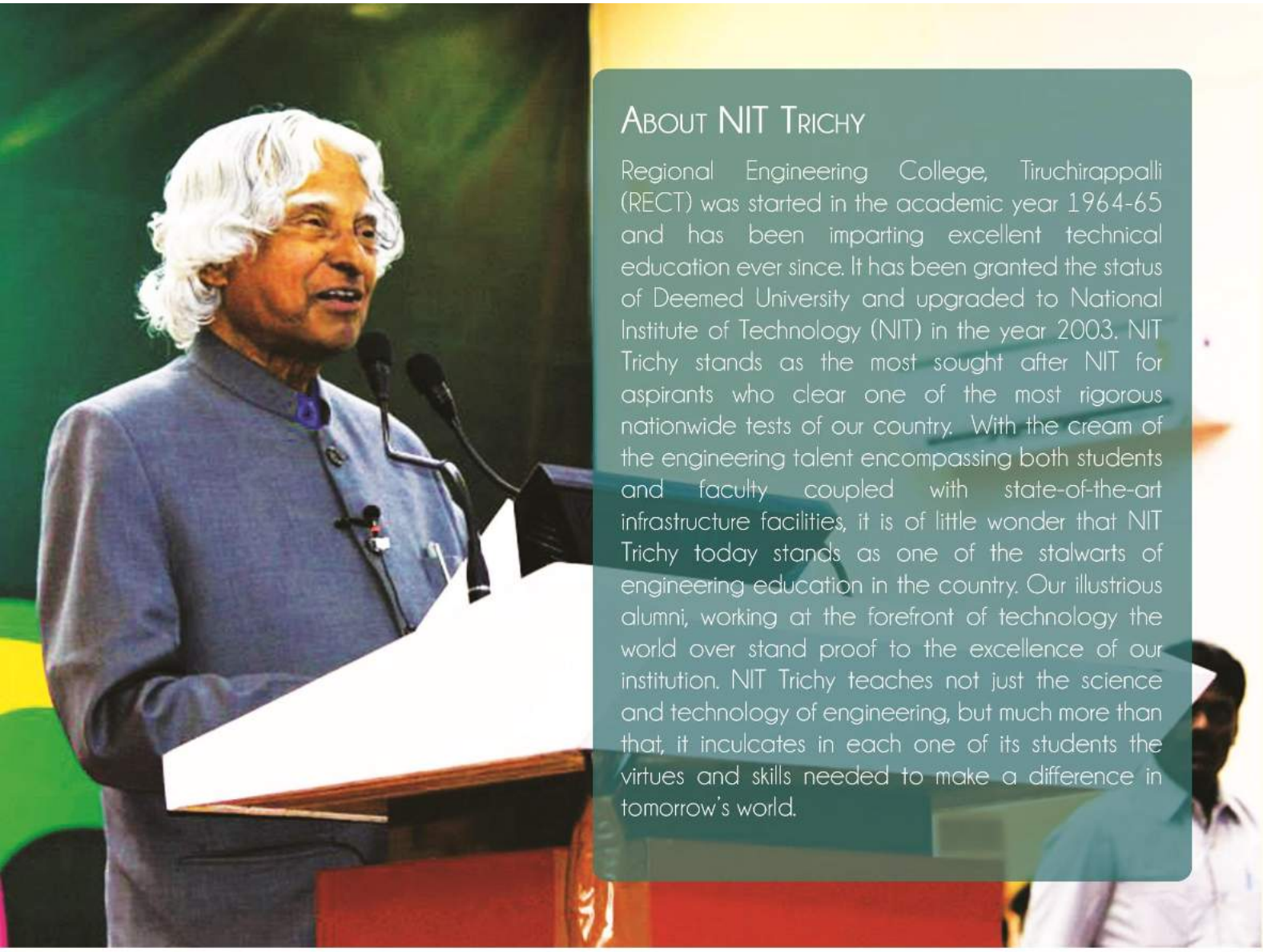
INVITATION

POST-GRADUATE PLACEMENTS 2017-18

NATIONAL INSTITUTE OF TECHNOLOGY
TIRUCHIRAPPALLI



About NIT Trichy

Regional Engineering College, Tiruchirappalli (RECT) was started in the academic year 1964-65 and has been imparting excellent technical education ever since. It has been granted the status of Deemed University and upgraded to National Institute of Technology (NIT) in the year 2003. NIT Trichy stands as the most sought after NIT for aspirants who clear one of the most rigorous nationwide tests of our country. With the cream of the engineering talent encompassing both students and faculty coupled with state-of-the-art infrastructure facilities, it is of little wonder that NIT Trichy today stands as one of the stalwarts of engineering education in the country. Our illustrious alumni, working at the forefront of technology the world over stand proof to the excellence of our institution. NIT Trichy teaches not just the science and technology of engineering, but much more than that, it inculcates in each one of its students the virtues and skills needed to make a difference in tomorrow's world.

Why Recruit @ NIT Trichy

INSTITUTE OF NATIONAL IMPORTANCE

Institute of National Importance (INI) is a status that is conferred to a public higher education institution in India by an act of parliament. It has been over 50 years since NIT Trichy was established, and it is the endearing spirit of the Institute which motivates its students to aspire to be the best.

STUDENTS

As a student of NIT Trichy, one is encouraged to become a competent technologist, an emergent leader and a proactive citizen.

TOP ENGINEERING COLLEGE

NIT Trichy has been consistently ranked among the top 10 Engineering Colleges in the country. It was ranked as the 8th Best Technical School in India and the best among NITs by Outlook Magazine (2016).

CHOICE OF CURRICULUM

NIT Trichy offers a wide range of engineering disciplines. The departments offer a multidisciplinary range of courses to the students, with the express aim of ensuring the holistic development of students.

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Awards & Accolades

Winner of the National Award for Excellence in Employabilityin 12th FICCI Higher Education Summit 2016..

Winner of the National Awad for Serving Social Cause (CSR) in 10th ASSOCHAM Education Awards 2017

CII Presented HUL Award for the Best Industry - Linked NIT/IIT/IIIT to NIT Trichy in 2015.

FICCI Higher Education Excellence Award presented to NIT Trichy for Social Excellence in 2015.

Outlook Magazine ranked NIT Trichy in Top Ten Colleges of India in 2015.

ASSOCHAM presented the National Excellence Award for the Best use of ICT/MOOC in Education (South) in 2016.

Infrastructure

Clock Tower

Convention Centre

Hospital

Helipad

Cafe Coffee Day (CCD)

Lyceum

Ojas

Lecture Hall Complex

Central Library

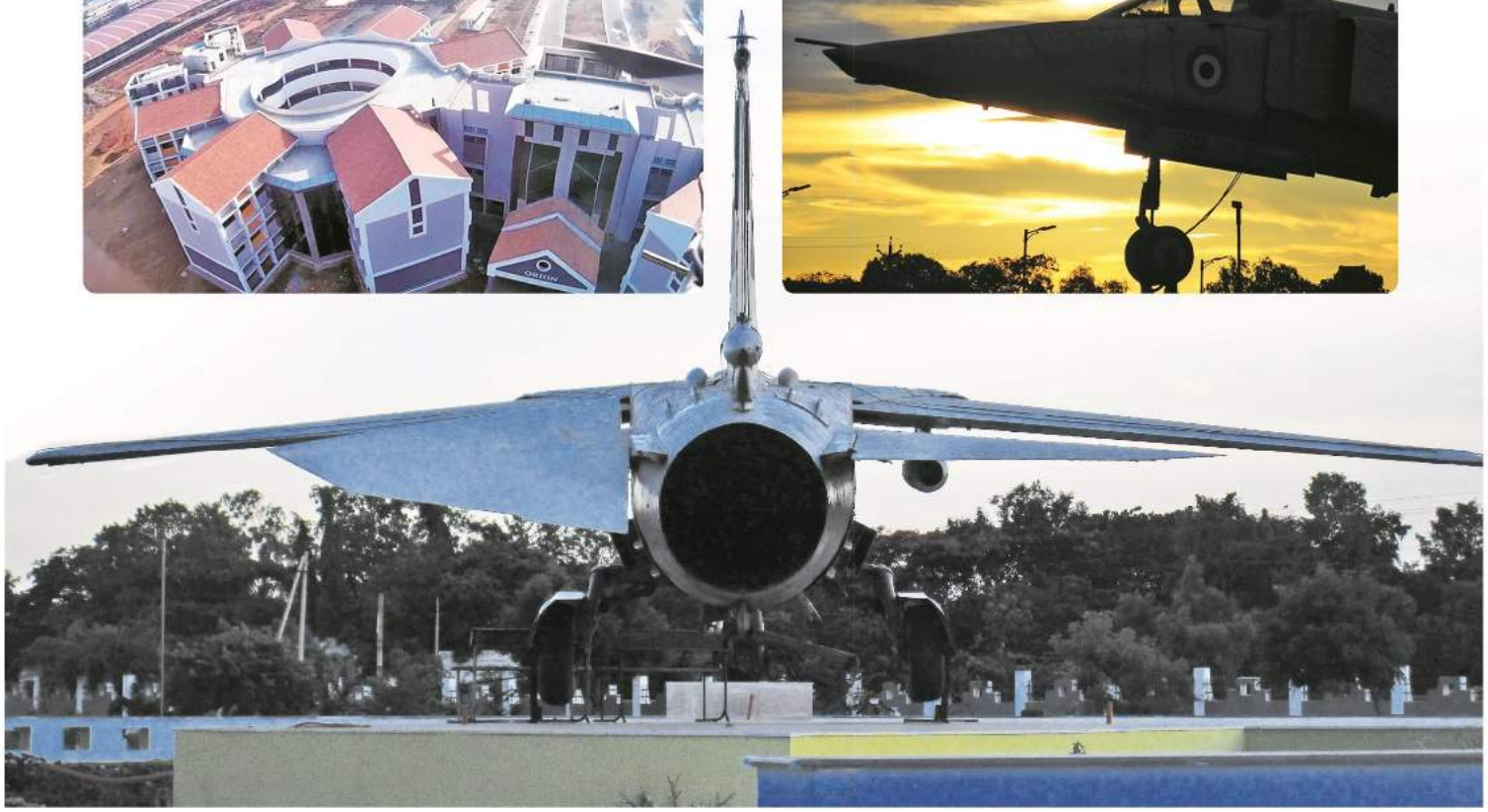
Sports Centre

Octagon

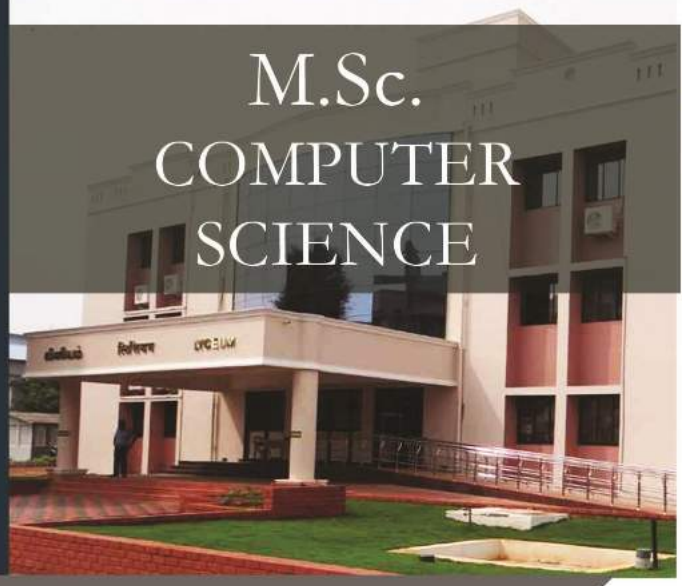
Swimming Pool

Orion

MIG 23



M.Sc. COMPUTER SCIENCE



Department Profile

The Department of Computer Applications is one of the pioneering departments of the institution that offers Information Technology courses such as MCA and M.Sc Computer Science. It is committed to impart quality education in the sub-fields of IT, a field growing in leaps and bounds. It is dedicated to the mission of developing highly skilled professionals who can adapt to the dynamic changes of the IT industry.

Course Profile

This programme is specifically aimed to impart quality education in the field of Computer Science. M.Sc. Computer Science is a four semester full time Post - Graduate programme spread over two years with the first three semesters concentrating on the theoretical foundation with high quality teaching complemented with extensive practical training and the final semester concentrating on the project work. The course is developed to inculcate value-based, socially committed professionalism for the overall development of research attitude and life-long learning.

Curriculum

- Mathematical Foundation of Computer Science
- Computer Organisation and Architecture
- Data Structures and Algorithm
- Operating Systems
- Fundamentals of Parallel Programming
- Data Mining
- Computer Networks
- Computer Graphics and Multimedia
- Big Data Analytics
- Web Technology
- Mobile and Pervasive Computing
- Object Oriented Software Engineering

Ongoing Projects

- Internet Multimedia Search Engine for Information Retrieval in Distributed Environment.
- Cognitive based Curriculum Development Tool for emerging areas of Computer Engineering and Management Studies for improving Teaching Learning Process.
- Fuzzy based Sentence Level Event Pattern Analysis and Prediction for Crime Event Detection.
- Deciphering the Dynamic Architecture Design from Music and developing software.

