

5252 Computer Science III: Special Topics

(CS III SP TOP)

Computer Science III: Special Topics is an extended experience designed to address the advancement and specialization of computer science careers allowing schools to provide a specialized course for a specific computer science workforce need in the school's region. It prepares students with the knowledge, skills and attitudes essential for working in the field of computer science. Course standards and curriculum must be tailored to the specific computer science specialization. This course must prepare students for advancement in this career field and should provide students with opportunities for certification or dual credit.

- Recommended Grade: 11, 12
- Required Prerequisites: Computer Science I
- Recommended Prerequisites: Computer Science II
- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

5253 Computer Science III: Cybersecurity Capstone

(CS III CYBER)

Computer Science III: Cybersecurity introduces the secure software development process including designing secure applications, writing secure code designed to withstand various 69 Indiana Department of Education High School Course Titles and Descriptions types of attacks, and security testing and auditing. It focuses on the security issues a developer faces, common security vulnerabilities and flaws, and security threats. The course explains security principles, strategies, coding techniques, and tools that can help make software fault tolerant and resistant to attacks. Students will write and analyze code that demonstrates specific security development techniques. Students will also learn about cryptography as an indispensable resource for implementing security in real-world applications. Students will learn foundations of cryptography using simple mathematical probability. Information theory, computational complexity, number theory, and algebraic approaches will be covered. NOTE: This course aligns

with the PLTW Cybersecurity curriculum. Use of the PLTW curriculum may require additional training and membership in the PLTW network.

- Recommended Grade: 11, 12
- Required Prerequisites: Computer Science I
- Recommended Prerequisites: Computer Science II
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Fulfills a science course requirement for all diplomas
- Qualifies as a quantitative reasoning course

5518 Aerospace Engineering

(AERO ENG)

Aerospace Engineering should provide students with the fundamental knowledge and experience to apply mathematical, scientific, and engineering principles to the design, development, and evolution of aircraft, space vehicles and their operating systems. Emphasis should include investigation and research on flight characteristics, analysis of aerodynamic design, and impact of this technology on the environment. Classroom instruction should provide creative thinking and problem-solving activities using software that allows students to design, test, and evaluate a variety of air and space vehicles, their systems, and launching, guidance and control procedures. NOTE: This course aligns with the PLTW Aerospace Engineering curriculum. Use of the PLTW curriculum may require additional training and membership in the PLTW network.

- Recommended Grade: 11, 12
- Required Prerequisites: Introduction to Engineering Design; and Principles of Engineering
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

5534 Computer Integrated Manufacturing

(COMP INT MFG)

Computer Integrated Manufacturing is a course that 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. NOTE: This course aligns with the PLTW Computer Integrated Manufacturing curriculum. Use of the PLTW curriculum may require additional training and membership in the PLTW network.

- Recommended Grade: 11, 12
- Required Prerequisites: Introduction to Engineering Design; and Principles of Engineering
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

5538 Digital Electronics

(DIG ELEC)

Digital Electronics 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 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.

NOTE: This course aligns with the PLTW Digital Electronics curriculum. Use of the PLTW curriculum may require additional training and membership in the PLTW network.

- Recommended Grade: 11, 12
- Required Prerequisites: Introduction to Engineering Design; and Principles of Engineering

- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

5614 Introduction to the Energy Industry

(INTRO ENG IND)

Introduction to the Energy Industry provides students with an understanding of the occupations in the energy industry and the education and training to enter and advance in careers in the field. Students will explore all aspects of the energy industry including nuclear, natural gas and renewable energy. Schools certified through the Center for Energy Workforce Development (CEWD) can offer their students the opportunity to earn the Energy Industry Fundamentals Certificate.

- Recommended Grade: 9, 10
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 or 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5616 Energy Industry I

(ENG IND I)

Energy Industry I introduces students to basic concepts in energy delivery as well as maintaining energy related facilities and equipment. This course includes basic electric theory focused on safety and professional standards. Students will also explore the relationship between Alternative and Green Energy as it relates to the delivery of gas and electricity. This course includes field trips, on-site training, mentors, and project-based learning activities in the Energy Industry.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Construction
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5618 Energy Industry II

(ENG IND II)

Energy Industry II builds on skills learned in Energy Industry I. This curriculum includes electrical installation and generation and will touch on natural gas services. Students will have the opportunity to experience career internships, participate with field mentors, carry out a culminating senior project and participate in field trips related to their area of interest. Industry partners would include Energy companies, Electricians Unions, the steel industry, and manufacturing companies.

