

## **VTU BOSCH REXROTH CENTER OF COMPETENCE IN AUTOMATION TECHNOLOGIES**

The uniqueness of this training centre lies in its state of the art technology, world class equipment, training kits, hardware, software, teaching aids and faculties trained from Rexroth, Germany.

The Centre aims at providing hands on experience industry personnel and students of various institutions from Engineering, Diploma and ITI Colleges in the field of Automation.



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**VTU-BOSCH REXROTH CENTRE OF COMPETENCE IN AUTOMATION TECHNOLOGY,  
VTU REGIONAL CENTRE, HANCHYA, SATHAGALLI LAYOUT (RING ROAD), MYSURU-570 029**

**Phone: 0821-2570 009, E-mail: [vtubosch@vtu.ac.in](mailto:vtubosch@vtu.ac.in)**

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## Training Features

- Fully hands on experience
- Provides an insight in the field of “Industrial Hydraulics, Pneumatics, PLCs, Sensorics, Mechatronics and Robotics”
- Helps participants develop practical skills
- Intensive training
- Certificate would be given upon successful completion of training and clearing POST-TEST

## Facilities Available

- Hydraulics - 11 work benches
- Pneumatics - 11 work benches
- PLC's (Programmable Logic Controllers)- 11 kits
- Sensorics kits - 11nos
- Mechatronics kits - 03 nos
- Robotics kits - 03 nos



# HYDRAULICS

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## TRAINING CONTENTS

- Introduction to Hydraulics
- Hydraulic pumps and motors, control valves, cylinders, Control valves
- Circuit designing and building
- Control methods throttle control and load sensing control
- Study of Proportional Valve
- Hydraulic fluids and filtration

## LEARNING GOALS

**At the end of the workshop, participants will be able to:**

- Recall the physical parameters and symbols, the construction and function of hydraulic components
  - Interpret basic hydraulic circuits
  - Construct and operate hydraulic assemblies on the training rig
  - Outline the theory, construction, concept and functioning of electro-hydraulic proportional and servo valves
  - Operate typical circuits with proportional and servo valves
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# PNEUMATICS

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## TRAINING CONTENTS

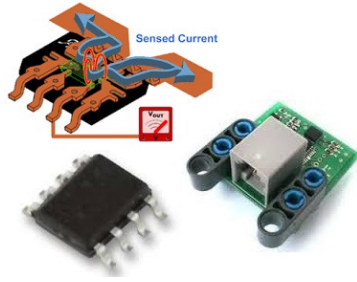
- Introduction to Pneumatics, Fundamentals of Pneumatics
- Fundamentals of Pneumatics
- Basic components - Cylinders and Valves, their working and interactions
- Electro pneumatic circuit diagram and building
- Study of Pneumatic Closed Control Loop Technology

## LEARNING GOALS

**At the end of the workshop, participants will be able to:**

- Comprehend the physical parameters, symbols, construction and function of various pneumatic components
  - Prepare simple pneumatic circuits on the training rig
  - fundamental pneumatic circuits
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# SENSORICS

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## TRAINING CONTENTS

- Introduction to Sensorics technology
- Study of various types of sensors
- Functions, Characteristics, Behavior, Operating ranges, Switching frequency, Reduction factors, Response curve of different types of sensors

## LEARNING GOALS

**At the end of the workshop, participants will be able to:**

- Recognize Sensorics components
  - Design Simple Circuits
  - Relate impact of electrical, mechanical and electronics domains to Sensorics
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# **PROGRAMMABLE LOGIC CONTROLLERS (PLC)**

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## **TRAINING CONTENTS**

- Introduction to Automation Technology
- Introduction to PLC
- Programming of PLC
- Programming languages Structured Text (ST), Function Block Diagram (FBD), Ladder Diagram (LD), Sequential Function Chart (SFC), Instruction List (IL), Continuous Function Chart (CFC)
- Interfacing PLC to Hydraulics & Pneumatics

