

Architecture and Construction

Program of Study & Course Descriptions

2017/2018

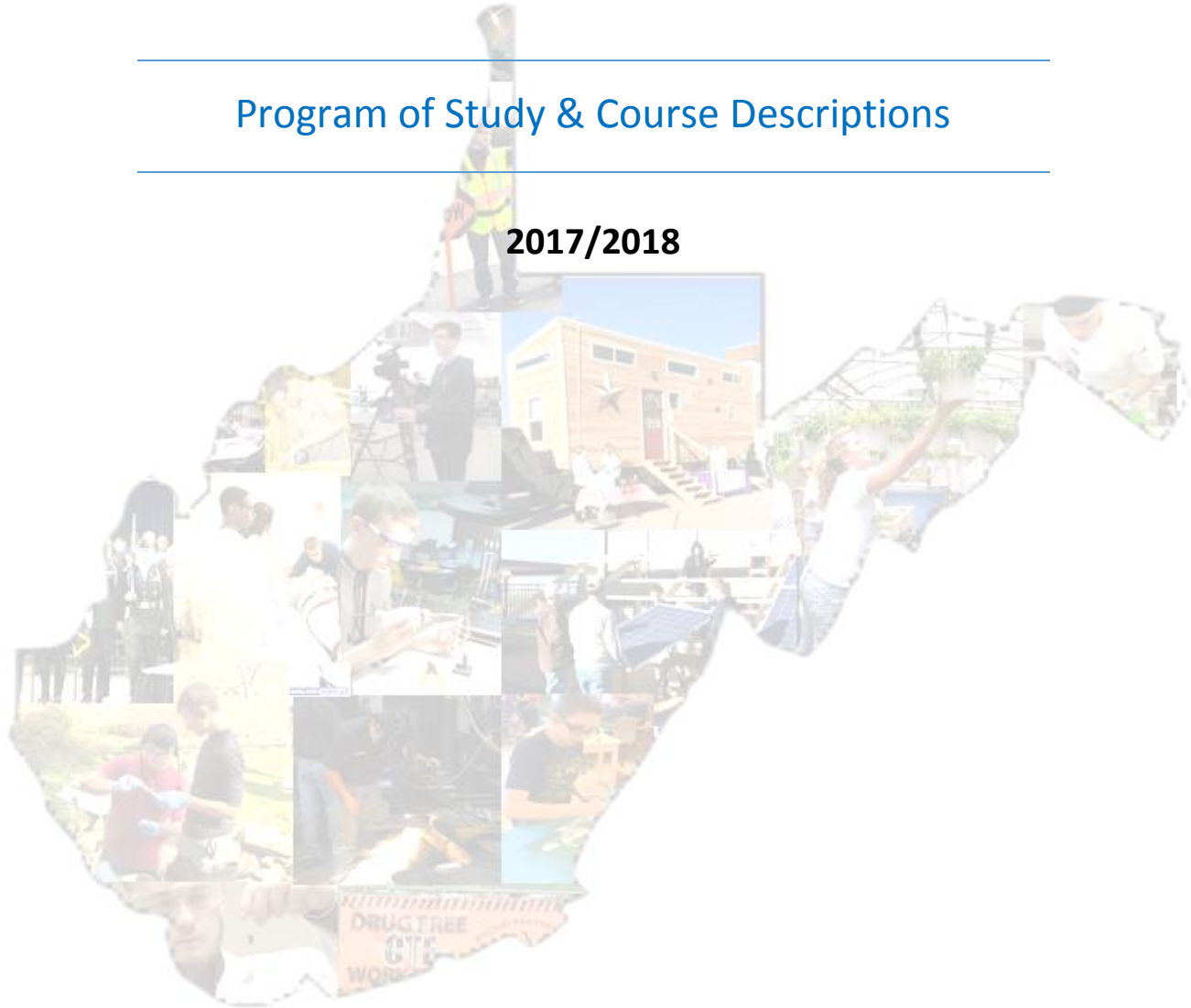


Table of Contents

Architecture and Construction Cluster	4
Construction Pathway.....	4
Program of Study: AR1760 Electrical Technician	4
Program of Study: AR1820 Carpentry	6
Program of Study: AR1910 Masonry.....	8
**Program of Study: AR2140 Plumbing.....	10
Design/Pre-construction Pathway	12
Program of Study: AR1720 Drafting.....	12
Maintenance Operations Pathway	14
**Program of Study: AR1600 HVAC Technician	14
Program of Study: AR1800 Building Maintenance and Operations.....	16
Architecture and Construction Cluster Electives	18
Construction Pathway Electives.....	18
Program of Study: AR1760 Electrical Technician	18
**Program of Study: AR1820 Carpentry.....	20
**Program of Study: AR1910 Masonry.....	23
Program of Study: AR2140 Plumbing.....	25
Design/Pre-Construction Pathway Electives.....	27
Program of Study: AR1720 Drafting.....	27
Maintenance/Operations Pathway Electives.....	29
Program of Study: AR1600 HVAC Technician	29
**Program of Study: AR1800 Building Maintenance and Operations.....	32
Adult Program of Study.....	34
Maintenance/Operations Pathway.....	34

Program of Study: AR2130 Heavy Equipment Operations and Preventative Maintenance..... 34

**IWRC Program of Study Available

Architecture and Construction Cluster

Cluster Description:

The Architecture and Construction Cluster focuses on careers in designing, planning, managing, building and maintaining the built environment.

