

Manufacturing Cluster

Manufacturing Production Process Development Pathway –

Manufacturing Specialist – Design Engineer Technician – This major prepares students as design engineer technicians who assist design engineers responsible for completion of component and product design in diverse manufacturing environments. Students receive an overview of safe operation of manufacturing equipment in the areas of precision metal fabrication, welding, machine tool, CNC, computer aided drafting and pre-engineering. Instruction includes drawing and document management, general and engineering/mechanical CAD software with project-based lab components, and materials and equipment specifications as well as principles of computer-aided machining (CAM) and development of computer numerical control (CNC) programs for machine.

Design Engineer Technician – This major prepares students as design engineer technicians who assist design engineers responsible for completion of component and product design in a manufacturing environment or for advancing to a college or university to complete a higher degree. Students learn drawing and document management and general/ engineering/mechanical CAD software with project-based lab components. Instruction includes materials and equipment specifications as well as principles of computer-aided machining (CAM) and development of computer numerical control (CNC) programs for machine.

CAD Technical Mechanical – This major prepares students for a career in a CAD field or for advancing to a college or university to complete a higher degree. Students learn to convert ideas and specifications of the mechanical engineer into working drawings by utilizing both manual sketching and parametric solid modeling methods that meet ANSI (American National Standards Institute) and /or AIA (American Institute of Architecture) drafting standards. Instruction includes drawing and document management, presentation graphics animation and basic CAD software with an emphasis on mechanical design using project-based lab components.

CAD Design Mechanical Specialist – This major prepares students as mechanical design specialists who are responsible for mechanical system design, drafting and layout or for advancing to a college or university to complete a higher degree. Students learn to convert ideas and specifications of the mechanical engineer into working drawings by utilizing both manual sketching and parametric solid modeling methods that meet ANSI (American National Standards Institute) and /or AIA (American Institute of Architecture) drafting standards. Instruction includes drawing and document management along with engineering software and advanced mechanical design using project-based lab components.

CAD Technician Electronics – This major prepares students as CAD electronics technicians who draw wiring diagrams, schematics and layout drawings used for manufacture, installation and repair of electronic equipment or for advancing to a college or university to complete a higher degree. Students learn to convert ideas and specifications into working drawings by utilizing both manual sketching and parametric solid modeling methods that meet ANSI (American National Standards Institute) and /or AIA (American Institute of Architecture) drafting standards. Instruction includes drawing and document management, presentation

graphics animation and basic CAD software with an emphasis on intermediate electronics design using project-based lab components.

CAD Design Electronics Specialist – This major prepares students as CAD electronics technicians who draw advanced wiring diagrams, schematics and layout drawings used for manufacture, installation and repair of electronic equipment such as telecommunications and aerospace guidance. Students learn to convert ideas and specifications into working drawings by utilizing both manual sketching and parametric solid modeling methods that meet ANSI (American National Standards Institute) and /or AIA (American Institute of Architecture) drafting standards. Instruction includes drawing and document management and presentation graphics animation with an emphasis on intermediate and advanced electronics design using project-based lab components.

Manufacturing Production Process Development Workforce Transition – This major will be used for all Individualized Cooperative Education (ICE) programs to build their training outline. Students will focus on employability skills while receiving hands-on experience in production process development in the manufacturing environment by assisting those responsible for optimizing the performance of manufacturing systems. Included is a work-site experience (WSE) where students develop proficiency skills unique to a given occupation along with a formal mentoring program designed to accelerate an individual student's skill development.

CAD Drafter – This major prepares students for a career in a CAD field or for advancing to a college or university to complete a higher degree. Students learn to convert ideas and specifications into working drawings by utilizing both manual sketching and parametric solid modeling methods that meet ANSI (American National Standards Institute) and /or AIA (American Institute of Architecture) drafting standards. Instruction includes drawing and document management, material and equipment specifications and an overview of architectural, civil, engineering, manufacturing and piping design using project-based lab components.