McKenzie Center Innovation & Technology

MCIT

Lawrence Township

where

EVERYTHING

is

POSSIBLE

McKenzie Center for Innovation & Technology

Address: 7520 East 75th Street Indianapolis, IN 46256

Phone: 317.964.8000

Fax: 317.849.2546

Website: www.mckenzie.ltschools.com

MCIT ADMINISTRATION

Mr. Frank Svarczkopf
Director

Mr. Dale Sharpe III
Assistant Director

Available to students from LN and LC, the McKenzie Center for Innovation and Technology houses state-of-the-art equipment and material in the classroom and labs. MCIT embraces rigorous academic programs and diverse technological career courses, which prepares 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, broad array of career programs, focused and motivated students, dual-credited courses and national certifications are continually cited as advantages by McKenzie students.
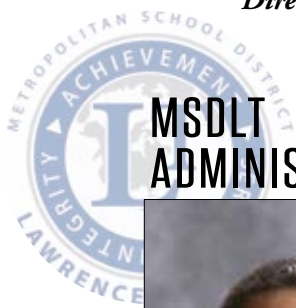
MSDLT ADMINISTRATION

Dr. Shawn Smith
Superintendent

INSIDE

MCIT Mission Statement

McKenzie serves as a foundation to improve student academic and career technical programs.
We prepare graduates who can advance their education in a post-secondary setting
and succeed in high-demand, high-skill, and high-wage careers.

AUTO COLLISION REPAIR TECHNOLOGY

AUTO SERVICE TECHNOLOGY

ABOUT

- Over the course of four 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 jobs as 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 and management of an independent shop or a new car dealership.
- Students meeting the qualifications set by the colleges MCIT partners with may receive dual college credit. These include Vincennes University and other private post-secondary schools.

QUALIFICATIONS

Collision Repair 1 5514M
- Recommended Grade Level: 10-11
- Credits: 2-block class; 2 credits per semester; 2-semester course; total of 6 credits

Collision Repair 2 5544M
- Recommended Grade Level: 11- 12
- Credits: 3-block class; 3 credits per semester; 2-semester course; total of 6 credits

ABOUT

- Students taking the automotive program will learn and practice skills needed to enter in to the automotive field. Students who 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.
- Next, students 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 as it prepares students for entry-level service technicians, parts personnel and service advisors.
- Students meeting the qualifications set by the colleges MCIT partners with may receive dual college credit. These include IVY Tech Community College and other private post-secondary schools.

QUALIFICATIONS

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

RECOMMENDED COURSE SEQUENCE

Beginning Level Business Courses

Preparing for College & Careers (PCC) (9)	Principles of Business Management/ Intro to Business (9-12)	Digital Applications & Responsibility I (DAR I) (*9-12) *9th grade restrictions

Intermediate Level Business Courses

Admin & Office Management/ Finance (10-12)	Sports & Entertainment Marketing (10-12)	Digital Applications & Responsibility II (DAR II) (10-12)	Fashion Merchandising (10-12)	Introduction to Accounting (10-12)

Advanced Level Business Courses

Strategic Marketing-Related (12)	Work-Based Learning (CO-OP) (12)	Entrepreneurship & New Adventures Capstone (11-12)

BUSINESS EDUCATION MISSION STATEMENT

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 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.

QUALIFICATIONS

PREPARING FOR COLLEGE AND CAREERS 5394M
- Grade Level: 9
- Credits: 1 credit per semester; maximum of 1 semester; 1 total credit

PRINCIPLES OF BUSINESS MANAGEMENT/ INTRODUCTION TO BUSINESS 4562M
- Recommended Grade Level: 9-12
- Credits: 1 credit per semester; maximum of 1 semester; maximum of 1 credit
- Counts as a Directed Elective or Elective for the General Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diploma
- IVY TECH DUAL CREDIT

DIGITAL APPLICATIONS AND RESPONSIBILITY I (DAR I) 4528MA
- Grade Level: 10-12 (9th grade restrictions)
- Recommended Prerequisites: Freshmen: Preparing for College and Careers. ONLY Freshmen taking Prep for College and Careers are able to take DAR I.
- Credits: 1 credit per semester, maximum of 1 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
- DAR I and DAR II, together, are aligned with post-secondary courses for Dual Credit.
- Freshmen who take this course must take it as the second semester to Preparing for College and Careers. Sophomores-Seniors may take this course spring or fall; however, DAR I is a prerequisite for DAR II but students do not have to take these courses back to back.
- MOS Certification is connected to DAR II, as well as College Dual Credit opportunities.

