Mechatronics
High School eLearning Program

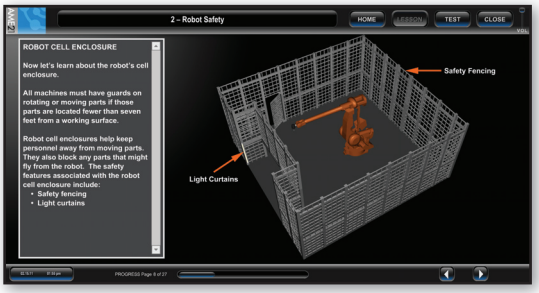
AMATROL®

Learning Topics:

- Factory Automation Robotics
- Computer Numerical Control
- Computer-Aided Design
- Progammable Logic Controllers
- Mechanical Systems
- Pneumatics
- Hydraulics
- Electrical
- Measurement Tools
- Mathematics
- Machine Tools
- Print Reading
- Manufacturing Processes
- Workplace Effectiveness

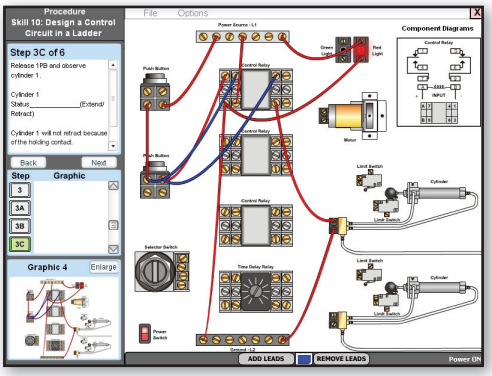
Mechanical

Mechanical knowledge is essential for success in mechatronics. Within this core area, the mechatronics program offers courses that will introduce key mechanical concepts and components, from the basics such as bolts and pulleys to the more advanced robotics and CNC machines. Students interested in various engineering and technological career fields or specialized maintenance technician careers will find these courses very useful.



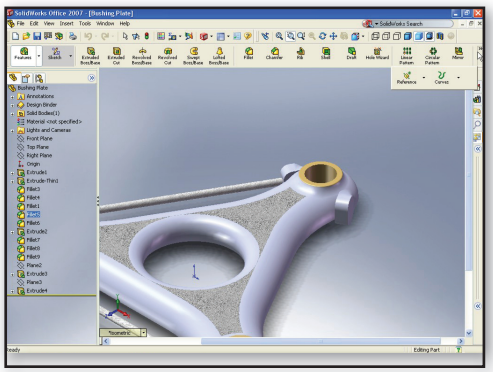
Electronics and Electrical

Electronic and electrical ingenuity is what puts mechanical structures into motion. In these key areas, students learn about an extensive range of topics, such as electrical motors, electronic sensors, control devices and relays, wiring, sequencing and timer control, etc. Students not only learn basic concepts in these areas, but also where and how they are used in modern industries. These courses act as a catalyst for students interested in career fields like automation, electrical engineering, technical maintenance, and more.



Software

Different types of software allow professionals to create a language that speaks to electronic and mechanical components and tells them what to do. The courses in this program area will give students introductory knowledge of computer aided design (CAD) software and programmable logic controllers (PLCs) to help them understand what keeps automated technology running so smoothly and effectively. Students interested in these topics may find futures in computer science/programming or high-tech manufacturing.



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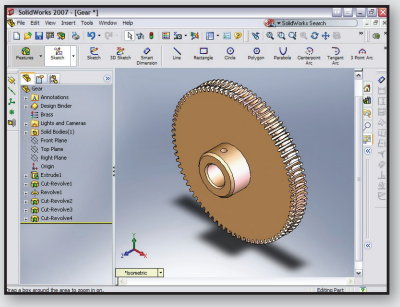

