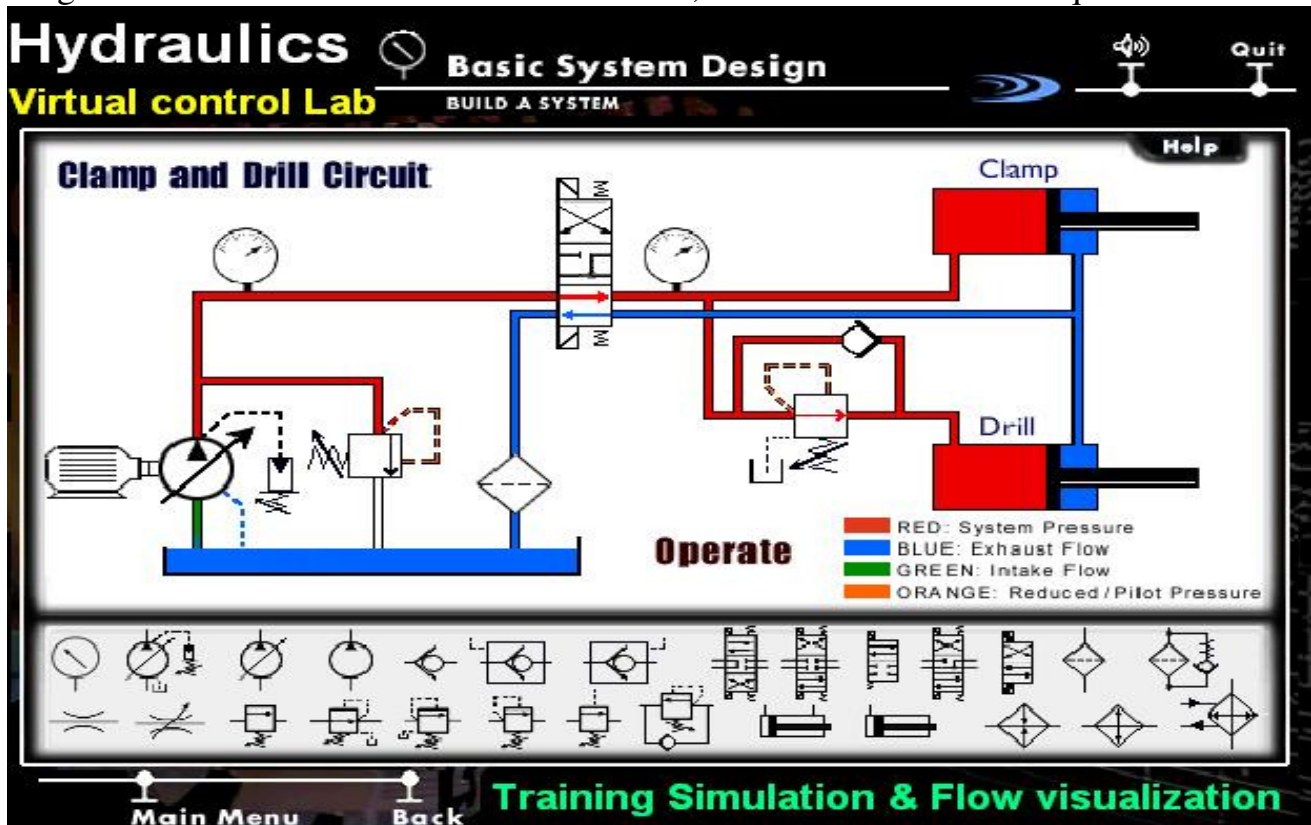


Hydr-1: Basics and Components of Industrial Hydraulic Control Systems

An Interactive, Computer Based and Virtual Lab Course

This course has been designed to give the participant a broad based understanding of the most important hydraulic concepts. Upon completion of this course, he should understand various basic physics laws as they apply to hydraulic power, as well as under standing schematics and system design. The participant will also study the various components found in a typical hydraulics system and how these components function and interact with each other. 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.