- Recommended Grade: 11, 12
- Required Prerequisites: Energy Industry I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5640 Architectural Drafting and Design I

(ARCH DDI)

Architectural Drafting and Design I gives students a basic understanding of the detailing skills commonly used by drafting technicians. Areas of study include: lettering, sketching, and the proper use of equipment. This course includes the creation and interpretation of commonly used construction documents. Methods of geometric construction, three-dimensional drawing techniques, and sketching will be taught as well as elementary aspects of residential design and site work. Areas of emphasis will include print reading and drawing. This course also provides 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 Auto CAD. They will be expected to complete several projects relating to command topics.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Computers in Design and Production
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5644 Principles of Engineering

(PRNC ENG)

Principles of Engineering is a course that focuses on the process of applying engineering, technological, scientific and mathematical principles in the design, production, and operation of products, structures, and systems. This is a hands-on course 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. Schools may use the PLTW curriculum to meet the standards for this course. NOTE: This course aligns with the PLTW Principles of Engineering curriculum. Use of the PLTW curriculum may require additional training and membership in the PLTW network.

- Recommended Grade: 10, 11
- Required Prerequisites: Introduction to Engineering Design
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Fulfills a science course requirement for all diplomas
- Qualifies as a quantitative reasoning course

5650 Civil Engineering and Architecture

(CIVIL ENG)

Civil Engineering and Architecture introduces students to the fundamental design and development aspects of civil engineering and architectural planning activities. Application and design principles will be 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. During the planning and design phases, instructional emphasis should be placed on related transportation, water resource, and environmental issues. Activities should include the preparation of cost estimates as well as a review of regulatory procedures that would affect the project design. NOTE: This course aligns with the PLTW Civil Engineering and Architecture curriculum. Use of the PLTW Curriculum may require additional training and membership in the PLTW network.

- Recommended Grade: 11, 12
- Required Prerequisites: Introduction to Engineering Design; and Principles of Engineering
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

5652 Architectural Drafting and Design II

(ARCH DDII)

Architectural Drafting and Design II builds on the concepts of Architectural Drafting and Design I and presents a history and survey of architecture with a focus on the creative design of buildings in a studio environment. This course covers site analysis, facilities programming, space planning, conceptual design, and the proper use of materials. Students will develop presentation drawings, give oral presentations, and critique works. 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 Computer Aided Design (CAD) techniques. It includes an overview of modeling, graphical manipulation, parts-structuring, and modeling strategies. Advanced CAD will enable students to make the transition from 2D drafting to 3D modeling. Various Architectural software packages and applications may be used.

- Recommended Grade: 12
- Required Prerequisites: Architectural Drafting and Design I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas
- Qualifies as a quantitative reasoning course

5684 Electronics and Computer Technology I

(ELECT TECH I)

Electronics and Computer Technology I introduces students to the fundamental electronic concepts necessary for entry into an electronic and computer systems career. Classroom and laboratory experiences will allow students to begin their career preparation in the fundamental

electronics concepts of Jobsite Skills, DC Basics, AC Basics, and Personal Computer Design, and will incorporate safety, technical writing, mathematical concepts, and customer service.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Digital Electronics
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5694 Electronics and Computer Technology II

(ELECT TECH II)

Electronics and Computer Technology II provides the opportunity for students to continue with foundational electronic concepts including circuit analysis and digital electronics modules. This course focuses on applying electronic concepts to real-world solutions in the fields of: industrial technology, emerging electronic technologies, residential and commercial electronic communication, and automation. 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.

- Recommended Grade: 12
- Required Prerequisites: Electronics and Computer Technology I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

5698 Engineering Design and Development

(ENG DES DEV)

Engineering Design and Development is an engineering research course in which students work in teams to research, design, test, and construct a solution to an open-ended engineering problem. The product development life cycle and a design process are used to guide the team to reach a solution to the problem. The team and/or individual(s) communicates their solution to a panel of stakeholders at the conclusion of the course. As the capstone course in the Engineering Pathway, EDD engages students in critical thinking, problem-solving, time

management, and teamwork skills. NOTE: This course aligns with the PLTW Engineering Design and Development curriculum. Use of the PLTW curriculum may require additional training and membership in the PLTW network.

