



# VISVESVARAYA TECHNOLOGICAL UNIVERSITY

## CENTRE OF EXCELLENCE IN ROBOTICS

*In association with*



*MTAB Technology Centre, Chennai*

### OUR MISSION

- Provide Technical support to Research Scholars.
- Organize informational webinars on Tools used during Researches
- Assist in the conduct of research work related to Composite Materials, Forming, Forging, Analysis etc
- Aid in the conduct of project work for UG/PG

### ABOUT THE CENTRE:

Center of Excellence is a state-of-the-art lab set up at the premise of VTU, Belgaum and comprises typical equipment and software that drives modern manufacturing industry. The partnered institution - MTAB Technology Center, helps plan, install and commission, and operates this Center of Excellence to offer high-end skill training for the students and staff at VTU.

The current facilities provided at the Center of Excellence include a 6-axes articulated robot, a 4-axes SCARA robot, robot simulation software – Workspace LT, and a fully cloud-based robust open-source Learning Management System.

### PEOPLE INVOLVED WITH CENTER OF EXCELLENCE: DETAILS OF FACULTY, STAFF

Faculty Coordinator	Designation
Dr Ravindra R Malagi	Professor
Mr Prasad Raikar	Assistant Professor
Mr. Yogendra Mahajan	Trainer

### FACILITIES & SERVICES OFFERED (WITH DETAILS):

Serial No	Name of the Equipment/Software	Person in charge
1.	6-Axes articulated robot	Mr. Yogendra Mahajan
2.	4-Axes SCARA robot	Mr. Yogendra Mahajan
3.	Workspace LT	Mr. Yogendra Mahajan
4.	Learning Management System	Mr. Yogendra Mahajan

## FACILITIES & SERVICES OFFERED (WITH DETAILS):

### 1. Articulated Robot

AR series robot is a hollow series robot developed by MTAB robotics. It can be used in welding, handling, cutting, spray painting, polishing and several other related fields.

Main features :

- Independent emergency stop: The robot is equipped with safety emergency stop board independent of the control system. It adopts imported forced disconnection relay to provide double circuit emergency stop to ensure the reliability of emergency stop.
- Automatic external power on function: ensure the operator's line of sight away from the robot, so as to ensure the operator's personal safety.
- Energy saving mode: effectively reduce standby energy consumption. At the same time to avoid standby state, personnel into the robot area to bring harm.
- Three-phase transformer: A three-phase filter is installed to effectively isolate external interference and prevent internal interference output. The transformer provides a stable power supply with 380V and 200V isolation.
- Double switch power supply design avoids internal power supply interference.
- The body cable adopts special cable for high flexible robot. It avoids failure caused by internal line damage.
- The body provides double loop air pipes to meet the connection requirements of welding and transportation.
- The hollow and large inner diameter of the 6-axis can meet the installation requirements of water-cooled gun and bellows gun. At the same time avoid handling jig pipe and cable winding.
- The welding cable can be built in to facilitate the use of welding robot.



## 2. SCARA Robot

A Selective Compliance Assembly Robot Arm (SCARA) robot has a donut shaped work envelope and consists of two parallel joints that provide compliance in one selected plane. SCARAs are four-axis robots, with motion in X-Y-Z and a rotational motion about the Z-axis.

