



**ANDHRA PRADESH STATE SKILL  
DEVELOPMENT CORPORATION  
(APSSDC)**



# **SIEMENS**

## **CENTRE OF EXCELLENCE**



Skill Development, Entrepreneurship & Innovation Department (SDE & I Dept.)  
Government of Andhra Pradesh  
Amaravati



## About Centre of Excellence

The SIEMENS Centre of Excellence aim to train Engineering, Diploma students and Faculty on world class Siemens Equipment & Software. The CoE provides training by Siemens certified training partners. CoE benefits student community immensely as they trained on the same Equipment / Software used by Industry. Participants acquire industry best practices through this training. The globally valid Siemens Certification, after completion of training, increases employability.

## Deliverables of SIEMENS Centre of Excellence

- ☑ Impart technical skills, value based education to students, so as to enable them to face the demands of the industry through Industrial Oriented Training with contemporary learning methodologies.
- ☑ Support the academicians who are looking forward to take the advantage of the open up global market and research in the contemporary technology.
- ☑ Benefit the researchers in considerate the industry related problems.
- ☑ Provide a platform for consultancy in various Technological areas such as fields like Mechanical, Instrumentation, Electrical, Electronics & Communication, Automobile and Biomedical Engineering.

## The Objective of SIEMENS Project is to Bridge the Gap Between Institution & Industries

### Weak Education System

- Out dated engineering concepts
- No vocational experience/interaction
- Outdated tools in labs
- Faculty not equipped with industry trends & practices



### Challenges Faced by Industry

- Large investment in time, effort & money to train students
- 6–18 months before recruits become productive
- Affects competitiveness of companies

### SIEMENS Project Initiatives

- Bridge the gap between industry needs and available Skills through industry oriented training
- Enable institutes to improve quality of education
- Provide state-of-the-art tools to match industry standards
- Student Training in Industry skills

## CoE Laboratories

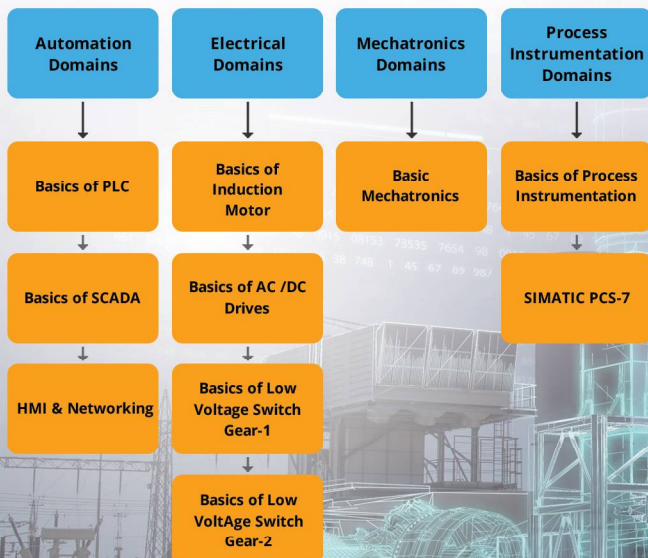
Product Design and Validation Lab	Advanced Manufacturing Lab	Test and Optimization Lab and Workshop	NC Programming Lab	CNC Machine Lab
Rapid Prototype Lab	Robotics Lab	Automation Lab	Electrical & Energy studies Lab	Process Instrumentation Lab
Mechatronics Lab	Lift Installation Lab	Automotive Body Repair Lab	Automotive Paint Lab	

# The Courses Offered in the SIEMENS CoE Laboratories

## Mechanical Domains

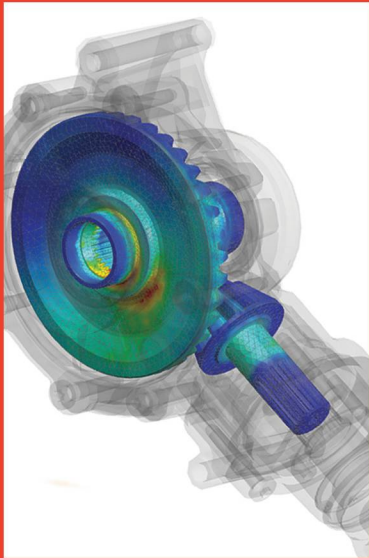


## Electrical & Electronics Domains





## Product Design and Validation Lab



- The course will be modular and scalable with design and engineering solutions.
- It include Multiphysics simulations, static and dynamic stress analysis, computational fluid dynamics (CFD), finite element analysis (FEA), thermal analysis, system-level dynamic analysis and composites analyst.