Construction Pathway

Pathway Description:

Employees in construction literally build our future! These are the people who build and remodel houses, apartments, industrial buildings, warehouses, office buildings, churches, schools and recreational facilities. This pathway also includes the builders of highways, streets, bridges, tunnels and airports as well as power plants, chemical plants, refineries and mills.

Program of Study: AR1760 Electrical Technician

Courses: 1756 Electrical Trades I
1757 Electrical Trades II
1758 Electrical Trades III
1759 Electrical Trades IV

Program of Study Description:

The Electrical Technician Program of Study focuses on careers that will build a knowledge base and technical skills in all aspects of the Electrical Trades industry. Students will have the opportunity to earn NCCER certification for each skill set mastered and be exposed to skills to develop positive work ethics.

Course Descriptions:

1756 Electrical Trades I

This course introduces the student to the knowledge base and technical skills of the Electrical Trades industry. Electrical Trades I begin with the NCCER Core curriculum which is a prerequisite to all Level I completions. The students will complete modules in Basic Safety; Introduction to Construction Math; Introduction to Hand Tools; Introduction to Power Tools; Introduction to Construction Drawings; Basic Rigging; Basic Communication Skills; Basic Employability Skills; and Introduction to Materials Handling. Students will then begin developing skill sets related to the fundamentals of Electricity such as Orientation to the Electrical Trade; and Electrical Safety. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

1757 Electrical Trades II

Electrical Trades II will continue to build student skill sets in areas such as Introduction to Electrical Circuits; Electrical Theory; Introduction to the National Electrical Code®; Device Boxes; Hand Bending; Raceways and Fittings; Conductors and Cables; Basic Electrical Construction Drawings; Residential Electrical Services; and Electrical Test Equipment. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

1758 Electrical Trades III

Electrical Trades III will continue to build student skill sets in areas of Alternating Current; Motors: Theory and Application; Electric Lighting; and Conduit Bending. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

1759 Electrical Trades IV

Electrical Trades IV will continue to build student skill sets in areas of Pull and Junction Boxes; Conductor Installations; Cable Tray; Conductor Terminations and Splices; Grounding and Bonding; Circuit Breakers and Fuses; and Control Systems and Fundamental Concepts. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

Program of Study: AR1820 Carpentry

Courses: 1842 Carpentry I
1843 Carpentry II
1844 Carpentry III
1845 Carpentry IV

Program of Study Description:

The Carpentry Program of Study focuses on careers that will build a knowledge base and technical skills in all aspects of the carpentry industry. Learners will be exposed to a broad range of construction careers and foundation knowledge including basic safety; plan reading; use of tools and equipment; basic rigging; and how to employ positive work ethics in their careers. Students will have the opportunity to earn NCCER certification for each skill set mastered.

Course Descriptions:

1842 Carpentry I

This course introduces the student to the knowledge base and technical skills of the carpentry industry. Carpentry I begins with the NCCER Core curriculum which is a prerequisite to all Level I completions. The students will complete modules in Basic Safety; Introduction to Construction Math; Introduction to Hand Tools; Introduction to Power Tools; Introduction to Construction Drawings; Basic Rigging; Basic Communication Skills; Basic Employability Skills; and Introduction to Materials Handling. Students will then begin developing skill sets related to the fundamentals of Carpentry such as Orientation to the Trade; Building Materials, Fasteners, and Adhesives; and Hand and Power Tools. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

1843 Carpentry II

Carpentry II will continue to build student skill sets in areas such as Reading Plans and Elevations; Floor Systems, Wall and Ceiling Framing; Roof Framing; Introduction to Concrete, Reinforcing Materials, and Forms; Windows and Exterior Doors; Basic Stair Layout. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

1844 Carpentry III

Carpentry III will continue to build student skill sets in areas of Commercial Drawings; Roofing Applications; Thermal and Moisture Protection; and Exterior Finishing. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding

of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

1845 Carpentry IV

Carpentry IV will continue to build student skill sets in areas of Cold-Formed Steel Framing; Drywall Installation; Drywall Finishing; Doors and Door Hardware; Suspended Ceilings; Window, Door, Floor, and Ceiling Trim; Cabinet Installation; and Cabinet Fabrication. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

Program of Study: AR1910 Masonry

Courses: 1846 Masonry I
1847 Masonry II
1848 Masonry III
1849 Masonry IV

Program of Study Description:

The Masonry Program of Study focuses on careers that will build a knowledge base and technical skills in all aspects of the Masonry industry. Students will have the opportunity to earn NCCER certification for each skill set mastered and be exposed to skills to develop positive work ethics.

