2018 – 2019 CURRICULUM GUIDE

Available to students from LN and LC, the McKenzie Center for Innovation and Technology houses state-of-the-art equipment and materials in the classrooms and labs. The Center embraces rigorous academic programs and diverse technological career courses, which prepare its college and career-bound students for post-secondary education at two and four-year colleges, military service, workplace entry, or advanced technical training in a variety of business, medical, and industrial fields. The low teacher-student ratio, nurturing environment, cutting edge technology, and broad array of career programs, focused and motivated students, dual-credited courses and national certifications are continually cited as advantages by McKenzie students.

BUSINESS / MARKETING / FINANCE
INTRODUCTION

Business and industry surveys indicate that economic survival in the 21st century will demand that students know and understand both fundamental and technical concepts of business as well as possess the ability to execute these concepts in nearly any setting. All persons regardless of age, gender, and career aspirations, can benefit from participating in business, marketing, and information technology education. These programs provide a foundation for success for *all students*.

Looking to the future and adjusting and adapting as innovations emerge, the business, marketing and information technology education curriculum has changed dramatically over the years and now parallels the practices being implemented in business/industry both at home and abroad. As the explosion of technology began impacting businesses in an unprecedented manner, business, marketing, and information technology education quickly adjusted the curriculum to follow suit. When American businesses began to expand their frontiers to include global transactions, business, marketing, and information technology education began incorporating international content into the curriculum. Business, marketing, and information technology education has never been a static, stationary discipline; rather, it is an emerging, expanding, and challenging field.

The mission of Business, Marketing, and Information Technology Education in Indiana is to work cooperatively with business/industry to prepare all individuals to live and work as productive citizens in a changing global society by providing essential business, marketing, and information technology experiences, education, and training. These experiences should actively engage students using instructional strategies that rely on the use of technology and practices that reflect current and emerging business/industry procedures.

"M" indicates the course is taught at the McKenzie Center for Innovation and Technology (MCIT).

11/10/2017 jmf

PREPARING FOR COLLEGE & CAREERS   5394M Fall Only Semester paired w/ Intro to Business 4518M Spring Only

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 Level: Grade 9**
- **Recommended Prerequisites: None**
- **Credits: 1 credit   Semester: 1 Fall Only   Paired w/ Intro to Business 4518MS**
- **This course qualifies as one of the six FACS courses from which students may choose three to fulfill the required Health and Safety credit—See Rule 511 IAC 6-7-6 (6)**
- **Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas**

INTRODUCTION TO BUSINESS   4518MS Spring Semester Only paired with Preparing for College & Careers 5394MF

Introduction to the business world including local, national and International. This course will cover business management, entrepreneurship, marketing fundamentals, and business ethics and law. This course develops business vocabulary and provides an overview of business and the role that business plays in economic, social and political environments.

- **Recommended Grade Level: Grade 9**
- **Recommended Prerequisites: None**
- **Credits: 1 credit   Semester: 1 Spring Only   Paired w/ Preparing For College & Careers 5394MF**
- **This course qualifies as one of the six FACS courses from which students may choose three to fulfill the required Health and Safety credit—See Rule 511 IAC 6-7-6 (6)**
- **Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas**

PRINCIPLES OF MARKETING 5914M

Principles of Marketing 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 sport event industries, their economic impact and products; advertising/promotion/selling, distribution, financing, marketing-information management, pricing, and product/service management
.

- **Recommended Grade level: Grade 10-12**
- **Recommended Prerequisites: None**
- **Credits: 2 semester course, 1 credit each semester, maximum of 2 credit**
- **Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas**
- **Course Aligned with postsecondary courses for Dual Credit**

PRINCIPLES OF BUSINESS MANAGEMENT   4562M

Business, Marketing and Entrepreneurship 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 further develops business vocabulary and provides an overview of business and the role that business plays in economic, social, and political environments.

- **Recommended Grade Level: Grade 10 - 12**
- **Credits: 2 semester course, 1 credit each semester, maximum of 2 credit**
- **Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas**
- **Course Aligned with postsecondary courses for Dual Credit through IVY TECH**

ACP PRINCIPLES OF BUSINESS MANAGEMENT   4562MK

Business administration from the standpoint of the manager of a business firm operating in the contemporary economic, political, and social environment. ACP Bus X100 Business Administration: Introduction

- **Recommended Grade Level: Grade 10 – 12**
- **Must have a minimum 2.7 Cum. GPA**
- **Weighted Course 1.0**
- **Credits: 2 semester course, 1 credit each semester, maximum of 2 credit**
- **Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors Diplomas Course Aligned with postsecondary courses for Dual Credit through IU Kelly School of Business**

MERCHANDISING (FASHION)   5962M

Fashion 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 focuses on Fashion Merchandising, sporting goods, or electronics.

- **Recommended Grade Level: 10-12**
- **Recommended Prerequisite: Have taken Principles Of Marketing or Principles Of Management**
- **Credits: 1 credit per semester, 2 semester course**
- **Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas**

INTRODUCTION TO ACCOUNTING   4524M

Accounting 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 Level: 10-12**
- **Recommended Prerequisite: At least one other Business Course**
- **Credits: 1 credit per semester, 2 semester course**
- **Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas**
- **Course Aligned with postsecondary courses for Dual Credit**

ENTREPRENEURSHIP & NEW VENTURES   5966M

Entrepreneurship is the process of starting and managing your own business. This class is specifically designed for students who hope to open their own business in the future. Each student will complete a business plan – an actual proposal that describes every part of a new business. This plan is used to obtain financing as well as guide the opening and management of a business. The development of the plan includes self-directed research. Topics covered will include free enterprise, marketing, financing, tax laws, human resource management, and purchasing. Students will have the opportunity to compete in regional, state, and international competitions to earn recognition and scholarships through DECA – an association of marketing students. Successful completion of Entrepreneurship prepares students to continue to Advanced Marketing and Co-op during their senior year where students can learn and earn through a paid internship.

