

**RESEARCH LABORATORIES & CENTRALIZED INSTRUMENTATION FACILITIES**  
**Department of Mechanical Engineering, NIT Tiruchirappalli**

S.No.	Name of the Equipment	Name of the Laboratory	Short description of the Equipment (Model, Make Important Details)	Faculty In charge Contact Details
1	Impact Sensitivity Tester	Industrial Safety Lab	Impact Sensitivity Tester is used to find the Impact Energy of Energetic materials. Model: BAM Fall Hammer, Drop Weight: 2 kg, 3 kg, 4 kg and 5 kg, Fall height: Max 165 cm, Anvil: 20 mm x 20 mm Supplier: Electro Ceramics	Dr. S.P. Sivapirakasam  +91-9944547215
2	Friction Sensitivity Tester	Industrial Safety Lab	Friction Sensitivity Tester is used to find the Friction Sensitivity of energetic materials. Model : 781-1000, Load Rating: 5 - 360 N, Porcelain Plate : 25 x 25 x 5 mm, Supplier : Swann Technology Ltd	
3	PHASt Risk Software	Industrial Safety Lab	PHASt is a process hazard analysis software which can be used during all stages of Process. Designed & Developed by DNV.GL	
4	Mini Tank Testing Equipment	Industrial Safety Lab	Mini Tank Testing Equipment is used for Performance Testing of Air Bags, having a variable volume capacity. Volume range: 100 – 500 CC Pressure range: 0 – 200 bar Temperature range: 0– 1200°C, Supplier: Legion Brothers.	
5	Tank Testing Equipment	Industrial Safety Lab	Tank Testing Equipment is used for acquiring Pressure vs Time, Temperature vs Time of Airbag Gas generate Mixtures. Volume range: 5- 28.3 lit Pressure range: 0 – 200 bar Temperature range: 0– 1200°C, Supplier: Auto Therm Equipments Ltd.	
6	Portable Conductivity Meter	Industrial Safety Lab	Portable Conductivity Meter is used to measure the electrical conductivity of Jet fuels. Conductivity Range: 0-1999ps/m. Temperature: -20 – 60 °C, Supplier : Chemtrols pvt Ltd	

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7	Bomb Calorimeter	Thermal Engineering Laboratory	The 6400 Automatic Isoperibol Calorimeter represents the next evolutionary step in the Parr automated calorimeters. Inclusive and compact, the instrument incorporates a closed loop cooling subsystem into the calorimeter. This subsystem uses a thermoelectric cooler assembly attached directly to a one liter water tank which supplies cooling water to the calorimeter. An external nitrogen pressurized tank is used to supply rinse water to the calorimeter. This model features the fixed bomb and bucket design allowing for automated bucket and jacket fill as well as automated vessel fill and rinse. The 6400 requires one minute of operator time per test, allowing a technician to operate up to four calorimeters simultaneously.	Dr. AR. Veerappan aveer@nitt.edu  Dr. R. Anand +91-9444838909
8	Single cylinder diesel engine Test Rig.	Thermal Engineering Laboratory	The single cylinder diesel engine was purchased from legion brothers, Bangalore. It runs at constant speed of 1500 rpm has the rated power of 3.7 kW. It could be used in agricultural, power machinery application. Performance, emission combustion test are carried out for different fuels.	Dr. AR. Veerappan aveer@nitt.edu  Dr. R. Anand +91-9444838909
9	Multi cylinder diesel engine test Rig.	Thermal Engineering Laboratory	The multi cylinder diesel engine was purchased from Niyo Engineers, Pune. It is variable speed engine used in automobile application. The engine has the rated power of 70 bhp at 3500 rpm. The performance, emission and combustion test are carried out for different fuels.	Dr. AR. Veerappan aveer@nitt.edu  Dr. R. Anand +91-9444838909
10	Multi cylinder petrol engine test Rig.	Thermal Engineering Laboratory	The multi cylinder petrol engine was purchased from Niyo Engineers, Pune. It is variable speed engine used in automobile application. The engine has the rated power of 73 bhp. The performance, emission and combustion test are carried out for different fuels.	Dr. AR. Veerappan aveer@nitt.edu  Dr. R. Anand +91-9444838909

