

IN-DEPTH MATERIALS TRAINING

Amatrol's eLearning curriculum features a highly-interactive, multimedia format that includes stunning 3D graphics and videos, voiceovers of all text, and quizzes and exercises designed to appeal to all learning styles. Each Materials Learning System has its own in-depth curriculum designed to teach hands-on skills with real-world equipment. In addition, Amatrol also offers eLearning courses focused on ferrous metals, non-ferrous metals, heat treatment, plastics, composites, and ceramics.

Learning Systems	Hands-On Trainer	eLearning Curriculum	Topics Include:
DESIGN OF STRUCTURES			
Design of Structures 1 (94-DOS1)	✓	✓	Civil Engineering, Statics & Data Acquisition, Moments & Bending Stress, Bridge Design & Construction
Design of Structures 2 (94-DOS2)	✓	✓	Beam Deflection, Column Buckling, Concrete, Building Design, Construction
Design of Structures 3 (94-DOS3)	✓	✓	Surveying Fundamentals & Applications, Mapping, Global Positioning Systems (GPS)
PLASTICS			
Plastics Technology (94-MP3T)	✓	✓	Injection Molding Operations, Chemistry & Properties of Plastics, Blow Molding & Extrusion Operations
Mold Design (94-DFM3)	✓	✓	Basic & Advanced Injection Mold Design, Plastics Part Design & Material Selection, Basic Blow Molding Design
MATERIALS ENGINEERING			
Materials Engineering 1 (94-MT1)	✓	✓	Material Quality Control, Tensile Strength Analysis, Data Acquisition Systems, Materials Design, Compression Testing & Analysis, Shear & Hardness Testing & Analysis, Design Evaluation
PRINCIPLES OF MATERIALS			
Ferrous Metals (MXML201)		✓	Properties of Ferrous Metals, Iron Ore, Pig Iron, Steel Production, Strength, Ductility, Machinability, Hardenability, Corrosion Resistance, Alloys, Stainless Steel, Carbon Steel
Non-Ferrous Metals (MXML202)		✓	Properties of Non-Ferrous Metals, Copper, Aluminum, Alloys, Casting, Tempering, Nomenclature & Specifications
Heat Treatment (MXML203)		✓	Principles of Heat Treatment, Hardening, Quenching, Annealing, Tempering, Normalizing, Stress Relieving
Plastics (MXML204)		✓	Principles of Plastics, Thermoplastics, Thermosets, Polymerization, Ethylene, Propylene, Injection & Blow Molding, Extrusion, Environmental Impact
Composites (MXML205)		✓	Principles of Composites, Constituent Materials, Fiber-Reinforced Materials, Hand Lay-up, Spray-up, Filament Winding, Resin Transfer Molding, Curing, Environmental Impact
Ceramics (MXML206)		✓	Principles of Ceramics, Glass, Clay, Refractories, Milling, Batching, Mixing, Forming, Drying, Firing, Pressing, Extrusion, Injection Molding, Drain & Solid Casting

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MATERIALS

DESIGN — ENGINEERING — ANALYSIS

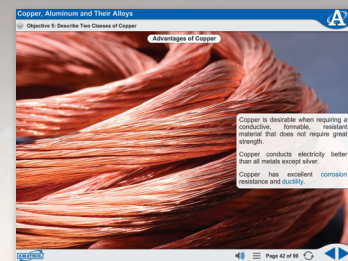
PROVEN MATERIALS TRAINING BUILDS ESSENTIAL HANDS-ON SKILLS

Properties of Materials eLearning Courses

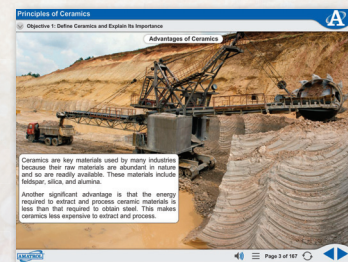
- Comprehensive overview of the broad range of materials used in modern industry, including ferrous metals, non-ferrous metals, plastics, composites & ceramics
- Detailed focus on the physical, mechanical, chemical, thermal, optical, electrical & environmental properties of materials
- In-depth review of materials classifications, specifications & nomenclature
- Advanced learning topics include steelmaking processes, alloys, heat treatment, environmental concerns & materials manufacturing processes



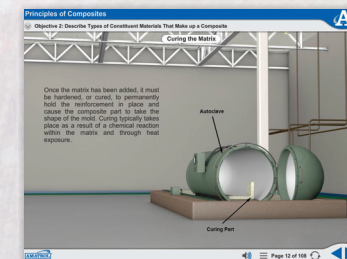
Ferrous Metals (MXML201)



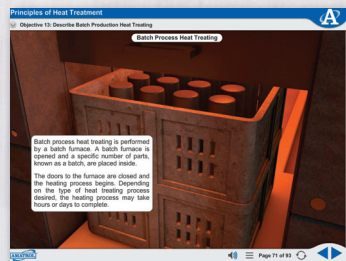
Non-Ferrous Metals (MXML202)



