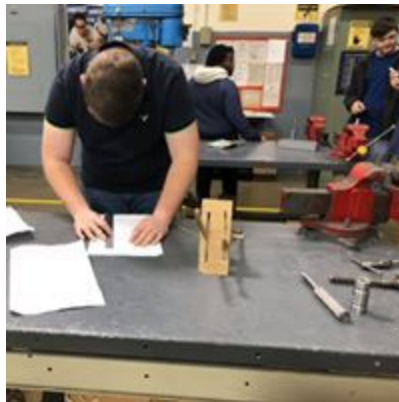




Gateway Academy to Innovation & Technology Course Guide 2019-2020

Engineering & Technology Campus
705 N. Elm Street
Hopkinsville, KY 42240
270-887-7030

Breathitt Health Science Campus
715 North Drive
Hopkinsville, KY 42240





**GATEWAY
ACADEMY**
FOR INNOVATION AND TECHNOLOGY

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#WeAreGateway

I AM GATEWAY! Are YOU Gateway?

An excellent Gateway Team works hard to create a safe learning environment where scholars can be innovative, challenged, and industrious. We seek to hire the best experts in each field of study to prepare scholars for what comes next ~ whether that be college, career, or something else (maybe an entrepreneur)! The Gateway Team has high expectations for each scholar on a daily basis. Scholars willing to meet the daily challenge should apply today!

I AM GATEWAY ~ Gateway Academy offers many opportunities for experiences beyond the classroom. Is your dream to be in politics...you can begin that dream by joining a scholar organization such as SkillsUSA and run for a local, state, or national office! Is your dream to build, program, and drive a robot to WORLD competition...then you need to join the VEX Robotics Team and get started! Is your dream to work with your hands to build tools, wire a house, lay a bead, or troubleshoot a vehicle...maybe Machine Tool, Electrical Construction, Welding or Automotive Technology is for you! Is your goal to earn college credit and industry certification...many of the Gateway programs offer the opportunity to do so! Whatever your dream or goal...Gateway can help you get there!

Are YOU Gateway? Are you willing to work hard, rise to the challenge, and be the best you can be? Are you willing to come to school every day ready to learn? Are you ready to choose a pathway, set goals, and work hard to meet the demands of that path? If so, apply today! We eagerly await your arrival. Gateway is not a place...it is an EXPERIENCE!

Co-Curricular Opportunities

As a Gateway Scholar you have opportunities to expand the learning experience through scholar organizations. SkillsUSA, STLP, and VEX Robotics are offered to all enrolled scholars. HOSA is offered to scholars enrolled in the Health Science Academy.

Graduation Stole Requirements

How to earn a Gateway Academy Stole:

- Be enrolled at Gateway Academy as a senior and successfully complete all coursework
OR
- Pass KOSSA or industry certification while attending Gateway Academy

Gateway Academy Stoles will be passed out at an awards ceremony held in May each year.

Transportation

Scholars are not allowed to drive to Gateway Academy. There will be special allowances for scholars involved in Co-Op, Help Desk, or college classes. The special allowances will be handled through the front office. Scholars involved in those situations must see administration prior to driving to Gateway Academy to complete appropriate paperwork.

Apprenticeship, Co-Op, and Internship

It is a Gateway Expectation that all scholars work towards a Work Based Learning (WBL) experience. Applications are due by April 1 of the scholar's junior year. Requirements for being approved for a WBL experience include the following:

- 2.5 GPA
- No more than 3 unexcused absences during the junior year
- No Level 4+ behavior events on their record

AEROSPACE ENGINEERING
CIP 14.0201.01

Pathway Description: This pathway prepares scholars to design and evaluate aircraft, space vehicles, and their systems; apply research on flight characteristics and develop systems and procedures for the launching, guidance, and control of air and space vehicles. Aerospace engineers design aircraft, spacecraft, satellites, and missiles. In addition, they test prototypes to make sure that they function according to design.