- Recommended Grade: 12
- Required Prerequisites: Introduction to Engineering Design; Principles of Engineering Design; and one pre-engineering specialty course
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

6126 Advanced Career & Technical Education, College Credit: STEM

(ADV CTE CC)

Advanced Career and Technical Education, College Credit is a course title covering any CTE advanced course offered for credit by an accredited post-secondary institution through an adjunct agreement with a secondary school. The intent of this course is to allow students to earn college credit for courses with content that goes beyond that currently approved for high school credit. This course may be used for any dual enrollment course, including a joint program of study involving a postsecondary partnership.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: CTE courses that would help prepare the student for success in this area.
- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

7196 Architectural Design

(ARCT DES)

Architectural Design presents a history and survey of architecture and focuses on the creative design of buildings in a studio environment. This course covers problems of site analysis, facilities programming, space planning, conceptual design, proper use of materials, and selection of structure and construction techniques. Students develop presentation drawings, and give 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.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Design Technology
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7197 Computer Aided Design

(COMP A DSGN)

Computer Aided Design (CAD) will focus on 2D and 3D CAD features. This course improves the student's CAD ability by presenting CAD commands, which will lead to the creation of advanced prototype drawings, graphic manipulation of symbol libraries, the utilization of advanced dimensioning techniques, and application of data sharing techniques. Detailed plotting instruction will also be covered. Students will advance from 2D techniques to the fundamentals of three-dimensional modeling for design including overview of modeling, graphical manipulation, part structuring, coordinate system, and developing a strategy for modeling.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Design Technology
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7198 Electrical Power and Distribution

(ELC PWR DIS)

Electrical Power Distribution is an introduction to the electrical grid and power distribution. It will cover the history of the current electrical grid and the future of the smart grid, basic electrical concepts, power generation, transmission, distribution, system operations, electrical market structures, regulation, restructuring, market dynamics, and most aspects of the electricity business. This course answers the questions of who creates the power we use, how it's distributed throughout the electrical grid, who determines the cost of electricity, and who controls the entire electrical infrastructure. Students will also study the principles and components required for the transmission and distribution of electric power.

- Recommended Grade: 10, 11, 12

- Required Prerequisites: Principles of Energy Technology
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7199 Engineering Essentials

(ENG ESS)

Engineering Essentials is designed as a first-exposure experience to inspire students of all backgrounds to explore the breadth of engineering-related career opportunities. Throughout the course, students explore global engineering challenges and sustainability goals, the impact of engineering, and the variety of career paths available to them. Students will understand the various disciplines within the engineering field, approach and solve problems in different ways, use a variety of industry tools, and build an engineering mindset. NOTE: This course aligns with the PLTW Engineering Essentials curriculum. Use of the PLTW curriculum may require additional training and membership in the PLTW network.

- Recommended Grade: 9
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 or 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7200 Fundamentals of Electricity and Motors

(FUN ELE MOTR)

Fundamentals of Electricity and Motors will introduce students to the basic electrical laws and principles pertaining to DC and AC circuits and provide a general understanding of the common types of electric motors. Electricity topics include current, voltage, resistance, power, inductance, capacitance, and transformers. Stresses the use of standard electrical tests, electrical equipment, and troubleshooting procedures. Topics related to motors will cover motor theory, magnetism and how it affects motor rotation, motor starting components and protective devices for motor circuits. Heat dissipation from a motor, motor slippage, how they are wired to obtain different speeds, and how capacitors affect a motor circuit will be included. Safety procedures and practices are emphasized.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Energy Technology
- Recommended Prerequisites: none

- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7201 Mechanical Design

(MECH DES)

Mechanical Design provides students with a basic understanding of manufacturing principles and design and how they relate to technical drawing and design. Students will use their knowledge of 2D and 3D CAD to explore topics related to manufacturing. The course will cover working drawings both in detailing and assembly. Topics include: fastening devices, thread symbols and nomenclature, surface texture symbols, classes of fits, and the use of parts lists, title blocks and revision blocks.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Energy Technology
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7202 Principles of Design Technology

(PRIN DES TECH)