DIGITAL APPLICATIONS AND RESPONSIBILITY II (DAR II) 4528MB
- Grade Level: 10-12
- Recommended Prerequisites: DAR I (passing grade)
- Credits: 1 credit per semester, maximum of 1 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
- DAR I and DAR II, together, are aligned with postsecondary courses for Dual Credit.
- MOS Certification is connected to DAR II, as well as **College Dual Credit opportunities.**
- Sophomores-Seniors may take this course spring or fall; however, DAR I is a prerequisite for DAR II. **MOS Certification** is connected to DAR II, as well as College Dual Credit opportunities.

SPORTS & ENTERTAINMENT MARKETING 5984M
- Grade Level: 10-12
- Credits: 1 credit per semester; max of 2 semesters; max 2 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

FASHION MERCHANDISING 5962M
- Recommended Grade Level: 10-12
- Credits: 1 credit per semester; maximum of 2 semesters; 2 total 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
- DUAL CREDIT

INTRODUCTION TO ACCOUNTING 4524M
- Recommended Grade Level: 10-12
- Credits: 1 credit per semester; maximum of 2 semesters; maximum of 2 credits
- Counts as a Directed Elective or Elective for the General Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diploma
- DUAL CREDIT

ENTREPRENEURSHIP & NEW ADVENTURES CAPSTONES 5966M
- Recommended Grade Level: 12
- Credits: 1 credit per semester; maximum of 2 semesters; maximum of 2 credits
- Counts as a Directed Elective or Elective for the General Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diploma

ADMIN & OFFICE MANAGEMENT 5268M
- Recommended Grade Level: 11-12
- Credits: 1 credit per semester; maximum of 2 semesters; maximum of 2 credits
- Recommended Prerequisites: at least 1 other business course
- Counts as a Directed Elective or Elective for the General Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diploma
- IVY TECH DUAL CREDIT

STRATEGIC MARKETING-RELATED 5918M
- Recommended Grade Level: 12
- This program combines related classroom instruction with paid on-the-job training, internships and/or shadowing.
- 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.
- Counts as a Directed Elective or Elective for the General Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diploma
- IVY TECH DUAL CREDIT

WORK-BASE LEARNING (CO-OP) 5260M*
- Course Code: 5918M (Strategic Marketing class)
- Course Code: 5260MA (1 release block,WBL)*
- Course Code: 5260MB (2 release blocks, WBL)*
- Recommended Grade Level: 12
- Recommended Preparation: Employment and transportation
- Credits: 1 credit for 5918M; 1 credit per release block per semester; maximum of 2 semesters; maximum of 6 credits

CONSTRUCTION TRADES

ABOUT

- Construction Trades 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.

QUALIFICATIONS

CONSTRUCTION TRADES I 5580M
- Recommended Grade Level: 11
- Recommended Prerequisites: None
- Credits: 2-block course; 2 semesters; 4 total credits
- Dual Credit available

CONSTRUCTION TRADES II 5578M
- Recommended Grade Level: 12
- Recommended Prerequisites: Successful completion of Construction Trades I
- Credits: 2-block class; 2 credits per semester; 2 semesters; 4 total credits
- Dual Credit available

COSMETOLOGY

ABOUT

- Cosmetology is a two-year course designed to prepare students to meet the requirements necessary to take the Indiana State Cosmetology Board for professional licensing. This includes 1,500 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, and chemical texturizing. They will also learn the professional skills necessary to be successful in a salon setting.
- The cost of the first year required student fee is $465. The 2nd year is an optional kit with fees up to $180.