Example Careers: Aerospace Engineer, Aeronautical Engineer, Astronaut, Engineering Tech.

KDE Suggested Academic Attainment by Completion of Pathway:

- Minimum of Pre-Calculus
- Physics
- Chemistry

Grade 9	Grade 10	Grade 11	Grade 12
Intro to Engineering Design/Engineering I	Principles of Engineering/Engineering II	Aerospace Engineering	Choose One: AP Computer Science Principles Digital Electronics/Electrical -Electronics Engineering Engineering Design & Development/Engineering Capstone Engineering Internship/Co-Op
Honors English 1	Honors English 2	AP Language & Composition	English 101/102
Algebra 1 or higher	Geometry or higher	Algebra 2 or higher	Choose One: Pre-Calculus AP Calculus A/B Dual Credit Math
Industry Certifications→		Autodesk Inventor Certified User REC Foundation Pre-Engineering Certification	

CIVIL ENGINEERING
CIP 14.0801.00

Pathway Description: This pathway prepares scholars to design and evaluate structural, load-bearing, material moving, transportation, water resource, and material control systems; and environmental safety measures. Civil engineers design, build, supervise, operate, and maintain construction projects and systems in the public and private sector, including roads, buildings, airports, tunnels, dams, bridges, and systems for water supply and sewage treatment.

Example Careers: Civil Engineer, Water Resource Engineer, Agriculture Engineer, Environmental Engineer, Mining Engineer, Engineering Tech, Land Surveyor, Geotechnical Engineer, Public Works, Military Engineer, Forensic Engineer, etc.

KDE Suggested Academic Attainment by Completion of Pathway:

- Minimum of Pre-Calculus
- Physics
- Chemistry

Grade 9	Grade 10	Grade 11	Grade 12
Intro to Engineering Design/Engineering I	Principles of Engineering/Engineering II	Civil Engineering & Architecture/Civil Engineering	Choose One: AP Computer Science Principles Engineering Design & Development/Engineering Capstone Engineering Internship/Co-Op
Honors English 1	Honors English 2	AP Language & Composition	English 101/102
Algebra 1 or higher	Geometry or higher	Algebra 2 or higher	Choose One: Pre-Calculus AP Calculus A/B Dual Credit Math
Industry Certifications→		REC Foundation Pre-Engineering Certification	

ELECTRICAL/ELECTRONICS ENGINEERING
CIP 14.1001.00

Pathway Description: This pathway prepares scholars to design and evaluate electrical/electronic systems and their components. Electrical engineers design, develop, test, and supervise the manufacturing of electrical equipment, such as electric motors, electrical controls, instrumentation, HMI Interfaces, PLCs, industrial controls, and power generation equipment. Electronics engineers design and develop electronic equipment, such as broadcast and communications systems--from portable music players to global positioning systems (GPSs).

Example Careers: Electronic Engineer, Electrical Engineer, Computer Hardware Engineer, Controls Engineer, Robotics Engineer, Instrumentation Engineer, Consulting Engineer, etc.

KDE Suggested Academic Attainment by Completion of Pathway:

- Minimum of Pre-Calculus
- Physics
- Chemistry

Grade 9	Grade 10	Grade 11	Grade 12
Intro to Engineering Design/Engineering I	Principles of Engineering/Engineering II	Digital Electronics/Electrical -Electronics Engineering	Choose One: AP Computer Science Principles Engineering Design & Development/Engineering Capstone Engineering Internship/Co-Op
Honors English 1	Honors English 2	AP Language & Composition	English 101/102
Algebra 1 or higher	Geometry or higher	Algebra 2 or higher	Choose One: Pre-Calculus AP Calculus A/B Dual Credit Math
Industry Certifications→		Autodesk Inventor Certified User REC Foundation Pre-Engineering Certification	

**MECHANICAL ENGINEERING
CIP 14.3501.00**

Pathway Description: This pathway prepares scholars to design and evaluate physical systems used in manufacturing and end-product systems including, but not limited to, fluid power, robotics, automation, rapid prototyping and machine control. Industrial/Mechanical Engineers design, develop, build, and test mechanical and thermal sensors and devices, including tools, engines, and machines.

