



**DEPARTMENT OF
MECHANICAL ENGINEERING**

The Department of Mechanical Engineering was started in 1964.

The following are the Programmes offered by the department

B.Tech.(Mechanical Engg.) *71 Students / year*

M.Tech.(Thermal Power Engineering.) *18 Students / year*

M.Tech.(Industrial Safety Engg.) *18 Students / year*

Ph.D.	Full-Time	4 Research scholars
	Part-Time	16 Research scholars

Placement for UG students – 100% Consecutively for the past five years

Average salary - Rs. 2.4 Lakhs / annum

MILESTONES IN THE DEPARTMENT

- **The Department attracts top ranking students from all over the country.**
- **The Department has been awarded ‘A5’ grade by the National Accreditation Board of AICTE in the academic year 1997 – 98.**
- **The Department has developed calibration facilities traceable to National standards for calibration of pressure, temperature and speed measuring instruments. The calibration facilities are utilised by ISO 9000 certified companies.**
- **The Department modifies the course contents regularly to suit the needs of the industry.**
- **Top 5% of our UG students proceed for higher education in reputed Universities, abroad.**
- **The Department is offering consultancy services for HAPP, ONGC and BHEL.**

DETAILS OF CONSULTANCY PROJECTS

S.No	Title	Year	Faculty Involved
1.	Mechanisation of church bell at St. Joseph college Church, trichy-2	1996	Mr. K.Pannirselvam
2.	“Estimation of the Heat Transfer to the Battery Electrolyte”, High Energy batteries, Pudukottai,	2004	Mr.S.Venkatachalapathy
3.	Calibration of Electrode drying Ovens, ammeters, Voltmeters, Pressure gauges for BHEL ancillary units.	For the past 12 years	Mr. K.Pannirselvam
4.	Vehicle Valuation for TIIC (Tamil Nadu Industrial Investment Corporation)	2005-06	Mr. M.Shahul Hameed and Mr.AR.Veerappan
5.	Performance evaluation of Reciprocating compressors installed in M/s SSTP BHEL, Trichy - 15	2005	Mr. K.Pannirselvam
4.	Vehicle Valuation for TIIC (Tamil Nadu Industrial Investment Corporation)	2005-06	Mr. M.Shahul Hameed and Mr.AR.Veerappan

AREAS OF CONSULTANCY

Sl.No	Name of Organization	Type of Service
1.	M/S BHEL , Trichy.	Safety audit for the producer gas plant
2.	M/S South India Viscous Limited, Mettupalayam.	Safety audit and augmentation of ventilation in certain critical areas.
3.	3.M/S Heavy Alloy PENETRATOR Project Trichy.	HAZOP analysis of the hydrogen plant
4.	4.M/S Seamless Steel Tube Plant BHEL,Trichy	Augmentation of ventilation around the rotary hearth furnace.
5.	5.M/S ONGC Installation at Narimanam	Safety audit of the drill site.

DETAILS OF SPONSORED PROJECTS

Sl. No.	Title of the project	Funding agency	Sanctioned Amount	Status	coordinator
1.	Development and Testing of a Diesel Engine Using Coal/Charcoal as Fuel	MHRD (1993-1996)	Rs.5.00 Lakhs	Completed	M.U
2.	Combustion and Emission Investigations on a Charcoal Burning Diesel Engine	AICTE (1996-1998)	Rs.10.00 Lakhs	Completed	M.U
3.	An experimental investigation on compatability of nodular cast iron as material for power transmission elements	UGC - 1998	Rs.4.86 Lakhs	Completed	S.S
4.	Design and Development of low cost weeding machine and its implements	MHRD-2001	Rs.5.00 Lakhs	Completed	K.S.N
5.	Theoretical and Experimental Investigations on Performance influencing parameters of Industrial air compressors <u>Outcome:</u> 1. One patent to be filed in august 2006. 2. A new method for measuring torque is installed	MHRD (2002-2006)	Rs.6.00 Lakhs	Completed	M.U & K.P.S
6	Process modeling and Online monitoring of Laser beam welding	DST	Rs.18.48 Lakhs	Ongoing (2006-08)	KSN & KRB
7	Experimental Investigation and Finite element simulation of Al-TiC powder metallurgy composites during cold upsetting	DST	Rs. 13.00 Lakhs	Ongoing (2007-10)	TR



Torque transducer with Telemetry

Instantaneous swept volume
measuring arrangement



Major Equipment in the laboratories

Sl. No	Name of the Equipment / Instrument - Make	Cost	Date of Installation
1.	Infrared Thermometer	Rs. 0.78 Lakhs	March' 2004
2.	Turbo charged diesel engine test rig, KSS Industries	Rs. 2.1 Lakhs	Sep'2002
3.	Multi cylinder petrol engine test rig, KSS Industries Coimbatore	Rs. 2.4 Lakhs	July'2002
4.	Piezo resistive Absolute pressure transducers, kistler iinstruments, Singapore	Rs. 0.8 Lakhs	04/03
5.	Piezo resistive amplifier, kistler iinstruments, Singapore	Rs. 1.5 Lakhs	04/03
6.	Laser Displacement Sensor, Micro dpicon, Germany	Rs. 1.3 Lakhs	12/03
7.	4 Channel Digital Storage Oscilloscope, Agilent Technologies, Singapore	Rs. 2.7 Lakhs	06/03
8.	Heavy Vehicle Chassis, SEADA SRI , Italy	Rs. 2.9 Lakhs	08/03
9.	Air flow Demonstration Setup, Air Flow Development Ltd, UK	Rs. 3.1 Lakhs	10/2002
10.	Micro manometer, Furness Controls Ltd., UK	Rs. 1.6 Lakhs	08/2002
11.	Variable Speed drive, Trend Electric Co Ltd, Madras	Rs. 1.1 Lakhs	Dec 2004
12.	Draw Wire displacement sensor, Micro epsilon, Germany	Rs. 0.5 Lakhs	Dec 2004
13.	Non contact laser displacement sensor, Micro epsilon, Germany	Rs. 2.8 Lakhs	Dec 2004
14.	Computerized Variable compression ratio - multi fuel test rig with Data acquisition system	Rs. 15 Lakhs	SEP 2007
15.	Electrical Muffle furnace (1400°C)	Rs. 0.4 Lakhs	SEP 2007