QUALIFICATIONS

COSMETOLOGY I 5802M
- Recommended Grade Level: 11
- Recommended Prerequisites: 2 business credits
- Credits: 4-block class; 4 credits per semester; 2-semester course; 8 total credits

COSMETOLOGY II 5806M
- Recommended Grade Level: 12
- Recommended Prerequisites: Successful completion of Cosmetology I
- Credits: 4-block class; 4 credits per semester; 2-semester course; 8 total credits

CRIMINAL JUSTICE

ABOUT

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 are reinforced through activities that model public relations and crime prevention efforts as well as preparation of public reports.

CRIMINAL JUSTICE II 5824M
● 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.

QUALIFICATIONS

CRIMINAL JUSTICE I 5822M
● Recommended Grade Level: 11
● Recommended Prerequisites: English 10
● Credits: 2-block class; 2 credits per semester;
  2 -semester course; total of 4 credits

CRIMINAL JUSTICE ADVANCED II 5824M
● Recommended Grade Level: 12
● Required Prerequisite: 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

ABOUT

CULINARY ARTS AND HOSPITALITY I 5440M
● Culinary Arts and Hospitality Management prepares students for occupations and higher education programs of study related to the entire spectrum of careers in the hospitality industry. This course builds a foundation that prepares students to enter the Advanced Culinary Arts course. Major topics include introduction to the hospitality industry, food safety and personal hygiene, sanitation and safety, regulations, procedures and emergencies, basic culinary skills, culinary math, and food preparation techniques and applications.

CULINARY ARTS AND HOSPITALITY II 5346M
● Students will participate in the management and the operation of **Bernie's Place** restaurant. Through this experience, students will develop skills in table service, cashiering, baking, salad preparation, quantity food production, 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. Program completion can lead to opportunities for entry into food service areas in positions found in cafeterias, schools, hotels, fast-food service plants, factories, clubs and restaurants.
● By maintaining a "B" in the ProStart curriculum, receiving a ServSafe certification, and receiving a "B" in a food industry internship, students may earn college credit.

QUALIFICATIONS

CULINARY ARTS AND HOSPITALITY I 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

CULINARY ARTS AND HOSPITALITY II 5346M
● Recommended Grade Level: 11-12
● Recommended Prerequisites: Successful completion of
  Culinary Arts I
● Credits: 3-block class; 3 credits per semester; 2-semester
  course; total of 6 credits

ABOUT

• 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.

MEDICAL TERMINOLOGY
• This course prepares students with language skills necessary for effective, independent use of health and medical reference materials. It includes the study of health and medical abbreviations, symbols, and Greek and Latin word part meanings taught within the context of body systems. The course builds skills in pronouncing, spelling, and defining new words encountered in verbal or written information. Dual credit with post-secondary education is available. *Academic Honors available.*

HEALTH SCIENCES I
• 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 or she is interested in a Health Career or a Biomedical profession. The curriculum includes CPR-First Aid certification.

HEALTH SCIENCES II
• Numerous job shadowing opportunities in various allied health fields, veterinary health, or **state certification as a nursing assistant** are options dependent upon available facilities. The student will continue to explore the changing face of the health care field, available careers, medical language, and post-secondary programs. Learning will be enhanced by guest speakers in the health care profession, hands-on in-class labs, and second semester clinical experiences. Prerequisites: Recommended completion of Health Science I, completion or enrolled in Anatomy and Physiology, teacher or counselor recommendation.