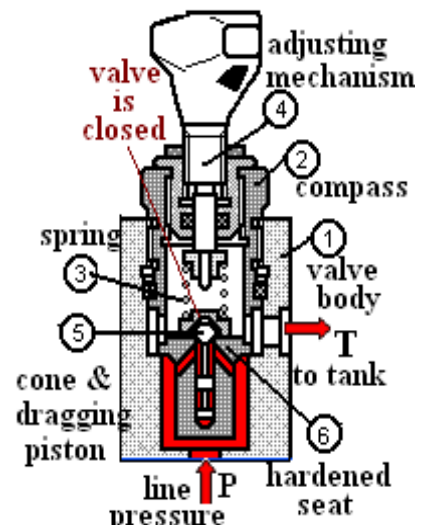
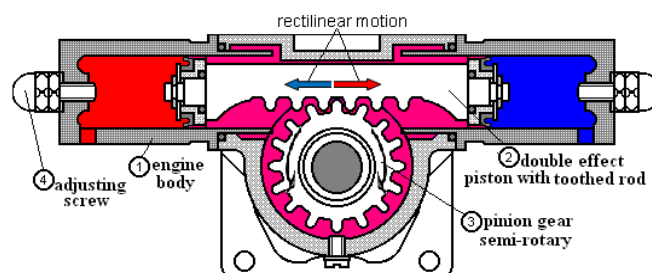
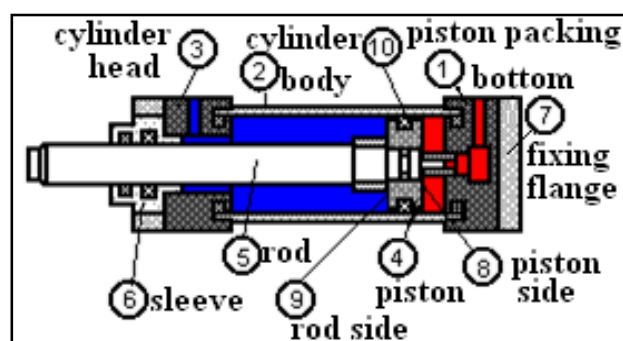