Lab Facilities

- NIT Local Area Network (OCTAGON Computer Center).
- Dell Power Edge Server R1950.
- Platforms such as Linux, Solaris based SUN Machines.
- HP DEC Alpha Ultra Sparc, IBM System Storage DS3500 and IBM System 2U Server Rack.
- DELL Optiplex 9020 MT PCs connected to NITT LAN.

MASTER OF BUSINESS ADMINISTRATION

Department Profile

The Department of Management Studies (DoMS), since its inception in the year 1978 has been serving as a management hub for aspiring students and is being recognized as one of the finest business schools in the country. Aided by the state-of-the-art infrastructure, DoMS incorporates lectures, case studies, seminars, mini projects, summer internship and field visits as a part of the programme. The academicians at DoMS are a veritable treasure of learning and erudition, with a mature lineage of consultancy and research behind them.

Course Profile

The DoMS MBA programme follows trimester pattern and imparts in-depth knowledge in the crosscuts of all academic areas and pools together resources from every functional area, thus driving home the importance of seeing the 'big picture' in business. The programme covers 32 courses spread over modules of 10 weeks each and a summer project of 8 to 10 weeks, over a period of two years. The department offers the right mix of specializations to students. Vertical Courses include Finance, Marketing, Operations and Human Resources whereas Horizontal courses include Business Analytics and Business Analysis & IT Consulting.

Curriculum

- Business Analytics
- Introduction to Business Analytics
- Basic Data Analytics
- Advanced Data Analytics
- Data Mining Technique
- Marketing Analytics
- Supply Chain Analytics
- Financial Risk Analytics
- HR Analytics
- Digital Analytics
- Business Analyst and IT consulting
- Introduction to Business Analysis & IT Consulting
- Business Analysis in Financial Services/ Capital Markets
- Business Analysis in Retail
- Business Analysis in Manufacturing
- System Analysis & Design
- Software Project Management
- Software Quality Management

Lab Facilities

PROQUEST - International data aggregator, allowing access to over 4,000 international journals with archives.

CMIE PROWESS - Access to Economic Data, financial reports, stock market data, and specialized studies covering all sectors and listed companies.

Awards and Accolades

- "B-School Leadership Award", Business school that encourages leadership as a part of the curriculum at Hindustan in 2015.
- Unilever Limited's 22nd Dewang Mehta Business School Awards in 2014.
- "Best Specialization Award" in Indian B-School Awards by Discovery Education Media Private Limited in 2013.
- "Best Curriculum in Business Analysis and IT Consulting", Dewang Mehta Award in 2013.
- "Outstanding B-School South" : Innovative B-School Awards presented by DNA and Stars of Industry Group.
- DoMS-NIT Trichy has been awarded as "Outstanding B-School (South)" by Bloomberg UTV.

MASTER OF COMPUTER APPLICATIONS

Department Profile

The Department of Computer Applications is one of the pioneering departments of the institution. The MCA programme offered at NITT is considered to be the best in the country. The course provides a good theoretical foundation through high quality teaching complemented by extensive practical teaching. The main objective of the programme is to provide professional training in the area of computer applications and develop computer professionals to meet the demands of the fast growing IT industry.

Course Profile

This programme is especially aimed at fulfilling the industry's growing need for complement software professionals. MCA is a six semester full time Post-Graduate programme spread over three years. The curriculum is designed to provide a solid conceptual foundation and an extensive focus on application of these concepts to real life situations. The curriculum covers diverse streams such as systems, application and management. In the first five semesters, the course contents is a perfect blend of computer science, computer oriented mathematics and management science. The sixth semester is dedicated exclusively to project work.

Curriculum

- C/C++/JAVA Programming
- Design and Analysis of Algorithms
- Data Base Management System
- Data Structures
- Object Oriented Analysis & Design
- Operating Systems
- Computer Graphics
- Information Security
- Visual Programming (.Net)
- Computer Networks
- Data Warehousing & Data Mining
- Software Architecture & Project Management
- Computer Organization and Architecture
- Software Engineering
- Organizational Behavior
- Operations Research
- Discrete Mathematics
- Client/Server Technology
- UNIX SHELL Programming

Ongoing Projects

- Internet Multimedia Search Engine for information retrieval in distributed environment.
- Cognitive based Curriculum Development Tool for emerging areas of Computer Engineering and Management Studies for improving Teaching Learning Process.
- Fuzzy based Sentence Level Event Pattern Analysis and Prediction for Crime Event Detection.
- Deciphering the Dynamic Architecture Design from Music and developing software.

Lab Facilities

NIT Local Area Network (OCTAGON Computer Center).

Dell Power Edge Server R1950.

Platforms such as Linux, Solaris based SUN Machines.

HP DEC Alpha Ultra Sparc, IBM System Storage DS3500 and IBM System 2U Server Rack.

DELL Optiplex 9020 MT PCs connected to NITT LAN.

M.Tech. COMPUTER SCIENCE & ENGINEERING

Department Profile

The Department of Computer Science and Engineering with its cohesive team of faculty members offers a sound program at the UG and PG levels. The department has 15 faculty members with eight doctorates. The curriculum is updated regularly to keep pace with the growing demands and changing trends of the software industry and research laboratories. Research areas in the department include Computer Networks, Wireless and Sensor Networks, Network Security, Computer Architecture, Grid and Cloud Computing, Big Data Analytics, Image Processing and Database Management Systems. Department has about 50 full time and part time research scholars pursuing their Ph.D./M.S. (By Research) degrees.

Course Profile

This program is aimed at providing comprehensive overview of the advances in various frontiers of Computer Science and Engineering. The highly experienced faculty team coupled with modern computing facilities provide an environment in which students can improve their professional skills and knowledge base which are mandatory to conquer the challenges of future. Students participate in various guest lectures and workshops conducted by eminent personalities from the Industry to enhance the awareness of the rapid changes in Computer Science and Engineering.

Curriculum

- Mathematical Foundation for Computer Science
- Advanced Data Structures and Algorithms
- Advanced Operating Systems
- Advanced Digital Design
- Advanced Database Management Systems
- Network Security
- Cloud Computing
- Parallel Computer Architecture
- Service Oriented Architecture (SOA)
- Design and Analysis of Parallel Algorithms
- Advanced Network Principles and Protocols
- Principles of Cryptography
- Data Mining and Data Warehousing
- Distributed Systems
- Mobile Network Systems
- Wireless Sensor Networks
- Real Time Systems

Ongoing Projects

- Inter-disciplinary research group has been established.
- Studies on issues in multi-core architecture.
- Studies on Cyber Space Security.
- Studies on Big Data Analytics and Hadoop Technologies.
- Studies on Cloud Computing and Cloud Security.

Lab Facilities

State-of-art computing facility at Octagon with core i7 systems.

Servers (DELL Power Edge R910 Rack Mount Server) which support the LAN providing a Linux/Windows environment.

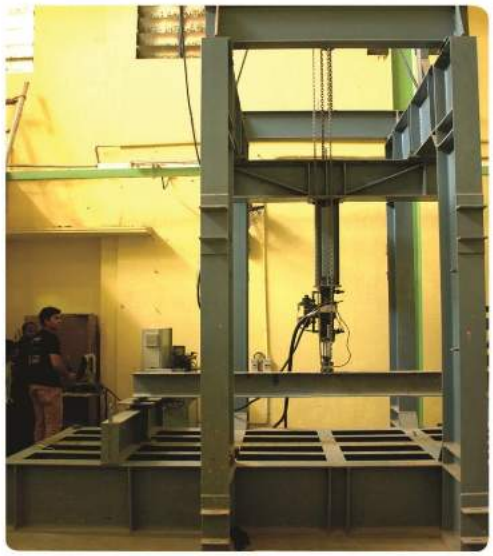
Lab facilities dedicated to M.Tech. students with latest configuration of DELL Optiplex 9020 systems.

A dedicated lab for carrying out research in information security, system security, and network security.

Dedicated lab with multi-core for research.

Dedicated design lab - RISE (Reconfigurable Intelligent System Engineering) Lab.

CIVIL ENGINEERING



Department Profile

The Department of Civil Engineering has been one of the oldest and finest departments of the Institute. Established in 1964, it has been involved in making professional Civil Engineers. The highly qualified and experienced faculty along with its engineering consultancy centre has been instrumental in bringing the institute to the forefront of academic and consulting activities.

M.Tech.
ENVIRONMENTAL ENGINEERING

Course Profile

Post Graduate Programme in Environmental Engineering was started as an Inter Disciplinary (Civil, Biotechnical, Chemical & Mechanical Engineering) Programme under TEQIP in 2006. The course is aimed to develop professional engineers with leadership qualities in engineering aspects of Land & Water Management, Environmental Impact Assessment, Skills in Water Supply, Wastewater Treatment, Land Reclamation and Solute Transportation. In addition, it will enable engineers to converse scientifically with biologists, geologists and resource managers. With these skills, Graduates will be able to play a leading role in developing engineering solutions to a wide range of problems and opportunities within an ecologically sustainable context.

Curriculum

- Physico-Chemical Process for Water and Wastewater Treatment.
- Biological Process design for Wastewater treatment.
- Industrial Wastewater Management.
- Transport of Water and Wastewater.
- Solid and Hazardous Waste Management.
- Environmental Impact Assessment.
- Water and Air Quality Models.
- Contaminant Transport Modelling.
- Envirinmental System Analysis.
- Air Quality Management.
- Environmental Chemistry and Microbiology.

Ongoing Projects

Modelling of Leachate Migration from Open Dumping Site, DST.

Land use and land cover assessment along Tiruchirappalli city using high resolution remote sensing images, DST.

Post Project Monitoring for Road projects (Water, Air and Noise Quality), NHAI.

Base line date for Water, Air and Noise Quality (for Mining Projects), PWD.

Lab Facilities

- UV Visible Spectrophotometer.
- Atomic Absorption Spectrophotometer.
- TOC Analyser.
- Gas Chromatography.
- COD Digester.
- Orbital Shaking Incubator.
- Ultra-Pure Water Unit.
- Digital Colony Counter.
- Digital Microscope.
- Haz dust Particulate Monitor.
- Flue Gas Analyser.
- Ion Chromatography.
- DR Spectrophotometer.
- DO Meter, Conductivity Meter.
- Stack Monitoring Kit.
- Ambient Air Sampler.
- Ozone Analyser.
- Key software including Auto CAD, Visual MODFLOW, Arc GIS, Arc View, Arc Info. ENVI, RIAM and QUAL2E.

M.Tech.
TRANSPORTATION ENGINEERING AND MANAGEMENT

Course Profile

The Master of Technology course in Transportation Engineering and Management was started in 1971 with MHRD funding under the University of Madras. One month In-plant training program is arranged for students at the end of second semester in various Government organizations and companies to get industrial exposure which helps grooming them into competent professionals.

Curriculum

- Highway Traffic Analysis and Design
- Pavement Materials and Design
- Urban Transportation Systems
- Transportation Planning
- Pavement Construction and Management
- Computational Techniques in Transportation Engineering
- Transportation Economics
- Geospatial Techniques
- Human Resources Management
- Computer Planning Applications in Transportation Engineering
- Bridge Engineering
- Traffic Flow Theory
- Ground Improvement Techniques
- Environmental Impact Assessment

Ongoing Projects

Centre of Excellence in Transportation Engineering (CETransE) - sponsored by MHRD.

Urban speed management using ITS - sponsored by Ministry of Urban Development.

Urban Pavement Maintenance Management system - sponsored by Ministry of Urban Development.

Pavement Performance Studies on Coir Geotextile reinforced rural roads in Tamil Nadu - Coir Board.

Rural Road Pavement studies - sponsored by NRRDA.

Lab Facilities

Pavement Engineering Lab

Ring and Ball Apparatus.
Bitumen Penetration Kit.
Centrifuge Extractor.
Film Stripping Device.
Ductility Testing Machine.
Rotational Viscometer (Brookfield).
Pensky Martens Flash Point Apparatus.
Marshall Stability Apparatus.
Dynamic Shear Rheometer.
NCAT Asphalt Content Ignition Oven.

Intelligent Transport System Lab

Mix Road Software.
Transyt-15 Software.
N-LOGIT 5.0 Software.
ESRI's Arc GIS Software.
CUBE Software.
GAMS (Generic Algebric Modeling System).

M.Tech.
STRUCTURAL ENGINEERING

Course Profile

The aim of this course is to fulfill the growing demand for specialists in Structural Engineering. Practising Engineers will find this course very useful as it enables them to update their knowledge in the field of Structural Engineering and Design as well as assists them to solve complicated structural engineering problems. The curriculum is designed so as to get an exposure on areas of Structural Analysis, Design, Detailing and Construction. The course also familiarises the use of general purpose and application oriented software in the field of structural engineering, finite element analysis and optimisation.

Curriculum

- Theory of Elasticity and Plasticity
- Matrix Method of Structural Analysis
- Structural Dynamics
- Advanced Concrete Technology
- Advanced Steel Structures
- Analysis of Deep Foundation
- Stability of Structures
- Finite Element Methods
- Theory of Plates and Shells
- Seismic Design of Structures
- Bridge Engineering
- Ground Improvement Techniques
- Forensic Engineering and Rehabilitation of Structures

Ongoing Projects

Analysis and design of support structure for large scale HRSG using LSM for optimisation and bringing out salient features of LSD for future application - BHEL.

