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N S I C



JOB ORIENTED TRAINING & TESTING FACILITIES

- ❖ Skill Development Training in the field of Mechanical, Electrical & Electronics, IOT, AI, AR/VR, and IT
- ❖ Pump and Motor Testing
- ❖ Workshop Facility
- ❖ Energy Audit
- ❖ High Precision Calibration Services



NSIC Technical Services Centre, Chennai

The National Small Industries Corporation Ltd.

(A Govt. of India Enterprise)

(Under Ministry of Micro, Small & Medium Enterprises, Govt. of India)



National Small Industries Corporation Ltd.

राष्ट्रीय लघु उद्योग निगम लिमिटेड

Facilitating the Growth of Small Enterprise since 1955

१९५५ से लघु उद्योगों के विकास लिए प्रयासरत

INTRODUCTION TO NATIONAL SMALL INDUSTRIES CORPORATION

National Small Industries Corporation Ltd. (NSIC), is an ISO 9001-2015 certified Government of India Enterprise under Ministry of Micro, Small and Medium Enterprises (MSME). NSIC has been working to fulfill its mission of promoting, aiding and fostering the growth of small industries and industry related micro, small and medium enterprises in the country. Over a period of five decades of transition, growth and development, NSIC has proved its strength within the country and abroad by promoting modernization, upgradation of technology, quality consciousness, strengthening linkages with large medium enterprises and enhancing exports - projects and products from small enterprises. NSIC operates through countrywide network of offices and Technical Centres in the Country. In addition, NSIC has set up Training cum incubation Centre & with a large professional manpower, NSIC provides a package of services as per the needs of MSME sector

NSIC TECHNICAL SERVICES CENTRE, CHENNAI:

The NSIC- Technical Services Centre (NTSC), Chennai established in the year 1976 for the support of existing and aspiring entrepreneurs of MSME Sector in Southern region by providing skilled manpower and testing services through its various skill development training programs and testing facilities in the area, Motor, Pump and engine etc which are NABL accredited and BIS recognized. The centre also provide support to MSME sector through its various commercial schemes like SPRS, Infomediary etc besides carrying out energy audit services as being one of the certified authorized auditor to carry out energy audit by Government of India under Ministry of Power.

SERVICES PROVIDED AT NSIC TECHNICAL SERVICES CENTRE CHENNAI

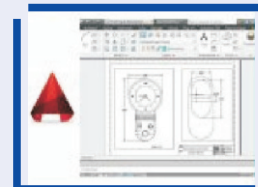
NSIC - Technical Services Centre (NTSC), Chennai offers to provide the following services with customer satisfaction.

TECHNICAL TRAINING:

The Technical Services Centre, Chennai is engaged in providing services to MSME Sector by providing skilled manpower through its various training programs which are tailor made considering the need of industries of the region which is dominated by machine tools, pump manufacturing, auto component etc in the area of CAD / CAM. CNC, Work shop technology, electrical, electronics, computers etc. We also Impart training to non technical areas considering the need of MSME Sector of the region in the area of Packing Technology, bakery products etc. The course content of each training program is designed in such a way so as to give maximum practical exposure through practical training to the trainees. Also course content are carefully designed in consultation with various representatives of various industry associations to meet the need of industry.

1. CAD USING AUTO CAD:

Basic Concepts of AutoCAD Create file, Open file, Save file, - Introduction to AutoCAD Layout Co-ordinate System, Line, Snap-Sketching - Using the basic Entities & Modifying Tools (fillet, chamfer) - ISOMETRIC drawings by concept of changing planes.



2. CAD USING CATIA/SOLID WORKS/CREO/NX (UG):

Basic Concept of CAD Software Sketcher Dimensioning - Sketch Tools Constraints and Dimensions - 3D Modeling using (Extrude, Revolve, Fillet, Chamber, Extruder cut, Revolve Cut) Assembly Models - Drawing, Basics, Creating Drawing with Model Views.



