WVU at Parkersburg

STEM Division

Learner Outcomes by Program

Certificate of Applied Science Chemical and Polymer Operator Technology

Program Outcomes:

At the conclusion of the CAS in Chemical and Polymer Operator Technology, students will:

- Exhibit knowledge of OSHA General Industry requirements.
- Articulate Total Quality Management concepts including customer service, variance, process capability, continuous improvement, corrective/preventive action, SPC basics, data collection, and control charts.
- Internalize the process instrumentation that a process technician/operator utilizes in performing job functions.
- Use the various types of equipment in the process environment in a productive manner, and the interaction of the process operator/technician with it.
- Knowledge of equipment roles and control methods for each process system.
- Demonstrate safety and the role played by operator in maintaining the system safely.
- Understand and follow Block flow diagrams, P & ID drawings, Process Flow diagrams, 3D drawings, and Plot plans.
- Understand team work and log keeping, Normal operation, Abnormal operations, and Emergency operations.
- Use critical thinking skills, be able to see and troubleshoot problems in the process through trending and analysis of process parameters.

Certificate of Applied Science Electrical and Instrumentation Technology

Program Outcomes:

At the conclusion of the CAS in Electrical and Instrumentation Technology, students will:

- Demonstrate basic understanding of electrical safety.
- Show understanding of and uses of terminology, measuring systems, hand and power tools, mechanical instruments, lathes, mills and measuring tools and instruments.
- Demonstrate basic comprehension of electrical theory and National Electric Code.
- Interpret parameters relating to pressure, level, flow, and temperature measurement.
- Differentiate various electronic components and uses in circuitry.
- Compare and contrast AC & DC motors, transformers and distribution equipment.
- Summarize understanding of transducers, actuators, and controllers.
- Demonstrate ability to calibrate and configure process loops.
- Show use of PLCs, data networks, and DCSs.
- Successfully execute Level 4 E & I NCCER Certification Project.
- Demonstrate ability to write concise and accurate reports.
- Solve algebraic equations.
- Summarize comprehension of fractions, decimals, and percentages.

- Differentiate between of area and volume and calculate both.
- Read blue prints and schematics and use effectively in installation and trouble-shooting scenarios.

Certificate of Applied Science Industrial Maintenance

Program Outcomes:

At the conclusion of the CAS in Industrial Maintenance, students will have:

- Basic understanding of safety, hand and power tools.
- Ability to read construction and blueprint drawings.
- Ability to safely handle materials.
- Understanding of fasteners, rigging and lubrication.
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- Ability to test pneumatic and hydrostatic system.
- Ability to install bearings, couplings, chains and belts.
- Ability to set baseplates and align equipment.
- Ability to perform preventative/predictive maintenance.
- Ability to work with compressors and pneumatic systems.
- Ability to use laser alignment equipment.
- Advanced hydraulic system understanding.
- Advanced hydraulic system troubleshooting and repair.

Certificate of Applied Science Welding

Program Outcomes:

At the conclusion of the CAS in Welding, students will:

- Have a basic understanding of safety, hand and power tools.
- Apply principles of oxyacetylene welding, cutting, and brazing.
- Understand basic knowledge and skill with GMAW, SMAW, GTAW, and FCAW processes.
- Perform hands-on basic SMAW welding utilizing E6010 and E7018 electrodes on pad of beads, lap joints, tee joints, and butt joints in all positions.
- Perform hands-on basic GMAW welding on pad of beads, lap joints, tee joints, and butt joints in all positions.
- Perform hands-on basic GTAW welding on pad of beads, lap joints, tee joints, and butt joints in all positions.
- Perform hands-on basic FCAW welding on pad of beads, lap joints, tee joints, and butt joints in all positions.
- Demonstrate blueprint reading.
- Understand basic properties and classification of metals.

Associate of Applied Science Computer and Information Technology

Program Outcomes:

At the conclusion of the AAS in Computer and Information Technology, students will:

- Identify and describe layers of the OSI and TCP/IP models, and use them effectively in troubleshooting.
- Describe and apply LAN and WAN technologies in wired and wireless environments.
- Demonstrate ability to apply workstation and server installation, configuration, management and troubleshooting techniques.
- Demonstrate ability to install, configure, manage, and maintain routing and switching technologies.
- Describe and discuss different operating systems and their relationship with hardware, their functions, advantages and disadvantages, and their respective tools and software packages.
- Explain Information Systems and choose appropriate systems based on requirements.
- Describe basic information security and computer ethics.
- Understand and use elements of good programming style and best practices

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Associate of Applied Science Computer Science

Program Outcomes:

At the conclusion of the AAS in Computer Science, students will:

- Understand and use elements of good programming style and best practices
- Explain Information Systems and choose appropriate systems based on requirements.
- Describe basic information security and computer ethics.
- Demonstrate ability to develop software solutions using a variety of programming models, including functional and object oriented programming.
- Identify and describe layers of the OSI and TCP/IP models, and use them effectively in troubleshooting.
- Demonstrate ability to install, configure, manage, and maintain databases and database systems technologies.
- Describe and discuss different software development techniques and their relationship with databases, information systems, business requirements, as well as their functions, advantages and disadvantages, and their respective implementations.

