



सत्यमेव जयते

Government of India
Ministry of Skill Development & Entrepreneurship
Directorate General of Training
Regional Directorate of Skill Development and Entrepreneurship



भारत सरकार
कौशल विकास एवं उद्यमिता मंत्रालय
प्रशिक्षण महानिदेशालय
कौशल विकास और उद्यमिता के क्षेत्रीय निदेशालय



இந்திய அரசு
திறன் மேம்பாட்டு மற்றும் முனைவோர் அமைச்சகம்
திறன் மேம்பாடு மற்றும் தொழில்முனைவு பிராந்திய இயக்குநரகம்

NATIONAL SKILL TRAINING INSTITUTE

GUINDY, CHENNAI - 600032



TRAINING BROCHURE

2023 - 2024

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The **DIRECTORATE GENERAL OF TRAINING** is the apex organization for development and co-ordination at National level programmes relating to vocational training including Women's Vocational Training and Employment Services. Industrial Training Institutes are under the administrative and financial control of State Governments or Union Territory Administrations. DGT also operates Vocational Training Schemes in some of the specialised areas through field institutes under its direct control. Development of these programmes at national level, particularly in the area concerning common policies, common standards and procedures, Training of Instructors and Trade Testing is the responsibility of the DGT.

NATIONAL SKILL TRAINING INSTITUTE, Chennai was established in 1968 under the aegis of Directorate General Training (DGT), Ministry of Skill Development and Entrepreneurship, Government of India, New Delhi with the assistance from United Nations Development Programme (UNDP) / International Labour Organisation (ILO) to impart training and updating the skills of Engineers / Supervisors / Technicians / Executives of Industrial personnel & faculties of educational institutions through courses of short duration conducted in modules and Tailor made courses as per the specific needs of their Industries / Govt Estt. / PSUs / Technical Institutions. The courses are conducted for higher skill upgradation through intensive skill oriented training by using the latest version of equipment and machinery used in industry.



VISION

NSTI Chennai provides innovative, effective and integrated training opportunities for people who need new skills to enjoy the dignity that comes with employment, independence and self reliance.

MISSION

To continuously hone the skills of industrial workforce for higher productivity bridging the gap between academics and industries for suitable placement for young generation in technical fields.

ADVANCED VOCATIONAL TRAINING SCHEME(AVTS) -SHORT TERM COURSES

1. Short-term course of 2-4 weeks duration in engineering areas are envisaged / being implemented in the NSTIs.
2. Special Course duration can be extended up to 12 weeks also.
3. Courses on skill upgradation / enhancement can also be arranged in basic engineering orientation and foundation in core engineering disciplines in viz., fitting, carpentry, plumbing, electrical and electronics sector.
4. The said programme will benefit Engineering / ITI / Polytechnic students and also serving industrial personnel in order to get acquaintance of basic engineering skill and practice.

ELIGIBILITY CRITERIA

FOR REGULAR COURSES

Degree in Engineering/Diploma/NAC/NTC
Qualification can be relaxable for Industrially Sponsored Candidates having Industrial Experience.
ITI Final year students .

FOR TAILOR MADE COURSES

Qualification can be relaxed in deserving cases.
Fully at the discretion of the Regional Director.

FEE STRUCTURE

FOR REGULAR COURSES (Period up to 12 Weeks)

Candidates sponsored from medium and large-scale Industries in both Public and Private sector.	Rs. 2000/- per Trainee per week
Candidates sponsored from Small Industries and Private candidates	Rs. 1000/- per Trainee per week
Candidates nominated by Government Departments like Railways, Defence etc.	Rs. 1250/- per Trainee per week
Candidates sponsored from Educational Institute like Polytechnic / Engg.college & other related Technical Institutions etc.	Rs. 1000/- per Trainee per week

FOR TAILOR MADE COURSES/ SPECIAL ADVANCED LEVEL COURSES

Candidates sponsored from medium and large-scale Industries in both Public and Private sector.	Rs. 4000/- per Trainee per week
Candidates nominated by Government Departments like Railways, Defence etc.	Rs. 2500/- per Trainee per week
Candidates sponsored from Educational Institute like Polytechnic / Engg. College & other related Technical Institutions etc.	Rs. 2000/- per Trainee per week

OTHER FEES

1. Application Cum Registration fees	Rs. 100/- per Trainee per Course
2. Hostel Rent fees	Rs.100/- per day per participant in case Hostel Accommodation is Required
3. Gymkhana Fees	Rs.10/- per Course for Regular Courses Rs.15/- per course for the Tailor-made courses
Payment of fees (Excluding Gymkhana Fees) should be made by the way of crossed DD in favour of "PAO, MSDE -CHENNAI" payable at CHENNAI. Gymkhana Fees should be paid in Cash only.	

NOTE

- ♦ The Regional Director/Principal reserves the right to cancel or postpone a scheduled programme course without assigning any reason.
- ♦ In the event of any closed or declared holiday, the programme/course will commence on the next working day and conclude on the last working day of the schedule.

ADVANCED WELDING

Name of the Course	Course Code	Duration	Regular Course Schedules			
			Apr 2023 – Jun 2023	Jul 2023 – Sep 2023	Oct 2023 – Dec 2023	Jan 2024 – Mar 2024
MIG/MAG WELDING TECHNIQUES AND ITS APPLICATIONS	23101	2 Weeks	17-04-23 to 28-04-23	31-07-23 to 11-08-23		19-02-24 to 01-03-24
Course Contents: Awareness of welding & safety, Edge preparation, weld symbols, weld measurement, Introduction to Gas metal Arc Welding (GMAW) ,Welding Terms and Definitions, Electrical terms power source & equipment, Various shielding gases and its character on GMAW, Cylinders colour code & Identifications, GMAW welding electrodes – codes , Torches, Maintenance& trouble shooting, Wire Feed unit ,Modes of metal transfer, Synergic & pulsed MIG Welding, FCA Welding process ,Defects causes and remedy						
TIG WELDING TECHNIQUES AND ITS APPLICATIONS	23102	2 Weeks	15-05-23 to 26-05-23	21-08-23 to 01-09-23	11-12-23 to 22-12-23	04-03-24 to 15-03-24
Course Contents: Awareness of welding & safety , Terms & definition of welding , Electrical terms & AC, DC Polarity control system , Introduction to GTAW equipment and power source , Types of tungsten electrodes and their uses, Filler rod specification, Grinding of electrode tip, Types of Inert gases and their character in shielding Properties of ferrous & non- ferrous metals , Principle of HF unit & DC suppressor, torches and maintenance , Concept of pulsed TIG Welding , Defects, causes and remedy						
ALUMINIUM WELDING USING TIG TECHNIQUES	23103	2 Weeks	05-06-23 to 16-06-23	11-09-23 to 22-09-23		18-03-24 to 28-03-24
Course Contents: Basic Electrical Terms & Arc Voltage concepts, Power source of GTAW welding, AC, DC Suppressor& HFU, Types of tungsten electrodes and its tip preparation, Characteristic of inert gas, Properties of Aluminium, Filler wire specification, Introduction of TIG Welding on Aluminium, Current setting, Arc Voltage parameter, Defects causes and remedy						
STAINLESS STEEL WELDING USING TIG & MIG	23104	2 Weeks		03-07-23 to 14-07-23	09-10-23 to 20-10-23	29-01-24 to 09-02-24
Course Contents: Safety, Basic Electrical Terms & Arc voltage concepts, Power source of GTAW welding & HFU, Types of tungsten electrodes and its tip preparations, Characteristic of Inert gas, Types of SS and its metallurgy for welding, Challenges in fabrication, Introduction of MIG welding on S, Current setting, Arc voltage – parameter, Defects, causes and remedy						