3. CAD & CAM USING MASTER CAM:

Basic of Master CAM Modules - Basic Concept of CAD & Technical Drawing. Introduction to CAM, Machine Selection, Job setup and Tool definition / Type of Tools Introduction to Lathe - Turning Operations, Milling Operations and NC Code.



4. CNC WITH CAD / CAM

Basic Concept of CAD & Technical Drawing -Introduction to CAM, Machine Selection, Job setup and Tool definition / Type of Tools Introduction to CNC Turning / VMC G Code & M Codes - Tool Offset, Zero Offset Programming, Calculation of Cutting Speed - Canned Cycles - Drilling -Tapping - Boring - Turning.



5. CNC MACHINING TECHNOLOGY (Turning & Milling in Fanuc System):

Introduction to CNC Technology - G & M Codes - Tool Offset, Zero Offset - Part Programming - Calculations of Cutting Speed - Canned Cycles - Drilling - Tapping - Boring - Turning.



6. RAPID PROTOTYPING (3D PRINTING) WITH ONE DESIGN SOFTWARE:

Basic Concepts of 3D Modeling - Introduction of Reverse Engineering - Basic Concepts of 3D Printer - Interfacing Software of 3D Printers (Idea Maker) - Creation of Templates - Printing Models Using Printer.



7. REVERSE ENGINEERING TECHNIQUES USING 3D SCANNER (NEXT ENGINE):

Basic Concepts of Reverse Engineering - Introduction of Scan Studio & Next Engine - Next Engine Parameters - Scanning Techniques - Merging of Points Obtained.



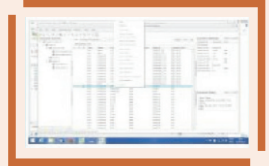
8. INTERNSHIP / INPLANT TRAINING:

Introduction & Basic Concept of CAD - Part Modeling (2D & 3D) - Rapid Prototyping (3D Printing) - Reverse Engineering (3D Scanning) - Workshop Visit.



1. E-CAD:

Autocad Electrical - Migration - Project Management - Drawing and Project Properties - Circuits / Tools - Terminal Tools - Assigning Template - Panel Layout - Domestic Wiring System.



2. PLC WITH INDUSTRIAL APPLICATION (ANY TWO PLCS):

AB PLC - Types of Timers - Counters - Comparator and its types - Jump - MCR Subroutine - Siemens PLC - Timers - Counters - All types of Comparators - Interrupt - Integer Math - For next instructions.



3. CERTIFIED PLC PROGRAMMER (ANY THREE PLC WITH SCADA):

AB PLC Programming Steps - Types of Timers - Counters - Comparator and its types - LIFO - FIFO - BSL - BSR - Sequential Instructions - FANUC PLC - Fanuc timers and counters and comparators - Range comparators - Bottle Filling and batch process - DELTA PLC - Basics - Timers and Counters - Interfacing with HMI - SCADA - Interfacing with PLC - Symbols - Discrete and Real time Components.



4. CERTIFIED AUTOMATION ENGINEER (PLC, SCADA WITH HMI)

AB PLC - Types of Timers - Counters - Comparator and its types - LIFO - FIFO - Sequential Instructions - Siemens PLC - Timers - Counters - All types of Comparators - SCR for next - Interrupt - GEFANUC PLC - Programming FBD and STL Methods - DELTA PLC - Programming steps - Interfacing - HMI - SCADA.



5. SOLAR PHOTO VOLTAIC DESIGN AND INSTALLATION:

Solar Power Production - Photoelectric effect and types of solar cells - Panel orientation - Design off grid A.C. SPV System - Installation Procedures.



6. SERVICING & MAINTENANCE OF UPS & INVERTER:

Basic Electronic Components & Circuits - Soldering and Desoldering Techniques, Design of Circuits - Electrical Measuring Instruments - Inverter Selection - Battery - UPS Common Faults in Inverter - BOM Generation - MOSFET Basics - Trouble Shooting.



