



# M.E. INDUSTRIAL SAFETY ENGINEERING

(Affiliated to Anna University, Chennai)



## Department of Mechanical Engineering

**NATIONAL INSTITUTE OF  
TECHNICAL TEACHERS TRAINING AND RESEARCH, CHENNAI**  
(Ministry of Education, Govt. of India),  
Taramani, Chennai- 600 113, India  
[www.nitttrc.ac.in](http://www.nitttrc.ac.in)

# ABOUT NITTTR, CHENNAI

National Institute of Technical Teachers Training and Research (NITTTR), Chennai was established in 1964 by the Government of India as a key catalyst Institution for ensuring quality in Technical Education in South India comprising the states of Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Telangana and Union territory of Pondicherry. This Institute being a Resource Institute offers Educational services in Curriculum / Material / Institutional Development, Instructional Methods, Media, Examination reforms, Continuing Education, Distance Learning, Training and Development, Educational Psychology, Educational Management and Research. The Institute strives continuously and vigorously to achieve greater heights of excellence by actively collaborating with National and International agencies on projects and programmes aimed at quality improvement of Technical Education Systems.






# Department of Mechanical Engineering

## Activities of the Department

The Department of Mechanical Engineering was established in 1964 to provide academic leadership in content updating courses in existing and emerging technology areas through short term duration programmes. The Department of Mechanical Engineering was started by meeting the requirements of industry 2.0 and has transformed to meet the requirements of industry 4.0 through the action plan mentioned below

- To assist in Curriculum development of Mechanical Engineering subjects by leading and guiding curriculum groups in preparing curricula in Mechanical Engineering subjects scientifically
  - To Promote Learning Resources development in print media through own efforts and by training and guiding technical teacher groups formed for the purpose
  - To Promote laboratory innovations in Mechanical Engineering by developing new experiments, demonstrations etc, and by training Mechanical Engineering teachers
  - To Collaborate with academic bodies to promote innovative changes in course structures such as introduction of competency / flexibility modular programmes
  - To Collaborate with the industry for mutual benefit in the larger interest of technical education
  - To facilitate the introduction of new technology programme in Mechanical Engineering through assistance in teacher training, curriculum development, laboratory facilities development, learning resource development etc.
  - To Promote the skills, know-how and expertise of the faculty and supporting staff of the department through continuously carrying out internal faculty development programme
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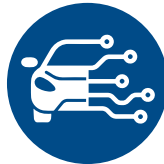
# Vision

Promote innovations, research and development in Mechanical engineering to provide world class human resources in technology and instructional technology areas.

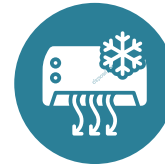
## Domain of Short Term Programmes



Renewable Energy Sources



Automobile Technology



Refrigeration & Air Conditioning



Energy & Environmental Management



Solar & Wind Energy Applications



Advances in Manufacturing Techniques



Advances in Heat Treatment & NDT



Non Traditional Machining



CAD/CAM



Nanotechnology & Applications



Trends in Mechatronics & Industrial Automation



Advances in Casting & Welding



# ABOUT

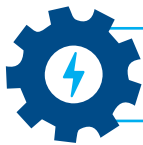
## **M.E. INDUSTRIAL SAFETY ENGINEERING PROGRAMME**

Industrial Safety engineering is one of the key dimensions of engineering asset management which assures that engineered systems provide acceptable levels of safety. It is strongly related to systems engineering, industrial engineering and the subset system of safety engineering. Safety engineering assures that a life-critical system behaves as needed, even when components fail. The objective of this programme is to impart knowledge on different facets and aspects of engineering systems safety, focusing on tools, techniques and methodologies needed for prevention of occurrences of unsafe operations and accidents under different industrial settings. Upon completion of the programme, the students will be equipped with concepts of engineering systems safety, dimensions of engineering systems safety, safety design and analysis mathematics, design for engineering systems safety and control for safety, and integrating safety with other operational goals such as quality and reliability.



## Core Courses

- Principles of Safety Management
- Environmental Safety
- Occupational Health and Industrial Hygiene
- Industrial Safety, Health and Environment Acts
- Fire Engineering and Explosion Control
- System Simulation and Hazard Analysis
- Electrical Safety
- Safety in Process Industries
- Industrial Safety and simulation Laboratory
- Reliability Engineering



## Elective Courses

- ⚙ Plant Layout and Material Handling
- ⚙ Work Study and Ergonomics
- ⚙ Human Factors in Engineering
- ⚙ Maintainability Engineering
- ⚙ Optimization Techniques
- ⚙ Transport Safety
- ⚙ Fireworks Safety
- ⚙ Safety in Construction
- ⚙ Nuclear Engineering and Safety
- ⚙ Safety in Textile Industry
- ⚙ Safety in Mines
- ⚙ Dock Safety
- ⚙ Safety in Engineering Industry
- ⚙ Quality Engineering in Production Systems
- ⚙ ISO 45001 and ISO 14000
- ⚙ Artificial Intelligence and Expert Systems
- ⚙ Design of Experiments
- ⚙ Data Analytics

# Facilities in Mechanical Engineering Department



**Solar Thermal  
Training System**



**Solar  
Power Meter**



**Solar Module  
Analyzer**



**Solar Water  
Pump Test Rig**



**Solar Power  
Inverter**



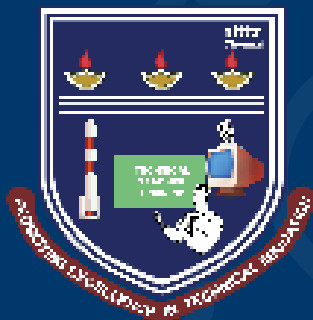
**Stereolithography  
3D Printer**



**Fused Deposition Modeling  
(FDM) 3D Printer**



**EDM Drilling Machine**



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