Associate of Applied Science Drafting

Program Outcomes:

At the conclusion of the AAS in Drafting, students will:

- Create two and three-dimensional drawings using AuotCAD, Microstation, Inventor, Revit, and 3D Studio Max.
- Create three-dimensional animations and walkthroughs using AutoCAD, Revit, Inventor and 3D Studio Max.
- Apply arithmetic, algebraic, and trigonometric calculations in solving basic design problems.

- Apply physics to solve mechanical design problems.
- Understand by verbal and visual means the design of drawings and models.
- Understand in writing to fellow coworkers and customer of any comments and concerns.

Associate of Applied Science Engineering Technology

Program Outcomes:

At the conclusion of the AAS in Engineering Technology, students will:

- Demonstrate good safety practices.
- Possess basic understanding of electrical theory.
- Successfully apply PLC programming, open and closed loop control, transducers, actuators, controllers, motor controls, and robotics.
- Understand and apply good software development practices.
- Be able to write, document, test and deploy complex industrial software in a variety of industrial settings.
- Communicate with supervisors, peers, subordinates and clients clearly and effectively in written and oral form.

Associate of Applied Science Multicraft Technology

Program Outcomes:

At the conclusion of the AAS in Multicraft Technology, students will have:

- Basic understanding of safety.
- Use of hand tools, power tool, and test instruments
- Basic understanding of electrical theory and NEC
- Basic understanding of flow, pressure, and temperature
- Basic understanding of electronic components
- Understanding of motors, transformers and distribution
- Understanding of transducers, actuators, and controllers
- Ability to calibrate and configure process loops
- Use of PLCs, data networks, and DCSs
- Level 4 E & I and IM NCCER Certification Project Completion
- Ability to write concise and accurate reports
- Ability to solve algebraic equation
- Understanding of fractions, decimals, and percentages
- Understanding of area and volume
- Demonstrate ability to install and repair pumps, valves, gaskets, seals. bearings, couplings, belts, and chains
- Understand and use terminology, measuring systems, hand tools, mechanical instruments, lathes, mills and measuring tools.
- Apply pattern making, layout, and assembly of parts from sheet metal.

- Read and work to close tolerance from machine prints and drawings commonly used in the machine trades.
- Show understanding of preventive/predictive maintenance
- Demonstrate knowledge of hydraulic and pneumatic systems and their uses.
- Demonstrate use of alignment equipment including dial indication and laser alignment methods.
- Write reports, requisitions, and operational instruction.

Associate of Science Pre-Professional

Program Outcomes:

At the conclusion of the AS in Pre-Professional, students will:

- Learn the process and reasoning behind the Scientific Method and be able to conduct experiments that meet the requirements of the model.
- Exhibit the basic safety-related rules and regulations of working in the lab.
- Be able to recount the basic safety tenants associated with a specific scientific discipline.
- Become proficient at Science Writing.
- Exhibit knowledge of the fundamentals of the specific scientific discipline they are studying.
- Recognize and identify the applications of their specific discipline in the 'real world.'
- Accurately recount important milestones in the history of scientific inquiry in their discipline.

Associate of Applied Science Welding Technology

Program Outcomes:

At the conclusion of the AAS in Welding Technology, students will:

- Have a basic understanding of safety, hand and power tools.
- Apply principles of oxyacetylene welding, cutting, and brazing.
- Understand basic knowledge and skill with GMAW, SMAW, GTAW, and FCAW processes.
- Perform hands-on basic SMAW welding utilizing E6010 and E7018 electrodes on pad of beads, lap joints, tee joints, and butt joints in all positions.
- Perform hands-on basic GMAW welding on pad of beads, lap joints, tee joints, and butt joints in all positions.
- Perform hands-on basic GTAW welding on pad of beads, lap joints, tee joints, and butt joints in all positions.
- Perform hands-on basic FCAW welding on pad of beads, lap joints, tee joints, and butt joints in all positions.
- Demonstrate blueprint reading.
- Understand basic properties and classification of metals.

Bachelor of Applied Technology Computer Networking and Security

Program Outcomes:

At the conclusion of the BAT in Computer Networking and Security, students will have the:

- Ability to understand, plan, and execute good Project Management
- Ability to recognize and apply industry recognized code of ethics to various situations
- Ability to understand and apply Information Security concepts and best practices
- Ability to plan, implement, and troubleshoot Advanced Routing and Switching technologies
- Ability to plan, implement, and troubleshoot Advanced Systems Administration technologies
- Ability to plan, implement, and troubleshoot Advanced Security Systems

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Bachelor of Applied Technology Software Engineering

Program Outcomes:

At the conclusion of the BAT in Software Engineering, students will have the:

- Ability to understand, plan, and execute good Project Management
- Ability to recognize and apply industry recognized code of ethics to various situations
- Ability to understand and apply Information Security concepts and best practices
- Ability to understand, plan, and implement good Systems Analysis and Software Engineering
- Ability to understand, plan, implement, and troubleshoot Mobile Applications and related technologies
- Ability to understand, plan, implement, and troubleshoot Advanced Web Design and Web Services technologies