About the CoE

Punjab Engineering College (Deemed to be University) in collaboration with M/s Siemens Industry software (India) Pvt. Limited (SISW) and its partner M/s MTAB Technology Center Private limited (MTC) established a Center of Excellence (CoE) at PEC.This world-class skill development center is dedicated to the areas of engineering, product development and advanced manufacturing technologies towards the following domains:

Automotive – passenger vehicles, commercial vehicles, Aerospace, Industrial machinery – off highway vehicles, farm equipment and implements, electrical and mechanical machineries ,Renewable energy – solar and wind energy, Internet of Things (IOT)Center of Excellence (CoE) at PEC covers a total area of 16000 square feet. Estimated cost for total project is 156.64 crores.

Shri. V.P. Singh Badnore, Governor of Punjab and the Administrator U.T. Chandigarh and Smt Kirron Kher, MP Chandigarh inaugurated the centre on 17th December in the presence of Dr Dheeraj Sanghi, Director of PEC, Shri Rajinder Gupta, Chairman BoG PEC, Mr. Matthew Thomas, Country Head Siemens, Sashi Sairaman, MD MTC - Executing PArtner of Siemens, Dr R.M. Belokar, Program Director CoE and other esteemed officals and guest.

In his welcome address, Dr Dheeraj Sanghi thanked the guests for gracing the occasion and highlighted the benefits of the new facility for the students, faculty and industry. He proudly presented this center of excellence as an instrument to upgrade the present curriculum with the latest technology.

Mr Matthew Thomas, Country head, Siemens substantiated on the importance of the Center of Excellence and said that it will create an ecosystem of innovation and add to the hub for research and academia partnerships. In the world where lines between all fields of engineering are blurring, it will close the skill gap.

Program Director CoE Siemens

Dr. Rajendra M Belokar

Department :- Workshop and Skill Development Centre

Designation :- Program Director CoE Siemens and Head Workshop

Qualification :- Ph.D. Engineering and Technology (Panjab University)

Research Interests :-Manufacturing System Design, Value Engineering, Production and Operations management, TPM, and TQM

Centre Manager CoE Siemens

Amninder Singh

Department :- CoE Siemens

Designation :- Centre Manager

Qualification :- B.Tech in Electronics Engineering from Thapar Institute of Engineering and Technology

Skillset :-Experience in field of Networking and Wireless Infrastructure Setup and Management, Windows and Linux Enterprise Server,Enterprise Applications support, Fiber & CAT6 Infrastructure , Video Conferencing ,Enterprise Surveillance and Security Systems designer and management,Team Management, Project Execution and Management. .

PEC CoE Faculty

S.No	Name of Laboratory	Faculty In-charge	Designation
1	Product Design and Validation Lab	Dr. Gurjeet Singh	Assistant Professor
2	Advance Manufacturing Lab	Dr. Chanderkant Susheel	Assistant Professor
3	Automation Lab	Dr. T.S. Saggu	Assistant Professor
4	Electrical & Energy Saving Lab	Ms. Amita Kumari	Assistant Professor
5	Mechatronics Lab	Dr. T.S. Saggu	Assistant Professor
6	Process Instrumentation Lab	Mr. Tushar Kumar Siag	Assistant Professor
7	Internet of Things (IOT) Lab	Dr. Sanjay Batish	Head Computer Centre
8	Metrology Lab	Dr. Suman Kant	Assistant Professor

PEC CoE Faculty

S.No	Name of Laboratory	Faculty In-charge	Designation
9	Test and Optimization Lab	Mr. Rajeshwaram	Assistant Professor
10	Renewable Energy Lab	Ms. Amita Kumari	Assistant Professor
11	Rapid Prototyping Lab	Prof. R.S. Walia	Professor
12	Robotics Lab	Dr. Tejbir Kaur	Assistant Professor
13	CNC Machine Lab	Mr. Rajeshwaram	Assistant Professor
14	CNC Controller Lab	Mr. Rajeshwaram	Assistant Professor

MTC CoE Trainer

S.No	Name of Laboratory	Lab Trainer	Designation
1	Product Design and Validation Lab	Sanni Dev Pushkar Kumar	Senior Trainer Trainer
2	Advance Manufacturing Lab	Ashish Grover	Senior Trainer
3	Automation Lab	Arpinder Singh Tarun Mehra	Senior Trainer Lab Assistant
4	Electrical & Energy Saving Lab	Vishal sharma Pardeep Sharma	Trainer Trainer
5	Mechatronics Lab	Arpinder Singh Tarun Mehra	Senior Trainer Lab Assistant
6	Process Instrumentation Lab	Arpinder Singh Pardeep Sharma	Senior Trainer Trainer
7	Internet of Things (IOT) Lab	Tamizh Selvam	Senior Trainer

MTC CoE Trainer

S.No	Name of Laboratory	Lab Trainer	Designation
8	Metrology Lab	Tarkeswar Rai Vishal sharma Rohit Kumar	Trainer Trainer Lab Assistant
9	Test and Optimization Lab	Sanni Dev Pushkar Kumar	Senior Trainer Trainer
10	Renewable Energy Lab	Vishal sharma Pardeep Sharma	Trainer Trainer
11	Rapid Prototyping Lab	Sanni Dev Pushkar Kumar	Senior Trainer Trainer
12	Robotics Lab	Ashish Grover Tarun	Senior Trainer Lab Assistant
13	CNC Machine Lab	Tamizh Selvam Tarkeshwar Rai Rohit Saktu	Senior Trainer Trainer Lab Assistant
14	CNC Controller Lab	Tamizh Selvam Tarkeshwar Rai Rohit Saktu	Senior Trainer Trainer Lab Assistant

PEC
EXPLORE INNOVATE EXCEL

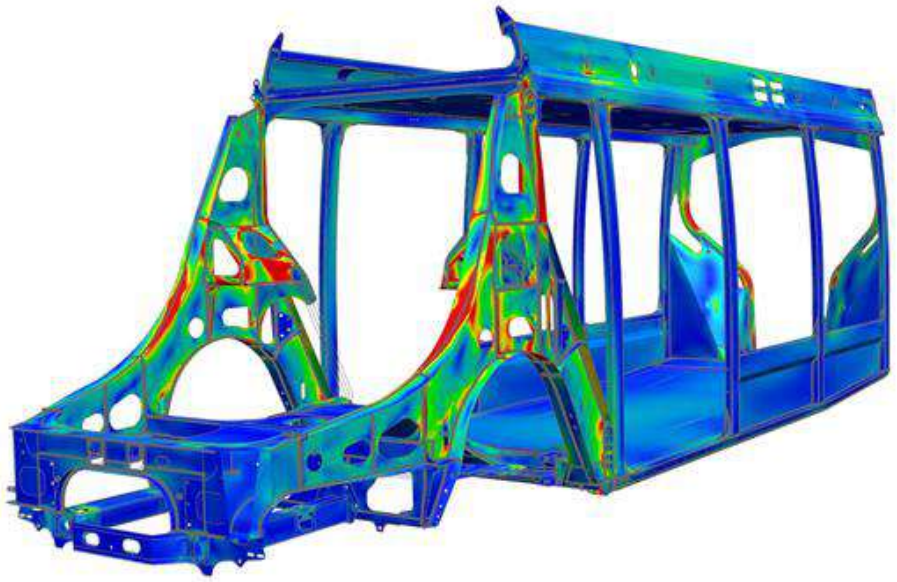
SIEMENS

MTC

PRODUCT DESIGN AND VALIDATION LAB

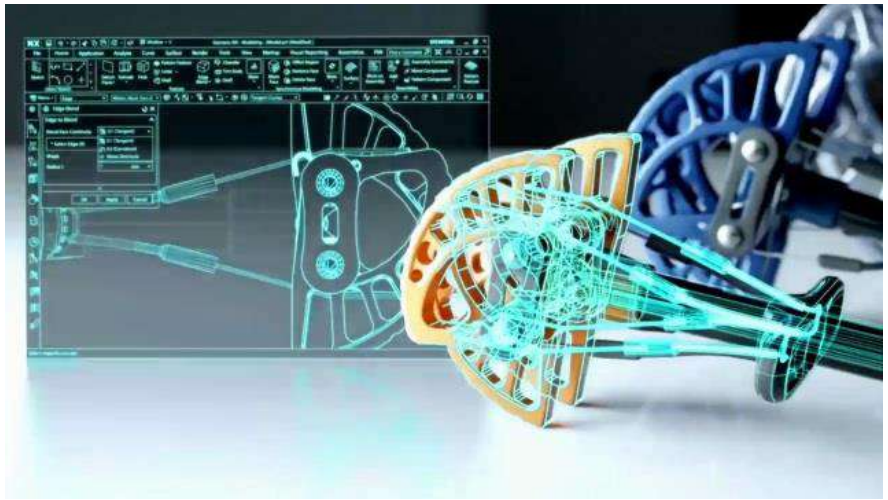
Course Offered

- Essentials for NX Designer.
- NX Basic Design.
- NX Synchronous Modeling Fundamentals.
- NX Synchronous Modeling Parametric Design.
- NX Drafting Essentials.
- NX Sheet Metal.
- Motion Simulation.
- Advance Simulation Process.
- Advance Simulation Processes and Solutions.
- NX Nastran Advance Nonlinear.
- Thermal and Flow Analysis.
- CAM Manufacturing Fundamentals.
- CAM Turning Manufacturing Process.
- CAM Fixed And Multi-axis Milling
- NX CAE Intermediate