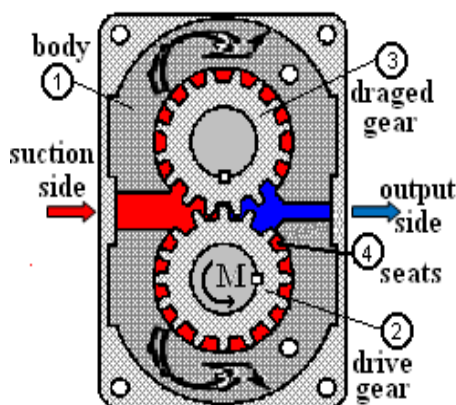
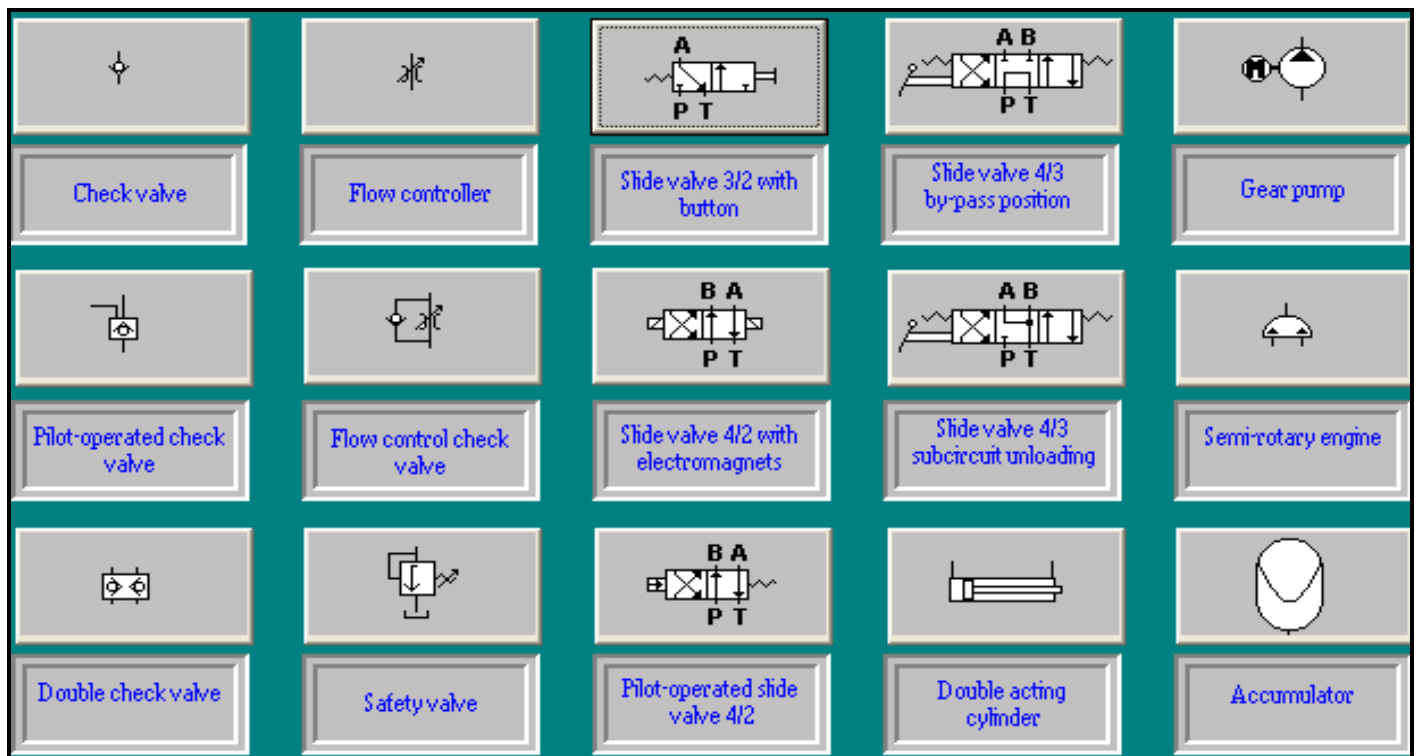
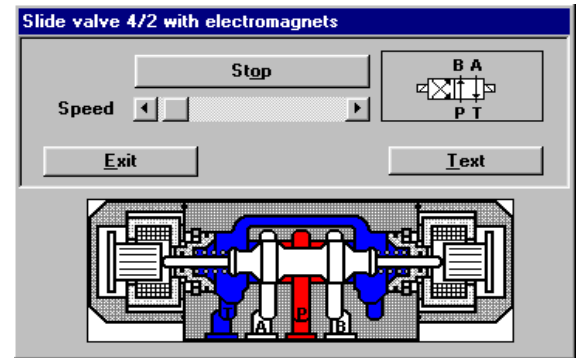