- **Recommended Grade Level: 12**
- **Recommended Prerequisite: At least one other Business Course**
- **Credits: 1 credit per semester, 2 semesters course**
- **Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas**
- **Course Aligned with postsecondary courses for Dual Credit**

MARKETING IN HOSPITALITY AND TOURISM   5982M

This course is a specialized marketing course that develops students understanding of marketing in the hospitality, travel, and tourism industry. Students gain experience marketing-information management, pricing, product/service management, promotion, and selling in the hospitality, travel and tourism industry.

- **Recommended Grade Level: Grade 10-12**
- **Credits: 1 credit per semester, 2 semesters course**
- **Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas**

SPORTS AND ENTERTAINMENT MARKETING   5984M

This marketing class develops students understanding of the sport/event industries, their economic impact, and product distribution systems and strategies; pricing considerations; product/service management, and promotion. Students acquire an understanding and appreciation for planning.

- • **Recommended Grade Level: Grade 11-12**
- • **Credits: 1 credit per semester, 2 semesters course**
- • **Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas**

BANKING AND INVESTMENT   (CAPSTONE)   5258

Banking and Investment Capstone addresses the need of schools in areas that have workforce demand in the finance 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.

- • **Recommended Grade Level: Grade 12**
- • **Recommended Prerequisites: At least one prior business course**
- • **Credits: 1 credit per semester, 2 semesters course**
- • **Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas**

ADMINISTRATIVE LEADERSHIP MANAGEMENT   *5268M*

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 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 Level: Grade 12**
- • **Recommended Prerequisites: At least one prior business course**
- • **Credits: 1 credit per semester, 2 semesters course**
- • **Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas**
- • **Course Aligned with postsecondary courses for Dual Credit**

WORK BASED LEARNING (WBL) - COOPERATIVE (CO-OP) PROGRAMS

The following programs are designed to give the student work experience as part of his/her total learning experience. Each student will study specific Business/Industry skills and responsibilities. The student will then be released to their work placement. The placement will be secured through efforts of the program coordinator, student, and community partners. Students enrolled in the program will receive credit for the related class, and for the work experience. **The student must provide his/her own transportation to and from job situations and be willing to work a minimum of fifteen hours per week**.

STRATEGIC MARKETING-RELATED   5918M
WORK BASE LEARNING (CO-OP)   5260M* or 5892M*
Course Code: 5918M   (Strategic Marketing Class)
Course code: 5260MA (1 Release Block--WBL)*
Course code: 5260MB (2 Release Blocks, WBL)*
5892M3rd Year Trade & Industry Students ONLY**

- **Recommended Grade Level: 12**
- **RECOMMENDED PREPARATION: Employment and transportation**
- **Credits: 1 credit for 5918M per semester; 1 credit per release block per semester; maximum of 2 semesters; maximum of 6 credits**

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. This program combines related classroom instruction with **paid** on-the-job training, internships or volunteer positions. The course is designed for the student who is interested in earning credit for working a part-time job while finishing their final year of academic classes. Students attend classes in the morning and are given **early release** or to their worksite each day. The work placement will be secured through efforts of the program coordinator, student, and community partners. Students enrolled in the program will receive credit for the related class, and for the work experience. In the related class, students will have the opportunity to study: job seeking skills, ethics, safety, career exploration, finance, budgeting, insurance, credit, taxes and labor laws.

CAREER PROGRAMS

AUTO SERVICE TECHNOLOGY

INTRODUCTION TO TRANSPORTATION   4798M
2 SEM. 2 CREDITS   GRADE 9 -10
Course Code: 4798M

This course will help students learn 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. Student 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 student study of how transportation impacts individuals, society, and 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.

AUTO SERVICE TECHNOLOGY

Students taking the automotive program will learn and practice skills needed to enter in to the automotive field. Students that successfully complete the first year and who meet the criteria outlined by AYES and the AYES Business & Industry Council of the automotive program may qualify for a summer internship. In the second year the student who successfully completes the summer internship will return to school in the fall to three weeks of classroom/lab instruction. Then they will return to the automotive facility that the student interned at for three more weeks of on-the-job training for the last two blocks of each day. This continues the entire second year. This prepares students for entry-level service technicians, parts personnel and service advisors. Students meeting the qualifications set by the colleges (IVY Tech Community College, Vincennes University and other private post-secondary schools) we partner with may receive **dual college credit**.

Auto Service Technology 1   5510M
- **Recommended Grade Level:** 10-11
- **Recommended Prerequisites:** Successful completion of Algebra I
- **Credits: 2-block class—2 credits per semester; 2 semester course; total of 4 credits**

Auto Service Technology 2   5546M
- **Recommended Grade Level:** 11-12
- **Recommended Prerequisites:** Successful completion of Auto Service Technology 1
- **Credits: 2-block class—2 credits per semester; 2 semester course; total of 4 credits**

AUTO COLLISION REPAIR TECHNOLOGY

INTRODUCTION TO TRANSPORTATION   4798M
2 SEM. 2 CREDITS   GRADE 9 -10
Course Code: 4798M

This course will help students learn 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. Student 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 student study of how transportation impacts individuals, society, and 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.

