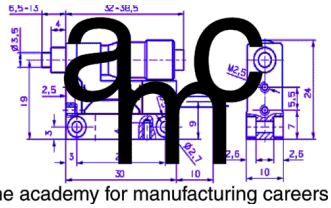
Academy for Manufacturing Careers

Tool & Die Certificate



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Industrial Blueprint Reading – 2 credits - 32 hours

This course provides the understanding and interpretation of a variety of mechanical and electrical blueprints. Emphasis is placed on reading and interpreting blueprints found in a manufacturing environment. Student will gain the ability to recognize and identify symbols and specifications common to modern industrial blueprints. Topics include: lines and symbols, views, material, form and position, title blocks, sketching, features, and sections.

Basic Gauges & Measurement – 2 credits - 32 hours

Prerequisite: Industrial Blueprint Reading

This course covers use of calipers, micrometers, English and metric gauges and other measuring instruments within a manufacturing environment. Topics include: English vs. metric, calibration of instruments, importance of repeatability, hands-on measurement of piece work, and instrument inspection and care.

Machining Theory & Methods – 4 credits -64 hours

Prerequisite: Basic Gauges & Measurement

A basic course in machining theory and an introduction to the use of common tools and techniques in manufacturing. Topics introduced include: turning, boring, drilling, milling, grinding, use of hand tools, machine setup, preventative maintenance, efficient operation of tools, and use of the Machinery Handbook.

Precision Machining Methods – 2 credits - 32 hours

Prerequisite: Machining Theory & Methods

This course covers the basics of precision machining operations utilizing a variety of machine tools and related equipment. Topics include: operation and use of drill presses, lathes, power saws, grinders, vertical and horizontal milling machines, and other basic machine tools; bench work (use of hand and power hack saws, deburring, shearing, filing, polishing, use of hand taps, and cutting threads with a die); safety; and good housekeeping.

Materials/Metallurgy – 2 credits - 32 hours

This course covers the structure, processing, and thermal/mechanical properties of metals, plastics/polymers and ceramics materials. Topics include: classification and properties of metals, synthesis and structure of polymers, chemical and heat treatment principles, corrosion avoidance, and selection of materials for particular applications.

Die Theory & Design - 3 credits -48 hours

This course covers techniques of die design theory and practice. Students will study forming and cutting of dies and their component parts, such as die blocks, strippers, stock guides, shredders, knockouts, nest gages, pushers, die stops, strip layout die sets, stock utilization and engineering formulas. Stu-

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