ADM

ADM 201 Materials Science 3.0 UNITS

This course is an introduction to materials science. Topics include physical and mechanical properties of materials including metal alloys, plastics, rubbers, ceramics, glass, and composites. Students learn standard techniques for measuring mechanical properties including American Society for Testing and Materials (ASTM) D638 Tensile Test, ASTM D2240 Hardness Test, ASTM D5630 Ash Test, ASTM D3418 Melting Point and Crystallization Point Test, ASTM D256 Impact TEST and ASTM D648 Heat Deflection Test. Hands-on laboratory sessions reinforce topics covered during lecture.

ADM 120 Manufacturing Processes 3.0 UNITS

Catalog Course Description: This course covers the basic processing methods for metals and woods. Topics include hand tools and power tools, machining, joining, shaping, bending, surface preparation and finishing, Computer-Aided Drafting (CAD) and blueprint.

ADM 230 Plastic Manufacturing 3.0 UNITS

This course covers the basic processing methods for plastics and rubbers. Topics include an introduction to plastics, injection molding, compression molding, blow molding, thermoforming, compound extrusion, pipe extrusion, film casting, film blowing, additives and fillers, and color matching. This course meets two hours per week for lecture, as well as an additional two hours of lab per week where concepts introduced during lecture are reinforced.

ADM 231 Computer Numeric Control 3.0 UNITS

This course introduces students to basic Computer Numeric Control (CNC) Mill and Lathe operation. Concepts to be covered include Pendant operation, basic G and M coding, and tool setup. This course prepares students for the National Institute for Metalworking Skills (NIMS) CNC Milling Operator certificate test. The concepts covered in lab reinforce concepts covered in lecture.

ADM 182 Wood Science 3.0 UNITS

Catalog Course Description: This course familiarizes the student with the basic structure, anatomy, moisture relationships, and deterioration process of the various woods used in U.S. commercial manufacturing.

ADM 232 Welding 4.0 UNITS

This course introduces the students to the fundamentals of welding. It provides the student with opportunities for training in Shielded Metal Arc Welding (SMAW) and Flux Cored Arc Welding (FCAW). This course prepares students for the Certified Welder Test accredited by the American Welding Society.

ADM 241 Manufacturing Design 3.0 UNITS

This course is an overview of the manufacturing industry. Topics include organization structure, lean manufacturing, regulations, environmental and safety concerns, quality assurance, and modern manufacturing. There will be two field trips visiting nearby manufacturers. Students will also work on Capstone projects. Concepts discussed during lectures are reinforced during laboratory hours.

ADM 282 Machine Processes Architectural Woodwork 3.0 UNITS

This course covers the processing methods for woodworking. Students will learn to set up and properly use woodworking equipment including Gang Ripsaw, Shapers, Sliding Table Saw, Double Miter Saw, Wide Belt Sander, Dovetailer, Band Saw, Pocket Screw-Machine, Planer, and Jointer. Concepts discussed during lectures are reinforced during laboratory hours.

ADM 185 Fund. Architectural Manufacturing 3.0 UNITS

This course covers the basic processing methods for woodworking. Students will learn to safely use hand tools and power tools, machining, joining, shaping, bending, surface preparation and finishing, Computer-Aided Drafting (CAD) and blueprint. Concepts discussed during lectures are reinforced during laboratory hours. Students may not receive credits for both ADM120 and this course.

ADM 240 Robotics 3.0 UNITS

This course addresses autonomous control of robots for woodworking applications and machine learning. The course covers a variety of multidisciplinary topics necessary to understand the fundamentals of designing, building, and programming robots. Students lean to write their own programs and build their own robot prototypes using a hands-on approach to engineering design. Each topic is presented in the format of two-hour lectures immediately followed by a two-hour laboratory where students will apply the concepts discussed during the lecture.

ADM 256 CNC for Woodworking 3.0 UNITS

This course introduces students to basic Computer Numeric Control (CNC) Mill, Router, and Lathe operation. Concepts to be covered include woodworking router operation, basic G and M coding and tool setup. Concepts discussed during lectures are reinforced during laboratory hours. This course prepares students for the NJ DOE Recognized CTE End-of-Program Assessments, which involves the CNC skills. Students may not receive credits for both ADM231 and this course.