AUTO COLLISION REPAIR TECHNOLOGY

Over the course of 4 semesters: *First semester*: safety, metal repair power tools, and fillers. *Second semester*: MIG welding, Non-structural analyst, *Third semester*: computerized estimating, paint surface prep, and single stage topcoats. *Fourth semester*: introduction to custom painting and airbrushing, frame pulling, measuring and structural analysis, and senior projects. This prepares students for entry-level collision repair technicians, parts personnel and service advisors. Students must meet the qualifications set by the colleges. Tours of the facility or student shadowing experiences are available and encouraged upon request. Skilled collision repair technicians are highly paid and in demand. This experience can lead to shop ownership, management of an independent shop or a new car dealership.

Students meeting the qualifications set by the colleges (IVY Tech Community College, Vincennes University and other private post-secondary schools) we partner with may receive **dual college credit**.

Collision Repair 1   5514M
- **Recommended Grade Level:** 10-11
- **Recommended Prerequisites:** Successful completion of Algebra I

- **Credits: 2-block class—2 credits per semester; 2 semester course; total of 4 credits**

Collision Repair 2   5544M
- **Recommended Grade Level:** 11-12
- **Recommended Prerequisites:** Successful completion of Auto Service Technology 1
- **Credits: 3-block class—3 credits per semester; 2 semester course; total of 6 credits**

REQUIREMENTS: Coveralls and safety shoes for lab work.

CONSTRUCTION TECHNOLOGY

INTRODUCTION TO CONSTRUCTION   4792M
2 Sem. 2 Credit   Grades 10
Course Code: 4792M

This course will offer hands-on activities related to the skills essential in residential, commercial and civil building construction. Students will study the history and traditions of construction trades. They will learn to apply knowledge of the care and safe use of hand and power tools, reading blueprints, applied math, basic tools and equipment safety. Students will study construction technology topics and investigate topics related to the purchasing and maintenance of structures, special purpose facilities, green construction and construction careers.

CONSTRUCTION TRADES I   5580M
Focuses on classroom and laboratory experiences involving the formation, installation, maintenance, and repair of buildings, homes, and other structures. A history of construction, with an emphasis on future trends and career options will also be covered. This course provides instruction in reading technical drawings and transforming those drawings into physical structures. 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. Instruction will be given in the following areas, administrative requirements, definitions, building planning, foundations, wall coverings, roof/ceiling construction, and roof assemblies.
Students will develop an understanding and interpretation of the Indiana Residential Code for one and two-family dwellings and safety practices including Occupational Safety and Health Administration's Safety & Health Standards for the construction industry, NCCER Certification available and dual credit.
- **Recommended Grade Level**: 11 (10th by Instructors approval)
- **Recommended Prerequisites**: None
- **Credits: 2-Block course; 2 semesters; 4 total credits**

CONSTRUCTION TRADES II   5578M
Builds on the formation, installation, maintenance, and repair skills learned in Construction Technology 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 Level: 12**
- **Recommended Prerequisites: Successful completion of Construction Trades 1**
- **Credits: 2-Block course; 2 semesters; 4 total credits**

COSMETOLOGY

COSMETOLOGY

Cosmetology is a two-year course designed to prepare students to meet the requirements to take the Indiana State Cosmetology Board for professional licensing. This includes 1500 clock hours of combined theory and hands on instruction.

First-year students will learn the basic fundamentals skills of haircutting, styling, skin care, make-up and basic nail care.

Second –year students will learn advance techniques. They will explore the latest trends and techniques in haircutting, coloring, chemical texturizing. They will also learn the professional skills necessary to be success in a salon setting.

The cost of the 1st year required student fee is $ 200.00. The 2nd year is $ 265.00. The fees are non-refundable.

Cosmetology l   5802M
- **Recommended Grade Level:** 11
- **Recommended Prerequisites:** Commitment to the 2-year program
- **Credits: 4-block class—4 credits per semester; 2 semester course; total of 8 credits**

Cosmetology ll   5806M
- **Recommended Grade Level:** 12
- **Recommended Prerequisites:** Successful completion of Cosmetology 1
- **Credits: 4-block class—4 credits per semester; 2 semester course; total of 8 credits**

BARBERING

A two-year course designed for students to complete 1,500 hours of combined theory and intensive laboratory applications required for the State of Indiana Barbering License. This course provides an introduction to the barbering profession with an emphasis on basic practical skills and theories including the history of barbering, life skills, professional image, basics of chemistry and electricity, business skills, and the practice of barbering. When students successfully follow the prescribed curriculum and complete laboratory hours, they may take the State of Indiana board exam for Barbering and obtain a license to work in a shop. **Additional fees are required for the purchase of a barbering kit and smock. All students must wear black shoes. *The cost of the required student fee is $325 for 1st year and $70 for 2nd year Non-refundable.***

Barbering I 5802MB
- Recommended Grade Level: Grade 11
- Recommended Prerequisite: Counselor Recommendation, Spring Parent Meeting
- Credits: Credits: 3-block class—3 credits per semester; 2 semester course; total of 6 credits
- Counts as Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas

Barbering II   5806MB

- Recommended Grade Level: Grade 12
- Recommended Prerequisites: Successful completion of Cosmetology I, Interview, Counselor Approval, and Spring Parent Meeting
- Credits: 3-block class—3 credits per semester; 2 semester course; total of 6 credits
- Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas

CRIMINAL JUSTICE

CRIMINAL JUSTICE I   **5822M**

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 preparation of public reports.

