SUBJECTS AND COURSES

COURSE DESCRIPTIONS - AUTOMOTIVE MANUFACTG TECH (AUT)

AUT 100 Intro to Automotive Concepts
An introduction to automotive manufacturing concepts is the focus of this course. This course reviews the history of automotive manufacturing and discusses the automotive manufacturing processes for various automotive assembly and sub-assembly plants. It outlines the historical development of automotive manufacturing in Alabama. Finally, the electro-mechanical systems and body components of a typical vehicle will be examined. Prerequisite(s): As determined by College Corerequisite(s): As determined by College CORE
3 Credit Hours

AUT 102 Lean Manufacture & Ind Safety
TThis course will introduce students to manufacturing fundamentals. It introduces various tools and techniques typically used in Lean manufacturing. It also will provide Occupational Safety and Health Administration (OSHA) certification instruction. OSHA standards will include electrical, Lock Out/Tag Out, hazardous communications, personal protective equipment, machine guarding, and walking and working surfaces. Prerequisite(s): As determined by College Corerequisite(s): As determined by College CORE **3 Credit Hours**

AUT 104 Blueprint Reading & Manufactur
This course provides the students with terms and definitions, theory and orthographic projection, and other information required to interpret drawings used in the manufacturing and industrial trade areas. Topics include multiview projection, pictorial drawings, dimensions and notes, lines and symbols, tolerances, industrial applications, scales, and quality requirements. Upon completion, students should be able to interpret blueprint drawings used in the manufacturing and industrial trades. This course may be tailored to meet specific local industry needs. Prerequisite(s): As determined by College Corerequisite(s): As determined by College CORE **3 Credit Hours**

AUT 106 Quality Control/inspection
This course provides the student with a basic understanding of quality assurance including the history of the quality movement in the United States; national and international standards for quality management systems; the impact of quality on an organization?s performance; group problem solving; and statistical methods, such as statistical process control (SPC); process capability studies, quality tools, idea-generating tools, and corrective and preventive actions. Prerequisite(s): As determined by College Corerequisite(s): As determined by College
3 Credit Hours

AUT 116 Intro to Robotics
This course provides instruction in concepts and theories for the operation of robotic servo motors and power systems used with industrial robotic equipment. Emphasis is on the application of the computer to control power systems to perform work. Student competencies include understanding of the functions of hydraulic, pneumatic, and electrical power system components, ability to read and interpret circuitry for proper troubleshooting and ability to perform preventative maintenance. This is a course. Prerequisite(s): As determined by College Corerequisite(s): As determined by College CORE
4 Credit Hours

AUT 144 Manuf Sys-methods & Process
This course provides an introduction to the common types of Manufacturing Systems and Manufacturing Support Systems, Production Operations, Facilities, Product/Production Relationships, while highlighting the philosophy of Lean Manufacturing and Just-in-Time (JIT) Manufacturing. This includes an introduction to Production Performance indicators including Safety, Quality, Delivery, Cost, and Morale (SQCDM). Automated techniques covering robotics, automated inspection, material handling, and logistics/ID systems will be examined. Common types of Manufacturing Systems (single station, assembly lines, automated production lines, automated assembly lines, cellular, and flexible manufacturing) will be studied. Coverage of Manufacturing Support Systems will include an overview of product design, process planning, and production planning/control. Students will be prepared to analyze production processes resulting in operational standards, including cycle time analysis to meet tact times. **3 Credit Hours**

AUT 199 Special Topics: Manufacturing
PREREQUISITE: As determined by college COREQUISITE: As determined by college This course is established to help students prepare for a manufacturing certification exam. Independent study and instruction will be based on the nationally recognized certification being sought. Opportunities for one on one and team based development projects will aid in the students preparation. **3 Credit Hours**

AUT 208 Automated Sys Diagnosis-troubl
ETC-101(DC Fundamentals) with a grade of C or higher
Prerequisite: ATM 211 and AUT 220 (Lec 2hrs, Lab 2 hrs) This course focuses on systematically solving problems in automated systems. Emphasis is placed on safety, test equipment, basic troubleshooting techniques and hands on problem solving. Upon completion, students will be able to use a systematic process to solve complex malfunctions.
4 Credit Hours

AUT 212 Robot Operation & Programming
This training course is designed to provide the basic skills needed to operate and program the robot cell. The course provides both classroom and performance based hands on training in the use of controls, operations, and part programming. **4 Credit Hours**

AUT 213 Robotics Project
AUT-212(Robot Operation & Programming) with a grade of C or higher
Prerequisite: AUT 116 (1 lec, 4 lab) In this course, students apply skills learned to design, fabricate, analyze, program, and/operate a robotics system under faculty supervision. **5 Credit Hours**

AUT 214 Robotics Manuf Computer Simul
AUT-212(Robot Operation & Programming) with a grade of C or higher
PREREQUISITE: As determined by college This course covers the principles, techniques, and strategies of manufacturing simulation using computer simulation software. The course will cover concepts of simulation, simulation data management, kinematics, path development, robotic simulation, and simulated reach studies. When finished with this course, students will be able to apply these principles in the operation of industrial robotic equipment. This course is also taught as ATM 264, and IAT 264. **4 Credit Hours**

AUT 232 Sensors Tech & Applications
ETC-108(Motor Controls I) with a grade of C or higher
This course provides a study of industrial electronic sensors. Topics include, but are not limited to, photo-electric, temperature, gas and humidity, pressure and strain sensors. The lab enables students to test, and troubleshoot electronic sensors and sensor circuits. Upon completion, students should be able to select, install, test, and troubleshoot industrial electronic sensors. **4 Credit Hours**