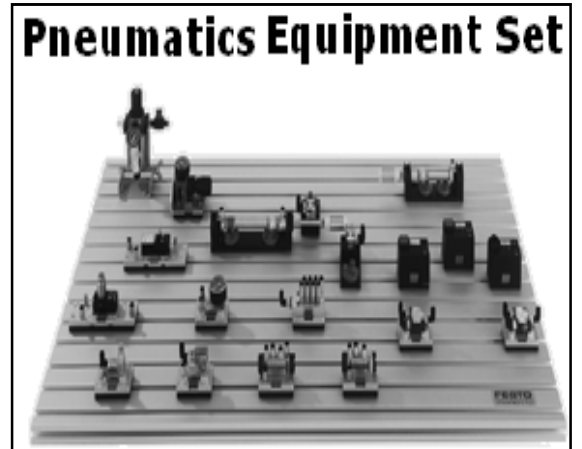


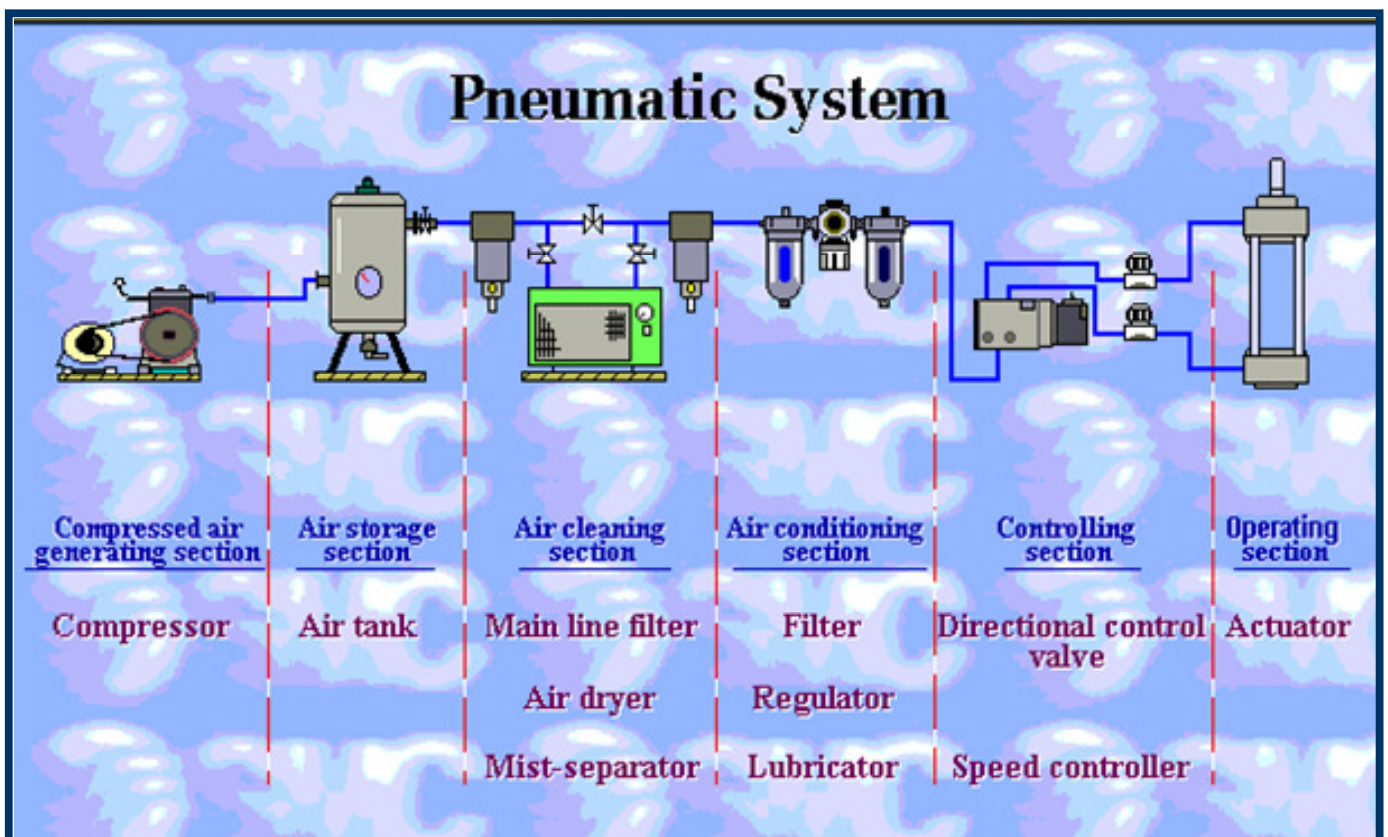
Pneum-1: Basics and Components of Industrial Pneumatic Control Systems:

Course Objectives: to give participants skills and knowledge to:

- 1- Basic Components of industrial Pneumatic Circuits and Pneumatic systems.
 - 2- Air properties, and air preparation parts
 - 3- Examination of Air Pumps and Types of compressors
 - 4- Types of Pneumatic Actuators (Motors and Cylinders)
 - 5- Understand basic types of various control valves (pressure control, direction control, flow control). This includes functions, materials, sizes, and geometry considerations and essential flow characteristics.
 - 6- Examine various types of Pneumatic Accessories.
 - 7- Applications of Reading Pneumatic Schematics.
 - 8- Practical Training for Basic System Design.
 - 9- Examination of Maintenance and Troubleshooting
- Important Note:** Each lecture will be followed by a very comprehensive interactive and computer based virtual and multi-media training lab. Each lab will include also animations, 3-D models and on-line quizzes.



What is Pneumatics? is branch of science concerned with using compressed inert gas (air or N_2) to perform mech. work. Pneumatic systems are extensively used in industry, where factories are commonly plumbed with compressed air which is very cheap fluid. This is because a centrally-located and electrically-powered compressor that powers cylinders and other pneumatic actuators through directional solenoid valves is able to provide motive power in cheaper, safer, more flexible & more reliable way than large number of electric motors & actuators . Pneumatics also has applications in dentistry, construction & mining areas



Pneum-2: Design, Analysis and Investigation of Industrial Pneumatic Control Systems.

Interactive Virtual Simulation of 4-different Industrial Pneumatics automatic control circuits:

This is an interactive computer-based training course that includes an investigation, a virtual computer simulation and flow visualization. The course is designed to give the participant a broad based understanding of the most important concepts of practical automatic control and real fluid flow processes existing in 4-different Industrial Pneumatics automatic control circuits. These are Q-cycle, L-cycle, U-cycle, and 3-cylinders cycle. The simulation includes many critical control alarms, input/output signals, operation and instrumentation parameter-boards, diagnostic tools error-reports, help/trouble-shooting menus and Plotting tools.