- **Recommended Grade Level:** 11-12
- **Recommended Prerequisites:** None
- **Credits: 2-block class—2 credits per semester; 2 semester course; total of 4 credits**

CRIMINAL JUSTICE ADVANCED II   **5824M**

-+

Criminal Justice II introduces students to concepts and practices in controlling traffic as well as forensic investigation at crime scenes. Students will have opportunities to use mathematical skills in crash reconstruction and analysis activities requiring measurements and performance of speed/acceleration calculations. Additional activities simulating criminal investigations will be used to teach scientific knowledge related to anatomy, biology, and chemistry as well as collection of evidence, developing and questioning suspects, and protecting the integrity of physical evidence found at the scene and while in transit to a forensic science laboratory.

Procedures for the use and control of informants, inquiries keyed to basic leads, and other information gathering activity and chain of custody procedures will also be reviewed

.

- **Recommended Grade Level**: 12
- **Recommended Prerequisites:** Successful completion of Criminal Justice I
- **Credits: 2-block class—2 credits per semester; 2 semester course; total of 4 credits**
- **This course is aligned with postsecondary courses for Dual Credit**

CULINARY ARTS & HOSPITALITY

Introduction to Culinary Arts and Hospitality   **5438M**

2 Sem. 2 Credit   **Grades 9 – 10**

Course Code: 5438M

This introduction class will allow students opportunity to build a basic culinary arts and hospitality knowledge. This class is especially appropriate for students with an interest in careers related to Hospitality, Tourism, and Culinary Arts.

CULINARY ARTS and HOSPITALITY MANAGEMENT   **5440M**

Culinary Arts Year I

This class is for students who have an interest in culinary arts and the hospitality industry. It is designed, through instruction and laboratory experiences, to introduce students to the fundamentals of cooking and food preparation. Other topics include culinary math, food safety and sanitation. Skills in customer service and catering are also addressed. The National Restaurant Association's ProStart Certification is offered to all students enrolled in the program. Students can earn up to 9 hours of college credit.

Culinary Arts & Hospitality 1   **5440M**

- **Recommended Grade Level:** 10-11
- **Recommended Prerequisites:** Nutrition & Wellness
- **Credits: 2-block class—2 credits per semester; 2 semester course; total of 4 credits**

ADVANCED CULINARY ARTS AND HOSPITALITY 2   5346M

The student will participate in the management and operation of Bernie's Place restaurant. Through this experience, the student will develop skills in table service, baking, salad preparation, quantity food productions, breakfast, cleaning and sanitation, menu planning and more. Practical experience will be gained in the use of commercial restaurant equipment and dealing with the public. By maintaining a "B" in the ProStart curriculum, the students may earn 5 hours of college credit.

Advanced Culinary Arts & Hospitality 2   5346M
- **Recommended Grade Level:** 11-12
- **Recommended Prerequisites:** Successful completion of Culinary Arts 1
- **Credits: 3-block class—3 credits per semester; 2 semester course; total of 6 credits**

PC NETWORKING & SUPPORT

COMPUTER TECH SUPPORT / A+ CERTIFICATION   5230M

This course is designed to prepare students to become computer service technicians by passing two nationally recognized exams. (CompTIA A+ Certification) The course will cover all the system components of a computer. (Peripheral devices, storage, networking, printing, mobile devices, operating systems and security) The students will have an opportunity to research and build their own computer, troubleshoot different operating systems and secure their computers from viruses. Students completing this program may head into Computer Engineering or Computer Technology programs at the post-secondary level. (This is a **dual credit** course which also qualifies for the **academic honors diploma**.)

- **Recommended Grade Level: 10-12**
- **Recommended Prerequisites: College-level reading comprehension (SRI scores > 1000) ; successful completion of Algebra I**
- **Credits: 2-Block course; 2 semesters; 4 total credits**
- **WEIGHTED COURSE (1.0)**

NETWORKING I   5234M

This class is designed to prepare students to achieve CompTIA Network+ Certification and is the perfect follow-up to the A+ Certification course. Students will learn the transmission capabilities of various cables as well as networking topologies. This comprehensive skills-based course includes hands-on exercises that simulate real-world applications to help introduce 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 will be 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 switches as well as creating a wireless LAN. (This is a **dual credit** course which also qualifies for the **academic honors diploma**.)
- **Recommended Grade Level: 11-12**
- **Recommended Prerequisites: Successful completion of Computer Tech Support (CompTIA A+ Cert.)**
- **Credits: 2-Block course; 2 semesters; 4 total credits**
- **WEIGHTED COURSE (1.0)**

NETWORKING II/INFRASTRUCTURE SYSTEMS   4588M

This class is designed to prepare students to achieve the Cisco CCENT Certification and is the follow-up to the Networking I course. Students will focus on learning the architecture, components, and operations of Cisco routers and switches in a small network. A more in-depth study will focus on configuration of Cisco Routers and switches in the following areas: VLANs, Inter-VLAN Routing, Static Routing, routing Dynamically, Single-Area OSPF, Access Control List, DHCP and NAT. Monitoring tools and network management protocols will be introduced to troubleshoot data networks on small to medium sized business networks. **This is a dual credit course which also qualifies for the academic honors diploma.**

