

North Lawrence Career Center Course Descriptions 2021-2022

Agriculture

7117 Principles of Agriculture (PRIN AG) DOE# 7117

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.

604 Animal Science (ANML SCI) DOE# 5008

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.

- Required Prerequisites: Principles of Agriculture

605 Advanced Life Science, Animals (L) (ALS ANIML) DOE# 5070

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.

- Required Prerequisites: Principles of Agriculture
- Fulfills a science requirement for all diplomas.
- Qualifies as a quantitative reasoning course

606 Natural Resources (NAT RSS) DOE# 5180

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.

608 Agribusiness Management (AG BUS MGMT) DOE# 5002

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

- Qualifies as a quantitative reasoning course

612 Horticultural Science (HORT SCI) DOE# 5132

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.

- Fulfills a Life Science or Physical Science requirement for the General Diploma

607 Sustainable Energy Alternatives (SUS NRG) DOE# 5229

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 experience, and career exploration opportunities are included in the study of this field. Sustainable energy is also included.

6582 AGRICULTURE POWER, STRUCTURE AND TECHNOLOGY (AG POW) DOE# 5008

Agriculture Power, Structure and Technology is a lab intensive course in which students develop an understanding of basic principles of selection, operation, maintenance and management of agricultural equipment in concert while incorporating technology. Topics covered include: safety, 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.

ANIMAL SCIENCE – 5008 (ALS ANIML)

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.

- Fulfills a Life Science or Physical Science requirement for the General Diploma

615 VETERINARY CAREERS I (VET CRS I) DOE# 5211

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.

Arts, AV Tech & Communication

4790 Introduction to Communications (INT COMM) DOE# 4790

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 265 Indiana Department of Education 2021-2022 High School Course Titles and Descriptions 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.

620/6202 GRAPHIC DESIGN AND LAYOUT DOE# 5550 (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 Indiana Department of Education 130 High School Course Titles and Descriptions 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.

623/6232 INTERACTIVE MEDIA (INT MEDIA) DOE#5232

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”

6452 RADIO AND TELEVISION I (RAD TV I) DOE# 5986

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.

6462 RADIO AND TELEVISION II (RAD TV II) DOE# 5992

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.

- Required Prerequisites: Radio and Television I

Education

EARLY CHILDHOOD EDUCATION

*Students will sign up for all three: Principles of Early Childhood Education, Early Childhood Education Curriculum, and Early Childhood Education Guidance in order to fulfill Early Childhood Education 1.

7160 Principles of Early Childhood Education (PRIN EAR CH ED) DOE# 7160

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.

7158 Early Childhood Education Curriculum (EAR CHD ED CUR) DOE# 7158

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.

- Required Prerequisites: Principles of Early Childhood

7159 Early Childhood Education Guidance (EAR CHD ED GD) DOE# 7159

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.

- Required Prerequisites: Principles of Early Childhood

6432 EARLY CHILDHOOD EDUCATION II DOE# 5406

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.

- Required Prerequisites: Early Childhood Education I

ENGINEERING -- PLTW

672 Introduction to Design Processes (INT DES PRO) DOE# 4794

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, 318 Indiana Department of Education 2021-2022 High School Course Titles and Descriptions 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.

674 Principles of Engineering (PRNC ENG) DOE# 5644

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.

- Required Prerequisites: Introduction to Engineering Design

673 Civil Engineering and Architecture (CIVIL ENG) DOE# 5650

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.

- Required Prerequisites: Introduction to Engineering Design; and Principles of Engineering
- Qualifies as a quantitative reasoning course

675 Digital Electronics (DIG ELEC) DOE# 5538

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.

- Required Prerequisites: Introduction to Engineering Design; and Principles of Engineering
- Qualifies as a quantitative reasoning course

679 Computer Integrated Manufacturing (COMP INT MFG) DOE# 5534

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.

- Required Prerequisites: Introduction to Engineering Design; and Principles of Engineering
- Qualifies as a quantitative reasoning course

FAMILY & CONSUMER SCIENCE

***The health education credit may be waived for a student if the student's program includes three (3) credits from the following family and consumer sciences courses: (A) Child development and parenting. (B) Human development and family wellness. (C) Interpersonal relationships. (D) Nutrition and wellness. (E) Preparing for College & Careers or Adult roles and responsibilities**

629 Nutrition and Wellness (NTRN WLNS) DOE# 5342

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

634 Interpersonal Relationships (INTRP RLT) DOE# 5364

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.

635 Human Development and Wellness (HUMAN DEV) DOE# 5366

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 294 Indiana Department of Education 2021-2022 High School Course Titles and Descriptions 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.

636 Adult Roles and Responsibilities (ADULTROLES) DOE# 5330

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 289 Indiana Department of Education 2021-2022 High School Course Titles and Descriptions strongly

recommended. This course provides the foundation for continuing and post-secondary education in all career areas related to individual and family life.

638 Child Development (CHLD DEV) DOE# 5362

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.

641 Advanced Child Development (ADVCHLDDEV) DOE# 5360

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, 292 Indiana Department of Education 2021-2022 High School Course Titles and Descriptions 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.

HEALTH CAREERS

6832 HEALTH SCIENCE EDUCATION I (HLTH ED I) DOE# 5282

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.

6842 HEALTH SCIENCE EDUCATION II: NURSING (HSE II NURS) DOE# 5284

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.