Principles of Design Technology will provide students with a basic understanding of sketching practices and the features and considerations associated with the operation of computer-aided design (CAD) systems. Students will gain valuable hands-on experience creating sketches and using CAD software. Students will complete projects relating to specific technical drawing communication topics and disciplines.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7203 Principles of Energy Technology

(PRIN ENER TECH)

Principles of Energy Technology provides a broad understanding of the electric and natural gas utility industry and the energy generation, transmission, and distribution infrastructure, commonly called the “largest machine in the world,” which forms the backbone for the industry. The course includes business models, regulations, types of energy and their conversion to useable energy such as electric power, how generated power is transmitted and distributed to the point of use, emerging technologies and the connection to careers in the energy industry. Safety instruction covers topics including; Material Safety Data Sheets (MSDS), confined space, lock out/tag out, zero energy state, hazardous materials, storage of flammable materials, storage of fuel gas and high pressure gas cylinders, portable powered tool safety, hand tool safety, record keeping, training, employer enforcement of safety regulations, and right to know.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

4798 Introduction to Transportation

(INT TRANS)

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.

- Recommended Grade: 9, 10
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 or 2 semester course, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5510 Automotive Services Technology I

(AUTO TECH I)

Automotive Services Technology I is a one year course that encompasses the sub topics of the NATEF/ ASE identified areas of Steering & Suspension and Braking Systems. 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, air conditioning, and engine repair should be covered as time permits. This one year offering must meet the NATEF program certifications for the two primary areas offered in this course. This course provides the opportunity for dual credit for students who meet post-secondary requirements for earning dual credit and successfully complete the dual credit requirements of this course. Mathematical skills will be reinforced through precision measuring activities as well as cost estimation and calculation activities. Scientific principles taught and reinforced in this course 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.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Transportation
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5514 Automotive Collision Repair I

(ACR TECH I)

Automotive Collision Repair Technology I includes classroom and laboratory experiences in all phases of the body repair process. Students will examine the characteristics of body metals including the installation of moldings, ornaments, and fasteners with an emphasis on sheet metal analysis and safety. Course coverage also includes instruction in personal and environmental safety practices as related to OSHA and other regulatory agencies. Additional instruction is given in the course on measurement principles and automotive fasteners. Instruction should also emphasize computerized frame diagnosis, color-mixing, and estimation of repair costs.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Transportation

- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5520 Aviation Maintenance I

(AV MAINT)

Aviation Maintenance I is a comprehensive course that familiarizes the student with Federal Aviation Regulations, weight and balance, ground operation, maintenance forms and records, non-destructive \testing methods, aircraft paint and refinishing systems and the basics of aircraft welding. The course also covers various onboard systems including cabin atmospheric control systems, pressurization and fire detection/extinguishing systems. This course familiarizes students with the inspection, damage evaluation and repair of composite and wood structures, windows and fabric covering systems used on aircraft.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Aerospace Engineering
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5522 Aviation Maintenance II

(AV MAINT)

Aviation Maintenance II builds on concepts learned in Aviation Maintenance I. The course provides a deeper focus on testing methods, aircraft systems and engine maintenance and repair procedures. The course also covers inspection and damage evaluation and compliance with applicable FAA regulations.

- Recommended Grade: 12
- Required Prerequisites: Aviation Maintenance I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum Counts as a directed elective or elective for all diplomas
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

5524 Aviation Flight

(AV FLIGHT)

Aviation Flight familiarizes students with aviation technology and provides a historic overview of the field. This course also provides an overview of the careers and employment opportunities in the field of aviation. It prepares new student pilots for the maneuvers that are required to be performed during the Practical Test portion of the Private Check Ride. In addition to these maneuvers, the concepts of basic aerodynamics, aircraft systems, instrument operation, weight and balance, flight physiology and a basic working knowledge of aircraft power plants and their construction will be covered.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Aerospace Engineering
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5528 Aviation Operations

(AV OPS)

Aviation Operations provides students with a broad-based introduction to the field of aviation. Course activities include: familiarization with aviation technology; a historic overview of the field of aviation; exploration of the current aviation environment and careers and employment opportunities in the field. Topics are focused on aircraft manufacturing, airline operations, general aviation, air-freight, airport management, and government service. Additional topics covered include: aviation safety, human factors, regulations, and certification. This course is designed to enhance the students' knowledge of the pertinent areas of aircraft basic science that comprise the scientific fundamentals applied in all areas of the aviation industry. The fundamental areas of the federal aviation regulations, pertinent to aviation operations, are also introduced in this course.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Aerospace Engineering
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5544 Automotive Collision Repair II