- **Recommended Grade Level: 12**
- **Recommended Prerequisites: CompTIA Networking I (CompTIA Network Cert.)**
- **Credits: 1 Block course 2 semester; 2 credits**
- **WEIGHTED COURSE (1.0)**

NETWORKING II/SERVERS AND SECURITY   5257M

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 Level**: 12
- **Prerequisites:** A+ and NET+ Certification
- **Credits: 1 credit per semester; 2 semesters**
- **WEIGHTED COURSE (1.0)**

INTERACTIVE MEDIA

INTERACTIVE MEDIA 1 / 3D   5530M

This exciting, hands-on course gets students creating computer graphics, 3D animation, audio, video games, and video. Beginning with the fundamentals of computers and the computer as a design tool, students will progress to master these areas. First we begin with an in-depth look at media- what sells, who the buyers are, and which careers power the visual communications industry. The graphics curriculum includes graphic design fundamentals, scanning, digital photography, and mastery of Adobe Photoshop. Digital Media's audio component includes basic physics of audio, hands-on mixing experience, mastery of looping and editing software, direct-to-disk recording, and audio for video. In our video component students will learn to shoot, edit, and manipulate high quality DV video footage using Final Cut Pro. Film, lighting, and DVD authoring are also studied. 3D animation is a growing field for the digital multimedia specialist, and we explore and create compelling content. We take an introductory look at video game creation with Unity 3D, make websites, and discuss emerging technology. In all areas of media we strive for excellence, professionalism and fun. Workstations are up-to-date and allow for high speed work in a cutting edge area. All our work will be created using industry-standard software, Adobe's Creative Suite. If you are interested in careers in video games, video production, graphic design- this could be the class for you. Our first year students earn 6 credits at Ivy Tech Community College and may take a national certification exam for Adobe Photoshop CC. Counts toward Academic Honors Diploma.

- **Recommended Grade Level: 10-11**
- **Recommended Prerequisites: College level reading comprehension (SRI > 1000)**
- **Credits: 2-Block course; 2 semesters; 4 total credits**
- **WEIGHTED COURSE (1.0)**

INTERACTIVE MEDIA II   **5232M**

This dynamic course allows students to further pursue the areas of 3D, graphics, audio, and video. While continuing to work in all these areas of media, we will focus on learning 3D video games, 2D interactive experiences, and visual concepts. IM workstations are up-to-date and allow for high speed work in a cutting edge area. Advanced Photoshop work is studied and video post-production is also more in-depth with Adobe's After Effects software. Students compete in state and local competitions, create video projects for local businesses, and learn software as a class. In addition we look deeper into Unity 3D and create a working video game. In all four areas we strive for professionalism and creativity. Students earn 3 credits at Ivy Tech Community College of Indiana and may take the national certification exam for Adobe Premiere Pro CC. Counts toward Academic Honors Diploma.

- **Recommended Grade Level: 11-12**
- **Recommended Prerequisites: Successful completion of Interactive Media 1**
- **Credits: 2-Block course; 2 semesters; 4 total credits**
- **WEIGHTED COURSE (1.0)**

JOBS FOR AMERICA'S GRADUATES (JAG)

JAG 1   **0522M**

Federally funded program designed to help students of promise graduate from high school and make a successful transition to postsecondary education and/or meaningful employment.
- **Recommended Grade Level: 11**
- **Recommended Prerequisites: None**
- **Credits: 1 credit per semester, 2 semester course**

JAG 2   **0532M**

- **Recommended Grade Level: 12**
- **Recommended Prerequisites: Successful completion of JAG 1**
- **Credits: 1 credit per semester, 2 semester course**

COMPUTER SCIENCE

COMPUTER SCIENCE I /Visual Basic　　　　　**4801M**

Computer Science I introduces the structured techniques necessary for 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 correct and 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, modules, selection structures, file handling, and control breaks and offers students an opportunity to apply skills in a laboratory environment.

- **Recommended Grade Level: 9-12**
- **Credits: 1 credit per semester; 2 semesters**

COMPUTER SCIENCE II/PROGRAMMING　　　**5236M**

Computer Science II course introduces students to the fundamental topics of computer science that include problem solving, design strategies/methodologies, data structures, algorithms and ethical computing. Students will learn to develop in Java and create solutions that can scale up from small, simple problems to large, complex problems. The project based curriculum helps students learn teamwork and time management skills as well as keeping the students engaged by always having a fun creative project that enforces the fundamental computer science topics.

- **Recommended Grade Level: 11, 12**
- **Required Prerequisites: Computer Science I**
- **Credits: 1 credit per semester; 2 semesters**
  WEIGHTED COURSE (1.0)

COMPUTER SCIENCE II/ Video Gaming Apps　　　**5252M**

Video Gaming and Apps is MCIT's cutting edge course which will allow students to create fully developed video games. Using Unity 3D, we will make two video games over the course of the year. Students will work to develop a storyline, create the 3D models and textures, and program the levels before publishing our games. Team taught, students will have the time and resources to design and create assets and code games. FPS, 3rd person, 2D, RPG, all game types will be explored.