## **LEARNING GOALS**

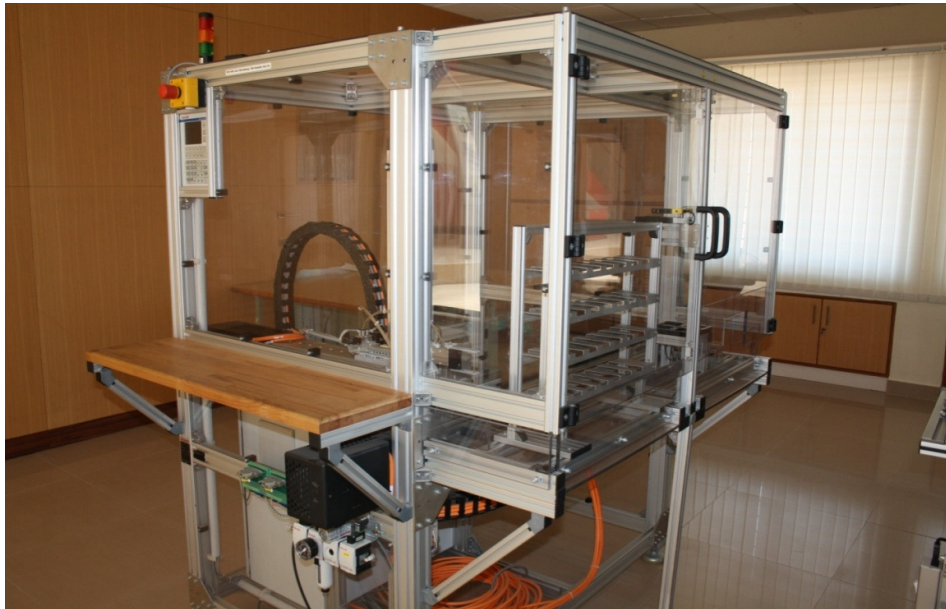
**At the end of the workshop, participants will be able to:**

- Comprehend basics of PLC
  - Recall basic knowledge of Electric drive and controls
  - Design Simple Circuits
  - Recall basic knowledge of Programmable Logic Controllers & Human Machine Interface
  - Write Programmable Logic Controllers logic programmes in different languages
  - Structured Text (ST), Function Block Diagram (FBD), Ladder Diagram (LD), Sequential Function Chart (SFC), Instruction List (IL), Continuous Function Chart (CFC)
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## **ROBOTICS (CARTESIAN MOTION SYSTEM-CMS)**

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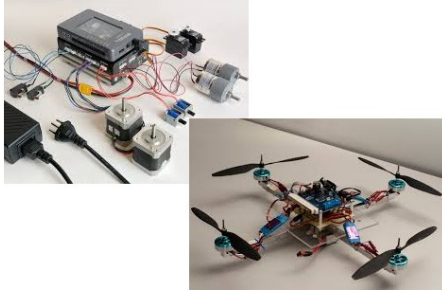
### **TRAINING CONTENTS**

- Introduction to the Robot technology
- Introduction to Programming and peripherals of Robots
- Operating instructions, Indramotion control VCP08, Basics of programming
- Task programme and Hands on Cartesian Motion System(CMS)

### **LEARNING GOALS**

**At the end of the workshop, participants will be able to:**

- Recall basic knowledge of robotics system
  - Identify the various elements of Cartesian Motion Systems (Trainer Kit)
  - Know the movement commands
  - Perform simple operations via VCP08 Operating Panel
  - Design Simple Circuits
  - Write Programs to perform basic operations such as move, pick and place
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# **MECHATRONICS**

## **(MODULAR MECHATRONIC SYSTEM-MMS)**

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### **TRAINING CONTENTS**

- Basic structure of mechatronics system
- Overview of control engineering
- Concept of assembly and conveying systems
- Configuring of mechanical equipment and electronics controls for assembly and conveying systems
- PLC technology and programming and interfacing

### **LEARNING GOALS**

**At the end of the workshop, participants will be able to:**

- Comprehend knowledge of Mechatronics i.e. combination of mechanical and electronics systems
  - Design Simple Circuits
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## **Training Description**

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- 3- Days Training on Hydraulics and Pneumatics
- 5-Days intensive training on Hydraulics & Pneumatics
- 3-Days Training on PLC's ( Programmable Logic Controllers) & Sensorics
- 5- Days intensive training on PLC's( Programmable Logic Controllers) & Sensorics
- 3- Days Training on Robotics & Mechatronics
- 5-Days intensive training on Robotics & Mechatronics