QUALIFICATIONS

MEDICAL TERMINOLOGY 5274M
• Recommended Grade Level: 10
• Recommended Prerequisites: None
• Credits: 2; 1-block course; 2 semesters
• Academic Honors available

HEALTH SCIENCES I 5282M
• Recommended Grade Level: 11
• Recommended Prerequisites: Biology I and Algebra I or teacher permission
• Credits: 2-block course; 2 semesters; 4 total credits

HEALTH SCIENCES II 5284M
• Recommended Grade Level: 12
• Prerequisites: Recommended completion of Health Science I, completion or enrolled in Anatomy and Physiology, teacher or counselor recommendation
• Credits: 3-block course; 2 semesters; 6 total credits

ABOUT

COMPUTER TECH SUPPORT/A+ CERTIFICATION

- This course is designed to prepare students to become computer service technicians by passing the CompTIA A+ Certification exams. Students will learn all the system components of a computer, troubleshoot different operating systems, and secure their computers from viruses. They will also work with mobile devices, printers and networking. One of the exciting projects during this course will be a computer build where every student will have the opportunity to research, order parts and build their own computer. 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.)

NETWORKING I

- 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 students learn to specifically install and maintain local area networks. Students learn the basics and protocols of TCP/IP and the internet. This course is designed for those interested in gaining the skills that provide industry credentials in the field of networking. (This is a dual credit course which also qualifies for the academic honors diploma.).

NETWORKING II/INFRA SYSTEMS

- This course consists of one semester learning the Linux operating system and one semester of Security+. Students will have the opportunity to become CompTIA Linux+ and Security+ certified.

SERVER & SECURITY

- This course will focus on the software skills needed to manage a network. Students will learn fundamental network management tasks such as setting up computer network services, create users and appropriate login scripts, develop groups, set the server remotely, setup security, backup/restore the server and setup/maintain clients. Students will have the opportunity to take the Microsoft 70-410 exam. (Installing and configuring Windows Server 2012)

QUALIFICATIONS

COMPUTER TECH SUPPORT/A+ CERTIFICATION 5230M
- 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
- Recommended Grade Level: 11-12
- Recommended Prerequisites: Successful completion of A+ Certification
- Credits: 2-block course; 2 semesters; 4 total credits
- **WEIGHTED COURSE (1.0)**

NETWORKING II/INFRA SYSTEMS 4588M
- Recommended Grade Level: 11-12
- Recommended Prerequisites: Successful completion of A+ Certification and Network + Certification; (juniors and seniors allowed to take it concurrently with Network+)
- Credits: 1 credit per semester; 2 total credits
- **WEIGHTED COURSE (1.0)**

SERVER & SECURITY 5257M
- Recommended Grade Level: 12
- Recommended Prerequisites: A+ Certification and Network+ Certification
- Credits: 1 credit per semester; 2 total credits
- **WEIGHTED COURSE (1.0)**

INTERACTIVE MEDIA

COMPUTER PROGRAMMING

ABOUT

- This exciting, hands-on course will have students making cool digital content immediately. Interactive Media is an exciting place where video, 3D, audio, web design, video games, and film are created using state of the art HD cameras (4K for 2016), Adobe CC software, and up-to-date Apple computers.
- Students can earn an Adobe Photoshop ACA certification, college credit, and weighted grades while having fun.

QUALIFICATIONS

INTERACTIVE MEDIA I/ 3D 5530M

- Recommended Grade Level: 11-12
- Recommended Prerequisites: Related course in career pathway, high-reading level
- Credits: 2-block course; 2 semesters; 4 total credits
- **WEIGHTED COURSE (1.0)**

INTERACTIVE MEDIA II 5232M

- Recommended Grade Level: 11-12
- Recommended Prerequisites: Successful (C or better) completion of IM
- Credits: 2-block course; 2 semesters; 4 total credits
- **WEIGHTED COURSE (1.0)**

ABOUT

- Video Gaming & Apps is MCIT's cutting-edge course which allows students to create fully-developed video games. Using Unity 3D, students will make two video games over the course of the year. Students will work to develop a story line, create the 3D models and textures, and program the levels before publishing the 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.