(ACR TECH II)

Automotive Collision Repair Technology II introduces concepts in automotive painting with an emphasis on the handling of materials and equipment in modern automotive technologies. Instruction should build on concepts learned in Automotive Collision Repair Technology I. Additional academic skills taught in this course include precision measurement and mathematical calibrations as well as scientific principles related to adhesive compounds, color-mixing, abrasive materials, metallurgy, and composite materials.

- Recommended Grade: 12
- Required Prerequisites: Automotive Collision Repair Technology I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5546 Automotive Services Technology II

(AUTO TECH II)

Automotive Services Technology II is a one year course that encompasses the sub topics of the NATEF/ASE identified areas of Electrical 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 NATEF program certifications for the two primary areas offered in this course. Mathematical skills will be reinforced through precision measuring activities and cost estimation/calculation activities.

Scientific principles taught and reinforced in this course 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.

- Recommended Grade: 12
- Required Prerequisites: Automotive Services Technology I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5620 Diesel Service Technology I

(DIESL TECH I)

Diesel Services Technology I introduces students to engine operation principles and theories as well as diesel fuel systems and hands-on training related to modern diesel engines. The course covers inspection, troubleshooting, overhaul and engine replacement procedures. It includes classroom and laboratory experiences focused on diesel engine repair. Students will demonstrate performance of these tasks as defined by ASE/NATEF standards. Use of technical manuals, hand and power tools and of testing and diagnostic equipment are also studied in the course.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Intro to Transportation
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

5622 Tractor/Trailer Operation

(TRACT OPER)

Tractor/Trailer Operation, is a comprehensive training program that prepares students to enter the trucking industry as an entry-level tractor-trailer operator. Instruction will include both classroom activities and behind-the-wheel driving experiences. Additional emphasis will include preventive maintenance and basic control skills training. Students are required to submit to and pass a Department of Transportation, Distribution and Logistics physical exam and drug screen. In addition, students must reach their 18th birthday prior to graduation from high school in order to enroll in and complete this course. Upon successful completion, students will be qualified to operate Class A Commercial Vehicles on Indiana highways.

- Recommended Grade: 12
- Required Prerequisites: none
- Recommended Prerequisites: Diesel Services Technology I
- Credits: Credits: 1 semester course, 1-3 credits per semester, 3 credits maximum
- Counts as a directed elective or elective for all diplomas

5624 Diesel Service Technology II

(DIESL TECH II)

Diesel Service Technology II includes classroom and laboratory experiences covering all phases of repair work on diesel electrical systems. Instruction and practice is provided in the diagnostics and repair of electrical/electronic systems. Students will demonstrate performance of tasks as measured by ASE/NATEF standards. Use of technical manuals, hand and power tools and of testing and diagnostic equipment are covered. Instruction in personal and environmental safety practices as related to OSHA and other agencies that affect individuals working in the ground transportation technology areas is also covered. Utilization of analog and digital meters, wiring diagrams, and other diagnostic tools will be stressed in a hands-on environment.

- Recommended Grade: 12
- Required Prerequisites: Diesel Service Technology I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas
- Qualifies as a quantitative reasoning course

5842 Recreational and Mobile Equipment I

(RME I)

Recreational and Mobile Equipment I introduces students to fundamental concepts in the internal workings and operations of engines. Training will cover hydraulics, cooling and electrical systems, and other engine components. Students will explore the interrelatedness of these systems by examining and identifying the commonalities and differences between the various engines that power recreational and mobile equipment. Additional emphasis should be placed on content specific reading of repair and maintenance manuals.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: Introduction to Transportation
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

5844 Recreational and Mobile Equipment II

(RME II)

Recreational and Mobile Equipment II builds on the basic engine concepts of Recreational and Mobile Equipment I. Advanced training should cover care and service of recreational vehicles including motorcycles, mini-bikes, snowmobiles, all-terrain vehicles (ATVs), and outboard motors. Daily emphasis is placed on reading technical manuals and using oral communications skills in a customer service setting.