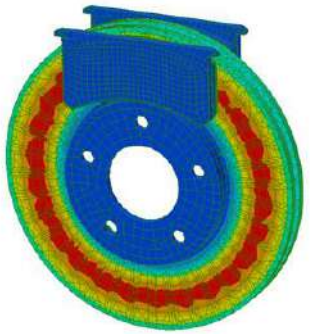
Skill Gained By Students

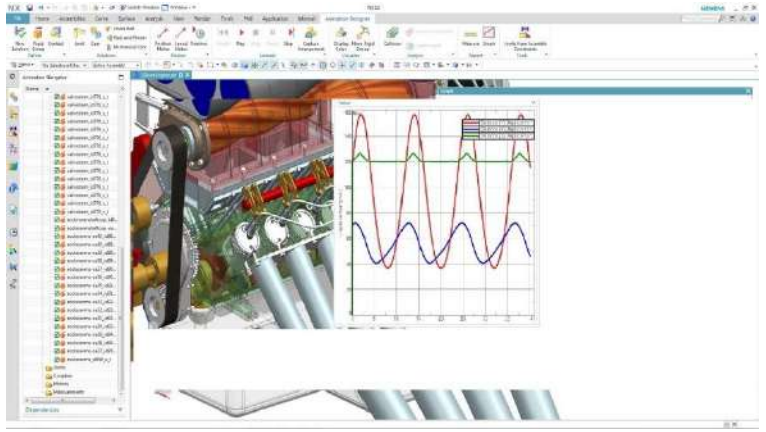
- Computer Aided Design for simple and complex Engineering problems.
- Understand existing Industrial Design.
- Statics and Dynamics analysis for various Engineering problems.
- Virtual manufacturing process for various complex designs through NX CAM tool.



Possible industry/sector the students get employed

- Automobile Sector
- Aerospace industries
- Shoes, plastics and sheet metal product industries as a Design Engineer
- Research and Development Engineering

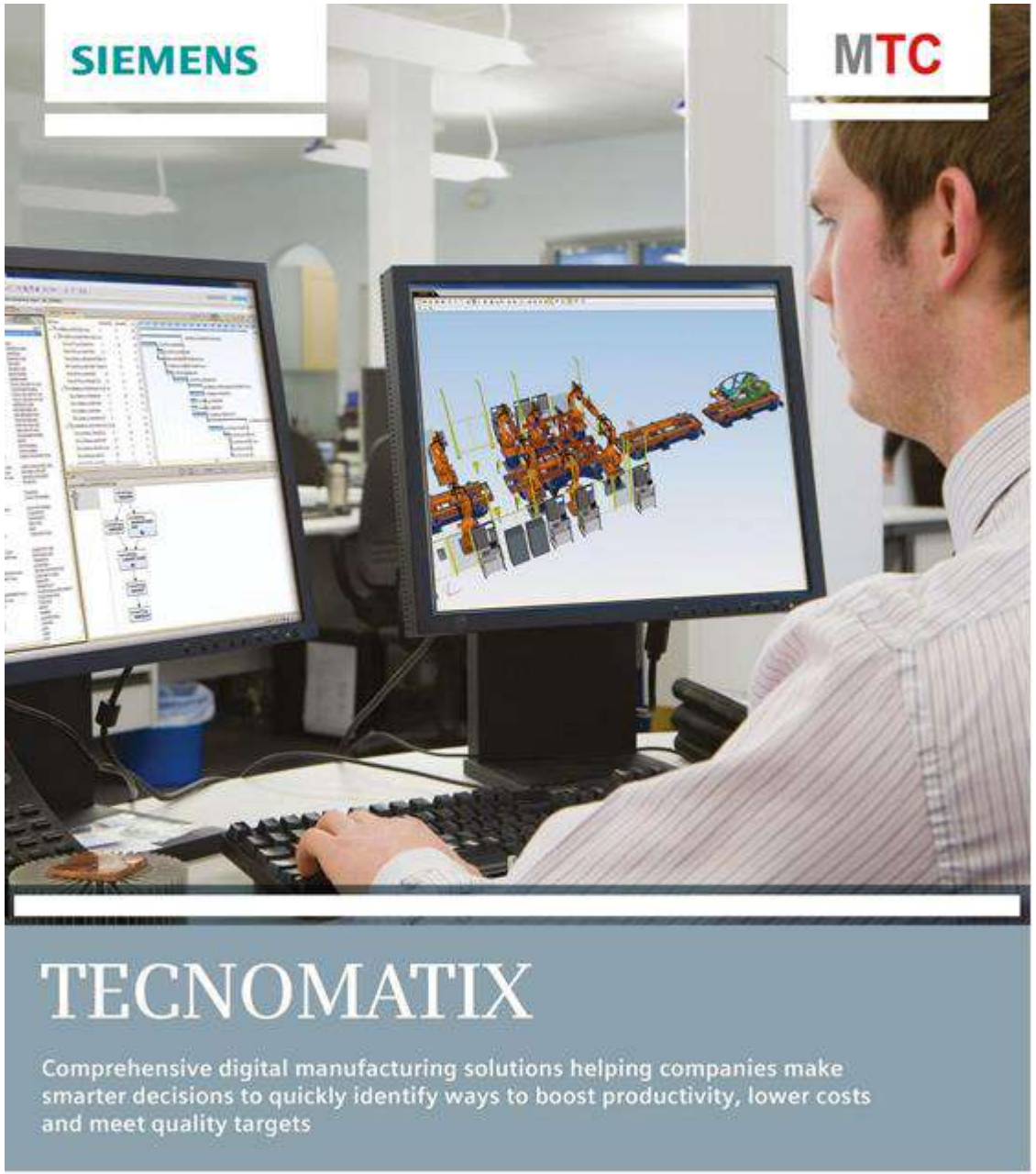




ADVANCE MANUFACTURING LAB

Course Offered

- Advance Manufacturing –Teamcenter
- Advance Manufacturing -Plant simulation
- Advance Manufacturing -Process simulation
- Advance Manufacturing -Robcad



Skill Gained By Students

- Maximize innovation throughout product lifecycle
- Transform the decisionmaking processes
- Minimize lifecycle cost
- 3D simulation
- Assembly and robotic path planning
- Resource modeling (3D and kinematics)
- Human tasks simulation
- Ergonomics analysis
- Robotics process simulation
- Connect virtual model with real PLC code

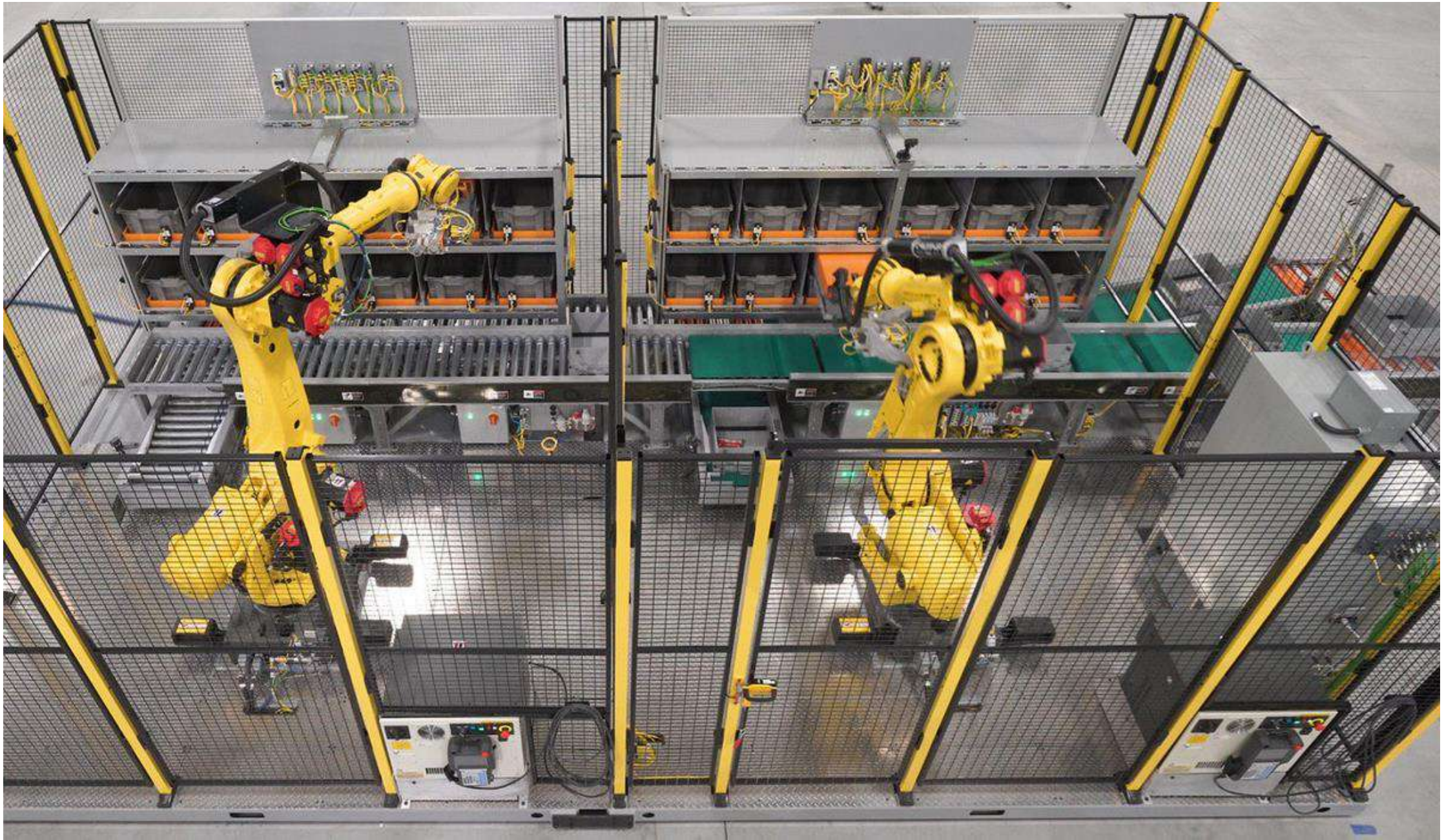
Possible industry/sector the students get employed