AUTOMOTIVE TECHNOLOGY

Name of the Course	Course Code	Duration	Regular Course Schedules			
			Apr 2023 – Jun 2023	Jul 2023 – Sep 2023	Oct 2023 – Dec 2023	Jan 2024 – Mar 2024
DIAGNOSIS, REPAIR AND MAINTENANCE OF MPFI PETROL ENGINE	23201	2 Weeks	10-04-23 to 21-04-23	03-07-23 to 14-07-23	04-12-23 to 15-12-23	01-01-24 to 12-01-24 18-03-24 to 28-03-24
Course Contents: Principle and working of four stroke engine, engine components and variable valve timing technology (VVT). Function, components and working of lubrication system & cooling system, fuel feed system and its types, Ignition system and its types MPFI system in petrol engine, emission control emission norm turbo charged engine, maintenance of engine, Engine diagnostic methods and Troubleshooting. Check the compression pressure, vacuum pressure & oil pressure on the engine. Dismantling, cleaning, inspecting and reassembling the petrol engine, Check the ignition timing on MPFI petrol engine, testing of Ignition system, set the valve timing, checking and adjusting valve tappet clearance, overhauling of lubrication, cooling and fuel feed systems, onboard diagnosis using scan tool, checking of sensors and actuators, checking of exhaust gas using exhaust gas analyzer.						
DIAGNOSIS, REPAIR AND MAINTENANCE OF CRDI DIESEL ENGINE	23202	2 Weeks	08-05-23 to 19-05-23 19-06-23 to 30-06-23	17-07-23 to 28-07-23	09-10-23 to 20-10-23	22-01-24 to 02-02-24 04-03-24 to 15-03-24
Course Contents: Principle and working four stroke engine , engine components, valve operating mechanism , function, components and working of lubrication, cooling and fuel system and its types ,CRDI system in diesel engine, emission control , Euro & BS emission norms , turbo charged engine , maintenance of engine , Engine diagnostic methods and Troubleshooting, check the compression pressure on the engine dismantling, cleaning, inspecting and reassembling the diesel cylinder head overhauling, set the injection timing on diesel engine, set the valve timing , checking and adjusting valve tappet clearance, overhauling of cooling , lubrication and fuel systems, onboard diagnosis using scan tool, checking of sensors and actuators in CRDI, checking of exhaust gas using exhaust gas analyzer.						
DIAGNOSIS AND REPAIR IN AUTOMOBILE ELECTRICAL & AUTOTRONICS	23203	2 Weeks	22-05-23 to 02-06-23	31-07-23 to 11-08-23	30-10-23 to 10-11-23	05-02-24 to 16-02-24
Course Contents Basic principles and function of auto electrical system. Battery and its maintenance, working of ignition system, charging, starting, lighting system and accessories in modern vehicles -wiper motor, power window, multiplex wiring, remote central locking system, immobilizer system, parking assist system, vehicle safety system & navigation system. Reading of electrical wiring diagram of a vehicle, working principle of instruments and gauges, warning symbols, Troubleshooting on Electrical system-checking and charging of battery, overhauling and testing of starter motor and alternator, checking of lighting system and accessories. Basic electronic components principle, working and their applications in automobiles, checking of diodes, transistors, capacitors, different relays and solenoid used in vehicles, working principles and testing of different sensors and actuators, ECM and onboard diagnostic system, use of scan tool, Read and erase of DTC						
MAINTENANCE OF LIGHT MOTOR VEHICLE - (PETROL&DIESEL) & CAR AC	23204	2 Weeks	24-04-23 to 04-05-23 05-06-23 to 16-06-23	04-09-23 to 15-09-23	20-11-23 to 01-12-23	19-02-24 to 01-03-24
Course Contents Specification of light motor vehicles, principle and working of four stroke engine, engine systems and its maintenance, valve mechanism, valve clearance and its importance. layout and function of transmission and its components and their maintenance, components of brake system, suspension system, steering system and their maintenance, tyre specification, tyre inflation and its maintenance importance of wheel alignment and wheel balancing, construction of battery and its maintenance, car air conditioning system principles. working and maintenance, emission control, maintenance of chassis and suspension system , checking of air inflation pressure and tyre rotation, checking of engine oil level, coolant level, brake oil and power steering oil and top up, testing and charging of battery, replacing of fuel filter, air filter and oil filter, cleaning of vehicle, 5s method, identification of engine fault using scan tool, checking of car air conditioning system and its components, inspection and replacing of spark plug, adjustment of clutch, brake and steering free play, vehicle lubrication, Engine tune up, inspecting of sensors and actuators using scan tool, checking of exhaust gas using exhaust gas analyzer emission norm, maintenance schedule of light motor vehicle, fuel saving methods						

MACHINE TOOL MAINTENANCE

Name of the Course	Course Code	Duration	Regular Course Schedules			
			Apr 2023 – Jun 2023	Jul 2023 – Sep 2023	Oct 2023 – Dec 2023	Jan 2024 – Mar 2024
5 'S' MANAGEMENT & TOTAL PRODUCTIVE MAINTENANCE	23301	1 Week	08-05-23 to 12-05-23	07-08-23 to 11-08-23	30-10-23 to 03-11-23	08-01-24 to 12-01-24 05-02-24 to 09-02-24
Course Contents: Industrial Safety, Introduction to Machine Tool Maintenance and types of maintenance, Autonomous Maintenance, Pillars of Total Productive Maintenance, Major Losses associated with production, Condition Monitoring Methods, Total Productive Maintenance – Policies and Goals, 5 'S' Work Place Management, 7 QC Tools.						
PAINTING TECHNIQUES, DEFECTS & REMEDIES	23302	1 Week	29-05-23 to 02-06-23 17-07-23 to 21-07-23	04-09-23 to 08-09-23	20-11-23 to 24-11-23	04-03-24 to 08-03-24
Course Contents: Painting tools & Equipment's, Types of putty & application, Types of emery, application & grade, Surface preparation of Metals & wood, varnishing of wooden surfaces, Curing processes in AC room and oven, Constituents of Paints, Application of paints, Car Finishing. Cement surface defects & wall painting defects & remedies, Lettering & Stenciling						
CONDITION MONITORING & FAILURE ANALYSIS OF BEARINGS	23303	1 Week	19-06-23 to 23-06-23		18-12-23 to 22-12-23	
Course Contents: Industrial Safety, Introduction to Machine Tool Maintenance and types of maintenance, Bearing – types, specification, application and inspection, Bearing selection, bearing failures, causes and remedy. Lubricant types, characteristics, oil selection and lubrication methods, Condition monitoring of bearings, Failure Analysis						