- **Recommended Grade Level: 12**
- **Required Prerequisites: Computer Science I**
- **Credits: 2-Block course; 2 semesters; 4 total credits**

HEALTH SCIENCES

All students interested in allied health, veterinary science, medical research, and biomedical engineering are encouraged to take the first level of the Biomedical Sciences. Juniors who seek the opportunity to directly interact with patients then take the Health Sciences program, while those who wish to continue to explore options in medical science, technology, and research continue in the Biomedical Sciences program.

Introduction of Health Science Careers   5272M

This course is an exploratory course in which student investigate all aspects of the health science industry, examine pathways in health science, and begin to narrow the areas within health science that they want to pursue.

*   **Recommended Grade Level: 10**
*   **Recommended Prerequisites: None**
*   **Credits: 1 credit per semester; 2 semesters**

HEALTH SCIENCES I   5282M

This course is designed to help the student gain an understanding of the health field, career options, wellness, and disease concepts through the use of project based learning. This course is highly recommended for any student who thinks he/she is interested in a Health Career or a Biomedical profession. The curriculum includes CPR-First Aid certification.

*   **Recommended Grade Level: 11**
*   **Recommended Prerequisites: Biology I AND Algebra I OR Teacher Permission**
*   **Credits: 2-Block course; 2 semesters; 4 total credits**
*   **Course is aligned with postsecondary Dual Credit**

HEALTH SCIENCES II   5284M

This Curriculum focuses on learning and practicing patient care skills. Students spend 1st semester in classroom and in class lab preparing for a 10 week clinical experience during second semester. Clinical experience for allied health students will include job shadowing in a variety of health care professions and may include veterinary health. Students pursing certified nursing assistant certification spend clinical in an area nursing home. Both clinical programs are dependent on availability of local facilities. In addition, students will continue to explore the changing face of health care, available careers, medical language and postsecondary programs. Learning will be enhanced by guest speakers and hands –on in-class labs. Requirements for clinical participation include completion of a 2 step TB test, physical exam, criminal background check, up-to-date immunizations including flu vaccine, and a passing grade for 1st semester of a C or better. Students must have reliable transportation for 2nd semester clinical.
.
*   **Recommended Grade Level: 12**
*   **Recommended Prerequisites: Successful completion of Health Sciences I or Teacher/Counselor recommendation, completion of Principle of Biomedical Science, completion or concurrent enrollment in Anatomy & Physiology**
*   **Credits: 3-Block course; 2 semesters; 6 total credits**
*   **Students may earn Indiana Nursing Assistant Certification through this course**
*   **Course is aligned with postsecondary Dual Credit**

BIOMEDICAL SCIENCES

PBS
PRINCIPLES OF BIOMEDICAL SCIENCES   (PBS)   (PLTW)
2 Sem.   2 Credits   Grades 9
Course Code 5218M
(Weighted Class)   .5 Weight
RECOMMENDED PREPARATION: Successful completion or concurrent enrollment in Biology I
COURSE DESCRIPTION: This honors-level course provides an introduction to the biomedical sciences through exciting "hands-on" projects and problems. Student work involves the study of human medicine, research processes, biomedical technology, and an introduction to a wide variety of careers. Students investigate the human body systems and various health conditions including heart disease, diabetes, sickle-cell disease, hypercholesterolemia, and infectious diseases. The course is designed to provide an overview of all the courses in the Biomedical Sciences program. Dual credit with post-secondary education is available. *This is a Core 40 science course, but it does not replace Biology 1.*

HBS
HUMAN BODY SYSTEMS   (HBS)   (PLTW)
2 Sem.   2 Credits. Grades 10-12
Course Code: 5216M
(Weighted Class)   .5 Weight
RECOMMENDED PREPARATION: Successful completion of (PBS) Principles of Biomedical Sciences; sophomores and juniors earning a C+ or better in Biology may begin the Biomedical Pathway with HBS.
COURSE DESCRIPTION: This honors-level course will engage students in the study of basic human physiology, especially in relationship to human health. Students will use a variety of electronic sensors to examine body systems (respiratory, circulatory, and nervous) at rest and under stress, and observe the interactions between the various body systems. Students will gain communication skills through modeling, writing, and presenting, and technical skills through computer software. Dual credit with post-secondary education is available. *This is a Core 40 science course, but it does not replace Biology 1.*

MI
MEDICAL INTERVENTIONS   (MI)   (PLTW)
2 Sem.   2 Credits   Grades 11-12
Course Code: 5217M
(Weighted Class)   1.0 Weight
RECOMMENDED PREPARATION: Successful completion of (HBS) Human Body Systems and (PBS) Principles of Biomedical Sciences or teacher approval.
COURSE DESCRIPTION: This advanced laboratory course, focuses on complex microbiology and biotechnology lab techniques while exploring the design and development of various medical technologies. In addition, students learn about infectious disease, genetic disease, cancer and organ transplantation, and stay updated on cutting-edge developments via current scientific literature. Dual credit with post-secondary education is available. *This is a Core 40 science course.*

BI
BIOMEDICAL INNOVATIONS   (BI)   (PLTW)
2 Sem.   2 Credits   Grade 12
Course Code: 5219M
(Weighted Class)   1.0 Weight
RECOMMENDED PREPARATION: Successful completion of (PBS) Principles of Biomedical Sciences, (HBS) Human Body Systems and (MI) Medical Interventions
COURSE DESCRIPTION: In this capstone course students will design and conduct experiments related to the diagnosis, treatment, and prevention of disease. They will apply their knowledge and skills to solve problems in the biomedical sciences. Students will be expected to do original, independent research and present the results of their work to the community. Second semester and extended field experience allows students to engage with professionals in the biomedical field. Dual credit with post-secondary education is available.