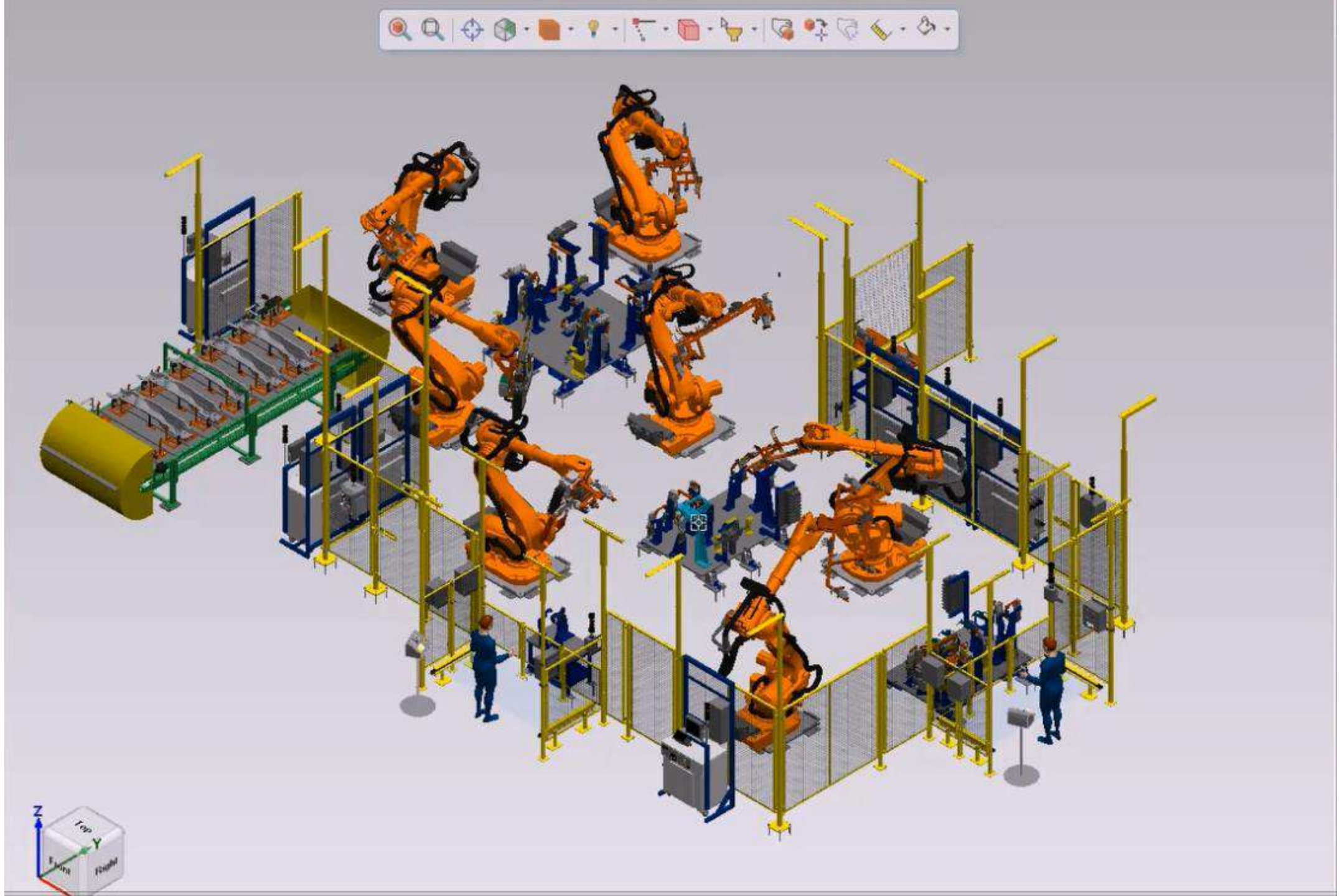
- Automobile Sector
- Industrial Automation
- Aerospace, Space & Defense sector
- Food & Beverage Manufacturing
- Chemical Manufacturing
- Pharmaceutical & Life Sciences
- Appliance Manufacturing
- Electronics & Semiconductors

TEAMCENTER


PLM PLATFORM
Start
Designs
Documents
BOMs
Process
Extend
Requirements
Service
Manufacturing
Supplier
Transform
Quality
Cost
Sustainability
Systems
Apps

Tecnomatix Process Simulate




Z
Y
Top
Front

TEST AND OPTIMIZATION LAB

Course Offered

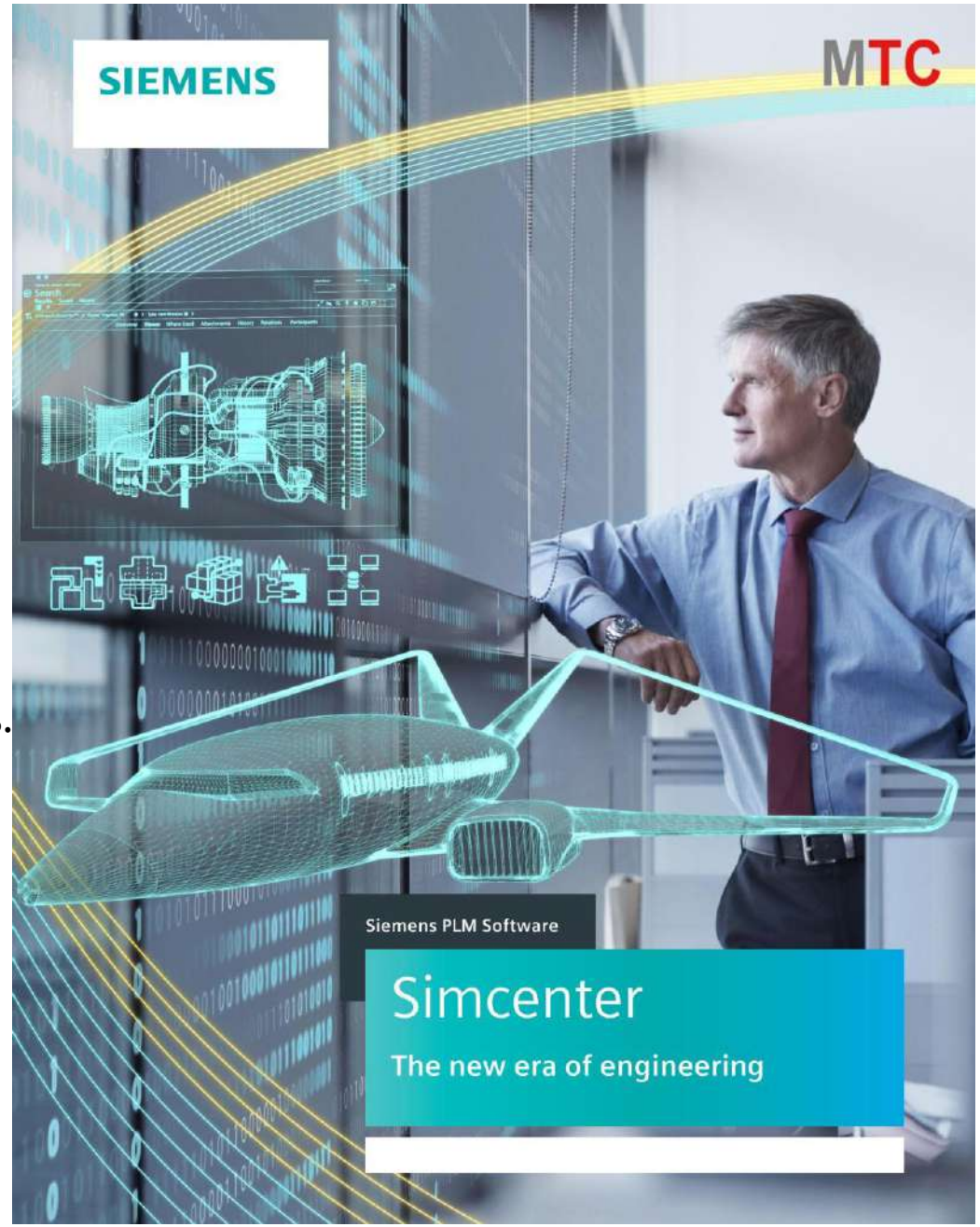
- Simcenter Testlab –Structures & Rotating Machineries
- Simcenter Testlab –Data Acquisition System
- Simcenter Amisim -Thermal Fluid System Simulation
- Simcenter Amisim -Hydraulic System Simulation
- Simcenter Amisim -Transmission System Simulation
- Simcenter 3D- Thermal and Flow Analysis

Skill Gained By Students

- Realtime analysis of Vibration, Noise Force and other paratmeters.
- Diagnose the system to reduce critical design error.
- Virtually assess and optimize the performance of mechatronic systems.