Example Careers: Mechanical Engineer, Industrial Designer, Industrial Engineer, Aerospace/Aviation Design, Biosystems Engineer, Manufacturing Manager, etc.

KDE Suggested Academic Attainment by Completion of Pathway:

- Minimum of Pre-Calculus
- Physics
- Chemistry

Grade 9	Grade 10	Grade 11	Grade 12
Intro to Engineering Design/Engineering I	Principles of Engineering/Engineering II	Computer Integrated Manufacturing/Mechanical Engineering	Choose One: AP Computer Science Principles Digital Electronics/Electrical -Electronics Engineering Engineering Design & Development/Engineering Capstone Engineering Internship/Co-Op
Honors English 1	Honors English 2	AP Language & Composition	English 101/102
Algebra 1 or higher	Geometry or higher	Algebra 2 or higher	Choose One: Pre-Calculus AP Calculus A/B Dual Credit Math
Industry Certifications→		Autodesk Inventor Certified User REC Foundation Pre-Engineering Certification REC Foundation Robotics Certification	

AUTOMOTIVE ENGINEERING
CIP 15.0803.00
CIP 47.0604.01
High Demand

Pathway Description: This pathway provides the opportunity to blend Career and Technical Education courses with Engineering courses to help scholars apply technical skills along with STEM skills to solve real-world problems. This pathway prepares scholars to apply engineering principles and technical skills in support of engineers and other professionals engaged in developing, manufacturing, and testing self-propelled ground vehicles and their systems. Includes instruction in vehicular systems technology, design and development testing, prototype and operational testing, inspection and maintenance procedures, instrument calibration, test equipment operation and maintenance, and report preparation.

Example Careers: Automotive Engineer, Service Manager

Grade 9	Grade 10	Grade 11	Grade 12
Intro to Engineering Design/Engineering I	Digital Electronics/Electrical -Electronics Engineering	Automotive Maintenance & Light Repair Section C	Shop Management
Automotive Maintenance & Light Repair Section A	Automotive Maintenance & Light Repair Section B	Automotive Maintenance & Light Repair Section D	Automotive Co-Op
Industry Certifications→		ASE Automotive Maintenance & Light Repair REC Foundation Pre-Engineering Certification	

**COMPUTERIZED MANUFACTURING AND MACHINING (CMM)
ENGINEERING
CIP 48.0510.00
CIP 48.0500.99
High Demand**

Pathway Description: This pathway provides the opportunity to blend Career and Technical Education courses with Engineering courses to help scholars apply technical skills along with STEM skills to solve real-world problems. CMM Engineers design, develop and run programs which direct machines to cut and shape metal or plastic for such things as airplanes, automobiles and other industrial machines. CMM Engineers use blueprints and 3-dimensional computer designs to create the programs which result in precisely cut products.

Example Careers: Service Manager, Machine Operator, Machinist Technician, Machinist, Maintenance Machinist, CNC Machine Operator, CNC Programmer, Mechanical Engineer, Industrial Engineer, etc.

Grade 9	Grade 10	Grade 11	Grade 12
Intro to Engineering Design/Engineering I	Computer Integrated Manufacturing/ Manufacturing Engineering	Blueprint Reading for Machinists	Manual Programming
Fundamentals of Machine Tools - A	Fundamentals of Machine Tools - B	Applied Machining I OR TRACK	TRACK
Industry Certifications→		MSSC - Certified Production Technician (CPT) REC Foundation Pre-Engineering Certification	

ELECTRICAL CONSTRUCTION ENGINEERING
CIP 15.0303.00
CIP 46.0302.02
CIP 46.0302.99
High Demand

Pathway Description: This pathway provides the opportunity to blend Career and Technical Education courses with Engineering courses to help scholars apply technical skills along with STEM skills to solve real-world problems. This pathway prepares scholars to apply technical knowledge and skills to install, operate, maintain, and repair electric apparatus and systems such as residential, commercial, and industrial electric-power wiring; and DC and AC motors, controls, and electrical distribution panels. Includes instruction in the principles of electronics and electrical systems, wiring, power transmission, safety, industrial and household appliances, job estimation, electrical testing and inspection, and applicable codes and standards.