7. REFRIGERATION & AIR CONDITIONING:

Tools & Components - Vapour Compression System - Gas Filling - Compressors testing - Relay Testing - Capacitor - Installation of Split AC - Refrigeration testing - Faults - Leakages arresting - Servicing - Bracing - Electrical Connection.



8. E-VEHICLE:

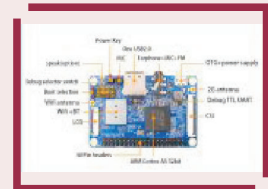
IC Engines and Electric Vehicles - BMS - Thermal Management - Charge Port Types - Introduction about PROTEUS and ARDUINO Software - Sensor BLDC Motor controller with ARDUINO Project - E-Bike Assembling - Assessment

OTHER PROGRAMS

- ❖ In Plant Training
- ❖ Mini Projects
- ❖ Final Year Engineering Projects
- ❖ Workshops / Seminars
- ❖ Industrial Visit
- ❖ Apprenticeship Training

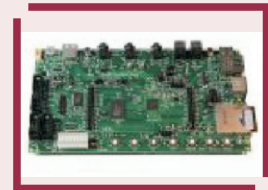
1. Embedded Design using RTOS / Wireless Mobile Network / Artificial Intelligence

Embedded Fundamentals - Microcontroller - Embedded C Programming - 8051 / PIC / ARM Cortex / Arduino - Keil - Interfaces - GSM / GPS / Bluetooth / Zigbee - RTOS - Communication Protocols - UART - LCD, LED.



2. VLSI Design & Implementation:

Analog and Digital Communication - Signals & Systems - VHDL Programming - Real time applications Simulation - MODELSIM - Verification - XILINX Verification - Implementation FPGA - CPLD - Hardwares - Design of Project Result Verification - TEST Procedures - Reporting.



3. Internet of Things / Robotics using Arduino / Raspberry pi:

IOT Introduction and Architecture - Sensors & Actuators - IOT Communication Protocol - Web Services - Cloud Computing Session - Visual Analytics - IOT Product Design - End - to - End Application.



4. Laptop / Cell Phone Servicing:

Laptop / Cell Phone, Peripherals - Motherboard - Adapter, Battery-LCD / TFT / LED / CCFL - Inverter - Ram Keyboard / Touchpad - Assembling Laptop Hinges Replacement - Inverter & LCD Replacement - Battery - Troubleshooting.



5. PCB Design and Electronic Assembly:

Basic Electronics - Components - Soldering - Desoldering - Multimeter - Oscilloscope - Testing of Circuits - Power Supply Unit - Timer - PCB - Software Design Fabrication.



6. MATLAB (Image of Signal Processing):

Image Processing - Image types - Intensity Transformation - Filtering Images - Smoothing and Sharpening - Morphological Segmentation Application.



7. 3D Animation & Multimedia:

Character Designing - Background Scenery Drawing - Animation Expressions - Animation Actions - Squash and Stretch - Anticipation - Staging - Straight Action - Post-to-Pose - Follow-Through - Overlapping action.



8. Data Acquisition Using Labview:

VI and parts of VI - Front Panel - Block Diagram - Front Panel Design - While Loops - For Loops - Case Structures - Sensors - How to Acquire Data from Sensors - Sub Vis.



1. ANDROID APPLICATION DEVELOPMENT :

Android Architecture - UI Design - Activity Lifecycle - Intents - Fragments - Services - Menus - Shared Preferences.



2. ADVANCED NETWORKING USING CISCO ROUTER :

Network types & Topologies - DNS / DHCP - CISCO Hardware and Software - VLSM - FLSM - NAT - WAN Technology - CISCO Switches - Layer 2 Switching - IPV6 - Troubleshooting.



3. PYTHON :

Functions - Advanced data Structures - GUI Programming - CGI Scripting - Advanced Graphics - Networking - Iteration - Debugging Tools - Objected Oriented Programming.