The Course will cover the following main subjects/lectures:

- 1- Introduction & ILO's of the course
- 2- Fluid Power Physics.
- 3- Pumps used in Hydraulics.
- 4- Actuators.
- 5- Pressure Control Valves.
- 6- Directional Control Valves.
- 7- Flow Control Valves.
- 8- Fluid Conditioning.
- 9- Check Valves.
- 10- Accessory Components.
- 11- Fluid Conductors
- 12- Understanding Schematics.
- 13- Basic System Design.
- 14- Summary and collective notes.

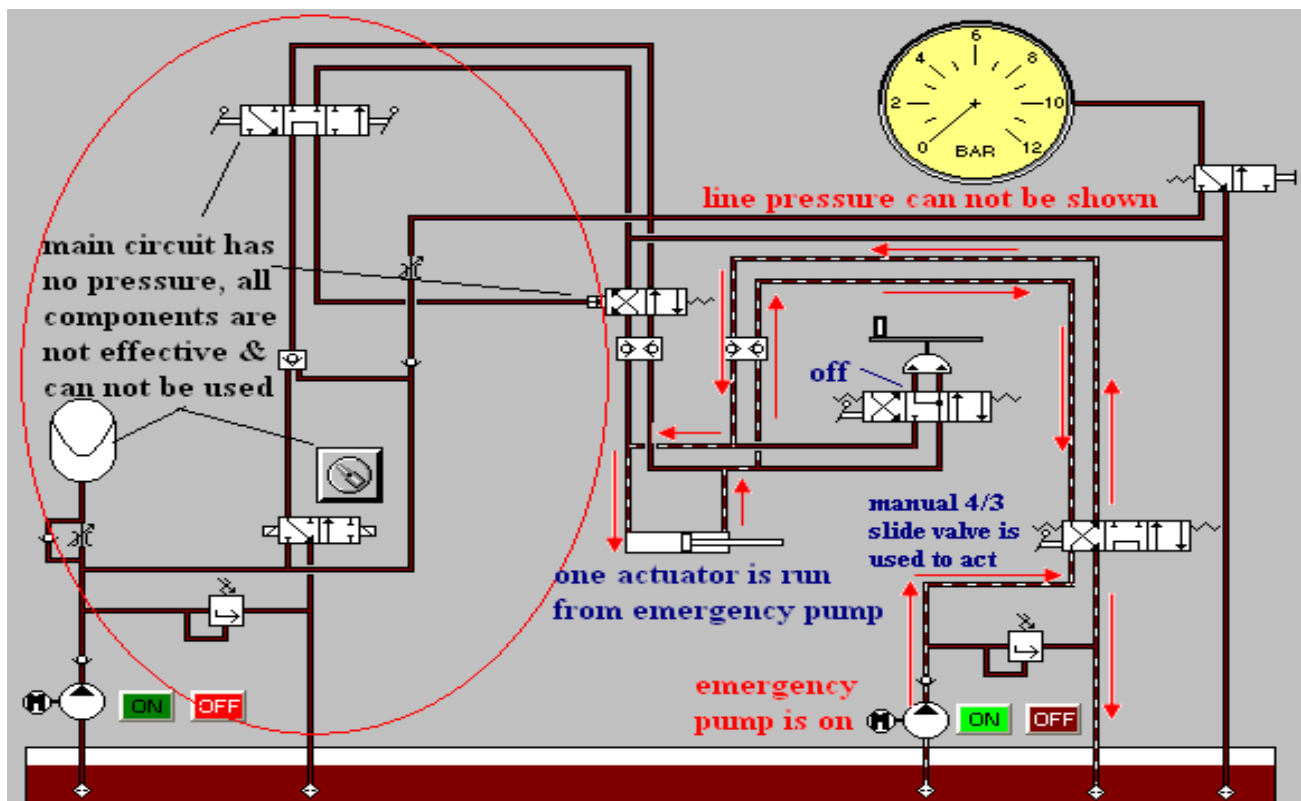
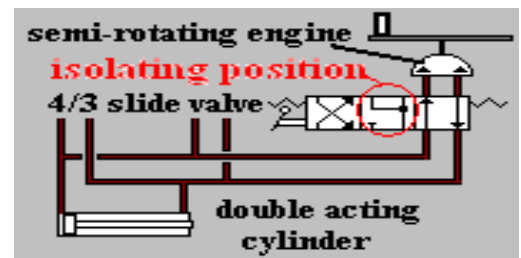
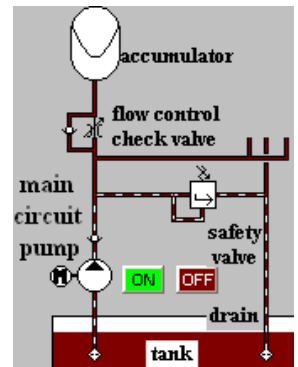
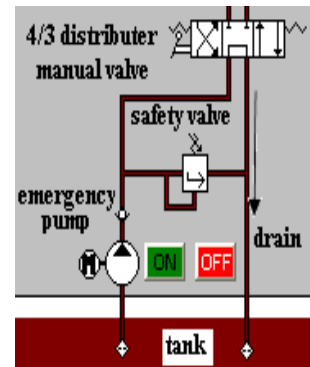
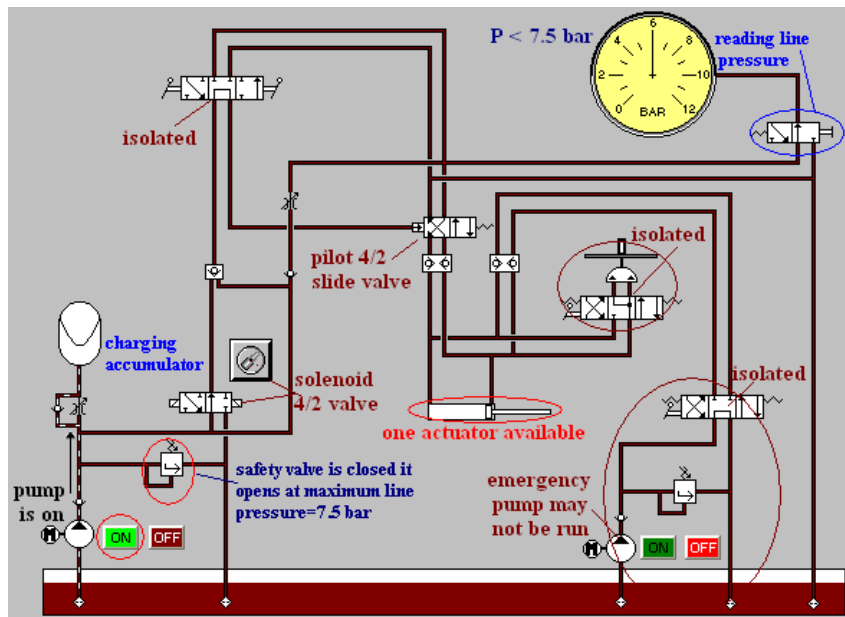
Hydr-2: Interactive Virtual Simulation and Animated sections for 16-different parts of Industrial Hydraulic control Circuits:

This is an interactive computer-based training course that includes animation, a virtual computer simulation and flow visualization for 16-different components of Industrial Hydraulic control Circuits. The course is designed to give the participant a broad based understanding of the most important concepts of practical automatic control using Hydraulics systems.



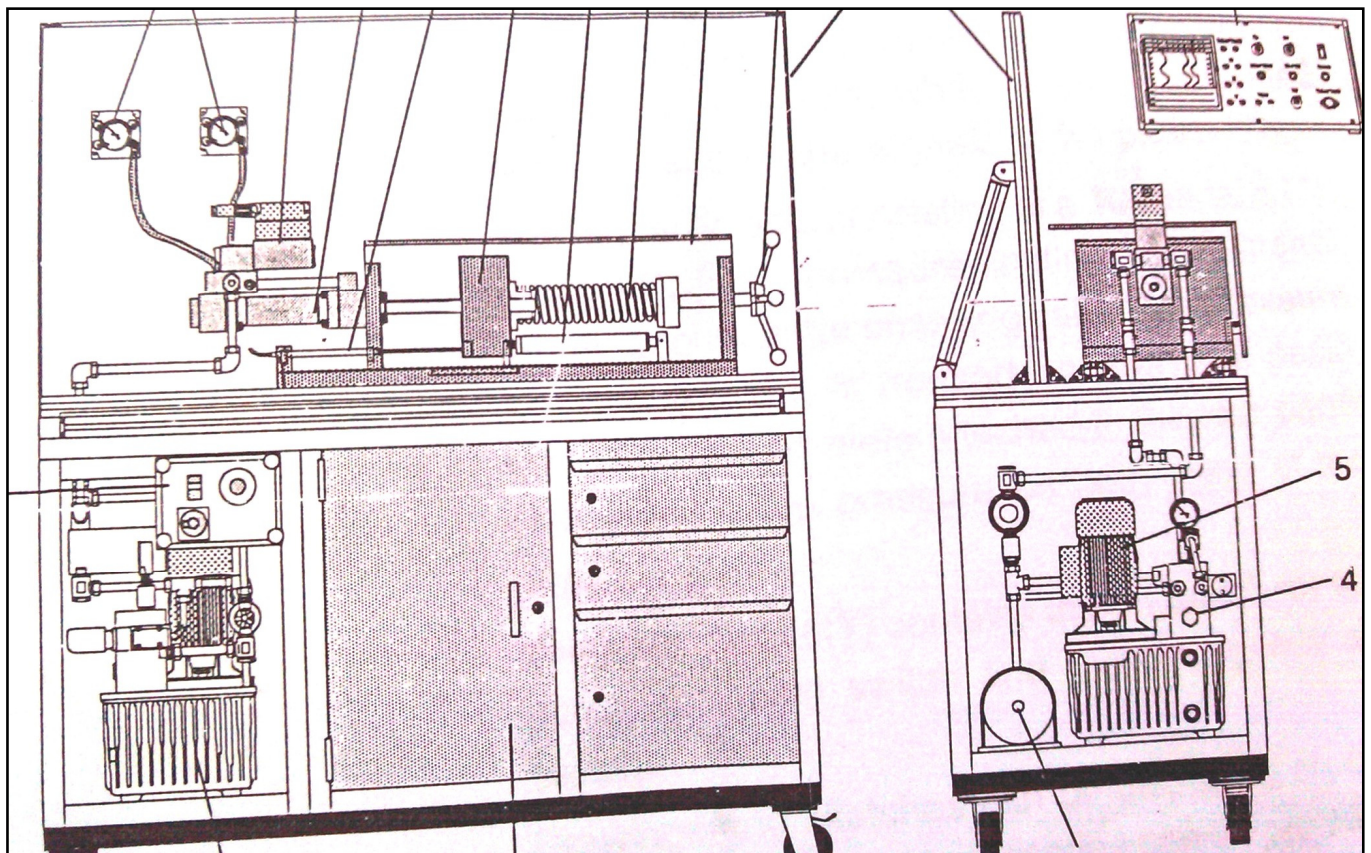
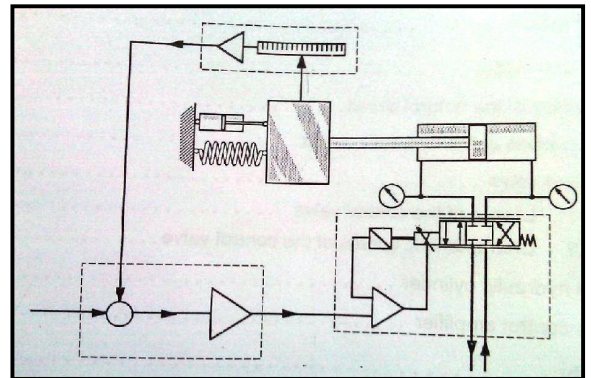
Hydr-3: Interactive Virtual Simulation for an Industrial Hydraulic automatic control Circuit using the 16-different components of VirtLab-11:

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 an Industrial Hydraulic automatic control Circuit using the 16-different components of VirtLab-11. 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.



Hydr-4: Experimental investigation of an Industrial Hydraulic automatic control Circuit using double acting cylinder system:

This is an experimental investigation of an Industrial Hydraulic automatic control Circuit using double acting cylinder system. 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 an Industrial Hydraulic automatic control Circuit using the double acting cylinder system.



- | | |
|--|---------------------------|
| 1 Oil tank | 9 Springs |
| 2 Cabinet | 10 Damper |
| 3 Hydraulic accumulator | 11 Slide |
| 4 Pressure limiting valve / accumulator charging valve | 12 Position transducer |
| 5 Pump | 13 Hydraulic cylinder |
| 6 Control amplifier | 14 Control valve |
| 7 Rear panel | 15 Manometer for cylinder |
| 8 Hand wheel for pre-stressing springs | 16 Protective hood |
| | 17 Switch box with pump |