Example Careers: Electrical Engineer, Electrical Engineering Tech, Electrician

Grade 9	Grade 10	Grade 11	Grade 12
Intro to Engineering Design/Engineering I	Digital Electronics/Electrical -Electronics Engineering	Electrical Construction I	Electrical Motor Controls
Circuits 1	Circuits II	Electrical Construction II	Electrical Co-Op OR Rotating Machinery Electrical Motor Controls
Industry Certifications→		OSHA 10 REC Foundation Pre-Engineering Certification	

WELDING ENGINEERING
CIP 15.0614.00
CIP 48.0508.01
High Demand

Pathway Description: Pathway Description: This pathway provides the opportunity to blend Career and Technical Education courses with Engineering courses to help scholars apply technical skills along with STEM skills to solve real-world problems. Welding engineers design and develop metal components for products for the pipeline, automotive, boiler making, shipbuilding, aircraft and mobile home industry. Welding Engineers must have knowledge of cutting processes and gas metal arc welding procedures for efficient development of these industrial processes.

Example Careers: Pipe Welder, Certified Welding Inspector (CWI), Certified Welding Educator (CWE), Welding Engineer, Structural Engineer, Mechanical Engineer, etc.

Grade 9	Grade 10	Grade 11	Grade 12
Intro to Engineering Design/Engineering I	Principles of Engineering/Engineering II	Blueprint Reading for Welding	Welding Certification
Gas Metal Arc Welding	Shielded Metal Arc Welding (SMAW)	Cutting Processes	Welding Co-Op
Industry Certifications→		AWS Sense Certification (Level 1) OSHA 10 REC Foundation Pre-Engineering Certification	

Information Technology

COMPUTER SCIENCE CIP 11.0701.01

Pathway Description: The Computer Science Pathway courses focus on computer theory, computing problems and solutions, and design of computer systems and user-interfaces. The coursework will include instruction in the principles of computational science, computer development and programming and applications to a variety of end use situations.

Example Careers: Computer Software Engineer, Database Developer, Computer Hardware Engineer, Computer Network Specialist, Web Developer, Information Security Analyst, Computer Programmer, IT Project Manager

Grade 9	Grade 10	Grade 11	Grade 12
Computer Literacy	Introduction to Computer Science	Project-Based Programming	C++I
	AP Computer Science Principles	JavaScript	Information Technology Co-Op
Industry Certifications→		Certiport Digital Literacy IC3 Microsoft Technology Associate: Introduction to Programming Using JavaScript	

INFORMATION SUPPORT & SERVICES
CIP 47.0104.01

Pathway Description: The Information Support and Services pathway focuses on the design of computing systems. The courses include instruction in the principles of computer hardware & software components, algorithms, databases, and telecommunications.

Example Careers: Computer Trainer, Customer Service Representative, Data Entry Clerk, Electronics Repair, Quality Control, Computer Support, Technical Writer, etc.

Grade 9	Grade 10	Grade 11	Grade 12
Computer Literacy	Computer Hardware and Software Maintenance	Help Desk Operations	Internet Technologies
		Management of Support Services	Information Technology Co-Op
Industry Certifications→		CTE EOP IC3 MTA	

Health Science Pathways @ Breathitt Campus

ALLIED HEALTH CIP 51.000.01

Pathway Description: This pathway is a general, introductory, undifferentiated, or joint pathway in health services occupations that prepares individuals for either entry into specialized training programs or for a variety of concentrations in the allied health area. Includes instruction in the basic sciences, research and clinical procedures, and aspects of the subject matter related to various health occupations.