Course Descriptions:

1846 Masonry I

This course introduces the student to the knowledge base and technical skills of the Masonry industry. Masonry I begins with the NCCER Core curriculum which is a prerequisite to all Level I completions. The students will complete modules in Basic Safety; Introduction to Construction Math; Introduction to Hand Tools; Introduction to Power Tools; Introduction to Construction Drawings; Basic Rigging; Basic Communication Skills; Basic Employability Skills; and Introduction to Materials Handling. Students will then begin developing skill sets related to the fundamentals of Masonry such as Introduction to Masonry; and Masonry Tools and Equipment. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

1847 Masonry II

Masonry II will continue to build student skill sets in areas such as Measurements, Drawings, and Specifications; Mortar; and Masonry Units and Installation Techniques. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

1848 Masonry III

Masonry III will continue to build student skill sets in areas of Residential Plans and Drawing Interpretation; Residential Masonry; Grout and Other Reinforcement; and Metal Work in Masonry. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

1849 Masonry IV

Masonry IV will continue to build student skill sets in areas of Advanced Laying Techniques; Construction Techniques and Moisture Control; and Construction Inspection and Quality Control. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

****Program of Study:** AR2140 Plumbing

Courses: 2081 Plumbing I
2082 Plumbing II
2083 Plumbing III
2084 Plumbing IV

Program of Study Description:

The Plumbing Program of Study focuses on careers that will build a knowledge base and technical skills in all aspects of the Plumbing industry. Students will have the opportunity to earn NCCER certification for each skill set mastered and be exposed to skills to develop positive work ethics.

Course Descriptions:

2081 Plumbing I

This course introduces the student to the knowledge base and technical skills of the Plumbing industry. Plumbing I begins with the NCCER Core curriculum which is a prerequisite to all Level I completions. The students will complete modules in Basic Safety; Introduction to Construction Math; Introduction to Hand Tools; Introduction to Power Tools; Introduction to Construction Drawings; Basic Rigging; Basic Communication Skills; Basic Employability Skills; and Introduction to Materials Handling. Students will then begin developing skill sets in the fundamentals of Plumbing such as Introduction to the Plumbing Profession and Plumbing Safety. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

2082 Plumbing II

Plumbing II will continue to build student skill sets in areas such as Plumbing Tools; Introduction to Plumbing Math; Introduction to Plumbing Drawings; Plastic Pipe and Fittings; Copper Pipe and Fittings; Cast-Iron Pipe and Fittings; Carbon Steel Pipe and Fittings; Corrugated Stainless Steel Tubing; Fixtures and Faucets; Introduction to Drain, Waste, and Vent (DWV) Systems; and Introduction to Water Distribution Systems. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

2083 Plumbing III

Plumbing III will continue to build student skill sets in areas of Plumbing Math Two; Reading Commercial Drawings; Hangers, Supports, Structural Penetrations, and Fire Stopping; Installing and Testing DWV Piping; Installing Roof, Floor, and Area Drains; and Types of Valves. Students

utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

2084 Plumbing IV

Plumbing IV will continue to build student skill sets in areas of Installing and Testing Water Supply Piping; Installing Fixtures, Valves and Faucets; Introduction to Electricity; Installing Water Heaters; Fuel Gas Systems; and Servicing of Fixtures, Valves and Faucets. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

Design/Pre-construction Pathway

Pathway Description:

People with careers in design/pre-construction create our future! They turn a concept into a set of plans. Their plans guide other construction professionals as they continue the building process.

Program of Study: AR1720 Drafting

Courses: 1721 Architectural Drafting
1725 Mechanical Drafting
1727 Drafting Techniques
1729 Fundamentals of Drafting

Program of Study Description:

The Drafting Program of Study focuses a broad range of architecture and construction careers and foundation knowledge including basic safety, plan reading, use of tools and equipment as well as how to employ positive work ethics in a drafting career.

Course Descriptions:

1721 Architectural Drafting

This course introduces students to the specialization of architectural drawing and design. Areas of study include architectural styles, floor plans, dimensioning and annotation, site and foundation plans, elevations and section layouts, and residential utilities. Emphasis will be placed on personal and professional ethics, and students will explore a variety of career opportunities. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

1725 Mechanical Drafting

This course introduces the student to the knowledge base and technical skills necessary for mechanical drafting. Areas of study include advanced dimensioning techniques, assembly drawings, threads and fasteners, gears and cams, welding, and basic solid modeling. Emphasis will be placed on personal and professional ethics, and students will explore a variety of career opportunities. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

1727 Drafting Techniques

This course introduces the student to techniques used in advanced orthographic projection. Areas of study include sectioning, pictorial views, auxiliary views, patterns and developments, dimensioning, advanced 2D CAD techniques, and basic 3D modeling in CAD. Students will demonstrate knowledge and technical expertise in various fundamental drafting techniques. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organizations, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

1729 Fundamentals of Drafting

This course introduces the student to the knowledge base and technical skills for all courses in the Drafting Program of Study. Areas of study include tools and equipment, measurement, basic drafting techniques, freehand technical sketching, orthographic projection, dimensioning, basic computer skills, and drawing techniques. Emphasis will be placed on personal and professional ethics, and students will explore a variety of career opportunities. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

Maintenance Operations Pathway

Pathway Description:

Employees with careers in maintenance/operations keep our future intact! These are the people who unload, inspect, and move new equipment into position. They determine the optimal placement of machines in a plant, assemble machinery, install machinery, repair machinery and perform preventive maintenance. They detect, diagnose and correct minor problems on machinery. They keep the structure of an establishment in good repair. They maintain the smooth operation of refineries, power plants, chemical plants and mills.