4. BIG DATA HADOOP :

Hadoop Architecture - Modes in Hadoop - Hadoop HDFS Commands - Map Reduce Framework - Hive Introduction - Data Types in Hive - Commands in Hive - SQOOP - Hbase Storage Technique.



5. CORE JAVA / DOT NET :

OOPS Concepts - Polymorphism - Inheritance - Encapsulation - Packages & Interfaces - Strings - Java JDK, IRE - Compiler - Garbage - Java Statement - Arrays & Control Structures - I/O Streams & File Operations.



6. COMPUTER HARDWARE MAINTENANCE & NETWORKING :

Computer Peripherals - Motherboard - Display - HDD/CDD - Monitor - Keyboard, Mouse - Assembling - Hard Disk Partitioning - OS Installation - Networking - OSI Layers - TCP/IP - Peer to Peer - Server Based - VLAN - WAN - Troubleshooting.



7. WEB DESIGNING :

Introduction to Web Technology - HTML - Tags - Forms - CSS Types - Selectors - Properties form Designing - JS.



8. CLOUD COMPUTING :

Enabling Technologies - System Models for Cloud Computing - Infrastructure / Platform / Software - Public Cloud, Private Cloud and Hybrid Clouds - Cloud OS - Cloud Architectures - Scalability, Performance, QoS - Data Centers Security.



9. MICROSOFT OFFICE & INTERNET :

Word - Excel - PowerPoint Shortcuts - Advanced Techniques - Internet Connection - Troubleshooting.



MACHINE AVAILABLE FOR JOB WORK

CNC MACHINING CENTRE

BFW MAKE

Model No.	: Agni-BMW 45TC24-OiMC
Speed	: 60-8000 RPM
Spindle Motor	: 7.5 KW
Table Traverse	: 600 x 450 x 500 mm
Table	: 900 x 450 mm BT-40

CNC LATHE ACE MAKE

Model No.	: LT-20c CLASIC OiTC
Spindle Speed	: 50-3000 RPM
Spindle Motor	: 15 KW
Hydraulic Chuck Dia	: 254 mm
Turret	: 8 Station



HORIZONTAL BORING MACHINE

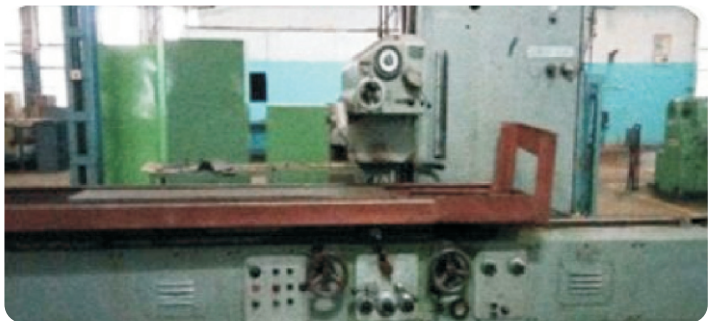
HMT AZ-9 & AZ-11

Spindle Dia	: 110 / 90 mm
Table Size	: 1200 x 900
Table Traverse	: 1570 x 1170 x 1370
Max Weight Admitted	: 4000 Kg



SURFACE GRINDING SFW-2

Table Size	: 1500 x 250 mm
Traverse: LxCxV	: 1650 x 320 x 400 mm
Safe Weight	: 300 Kg



RADIAL DRILLING HMT RM-61

Drilling Dia : up to 60 mm



NSIC Technical Services Centre, Chennai is in the field of Pump & Motor Testing since 2016. The Laboratory is NABL & BIS accredited to serve the testing requirements of Pump & Motor manufacturers across India. More than 2000 No's of Pumps, Motors has been tested so far covering customer all across in the India.