QUALIFICATIONS

COMPUTER SCIENCE I VISUAL BASIC 4801M

- Recommended Grade Level: 10-12
- Recommended Prerequisites: None
- Credits: 1 credit per semester; maximum of 2 semesters; maximum of 2 total credits
- Counts as Directed Elective or Elective for the General Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors Diploma
- Dual Credit available for purchase through Vincennes University

COMPUTER SCIENCE II/ PROGRAMMING 5236M

- Recommended Grade Level: 10-12
- Recommended Prerequisites: Successful completion of Computer Programming I
- Credits: 1 credit per semester; maximum of 2 semesters; maximum of 2 total credits
- Counts as Directed Elective or Elective for the General Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors Diploma

COMPUTER SCIENCE II/ VIDEO GAMING & APPS 5252M

- Recommended Grade Level: 12
- Recommended Prerequisites: Computer Science I
- Credits: 4-block course; 2 credits per semester; 4 total credits

JOBS FOR AMERICA (JAG)

CIVIL AIR PATROL (CAP) J-ROTC

ABOUT

● Jobs for America's Graduates (JAG) is a federally funded program designed to help students of promise graduate from high school and make a successful transition to post-secondary education and/or meaningful employment.

QUALIFICATIONS

JAG I 0522M

● Recommended Grade Level: 11
● Recommended Prerequisites: None
● Credits: 2

JAG II 0532M

● Recommended Grade Level: 12
● Recommended Prerequisites: Successful completion of Jag I
● Credits: 2

ABOUT

● Organized a few days before America's involvement in World War Two, the Civil Air Patrol began as a way to protect America's ships and oceans from enemy submarines while also preserving General Aviation for the peaceful years after the war. Today, CAP is the official civilian voluntary auxiliary of the United States Air Force with more than 57,000 members across the nation, performing Missions for America in Emergency Services, Aerospace Education, and Cadet Programs. At MCIT, the cadets of the Titan Cadet Squadron earn promotions ranging from Airman to Colonel as they learn and demonstrate proficiency in Leadership, Physical Fitness, Aerospace Science, Moral Character Development, and Military Bearing. Students must have a desire to learn and improve themselves and an interest in aviation and space.

QUALIFICATIONS

CIVIL AIR PATROL (CAP), JUNIOR RESERVE OFFICER TRAINING CORPS (J-ROTC) 0516M

Cadets desiring to participate must have:
● Recommended Grade Level: 10-12
● Recommended Prerequisites: GPA of 2.0 or higher
● Credits: 2
● PE waiver available

PROJECT LEAD THE WAY (PLTW) BIOMEDICAL SCIENCES

ABOUT

- All students interested in medicine, nursing, health care, veterinary science, dentistry, or medical research will benefit from the Biomedical Science Program. Students in this program gain knowledge and skills in human body systems, causes and effects of disease, microbiology, biochemistry, genetics, research, and biotechnology. The program engages learners through extensive work in the lab, real-world application of science concepts, and experience with professionals in the biomedical field.

• photos courtesy PLTW

PROGRESSION OF COURSES

- 9th Grade – PBS
- 10th Grade – PBS, HBS
- 11th Grade – HBS, MI
- 12th Grade – MI, BI

CLASSES & QUALIFICATIONS

PRINCIPLES OF BIOMEDICAL SCIENCES 5218M

- Grade Level: 9-10
- Prerequisites: Successful completion or concurrent enrollment in Biology I
- Credits: 2
- **WEIGHTED COURSE (0.5)**
- *This is a Core 40 science course, but does not replace Biology 1.*

HUMAN BODY SYSTEMS 5216M

- Grade Level: 10-11
- Prerequisites: Successful completion of PBS
- Credits: 2
- **WEIGHTED COURSE (0.5)**
- *This is a Core 40 science course, but does not replace Biology 1.*

MEDICAL INTERVENTIONS 5217M

- Grade Level: 11-12
- Prerequisites: Successful completion of PBS & HBS
- Credits: 2
- **WEIGHTED COURSE (1.0)**
- *This is a Core 40 science course, but does not replace Biology 1.*

BIOMEDICAL INNOVATIONS 5219M

- Grade Level: 12
- Prerequisites: Successful completion of PBS, HBS, and MI
- Credits: 2
- Four credit hours in biotechnology from Ivy Tech are available upon completion of HBS, MI, and BI.
- **WEIGHTED COURSE (1.0)**

PROJECT LEAD THE WAY (PLTW)
PRE-ENGINEERING

ABOUT

- 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. The approach is called activities-based learning, project-based learning, and problem-based learning.