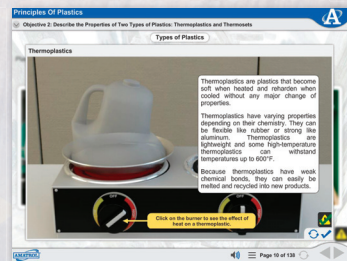
Ceramics (MXML206)



Composites (MXML205)



Heat Treatment (MXML203)



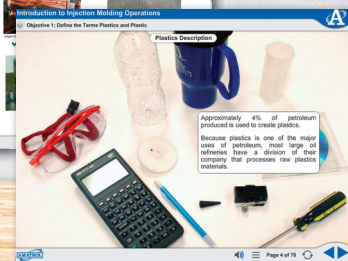
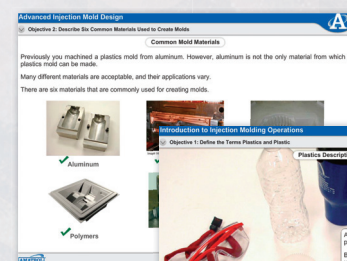
Plastics (MXML204)

Plastics Molding Basics

- In-depth instruction on polymers & properties of plastics
- Hands-on practice and troubleshooting with injection, blow & extrusion molding
- Design & create injection & blow molds using CAD/CAM software & a CNC machine



Injection Mold Design (94-DFM3)



eLearning Curriculum

Plastics Injection Molding Training (94-MP3)

Structural Design & Engineering

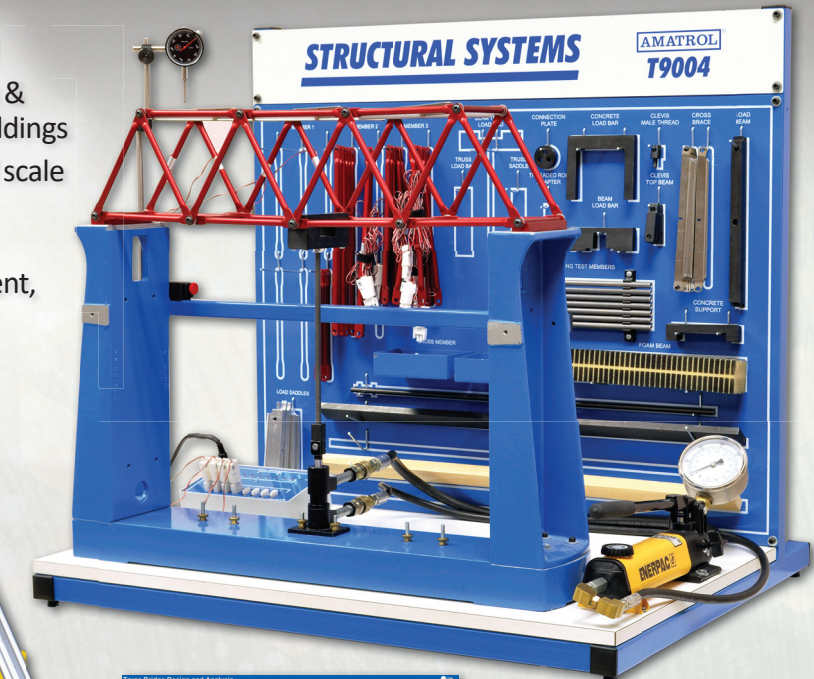
- Introduction to the design, engineering, construction & analysis of various structures, including bridges & buildings
- Project-oriented training that allows learners to build scale models & test their work with strain gauges & a data acquisition system
- Hands-on surveying training with real-world equipment, including GPS receiver



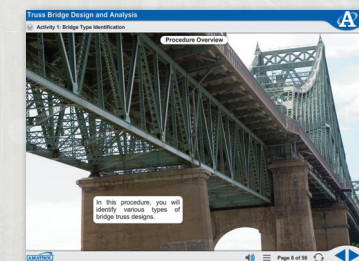
Concrete Beam Construction & Testing (94-DOS2)



Hands-On Surveying Training (94-DOS3)



Structural Design & Engineering Training (94-DOS1)



eLearning Curriculum

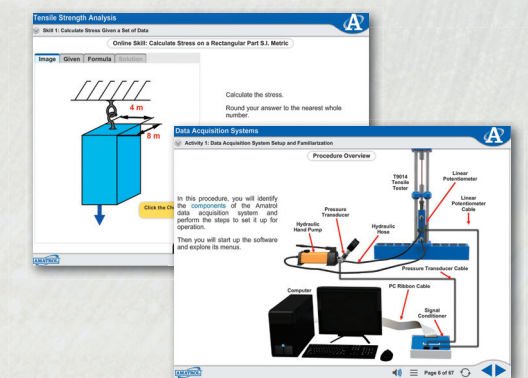


Industrial-Grade Materials Analysis

- Industrial-quality components provide learners with real-world experience
- Analysis & evaluation of various materials for particular product designs & applications, including aluminum, copper & steel
- Advanced materials testing: tensile, compression, hardness, torsion, fatigue, toughness & shear



Materials Analysis & Engineering w/ Polariscope (94-MT1)



eLearning Curriculum

Each of These Systems Features Real-World, Heavy-Duty Components and Extensive eLearning Curriculum