Non-linear soil structure interaction of piles on sloping ground - DST.

Evaluation of geotechnical properties of Lunar soil simulant for Chandrayan 2 Mission - ISRO.

Assessing the dynamic behaviour of aggregates crushing unit and limiting the dynamic vibration.

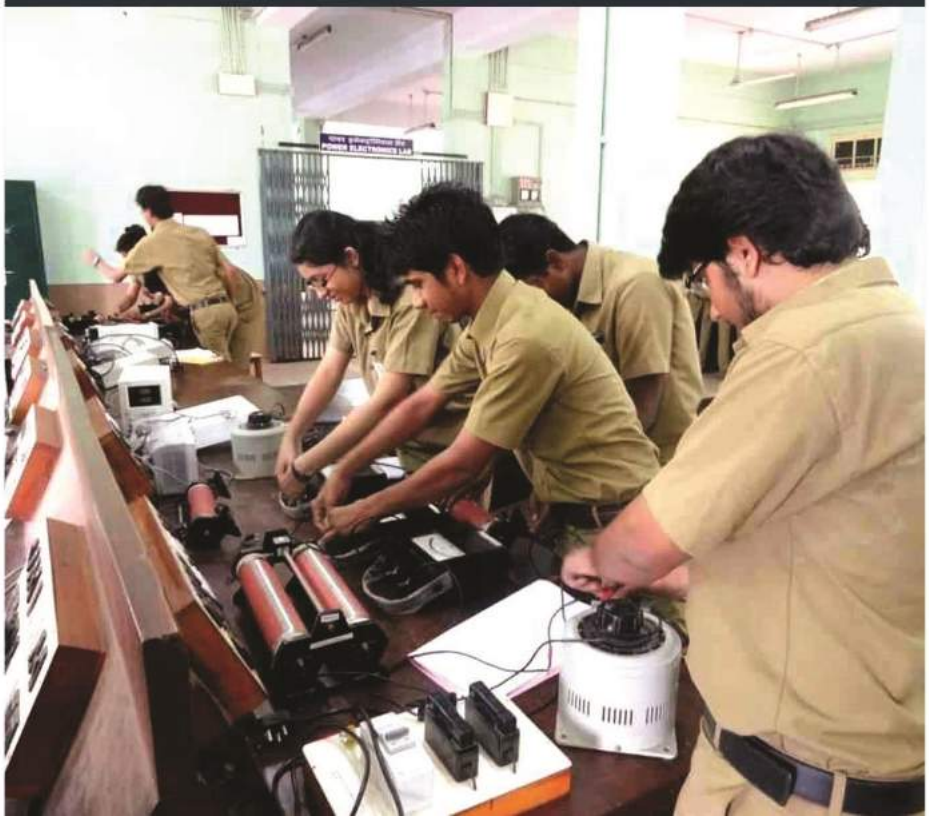
Lab Facilities

- 100T Capacity Computerised UTM.
- Heavy Testing Floor with Loading Frame.
- Load Cells, Hydraulic Jack 200T.
- 100T Strain Data Logger.
- 5T EOT Crane.
- 30T Loading Frame with 5T Capacity Actuator.
- Structural 20T Dynamic Testing System.
- 80 Channel Data Log System.
- Intergrated Equipment System for Dynamic Characterization of Structural Elements.
- ACLVDT.
- Electrochemical Corrosion Measuring Instrument.
- 6 Channel Data Acquisition System.
- Horizontal and Vertical Shake Tables with 12 Modules.
- Horizontal Shake Tables with Eccentric CAM.
- Schmidt Hammer.
- Ultrasonic Testing Equipment.
- Electronic Cover Meter.
- ANSYS 11, AUTO CAD, STAAD PRO.STRAP, SAP, NASTRAN, NISA 3, GT-STRUDL 6.0. C & C++.

ELECTRICAL AND ELECTRONICS ENGINEERING

Department Profile

The Department of Electrical and Electronics Engineering, NIT Tiruchirappalli has grown from a modest beginning in 1964 into a large fully equipped teaching and research department. The department has highly qualified faculties and is equipped with state of art laboratories and library. The department shares its research experience through technical symposia.



M.Tech.
POWER ELECTRONICS

Course Profile

This course emphasises on the foundation and technologies of modern Power Electronics and automation of Power System. It deals with the state-of-art techniques in design and development of power modules and power conversion. It also covers subjects on Power electronics Drives, Flexible AC Transmission, High Voltage DC Transmission, Industrial Control Electronics and advanced topics in microprocessor and microcontroller application in power converters which are very much needed to meet the growing challenges in the field of Electrical Engineering.

Curriculum

- Power Converters
- Power Electronics Drives
- Switch Mode Power Conversion
- Microcontroller Application in Power Electronics
- Industrial Control Electronics
- PWM Converters & Applications
- Flexible AC Transmission Systems
- High Voltage DC Transmission
- Digital Signal Processing & Applications
- Principles of VLSI Design
- Fuzzy Logic Systems
- System Theory
- Advanced Power System Protection
- Optimization Techniques

Ongoing Projects

Design and optimization of feedback controller for Boost type DC-DC converter using artificial immune system - CPRI sponsored.

Development of DC-DC converter and bidirectional converter for SPV applications by NIT Trichy.

Adaptive PI controller for D-STATCOM.

Design and Development of improved shunt active filter with enhanced signal processing with due consideration for distorted utility - DST sponsored.

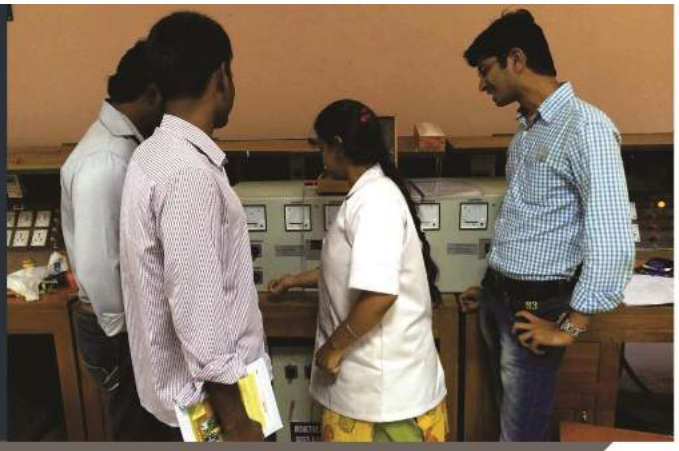
A particle swarm optimization based control scheme for output voltage regulation in a dual input buck-boost DC-DC converter.

Lab Facilities

Power Converters Laboratory:
- Microprocessors & Microcontrollers Laboratory
- Electrical Machines Laboratory
- Simulation Software like MATLAB/SIMULINK 7.5, PSCAD, 4.2, ETAP 4.0, Mipower 4.0, Power World Simulator

Research Laboratory for M.Tech. & Ph.D. Project Works:
- Control Systems Research Lab
- Hybrid Electrical Systems Lab
- Networking Research Lab
- Power Converters Research Lab (partly funded by NaMPET)
- Power Electronics Research Lab
- Power System Automation and Control Research Lab
- Solar PV Energy Conversion Research Lab
- VLSI Systems Research Lab

M.Tech.
POWER SYSTEMS



Course Profile

This course is designed to provide sound knowledge on various aspects of modern Power Systems with more thrust given on the key concepts of Power Electronics and automation of Power Systems. It deals with sophisticated techniques in Power System Restructuring, Forecasting and Analysis, Planning, Reliability, Security & Stability Evaluation to keep up with the ever increasing demand in electrical power. The course also covers subjects on Flexible AC Transmission, High Voltage DC Transmission, Renewable Energy Electric Conversion Systems and advanced topics in Power System Protection which are very much needed for today's Power System engineer.

Curriculum

- Advanced Power System Analysis
- Power System Operation and Control
- Power System Stability
- Advanced Power System Protection
- Computer Relaying and Wide Area Measurements
- Power System Restructuring and Pricing
- Flexible AC Transmission Systems
- High Voltage DC Transmission Systems
- Renewable Power Generation Sources
- Power Conversion Techniques
- Advanced Digital Signal Processing
- Fuzzy Logic Systems
- Optimization Techniques
- VLSI Systems

Ongoing Projects

A Novel hybrid energy system for supplying isolated loads with FPGA based energy management scheme - CWET Chennai sponsored.

Design, Development and Analysis of bio -inspired control strategies for stand-alone solar powered LED lighting systems - MHRD sponsored.

Synchronous angle measurements based adaptive faults identification and classification methodology for smart power grids.

Maximum power extraction from offshore wind driven generators through HVDC Transmission system - MHRD sponsored.

Developement of Microgrid Test - Bed for renewable energy management systems - DST Fast Track Project.

Lab Facilities

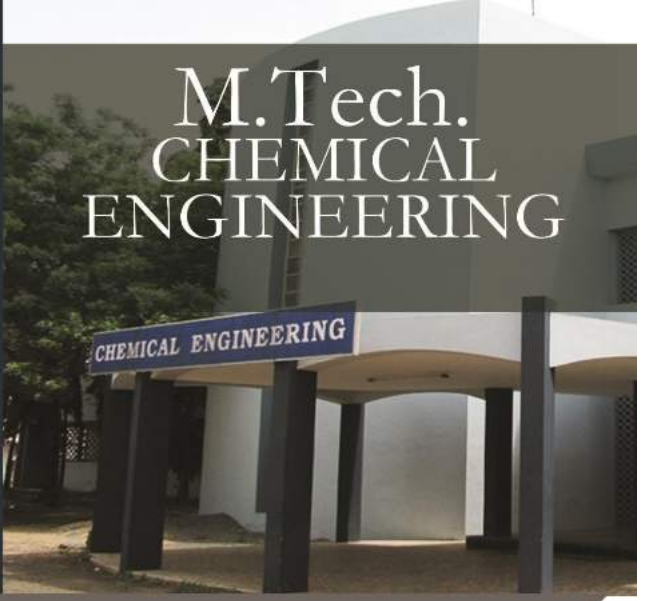
Curriculum Laboratory :

- Power System Laboratory.
  With major equipment including HVDC Transmission Line simulator, Microprocessor based Numerical Relays, FACTS Devices, Short/Long Transmission Lines.
  Simulation Software like MATLAB/SIMULINK 7.5, PSCAD, 4.2, ETAP 4.0, Mipower 4.0, Power World Simulator.
- Electrical Machines Laboratory.
- Power Electronics Laboratory.

Research Laboratory for M.Tech. & Ph.D. project work :

- Power Systems and Smart Grid Lab.
- Power System Automation and Control Research Lab.
- Power Converters Research Lab (partly funded by NaMPET).
- Hybrid Electrical Systems Lab.
- Power Electronics Research Lab.
- Solar PV Energy Conversion Research Lab.
- VLSI Systems Research Lab.

M.Tech. CHEMICAL ENGINEERING



Department Profile

Established in 1968, the Department of Chemical Engineering, NIT Trichy is regarded as one of the premier centers for Chemical Engineering in India by industries as well as academia. It also has the distinction of being ranked as one of the top ten Chemical Engineering Institutions in India. The department is backed by highly qualified and experienced faculty, most of who have been involved in various industrial projects and consultancy services.

Course Profile

The Department strives to meet the growing demand of design engineers in private and public sector companies as well as consultancies by bridging the gap between a theoretically sound student and a practically qualified technocrat. Students are imparted with knowledge in Chemical Process Equipment Design along with Chemical Reaction Engineering and Advanced Process Control. Students are also acquainted with purely industry oriented subjects like New Separation Techniques and Computational Fluid Dynamics. Course is designed to groom students so that they extract the best talents out of them and excel in their discipline.

Curriculum

- Chemical Reactor Analysis & Design
- Process Modeling & Simulation
- Advanced Process Control
- New Separation Techniques
- Industrial Safety and Risk Management
- Pinch Technology
- Advances In Fluidization Engineering
- Chemical Process Design
- Advanced Transport Phenomena
- Computational Fluid Dynamics
- Process Optimization
- Introduction to the design of Heat Exchangers, Pressure Vessels & Piping

Ongoing Projects

Development of new Polymeric Membranes for ethanol separation by Air Gap Membrane Distillation - sponsored by SCP/TSP.

Miniaturized compact solar concentrators for water desalination/purification- DST-UKIERI.

Experimental and Numerical Investigation of Gas - solid Reaction in a Tubular reactor-BARC.

Development of biofouling resistant membranes for waste water treatment-DST-INDIA-KOREA.

Experimental and Theoretical aspects of Ultrasound in Food Emulsion : An Indo-Russian joint research project.

Novel Energy Production from Distillery Effluent Treatment by Bio-electrochemical Method.

Lab Facilities

Unit operations laboratory.

Process control laboratory with multiprocess trainer & several DDC systems.

Chemical reaction, technical analysis, momentum transfer.