Engineering Curriculum

PLTW's curriculum makes math and science relevant for students. By engaging in hands-on, real-world projects, students understand how the skills they are learning in the classroom can be applied in everyday life. This approach is called activities-based learning, project-based learning, and problem-based learning.

Progression of PLTW Courses

9th Grade – IED *or* POE by Placement and 8th Grade PLTW Teacher recommendation
10th Grade – IED, POE, (DE, CIMS or CEA) by Teacher Recommendation
11th Grade – POE, DE, CIMS, CEA, AE, ES or EDD
12th Grade – POE, DE, CIMS, CEA, AE, ES or EDD

IED

INTRODUCTION TO ENGINEERING DESIGN (IED) (PLTW)
2 Sem.   2 Credits
Course Code: 4812M   Grades 9-10

PREREQUISITE: Enrollment in Algebra 1
COURSE DESCRIPTION: This is an introductory course that develops student problem solving skills with emphasis placed on project based activities, and the development of three-dimensional solid models. Students will work from sketching simple geometric shapes to applying a solid modeling computer software package. Students will experience a problem-solving design process and how it is used in industry to manufacture a product. Computer Aided Design (CAD) will also be used to analyze and evaluate the product design. The equipment used and the techniques learned is state-of-the art, and is currently being used by engineers in the industry. Course is aligned with postsecondary Dual Credit.

POE

PRINCIPLES OF ENGINEERING (POE)   (PLTW)
2 Sem. 2 Credits.   Course Code: 4814M   Grades 10-11-12
Weighted Class: 1.0 Weight

PREREQUISITES: Successful completion of Algebra I and Introduction to Engineering Design (IED) or Principles of Engineering (POE) Placement Requirements
COURSE DESCRIPTION: This is a "hands-on" course applying engineering principles. The course exposes students to major concepts they'll encounter in a post-secondary engineering course of study. Topics include mechanisms, energy, statics, materials, and kinematics. Students develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges, document their work and communicate solutions. Course is aligned with postsecondary Dual Credit.

CIMS

COMPUTER INTEGRATED MANUFACTURING SYSTEMS - CIMS (PLTW)
2 Sem. 2 Credits   Grades 11-12; 10th grade by Instructor Approval
Course Code: 4810M
Weighted Class :1.0 Weight

PREREQUISITES: Successful completion of Algebra I, Introduction to Engineering Design (IED) and Principles of Engineering (POE), or with Instructor Approval
COURSE DESCRIPTION: This course simulates the use of the computer in the manufacturing environment. We use nine different software packages and eight different machines to produce programs which allow these machines to operate individually and to communicate with each other. Real parts are designed and produced in this course. Starting with the design of a part and employing the "cell" concept of manufacturing, robots will load blank material into a CNC operated mill

to produce a part and then palletize the finished parts simulating the manufacturing process. Students utilize computers applications to communicate with these machines and write programs which control the simulations.
Course is aligned with postsecondary Dual Credit.

CEA
CIVIL ENGINEERING AND ARCHITECTURE (CEA) (PLTW)
2 Sem. 2 Credits   Grades 11-12; 10th grade by Instructor Approval
Course Code: 4820M
Weighted Class: 1.0 Weight

PREREQUISITES: Concurrent enrollment in Algebra II and successful completion of Introduction to Engineering Design (IED) and Principles of Engineering (POE), or with Instructor Approval.
COURSE DESCRIPTION: This course places its emphasis on civil and architectural engineering. Students will take part in project based learning and solving real-world problems as they relate to civil and architectural engineering. Units will include project and site planning and building design. Students will work in teams and learn the skills required for jobs and postsecondary education. Course is aligned with postsecondary Dual Credit.

DE
DIGITAL ELECTRONICS (DE) (PLTW)
2 Sem. 2 Credits   Grades 11-12; 10th grade by Instructor Approval
Course Code: 4826M
Weighted Class: 1.0 Weight

PREREQUISITES: Successful completion of Introduction to Engineering Design (IED) and Principles of Engineering (POE), or with Instructor Approval COURSE DESCRIPTION: Digital Electronics is a course of study in applied digital logic. This course is patterned after the first semester course in Digital Electronics taught in two and four year colleges. Students will study the application of Boolean logic to the solution of problems. Such circuits are found in watches, calculators, video games, computers, and thousands of other devices. The use of smart circuits is present in virtually all aspects of our lives, and its use is increasing rapidly, making digital electronics an important course of study for a student exploring a career in engineering/engineering technology. Using MultiSIM, the industry standard, students will test and analyze simple and complex digital circuitry. Students will design circuits using MultiSIM, export their designs to a printed circuit auto-routing program that generates printed circuit boards, and construct the design using chips and other components. Course is aligned with postsecondary Dual Credit.

AE
AEROSPACE ENGINEERING (AE) (PLTW)
2 Sem. 2 Credits   Grades 11-12
Course Code: 4816M
Weighted Class: 1.0 Weight

RECOMMENDED PREPARATION: Successful completion of Introduction to Engineering (IED) and Principles of Engineering (POE)
COURSE DESCRIPTION: Aerospace Engineering is a "one of a kind" partnership between Rolls-Royce Aerospace Engineering and McKenzie Center for Innovation and Technology. This course engages students in engineering design problems related to aerospace information systems, astronautics, rocketry, propulsion, the physics of space science, biomedical sciences, material sciences, space life sciences, the biology of space science, principles of aeronautics, structures and materials, and systems engineering. Using 3-D design software, students work in teams utilizing hands-on activities, projects and problems and are exposed to various situations encountered by aerospace engineers. Rolls-Royce engineers will partner with the instructor to add relevant problems encountered by those in the field. Students will also be exposed to the world of defense contracts and the requirements and standards that companies must uphold to employ those who work on defense contract projects.