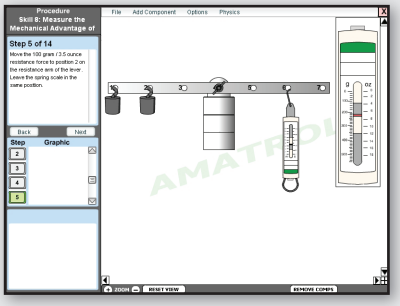

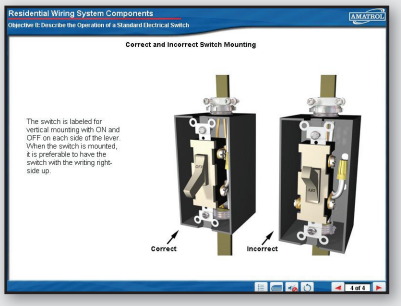

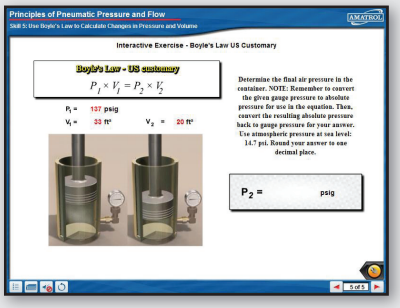

All Amatrol eLearning programs for high school include core courses in mechanical, electrical, and industrial technology. These standard courses include: Basic Electricity, Pneumatics, and Hydraulics; Measurement; Mechanisms; Manufacturing Processes; Electrical Control; Print Reading; Mathematics; Trigonometry; Communication Skills; Conflict Resolution; and Working in Groups. Students will gain valuable knowledge from these courses that can be applied across all areas of our economy.

Course Title	Est. Hours	Functional Software Req.	Course #
AC/DC Electrical	24	-	W-VTB227
Advanced Hydraulics	6	-	W-B839
Advanced Pneumatics	6	-	W-B838
Basic Electrical Machines	16	-	W-B862
Basic Hydraulics	20	-	W-VTB831
Basic Pneumatics	20	-	W-VTB780
CAD 1	8	SolidWorks	W-12273
CAD 2	6	SolidWorks	W-12274
CNC 1	6	VR Milling	W-B705
CNC 2	6	VR Milling	W-B706
CNC 3	6	VR Milling	W-B709
Communication Skills	2	-	PD101
Computer Control 1 - PLC	8	Rockwell's RSLogix	W-B763
Computer Control 2	8	Rockwell's RSLogix	W-B764
Conflict Resolution	2	-	PD102
Electrical Fabrication 1	6	-	W-12204
Electrical Relay Control	12	-	W-VTB703
Electro-Fluid Power	16	-	W-B861
Electronic Sensors	4	-	W-B837
Intermediate Hydraulics	6	-	W-B832
Intermediate Pneumatics	6	-	W-B835
Introduction to Lean	2	-	LM101
Machine Tools 1	12	-	W-VTB701
Manufacturing Processes 2 and 3	12	-	W-11106
Materials Engineering 1	14	NI-DAQ	W-11803
Mathematics 1	2	-	MA101
Measurement 2	6	-	W-B726
Measurement 3	8	-	W-B727
Measurement Tools	12	-	W-VTB725
Mechanical Fabrication 1	8	-	W-19004
Mechanical Fabrication 2	8	-	W-B745
Mechanical Systems	12	-	W-VTB728
Mechanical Systems 2	10	-	W-B729
Plastics 1	6	-	W-B767
Plastics 2	6	-	W-B768
Principles of CNC	2	-	CN101
Principles of Factory Automation	2	-	AU202
Principles of Materials - Ferrous Metals	2	-	ML201
Principles of Materials - Non-Ferrous Metals	2	-	ML202
Principles of Robotics S4C + Controller	2	-	AU201
Principles of Turning	2	-	PE101
Print Reading 1	8	-	W-12207
Robotics 1	6	-	W-B761
Robotics 2	8	-	W-B762
Statistical Process Control 1	2	-	QS202
Statistical Process Control 2	2	-	QS304
Trigonometry 1	2	-	MA304
Working in Groups	2	-	PD103

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