METROLOGY & ENGINEERING INSPECTION

Name of the Course	Course Code	Duration	Regular Course Schedules			
			Apr 2023 – Jun 2023	Jul 2023 – Sep 2023	Oct 2023 – Dec 2023	Jan 2024 – Mar 2024
METROLOGY & ENGINEERING INSPECTION	23401	2 Weeks	17-04-23 to 28-04-23 19-06-23 to 30-06-23	24-07-23 to 04-08-23 04-09-23 to 15-09-23	09-10-23 to 20-10-23 18-12-23 to 29-12-23	05-02-24 to 16-02-24 04-03-24 to 15-03-24
Course Contents: Demonstration of Metrological Instruments, Slip Gauges, Calibration Methods and its importance, Calibration of Height gauges and of Dial Gauges, Surface Table Types & its Importance, Linear Measurement Practice using 2D Height Master, Surface roughness measurement, Demonstration of Video Measuring Machine and Co-ordinate Measuring Machine, Demonstration of Profile Projector.						
CALIBRATION OF DIMENSIONAL MEASURING INSTRUMENTS & GAUGES	23402	1 Week	22-05-23 to 26-05-23 12-06-23 to 16-06-23	10-07-23 to 14-07-23 28-08-23 to 01-09-23	30-10-23 to 03-11-23 04-12-23 to 08-12-23	01-01-24 to 05-01-24 26-02-24 to 01-03-24
Course Contents: Calibration procedure for vernier calliper (IS-36651), External Micro meter (IS-2967), Calibration procedure for Vernier height gauges (IS-2921), Plunger type dial gauges (IS-2092), Lever type dial gauge (IS-11498), CALIPER, Calibration of MICROMETER (INTERNAL & EXTERNAL						
BASIC PRACTICES IN DIMENSIONAL MEASURING INSTRUMENTS	23403	1 Week	15-05-23 to 19-05-23 29-05-23 to 02-06-23	17-07-23 to 21-07-23 21-08-23 to 25-08-23	06-11-23 to 10-11-23 20-11-23 to 24-11-23	08-01-24 to 12-01-24 19-02-24 to 23-02-24
Course Contents: Practical on Basic Dimensional measuring instruments, Exercise on Outside micro meter, exercise on height measurements, Demonstration on Height master, Demonstration on angular measurements, Demonstration on measurements in Sine bar, exercise, Demonstration on angular measurements by bevel protractor						
GEOMETRICAL MEASUREMENTS	23404	1 Week	08-05-23 to 12-05-23 05-06-23 to 09-06-23	03-07-23 to 07-07-23 07-08-23 to 11-08-23	13-11-23 to 17-11-23 11-12-23 to 15-12-23	29-01-24 to 02-02-24 18-03-24 to 22-03-24
Course Contents: Checking of straightness of Straight surface by using Spirit level and Auto collimator, checking by Dial gauges, V-Block and CNC roundness measurement, checking flatness of reflective surfaces by using Monochromatic light and optical flat, Dial Indicator, Checking of perpendicular by using mechanical Dial Indicator.						

SOLAR TECHNICIAN LAB

Name of the Course	Course Code	Duration	Regular Course Schedules			
			Apr 2023 – Jun 2023	Jul 2023 – Sep 2023	Oct 2023 – Dec 2023	Jan 2024 – Mar 2024
TESTING OF PV CELLS AND ITS PERFORMANCE.	23501	1 Week		11-09-23 to 15-09-23	09-10-23 to 13-10-23 18-12-23 to 22-12-23	12-02-24 to 16-02-24
Course Contents: Basics of PV cell and characteristics. Testing the characteristics of PV cells in series and parallel connections with various shading / irradiance condition. Loading PV cell with lamp, tiny motor and accumulator using solar training kit.						
INSTALLATION OF SOLAR PANEL AND COMMISSIONING.	23502	1 Week			13-11-23 to 17-11-23 04-12-23 to 08-12-23	29-01-24 to 02-02-24 11-03-24 to 15-03-24
Course Contents: Basics of renewable energy, solar modules, panels, chargeable battery, MPPT and sine wave inverter. Installing and commissioning a model - stand alone and grid interactive (off-grid / on-grid) solar system.						

uPVC CARPENTRY LAB

Name of the Course	Course Code	Duration	Regular Course Schedules			
			Apr 2023 – Jun 2023	Jul 2023 – Sep 2023	Oct 2023 – Dec 2023	Jan 2024 – Mar 2024
uPVC WINDOW FABRICATION	23601	2 Weeks	08-05-23 to 19-05-23 12-06-23 to 23-06-23	24-07-23 to 04-08-23 04-09-23 to 15-09-23	30-10-23 to 10-11-23 04-12-23 to 15-12-23	29-01-24 to 09-02-24 26-02-24 to 08-03-24

Course Contents: Basics of uPVC Windows & Doors, Types of uPVC Windows & Doors, Structure of uPVC Windows & Doors, Parts of uPVC Windows & Doors, Advantages of uPVC Windows & Doors, Identification of Profiles, Hardware & Accessories, Machinery, Tools, Reinforcement, Glass, Gaskets. Profile Cutting- Cutting Profile as per drawing, Checking Cut Of profile, Perform Length Check, Marking on profile. Reinforcement Cutting & Fixing- Drainage Hole Cutting- Routing Holes- Performing Welding on welding machine- Corner Cleaning- Assembly Of Handles · Fixing Of Gaskets · Fixing Of Hinges · Assembly of rollers · Select the correct glass for the window · Glass fixing as per drawing · Bead Cutting & Fixing · Perform Cleaning · Perform quality check .