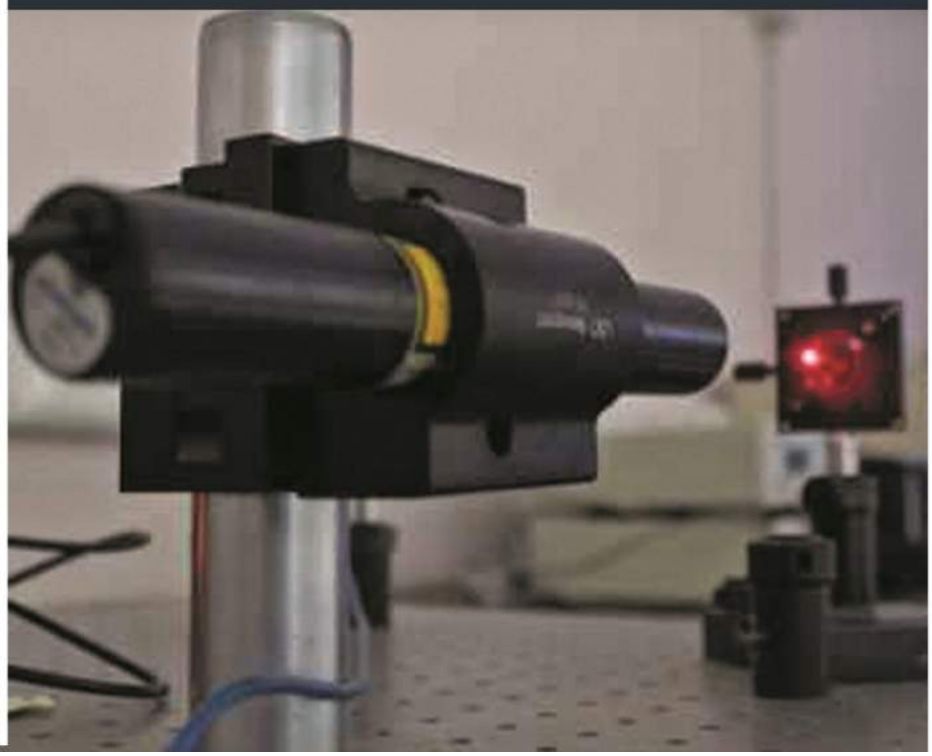
Mechanical unit operation lab.

Simulation packages : Fluent, Aspen Plus, MATLAB, G Proms, GPS-X, HYSYS.

ELECTRONICS AND COMMUNICATION ENGINEERING

Department Profile

The Department of Electronics and Communication Engineering was established in 1968. Since its establishment, the Department strives to maintain its high standard by revising its academic syllabi to suit the industrial standards. The alumni consistently feed inputs for improvement on the curriculum and research facilities. The Department has inaugurated a Centre of Excellence in Electronic Packaging & Manufacturing.



M.Tech.
COMMUNICATION SYSTEMS

Course Profile

Recognizing the need for specialist engineers in the field of Communications, the Department introduced Communication Systems as a post graduate course. The course work has been designed with curriculum laying strong emphasis on rigorous mathematical foundation. With in-depth analysis on the principles of Communication and their applications with advanced concepts and recent trends in the fields of Communication and Signal Processing. The students also undergo laboratory programs on the design and implementation of DSP modules and fiber optic devices, besides devoting their entire final year to project work.

Curriculum

- High Speed Communication Networks
- Advanced Digital Communication
- Broadband Wireless Technologies
- Optical Communication Systems
- Design of Cognitive Radio
- Microwave Integrated Circuits
- DSP Structures for VLSI
- Probability and Stochastic Processes
- Advanced Digital Signal Processing
- Photonic Integrated Circuits
- Verilog HDL
- Pattern Recognition and Computational Intelligence
- Electromagnetic Meta-Materials
- Design of ASICS

Ongoing Projects

Trans-receiver design of multi-user MIMO.

Direction of arrivals estimation.

Analysis and Design of Coplanar Waveguide (CPW) Filters, AICTE, Govt. of India.

RF MEMS component (Reconfigurable Antenna).

Low Complexity, Energy Efficient Transceivers for cognitive Radio Systems, sponsored by UKIERI, Department of S&T, New Delhi.

Baseband modules for wireless sensor networks sponsored by Broadcomm, USA.

"Wireless System Design Lab" under FIST program, DST, New Delhi.

Lab Facilities

The course has been framed with the right blend of both hardware and software laboratories. The modern Microwave laboratory is equipped with microwave network analysers, a digital spectrum analyser and software based MIC filter design tools. The Fiber Optics laboratory contains application specific software packages like PHOTONICS – CAD, OPTSIM etc. In addition, a CAD center for MIC and RF MEMS has been established with application software such as IE3D, CST MS and FIDELITY. Besides all these, COMMSIM, COVENTOR, INTELLISUITE, EMPIRE, ADS and ANSOFT HFSS are available for use. Also, WARP V3 KIT Test Bed for Wireless Systems is available.

LAB COURSES

- Microwave and MIC Laboratory.
- Fiber Optic Communication Lab.
- Digital Signal and Image Processing Lab.
- RF MEMS Lab.

M.Tech.
VLSI SYSTEM

Course Profile

Recognizing the need for specialist engineers in the field of VLSI, the department has introduced VLSI System as a post-graduate course. The course work has been designed with curriculum laying strong emphasis on rigorous mathematical foundation. With in-depth analysis on the principles of VLSI and their applications with advanced concepts and recent trends in the fields of VLSI and Signal Processing. The students also undergo laboratory programs on the design and implementation of DSP modules, besides devoting their entire final year to project work.

Curriculum

- Basics of VLSI
- Analog IC Design
- Digital System Design
- Low Power VLSI Circuits
- Electronic Design and Automation Tools
- VLSI System Testing
- Electronic Packaging
- Graph Theory and Optimization Techniques
- Architecture of DSPs
- DSP Structures for VLSI
- Verilog HDL
- Design of ASICs

Ongoing Projects

Low complexity, energy efficient transceiver for Cognitive Radio Systems, sponsored by UKIREI, Department of S&T, New Delhi.

Design and Implementation of Low Power Analog front end modules for wireless sensor networks, sponsored by Ministry of ICT, New Delhi.

Interconnects for High Speed (4GHz) Applications.

Network on Chip (NOC) design.

Mixer, Low Noise Amplifier, Pipelined ADC.

Complete tape out of two chips for above projects.

SMDP III - C2SD sponsored by DeitY, New Delhi.

"Wireless System Design Lab" under FIST program, DST, New Delhi.

Lab Facilities

WARP V3 KIT Test Bed for Wireless Systems.

Cadence Tools (Virtuoso, Encounter, Spectre, Assura).

Synopsys Tools (VCS, Design Compiler, Formality, Prime Power, Astro, Jupiter XT, Hercules, StarRCXT).

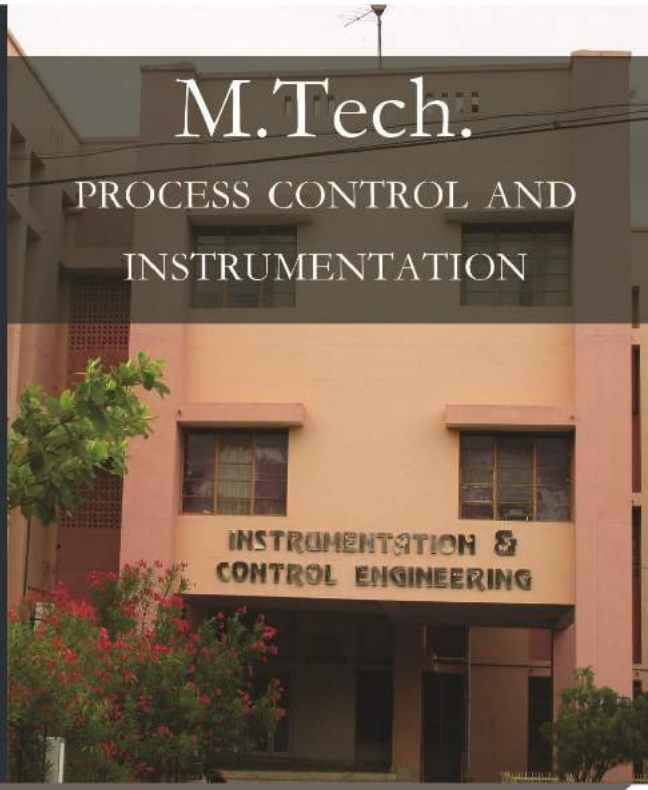
Mentor Graphics Tools (IC - Station, Leonardo Spectrum, Calibre, Physical Verification Tools, Parasitic Extraction Tools).

FPGA Tools from XILINX and ALTERA (Maxplus II & Quartus II), HDL Designer Tool kit, ModelSim & ASIC design tools from Mentor Graphics consisting of Analog & Mixed Signal ADMS.

FPGA Kit from XILINX and ALTERA.

M.Tech.

PROCESS CONTROL AND INSTRUMENTATION



Department Profile

The M.Tech. course is jointly offered by the Departments of Chemical Engineering (established in 1968) and Instrumentation and Control Engineering (established in 1993). The departments have been the premier centres of excellence, with several prestigious sponsored research projects and consultancy works on-going in the fields of Chemical Engineering and Instrumentation & Control Engineering, backed by highly qualified and experienced faculty. The students have been actively participating and presenting many technical papers in various conferences across India. As part of the curriculum industrial experts and academicians from prestigious institutes across the country have delivered lectures and conducted workshops.

Course Profile

This course was started in 1996 with specific focus on process instrumentation and control systems. It has acquired significant importance in the process industry. The programme strives to train manpower for the ever increasing demands of the industry and academics in this area. Young and dynamic faculty together with state-of-the-art lab facilities makes this programme one of its kind in the country.

Curriculum

- Computer Control of Processes.
- Advanced Process Control.
- Modern Control Engineering.
- Soft Computing Techniques.
- Instrumentation for System Analysis.
- Signal Conditioning and Processing.
- Chemical Process Systems.
- Computational Techniques in Control Engineering.
- Chemical Process Flow Sheeting.
- Industrial Instrumentation.
- System Identification and Adaptive Control.
- Real Time and Embedded Systems.

Ongoing Projects

Design, Fabrication & Testing of Meso and Micro scale Resonant Sensors with electronics.

De-congesting India's transportation networks using mobile devices.

Design of MIMO controller for gas turbine.

Sensor linearization using Artificial Intelligence.

Design and development of RTDA controller for linear and non-linear processes.

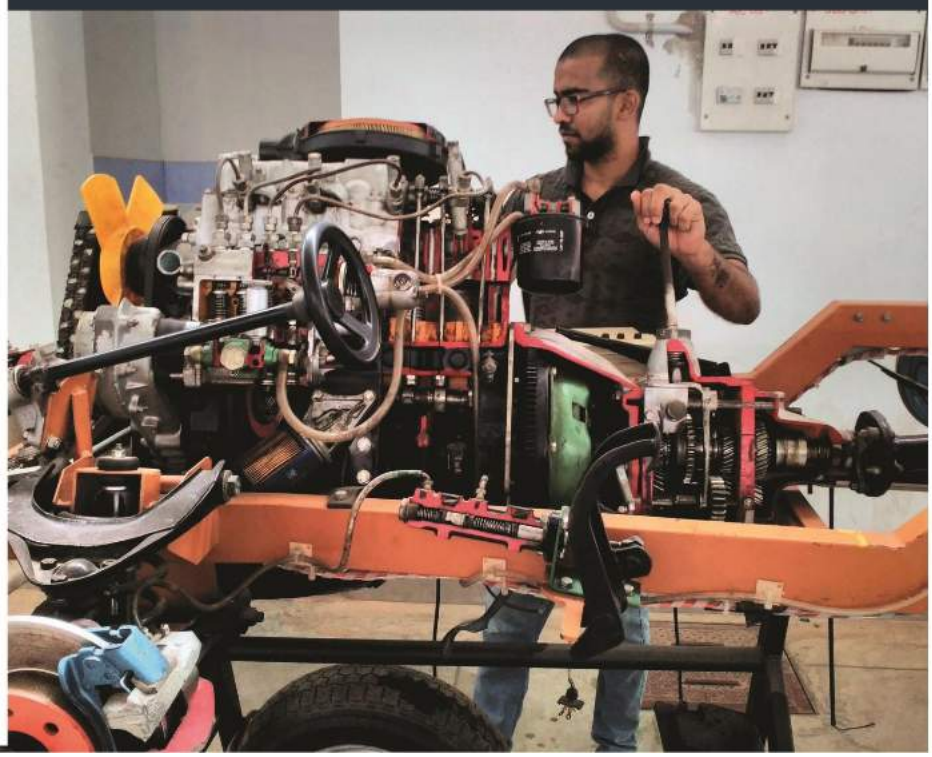
Lab Facilities

Biomedical Engineering Lab.
Control Engineering Lab.
Embedded Systems Lab.
Industrial Automation Lab.
MEMS Design Centre.
Microcontroller Lab.
Modeling and Simulation Lab.
Process Control Lab.
Smart Structures Lab.
Virtual Instrumentation Lab.