- Recommended Grade: 12
- Required Prerequisites: Recreational and Mobile Equipment I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

6128 Advanced Career & Technical Education, College Credit: Transportation

(ADV CTE CC TRANS)

Advanced Career and Technical Education, College Credit is a course title covering any CTE advanced course offered for credit by an accredited post-secondary institution through an adjunct agreement with a secondary school. The intent of this course is to allow students to earn college credit for courses with content that goes beyond that currently approved for high school credit. This course may be used for any dual enrollment course, including a joint program of study involving a postsecondary partnership.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: CTE courses that would help prepare the student for success in this area.
- Credits: Credits: 1 semester course, up to 3 credits per semester, May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

6156 Transportation: Special Topics

(TRANS ST)

Transportation: Special Topics is an extended learning experience designed to address the advancement and specialization of careers within the career cluster through the provision of a specialized course for a specific workforce need in the school's region. The learning experience

is at a qualified site, and is designed to give the student the opportunity to learn and practice technical skills; while working under the direction of the appropriately licensed professional. Throughout the course, students will focus on learning about employment opportunities and obtaining the knowledge, skills and attitudes essential for success in specific occupations. Course standards and curriculum must be tailored to the specific profession, preparing students to advance in this career field, and where applicable, provide students with opportunities for certification or dual credit. Participation in a related CTSO encourages the development of leadership, communication and career related skills, and opportunities for community service.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 1 semester course, up to 3 credits per semester; May be offered for successive semesters up to 12 credits
- Counts as a directed elective or elective for all diplomas

7204 Automotive Body Repair

(AUTO BDY REP)

This course examines the characteristics of body metals and includes the installation of moldings, ornaments, and fasteners with emphasis on sheet metal analysis and safety. Additionally, this course introduces fundamentals of using hand and power tools in the repair of minor collision damage, with emphasis on safety.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Automotive Technology; and Automotive Paint and Welding
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7205 Automotive Brakes and Electrical

(AUTO BRK ELE)

This course gives students an in-depth study of vehicle electrical systems. Students will study the fundamentals of electricity and automotive electronics in various automotive systems. Additionally it teaches theory, service and repair of automotive braking systems. This course provides an overview of various mechanical brake systems used on today's automobiles. This course will emphasize professional diagnosis and repair methods for brake systems.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Automotive Services
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7206 Automotive Paint and Welding

(AUTO PT WELD)

This Course introduces auto paint considerations with emphasis on the handling of materials and equipment in modern automotive technologies. Provides basic skills and fundamental knowledge in oxy-fuel welding, cutting, brazing and plasma cutting, gas metal arc welding, squeeze type resistance welding, exterior panel welding and I-CAR welding test preparation. This course is designed for auto service and body technicians. Emphasizes safe practices in oxy-fuel and specific welding processes in the automotive body repair field.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Automotive Technology
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7207 Aviation Safety and Operations

(AVI SAF OPS)

This course is an overview of general aviation operations, including the operation and management of the Fixed Base Operation (FBO). It introduces the challenges and complexity of aviation security faced by aviation professionals across the industry and traces the evolution of current security approaches and explores technologies and processes targeting threat mitigation and improved operational efficiency. Emphasis will be placed on financial and operational considerations as well as on regulatory requirements and constraints.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Aviation Management
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7208 Aviation Sheet Metal I

(AVI SHT MET I)

This course is designed to develop skills in the inspection and repair of aircraft sheet metal structures. Students will layout, fabricate, and install sheet metal repairs that conform to F.A.A. return to service standards. The student will select various sheet metal fasteners and use the proper installation tools to accomplish repairs. This course also addresses the aerodynamic stresses applied to sheet metal structures and the assessment of damage in determining airframe reparability.

- Recommended Grade: 11, 12
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

7209 Aviation Sheet Metal II

(AVI SHT MET II)

This course expands on the knowledge learned in Aviation Sheet Metal I. The student will gain further knowledge and skills in various techniques of fabricating and repairing aircraft sheet metal structures, structural load analysis and assessment of damage, characteristics of aluminum alloys, standard and special fastener installation, and layout and forming techniques are emphasized.