ES
Environmental Sustainability (ES) (PLTW)
2 Sem.   2 Credits   Grades 11-12
Course Code: 4818M
Weighted Class: 1.0 Weight

COURSE DESCRIPTION: Environmental Sustainability (ES) is an advanced-level engineering course that investigates technical solutions to the world's environmental problems: clean drinking water, a stable food supply, and renewable energy. Students solve open-ended projects and design challenges like building water testing and filtration systems, creating biofuel out of plants, genetic engineering of plants & bacteria, and using natural systems to clean polluted water. This project-based course prepares students for college and STEM careers, with a focus on designing experiments, conducting research, executing biotechnology & engineering skills, and documenting design solutions.

EDD
ENGINEERING DESIGN AND DEVELOPMENT (EDD)   (PLTW)
2 Sem.   2 Credits   Grades 11-12
Course code: 4828M

PREREQUISITES: Students must have completed at least two years of the pre-engineering course or who have been actively involved with the FIRST Robotics team for two or more years. An application must be submitted.

COURSE DESCRIPTION: This course helps students apply what they have learned in academic and pre-engineering courses as they complete challenging, self-directed projects. Students work in teams to design and build solutions to authentic engineering problems. Students keep journals of notes, sketches, mathematical calculations, and scientific research. Student teams make progress reports to their peers, mentor, and instructor, and exchange constructive criticism and consultation. At the end of the course, teams present their research paper and defend their projects to a panel of engineers, business leaders and engineering college educators for professional review and feedback. This course equips students with the independent study skills they will need in postsecondary education.

JUNIOR RESERVE OFFICER TRAINING CORPS
(J-ROTC)

CIVIL AIR PATROL (CAP)   0516M
CAP is the official civilian voluntary auxiliary of the United States Air Force. This course is designed to develop: (1) citizenship and patriotism, (2) self-discipline, (3) physical fitness, (4) self reliance and leadership, (5) STEM, Aviation, and Flying, and (6) the skills used in decision making, communications, and problem-solving. The course content and experiences enable the students to understand the role of the military in support of national objectives and to become familiar with basic military knowledge, gender equity issues, benefits, and requirements. Topics to be included in the course are: military history, avoiding substance abuse, navigation and map reading, military drill, field activities, reserve components, search and rescue, and first aid and hygiene. Opportunities are provided to explore the qualities and traits of courage, self-sacrifice, and integrity.

- **Recommended Grade Level**: 10-12
- **Recommended Prerequisites**: None
- **Credits: 1 credit per semester, 2 semester course**

TECHNOLOGY
FOT – FOUNDATIONS OF TECHNOLOGY   5239M
Prepares students to understand and apply technological concepts and processes in manufacturing, construction, transportation, communication, and engineering. Emphasis is placed on using modern technologies and developing skills for pathways and careers related to manufacturing, transportation, construction, precision machining, industrial maintenance, engineering technology, and robotics. Group and individual activities engage students in hands-on projects.

- **Recommended Grade Level**: 9 -10
- **Recommended Prerequisites**: **None**
- **Credits: 1 credit per semester, 2 semester course**

COMPUTERS IN DESIGN AND PRODUCTIONS   4800M

This course will have students focus on using modern technologies related skills for computers, design and production systems. This will provide students with another option with computer and manufacturing processes.

- **Recommended Grade Level: 10**
- **Recommended Prerequisites**: None
- **Credits: 1 credit per semester, 2 semester course**

Additional Information on MCIT CLUBS and PROGRAMS

ROBOTICS—F.I.R.S.T Robotics and VEX Robotics
> *www.usfirst.org*
> Grades 9-12, local and national competitions

CAP—Civil Air Patrol
> *www.gocivilairpatrol.com/*
> Aerospace Education, CADET programs,
>   Emergency Services
> Civilian Air Force Cadets Grades 7-12

HOSA—Health Occupations Student Association
> *www.**hosa**.org/*
> Biomedical Sciences and Health Sciences students. HOSA is a national student organization whose mission is to promote career opportunities in the health care industry.

DECA- Distributive Education Clubs of America
> Marketing and Business students
> *www.**deca**.org/*
> International Association of marketing students, provides members and advisors with development activities.

ACE Mentoring—Architecture, Construction and   Engineering
> *www.**acementor**.org/*
> Engage, excite and enlighten high school students to pursue careers in architecture, engineering and construction through mentoring.

NTHS—National Technical Honor Society
> *www.**nths**.org*
> Encourages higher scholastic achievement, cultivates a desire for personal excellence, and helps top students find success in the workplace.

Women in Engineering—Female engineering students mentored by IUPUI women in Engineering students.

Car Club—Auto Service and Collision Repair students integrating into some automotive projects

Skills USA—All Career and Technical students compete locally and nationally in skills and leadership.
> *www.skillsusa.org*

JAG—*Jobs for Americas Graduates*
> *http://www.jag.org/*

All organizations meet on Wednesday nights 4-6 PM