MECHANICAL ENGINEERING

Department Profile

The Mechanical Engineering Department has the reputation of being amongst the finest in the country since its inception. The department strives to be at par with the latest developments in the field. With dedicated, highly qualified and experienced faculty members in all streams of Mechanical Engineering, the department aims at providing world class facilities for education and research. An interactive relationship is maintained between the students and staff which ensures effective learning.



M.Tech.
INDUSTRIAL SAFETY ENGINEERING

Course Profile

Post graduate programme in Industrial Safety Engineering was started in 1985, with the support of BHEL-Trichy, as a multidisciplinary programme. The course is aimed at developing managerial and engineering skills to administer Health, Safety & Environment functions. Continually updated curriculum addressing the current and future needs and faculty team consisting of practising HSE professionals facilitate in transforming the students to competent professionals.

Curriculum

- Fire Engineering and Explosion control
- Safety Management
- Occupational Health and Hygiene
- Human Factors Engineering
- Regulations for Health, Safety and Environment
- Computer Aided Risk Analysis
- Safety in Material Handling
- Safety in Engineering Industry
- Electrical Safety
- Safety in Chemical Industry
- Environmental Pollution Control
- Industrial Safety Lab
- Occupational Health and Hygiene Lab

Ongoing Projects

- Analysis of Welding fumes for consumable used in the fabrication of nuclear components for Indira Gandhi Centre for Atomic Research (Sponsored by IGCAR).

- Experimental Investigation on Impact Initiation of Sound/Light emitting Pyrotechnic composition (Sponsored by DRDO ARMREB).

- Analysis of corrosion in firewater headers in Chennai Petroleum Cooperation Limited (CPCL).

- HAZOP study for Vetrivel Explosives Pvt. Ltd.

- Offsite emergency plan for Karur District, Tamil Nadu.

- Safety Assessment on Chemfab Alkali Ltd.

Lab Facilities

- **PPE (Personal Protective Equipment) Lab** Safety Helmets, Safety shields, Safety Shoes, Safety Belt, Safety Gloves, Leather hand sleeve, Leather Leg Guard, Ear Muff, Earplug, Safety Apron, Safety Goggles, Safety Respirators, Dust Mask.
- **BAM Friction Tester.**
- **Impact Sensitivity Tester.**
- **DSC (Differential Scanning Calorimetry).**
- **Fume Test Chamber.**
- **Personal Air Sampler.**
- **High Volume Sampler.**
- **National Model Centre for Occupational Health Services (OHS) an ILO/UNDP project of BHEL-Trichy.**
- Sound level meters, Noise dosi Meters, Air samplers, WBGT Index meters & KATA thermometer, LUX Meter, Tread mill & ECG for measuring work capacity.

M.Tech.
THERMAL POWER ENGINEERING

Course Profile

This programme is designed to provide a sound and in-depth knowledge in various aspects of design, manufacture, test, control and evaluation of thermal power equipments. Thermal power plants have been increasingly dominant in the power generation sector. The course content aims at developing the necessary analytical and technical competence among engineers in this area.

Curriculum

- Mathematical Methods
- Fuels, Combustion and Emission Control
- Advanced Fluid Mechanics
- Advanced Heat Transfer
- Analysis of Thermal Power Cycles
- Analysis and Design of Pressure Vessels
- Fluid Mechanics and Turbo machines
- Instrumentation
- Installation, testing and operation of boilers
- Environmental Pollution Control
- Non-Destructive Testing and Failure Analysis
- Computational Fluid Dynamics
- Energy Conservation, Management and Audit
- Analysis and Design of Pressure Vessels
- Advanced IC Engines
- Advanced Refrigeration and Air Conditioning
- Boiler Auxiliaries and Performance Evaluation
- Heat Transfer Equipment Design

Ongoing Projects

- Miniaturised compact solar concentrators for water desalination/purification (sponsored by DST - UKIERI).
- Support system for FBHE coils; back pass surfaces & buckstay system for CFBC boiler for BHEL, Trichy.
- Experimental Investigation of Heat Transfer enhancement for Electronic Heat Sink Coated with Vertically Aligned CNT and Metal Nanowires (sponsored by DST-SERB).
- Experimental investigation on heat transfer characteristics of hybrid PCM in Thermal storage system (TES) for solar applications (sponsored by DST - SERI).
- Experimental investigation on Dual fuel Engine using Compressed natural gas and Pyrolysis of waste engine oil (sponsored by DST SERB).
- Experimental studies on direct injection engine based on waste cooking oil biodiesel & its blends (sponsored by MNRE).

Lab Facilities

Thermal Lab : Advanced instruments like integrated thermal analyzer, Temperature calibration bath and infrared thermometer.

Metrology Lab, Turbo Machines Lab, Dynamics Lab, Heat and Mass Transfer Lab, Refrigeration and Air conditioning Lab, Automobile Lab.

CAD Centre : Advanced Modeling and Analysis Packages, AutoCAD 2000, Ansys II, Unigraphics, Pro/ENGINEER, IDEAS and Catia.

CFD packages like Fluent/Gambit, Pheonix, Online Hue Gas Analyzer, Ultimate Analyzer and Hightech calorimeter.

M.Tech.
ENERGY ENGINEERING

Department Profile

CEESAT- Centre for Energy and Environmental Science and Technology or DEE – Department of Energy and Environment formed under the protocol signed by the Government of India and the United Kingdom. The department has been inceptioned as an interdisciplinary nodal Centre to enhance the excellence in training, research and consultancy in Energy and Environmental Science. Main emphasis will be given to the identification of appropriate technologies for the efficient production, distribution and use of energy.

Course Profile

The two year M.Tech. course on Energy Engineering aims at offering a competency based education to emphasize an Energy Engineer to perform tasks such as choosing an energy source evaluating its economic viability, choosing an energy option with reference to environmental benefits, setting up energy management as a regular feature, selecting appliances and designing suitable devices and energy auditing and devising conservation schemes.

Curriculum

- Energy audit and management
- Computational fluid dynamics
- Optimum utilization of heat and power
- Design of Heat Exchangers, Pressure Vessels and Piping
- Thermal engineering
- Solar energy utilization
- Fuels and combustion technology
- Instrumentation and control in energy Systems
- Bio-energy technologies
- Wind energy and hydro power systems
- Batteries & fuel cells
- Environmental engineering and Pollution control
- Direct Energy Conversion

Ongoing Projects

'**High performing electrode materials:** Solar Powered Energy Storage Applications'.

'Experimental study of micro algal **removal of CO2 from flue gas'**.

Prime Minister's fellowship for doctoral research project on 'Microalgae treatment of distillery wastewater'.

'Role of Interfacial Viscosity in Myosin - Actin Interactions'.

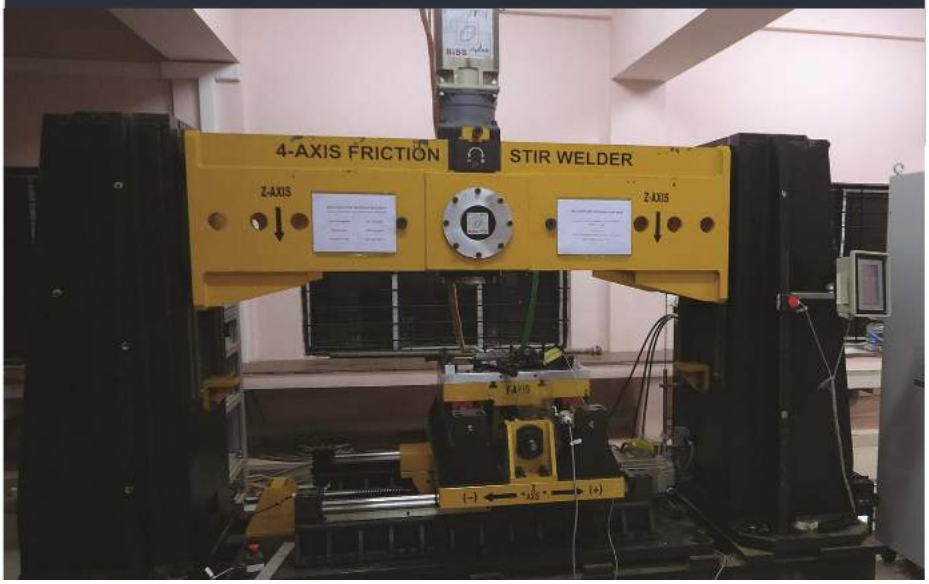
Lab Facilities

Computational Fluid Dynamics Lab
Ansys 16.2, 1 workstation-Dell precision with 2 Intel Xeon CPUs, 16 cores, 64 GB RAM
Solar Energy Lab
Solar flat plate collectors, Solar parabolic concentrator test Rig, Solar stand alone PV system 5KW, Solar pyranometer, UV Radiometer, Online data logger
Energy Audit Lab
Power Quality Analyser, Thermal Imaging Camera
Calibration Lab
Pressure,Temperature,Electrical calibrators
Testing and Analysis Lab (ISO 9001:2008)
Bomb Calorimeter, Moisture Analyser, TOC Analyser, TGA Analyser, CHNSO Analyser, UV/Visible NIR & FTIR Spectrophotometer
Bioenergy – Algae and Biotechnological research lab (ISO 9001:2008)
Anaerobic chamber, Refrigerated Centrifuge
Culture Racks, Florescence Inverted Microscope
Gas Chromatography, Gel Documentation
Environmental Engineering lab
BOD incubator & Analyser, COD thermo reactor
Flue gas Analyser, High volume sampler
Material research lab

METALLURGICAL AND MATERIALS ENGINEERING

Department Profile

The Department of Metallurgical and Materials Engineering was established in 1967. It is one of the premier centers of excellence in the field of Metallurgical and Materials Sciences. Highly qualified faculty handle the lectures and in addition, guest lectures are delivered by eminent professionals from premier organizations such as WRI-BHEL, DRDO, IISc. and IGCAR. The department has MoUs with BHEL (Bharat Heavy Electricals Ltd), NLC (Neyveli Lignite Corporation), CECRI (Central Electro -Chemical Research Institute). The department also played a key role in launching of CECASE. The department is also a recognized center for QIP.



M.Tech.
INDUSTRIAL METALLURGY

Course Profile

This unique course ensures that the student achieves the necessary technological expertise required in metal fabrication industries. The course includes microscopic analysis of metals, corrosion, study of these metals and their use in fabrication industries. Students undergo summer trainings in industries like Ashok Leyland-Chennai, National Aerospace Research Laboratory (NAL), Central Electrochemical Research Institute (CECRI), Defence Metallurgical Research Laboratory (DMRL) and Bhilai Steel Plant to gain practical knowledge.

Curriculum

- Ferrous Foundry Metallurgy
- Metallurgical Failure Analysis
- Physical Metallurgy
- Metal Joining
- Corrosion Engineering
- Surface Engineering
- NDT
- Industrial Heat Treatment
- Welding Technology
- Foundry Technology
- Testing, Inspection and Characterization
- Metal Forming
- Mechanical Behaviour of Materials

Ongoing Projects

DRDO Project - Development of light weight in-situ Metal Intermetallic Laminates for Defence Applications.

DST Project - Consolidation of mechanically alloyed 5083 aluminium nano composites by Equi channel angular pressing (ECAP).

GTRE - Ministry of Defense Project - Structural Integrity evaluation studies on high speed transmission shaft for turbo engine application.

CSIR Project - Development of Nano and Amorphous Magnesium based Multi-component alloys through MA for Energy Applications.

CMPDI - Ministry of Coal, GoI and NLC, Neyveli Project - Enhancing Life of De-Watering Pipes in Coal/Lignite Mines by Prevention of Erosion - Corrosion with Nano-Crystalline Surface Engineering Treatments.

DST Project - Development of Black Zinc-Nickel coatings as a replacement of Cadmium coatings used in Aerospace and Defense Application.

Lab Facilities

Foundry Lab: Vacuum Arc Melting, Vacuum Induction Melting.

Corrosion: Water Jet Erosion, Electrochemical Potentiostat, Salt Spray Chamber, High Temperature Oxidation Furnace, C Ring SCC Test Facility, IGC Susceptibility Test Facility.

Mechanical Testing: UTM (60T & 100T), Haunsfield Tensometer, Rockwell Hardness Tester, Brinell Hardness Tester, Micro Hardness Tester, Impact Testing Machine, Rotary Fatigue Testing Machine, Creep Batch, Torsion Testing Machine, Jominy Hardenability Setup, Servo Hydraulic UTM.

Metallography: Scanning Electron Microscope, High Resolution Optical Microscope with Photographic Attachment, Image Analyzer, In-situ Metallography Facility, Microscope with CCD camera, Trinocular Optical Microscope with Digital Camera Binocular Inverted Microscope.

Surface Engineering: Abrasion Wear Tester, High Temperature Wear Tester.

M.Tech.
WELDING ENGINEERING

Course Profile

The Post Graduate programme in Welding Engineering was started in 1978 in collaboration with Welding Research Institute (WRI) BHEL, Tiruchirappalli. This unique course meets the growing demands of technological expertise in metal fabrication industries. Both the regular faculty of the Metallurgical and Materials Engineering Department and the experts from WRI handle theory and practical classes. They share their technical expertise and research knowledge. Students visit fabrication industries like BHEL and GB industry to gain practical knowledge.