PROGRESSION OF COURSES

- 9th Grade – IED or POE if recommended by 8th grade counselor and PLTW teacher
- 10th Grade – IED, POE, DE or CIMS
- 11th Grade – IED, POE, DE, CIMS, CEA, AE, ES or EDD
- 12th Grade – IED, POE, DE, CIMS, CEA, AE, ES or EDD

CLASSES & QUALIFICATIONS

INTRODUCTION TO ENGINEERING DESIGN (IED) 4812M
- Recommended Grade Level: 9-10
- Recommended Prerequisites: Successful completion or concurrent enrollment in Algebra I
- Credits: 2
- Dual College Credit is available.

PRINCIPLES OF ENGINEERING (POE) 4814M
- Recommended Grade Level: 9-11
- Recommended Prerequisites: Successful completion of Algebra I
- Credits: 2
- Dual College Credit is available.
- **WEIGHTED COURSE (1.0)**

COMPUTER INTEGRATED MANUFACTURING (CIM) 4810M
- Recommended Grade Level: 10-12
- Recommended Prerequisites: Successful completion of POE and/or IED
- Credits: 2
- **WEIGHTED COURSE (1.0)**
- Dual College Credit is available.

CIVIL ENGINEERING AND ARCHITECTURE (CEA) 4820M
- Recommended Grade Level: 11-12
- Recommended Prerequisites: Successful completion of PLTW course work
- Credits: 2
- **WEIGHTED COURSE (1.0)**
- Dual College Credit is available.

Classes and Qualifications continued on next page.

PROJECT LEAD THE WAY (PLTW) PRE-ENGINEERING

CLASSES & QUALIFICATIONS

DIGITAL ELECTRONICS (DE) 4826M
- Recommended Grade Level: 10-12
- Recommended Prerequisites: Successful completion of IED or POE
- Credits: 2
- Dual College Credit is available.

AEROSPACE ENGINEERING (AE) 4816M
- Recommended Grade Level: 11-12
- Recommended Prerequisites: Successful completion or concurrent enrollment in Algebra II
- Credits: 2
- **WEIGHTED COURSE (1.0)**

ENVIRONMENTAL STAINABILITY (ES) 4818M
- Recommended Grade Level: 11-12
- Recommended Prerequisites: Successful completion of PLTW or Biomed coursework
- Credits: 2
- **WEIGHTED COURSE (1.0)**

ENGINEERING DESIGN AND DEVELOPMENT (EDD) 4828M
- Recommended Grade Level: 11-12
- Recommended Prerequisites: Students must have completed at least two years of the pre-engineering course or have been actively involved with the FIRST Robotics team for two or more years. An application must be submitted.
- Credits: 2

NON-PLTW ENGINEERING / TECHNOLOGY

ABOUT

ADVANCED MANUFACTURING II/ CIMS II/ NON-PLTW 5606M
- Advanced Manufacturing II introduces basic blueprint reading, Computer Numerical Control (CNC) operation and the skills commonly used in the manufacturing industry. Areas of study will include interpretation of drawing dimensions and notes to ANSI standards for machining including Geometric Dimensioning and Tolerancing (GDT), welding, fabrication applications and inspection techniques. Students will be able to use Computer Aided Design (CAD) software to create 3D models and working drawings. Skills in the setup and operation of a CNC mill and lathe will also be acquired using multiple machine tool controllers. Other more general topics will include coordinate systems, dimensioning, line precedence, multi-view drawings, safe dress, tool paths, speed and feed calculations, and tool selection. The course introduces robotics, automation, and Computer Integrated Manufacturing Technology (CIMT). Common types of factory automation will be identified. The course will focus on three main types of manufacturing automation: Programmable Logic Controllers (PLC), Computer Numerically Controlled Machines CNCM), and Robotics. Topics cover robotic principles including basic theory, robot safety, robotic classifications, applications, socioeconomic impact, work cell design, robot programming (Pendant and Software Language), and sensor and actuator interfacing. Students will be required to design, program and troubleshoot computer controlled machine logic and production processes in a project-oriented learning environment.