Possible industry/sector the students get employed

- Automobile sector
- Aerospace industries
- Powerplants
- Manufacturing Industries.

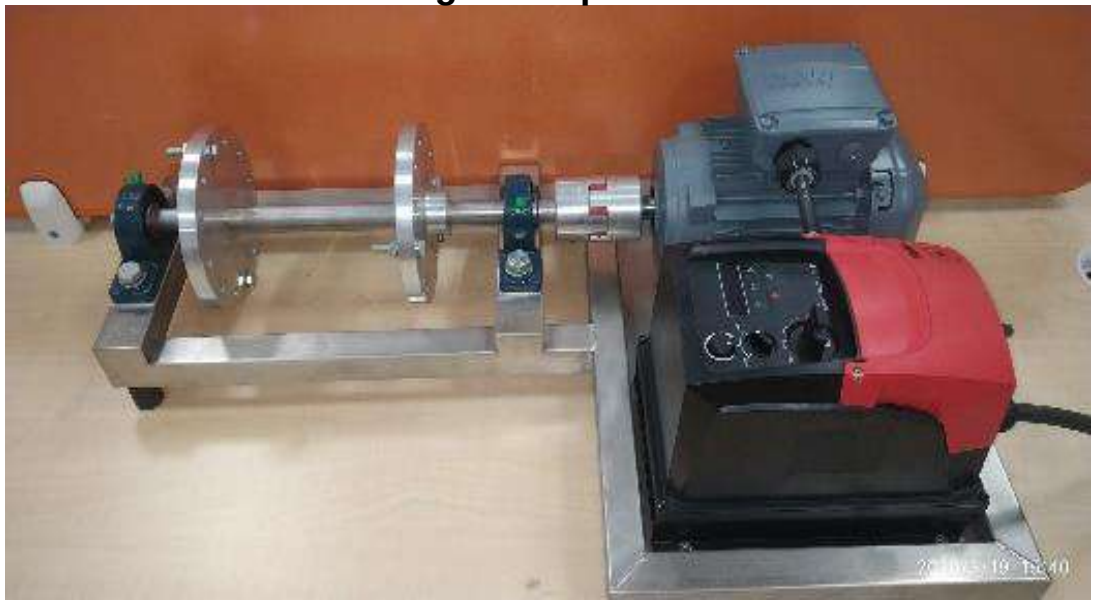


Test and optimization Lab Equipment

Mobile SCADAS Kit

Signal Amplifier

Aeroplan Scaled Model



Motor For Speed

Shaker Miniature

Vacuum Cleaner for noise detection

ROBOTICS LAB

Course Offered

- Introduction to Robotics
- Material Handling Robot
- ARC welding Robot
- Spot welding Robot

Skill Gained By Students

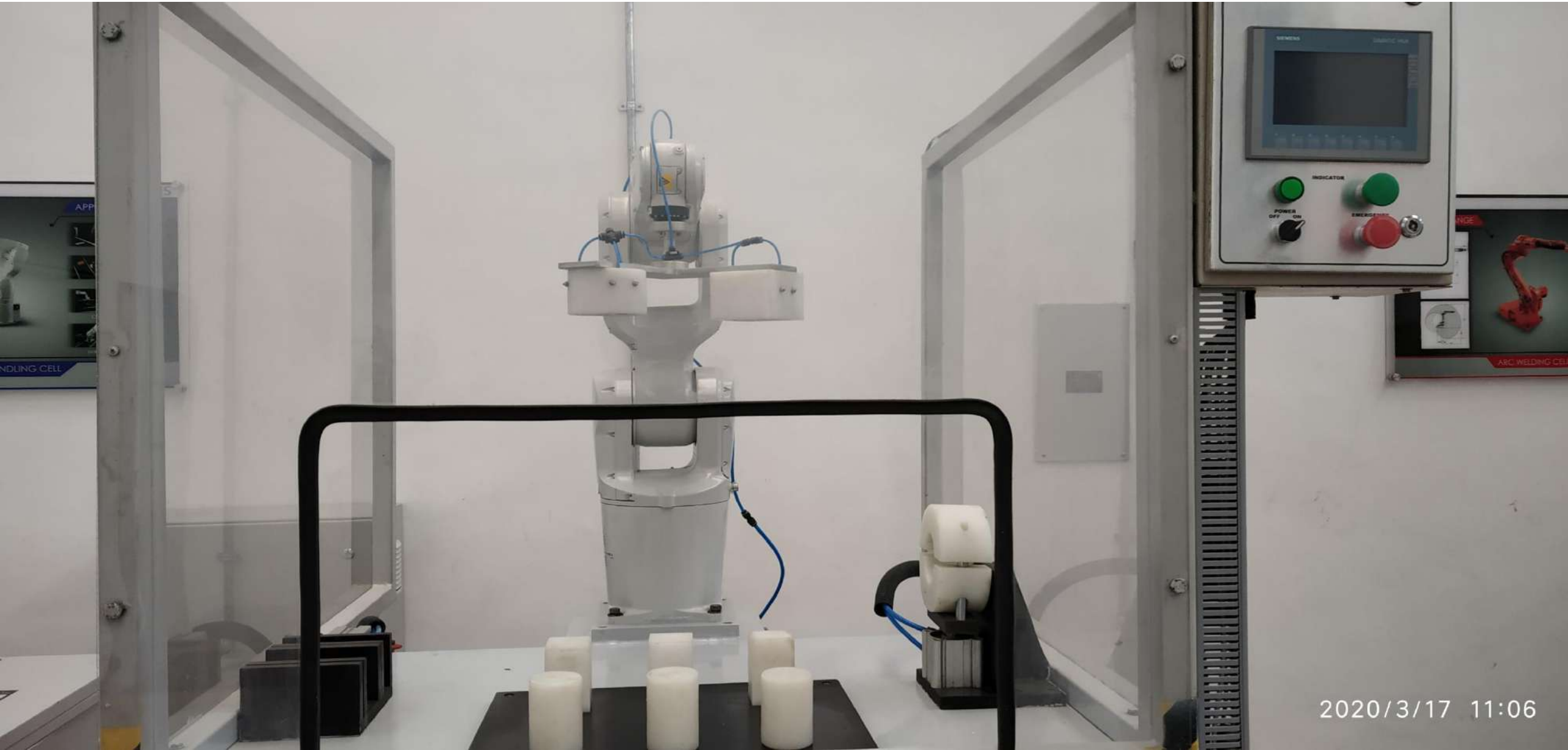
- About industrial robots and their applications
- About a robotic cell
- Layout and robot placement
- Robotics Programming
- Teach Pendant Programming
- Off-Line Programming
- Material handling application using robots (Pick and Place).

Possible industry/sector the students get employed

- Automobile Sector
- Industrial Automation
- Aerospace, Space & Defense sector
- Food & Beverage Manufacturing
- Chemical Manufacturing
- Pharmaceutical & Life Sciences
- Appliance Manufacturing
- Electronics & Semiconductors