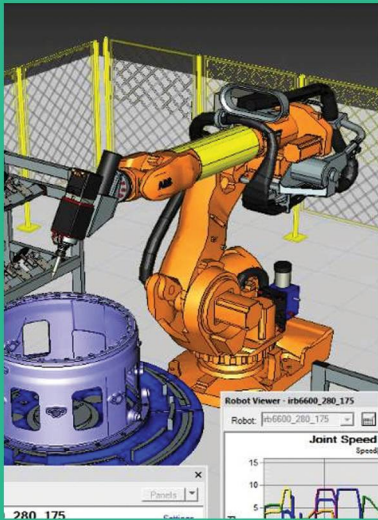
### Modules Offered

- Essentials for NX designers
- Synchronous Modelling and Parametric design
- Intermediate NX Designs and Assemblies
- Mechanical Freeform Modelling
- Project and Practice

### Specialized Modules

- Large Assemblies Management
- Routing Mechanical
- Routing Electrical
- Mold Wizard

## Advanced Manufacturing Lab



- Advance Manufacturing Lab offers courses for manufacturing planning, planning validation via simulation & production interface.
- Digital manufacturing systems allow manufacturing engineers to create the complete definition of a manufacturing process in a virtual environment, including Tooling, Assembly Lines, Work Centers, Facility Layout, and Ergonomics.

### Modules Offered

- RobCAD Basics
- RobCADAdv modelling & Kinematics
- NX CAM Turning Manufacturing Process

### Specialized Modules

- Advanced Simulation Process
- Motion Simulation
- Laminate Composite
- Introduction to finite element analysis with NX

## Test and Optimization Lab



- This Lab offers a unique combination of simulation software, mobile and lab testing systems to address functional performance, Engineering challenges of Manufacturing Industries.
- LMS TestLab offers you a complete, integrated solution for test-based engineering that combines high speed multi-channel data acquisition with a full suite of integrated testing, analysis and report generation tools.

### Special Modules

- LMS Test.Lab Preparatory
- LMS Test.Lab- Signature Testing and Analysis
- LMS Test.Lab - Modal Testing and Analysis
- 1D Simulation Using Imagine.Lab



## NC Programing and CNC Machne lab



- Subtractive manufacturing Process, TURNING-MILLING CNC Programming, Operating & Machining.

### Major equipment/software:

- Sinumerik 808D, Sinumerik 828D, Sinumerik 828D Controllers for both Turning & Milling, 2 Axis TURNING Machine with 8 Tools capable Turret, 3 Axes CNC Vertical Milling Machine with Automatic Tool changer (ATC).

### Modules Offered

- Turning NC Programming
- Milling NC Programming

### Specialized Modules

- Operating and Machining on CNC Turning Machine
- Fixed Axis and Multi Axis Milling
- Operating and Machining on CNC Milling Machine

## Rapid Prototype Lab



- Rapid prototyping is a group of techniques used to quickly fabricate a scale model of a physical part or assembly using three-dimensional CAD data. Construction of the part or assembly is usually done using 3D printing or additive layer manufacturing technology.
- Rapid prototyping is commonly applied in software engineering to try out new business models and application architectures.

### Major equipment

- SST 1200es-3D Printer available for ABS+ Polymer

### Modules Offered

- NX Basic Design & RPT

## Robotics Lab



- Robots play an important role in the manufacturing industry, ensuring that the quality of the product is not compromised and the production volumes are met. In the Robotics Lab, we would be teaching the participants to understand the working principles of a Robot, how to program it and use it to an application.

### Major equipment software

- Robotic Pick and Place Cell,
- Robotic Arc Welding Cell,
- Robotic Spot Welding Cell,
- Rob CAD, ABB Robot Studio simulation and
- Offline Programming Software.