- Recommended Grade: 11, 12
- Required Prerequisites: Aviation Sheet Metal I
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1-3 credits per semester, 6 credits maximum
- Counts as a directed elective or elective for all diplomas

7210 Diesel Steering and Brakes

(DSL STR BRKS)

This course studies steering, and suspension systems commonly used on modern tractors and trailers. Study will include steering and suspension components, power steering units, alignment theory and procedures, tire repair and service, and wheel balancing. Diagnosis, repair, and servicing of components including modern air suspension systems will be

emphasized. Additionally, this course will cover theory, service, and repair of medium and heavy truck brake systems and their components. Emphasis is given to air brakes and their theory of operation, repair, and service of system components. Spring brakes and anti-lock systems will be studied on tractors and trailers.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Diesel Technology
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7211 Diesel Transmission and Engine Repair

(DSL TRN ENGI REP)

This course explores theory, diagnosis, and overhaul procedures related to manual transmissions and differentials. Course includes service of twin countershaft, under-drive, overdrive, power-dividers, and air shift systems. Additionally, this course Studies precision tools, equipment, and procedures needed to repair modern diesel engines. Repair, proper assembly, and component identification are studied along with service of removable cylinder liners.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Diesel Technology
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7212 Engine Performance

(ENG PERF)

This course takes an in-depth look at engine performance, including concepts in the diagnosis and repair of ignition, fuel, emission and related computer networks. This course presents engine theory and operation and studies the various engine designs utilized today. This course also takes an in-depth look at engine performance, including advanced concepts in the diagnosis and repair of ignition, fuel, emission and related computer networks. This course presents engine theory and operation and studies the various engine designs utilized today. Hybrid/Alternative fuel technology will also be introduced.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Automotive Services; and Brakes and Electrical
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7213 Principles of Automotive Services

(PRIN AUTO SER)

This course gives students an overview of the operating and general maintenance systems of the modern automobile. Students will be introduced to the safety and operation of equipment and tools used in the automotive industry. Students will study the maintenance and light repair of automotive systems. Also, this course gives students an overview of the electrical operating systems of the modern automobile. Students will be introduced to the safety and operation of equipment and tools used in the electrical diagnosis and repair in the automotive electrical industry. Students will study the fundamentals of electricity and automotive electronics.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7214 Principles of Aviation Management

(PRIN AVI MAN)

This course provides the student the opportunity to develop an understanding of various aspects of the aviation industry to include general regulations and laws associated with the field. Included is an overview of the aviation field and all employment opportunities. Areas of study include aerodynamics, aircraft systems, performance, weight and balance, physiology, regulations, cross country planning, weather, and decision-making skills. Students will also learn of the departments associated with an airport and their impact on the industry as a whole.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum

- Counts as a directed elective or elective for all diplomas

7215 Principles of Collision Repair

(PRIN COL REP)

This course gives students an overview of the electrical operating systems of the modern automobile. Students will be introduced to the safety and operation of equipment and tools used in the electrical diagnosis and repair in the automotive electrical industry. Students will study the fundamentals of electricity and automotive electronics. This course also provides students an overview of the operating and general maintenance systems of the modern automobile. Students will be introduced to the safety and operation of equipment and tools used in the automotive collision industry. Students will study the basics of collision repair in the automotive industry.

- Recommended Grade: 9, 10, 11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7216 Principles of Diesel Services

(PRIN DSL SERV)

This course introduces the maintenance requirements and procedures of modern diesel engines and medium and heavy-duty trucks. Proper procedures and requirements for the Federal Highway Safety Inspection (DOT) will be discussed and practiced. In addition, this course gives students an overview of the electrical operating systems of the modern automobile. Students will be introduced to the safety and operation of equipment and tools used in the electrical diagnosis and repair in the automotive electrical industry. Students will study the fundamentals of electricity and automotive electronics.

- Recommended Grade: 9,10,11
- Required Prerequisites: none
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas

7217 Private Pilot Theory

(PVT PLT THRY)

The student will receive ground school knowledge required for certification as a private pilot with an airplane single engine land rating. Areas of study include aerodynamics, aircraft systems, performance, weight and balance, physiology, regulations, cross country planning, weather, and decision-making skills.

- Recommended Grade: 10, 11, 12
- Required Prerequisites: Principles of Aviation Management
- Recommended Prerequisites: none
- Credits: Credits: 2 semester course, 2 semesters required, 1 credit per semester, 2 credits maximum
- Counts as a directed elective or elective for all diplomas