Robotics Lab Equipment

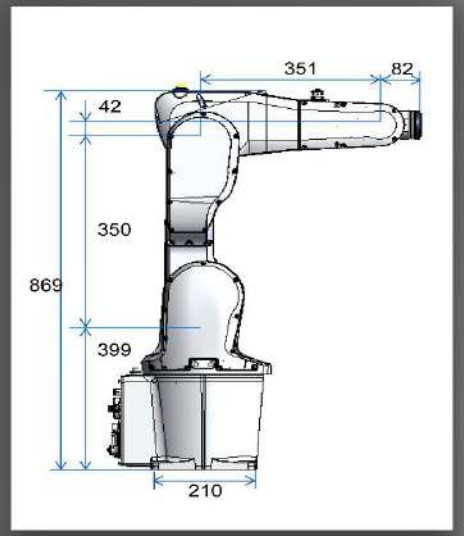
MATERIAL HANDLING ROBOT

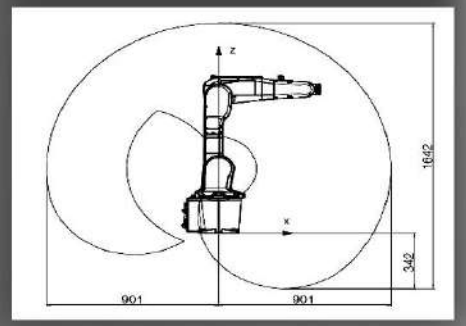


MTC

SIEMENS

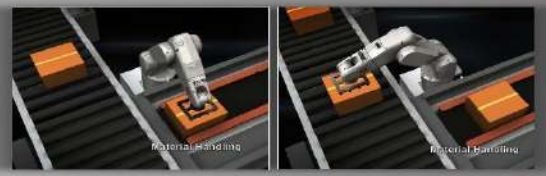
WORKING RANGE





APPLICATIONS

small parts assembly



material handling

CNC machine tending

polishing and dispensing

MATERIAL HANDLING CELL

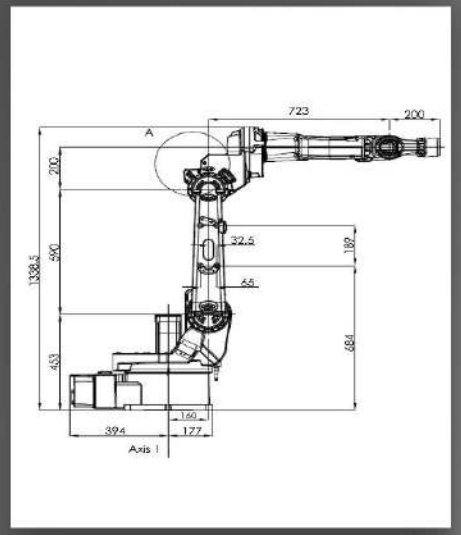
MATERIAL HANDLING CELL

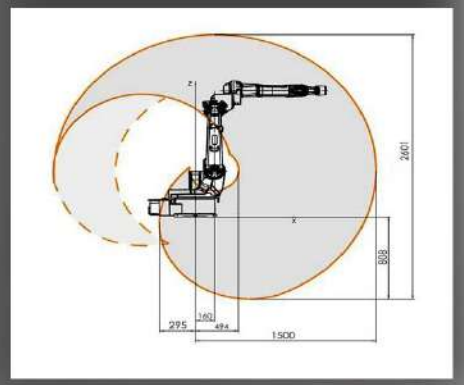
ARC WELDING CELL

MTC

SIEMENS

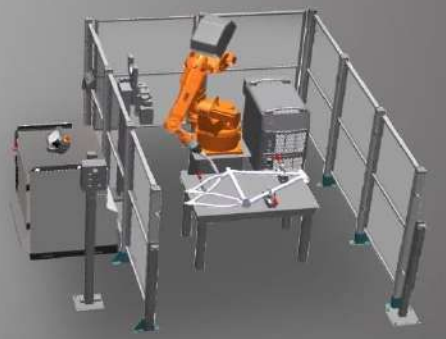
WORKING RANGE





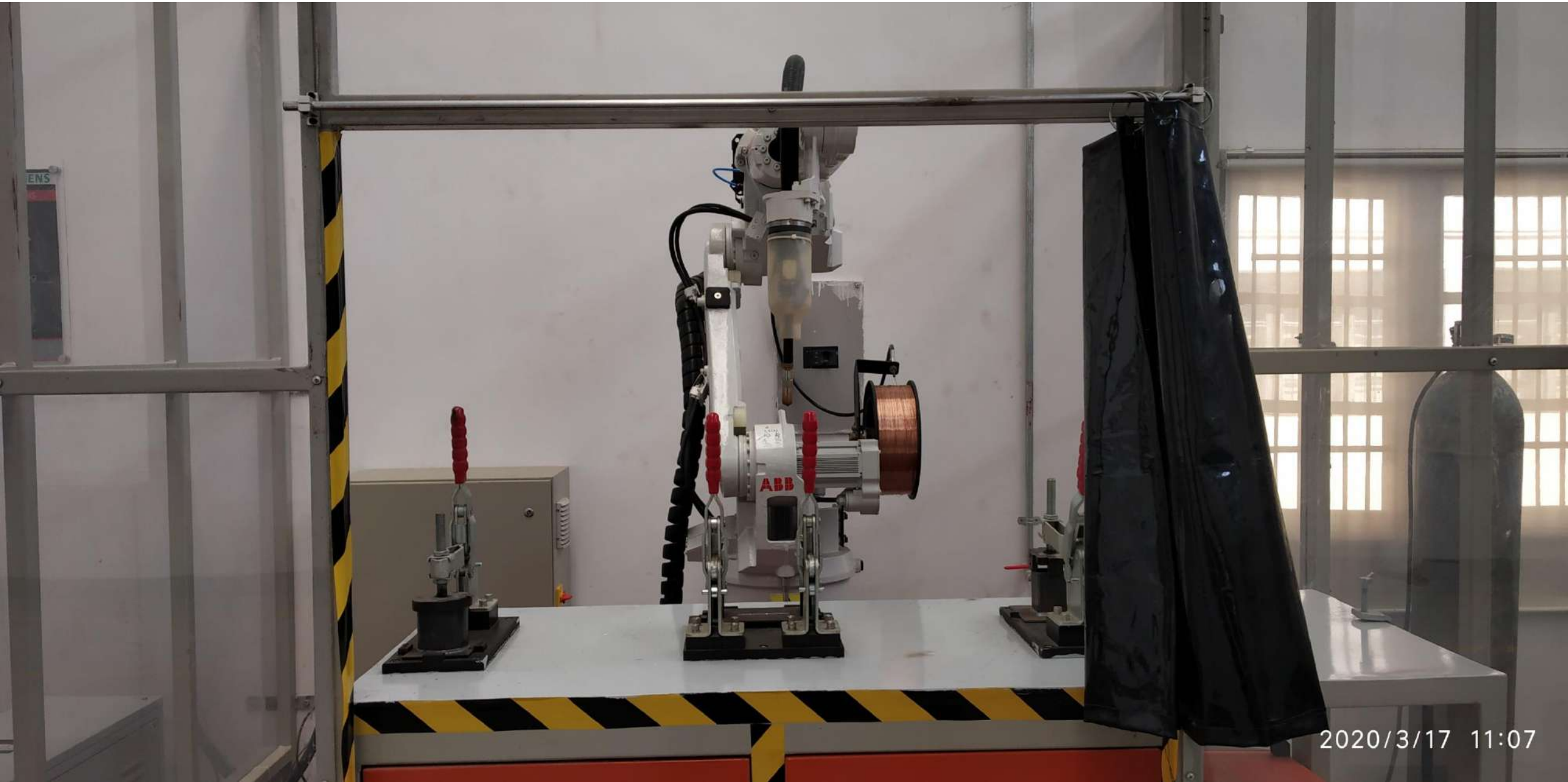
APPLICATIONS

arc welding



ARC WELDING CELL

ARC WELDING ROBOT

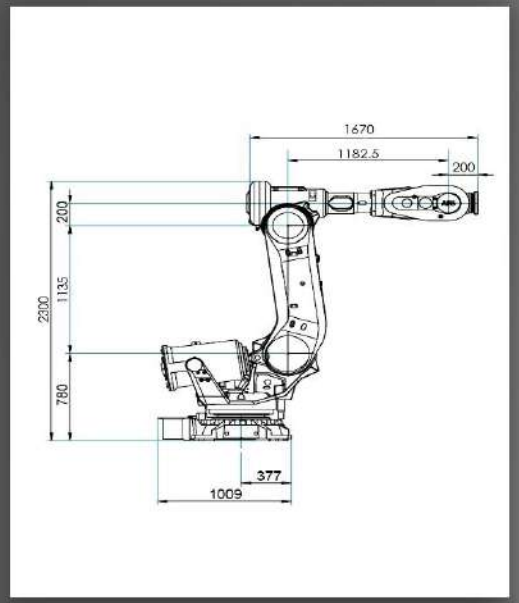


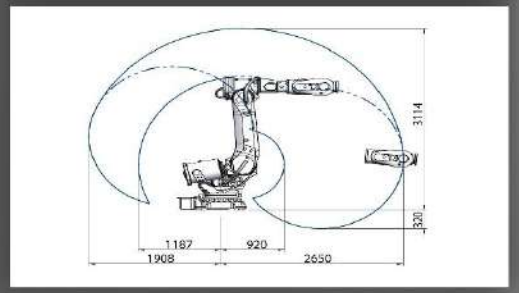
SPOT WELDING CELL

MTC

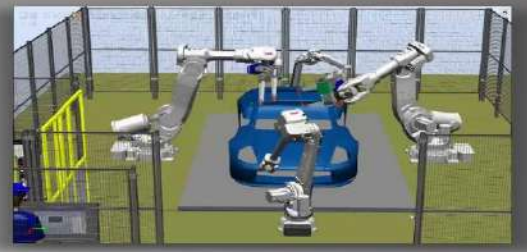
SIEMENS

WORKING RANGE

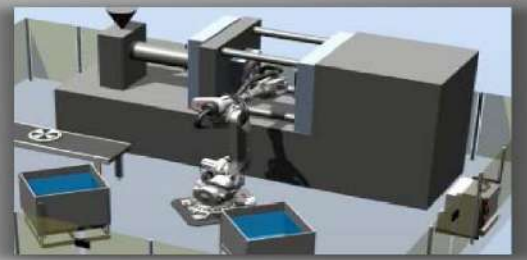




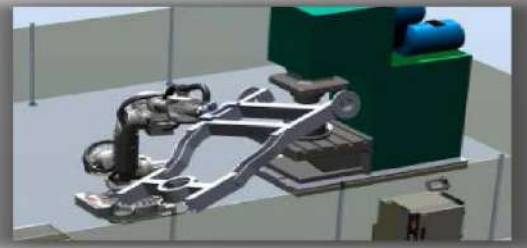
APPLICATIONS



spot welding



CNC machine tending



material handling

SPOT WELDING CELL

SPOT WELDING ROBOT

CNC MACHINE LAB

Course Offered

- CNC Turning Operation - Basic
- CNC Operation Turning
- CNC Milling operation- basic
- CNC Operation Milling