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11	AVL emission analyzer	Thermal Engineering Laboratory	The AVL Di Test gas 1000, was purchased from AVL India Private Ltd, This equipment is used to measure the engine exhaust emissions like CO, CO <sub>2</sub> , UBHC, NO <sub>x</sub> and O <sub>2</sub> .	Dr. AR. Veerappan aveer@nitt.edu Dr. R. Anand +91-9444838909
12	Ultrasonic sonicator	Fuels Laboratory	The Model 650Y Ultrasonic Homogenizer delivers up to 900 watts of ultrasonic disruption with analog controls for superior sample processing. The integrated Sound Abating Chamber reduces cavitation sound emitted during sample processing. The clear door permits viewing of the sample while processing. An access port for cables and tubing is also provided for use with the Cup Tip or the Continuous Flow Chamber. The compact vertical footprint is ideal for processing samples with volumes less than 250 µl with the Cup Tip and volumes ranging from 250 µl to 600 ml with a wide selection of titanium tips.	Dr. R. Anand +91-9444838909
13	Anaerobic Digester	Fuels Laboratory	Kitchen wastes are wet in nature and hence anaerobic digestion is preferred to produce methane gas.	Dr. R. Anand +91-9444838909
14	Portable Biomass Downdraft Gasifier	Fuels Laboratory	Agricultural wastes are relatively dry and hence undergo downdraft gasification process easily to produce syngas. The impurities in syngas were removed by a cyclone separator and then further cleaning and conditioning were done to produce pure syngas	Dr. R. Anand +91-9444838909
15	Refrigeration and heating bath circulator	Metrology Laboratory	SISKIN Profichill Model RHC1000-S1	Dr. K R Balasubramanian 0431-2503419
16	Micro External Gear pump	Metrology Laboratory		Dr. K R Balasubramanian 0431-2503419
17	20 channel armature multiplexure	Metrology Laboratory	34901A	Dr. K R Balasubramanian 0431-2503419
18	Oval gear flow meter	Metrology Laboratory	EU Oval M5-SS	Dr. K R Balasubramanian 0431-2503419

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19	Programmable DC Power Supply	Metrology Laboratory	Keysight N 5771A	Dr. K R Balasubramanian 0431-2503419
20	Micro Hardness Tester	Advanced welding laboratory	Southern Metallurgical Company. Chennai	Dr. N. Siva Shanmugam & Dr. T. Ramesh  0431-2503418 0431-2503425
21	Automated TIG welding		Magic Wave 400, Swastik Industrial Products. Trichy	
22	Metallurgical Microscope		Southern Metallurgical Company. Chennai	
23	Plasma Cutting Machine with CNC unit		ESAB power cut 1600	
24	Plasma Module		Plasma Module10,	
25	Resistance Spot Welding M/C & Accessories		50 KVA compact series pedestal spot welding machine	
26	Bosch Hand Tool Kit		United associates	
27	Tactile Force Measurement System		Eltek systems	
28	Linear Displacement Trolley		Swastik Industrial products. Trichy	
29	1KVA UPS & Batteries		Novature electrical and digital system. Chennai	
30	Welding Expert		Welding expert HR/HM 240X mini and maximum action limit module	
31	Cold Metal Transfer		Transplus synergic 4000	
32	Tensile Testing Machine		50 KN load cell	
33	Micro Plasma Welding system	Trans TIG 800		

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34	UPS	Advanced welding laboratory	APC back –UPS Bx600CI-IN 600VA UPS	Dr. N. Siva Shanmugam & Dr. T. Ramesh  0431-2503418 0431-2503425
35	Portable Gait Analysis System		Eltex Systems	
36	Cold wire addition		WARPP Engineers	
37	Welding work table		GURU – BROS	
38	OTC DAIHEN Asia Co.Ltd Welding Robot System		Model OTC DAIHEN FD – B6 Welding System with DM – 350 Power source	Dr. N. Siva Shanmugam & Dr. T. Ramesh  0431-2503418 0431-2503425
39	OTC DAIHEN Asia Co.Ltd Welding Robot System		Model OTC DAIHEN FD – B6 Welding System with DM – 350 Power source.	
40	5 KVA step down transformer		Tecmax step down isolation	
41	Digital Inverter CO <sub>2</sub> /MAG welding machine	DMIG – 400 OTC DAIHEN Digital Inverter Co <sub>2</sub> / MAG welding machine.		
42	Welding Fume Extractor	Make -Kemper GmbH with welding curtains Model-SMARTMASTER		
43	Erichsen Cupping Tester	Strength of Materials laboratory	Erichsen Cupping Test with computer interface	
44	Machine vice	Strength of Materials laboratory	Swastik Industrial products. Trichy	Dr. N. Siva Shanmugam & Dr. T. Ramesh  0431-2503418 0431-2503425
45	Working Table Wooden		P.Obul reddy & Sons-Trichy	
46	CNC wire cut EDM		CNC wire cut EDM 7740	
47	Spring Deflection Tester		Ashian Engineers – New Delhi	
48	Shear Tester		Rock Direct Shear Test apparatus	

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49	Universal Testing machine		IE-BS-UTE-100 Electronic Universal Testing Machine	
50	Torsion Testing machine		Enkay Enterprises- New Delhi	
51	LCD Projector		Dell 1510 X – LCD Projector	
52	Deflection Tester for Steel Bar	Strength of Materials laboratory	Hi – Tech India Equipments Chennai	Dr. N. Siva Shanmugam & Dr. T. Ramesh  0431-2503418 0431-2503425
53	Brinel and Rockwell hardness tester		ASI Sales Private Limited- New Delhi	
54	Izod and Impact Tester		ASI Sales Private Limited- New Delhi	
55	Fatigue Testing Machine		Instron, UK	
56	Five gas analyzer	Automobile Engineering Laboratory	DIGAS 444N, AVL	Dr. V. Arul Mozhi Selvan & Dr. Nanda Naik Korra  0431-2503417 0431-2503424
57	Noise analyzer	Automobile Engineering Laboratory	Elmach Ambiprobe	
58	Eddy current dynamometer	Automobile Engineering Laboratory	Dynatech	