****Program of Study:** AR1600 HVAC Technician

Courses: 1752 HVAC I
1753 HVAC II
1754 HVAC III
1755 HVAC IV

Program of Study Description:

The HVAC Technician Program of Study focuses on careers that will build a knowledge base and technical skills in all aspects of the Heating, Ventilation, and Air Conditioning industry. Students will have the opportunity to earn NCCER certification for each skill set mastered and be exposed to skills to develop positive work ethics.

Course Descriptions:

1752 HVAC I

This course introduces the student to the knowledge base and technical skills of the HVAC industry. HVAC I begins with the NCCER Core curriculum which is a prerequisite to all Level I completions. The students will complete modules in Basic Safety; Introduction to Construction Math; Introduction to Hand Tools; Introduction to Power Tools; Introduction to Construction Drawings; Basic Rigging; Basic Communication Skills; Basic Employability Skills; and Introduction to Materials Handling. Students will then begin developing skill sets related to the fundamentals of HVAC such as Introduction to HVAC; and Trade Mathematics. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

1753 HVAC II

HVAC II will continue to build student skill sets in areas such as Copper and Plastic Piping Practices; Soldering and Brazing; Ferrous Metal Piping Practices; Basic Electricity; Introduction to Cooling; Introduction to Heating; and Air Distribution Systems. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and

instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

1754 HVAC III

HVAC III will continue to build student skill sets in areas of Commercial Airside Systems; Chimneys, Vents, and Flues; Introduction to the Hydronic Systems; Air Quality Equipment; Leak Detection, Evacuation, Recovery, and Charging; Alternating Current; Basic Electronics; and Introduction to Control Circuit Troubleshooting. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

1755 HVAC IV

HVAC IV will continue to build student skill sets in areas of Troubleshooting Gas Heating; Troubleshooting Cooling; Heat Pumps; Basic Installation and Maintenance Practices; Sheet Metal Duct Systems; and Fiberglass and Flexible Duct Systems. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

Program of Study: AR1800 Building Maintenance and Operations

- Courses:** 1774 Building Maintenance and Operations I
1775 Building Maintenance and Operations II
1776 Building Maintenance and Operations III
1777 Building Maintenance and Operations IV

Program of Study Description:

The Building Maintenance and Operations Program of Study focuses on careers that maintain a safe and productive environment, follow codes and regulations, identify unsafe conditions, and take corrective actions to reinstate a proper working and safe environment. Students will have the opportunity to earn NCCER certification for each skill set mastered and be exposed to skills to develop positive work ethics.

Course Descriptions:

1774 Building Maintenance and Operations I

This course introduces the student to the knowledge base and technical skills of the Building Maintenance and Operations industry. Building Maintenance and Operations I begins with the NCCER Core curriculum which is a prerequisite to all Level I completions. The students will complete modules in Basic Safety; Introduction to Construction Math; Introduction to Hand Tools; Introduction to Power Tools; Introduction to Construction Drawings; Basic Rigging; Basic Communication Skills; Basic Employability Skills; and Introduction to Materials Handling. Students will then begin developing skill sets related to the fundamentals of Building Maintenance and Operations such as Site Layout One: Distance Measurement and Leveling; and Introduction to Concrete, Reinforcing Materials and Forms. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

1775 Building Maintenance and Operations II

Building Maintenance and Operations II will continue to build student skill sets in areas such as Handling and Placing Concrete; Introduction to Masonry; and Masonry Units and Installation Techniques. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

1776 Building Maintenance and Operations III

Building Maintenance and Operations III will continue to build student skill sets in areas of Floor Systems; Wall and Ceiling Framing; Roof Framing; and Roofing Applications. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

1777 Building Maintenance and Operations IV

Building Maintenance and Operations will continue to build student skill sets in areas of Exterior Finishing; Basic Stair Layout; Electrical Safety; and Residential Electrical Services. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, WV SkillsUSA. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and skill sets.

Architecture and Construction Cluster Electives

Construction Pathway Electives

Program of Study: AR1760 Electrical Technician

WVEIS CODE	Courses
0520	Work-Based Integration and Transition
1765	Industrial and Commercial Wiring
1767	National Electrical Code
1769	Residential Wiring
1762	Blueprint Reading For Electricians
1766	Integrated Electrical Lab
1771	Rotating Devices and Control Circuitry

Elective Course Descriptions:

0520 Work-Based Integration and Transition

This course gives students the opportunity to integrate theory and practice by interacting with industry professionals. Students will study various requirements for employability including ethics, communication, teamwork and professionalism. Students will participate in hands-on, digital or work-based experiences related to industry settings in order to practice skill sets and to transition from student to employee. A supervised project will be developed in one or more of the following categories: Entrepreneurship (ownership or operation of a business); Placement (employment or internship); Research and Experimentation (planning and/or conducting a scientific experiment); Exploration (exploration of related careers through activities such as shadowing employees in various work settings, conducting on-line research, attending professional development activities, etc.). Students will develop materials to supplement their Simulated Workplace portfolios.