Skill Gained By Students

- CNC Machine Operation, Tool Offset, Wear Offset, Setting of the CNC job, Loading unloading, Daily & Routine maintenance of CNC Machine
- Resolve issues faced in the moving elements of a CNC Machine (with the guidance of a supervisor)

Possible industry/sector the students get employed

- Manufacturing/Production/Fabrication/ Automotive/General Engineering / Any allied industry using CNC Machines

CNC Machine Lab Equipment

CNC TURNING MACHINE

MTC

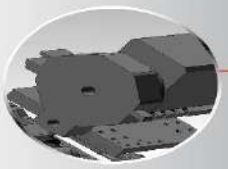
SIEMENS

APPLICATIONS

- Automotive components
- Aerospace components
- Electrical and electronics parts
- Oil and gas spares
- Tool rooms

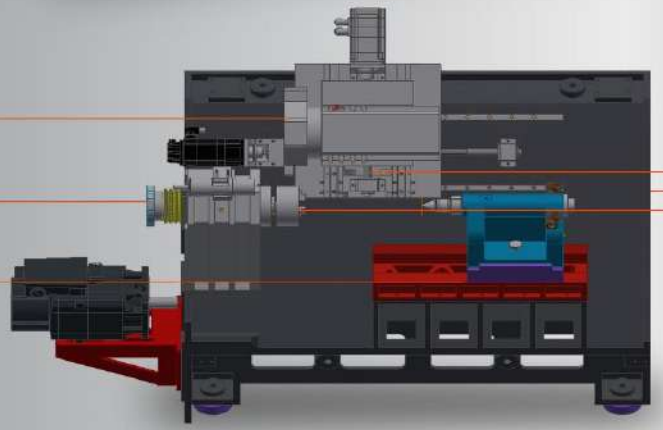
FEATURES

- Monoblock casting
- Cartridge type spindle
- 8 station tool turret
- Siemens 828D control
- C3 class preloaded ball screws


TURRET


SPINDLE ASSEMBLY


TAILSTOCK ASSEMBLY




BALLSCREW ASSEMBLY


BASE


CHUCK

CNC TURNING CENTER

CNC MILLING MACHINE

MTC

SIEMENS

APPLICATIONS

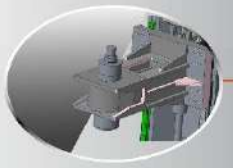
- Automotive components
- Aerospace components
- Defence
- Oil and gas spares
- Tool rooms
- Manifold and valve

FEATURES

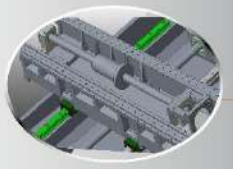
- Heavy ribbed casting structure
- Direct coupled spindle
- Spindle speed of 8000 rpm
- Siemens 828D control
- C3 class preloaded ball screws

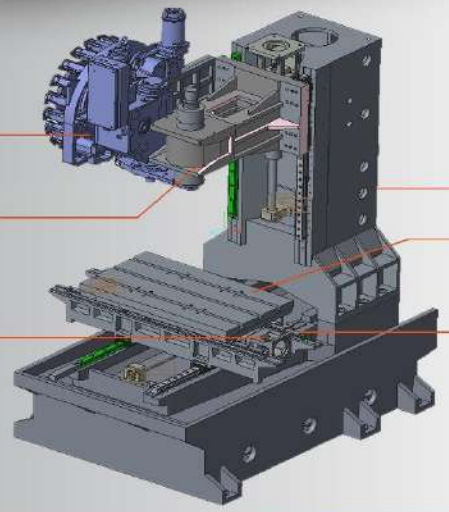
ATC ASSEMBLY

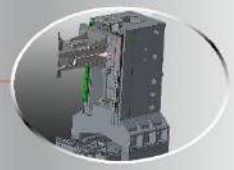
SPINDLE ASSEMBLY



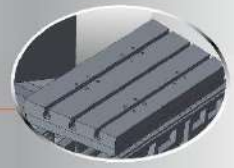
BALLSCREW ASSEMBLY







COLUMN



TABLE

LM RAIL BLOCK

CNC MACHINING CENTER






CNC CONTROLLER LAB

Courses offered

- CNC Programming Turning
- CNC Programming Milling
- CNC Turning Machine Commissioning
- CNC Milling Machine Commissioning

Skill Gained By Students

- CNC programming to certain range of applications
- CNC Machine commissioning, CNC Machine Operation, Tool Offset, Wear Offset, Ability to operate CNC Machine, Setting of the CNC job, Loading unloading, Daily maintenance of CNC Machine, Routine maintenance of CNC machine

Possible industry/sector the students get employed

- Manufacturing/Production/Fabrication/ Automotive/General Engineering / Any allied industry using CNC Machines

CNC Controller Lab Equipment

808D Kit Turning/Milling

840Dsl Simulation Rack Milling

RAPID PROTOTYPING LAB

Course Offered

- 3D Printing Rapid Prototyping

Skill Gained By Students

- 3D Prototyping priniting

Possible industry/sector the students get employed

- Manufacturing
- Production
- Fabrication
- Automotive
- Healthcare

STRATASYS F270

RPT Lab Equipment

STRATASYS F270 PRINTER

AUTOMATION LAB

Course Offered

- PLC Programming - Basic
- PLC Application - Basic

Skill Gained By Students

- Basics of PLC programs – bit logic, set/reset, timer, counter and operators.
- User will able to program various real world applications.
- User will able to program advanced PLC programming tools.
- User will able to program the industrial applications in automation
- User will able to fault finding and troubleshooting the industrial automation systems.

Possible industry/sector the students get employed

- Automotive / Manufacturing/ Automation /Construction / Electrical / Electronics / Heavy Engineering / General Engineering / Process Industries / Power Plant / Oil & Gas Industries

Automation Lab Equipment

SIMATIC S7-1200 & SIMATIC S7-1500 PLC training kits with HMI & WinCC software

SIMATIC S7-1200

SIMATIC S7-1500

PROCESS INSTRUMENTATION

Course Offered

- Basic of Process Instrumentation
- Basic of DCS

Skill Gained By Students

- Selection of transmitters and its applications
- Parameterization of the transmitters
- Design the DCS hardware architecture control panel System
- Advanced level plc Programming

Possible industry/sector the students get employed

- Automotive/Manufacturing/Automation/Electrical/Process Industries

Process Instrumentation Lab Equipment

Process Instruments Kit

PCS7- TRANING KIT

METROLOGY LAB

Course Offered

- Basic of Measurement Instruments
- Advance Measurement Instruments

Skill Gained By Students

- Understanding of geometric structures
- Ability to read drawings with tolerances
- Basic knowledge of metrology.
- Advance measurement instruments

Possible industry/sector the students get employed

- Automotive/Manufacturing/Automation/Electrical/Process Industries

Metrology Lab Equipment

OPTICAL MICROSCOPE

OPTICAL PROFILE PROJECTOR

CMM MACHINE


DuraMax
2020/3/19 15:48


2020/3/19 15:46


2020/3/19 15:46


DuraMax
2020/3/19 15:48

HEIGHT GAUGE INSTRUMENT

RENEWABLE ENERGY LAB

Course Offered

- Solar Power & Photovoltaic System
- Wind Power Generaton System

Skill Gained By Students

Storage of electrical energy produced from renewable resources into batteries
DC Power Circuits