PNEUMATIC & HYDRAULIC CONTROLS

Name of the Course	Course Code	Duration	Regular Course Schedules			
			Apr 2023 – Jun 2023	Jul 2023 – Sep 2023	Oct 2023 – Dec 2023	Jan 2024 – Mar 2024
PNEUMATIC & ELECTRO PNEUMATIC CONTROLS	23701	2 Weeks	10-04-23 to 21-04-23	03-07-23 to 14-07-23	03-10-23 to 13-10-23	01-01-24 to 12-01-24
Course Contents: Construction of single, double acting cylinder circuits – Direct & Indirect method, Pneumatic and Electro Pneumatic circuit construction with the use of OR, AND, Memory, Time Delay, Pressure sequence, Quick exhaust, flow control and Limit switches, Construction of circuits for Pneumatic and Electro pneumatic system in Fluid Sim Simulation software, Construction of regenerative circuit, Pneumatic system (care & Maintenance), Hands-on practice on construction of Pneumatic & Electro-pneumatic control circuit for industrial applications.						
HYDRAULIC AND ELECTRO HYDRAULIC CONTROLS	23702	2 Weeks	24-04-23 to 04-05-23	17-07-23 to 28-07-23	30-10-23 to 10-11-23	29-01-24 to 09-02-24
Course Contents: Construction of single, double acting cylinder circuits – Direct & Indirect method, Hydraulic and Electro Hydraulic systems construction with the use of OR, AND, Memory, Time Delay, Pressure sequence, flow control and Limit switches, Construction circuits for Hydraulic and Electro Hydraulic systems in Fluid Sim Simulation software, Construction of regenerative circuit, Hydraulic and Electro Hydraulic systems (care & Maintenance), Hands-on practice on construction of Hydraulic and Electro Hydraulic systems for industrial applications..						
ELECTRO-PNEUMATIC AUTOMATION WITH PLC	23703	1 Week	08-05-23 to 12-05-23	31-07-23 to 04-08-23	16-10-23 to 20-10-23	12-02-24 to 16-02-24
Course Contents: Electro pneumatic 3/2,5/2 solenoid valves, Sensor Technology, limit switch & applications, Electrical Timers, Relay contactors, Latching Circuits, Introduction to PLC & PLC Programming, Ladder diagram, Identification of components by their schematic symbols, Circuit's construction with the use of Relays, Contactors, Electrical Timers, sensors, limits switches Programming, executing, running and verifying output of simple programs, Modifying an existing program and executing and verifying its output.						
ADVANCE PNEUMATIC CONTROLS	23704	1 Week			13-11-23 to 17-11-23	19-02-24 to 23-02-24
Course Contents: Pneumatic and Electro Pneumatic construction with the use of OR, AND, Memory, Time Delay, Pressure sequence, Quick exhaust, flow control and Limit switches. Cascading of Multi cylinders, Sequential control of multi-Cylinders, Designing, assembling and checking of pneumatic circuits.						
DIGITAL TRANSFORMATION OF FLUIDIC POWER	23705	1 Week			20-11-23 to 24-11-23	26-02-24 to 01-03-24
Course Contents: Setup and commissioning of an electro pneumatic circuit, Configuration of mini control systems, Setup of a communication network, Setting of an OPC server, Setting of push notifications, Selecting the circuit diagram and understand the program, Commissioning the circuit, Building up the communication network, Determining and setting the process parameters, Operating, adjusting, and performing maintenance work on the system, Getting to know the web service of the controller.						
BASIC MECHATRONICS SYSTEM	23706	2 Weeks	29-05-23 to 09-06-23	28-08-23 to 08-09-23	04-12-23 to 15-12-23	04-03-24 to 15-03-24
Course Contents: Construction of single, double acting cylinder circuits – Direct & Indirect method. Pneumatic and Electro Pneumatic construction with the use of OR, AND, Memory, Time Delay, Pressure sequence, Quick exhaust, flow control and Limit switches. Circuit using Simulation software .circuits for Pneumatic and Electro pneumatic system to detect various objects. Programming, executing, running and verifying output of simple programs.						
MECHATRONICS FOR INDUSTRIAL AUTOMATION	23707	1 Week	19-06-23 to 23-06-23	11-09-23 to 15-09-23	18-12-23 to 22-12-23	18-03-24 to 22-03-24
Course Contents: Construction of Pneumatic and Electro Pneumatic circuits. Circuits for Pneumatic and Electro pneumatic system to detect various objects Programming, executing, running and verifying output of simple programs. Demonstration and operation of various Mechatronics applications.						

SIEMENS DRIVES AND SWITCH GEARS

Name of the Course	Course Code	Duration	Regular Course Schedules			
			Apr 2023 – Jun 2023	Jul 2023 – Sep 2023	Oct 2023 – Dec 2023	Jan 2024 – Mar 2024
COURSE ON AC DRIVES IN SIEMENS G120 TRAINING KIT	23801	1 Week	17-04-23 to 21-04-23	21-08-23 to 25-08-23	06-11-23 to 10-11-23	08-01-24 to 12-01-24
Course Contents: Basics of AC motors. AC drives, control unit, power unit and basic operator panel. Installation, parameterization & commissioning of drives through BOP and Siemens software. Diagnostics of parameters.						
COURSE ON DC DRIVES IN SIEMENS 6RA80 TRAINING KIT.	23802	1 Week	15-05-23 to 19-05-23	07-08-23 to 11-08-23	16-10-23 to 20-10-23 20-11-23 to 24-11-23	18-03-24 to 22-03-24
Course Contents: Basics of DC motors, DC drive, control unit, power unit and basic operator panel. Installation, optimization & commissioning of drive and motor through BOP and Siemens software. Diagnostics of parameters						
COURSE ON SERVO DRIVE IN SIEMENS V90 TRAINING KIT.	23803	1 Week	05-06-23 to 09-06-23	10-07-23 to 14-07-23	11-12-23 to 15-12-23	05-02-24 to 09-02-24
Course Contents: Basics of Servo motors, Servo drive. Installation, parameterization & commissioning of drive through Siemens software. Alarm, faults and diagnostics of parameters						
SWITCHGEARS IN SIEMENS ACB & MCCBS.	23804	1 Week	24-04-23 to 28-04-23	24-07-23 to 28-07-23	30-10-23 to 03-11-23	26-02-24 to 01-03-24
Course Contents: Basic concepts about Siemens switch gear (3WL, 3WT, 3VA and 3VT). Function and operation of Siemens ACBs and MCCBs. Dismantling and assembling of standard accessories of ACBs and MCCBs						