AREAS OF INTEREST FOR RESEARCH

- **Vibration , Fracture analysis -**
- **Design of mechanical linkages**
- **Piping design**
- **Heat transfer enhancement study**
- **Flow induced vibrations of heat exchanger pipes**
- **Aircraft intake ducts – flow characteristics**
- **Alternative fuels, Combustion in Engines and Emission control methods**
- **Renewable Energy**
- **Finite Element Analysis of**
 - **Sheet Metal Forming**
 - **Metal Matrix Composites**
 - **Machine Component analysis**
 - **Thermal analysis**

UNDER SAFETY ENGINEERING

- **HAZOP – study**
- **Safety audit**
- **Noise survey**
- **Risk analysis**

Software Packages available

- AutoCAD
- ANSYS
- Abaqus
- MATLab
- Fluent
- SysWeld

Major Equipment in the Dynamics laboratory

Sl. No	Name of the Equipment / Instrument	Cost	Present condition
1.	Air Electronic gauge	Rs. 2.15 Lakhs	Order Placed
2.	Digital floating carriage	Rs. 2.17 Lakhs	Order Placed
3.	Digital Profile projector	US \$ 7000	Order Placed
4.	Digital Protractor	US \$ 950	Order Placed
5.	Digital snap gauge	Rs. 0.8 Lakhs	Order Placed
6.	Digital electronic gear tooth caliper	Rs. 0.4 Lakhs	Order Placed
7.	Ultra sonic thickness gauge	Rs. 0.2 Lakhs	Working

Major Equipment in the Refrigeration and A/C laboratory

Sl. No	Name of the Equipment / Instrument - Make	Cost	Present condition
1.	Vapour absorption refrigeration Trainer – Electronica reneta, Italy	US \$ 7042	Working
2.	Air-Conditioning Lab Unit - ARE Test system, Miraj	Rs. 1.35 Lakhs	Working
3.	Refrigeration Lab unit - ARE Test system, Miraj	Rs. 0.89 Lakhs	Working

Major Equipment in the Dynamics laboratory

Sl. No	Name of the Equipment / Instrument	Cost	Present condition
1.	Pneumatic engine starting system	Rs. 2.5 Lakhs	Working
2.	Thermistor thermometer	Rs. 1.4 Lakhs	Order Placed
3.	Piezo electric transducer	Rs. 2.4 Lakhs	Working
4.	Specific gravity balance	Rs. 0.75 Lakhs	Order Placed
5.	Compressed air flow meter	Rs. 2.1 Lakhs	Working
6.	Multi channel data acquisition system	Rs. 2.3 Lakhs	Working
7.	Fluent software	Rs. 2.3 Lakhs	Working
8.	Work station	Rs. 5 Lakhs	Working

Equipments purchased under TEQUIP

Sl. No	Name of the Equipment / Instrument	Cost	Present condition
1.	Torque Transducer	Rs. 4.29 Lakhs	Working
2.	Torsional Vibration apparatus	Rs. 9.6 Lakhs	Working
3.	Sound and Vibration apparatus	Rs. 20 Lakhs	Working

Major Equipment in the Heat Transfer laboratory

Sl. No	Name of the Equipment / Instrument	Cost	Present condition
1.	Torque Transducer - Dr.Staiger Mohilo	Rs. 2.32 Lakhs (1998)	Working
2.	Laminar Air flow meter , Cussons, UK	Rs. 23.3 Lakhs (1999)	Working
3.	Free & forced convection in heat transfer unit – GUNT, Germany	Rs. 23.3 Lakhs (1999)	Working
4.	Charge Amplifiers – ELTECON INSTRONICS	Rs. 0.38 Lakhs (1999)	Working
5.	Capillary Viscometer with constant temperature bath – Julabo, German	Rs. 6.05 Lakhs (1999)	Working
5.	Infra red thermometer – Raytek, USA	Rs. 0.77 Lakhs (2004)	Working

PATENTS OBTAINED BY THE DEPARTMENT

Sl.No	Title	Status	Faculty Involved
1	Non return valve for the pneumatic tube of a vehicle tyre	Granted No:196266 year 12.12.2000.	Mr.K.Panner Selvam
2	Instantaneous swept volume measuring device for reciprocating machines	Application accepted No:1057/CHE/2003	Mr.K.Panner Selvam
3	An air compressor system	Application filed	Mr.K.Panner Selvam

The new Laboratories in the department

Automobile Lab.
CAD and Simulation Laboratory

Laboratories under future development

Design and Materials Laboratory

Laboratories under Modernization

Refrigeration & A/C Laboratory
Heat transfer laboratory
Thermal Laboratory