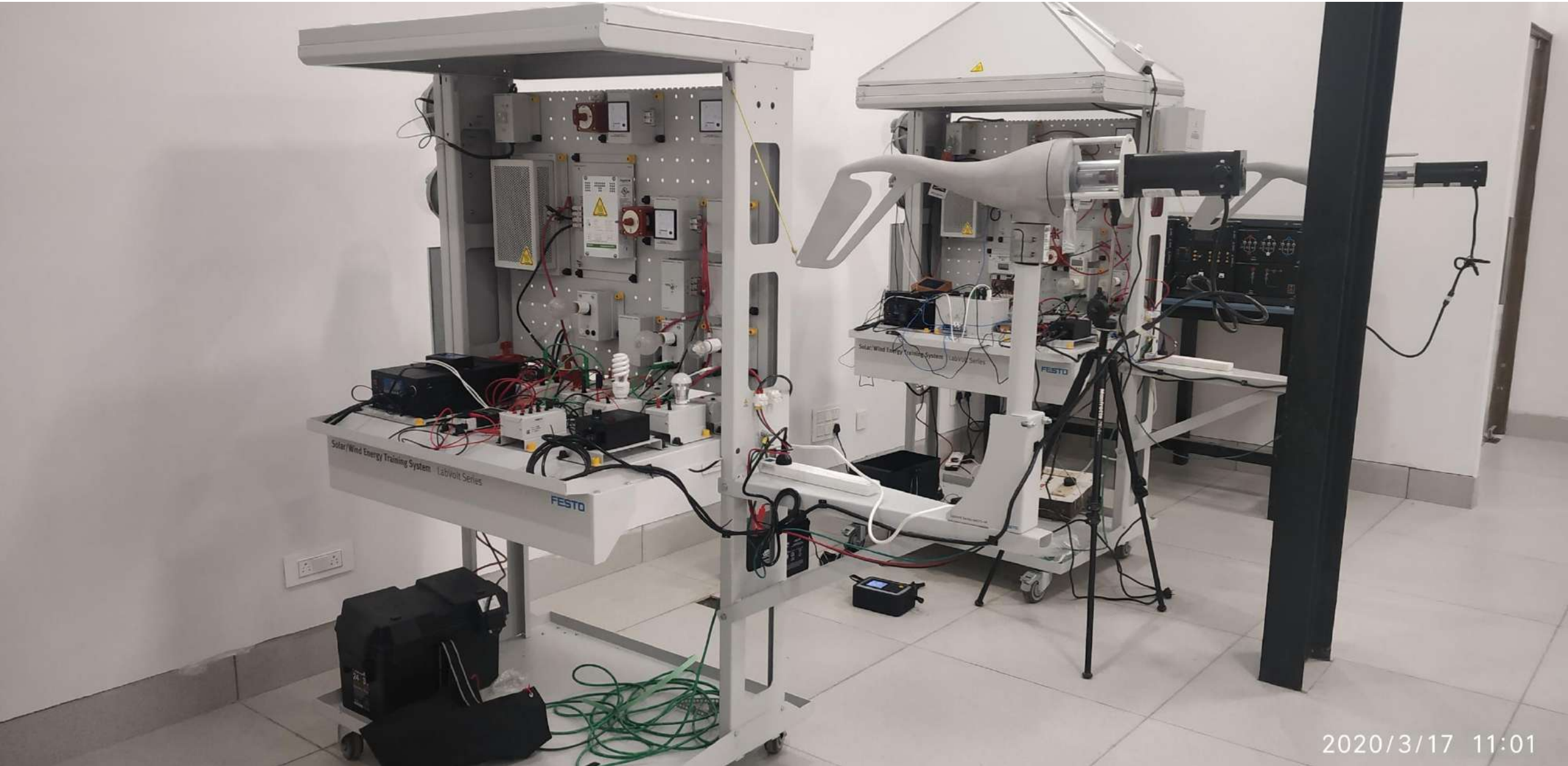
- Lead-Acid Batteries
- Solar Power (Photovoltaic)
- Introduction to Wind Power

Possible industry/sector the students get employed

- Solar Energy Power Plant
- Wind Energy Power Plant

Renewable Energy Lab Equipment

WIND ENERGY KIT



SOLAR WIND HYBRID KIT

SOLAR PANEL TEST BENCH

WIND TURBINE TEST BENCH

ELECTRICAL AND ENERGY SAVING

Course Offered

- LV Switch Gear products, Distribution & Panel
- PAC Meter
- SIMOCODE AC-MOTOR CONTROL
- SINAMICS DC Master 6RA80
- SINAMICS G120 with starter
- SIRIUS Soft Starter

Skill Gained By Students

- Participants are trained on basics of AC & DC Motors, Power Electronics Components, Speed control of AC/DC motors with Drives & Parameterization, Motor maintainance/servicing, Product selection based on application requirement, Diagnostic & troubleshooting strategies.

Possible industry/sector the students get employed

- Power Plant / Oil & Gas Industries
- Automotive / Manufacturing/ Automation
- Construction / Electrical / Heavy Engineering
- General Engineering / Process Industries

Electrical and Energy Saving Lab Equipment

DC Motors & AC Drives Kits with Induction Motors , Timers & Relays Kit

SINAMICS DC MASTER TRAINER KIT

CIRCUIT BREAKER

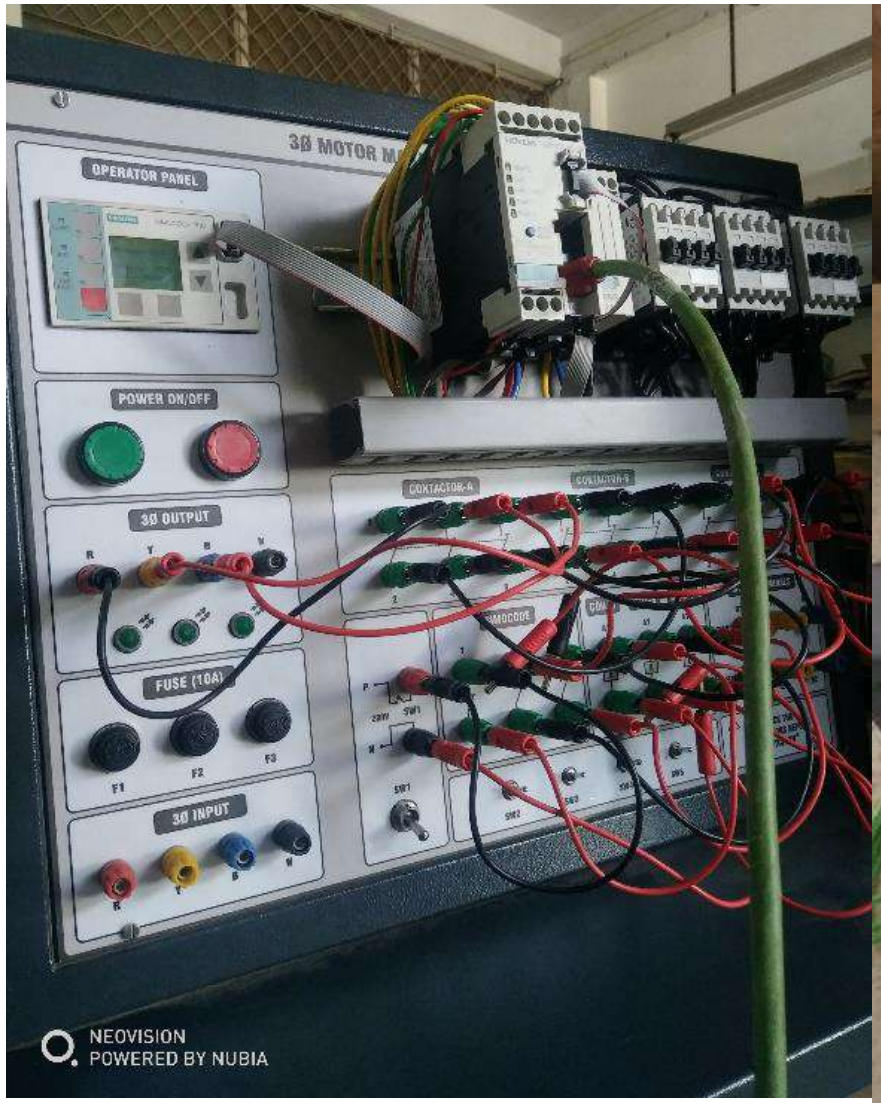
Air Circuit Breaker 3WL

Air Circuit Breaker 3WT

Molded case circuit breaker 3VT

Molded case circuit breaker 3VL

SIMOCODE with PAC Meter and Energy Savings Training Kit



MECHATRONICS LAB

Course Offered

- Basic of Pneumatic
- Basic of Electro Pneumatic
- MAPS (Modular Automation Production System) (Design ,Programming , Operation , Trouble Shooting)

Skill Gained By Students

- Design of MAPS.
- Programming of MAPS.
- Operation of MAPS.
- Trouble Shooting of MAPS.
- Pneumatic, Electro Pneumatic

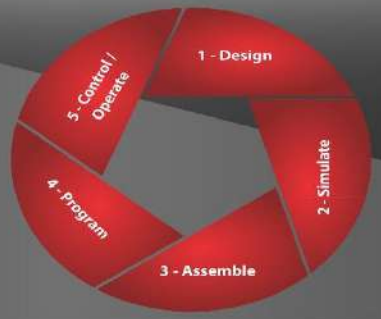
Possible industry/sector the students get employed

- Automotive / Manufacturing/ Automation
- Construction / Electrical / Electronics / Heavy Engineering
- General Engineering / Process Industries
- Power Plant / Oil & Gas Industries.

MTC

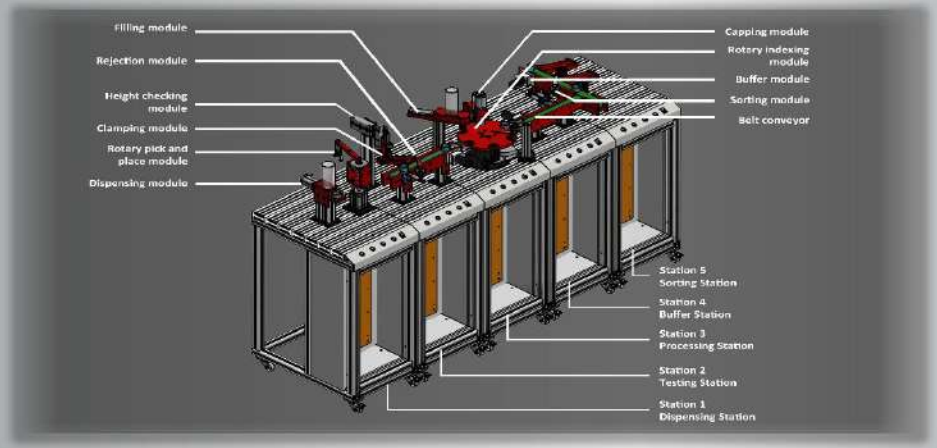
SIEMENS

LEARNING OBJECTIVE



TECHNOLOGY

Pneumatics - **E**lectro-pneumatics - **H**ydraulics
Sensor technology - **E**lectrical and electronics circuits
Motor and drive technology - **C**ontrol technology
PLC programming - **R**obot handling - **Q**uality inspection
Automation concept, design, assembly - **M**aintenance and troubleshooting