ELECTRONIC CONTROLS & MAINTENANCE

Name of the Course	Course Code	Duration	Regular Course Schedules			
			Apr 2023 – Jun 2023	Jul 2023 – Sep 2023	Oct 2023 – Dec 2023	Jan 2024 – Mar 2024
PROGRAMMING OF PLC USING SIEMENS S7-1200 / S7-400 PLCs. (TIA PORTAL)	23901	1 Week	17-04-23 to 21-04-23 05-06-23 to 09-06-23	31-07-23 to 04-08-23	04-12-23 to 08-12-23	
Course Contents: Working principle of Programmable Logic Controller, Classification of Sensors and Actuators, configuring a PLC with their Input/Output modules and establish communication, Programming of PLC, procedure adopted to connect, communicate, download and execute programs, Programming of PLC for simple applications using Ladder logic, Practice on Programming/Simulation of PLCs for various Industrial applications, Programming of PLC for Analog operations.						
SIEMENS PLC - S7 400/1200 - SCADA & HMI PROGRAMMING & APPLICATIONS. (TIA PORTAL & WIN CC SCADA).	23902	2 Weeks	24-04-23 to 04-05-23 05-06-23 to 16-06-23	21-08-23 to 01-09-23	30-10-23 to 10-11-23 04-12-23 to 15-12-23	
Course Contents: Working principle of Programmable Logic Controller, Classification of Sensors and Actuators. Configuring a PLC with their Input/Output modules and establish communication, Programming of PLC, procedure adopted to connect, communicate, download and execute programs, Programming of PLC for simple applications using SCADA & Malpractice on creation of Tag Database and Screen Template, Practice on Graphics & Animation, Practice on Programming of PLCs for Industrial applications (Lift & Conveyor modules), Programming of PLC for Analog operations.						
POWER ELECTRONICS & INDUSTRIAL APPLICATIONS. (INCLUDES SOLAR BASED INVERTER).	23903	2 Weeks	08-05-23 to 19-05-23		09-10-23 to 20-10-23	
Course Contents: Overview of Industrial Automation & different methods of control mechanisms. Power requirements for actuating various elements in Industries & the role of electronics for Electric power control. Classification of Sensors & Actuators. Power Control concepts, PWM techniques, PID controller. Assembling and testing of various power control circuits. Solar photovoltaic energy, power generation & testing. Designing an Inverter circuit using MATLAB and testing. Methods of Speed Control of AC / DC motors, Servo motors, BLDC motors etc. Demonstrations and testing with Digital multimeter, Digital Storage Oscilloscope, etc.						
FIBER OPTIC COMMUNICATION, OFC SPLICING TECHNIQUES & INSTALLATION	23904	1 Week		07-08-23 to 11-08-23 04-09-23 to 08-09-23		08-01-24 to 12-01-24 11-03-24 to 15-03-24
Course Contents: Introduction to Fiber Optic Communication system and applications. Functional description of various sections of Fiber Optic Communication network. Identify various sections of OFC trainer. Prepare, crimp, terminate and test various cables and connectors, use crimping tools, splicing tools and test various cables used in Fiber to home network, check various types of Splitters, connector terminations and perform Insertion Loss testing of Optical splitters in network. Perform fiber preparation for splicing and apply fusion, perform OTDR test, measure the signal strength & losses and assess cable performance using Optical Power meter, Prepare FIBER OPTIC NETWORK setup and execute transmission and reception.						
EMBEDDED SYSTEM PROGRAMMING FOR INDUSTRIAL APPLICATIONS USING RASPBERRY PI – 2040 (DUAL CORE).	23905	2 Weeks		10-07-23 to 21-07-23	26-12-23 to 05-01-24	12-02-24 to 23-02-24
Course Contents: Introduction to Embedded Controllers& Applications. Specification & Architecture of Dual-core Arm Cortex-M0+ processor. Features - on-chip SRAM, UART, SPI controllers, I2C controllers, USB, PWM channels etc. Memory organization of ARM Cortex chip. Classification of Registers & I/O ports and Modes of addressing. Programming for simple operations using Embedded C/Python. Peripheral devices and interfacing, Programming for simple applications using LEDs, Switches, Relays, 7 - seg display, LCD, Stepper motor, DC motor, UART, Bluetooth etc. Serial communication – UART, I2C, CAN, USB, SPI etc						
INDUSTRIAL AUTOMATION WITH AC/DC DRIVES & PLCs.	23906	2 Weeks	19-06-23 to 30-06-23	24-07-23 to 04-08-23	20-11-23 to 01-12-23	
Course Contents: Overview of Industrial Automation and the Role of PLCs & Drives. Methods of Speed Control of AC / DC motors, Servo motors, BLDC motors etc. Power Control concepts, PWM techniques, PID controller & Drive parameters. Working principle of Drives, Four quadrant Drive & methods of Braking. Demonstrations and testing using Digital multimeter, Digital Storage Oscilloscope, etc. Practice on Power control of drives with Converters & Inverters. Practice on Configuring parameters of VFD. Configuring PLC for Interfacing with Digital and Analog modules and programming. Programming of PLC for simple applications using Ladder logic. Practice on Programming of PLCs for motor control. Control of AC Drive using PLC.						
OPERATION AND MAINTENANCE OF DRONES.	23907	1 Week			18-12-23 to 22-12-23	29-01-24 to 02-02-24 26-02-24 to 01-03-24 18-03-24 to 22-03-24
Course Contents: Introduction to Drone technology, Communication concepts, different types of drones & their applications, Sensors & transducers used in drones, GPS and applications. Block description of Drone system & Safety precautions, Perform disassembly and reassembly of common drone system, Motors – Servo motors & BLDC motors. Specifications & Configuration of Drone System Hardware& Software, Controllers used in Drone, Procedure employed to test the controllers& peripherals. Identify and resolve common error messages and corrections by Software debugging. Inspect, test and trouble-shoot (execute primary and secondary servicing) with symptoms noticed.						
INSTALLATION, COMMISSIONING & TROUBLESHOOTING OF AC/DC DRIVES.	23908	1 Week		11-09-23 to 15-09-23	20-11-23 to 24-11-23	
Course Contents: Study of different types of AC/DC drives with variety of motors and Controllers. Block description of different types of Drives used in Industries and their special features. Classification of feedback devices and their significance. Encoders – types, description and testing. Parameters of VFD and practice on connecting, configuring and testing of VFD. Faults that occur in AC/DC Drives and remedy. Simple faults, analysis and testing.						