CLASSES & QUALIFICATIONS

INDUSTRIAL AUTOMATION AND ROBOTICS I 5610M
- Recommended Grade Level: 9-12
- Recommended Prerequisites: Successful completion of at least one PLTW course in middle or high school
- Credits: 1-block course; 2 credits

INTRODUCTION TO CONSTRUCTION 4792M
- Introduction to Residential, Commercial, and Civil Building Construction
- Hands-on building projects
- Safe use of hand and power tools
- Reading and Executing Construction Plans
- 1 Semester

INTRODUCTION TO MANUFACTURING 4784M
- Introduction to manufacturing technology and its societal and environmental impact
- Hands-on projects
- Safe use of machinery and tools utilized in manufacturing processes
- 1 Semester

INTRODUCTION TO TRANSPORTATION 4798M
- Introduction to land, sea, air, and space transportation
- Hands-on projects, explore mechanical skills and processes involved in transportation
- Design, produce, and assess transportation products and services
- Understand the impact of transportation on individuals, society, and the environment
- 1 Semester

CLUBS & PROGRAMS

ACE MENTORING — ARCHITECTURE & ENGINEERING
- *www.acementor.org*
- Engage, excite and enlighten high school students to pursue careers in architecture, engineering and construction through mentoring

BIOTECHNOLOGY CLUB
- *www.biobuilders.org*
- Students interested in lab-based genetic engineering research project

CAP– CIVIL AIR PATROL
- *www.gocivilairpatrol.com*
- Aerospace Education, CADET programs, Emergency Services, Civilian Air Force Cadets
- Grades 7-12

CAR CLUB
- Auto Service and Collision Repair students integrating into automotive projects

DECA– DISTRIBUTIVE EDUCATION CLUBS OF AMERICA
- *www.deca.org*
- International Association of marketing students, provides members and advisors with development activities
- Marketing and Business students

HOSA– FUTURE HEALTH PROFESSIONALS
- *www.hosa.org*
- The purpose of the HOSA organization is to develop leadership and technical HOSA skill competencies through a program of motivation, awareness and recognition, which is an integral part of the Health Science Education instructional program.
- Open to Biomedical Sciences, Health Sciences students and LC/LN students interested in the Health Care Industry

JAG– JOBS FOR AMERICA
- *www.jag.org*

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

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

SKILLS USA
- *www.skillsusa.org*
- All Career and Technical students compete locally and nationally in skills and leadership.

WOMEN IN ENGINEERING
- Female engineering students mentored by IUPUI Women in Engineering students

All organizations meet on Wednesdays, 4-6 PM.

STAFF DIRECTORY

AUTO SERVICE TECHNOLOGY
Don Sheets, williamsheets@msdlt.k12.in.us 964-8035

BUSINESS
John Albers, johnalbers@msdlt.k12.in.us 964-8051
Tom Corbett, tomcorbett@msdlt.k12.in.us 964-8061
Brent Inman, brentinman@msdlt.k12.in.us 964-8030
Dixie Martin, dixiemartin@msdlt.k12.in.us 964-8020
John Schultheis, johnschultheis@msdlt.k12.in.us 964-8028
Sonia Walker, soniawalker@msdlt.k12.in.us 964-8064
Warren Wallace, warrenwallace@msdlt.k12.in.us 964-8059

CIVIL AIR PATROL (CAP)
Frank Merrill, frankmerrill@msdlt.k12.in.us 964-8015

COLLISION REPAIR
Clarence McGowen, clarencemcgowen@msdlt.k12.in.us 964-8037

COMPUTER TECHNOLOGY, A+ AND NETWORK+
Kevin Kelly, kevinkelly@msdlt.k12.in.us 964-8029