1765 Industrial and Commercial Wiring

This course introduces the student to the knowledge base and technical skills for Industrial and Commercial Wiring. Areas of study include conduit and raceways and commercial load calculations and configurations. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts and teachers should provide each student with real world learning opportunities and instruction related to course concepts.

1767 National Electrical Code

This course introduces the student to the knowledge base and technical skills for the NEC. Areas of study include demonstrating skills in the use of the NEC, applying calculations to assure NEC standards are met. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will

utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts.

1769 Residential Wiring

This course introduces the student to the knowledge base and technical skills for Residential Wiring. Areas of study include wiring data, service entrance equipment, luminary and receptacle outlets, protective devices, appliance and special circuits and low-voltage systems. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts.

1762 Blueprint Reading For Electricians

This course introduces the student to the knowledge base and technical skills regarding Blueprint Reading for Electricians. Areas of study include building plans and specifications and blueprint and schematic reading. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts.

1766 Integrated Electrical Lab

This course introduces the student to the knowledge base and technical skills for concepts in the Integrated Electrical Lab. Areas of study include electrical installation project, rough-in procedure, test and check circuits and termination and trim-out. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to course concepts.

1771 Rotating Devices and Control Circuitry

This course introduces the student to the knowledge base and technical skills for concepts in the Rotating Devices and Control Circuitry. Areas of study include control circuitry and motor controls. Emphasis will be placed on career exploration, job seeking skills, and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to course concepts.

****Program of Study: AR1820 Carpentry**

WVEIS CODE	Courses
0520	Work-Based Integration and Transition
1769	Residential Wiring
1803	Basic Plumbing and Electricity
1820	Applications in Commercial Construction
1821	Concrete Finishing
1822	Blueprint Reading For Construction
1828	Building Construction Applications
1829	Masonry and Plumbing

Elective Course Descriptions:

0520 Work-Based Integration and Transition

This course gives students the opportunity to integrate theory and practice by interacting with industry professionals. Students will study various requirements for employability including ethics, communication, teamwork and professionalism. Students will participate in hands-on, digital or work-based experiences related to industry settings in order to practice skill sets and to transition from student to employee. A supervised project will be developed in one or more of the following categories: Entrepreneurship (ownership or operation of a business); Placement (employment or internship); Research and Experimentation (planning and/or conducting a scientific experiment); Exploration (exploration of related careers through activities such as shadowing employees in various work settings, conducting on-line research, attending professional development activities, etc.). Students will develop materials to supplement their Simulated Workplace portfolios.

1769 Residential Wiring

This course introduces the student to the knowledge base and technical skills for Residential Wiring. Areas of study include wiring data, service entrance equipment, luminary and receptacle outlets, protective devices, appliance and special circuits and low-voltage systems. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts.

1803 Basic Plumbing and Electricity

This course introduces the student to the knowledge base and technical skills for concepts in Basic Plumbing and Electricity. Areas of study include basic plumbing skills, advanced plumbing repair and basic electrical skills. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to facilities maintenance occupations.

1820 Applications in Commercial Construction

This course introduces the student to the knowledge base and technical skills for concepts in the building construction Program of Study. Areas of study include site layout and preparation, form construction, steel framing, suspended ceilings and floor coverings. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to commercial construction.

1821 Concrete Finishing

This course introduces the student to the knowledge base and technical skills for concepts in the Building Construction Program of Study. Areas of study include estimation, concrete construction, finishing concepts, properties of concrete, tools and equipment, concrete placement, work site preparation, finishing techniques, curing and protecting and troubleshooting concrete problems. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to concrete finishing.

1822 Blueprint Reading For Construction

This course introduces the student to the knowledge base and technical skills for concepts in the Building Construction Program of Study. Areas of study include identifying various blueprints, terms, symbols, components, dimensions, classifications and construction task objectives. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to construction blueprints.

1828 Building Construction Applications

This course introduces the student to the knowledge base and technical skills for concepts in the Building Construction Program of Study. Areas of study include foundation and framing procedures and foundation and framing applications. Emphasis will be placed on career exploration, job-seeking skills, and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to construction applications.

1829 Masonry and Plumbing

This course introduces the student to the knowledge base and technical skills for concepts in the Building Construction Program of Study. Areas of study include estimation, masonry materials, rough in plumbing systems and installation of finish plumbing. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to masonry and plumbing.