CNC CENTER

Name of the Course	Course Code	Duration	Regular Course Schedules			
			Apr 2023 – Jun 2023	Jul 2023 – Sep 2023	Oct 2023 – Dec 23	Jan 2024 – Mar 2024
MASTERCAM MILLING	231001	1 Week	05-06-23 to 09-06-23	21-08-23 to 25-08-23	13-11-23 to 17-11-23	11-03-24 to 15-03-24
Course Contents: Introduction to master cam 2019, draw commands, modify commands, 2d & 3d part modelling exercises, cam commands, 2d machining techniques & 3d machining techniques, post processing for the machine controls, sample machining on the machine.						
CNC TURNING, OPERATION & PROGRAMMING WITH FAGOR 8055i	231002	1 Week	12-06-23 to 16-06-23	28-08-23 to 01-09-23	20-11-23 to 24-11-23	18-03-24 to 22-03-24
Course Contents: Comparison between conventional & CNC machines, principles of CNC system & elements of CNC machines preparatory and miscellaneous codes different coordinate systems work offset, tool offsets part program of turning practice on simulation system selection of tools, speed, feed & depth of cut subroutine programming, machine cycles editing & proving the part program basic machine operations loading of component & tools measurement of zero offsets and tool offsets editing of part programs proving selected programs & machining of components, Basic Maintenance.						
BASIC MAINTENANCE OF CNC MACHINES	231003	1 Week	19-06-23 to 23-06-23	04-09-23 to 08-09-23	11-12-23 to 15-12-23	
Course Contents: Elements of CNC Machine, Industrial safety and 5S, Identification of machine elements, Total Machine cleaning, Centralized lubrication system and, Hydraulics and Pneumatics Servicing of centralized lubrication system, checking the lubrication oil at end user, Introduction to Electrical drives and Encoders Feedback control systems their possible failure and alarm systems. Causes and break down and troubleshooting, Servicing of hydraulic system elements.						
CNC TURNING, OPERATION & PROGRAMMING WITH SINUMERIK 802D SL	231004	1 Week		11-09-23 to 15-09-23	04-12-23 to 08-12-23	29-01-24 to 02-02-24
Course Contents: Comparison between conventional & CNC machines, principles of CNC system & elements of CNC machines preparatory and miscellaneous codes different co ordinate systems work offset, tool offsets part program of turning practice on simulation system selection of tools, speed, feed & depth of cut subroutine programming, machine cycles editing & proving the part program basic machine operations loading of component & tools measurement of zero offsets and tool offsets editing of part programs proving selected programs & machining of components, Basic Maintenance.						
CNC TURNING, OPERATION & PROGRAMMING — FANUC Oi - TF	231005	1 Week	24-04-23 to 28-04-23	10-07-23 to 14-07-23	18-12-23 to 22-12-23	12-02-24 to 16-02-24
Course Contents: Comparison between conventional & CNC machines, principles of CNC system & elements of CNC machines preparatory and miscellaneous codes different co-ordinate systems work offset, tool offsets part program of turning practice on simulation system selection of tools, speed, feed & depth of cut subroutine programming, machine cycles editing & proving the part program basic machine operations loading of component & tools measurement of zero offsets and tool offsets editing of part programs proving selected programs & machining of components, Basic Maintenance.						
CNC MILLING, OPERATION & PROGRAMMING WITH SINUMERIK 828D / 840D	231006	1 Week	08-05-23 to 12-05-23	24-07-23 to 28-07-23	09-10-23 to 13-10-23	01-01-24 to 05-01-24 26-02-24 to 01-03-24
Course Contents: Comparison between conventional & CNC machines principles of CNC system elements of CNC machines preparatory and miscellaneous functions / codes different co- ordinate systems zero offsets, tool offsets part program of milling practice on simulation system selection of tools, speed, feed & depth of cut subroutine programming, machine cycles editing & proving the part program basic machine operations loading of component & tools measurement of zero offsets and tool offsets editing of part programs proving selected programs & machining of components, Basic Maintenance.						
CNC MILLING, OPERATION & PROGRAMMING -- FANUC Oi-MC	231007	1 Week	22-05-23 to 26-05-23	07-08-23 to 11-08-23	30-10-23 to 03-11-23	15-01-24 to 19-01-24
Course Contents: Comparison between conventional & CNC machines principles of CNC system elements of CNC machines preparatory and miscellaneous functions / codes different co- ordinate systems zero offsets, tool offsets part program of milling practice on simulation system selection of tools, speed, feed & depth of cut subroutine programming, machine cycles editing & proving the part program basic machine operations loading of component & tools measurement of zero offsets and tool offsets editing of part programs proving selected programs & machining of components, Basic Maintenance						
CNC TURN MILL, OPERATION & PROGRAMMING WITH SINUMERIK 802D SL	231008	2 Weeks	26-06-23 to 07-07-23	11-09-23 to 22-09-23	04-12-23 to 15-12-23	29-01-24 to 09-02-24
Course Contents: Comparison between conventional & CNC machines principles of CNC system elements of CNC machines preparatory and miscellaneous functions / codes different co- ordinate systems zero offsets, Axial milling& Radial Milling practice on simulation system selection of tools, machine cycles editing & proving the part program basic machine operations loading of component & tools measurement of zero offsets and tool offsets editing of part programs proving selected programs & machining of components, Basic Maintenance.						
CNC TURN MILL, OPERATION & PROGRAMMING — FANUC Oi - TF	231009	2 Weeks	24-04-23 to 04-05-23	10-07-23 to 21-07-23	18-12-23 to 29-12-23	12-02-24 to 23-02-24
Course Contents: Comparison between conventional & CNC machines principles of CNC system elements of CNC machines preparatory and miscellaneous functions / codes different co- ordinate systems zero offsets, tool offsets part program of Turning, Axial milling& Radial Milling practice on simulation system selection of tools, speed, feed & depth of cut subroutine programming, machine cycles editing & proving the part program basic machine operations loading of component & tools measurement of zero offsets and tool offsets editing of part programs proving selected programs & machining of components, Basic Maintenance.						
ADVANCED CNC MILLING, OPERATION & PROGRAMMING WITH SINUMERIK 828D / 840D	231010	2 Weeks	08-05-23 to 19-05-23	24-07-23 to 04-08-23	09-10-23 to 20-10-23	01-01-24 to 12-01-24 26-02-24 to 08-03-24
Course Contents: Principles of CNC system elements of CNC machines preparatory and miscellaneous functions / codes different co- ordinate systems zero offsets, tool offsets part program of milling, speed, feed & depth of cut subroutine programming, machine cycles editing & proving the part program basic machine operations loading of component & tools measurement of zero offsets and tool offsets editing of part programs proving selected programs & machining of components. Advanced Milling Operations with Rotation, Mirroring & Scaling, Basic Maintenance of the Machine.						
ADVANCED CNC MILLING, OPERATION & PROGRAMMING WITH FANUC Oi-MC	231011	2 Weeks	22-05-23 to 02-06-23	07-08-23 to 18-08-23	30-10-23 to 10-11-23	15-01-24 to 25-01-24
Course Contents: Principles of CNC system elements of CNC machines preparatory and miscellaneous functions / codes different co- ordinate systems zero offsets, tool offsets part program of milling practice on simulation system selection of tools, speed, feed & depth of cut subroutine programming, machine cycles editing & proving the part program basic machine operations loading of component & tools measurement of zero offsets and tool offsets editing of part programs proving selected programs & machining of components. Advanced Milling Operations with Rotation, Mirroring & Scaling, Basic Maintenance of the Machine.						

PROCESS CONTROL INSTRUMENTATION

Name of the Course	Course Code	Duration	Regular Course Schedules			
			Apr 2023 – Jun 2023	Jul 2023 – Sep 2023	Oct 2023 – Dec 23	Jan 2024 – Mar 2024
PROGRAMMING AND APPLICATIONS OF INDUSTRIAL AUTOMATION	231101	2 Weeks	08-05-23 to 19-05-23	24-07-23 to 04-08-23	09-10-23 to 20-10-23	29-01-24 to 09-02-24

Course Contents: Understanding of Programmable Controller Systems using TIA PORTAL. Identifying Common PLC Hardware, Components of Processors, I/O Systems. I/O Configurations, Creating a New Project with Ladder Logic, The Management of Screens and Controls, Alarm Management & Trending, OPC / DDE process communication with other PLCs. Entering, Editing, and Verifying Ladder Logic. Bird's eye view of TIA software, Building application based Project- Bottle filling and batch process station, working procedures and operational maintenance of MMS, IoT applications of Automation using MMS as per industry 4.0.

IoT WITH SENSORS AND CONTROLLERS	231102	2 Weeks	22-05-23 to 02-06-23	21-08-23 to 01-09-23	11-12-23 to 22-12-23	01-01-24 to 12-01-24
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Course Contents: Introduction to microprocessor and micro controller, Microprocessor Vs Microcontroller, Introduction to Arduino Uno, raspberry pi ,Siemens 2050 gateways and related Software. Pin details of Arduino and Raspberry Pi , its Specifications. Basic configurations of Arduino and raspberry pi with PC. Wi fi, Bluetooth and Ethernet shield interfacing with Arduino. Basic programs on Arduinouno, Raspberry pi and Siemens gateways for LED controlling and Push buttons, introduction to Arduino Uno ,Ethernet shield, WiFi (wireless) ,shield, Breadboard ,Jumper cables (male-male, male-female),Light sensor, Motion sensor (HC-SR501),Proximity sensor (Ultrasonic Range meter HC-SR04),Temperature sensor (TMP36),GPS module (NEO6MV2),Soil moisture sensor and Build your own project.