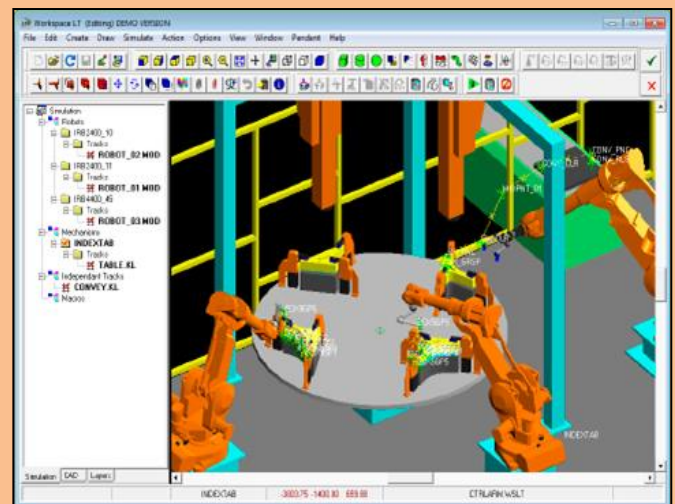
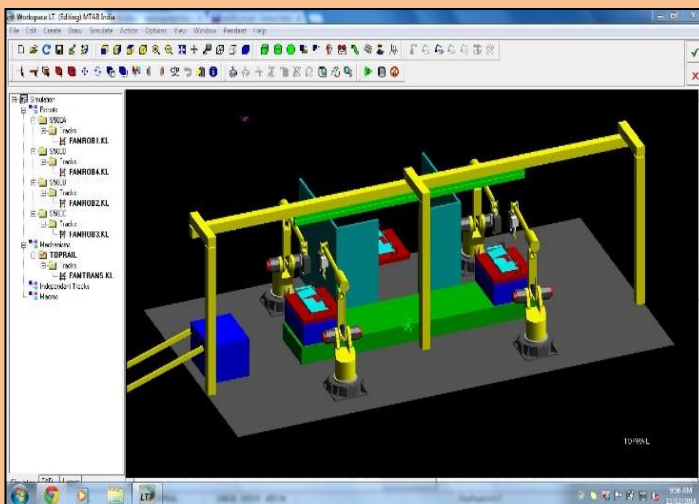


## 3. Workspace LT

Workspace is a 3D graphical simulation software designed for robotics and finds its applications in the areas of mechanism and object simulation. It is a Microsoft windows based application and uses the ACIS CAD kernel to create high quality images. The Visual Basic for Applications (VBA) has been included in Workspace LT to simulate robot programs.

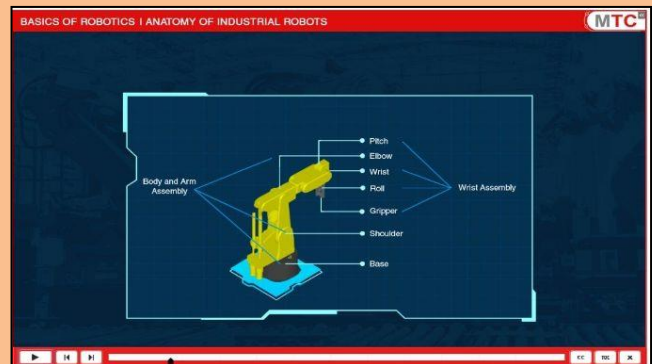
Workspace LT applications:

- Model your own robot, mechanism & tool.
- Model work cells using the built in CAD system of the software.
- Import CAD data from the other CAD systems.
- Built in Robot & Tool library.
- Graphically edit robot programs.
- Download programs to a robot controller without the need for post processing.



Workspace LT features:

- Inbuilt Robot, Tool library & Teach pendant.
- Import CAD data in SAT & IGES format.
- Automatic path generation.
- Collision detection.
- Flyby option.
- Auxiliary axis.
- Signal communication.
- Creating complicated work cells.
- Adding multiple Robots in a single screen.



#### 4. Learning Management System

The Learning Management System (LMS) at VTU, provided by MTAB Technology Center, offers a robust digital tool packaged with advanced learning courses in CNC, Robotics, Mechatronics and Automation, with over 1000 hours of rich digital content covering over 60 courses, all presented in an interesting, illustrated and interactive format that engages young learners. It is developed in close consultation with experts across the industry, the content can also be customised to suit different specific needs, and even developed afresh to train on new technologies. These courses can be used for both self-studies as well as for blended learning.