### Modules Offered

- Basic Robotics
- Material Handling Robot
- Arc Welding Robot
- Spot Welding Robot

## Electrical & Energy Studies Lab



- Participants are trained on Induction Motor overhauling, Speed control of AC/DC motors with Drives & Parameterization through Software, Product selection based on application requirement, Diagnostic & troubleshooting strategies.
- Switchgear training kits imparts knowledge on Air Circuit Breakers, Timers and Relay, Soft Starter, Star Delta Starter, Type-II Co-ordination, Intelligent Motor Management, Power Monitoring etc.

### Equipment & Software

SINAMICS G120 AC DRIVE KIT with 0.25 HP motor, SINAMICS DC MASTER DRIVE KIT, Soft Starters, MCCB, ACB, Energy Saving Kit, Type-II Coordination Kit, Timers and Relays, SIMOCODE PRO V, PAC 4200

### Specialized Modules

- Basics of Induction motor
- Basics of LVSG-1
- Basics of LVSG-2
- Basics of AC/DC drives

## Automation Lab



- The Automation Lab imparts skills & knowledge on complete factory automation with PLC, HMI, SCADA and Industrial Communication-Networking.
- Participants are trained on concept of automation, programming of PLC, Screen designing, setting up communication with PROFINET, Diagnostic & troubleshooting strategies.

### Equipment & Software

Siemens S71200 with KTP700 comfort touch panel & S7-300 test kit with TP700 comfort touch panel  
Siemens TIA Portal V13/V14

### Modules Offered

- Basics of PLC
- Basics of SCADA
- Basics of HMI & Networking

## Process Instrumentation Lab



The Process Instrumentation Lab enables Participants to work on Advanced Automation using Distributed Control Systems (DCS) and understanding the working of the various process equipment in Plants.

### Equipment & Software

Magnetic Flow Meter, Mass Flow Meter, Ultrasonic Flow Meter, Ultrasonic Level Transmitter, Absolute pressure Transmitter, Radar Level Transmitter, TH-300 Temperature Transmitter, SIMATIC PCS7, PDM V8.2/9.0

### Modules Offered

- Basics of Process Instrumentation
- Basics of PCS - 7



## Mechatronics Lab



- The Mechatronics Lab imparts expertise in the field of Mechatronics system/process.
- Participants are trained on various Electrical Components, Mechanical Components, Pneumatics & EPneumatics, and Digital Fundamentals troubleshooting Techniques with System Approach. It benefits students from all streams to have cross field knowledge.

## Equipment & Software

Modular Automation and Production System (MAPS 6S), 5 Individual Station of MAPS-6S, Siemens S7-1200 PLC's, Diagnostic Kit 2006, Siemens TIA Portal V13.

## Specialized Modules

- Basics of Mechatronics

## Students Academic Project Guidance

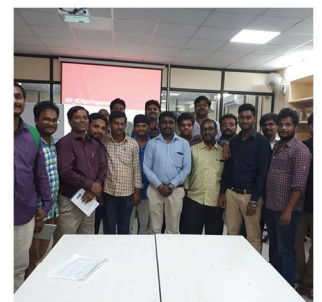
- Students can utilize SIEMENS CoE laboratories for their academic projects in various domains like CAD, CAE, Prototyping, CNC machines, Automation and Electrical and guidance can be given by the domain experts.
- Dedicatedly CoE labs will be allotted for students academic projects in the months of February and March.
- Interested students can register in APSSDC website by 3rd week of January.
- Guidance will be given to the shortlisted projects and screening will be conducted in 4th week of January.
- Further details will be updated to the principals and HODs of the respective colleges.



## Faculty Develop Program (FDP)

The Program will provide excellent opportunity for Faculty of Mechanical, EEE, ECE, Instrumentation, Automobile Engineering.

**Offered Course for FDP :** Basic NX Design and Simulation, Digital Manufacturing and Industrial Robotics, CNC Programming and Machining, Industrial Automation and Electrical & Energy Studies.



## Summer Internship Program (SIP)

To Upgrade skills to international standards through Industrial Oriented Training with SIEMENS learning methodologies and to make participant industry ready upon completion of the course.

The Program will provide excellent opportunity for Students of Mechanical, EEE, ECE, Instrumentation, Automobile Engineering.



## SIEMENS Centres of Excellence in Andhra Pradesh



**Weblink:** <http://engineering.apssdc.in/siemens>



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