Pump and Motor Testing as per Bureau of Indian Standard & NABL Accreditation

• Centrifugal pumps	IS-6595	Up to 110 KW
• Submersible pumps	IS-8034	Up to 110 KW
• Open well submersible pumps	IS-14220	Up to 110 KW
• Mono block Pumps	IS-9079	Up to 110 KW
• Engine Mono set	IS-11501	Up to 110 KW
• Regenerative Self priming Pump	IS-8472	Up to 3.7 KW
• Submersible Motors	IS-9283	Up to 110 KW
• Induction Motors	IS-12615	Up to 110 KW
• Single-phase A.C. Industrial Motors	IS-996	Up to 3.7 KW



Submersible Pump Set
Up to 110 kw



Submersible Motor
Up to 110 kw



Three Phase
Induction Motor
Up to 110 kw



Regenerative Pump
Up to 3.7kw



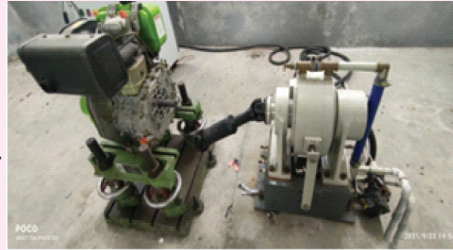
Openwell Submersible
Pump Set
Up to 110 kw



Electric
Monoblock Pump
Up to 110 kw

NSIC Technical Services Centre, Chennai has been created a new vertical for testing of Constant Speed Spark Ignition Engine for general and agricultural purpose as per IS:7347 to serve the testing requirements of small Diesel/Petrol Engine manufacturers across India. Our lab having testing capacity up to 5KW with 12Nm Eddy current Dynamometer.

- ❖ Eddy current Dynamometer , Model E-5 HS 'LC' with Load cell type Weighing Mechanism
- ❖ Dynamometer controller DLC 2000 with suitable control transformer.
- ❖ Calibration kit Including set of weights for checking calibration up to 4kg.
- ❖ Universal Engine mounting test bed type T-5. Cardan Shaft and guard
- ❖ K type Thermocouple
- ❖ PT-100 sensors
- ❖ Temperature Indicators
- ❖ Instrument cabinet 25U height X 600 deep.
- ❖ Magnetic strainer for E-5 HS LC Dynamometer



TESTING CAPACITY

IS:7347 0.5KW to 1.5KW

- ❖ Performance Test for 9 Hours
- ❖ Type Test for 100 hours

IS:7347 1.6KW to 3.5KW

- ❖ Performance Test for 9 Hours
- ❖ Type Test for 100 hours

IP TESTING

NSIC Technical Services Centre, Chennai has been created a new testing As per the IS:12615-2018 of Energy Efficiency Motor as a part of testing called "Degree of Protection Provided by Enclosures for Rotating Electrical Machines" as per sub clause IS:4691-1985 it is mandatory to test all the motor samples as per IS standard. The focus of IP testing Means "Ingress Protection testing, IP testing, determines a product's susceptibility to solid particle ingress (sand or dust) as well as water ingress.

IS:4691-1985 Degree of Protection Provided by Enclosures for Rotating Machinery for IP No. – 1, 2, 3, 4, 4K, 5, 6, 6K)

1. Chamber size : 2000mm x 2000mm x 2000mm (SS 316, 2mm)
2. Stand SS304, 3mm thick
3. Water tank 400lit capacity (Sintex Tank)
4. Spray Nozzle
5. SS Pipe
6. Solenoid valve – 3 Nos.
7. Centrifugal pump 3HP
8. Digital Pressure Indicator
9. Rota Meter
10. Caster wheel – 4Nos. with Lock
11. S.S. Float inlet water line
12. Electronic float safety device
13. PLC with HMI
14. Pipe fitting, union, Elbow & Gate valve



We provide the following services for the benefit of industries and other as given below.

