

## INTRODUCTION

Hydraulic systems are used extensively in all kinds of process industries, construction equipment, vehicles, heavy engineering and many more sectors. Hydraulic systems may look small, but are mighty in force, are highly versatile systems used for lifting heavy loads in a precise and repetitive manner. A well designed hydraulic system is critical to the productivity of an industry. Factoring in proper placement of the components and accessibility of frequently changed components, while making the unit as compact as possible with safety in place are key to a well-designed hydraulic system. Hence in depth understanding about Hydraulics systems is mandatory for design, assembly and maintenance engineers. Proper functioning of the system, minimizing /eliminating down time and extending service life of the Hydraulic system is essential for uninterrupted production. This programme will focus on in depth understanding of Elements of Hydraulics circuits, Preventive Maintenance Procedures and Safe Trouble Shooting Practices.

Keeping this in view, Indian Machine Tool Manufacturers' Association (IMTMA) is organizing an online 5 day programme on **Design, Integration, Maintenance and Trouble Shooting of Hydraulic Systems.**

## FOCUS AREAS

- Basics of hydraulics
- Know in depth all hydraulic elements
- Function of critical hydraulic components - Pumps, DC Valves, Cylinders, Motors and Reservoirs
- Hydraulic symbols and circuit diagrams
- Hydraulic circuits using elements - DC valves, Check valves, Pressure control and Flow control valves
- Design of a Hydraulic power pack for an SPM – case studies
- Energy saving measures in Hydraulic power packs
- Maintenance and Troubleshooting of Hydraulic circuits; Safety procedures and practices; Case studies
- **Live demo on Hydraulic trainer kit**
- **Live demo on Dismantling and re assembly of Hydraulic elements.**

## KEY TAKE AWAYS

After undergoing the programme, the participants will be able to:

- Understand Hydraulic elements
- Understand to read the hydraulic circuit
- Adopt preventive maintenance procedure for Hydraulic systems
- Troubleshoot Hydraulic circuits in systematic manner
- Analyze probable failures related to critical hydraulic elements
- Demo of assembly and disassembly of power pack

## FEE PER PARTICIPANT (PER LOGIN)

**Rs. 12500/-**  
+18% GST  
**IMTMA Members/ Micro Companies/ Individuals/ Educational Institutions / Students/ IMTMA Non Members/ Others**

**USD 500/-**  
**Overseas Participants**

**Group Concession : 10% for 3 to 5 and 15% for 6 and more delegates being nominated from the same company**

## FACULTY

This program shall be conducted by **Mr. N Swaminathan** and **Mr. Balkrishna Deshpande**.

**Mr. N Swaminathan** is a Mechanical engineer with over 40 years of professional experience. He joined BFW Ltd as R&D engineer and was involved in developing a vertical machining centre. He co-founded Leonardo Automation in 1986 as Technical Director looking after deisgn to customer service. He was involved in design of Hydraulic powerpacks, expanded to Electro- hydraulic systems with CE marking, developed special test rigs, Actuators, lab systems and jack oil systems. The powerpacks built by him have the capacity to handle a maximum pressure of 2500 kg /cm2 and a flow of 1200 lpm. He has served customers like GE (Austria) / Nuclear power corporation / Siemens / ARAI.

**Mr. Deshpande** is a Domain expert with more than 38 years of hands-on experience in machine controls design, assembly, & commissioning. He is an expert in hydraulics, pneumatics, bearings lubrication & mechatronics (focus on factory automation). He has vast experience in circuit building, system designing, commissioning & fault finding. He has delivered extensive hands-on training in hydraulics and pneumatics to more than 2000 industry professionals across India. He represented India as Mechatronics trainer & expert of Mechatronics World Skills international Competition 2013 & Jury for Russian hi-tech World Skill competition 2014.

### For Registration Contact

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