Curriculum

- Welding Metallurgy
- Welding Codes and Standards
- Welding Processes
- Welding Application Technology
- Design of Weldments
- Physical Metallurgy
- Testing, Inspection and Characterization
- Repair Welding and Reclamation
- Non Destructive Testing
- Corrosion Engineering
- Mechanical Behaviour of Materials

Ongoing Projects

UGC-DAE-CSR sponsored project Welding of Titanium tube to Steel tube plate/tube by using an improved FWTPET process.

VSSC/ISRO Project - Friction Stir Welding of Aluminium Alloys for Aerospace Applications.

Royal Academy UK - Application of multiscale modelling for dissimilar welding and improving graduate employability in India.

A study on the properties of dissimilar weldments between P92 - S304H materials for power plant applications.

Lab Facilities

Welding Facilities: Invertor with CMT facility, Multipurpose Welding Invertor, MicroPlasma Welding unit, FSW Machine, SMAW, GTAW with AC & DC pulsing, GMAW, Diffusion Bonding Machine, Automated GTAW facility.

Mechanical Testing: UTM (60T & 100T), Haunsfield Tensometer, Rockwell Hardness Tester, Brinell Hardness Tester, Micro Hardness tester, Impact Testing Machine, Rotary Fatigue Testing Machine, Creep batch, Torsion Testing Machine, Jominy Hardenability setup, Servo Hydraulic UTM.

Metallography: Scanning Electron Microscope, High Resolution Optical Microscope with Photographic Attachment, Image Analyzer, In-situ Metallography Facility, Microscope with CCD Camera, Trinocular Optical Microscope with Digital Camera Binocular Inverted Microscope.

M.Tech.
MATERIALS SCIENCE AND ENGINEERING

Course Profile

This unique course ensures that the student achieves the necessary technological expertise required in metal fabrication industries. The course includes microscopic analysis of metals, corrosion study of these metals and their use in fabrication industries. Students undergo summer trainings in industries like Ashok Leyland (Chennai), National Research Laboratory (NAL), Central Electrochemical Research Institute (CECRI), Defence Metallurgical Research Laboratory (DMRL) and Bhilai Steel Plant to gain practical knowledge.

Curriculum

- Physical Metallurgy
- Thermodynamics and Kinetics
- Electrical, Magnetic and Optical Properties of Materials
- Mechanical Behaviour of Materials
- Ceramic Science & Technology
- Surface Engineering
- Polymers and composites
- Manufacturing Technology
- Metallic Materials
- Metallurgical Failure Analysis
- Testing Inspection and Charaterization
- Corrosion Engineering
- Nano-Materials & Technology
- Non-Destructive Testing
- Bio Materials

Ongoing Projects

DST Project - Surface Modification of biodegradable magnesium alloys by plasma electrolytic processing for orthopedic implant applications.

DBT Project - Doped hydrogenated amorphous silicon carbon alloys (a-SiC:H) for artificial heart valve and stent applications.

ARDB Project - Development of Magnesium - Lithium Alloys: Their Microstructure and Texture Dependence in Mechanical Properties.

DST Project - Development of Ti3SiC2 Ternary Compound by Spark Plasma Sintering.

DRDO Project - Development of High Niobium Containing Nanostructured TiAl Intermetallic Compounds by Spark Plasma Sintering and Their structure Property Correlation.

NLC Project - Enhancing life of de-watering pipelines in coal/lignite mines by prevention of erosion-corrosion with nano-crystalline surface engineering treatment.

Lab Facilities

Process Metallurgy : Sieve Analyzer, Mineral Crusher, Simultaneous Thermal Analyzer, Viscosity Measurement System, Diamond Cutter, Metallography Specimen Preparation Equipment, 3D Cutter, Elecrolytic Etching Unit.

Powder Metallurgy : Screw Press, High Temperature Furnaces, High Energy Ball Mills, Laser Particle Analyser.

Surface Engineering : Abrasion Wear Tester, High Temperature Wear Tester.

Mechanical Testing : UTM (60T & 100T), Haunsfield Tensometer, Rockwell Hardness Tester, Brinell Hardness Tester, Micro Hardness Tester, Impact Testing Machine, Rotary Fatigue Testing Machine, Creep Batch, Torsion Testing Machine, Jominy Hardenability setup, Servo Hydraulic UTM.

Metallography : Scanning Electron Microscope, High Resolution Optical Microscope with Photographic Attachment, Image Analyzer, In-situ Metallography Facility, Microscope with CCD Camera.

PRODUCTION ENGINEERING

Department Profile

The Production Engineering Department was established in the year 1983. The department aims at imparting education and training that helps the students in ensuring a challenging and satisfying career. In the modern rapidly changing technologically competitive world, there is an immense need of technocrats specialized in manufacturing and operations. Realizing this trend in the global scenario, the department offers two post graduate programs in Industrial Engineering & Management and Manufacturing Technology.

M.Tech.
INDUSTRIAL ENGINEERING & MANAGEMENT

Course Profile

Industrial Engineering & Management is a unique discipline which amalgamates the engineering skills with business sense and managerial abilities of a technocrat. By focusing on present industrial scenario and their needs, the course equips the student with operational management skills to utilize the available resources in a cost effective and productive way. The course ensures holistic transformation of undergraduate scholars to dynamic and innovative Industrial engineers who can design & integrate systems, analyze problems and provide permanent solutions with business consciousness.

Curriculum

- Data Analytics.
- Systems Engineering.
- Analysis & Control of Manufacturing Systems.
- Advanced Operations & Research.
- Human Resource Management.
- Quality & Reliability Engineering.
- Supply Chain Management.
- Modelling and Simulation.
- Financial Management.
- Design of Experiments.
- Total Quality Management & Six Sigma.
- Project Management.
- Lean & Agile Manufacturing.
- Advanced Optimization Techniques.
- Work Design and Ergonomics.
- Product Life Cycle Management.

Ongoing Projects

- Developments of models and algorithms for functional integration in supply chain.
- Industrial Energy Management using Neural Networks and Fuzzy Logic.
- Lean & Sustainable Manufacturing Implementation.
- Exploration of Lean tools/Techniques for ensuring sustainability in Automotive Organization.
- DSS for measuring agile characteristics.

Lab Facilities

- Simulation Lab – SimQuick, ARENA, WITNESS, FLEXSIM.
- Intelligent System Laboratory.
- Operations Management – TORA, GAMS, CPLEX, OM Expert.
- Data Analytics Lab – SYSTAT, GaBi, SPSS.
- CAD/CAM packages – Pro/ENGINEER Wildfire, Ideas, Unigraphics, ANSYS 14.5
- Supply Chain Management Laboratory.
- Ergonomics Laboratory.

EXPERTISE:

- Product Design & Development.
- Supply Chain Management.
- Scheduling.
- Manufacturing Systems.
- Simulations.
- Sustainable Manufacturing.
- Risk Management.
- Multi Criteria Decision Making.
- Lean and Agile Manufacturing.
- Process Optimisation.

M.Tech.
MANUFACTURING TECHNOLOGY

Course Profile

The Industrial Scenario today is poised for modernization and growth in manufacturing. Given the paucity of manufacturing professionals, the course intends to shape the students in tune with advanced methods of Manufacturing Technology by imparting essential inputs on practical & theoretical exposures vogue in present day industries. The course aims at producing world class manufacturing engineers armed with knowledge in diversified fields of manufacturing. Graduates gain expertise in core areas like Design Manufacturing, Management and other related areas.

Curriculum

- Flexible Tooling and Automated Inspection
- Advanced Welding Process
- Manufacturing Management
- Mechanics of Metal Forming
- Modeling for Manufacturing Process
- Tolerance Technology
- Materials Technology
- Tribology
- Metal Cutting Technology
- Mechanics of Composites Materials
- Manufacturing of Non-Metallic Products
- Advanced Machining Technology
- Precision Machining
- Theory of Plasticity
- Laser in Manufacturing
- Heat Treatment
- Rapid Manufacturing

Ongoing Projects

Structural Intergrity Evaluation studies on High Speed Trans-Shaft LW, Gas Turbine Research Establishment (GTRE), Bangalore.

Investigation on the properties of direct metal laser fabricated material and its brazing compatibility with nickel based casing (co-investigator), Gas Turbine Research Establishment (GTRE), Bangalore

Laser glazed plasma sprayed functionally graded thermal barrier coatings for high temperature applications (Principle investigator), Defence Research & Development Laboratory (DRDL), Hyderabad.

Experimental Investigations on the performance of nano composite surface coatings for boiler applications (co-investigator), Bharat Heavy Electricals Ltd., Tiruchirappalli.

Lab Facilities

- **CAD/CAM/CIM Lab :** Pro/ENGINEER 2000i, Unigraphics15.0, IDEAS master series 5.0, AutoCAD 2002, AutoCAD 2000, AutoCAD R14, MATLAB 7.8, Abaqus 6.09, ANSYS 14.5.
- **Trainer & Advanced CNC Lab :** Emco PC Turn 55, Emco PC Mill 55, Triac-3-Axis Milling Machine, EMCO Compact-CNC, HMT STC-15 Turning Centre, Hardford VMC, Leadwell CNC-Turning centre.
- **Robotics Lab.**
- **Composite Processing Lab.**
- **Micro/Nano Engineering Lab :** FIST.
- **Mechatronics Lab.**
- **Rapid Prototype Lab.**
- **Surface Engineering, Tribology and Machinability.**
- **Studies Lab.**
- **Advanced Welding Lab.**
- **Machinability Studies Lab.**

M.Tech.
NON-DESTRUCTIVE TESTING

Department Profile

Department of Physics is one of the oldest & active departments of NITT. Masters programme in Non-Destructive Testing, offered by Department of Physics, is one of its kind in Asia. The curriculum of the course is structured as in the Brunel University, UK. The course, recognized by ISNT and ASNT, is indeed a testimony of interaction between industry and institute. Moreover, department proudly patronizes, "QUALITY" a national level technical symposium and workshop on NDT which tends to provide prudent insight to NDT.

Course Profile

The course spans over a period of four semesters with equal emphasize on theory and hands on experience. The first two semesters are dedicated to theory, practicals and field work. The field work, where the students visit various laboratories and workshops of BHEL, exposes them to advanced NDT techniques. The final two semesters are dedicated for project work at prestigious industries and research institutions like CNDE - IIT Madras, NAL - Bangalore, IGCAR - Kalpakkam, NML - Jamshedpur, BARC - Mumbai, ISRO - Trivandrum, WRI - BHEL and NDTL - BHEL. Students concurrently get qualified for ASNT Level 2, from ISNT chapter and get registered to ISNT as student members.

Ongoing Projects

- Characterization of stress corrosion cracks in a boiling water reactor using Phased Array Ultrasonic Technique (PAUT).
- Defect detection in AISI 304 plate using Thermography.
- Non-Destructive analysis of impact tested Basalt glass hybrid fiber composite.
- Developing a new guided wave technique for thickness monitoring of water wall panel tube.
- Monitoring corrosion under pipe supports using higher order mode cluster guided waves for small diameter pipes.
- NDE detection of defects in friction stir welds of Aluminium.

Lab Facilities

- Phased Array Ultrasonic Testing.
- Time of Flight Diffraction Testing.
- Thermography Inspection.
- Pulsed Echo Ultrasonic Technique (Analog and Digital).
- C-scan Immersion Testing Machine.
- Eddy Current Testing.
- Advanced Optical Inspection.
- Liquid penetrant Testing.
- Magnetic Particle Testing.
- Table Top Magnetic Particle Testing.
- X-ray Diffractometer.
- Friction Stir Welding.
- X-Ray Radiographic Testing.

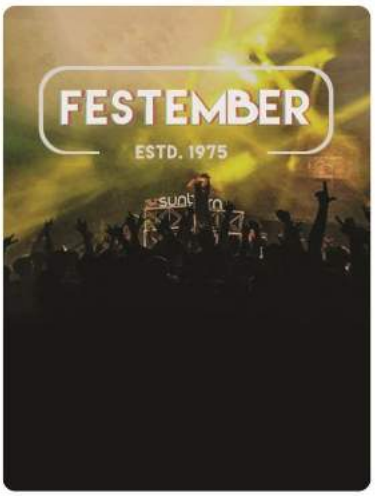
Curriculum

- Visual Testing
- Liquid Penetrant Testing and Magnetic Particle Testing
- Eddy Current Testing
- Ultrasonic Testing
- Radiographic Testing, Radiation Safety
- Industrial Computed Tomography
- Phased Array Techniques
- Time of Flight Diffraction
- Ultrasonic Guided Waves
- Laser Ultrasonics
- Non-linear Ultrasonic and Structural Health Monitoring
- Acoustic Emission Inspection
- Leak Testing
- Thermographic NDE
- Digital Signal and Image Processing
- Basics of Engineering Materials
- Materials Characterization Techniques
- Composite Technology
- Fabrication Technology
- Fracture Mechanics and Failure of Materials
- Corrosion
- Computational Techniques

THE OTHER SIDE

FESTEMBER

Festember is the annual cultural festival of NIT Trichy. Every year, students of not only our Institute but those of other colleges also await in pleasure for a fest that is a platform to showcase their talent and also to have fun. Festember 2015 managed to pull a crowd of 15000 students from over 500 colleges across India. With the blessing of the Administration, it had its humble origins in 1975 when a small group of students wanted to provide some other form of entertainment to their peers. It has grown exponentially since then and has never looked back. Till today, Festember has been a completely student run fest and shall continue to do so. Alumni always remember Festember as the pinnacle of their college days and reminisce fondly about it. Apart from being the joyous distraction that it is, Festember also manages to impart important life skills like leadership, time management, and organizational skills to its members who make up the different teams of the fest.