****Program of Study: AR1910 Masonry**

WVEIS CODE	Courses
0520	Work-Based Integration and Transition
1821	Concrete Finishing
1914	Bricklaying Applications
1916	Decorative Masonry Work
1911	Block and Rock Laying
1913	Bricklaying
1917	Foundation and Footings

Elective Course Descriptions:

0520 Work-Based Integration and Transition

This course gives students the opportunity to integrate theory and practice by interacting with industry professionals. Students will study various requirements for employability including ethics, communication, teamwork and professionalism. Students will participate in hands-on, digital or work-based experiences related to industry settings in order to practice skill sets and to transition from student to employee. A supervised project will be developed in one or more of the following categories: Entrepreneurship (ownership or operation of a business); Placement (employment or internship); Research and Experimentation (planning and/or conducting a scientific experiment); Exploration (exploration of related careers through activities such as shadowing employees in various work settings, conducting on-line research, attending professional development activities, etc.). Students will develop materials to supplement their Simulated Workplace portfolios.

1821 Concrete Finishing

This course introduces the student to the knowledge base and technical skills for concepts in the Building Construction Program of Study. Areas of study include estimation, concrete construction, finishing concepts, properties of concrete, tools and equipment, concrete placement, work site preparation, finishing techniques, curing and protecting and troubleshooting concrete problems. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to concrete finishing.

1914 Bricklaying Applications

This course introduces the student to the knowledge base and technical skills for concepts in Bricklaying Applications. Areas of study include installing brick paving, building chimneys and fireplaces, constructing brick steps, and building brick archways. Emphasis will be placed on career exploration, job seeking skills, and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should

provide each student with real world learning opportunities and instruction related to Advanced Bricklaying.

1916 Decorative Masonry Work

This course introduces the student to the knowledge base and technical skills for concepts in Decorative Masonry Work. Areas of study include building with the six different brick positions, building with landscape block, integrating arches into openings and setting ceramic tile. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to Decorative Masonry Work.

1911 Block and Rock Laying

This course introduces the student to the knowledge base and technical skills for concepts in Block Laying. Areas of study include block foundation, concrete block and block leads. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to Block Laying.

1913 Bricklaying

This course introduces the student to the knowledge base and technical skills for concepts in Bricklaying. Areas of study include joint finishing, laying brick to the line, constructing brick leads, laying brick positions and brick paving. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to Bricklaying.

1917 Foundation and Footings

This course introduces the student to the knowledge base and technical skills for all courses in the masonry Program of Study, specifically foundations and footings. Areas of study include blueprint reading, site layout and footer and foundation installation. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to masonry occupations.

Program of Study: AR2140 Plumbing

WVEIS CODE	Courses
0520	Work-Based Integration and Transition
2145	Soldering and Flaring Copper Pipe
2146	Gas Piping
2147	Cast-Iron Piping
2148	Drains, Waste and Vent Systems
2149	Plumbing Fixtures

Course Descriptions:

0520 Work-Based Integration and Transition

This course gives students the opportunity to integrate theory and practice by interacting with industry professionals. Students will study various requirements for employability including ethics, communication, teamwork and professionalism. Students will participate in hands-on, digital or work-based experiences related to industry settings in order to practice skill sets and to transition from student to employee. A supervised project will be developed in one or more of the following categories: Entrepreneurship (ownership or operation of a business); Placement (employment or internship); Research and Experimentation (planning and/or conducting a scientific experiment); Exploration (exploration of related careers through activities such as shadowing employees in various work settings, conducting on-line research, attending professional development activities, etc.). Students will develop materials to supplement their Simulated Workplace portfolios.

2145 Soldering and Flaring Copper Pipe

This course introduces the student to the base and technical skills in Soldering and Flaring Copper Tubing. Areas of study include assembly, installation and repair of piping systems using copper tubing and fittings. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to soldering and flaring copper tubing.

2146 Gas Piping

This course introduces the student to the knowledge base and technical skills for all courses in Gas Piping. Areas of study include designing, assembling, installing and repairing pipes and fittings used in a gas piping system, as well as receiving flexible gas piping certifications during the course. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to gas piping.

2147 Cast-Iron Piping

This course introduces the student to the base knowledge and technical skills in Cast-Iron Piping. Areas of study include the assembly, installation and repair of cast-iron piping systems. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to cast-iron piping.

2148 Drains, Waste and Vent Systems

This course introduces the student to the knowledge base and technical skills concepts in Drains, Waste and Vent Systems. Areas of study include assembly, installation and repair of DWV systems, types of vents and indirect and special waste. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to drain, waste and vent systems.

2149 Plumbing Fixtures

This course introduces the student to the knowledge base and technical skills related to Plumbing Fixtures. Areas of study include identifying various types of plumbing fixtures and faucets and how to properly install and test plumbing fixtures. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to the plumbing profession.

Design/Pre-Construction Pathway Electives

Program of Study: AR1720 Drafting

WVEIS CODE	Courses
0520	Work-Based Integration and Transition
1661	Blueprint Reading
1718	Introduction to CAD
1722	Piping Systems Drafting
1723	Civil Drafting
1726	Structural Steel Drafting
1728	Computer Aided Drafting

Elective Course Descriptions:

0520 Work-Based Integration and Transition

This course gives students the opportunity to integrate theory and practice by interacting with industry professionals. Students will study various requirements for employability including ethics, communication, teamwork and professionalism. Students will participate in hands-on, digital or work-based experiences related to industry settings in order to practice skill sets and to transition from student to employee. A supervised project will be developed in one or more of the following categories: Entrepreneurship (ownership or operation of a business); Placement (employment or internship); Research and Experimentation (planning and/or conducting a scientific experiment); Exploration (exploration of related careers through activities such as shadowing employees in various work settings, conducting on-line research, attending professional development activities, etc.). Students will develop materials to supplement their Simulated Workplace portfolios.