COMPUTER PROGRAMMING
Wayne Bender, waynebender@msdlt.k12.in.us 964-8016

COMMUNITY LIAISON
Carletta Sullivan, carlettasullivan@msdlt.k12.in.us 964-8006

CONSTRUCTION TRADES
Aaron Cain, aaroncain@msdlt.k12.in.us 964-8066

COSMETOLOGY
Claudia Heck, claudiaheck@msdlt.k12.in.us 964-8009
Casandra Evans, casandraevans@msdlt.k12.in.us 964-8026

CRIMINAL JUSTICE
Jason Glover, jasonglover@msdlt.k12.in.us 964-8011

CULINARY ARTS
Christy Leavitt, christyleavitt@msdlt.k12.in.us 964-8081
Gracie Sahm, Bernie's Place, graciesahm@msdlt.k12.in.us 964-8025

HEALTH SCIENCES
Charise Dunlap, charisedunlap@msdlt.k12.in.us 964-8033
Carolyn Gauen, carolyngauen@msdlt.k12.in.us 964-8034
Kristen Ziegler, kristenziegler@msdlt.k12.in.us 964-8058

INTERACTIVE MEDIA
Eddie Mathews, eddiemathews@msdlt.k12.in.us 964-8014

JAG
Jeanine Jordan, jeaninejordan@msdlt.k12.in.us 964-8073

PLTW BIOMEDICAL SCIENCES
Kelly Bozoian, kellybozoian@msdlt.k12.in.us 964-8017
Amy Hinshaw, amyhinshaw@msdlt.k12.in.us 964-8010
Paul Legge, paullegge@msdlt.k12.in.us 964-8019
Amy Mitchell, amymitchell@msdlt.k12.in.us 964-8077

PLTW PRE-ENGINEERING
Aaron Cain, aaroncain@msdlt.k12.in.us 964-8066
Tamara Markey, tamaramarkey@msdlt.k12.in.us 964-8050
Brock Morrison, brockmorrison@msdlt.k12.in.us 964-8065
Jeff Smith, jeffreysmith@msdlt.k12.in.us 964-8018

RESOURCE
Beth Thomas, elizabeththomas@msdlt.k12.in.us 964-8055

STUDENT ORGANIZATIONS

ACE MENTORING
Tamara Markey, tamaramarkey@msdlt.k12.in.us 964-8050

BIOTECHNOLOGY CLUB
Paul Legge, paullegge@msdlt.k12.in.us 964-8019

CAP
Frank Merrill, frankmerrill@msdlt.k12.in.us 964-8000

CAR CLUB
Clarence McGowen, clarencemcgowen@msdlt.k12.in.us 964-8037
Don Sheets, williamsheets@msdlt.k12.in.us 964-8035

DECA
John Schultheis, johnschultheis@msdlt.k12.in.us 964-8028

HOSA
Charise Dunlap, charisedunlap@msdlt.k12.in.us 964-8033
Carolyn Gauen, carolyngauen@msdlt.k12.in.us 964-8034
Amy Hinshaw, amyhinshaw@msdlt.k12.in.us 964-8010
Kristen Ziegler, kristenziegler@msdlt.k12.in.us 964-8058

JAG
Jeanine Jordan, jeaninejordan@msdlt.k12.in.us 964-8073

NTHS
Claudia Heck, claudiaheck@msdlt.k12.in.us 964-8009
Beth Thomas, elizabeththomas@msdlt.k12.in.us 964-8055

ROBOTICS
Jeff Smith, jeffreysmith@msdlt.k12.in.us 964-8018
Thomas Wilson, thomaswilson@msdlt.k12.in.us 964-8018

SkillsUSA
Casandra Evans, casandraevans@msdlt.k12.in.us 964-8026

WOMEN IN ENGINEERING
Tamara Markey, tamaramarkey@msdlt.k12.in.us 964-8050
Carletta Sullivan, carlettasullivan@msdlt.k12.in.us 964-8006