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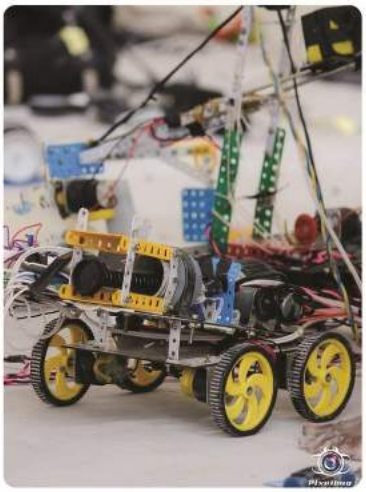
PRAGYAN



Pragyan is the ISO 9001:2008 & 20121:2012 certified International Techno-management Organization of the National Institute of Technology, Tiruchirappalli. Since its inception in 2005, the completely student run festival has been held in the beginning months of the even semester. Pragyan witnesses participants from over 400 colleges across the country, leading to a footfall in the thousands over the three days of fest. With a 700 plus student volunteer force, Pragyan is the first student-run organization in the world and the third overall next only to London Olympics and Manchester United to get an ISO 20121:2012 Certification for Sustainable Event Management. In keeping with the tag line, "Let's Celebrate Technology", everything from sponsorships to associations with other institutions and the organization of the fest are done by the students with the gracious help of the Institute administration. Pragyan at its core strives to show that technology is every-one's cup of tea. It is in this belief that Pragyan is brought out year after year.

PGION

PGION is a confluence of culture and entertainment where students get the perfect opportunity to express their creative side. There are a wide range of activities that a student can participate in, like singing along with the melodic performance of the Music band or listening to the soothing instrumental session or even watching the various immaculately choreographed dance events planned for the day. The highlight of PGION is the 'Traditional Walk' where models take to the ramp and flaunt diverse ethnic dresses from different states and cultures. There are also Rangoli making events for students to put their design skills to the test and spot events for spectators to keep themselves engaged and active throughout the day. PGION provides a perfect platform for the PG students to display their artistic talents and improve their managerial skills while having a good time.

Clubs and Student groups

Office of Alumni Relations is an official body of the Institute comprising faculty, RECAL office bearers and students, it aims to bridge the gap between NIT Trichy Alumni fraternity and the Institute and maintains it. It hosts several Alumni meets throughout the year. Alumni Guest Lectures, Workshops and Mentorship programs are also arranged to tap the full potential of the Alumni and to ensure strong student-alumni interaction.

Dance, Music, Drama and Visual Arts are all mediums of expression of feelings of the inner self. They consist of gifted people who display their talents from time to time. These groups conduct various events at regular intervals to propagate the spirit of expression. They have won accolades in several events conducted in different colleges around the country. Anything that capitvates the eye or that comes across as a pleasing sight, is a source of positive energy for the soul and calms the mind. The various clubs dedicated to Fine Arts in the Institute do just that.

PPC (Pupil for Pupil committee) was founded by PG students of NIT Trichy in 2005. The main aim of this student run organisation is to help poor and needy children get access to educational materials such as books, bags, pens, etc. PPC is a nonprofit organisation. It organises various sports tournaments which are evenly distributed throughout the academic year. Sale of old newspapers available in the PG hostels is a major source of funds for PPC.

Here we believe that technical excellence sans social responsibility is of no good. Bearing this in mind the institute has always given utmost importance to imparting social responsibility among its students, through the activities of various clubs and organisations. We have clubs such as **Apekshaa, FSR, PSR, SEC, PPC, HHNITT** that take part in various social activities in our locality.

All the SR clubs come together every year to celebrate india's festival of philanthropy during 2-8, October - Yes, we are talking about HumaNITTy - NITT's own version of **Daan Utsav** or **Joy of Giving Week.**

Recent editions of Daan Utsav have witnessed over 22 outreach events covering science education, augmenting infrastructure in rural schools, caring and sharing with inmates of orphanages and destitute homes and many more.

The cross-section of students who drive HumaNITTy is truely unique with participation from UGs, PGs and Ph.Ds making it the most inclusive student run event. Corporates too have chosen to partner with us for soulful deployment of their **CSR budget.**

"Nothing can be bigger than the Joy of Giving. Let us participate in the Joy of Giving Week and help the needy" - Hon'ble PM in Mann ki Baat.

Training & Placement

The Department of Training and Placement is the marketing division of the institute. Over the years, the department, acting as an interface between Institute and companies has maintained symbiotic, vibrant and purposeful relationship with industries across the country. As a result, it has built up an impressive placement record both in terms of percentage of students placed as well as number of companies visiting the campus. The department hosts companies on campus and ensures that every aspirant is assured of a bright career of their choice.

Hosting Companies on Campus

The department provides facilities for the visiting companies to conduct pre-placement talks, written tests, group discussions and interviews. Audio visual aids like laptops, LCD projectors for pre-placement talks and internet facilities for online tests will be arranged upon prior intimation. Conveyance from/to airport or railway station is arranged by the department. Accommodation and food is provided at the institute guest house for the company on prior intimation and the cost of these are borne by the institute. In case the company executives wish to stay outside the campus, all arrangements for their accommodation will be made but costs are to be borne by the company.

Functions and Responsibilities

Nurtures industry-institute interaction, by organizing and coordinating frequent industrial visits, Inplant training and Projects of industrial relevance for the students, with the sole aim of zeroing down the hiatus between the industry and the academia.

Organises & coordinates campus placement program to fulfil its commitment of a career to every aspirant.
Helps every student define their career interest through individual expert counselling.

Makes available updated database and job profile of the companies and thus helps each student analyse and choose a company of his interest. The department has in its active file database of nearly 500 companies.

Works toward continuing education for the employees.

Receives and forwards the feedback pertinent to curriculum improvement from the visiting companies to the faculty to ensure that the curriculum follows the latest industrial trend.

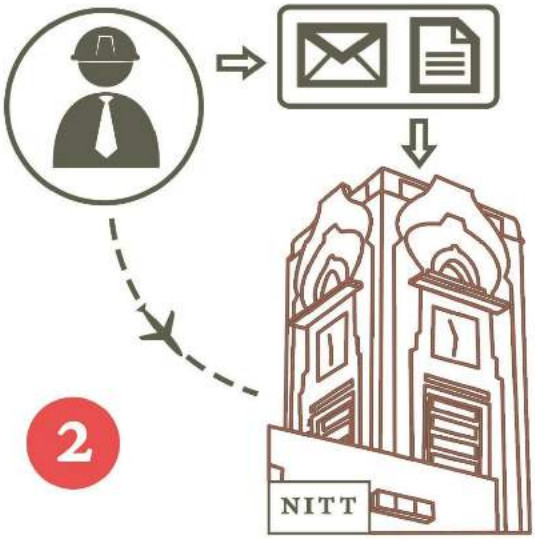
Placement Process

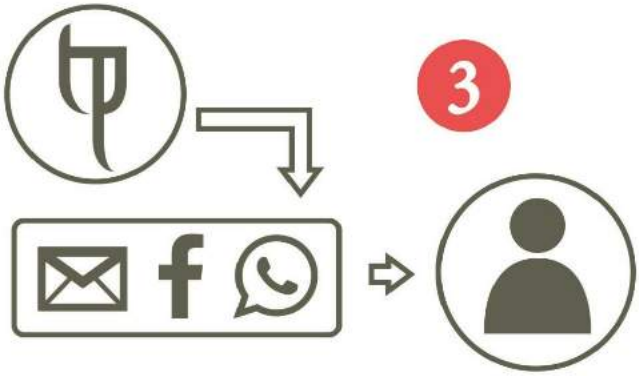
Invitation

The Placement Office sends invitations to companies/organisations along with UG and PG brochures and Pre Visit Response (PVR) sheet through mail.

Revert with Pre visit response

Interested companies will revert with filled-in Pre Visit Response (PVR) sheet which contains details such as job description, streams, eligibility criteria, compensation details and selection procedure.

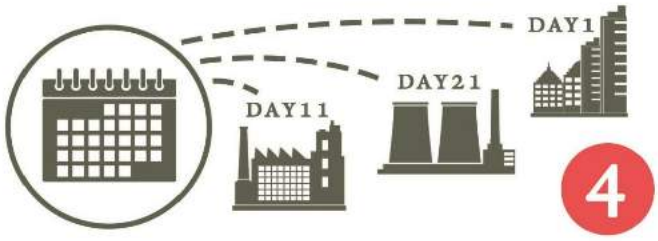




Students are Notified

Students are notified about the company requirements and the list of the interested candidates will be collected and the same is forwarded to the company.

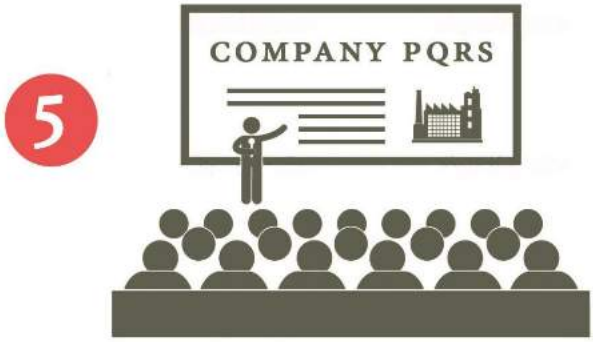
Dates will be alloted for the selection process on campus

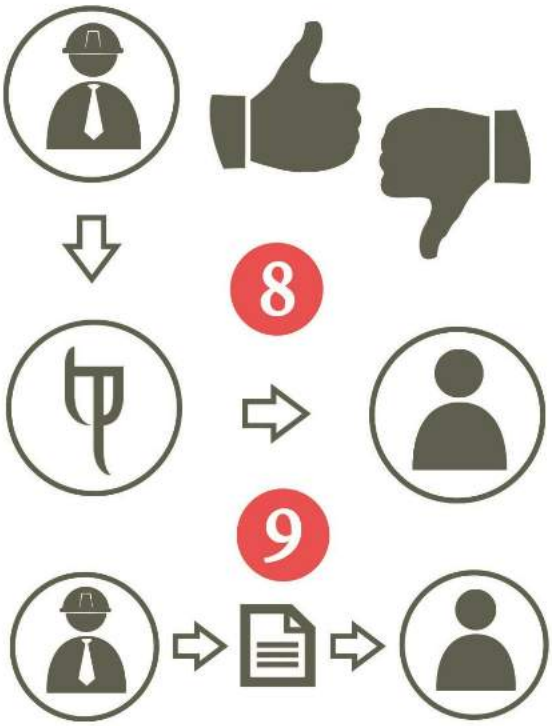


PPT AND PLACEMENT PROCESS

The Training and Placement Department will provide audio visual requirements such as laptops and LCD projectors for Pre- Placement talk before the placement procedure begins.

Pre-Placement talk is followed by the placement process as per the company's requirements.





RESULTS, OFFER LETTERS

After the completion of the placement process, the company is required to give the list of the selected candidates to the Training and Placement Department on the same day itself.

Offer letters can be sent to Training and Placement Department to the address mentioned in the last page of the brochure through courier.

Training and Placement Department conducts several activities for the benefit of students throughout the year.