1661 Blueprint Reading

This course will introduce students to basic blueprint reading fundamentals. Areas of study include blueprints and symbols. Students will demonstrate knowledge and technical expertise in interpreting blueprints. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to drafting, design, and related engineering occupations. Safety instruction is integrated into all activities.

1718 Introduction to CAD

This course will introduce students to computer-aided drafting using CAD software. Areas of study include the CAD interface, basic geometry, working aids, basic dimensioning, plotting, and student organizations. Students will demonstrate knowledge and technical expertise in the commands and features of the program. Emphasis will be placed on personal and professional ethics and students will explore a variety of career opportunities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts and teachers should provide each student with real world learning

opportunities and instruction related to drafting, design and related engineering occupations. Safety instruction is integrated into all activities.

1722 Piping Systems Drafting

This course introduces the student to the knowledge base and technical skills for piping drafting. Areas of study include piping, joints and fittings, valves, and schematics and layouts. Emphasis will be placed on personal and professional ethics, and students will explore a variety of career opportunities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to drafting, design, and related engineering occupations. Safety instruction is integrated into all activities.

1723 Civil Drafting

This course will introduce students to the specialization of civil drafting and design. Areas of study include maps and construction and utilization of survey data. Emphasis will be placed on personal and professional ethics and students will explore a variety of career opportunities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to drafting, design and related engineering occupations. Safety instruction is integrated into all activities.

1726 Structural Steel Drafting

This course introduces the student to the knowledge base and technical skills for structural steel drafting. Areas of study include structural steel, high strength bolts, welding symbols and structural truss floor plans. Emphasis will be placed on personal and professional ethics, and students will explore a variety of career opportunities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts and teachers should provide each student with real world learning opportunities and instruction related to drafting, design and related engineering occupations. Safety instruction is integrated into all activities.

1728 Computer Aided Drafting

This course introduces the student to the knowledge base and technical skills for advanced computer aided drafting. Areas of study include paper space/model space, layout, and add-on software. Students will demonstrate knowledge and technical expertise in the use of CAD software. Emphasis will be placed on personal and professional ethics, and students will explore a variety of career opportunities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts and teachers should provide each student with real world learning opportunities and instruction related to drafting, design, and engineering occupations. Safety instruction is integrated into all activities.

Maintenance/Operations Pathway Electives

Program of Study: AR1600 HVAC Technician

WVEIS CODE	Courses
0520	Work-Based Integration and Transition
1601	Basic Control Circuits
1602	Air Conditioning Applications
1603	Domestic Refrigeration
1604	Fossil Fuel Heating Systems
1607	Heating Systems
1608	Commercial Air Conditioning

Elective Course Descriptions:

0520 Work-Based Integration and Transition

This course gives students the opportunity to integrate theory and practice by interacting with industry professionals. Students will study various requirements for employability including ethics, communication, teamwork and professionalism. Students will participate in hands-on, digital or work-based experiences related to industry settings in order to practice skill sets and to transition from student to employee. A supervised project will be developed in one or more of the following categories: Entrepreneurship (ownership or operation of a business); Placement (employment or internship); Research and Experimentation (planning and/or conducting a scientific experiment); Exploration (exploration of related careers through activities such as shadowing employees in various work settings, conducting on-line research, attending professional development activities, etc.). Students will develop materials to supplement their Simulated Workplace portfolios.

1601 Basic Control Circuits

This course introduces the student to the knowledge base and technical skills for concepts in Basic Control Circuits. Areas of study include mathematical concepts, technical writing skills, technical reading comprehension, career opportunities and personal and equipment safety. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction.

1602 Air Conditioning Applications

This course introduces the student to the knowledge base and technical skills for concepts in Air Conditioning Applications. Areas of study include mathematical concepts, technical writing skills, technical reading comprehension, career opportunities, personal and equipment safety, fabrication operations and basic compression refrigeration. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is

integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts and teachers should provide each student with real world learning opportunities and instruction related to air conditioning occupations.

1603 Domestic Refrigeration

This course introduces the student to the knowledge base and technical skills for concepts in Domestic Refrigeration. Areas of study include mathematical concepts, technical writing skills, technical reading comprehension, career opportunities and personal and equipment safety. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction.

1604 Fossil Fuel Heating Systems

This course introduces the student to the knowledge base and technical skills for concepts of Fossil Fuel Heating Systems. Areas of study include mathematical concepts, technical writing skills, technical reading comprehension, career opportunities and personal and equipment safety. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to air conditioning and refrigeration occupations.

1607 Heating Systems

This course introduces the student to the knowledge base and technical skills for concepts in Heating Systems. Areas of study include mathematical concepts, technical writing skills, technical reading comprehension, career opportunities and personal and equipment safety. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction.