CALIBRATION OF INDUSTRIAL INSTRUMENTS	231103	1 Week	24-04-23 to 28-04-23	17-07-23 to 21-07-23	04-12-23 to 08-12-23	04-03-24 to 08-03-24
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Course Contents: Instrument Diagrams (P&ID's),Introduction to Measurement System, Commonly used process control signals, Signal quality terminology (accuracy, linearity, span, etc.),System standards and instrument calibration., Pressure Instruments – Principle, construction and operation, Calibration of low and high Pressure Bourden's Gauges ,Principle and operation of Strain gauge Pressure Sensors, Pressure Measurement & Control (Electronic and Pneumatic),Operation and calibration of Differential Pressure Switch &Safety Valve, Operation and calibration of I/P Converter, Temperature Instruments- Principle, Sensors for temperature measurement, Installation and Commissioning of RTD & Thermocouple, RTD – 2 Wire, 3 Wire and 4 wire Configuration, Thermocouple – Cold junction compensation and compensation cables, Calibration of Temperature Indicators (RTD & Thermocouple).

NETWORKING AND COMMUNICATIONS WITH HMI/ SCADA.	231104	1 Week	12-06-23 to 16-06-23	11-09-23 to 15-09-23	06-11-23 to 10-11-23	11-03-24 to 15-03-24
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Course Contents: Explaining HMI, SCADA, and PLCs, What They Do, and How They Work Together When it comes to the process automation PLCs, SCADA, and HMIs play crucial roles , Setup Ethernet network and configure TCP/IP ,Ethernet troubleshooting utilities and Protocol Analysis , Setup and monitor Modbus TCP communication to bus coupler , Setup Kepware OPC Data Access Server and use OPC client to access data, Use Graphical OPC Client to create a SCADA display of plant data, Alarm Management Exercise , Configure Alarms on WinCC SCADA System, HMI screen design using WinCC SCADA package, Accessing SCADA Historian data using Excel, Troubleshooting Exercise.

CAD CENTRE

Name of the Course	Course Code	Duration	Regular Course Schedules			
			Apr 2023 – Jun 2023	Jul 2023 – Sep 2023	Oct 2023 – Dec 23	Jan 2024 – Mar 2024
APPLICATION OF AUTOCAD 2D & 3D DRAFTING IN ENGINEERING DESIGN	231201	2 Weeks	17-04-23 to 28-04-23 08-05-23 to 19-05-23	17-07-23 to 28-07-23 31-07-23 to 11-08-23	09-10-23 to 20-10-23 30-10-23 to 10-11-23 28-11-23 to 08-12-23	19-02-24 to 01-03-24 04-03-24 to 15-03-24

Course Contents: Introduction to Auto Cad, drawing layouts, tool bars, file creation, creation of drawing sheet as per ISO, create line, break, erase, undo, absolute co-ordinate system, relative co-ordinate system and polar co-ordinate system, Trim, offset, fillet, chamfer commands drawing practice, drawing practice using arc, circle commands move, copy, array, insert block, make block, scale, rotate, hatch commands, creating templates, inserting layers, Drawing practice using dimensioning drawings, creating styles in dimensioning. Drawing practice using 3d primitives, extrude, revolve command setting user co-ordinate systems, rotating, plotting, print preview .

APPLICATION OF INVENTOR IN ENGINEERING DESIGN	231202	2 Weeks	22-05-23 to 02-06-23	03-07-23 to 14-07-23	13-11-23 to 24-11-23	01-01-24 to 12-01-24
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Course Contents: Introduction to Autodesk inventor user interface, view manipulation, designing parametric parts, making work directory & tool bar settings. create 2d sketches – geometric constraints – dimensional sketches, creating basic sketched features, intermediate sketches, editing parametric parts, chamfers and fillets, holes & threads, patterning & mirroring features, thin walled parts, designing assemblies, using project files in assembly design placing components in an assembly constraining components, placing standard components, basic part design in an assembly, creating and customizing parts lists, creating balloons, setting drawing standards, drawing resources, identifying parts in an assembly, analysis and motion tools, presenting your assembly, making assembly–insert bolted connection, making detailing, drawing creation environment, base and projected views, section views, crapped views, detail views, managing views, automated dimensioning techniques, manual dimensioning techniques, revision tables and tags, introduction to design accelerators, bolted connections, annotating holes and threads, creating centrelines, symbols and leaders, simulation , introduction to plot & different ways of plotting.

APPLICATION OF SOLIDWORKS IN ENGINEERING DESIGN	231203	2 Weeks	05-06-23 to 16-06-23	21-08-23 to 01-09-23	11-12-23 to 22-12-23	05-02-24 to 16-02-24
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Course Contents: Sketching features – applied features constraints, extrudes bosses and cuts, add fillets, changing dimensions, revolved features using axes, circular patterning changes and rebuild problems, bottom up assembly modeling components configuration in an assembly, insert subassemblies, interference detection, drawing and detailing, create drawing sheets, add drawing items, named views, standard three views, auxiliary views, section views, detail views, sweep, loft and library features, exploded views- configuration manager, animation controller, create the best profile sketch, copy& paste filleting editing. Creating ribs, mirror pattern, the whole wizard, insert design table, creating assembly, insertion, driving dimensions, bill of materials, annotation, alternate position view, reattach and replace dimensions, edit sketch, edit sketch plane, edit definition. Create sweep and loft using library features.