Example Careers: Nurse, Pharmacist, Physical Therapist, Psychologist, Radiologist, Veterinarian, etc.

Grade 9	Grade 10	Grade 11	Grade 12
Principles of Health Science	Emergency Procedures/Medical Terminology	Body Structures & Functions	Allied Health Core Skills
Honors English 1	Honors English 2	AP English Language & Composition	English 101/102
Honors Earth Space Science	Honors Biology	Honors Intro to Chemistry & Physics	
Industry Certifications→		NOCTI Healthcare Core	

**PLTW BIOMEDICAL SCIENCES
CIP 26.0102.00**

Pathway Description: This pathway focuses on the integrative scientific study of biological issues related to health and medicine. Includes instruction in any of the basic medical sciences at the research level; biological science research in biomedical faculties; and general studies encompassing a variety of the biomedical disciplines.

Example Careers: Biologist, Biomedical Engineer, Biotechnologist, Coroner, Doctor, Forensic Scientist, Pharmacist, Surgeon, etc.

Grade 9	Grade 10	Grade 11	Grade 12
Principles of Biomedical Science	Human Body Systems	Medical Interventions	Biomedical Innovations
Honors English 1	Honors English 2	AP Language & Composition	English 101/102
Honors Earth Space Science	Honors Biology	Honors Intro to Chemistry & Physics	
Industry Certifications→		NOCTI Biotechnology	

**EKG TECHNOLOGY/TECHNICIAN
CIP 51.0902.01**

Pathway Description: This pathway prepares scholars, under the supervision of physicians and nurses, to administer EKG and ECG diagnostic examinations and report results to the treatment team. Includes instruction in basic anatomy and physiology, the cardiovascular system, medical terminology, cardiovascular medications and effects, patient care, EKG and ECG administration, equipment operation and maintenance, interpretation of cardiac rhythm, patient record management, and professional standards and ethics.

Example Careers: Diagnostic Medical Sonographer, Medical Assistant, Medical Lab Tech, Nurse, Radiologist

Grade 9	Grade 10	Grade 11	Grade 12
Principles of Health Science	Emergency Procedures/Medical Terminology	Body Structures and Functions	EKG Technician
Honors English 1	Honors English 2	AP Language & Composition	English 101/102
Honors Earth Space Science	Honors Biology	Honors Intro to Chemistry & Physics	
Industry Certifications→		Certified EKG Technician	

MEDICAL ADMINISTRATIVE ASSISTING
CIP 51.0710.00
High Demand

Pathway Description: This pathway prepares individuals, under the supervision of office managers and other professionals, to perform routine administrative duties in a medical, clinical, or health care facility/system office environment. Includes instruction in general office skills, data processing, office equipment operation, principles of medical record-keeping and business regulations, medical/clinical office procedures, and communications skills.

Example Careers: Medical Office Manager, Medical Billing and Coding, Medical Records Manager, Medical Administrative Assistant, Clinical Manager, Hospital Administration

Grade 9	Grade 10	Grade 11	Grade 12
Principles of Health Science	Emergency Procedures/Medical Terminology	Medical Office Procedures	Internship: Medical Administrative Assistant
Honors English 1	Honors English 2	AP Language & Composition	English 101/102
Honors Earth Space Science	Honors Biology	Honors Intro to Chemistry & Physics	
Industry Certifications→		Certified Coding Specialist	

**PATIENT CARE TECHNICIAN
CIP 51.1614.00**

Pathway Description: This pathway prepares individuals for admission to a professional program in nursing. This pathway focuses on caring for patients in an acute care setting.