1608 Commercial Air Conditioning

This course introduces the student to the knowledge base and technical skills for all courses in the Commercial Air Conditioning Program of Study. Areas of study include mathematical concepts, technical writing skills, technical reading comprehension, career opportunities, personal and equipment safety, fabrication operations and compression refrigeration. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course

concepts, and teachers should provide each student with real world learning opportunities and instruction related to air conditioning occupations.

****Program of Study:** AR1800 Building Maintenance and Operations

WVEIS CODE	Courses
0520	Work-Based Integration and Transition
1605	Fundamentals of Air Conditioning Refrigeration
1763	Fundamentals of Electricity
1769	Residential Wiring
1803	Basic Plumbing and Electricity
1805	Fundamentals of Facilities Maintenance
1829	Masonry and Plumbing

Elective Course Descriptions:

0520 Work-Based Integration and Transition

This course gives students the opportunity to integrate theory and practice by interacting with industry professionals. Students will study various requirements for employability including ethics, communication, teamwork and professionalism. Students will participate in hands-on, digital or work-based experiences related to industry settings in order to practice skill sets and to transition from student to employee. A supervised project will be developed in one or more of the following categories: Entrepreneurship (ownership or operation of a business); Placement (employment or internship); Research and Experimentation (planning and/or conducting a scientific experiment); Exploration (exploration of related careers through activities such as shadowing employees in various work settings, conducting on-line research, attending professional development activities, etc.). Students will develop materials to supplement their Simulated Workplace portfolios.

1605 Fundamentals of Air Conditioning Refrigeration

This course introduces the student to the knowledge base and technical skills for all courses in the heating ventilation and air conditioning Program of Study. Areas of study include mathematical concepts, technical writing skills, technical reading comprehension, career opportunities, personal and equipment safety, fabrication operations and basic compression refrigeration. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to air conditioning and refrigeration occupations.

1763 Fundamentals of Electricity

This course introduces the student to the knowledge base and technical skills for Fundamentals of Electricity. Areas of study include electrical safety, electrical math concepts, and basic circuits. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts.

1769 Residential Wiring

This course introduces the student to the knowledge base and technical skills for Residential Wiring. Areas of study include wiring data, service entrance equipment, luminary and receptacle outlets, protective devices, appliance and special circuits and low-voltage systems. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts.

1803 Basic Plumbing and Electricity

This course introduces the student to the knowledge base and technical skills for concepts in Basic Plumbing and Electricity. Areas of study include basic plumbing skills, advanced plumbing repair and basic electrical skills. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to facilities maintenance occupations.

1805 Fundamentals of Facilities Maintenance

This course introduces the student to the knowledge base and technical skills for all courses in the Fundamentals of Facilities Maintenance Program of Study. Areas of study include career planning, basic safety, locating information and following technical instructions, basic carpentry and facility components. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to facilities maintenance occupations.

1829 Masonry and Plumbing

This course introduces the student to the knowledge base and technical skills for concepts in the Building Construction Program of Study. Areas of study include estimation, masonry materials, rough in plumbing systems and installation of finish plumbing. Emphasis will be placed on career exploration, job seeking skills and personal and professional ethics. Safety instruction is integrated into all activities. Students will utilize problem-solving techniques and participate in laboratory activities to develop an understanding of course concepts, and teachers should provide each student with real world learning opportunities and instruction related to masonry and plumbing.

Adult Program of Study

Maintenance/Operations Pathway

Pathway Description:

Employees in construction literally build our future! These are the people who build and remodel houses, apartments, industrial buildings, warehouses, office buildings, churches, schools and recreational facilities. This pathway also includes the builders of highways, streets, bridges, tunnels and airports as well as power plants, chemical plants, refineries and mills.

Program of Study: AR2130 Heavy Equipment Operations and Preventative Maintenance

Courses: 2131 Heavy Equipment Safety
2132 Fundamentals of Preventative Maintenance
2133 Fundamentals of Earth Moving
2134 Heavy Equipment Operations

Program of Study Description:

The 2130 Heavy Equipment Operations and Preventative Maintenance Program of Study focuses on careers that will build a knowledge base a skill set for operating heavy equipment. Students will receive hands on training to prepare them for future careers as an equipment operator.

Course Descriptions:

2131 Heavy Equipment Safety

In this course, students learn about heavy equipment operator responsibilities, career opportunities, and safety principles associated with the operation of heavy equipment. The course covers safety guidelines for the operation, maintenance, and transportation of heavy equipment. An overview of each type of heavy equipment covered in the program, along with their different applications, and common attachments is discussed.

2132 Fundamentals of Preventative Maintenance

This course covers proper service intervals, the importance of maintenance records, the knowledge of oil classifications, refill capacities, importance of contamination control and proper oil sampling.

2133 Fundamentals of Earth Moving

This course is designed for the operator personnel responsible for operating earth moving equipment. Students will learn to consider estimated production rates, characteristics, operation techniques, and soil considerations for selecting and operating the proper piece of equipment for a give job task.