HEAT TREATMENT & MATERIAL TESTING

Name of the Course	Course Code	Duration	Regular Course Schedules			
			Apr 2023 – Jun 2023	Jul 2023 – Sep 2023	Oct 2023 – Dec 23	Jan 2024 – Mar 2024
CONCEPTS, TECHNIQUES AND PRACTICES OF MECHANICAL TESTING OF METALS (DT)	231301	1 Week	17-04-23 to 21-04-23	07-08-23 to 11-08-23	09-10-23 to 13-10-23	29-01-24 to 02-02-24
Course Contents: Structure of atoms. Phase diagrams – Isomorphous , Eutectic and Peritectic system ,Iron-Carbide diagram – Three invariant reactions in Fe-Fe ₃ C diagram, Basic concepts of Ferrous and Non-Ferrous metals, Classification of Steel & Cast Iron, Effect of alloying elements on steel, Classification of cast irons, Non-Ferrous alloys, Types of Destructive Testing (DT),Tensile test, Creep test, Impact test, Hardness test, Fatigue test, Practice on Rockwell hardness test, Practice on Brinell Hardness test, Practice on Vickers hardness test, Practice on Tensile test, Practice on Creep test, Practice on Fatigue test ,Practice on Impact test.						
CONCEPTS, TECHNIQUES AND PRACTICES OF SURFACE NDT METHODS	231302	1 Week	15-05-23 to 19-05-23	11-09-23 to 15-09-23	13-11-23 to 17-11-23	08-01-24 to 12-01-24
Course Contents: Introduction to Non-Destructive Testing (NDT)Types of discontinuities in weldments, Liquid penetrant inspection, Magnetic particle inspection, Ultrasonic test, Eddy current flaw detector, Practice on liquid penetrant inspection method, Practice on magnetic particle inspection method, Practice on ultrasonic inspection testing method, Practice on Eddy current inspection method						
CONCEPTS OF METALLOGRAPHIC PREPARATION AND IDENTIFICATION OF METALLIC MATERIALS	231303	1 Week	12-06-23 to 16-06-23	21-08-23 to 25-08-23	30-10-23 to 03-11-23	19-02-24 to 23-02-24
Course Contents: Metallography Technique & its principles, Metallographic sampling, Mounting and preparation of metallographic specimens, Etching metallographic specimens, Overview of etchants for different materials such as steel, cast iron, aluminium, copper, etc., Principles of metallurgical microscope, Study of microstructures and its grain size and behaviour, Practice on sample preparation, polishing and etching, Practice on viewing different type of materials with respect to its microstructural observations, Practice on type of grains and the measurement of grain sizes, Practice on macro etching-grain flow pattern ,Practice on micro-hardness test.						
CONCEPTS, TECHNIQUES AND PRACTICES OF HEAT TREATING OF METALS	231304	1 Week	29-05-23 to 02-06-23	04-09-23 to 08-09-23	11-12-23 to 15-12-23	11-03-24 to 15-03-24
Course Contents: Basic metallurgical theory of Heat Treatment, Introduction to steel and its mechanical properties, Purpose of heat treatment process, Rockwell hardness test, Brinell hardness test, Vickers hardness test, Different types of heat treatment, Annealing, Normalizing, Hardening, Tempering, Austempering, Martempering, Importance of Time-Temperature-Transformation (TTT) diagram, Case Hardening process and its types, Practice on Rockwell hardness test, Practice on Brinell Hardness test, Practice on Vickers hardness test, Practice on selection of heat-treating temperature, Practice on annealing process, Practice on normalizing process, Practice on hardening process, tempering process, Practice on different quenching media, Practice on Jominy-End Quench test.						

PRODUCTION TECHNOLOGY

Name of the Course	Course Code	Duration	Regular Course Schedules			
			Apr 2023 – Jun 2023	Jul 2023 – Sep 2023	Oct 2023 – Dec 23	Jan 2024 – Mar 2024
MANUFACTURING PROCESS & TECHNIQUES IN PRODUCTION TECHNOLOGY	231401	2 Weeks	29-05-23 to 09-06-23	24-07-23 to 04-08-23	13-11-23 to 24-11-23	01-01-24 to 12-01-24
Course Contents: : Introduction, course objectives and safety in manufacturing process introduction to machines and equipment in PT section and visit to all sections of NSTI ,precision and accuracy with suitable examples and overview on quality and ppm, practice on conventional lathe inter changeability ,fit limit, tolerance and allowances as per is and BIS standards, practice on conventional lathe, importance of cutting speed ,rpm, and feed and calculations, practice on CNC lathe cutting tool materials practice on up and down milling, jigs and fixtures, importance heat treatment ,types and hardness testing.						
DESIGN & MANUFACTURING OF PRESS TOOLS	231402	2 Weeks	17-04-23 to 28-04-23	21-08-23 to 01-09-23	04-12-23 to 15-12-23	29-01-24 to 09-02-24
Course Contents: Scope of press working and types of press tool operations theory, machining processes- turning, milling, drilling, tapping and grinding, Theory of cutting and effect of excessive and insufficient die clearance. Steps involved in designing press tool, determination of cutting force and die clearance, types of presses and selection criteria computing die thickness and margins and punch dimensioning. , Standard dye sets, scrap strip & strip layout for blanking, die block and punch design ,Types of stripers, striper design, stripping force and stock stops, Fasteners and fastening methods, Dowels and doweling methods. , die materials and heat treatment of dies and punches , Methods of repairing defective and worn out punches and dies, failure analysis of press tools , die setting , manufacturing of press tool (progressive tool) elements by conventional machining process viz. turning, milling, grinding, drilling, tapping etc. practical , jig boring operation of machining dye holes , heat treatment press tool elements.						

JAGUAR PLUMBING LAB

Name of the Course	Course Code	Duration	Regular Course Schedules			
			Apr 2023 – Jun 2023	Jul 2023 – Sep 2023	Oct 2023 – Dec 23	Jan 2024 – Mar 2024
BASIC COURSE IN PLUMBING	231501	2 Weeks	15-05-23 to 26-05-23 05-06-23 to 16-06-23	03-07-23 to 14-07-23 21-08-23 to 01-09-23 04-09-23 to 15-09-23	09-10-23 to 20-10-23 13-11-23 to 24-11-23 11-12-23 to 22-12-23	29-01-24 to 09-02-24 19-02-24 to 01-03-24 11-03-24 to 22-03-24

Course Contents: Knowledge and Skills necessary to assemble, install and repair pipes, fittings and fixtures of heating, water and drainage systems, pipe fittings, and pipes composed of metals and nonmetals; join pipes; caulk joints; -install and repair plumbing fixtures such as sinks, bathtubs, water heaters, hot water tanks, repair and maintain plumbing.

INFRASTRUCTURE AND FACILITIES

LIBRARY

A well equipped library is available for reading, reference & borrowing books. The library houses a good collection of technical books, periodicals, newspapers, wallcharts & transparencies for the use of trainees & staff

CONFERENCE HALL

A Conference hall with a seating capacity of 40 seats equipped with modern audio-visual facilities such as Wi-Fi DLP projector , audio systems, interactive board, visual presenter, computer with internet connections etc.



CANTEEN

A canteen available in the campus premises with hygienic refreshment & food during working hours.

HOSTEL

Limited Hostel Accommodation is available on first come first serve basis. Cooking inside hostel rooms is strictly prohibited. In case of nonavailability of hostel, candidates have to make their own arrangements. Limited hostel facility for Women is also available separately.

- Nominal rent of Rs.100/- per day per room.
- A spacious hostel comprising of 100 rooms with double bed accommodation is available for the trainees.
- Moderate amenities like play area with sports goods, television room, & hygienic drinking water facilities are provided for the inmates.
- Family accommodation not available.
- Located from 1km from main campus close to inner ring road at Ekkattuthangal





ADVANCED WELDING



PROCESS CONTROL INSTRUMENTATION



PNEUMATIC & HYDRAULIC CONTROLS



CNC LAB



ECM LAB



METROLOGY & ENGG.INSPECTION

For Registration



Institute Location: <https://maps.app.goo.gl/JmJb7og6oFv8QWLv6>

For Registration: <https://forms.gle/3MLHM4YcsrnHU4hy5>

Website: www.nstichennai.dgt.gov.in

Email: nsti-chennai@dgt.gov.in / rdsde-tn-msde@gov.in / stcnstichennai@gmail.com

Call: 9448105633 / 9444632551 for more details