## **Batch Size**

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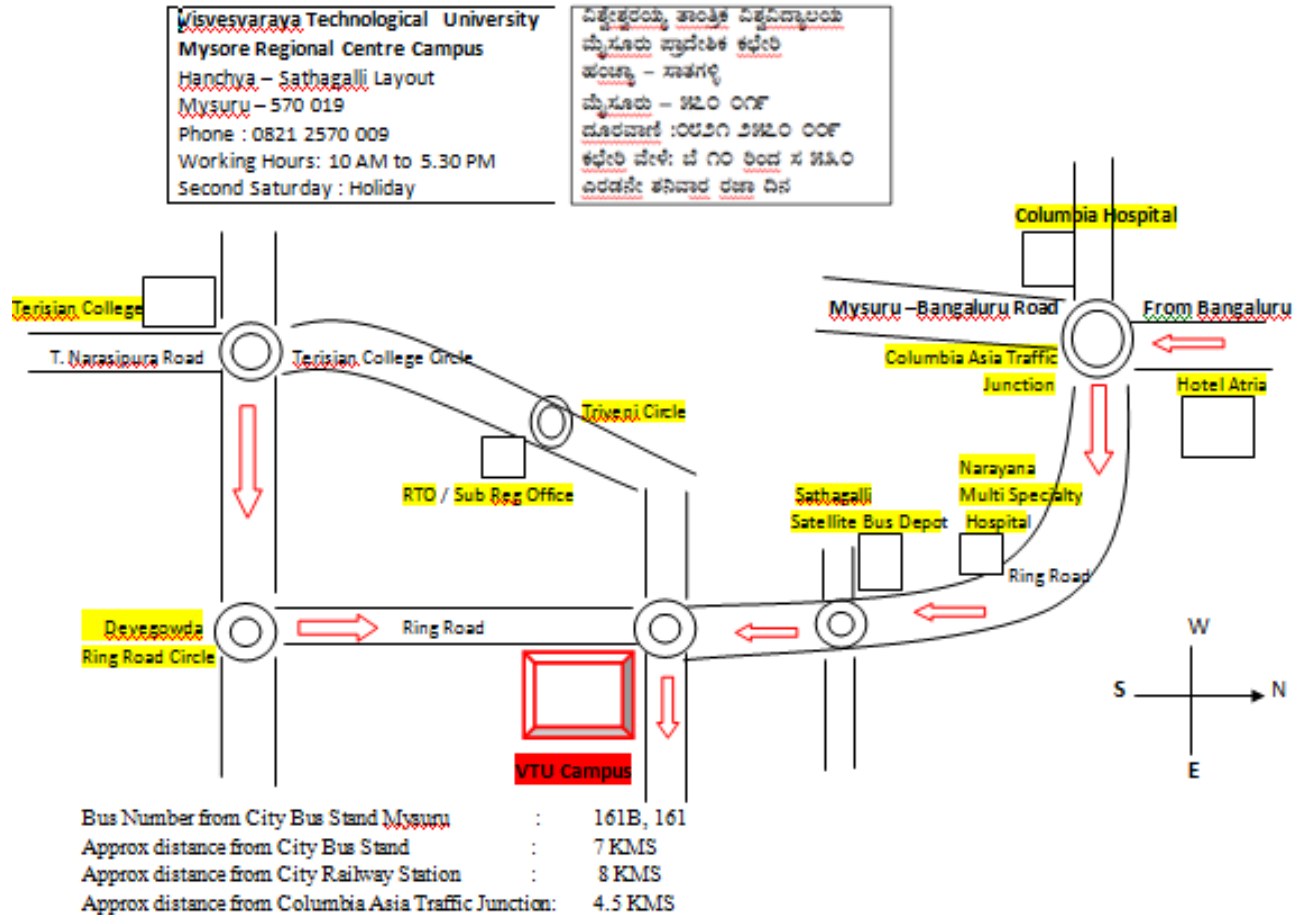
- Training on Hydraulics & Pneumatics minimum 20 participants
- Training on PLC, Sensorics minimum 20 participants
- Mechatronics and Robotics minimum 20 participants
- Practical Handouts will be provided during the training
- Facility to stay on campus available on request with nominal charges as applicable.
- Participation Certificate after clearing the post-training test.

## **Fees**

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- Per student per day 600/- for any programme
- For industry persons per day 1500/- for any programme
- Online payment through VTU web portal only

# Route Map



## CONTACT US

The Special Officer

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Govt. Holidays, Second Saturday's & Sundays Closed