- Required Prerequisites: Health Science Education I

615 Veterinary Careers I (VET CRS I) DOE# 5211

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 postsecondary 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.

HUMAN SERVICES

633 Introduction to Culinary Arts and Hospitality (INT CUL HOS) DOE# 5438

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.

6862 Criminal Justice I (CRIME I) DOE# 5822

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.

5824 Criminal Justice II (CRIME II) DOE #5824

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.

- Prerequisites: Criminal Justice I

INFORMATION TECHNOLOGY

639 Introduction to Computer Science (INTO CS) DOE# 4803

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.

678 Computer Science I (COM SCI I) DOE# 4801

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 flowcharting, 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, 319 Indiana Department of Education 2021-2022 High School Course Titles and Descriptions modules, selection structures, file handling, control breaks, and offers students an opportunity to apply skills in a laboratory environment.

- Fulfills a science course requirement for all diplomas
- Qualifies as a quantitative reasoning course

670 Computer Science II (CS II PROG) DOE# 5236

Computer Science II explores and builds skills in programming and a basic understanding of the fundamentals of procedural program development using structured, modular concepts. 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.

- Required Prerequisites: Computer Science I
- Fulfills a science course requirement for all diplomas
- Qualifies as a quantitative reasoning course

TRADES & INDUSTRY

Architecture and Construction

650 Introduction to Construction (INT CONST) DOE# 4792

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.

Construction Trades

*Students will sign up for all three: Principles of Construction Trades,, Construction Trades: General Carpentry, and Construction Trades: Framing and Finishing in order to fulfill Construction Trades 1.

7130 Principles of Construction Trades (PRIN CON TR) DOE# 7130

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.

7123 Construction Trades: General Carpentry (CON TRD GC) DOE# 7123

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.

- Required Prerequisites: Principles of Construction Trades

7122 Construction Trades: Framing and Finishing (CON TRD FR FIN) DOE# 7122

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.

- Required Prerequisites: Principles of Construction Trades; and Construction Trades: General Carpentry

6882 CONSTRUCTION TRADES II (CONST TRA II) DOE# 5578

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.

- Required Prerequisites: Construction Trades I

MANUFACTURING

650 Introduction to Trades (INT ADV MFTG) DOE# 4796

Introduction to Trades 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.

PRECISION MACHINING

*Students will sign up for all three: Principles of Precision Machining, Machining Fundamentals, and Precision Machining in order to fulfill Precision Machining 1.

7109 Principles of Precision Machining (PRIN PREC MACH)DOE# 7109

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.

7105CC Machining Fundamentals (MACH FUN) DOE# 7105

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.

- Required Prerequisites: Principles of Precision Machining
- Qualifies as a quantitative reasoning course

7107 Precision Machining (PREC MACH) DOE# 7107

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.

- Required Prerequisites: Principles of Precision Machining; and Machining Fundamentals
- Qualifies as a quantitative reasoning course

PRECISION MACHINING II (PCSN MACH II) DOE# 5784

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.

- Required Prerequisites: Precision Machining I

WELDING TECHNOLOGY

*Students will sign up for all three: Principles of Welding Technology, Shielded Metal Arc Welding, and Gas Welding Processes in order to fulfill Welding Technology 1.

7110 Principles of Welding Technology (PRIN WEL TCH) DOE# 7110

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.

7111 Shielded Metal Arc Welding (SHLD MAW) DOE# 7111

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.

- Required Prerequisites: Principles of Welding Technology Recommended Prerequisites: none

7101CC Gas Welding Processes (GAS WEL PRC) DOE# 7101

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.

- Required Prerequisites: Principles of Welding Technology Recommended Prerequisites: none

6572 WELDING TECHNOLOGY II (WELD TECH II) DOE# 5778

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

- Required Prerequisites: Welding Technology I

TRANSPORTATION

650 Introduction to Transportation (INT TRANS) DOE# 4798

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.

AUTOMOTIVE COLLISION REPAIR

*Students will sign up for all three: Principles of Collision Repair, Automotive Paint and Welding, and Automotive Body Repair in order to fulfill Automotive Collision Repair 1.

7215 Principles of Collision Repair (PRIN COL REP) DOE# 7215

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.

7206 Automotive Paint and Welding (AUTO PT WELD) DOE# 7206

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 oxfuel and specific welding processes in the automotive body repair field.

- Required Prerequisites: Principles of Automotive Technology

7204 Automotive Body Repair (AUTO BDY REP) DOE# 7204

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.

- Required Prerequisites: Principles of Automotive Technology; and Automotive Paint and Welding

6552 AUTOMOTIVE COLLISION REPAIR II (ACR TECH II) DOE# 5544

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.

- Required Prerequisites: Automotive Collision Repair Technology I

AUTOMOTIVE SERVICES TECHNOLOGY

*Students will sign up for all three: Principles of Automotive Services, Automotive Brakes and Electrical, and Engine Performance in order to fulfill Automotive Services Technology 1.

7213 Principles of Automotive Services (PRIN AUTO SER) DOE# 7213

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.

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.

- Required Prerequisites: Principles of Automotive Services

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.

- Required Prerequisites: Principles of Automotive Services; and Brakes and Electrical

6532 AUTOMOTIVE SERVICES TECHNOLOGY II (AUTO TECH II) DOE# 5546

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.

- Required Prerequisites: Automotive Services Technology I