MECHATRONICS

Mechatronics Lab Equipment

MODULAR AUTOMATION PRODUCTION SYSTEM

INTERNET OF THINGS (IOT) LAB

Course Offered

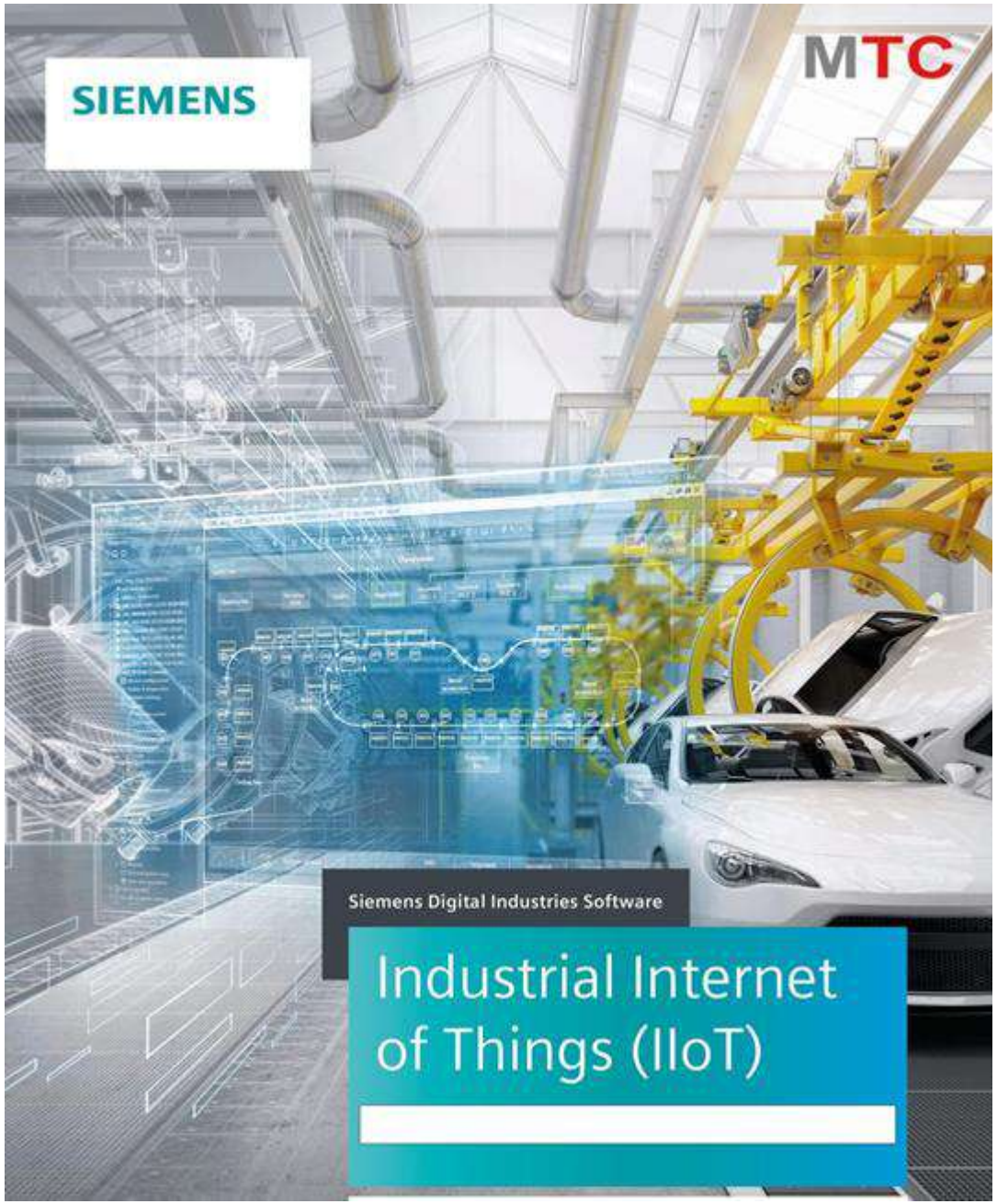
- Basics of IOT
- Mindsphere Platform introduction
- Mindsphere app development basic
- Mindsphere app development Advance

Skill Gained By Students

- IOT Application, IOT Platform, PLC, Hardware, Sensors, Gateways, Configuration of devices and networks, Coding & De-coding, Mindsphere architecture, Mindsphere security concepts, Mindsphere analytics

Possible industry/sector the students get employed

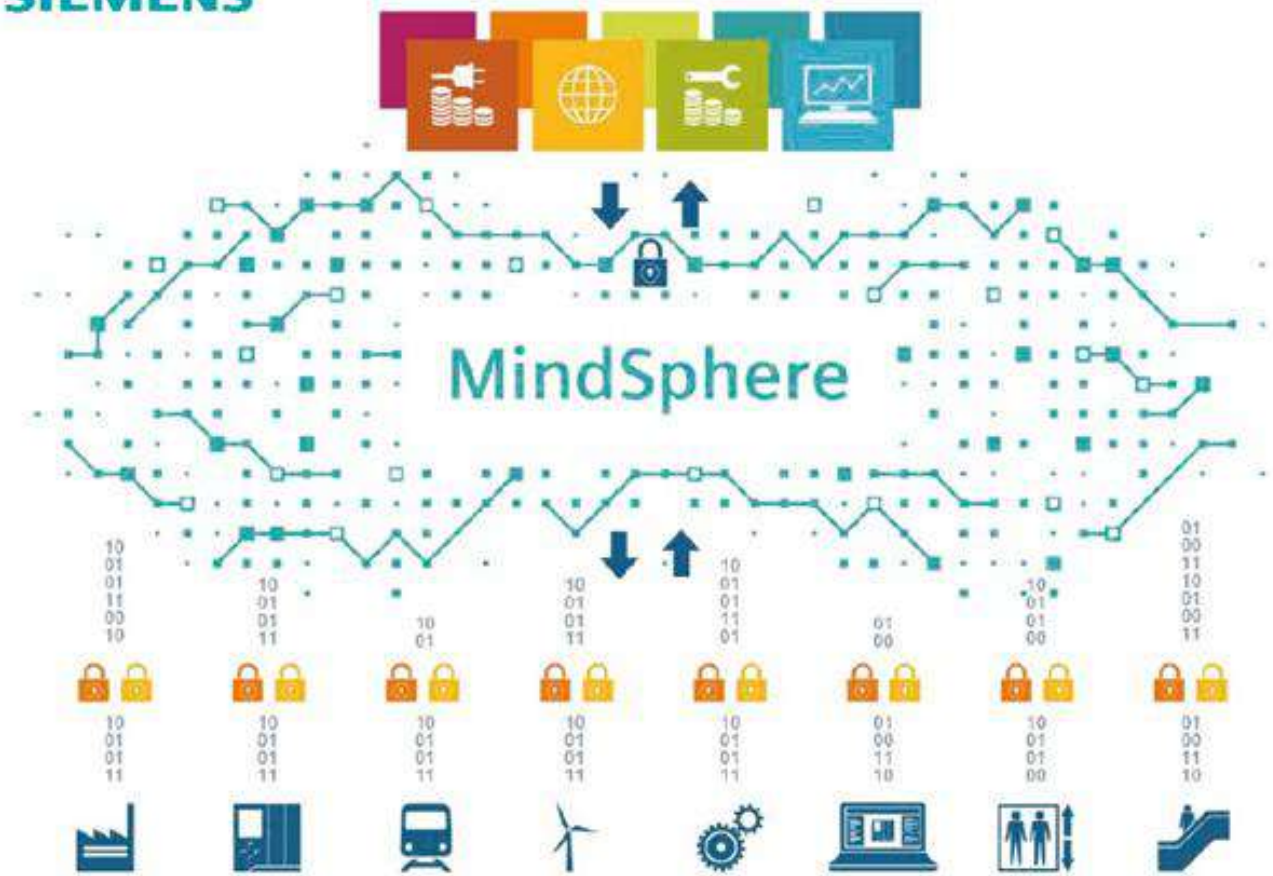
- Robotics, Packaging, Safety & Security, Quality Control, Manufacturing, Healthcare and Energy Sectors



IOT Lab Equipment

Siemens MindSphere Platform

SIEMENS



MTC

Applications

MindSphere applications provide asset transparency and analytical insights into machines, plants, fleets and systems

MindSphere

MindSphere, the open PaaS, gives you scalable, global IoT connectivity and application development with native cloud accessibility

Connectivity

MindConnect connects products, plants, systems, machines, enterprise applications and legacy databases with a secured plug-and-play collection of Siemens and third-party products

NANOBOX


SIEMENS
SIMATIC NANOBOX PC


CFast X50
PC ON/ WD
RUN/ STOP
ERROR
MAINT
USB X60
X63
X61
X62
DPP X70
DC 24V UIA
X80
NEC CLASS 2
COM1 X30
COM2 X31
X1 P1
X2 P1
PN/IE (LAN)
1
2
3