- ❖ Electrical Energy auditing for industries/Building.
- ❖ Study of Demand Side Management
- ❖ Study of Harmonics level to avoid EB penalty.
- ❖ Study of motor Insulation & Resistance
- ❖ Study of Earthing & Neutral
- ❖ Performance study of compressor.
- ❖ Performance study of Motor and flow measurement in pump.
- ❖ Power factor correction for all process & Welding industries.
- ❖ Study of lighting as per BEE standard.
- ❖ Performance study of AC including chiller plants.
- ❖ Recommendation for Energy conservation Technique



We also executed the following works to Govt Departments like

- ❖ Energy conservation study conducted for Karur, Dindugal and Sivagangai Districts with the approval of District Collectors
- ❖ Energy Auditing was conducted successfully for Govt Building in Pondicherry
- ❖ Energy Audit Study was successfully completed in all major southern region airports of INDIA through M/s. Airport Authority India.
- ❖ Energy Audit study has been completed successfully for NIWE.
- ❖ Study of pumping station by using “ULTROSONIC FLOW METER” for Chennai corporation Pondicherry.
- ❖ Study of sewage water lines for Department of sewage, Chennai
- ❖ Study of Flow measurement carried out for Jharkand state water supply project, BMRCL.
- ❖ Study of pumping station in Davangere Water Supply scheme, Karnataka
- ❖ Demo Projects on Energy Conservation.

We also conducting skill training on ENERGY CONSERVATION by way of WORK SHOP , SEMINARS and creating more awareness about energy conservation for the benefit of industries and young Entrepreneur.

OUR ESTEEMED CUSTOMERS :



We are pioneers in the field of calibration for more than 10 years and recognized by reputed Government organizations such as ISRO, DRDO, BHEL, HAL, etc. NSIC-Technical Services Centre, Chennai is the one of the longest serving NABL Accredited Calibration Lab for MSMEs Since 2008. Growing along with MSMEs support in the southern region. In the year 2020, we had modernised our calibration lab with latest High Precision Electrical Standards / Masters and established State of art facility, first of its kind in Tamil Nadu under Electro-technical scope. Also got NABL Accreditation with Certificate No.CC-2011

Mechanical Laboratory Scope :

- ❖ Pressure-Hydraulic & Pneumatic [Dial, Digital Pressure Gauges/ Indicators, Pressure Transducers and Pressure Transmitter] | (0 kg/cm² to 700 kg/cm² - best CMC 0.058% rdg.)



High Precision Electrotechnical Laboratory

- ❖ DC Voltage-(2.36 PPM)
- ❖ AC Voltage (24.5 PPM to 30.81 PPM)
- ❖ DC Current-(4.63 PPM to 4.66 PPM)
- ❖ AC Current (20.63 PPM to 21.16 PPM)
- ❖ Frequency-0.05PPM
- ❖ Resistance -(4.66 PPM to 5.20 PPM)
- ❖ Power AC/DC - (0.03 % to 0.07 %)
- ❖ Phase Angle/PF - (0.002 PF to 0.0006 PF)
- ❖ Oscilloscope - (0.003 % to 0.002 %)
- ❖ Capacitance - (0.31 % to 0.41 %)
- ❖ Temperature Simulations - All types



Thermal Laboratory Scope

- ❖ Temperature sensors (RTDs, Thermocouples and Thermistors) with / without indicator / controller, Temperature Gauges, Temperature Baths and oven -25 °C to 1400 °C | our CMC 0.46°C to 4.4°C



OUR ESTEEMED CUSTOMERS :



at the heart of forging

The Centre has been showing continuous growth in past years.

All the departments in the Centre are connected with internet connectivity. As a result, the activities like inquiry handling, admission of trainees, I-Card Printing, Result Updation, Certificate Printing and post-training status is done through computer network using a software.

In addition, the Centre is having linkages will academic institutions to invite their students for Entrepreneurship Orientation Programme in the Centre

LOCATION MAP



For further Details of Training Programmes / Common facility Services, Please Contact



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(A Govt. of India Enterprise)

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