Example Careers: CNA, Nursing

Grade 9	Grade 10	Grade 11	Grade 12
Principles of Health Science	Emergency Procedures/Medical Terminology	Body Structures & Functions	Acute Care Basic Skills
Honors English 1	Honors English 2	AP Language & Composition	English 101/102
Honors Earth Space Science	Honors Biology	Honors Intro to Chemistry & Physics	
Industry Certifications→		Patient Care Technician/Assistant	

PHARMACY TECHNICIAN
CIP 51.0805.01
High Demand

Pathway Description: This pathway prepares scholars, under the supervision of pharmacists, to prepare medications, provide medications and related assistance to patients, and manage pharmacy clinical and business operations. Includes instruction in medical and pharmaceutical terminology, principles of pharmacology and pharmaceuticals, drug identification, pharmacy laboratory procedures, prescription interpretation, patient communication and education, safety procedures, record-keeping, measurement and testing techniques, pharmacy business operations, prescription preparation, logistics and dispensing operations, and applicable standards and regulations.

Example Career: Pharmacy Technician

Grade 9	Grade 10	Grade 11	Grade 12
Principles of Health Science	Emergency Procedures/Medical Terminology	Body Structure and Functions	Pharmacy Technician
Honors English 1	Honors English 2	AP Language & Composition	English 101/102
Honors Earth Space Science	Honors Biology	Honors Intro to Chemistry & Physics	
Industry Certifications→		Certified Pharmacy Technician	

**PHLEBOTOMY TECHNICIAN
CIP 51.1009.01**

Pathway Description: This pathway prepares scholars, under the supervision of physicians and other healthcare professionals, to draw blood samples from patients using a variety of intrusive procedures. Includes instruction in basic vascular anatomy and physiology, blood physiology, skin puncture techniques, venipuncture, venous specimen collection and handling safety and sanitation procedures, and applicable standards and regulations.

Example Careers: Medical Lab Tech, Phlebotomist

Grade 9	Grade 10	Grade 11	Grade 12
Principles of Health Science	Emergency Procedures/Medical Terminology	Body Structures and Functions	Medical Laboratory Aide
Honors English 1	Honors English 2	AP Language & Composition	English 101/102
Honors Earth Space Science	Honors Biology	Honors Intro to Chemistry & Physics	
Industry Certifications→		Certified Phlebotomy Technician	

**PRE-NURSING
CIP 51.2699.01
High Demand**

Pathway Description: This pathway prepares scholars for admission to a professional program in Nursing. This pathway focuses on caring for residents in a long term care facility. The rigor of this course is relative to a collegiate nursing program. Excellent attendance is very important.

Example Career: Licensed Practical Nurse, Nurse, Nurse Practitioner, Nursing Assistant, Physician's Assistant

Grade 9	Grade 10	Grade 11	Grade 12
Principles of Health Science	Emergency Procedures/Medical Terminology	Body Structure and Functions	Medicaid Nurse Aide
Honors English 1	Honors English 2	AP Language & Composition	English 101/102
Honors Earth Space Science	Honors Biology	Honors Intro to Chemistry & Physics	
Industry Certifications→		Medicaid Nurse Aide (MNA)	

Culinary & Food Services Pathway @ Home High School

Culinary & Food Services CIP 12.0500.00			
<p>Pathway Description: This pathway addresses a skill set necessary for success in the culinary industry. The courses in this pathway will help students develop skills in early career ladder positions and promote continuing education at the post-secondary level preparing for careers associated with restaurants, institutional food service, hospitality and catering, as well as food and beverage operations.</p> <p>Example Careers: Chef/Cook, Baker, Entrepreneur, Food Inspector, Butcher</p>			
Grade 9	Grade 10	Grade 11	Grade 12
FACS Essentials (if offered at home high school)	Foods & Nutrition	Culinary Arts I	FACS Leaders at Work
		Culinary Arts II	Co-Op: Culinary Arts
Industry Certifications→		CTE EOP ServSafe Food Handler Certification ServSafe Food Manager's Credential	