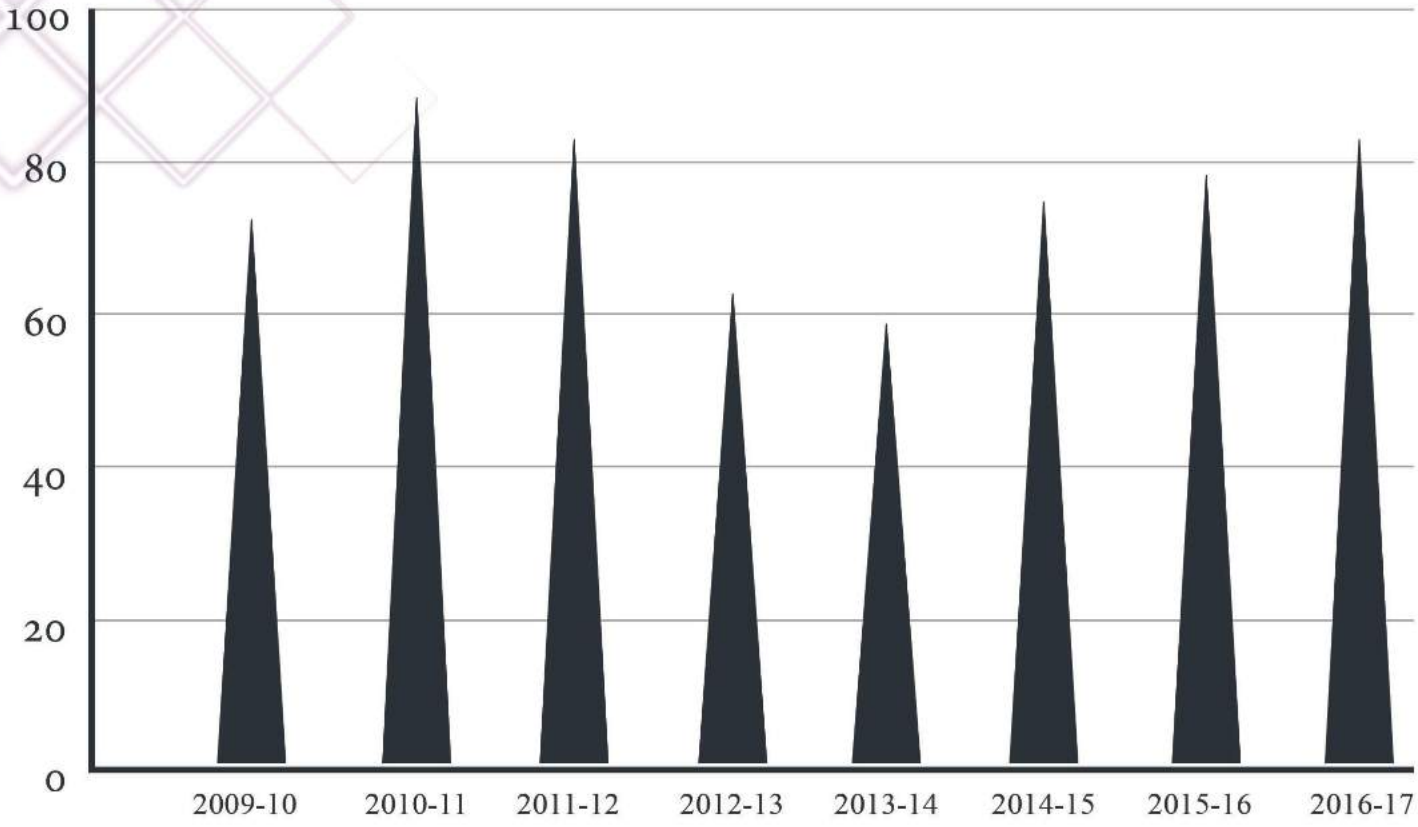
Campus Placement Coaching (CPC)
An intensive coaching is given to the students in pre-final year which will help in improving their interpersonal and technical skills.

Resume verification
All the resumes will be verified for the authenticity by the Training and Placement Department.

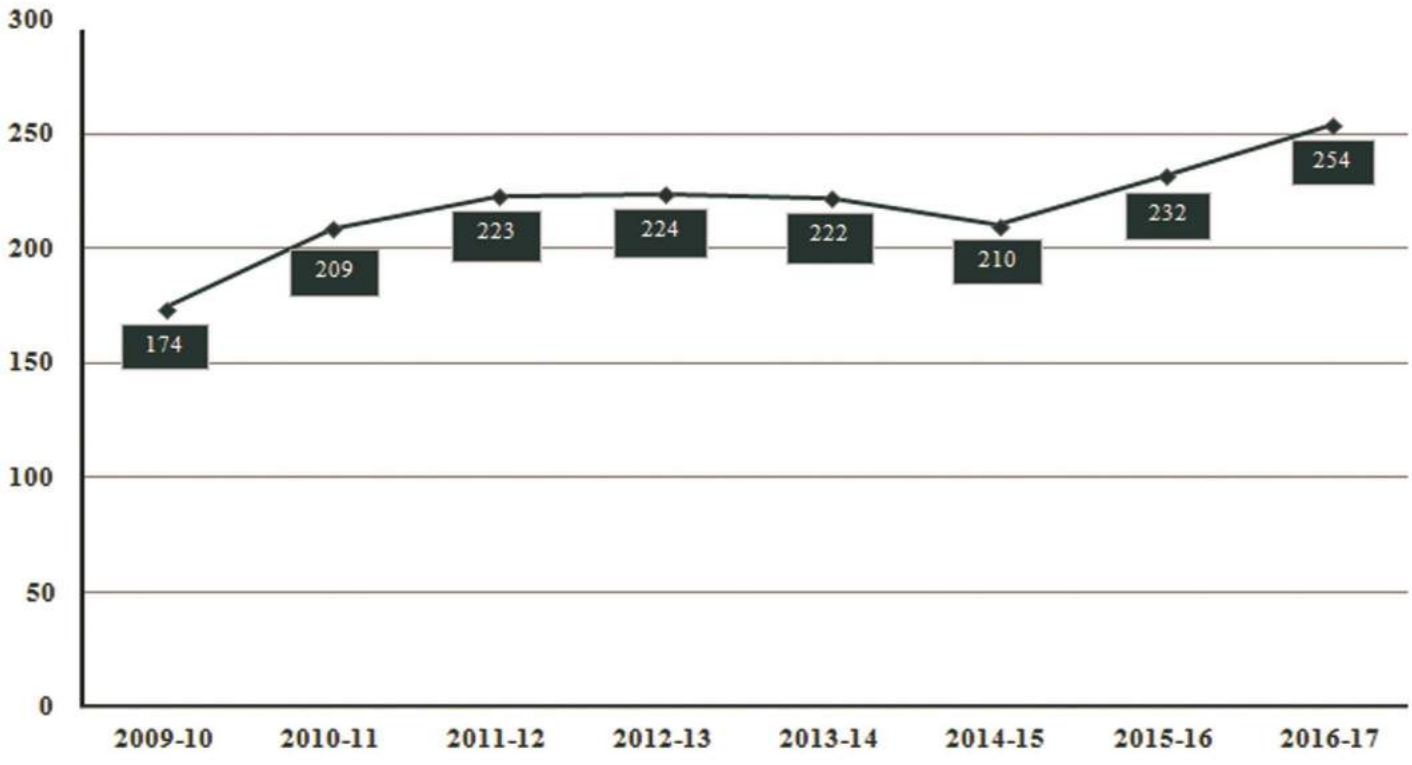
As a part of placement coaching the Training and Placement Department conducts aptitude, verbal and technical test; Group discussions and Personal Interviews.

Placement Statistics

Overall Placement



Companies Visiting



How to reach

Flight Timings

Chennai to Trichy

Flight Number	Airline	Departure	Arrival
1x-682	AIR INDIA EXPRESS	1:30	2:30
9w-2405	JET AIRWAYS	13:40	14:40
9w-2750	JET AIRWAYS	10:25	11:25
9w-2789	JET AIRWAYS	20:25	21:30

Trichy to Chennai

Flight Number	Airline	Departure	Arrival
1x-681	AIR INDIA EXPRESS	13:10	14:05
9w-2406	JET AIRWAYS	15:10	16:15
9w-2751	JET AIRWAYS	12:00	13:10
9w-2790	JET AIRWAYS	22:00	23:00

NIT Trichy is situated 20 km from the city of Trichy on the Trichy - Thanjavur Highway. Trichy, being located at the geographic centre of the state of Tamil Nadu, is well connected by rail, road and air.

Train Timings

Chennai to Trichy

Train Name	Dep	Arr	Duration
12605 PALLAVAN EXP	15:45	20:26	04.41
12635 VAIGAI EXP	13:20	18:30	05.10
12633 KANYAKUMARI EXP	17:30	22:50	05.20
16713 RAMESWARAM EXP	17:00	22:25	05.25
16127 MS GURUVAYUR EXP	07:40	13:10	05.30
12693 PEARL CITY EXP	19:15	00:50	05.35
12637 PANDIAN EXP	21:20	03:00	05.40
12661 POTHIGAI EXP	20:55	02:35	05.40
12631 NELLAI EXP	20:10	02:05	05.55
16723 ANANTAPURI EXP	19:35	02:15	06.40
16177 ROCK FORT EXP	22:30	05:30	07.00
16105 TIRUCHENDUR EXP	16:05	23:35	07.30
16101 RAMESWARAM EXP	21:40	05:20	07.40

Trichy to Chennai

Train Name	Dep	Arr	Duration
12606 PALLAVAN EXP	06:30	12:10	05.40
12636 VAIGAI EXP	09:00	14:40	05.40
12634 KANYAKUMARI EXP	00:35	06:50	06.15
16714 RAMESWARAM EXP	01:50	08:20	06.30
16128 GURUVAYUR EXP	14:10	21:15	07.05
12694 PEARL CITY EXP	01:30	07:45	06.15
12638 PANDIAN EXP	23:10	05:35	06.25
12662 POTHIGAI EXP	00:20	06:40	06.20
12632 NELLAI EXP	01:05	07:10	06.05
16724 ANANTAPURI EXP	02:00	08:40	06.40
16178 ROCKFORT EXP	22:25	05:15	06.50
16106 TIRUCHENDUR EXP	03:30	11:25	07.55
16102 RAMESWARAM EXP	22:35	06:30	07.55

Train Name	From	To	Dep	Arr	Duration	Days of Operation
12651 TN SAMPARK KRANTI EXP	TPJ	NZM	03:00	18:00	39.00	SUN, TUE
12652 TN SAMPARK KRANTI EXP	NZM	TPJ	07:15	00:30	41.15	TUE, THU
12641 TIRUKKURAL EXP	TPJ	NZM	03:00	18:00	39.00	THU, SAT
12642 TIRUKKURAL EXP	NZM	TPJ	07:15	00:30	41.15	MON, SAT
16787 TEN JAMMU EXP	TPJ	NDLS	22:35	21:40	47.05	MON, FRI
16688 NAVYUG EXP	NDLS	TPJ	14:15	16:45	50.30	FRI
16318 HIMSAGAR EXP	NDLS	TPJ	14:15	11:45	45.30	TUE
11043 LTT-MADURAI EXP	LTT	TPJ	00:15	08:35	32.20	FRI
11044 MADURAI-LTT EXP	TPJ	LTT	20:50	05:45	32.55	SAT
16351 BALAJI EXP	CSTM	TPJ	12:10	19:00	30.50	TUE, SAT
16352 BALAJI EXP	TPJ	DR	12:30	20:19	31.49	SUN, THU
12663 HOWRAH TPJ SF EXP	HWH	TPJ	16:10	04:15	36.05	SUN, THU
12664 TPJ HOWRAH SF EXP	TPJ	HWH	16:00	03:20	35.20	TUE, FRI
12665 HOWRAH CAPE SF EXP	HWH	TPJ	16:10	04:25	36.15	MON
12666 CAPE HOWRAH SF EXP	TPJ	HWH	16:00	03:20	35.20	SAT
16231 MAYILADUTHURAI-MYSURU EXP	TPJ	SBC	20:35	05:50	09.15	DAILY
16232 MYSURU-MAYILADUTHURAI EXP	SBC	TPJ	19:00	03:55	08.55	DAILY
17315 VASCO VELANKANNI EXP	YPR	TPJ	23:30	08:10	08.40	TUE
17316 VELANKANNI VASCO EXP	TPJ	YPR	03:10	13:30	10.20	WED

Our esteemed recruiters

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HYUNDAI
BUREAU VERITAS
SIEVERT
Microsoft
FOSTER WHEELER
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JKTYRE
STUP Consultants Pvt. Ltd.
ROHM
SEMICONDUCTOR
Fidelity
INVESTMENTS
VKL
Behind every great taste
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FIAT
QUEST
BORN TO ENGINEER
YAZAKI
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RBL BANK
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ebay
Eni Saipem
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Industries Limited
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Deeper Insight. Better Outcomes
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SONATA SOFTWARE
symantec.
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vmware
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Electric
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QUALCOMM
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NTPC
A Maharatna Company
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CDAC
FEEDBACK INFRA
Making Infrastructure Happen
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WS Atkins
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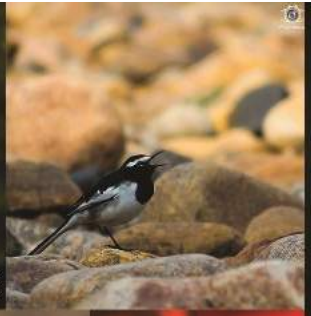
STUDENT LIFE



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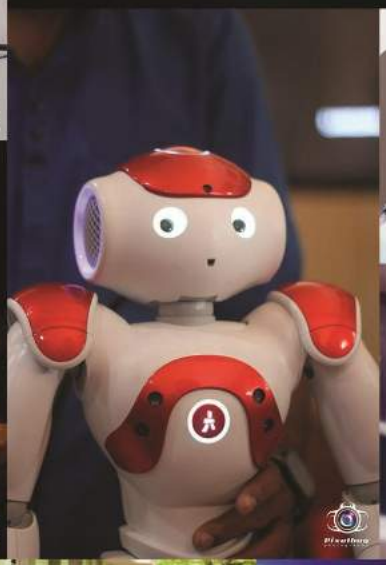

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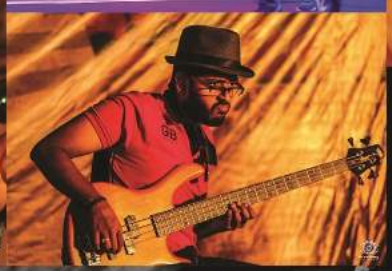

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