MANJARA CHARITABLE TRUST

RAJIV GANDHI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINEERING

LIST OF LABORATORIES

Sr. No.	Name of the Laboratory	No. of Students per setup (Batch Size)	Name of the Important equipment	Technical Manpower support	
				Name of the Lab Incharge	Name of the technical staff
1	Workshop	20	1. lathe machine 4.5 feet (16) 2. lathe machine 5.5 feet - all gear (2) 3. column & knee type vertical milling machine VM-3 table size 300mmx1200mm (1) 4. column & knee type horizontal milling machine M-2 table size 20x1000mm (1) 5. bench grinder 250X25mm (1) 6. Surface grinder 6"x18" (1) 7. power saw machine 8" capecity (1) 8. shaper 12"strock length (1) 9. shaper 24" strock length (1) 10. pedastal grinder 250mmX25mm (1) 11. Radial drilling machine 32 mm Capacity (1) 12. Bend Saw Machine 10" Capacity (1) 13. Electric arc welding machine 2 phase 80 -240 amp (1) 14. Spot welding machine 2 phase , input 240V ,50hertz,AC supply (1) 15. Electric welding Machine 3 Phase (1)	Prof. R. Y. Kurane	Mr. S.M.Hajare
2	Fluid Mechanics & Machinery (turbomachinery)	20	1. Reynolds app. For demonstration of streamlined and turbulent flow (1) 2. App. For verification of bernoulli's Theorem (1) 3. Apparatus for determination losses in pipelines (major & minor losses) (1) 4. Orifice & mouthpiece apparatus (1) 5. Venturi meter & orificemeter Apparatus (1) 6.Pelton turbine test rig (1) 7.Centrifugal pump test rig (1) 8.Reciprocating pump test rig (1) 9.Francis turbine test rig (1)	Prof. P. R. Paul	Mr. J. L. Jadhav

3	HVAC Lab	20	1.Ice plant test rig (1) 2.Refrigeration test rig (1) 3.Window a/c test rig (1) 4.Mechanical heat pump (1) 5.Display board-components used in rac (1) 6.Water cooling tower (1)	Prof. N.K. deshmukh	Mr. J. L. Jadhav
4	Automobile & I C Engine	20	1.Exhaust gas analyzer (1) 2.Battery charging system (1) 3.Multycylinder petrol engine test rig. With hyadraulic dynamometer (1) 4.Single cylinder diesel engine test rig with rope brake dynamometer (1) 5.Two cylinder diesel engine test rig with electrical dynamometer (1)	Dr. A. G. Londhekar	Mr. J. L. Jadhav
5	Strength of Material & Material Technology	20	1.Hardness testing machine (rock well & brinell hardness) with electrical dynamometer (1) 2.Universal testing machine with electrical dynamometer (1) 3.Impact testing machine (izod & charpy test) (1) 4.Torsion testing machine with (1) 5.Muffle furnace (1) 6.Monocular metallurgical microscope (indian optics) sm –7 (1) 7.Binocular metallurgical microscope sm-8 indian optics (1) 8.Trincocular metallurgical microscope sm-9 imported optics (1) 9.fluorescent dye penetront kit (1) 10.Magnetic particle crack detector with Accessories (1) 11.Fatigue testing m/c (1)	Prof. N. N. Bhostekar	Mr. J. M. Hajare
6	Thermal Engineering & Heat Mass Transfer	20	1.Lawcashire boiler (1) 2.Chocran boiler (1) 3.Babcok & wilcox boiler (1) 4.Locomotive boiler (1) 5.Benson boiler (1) 6.Lamount boiler (1) 7.Air compressor test rig (1) 8.Heat transfer from pin fin (1) 9.Heat transfer through composite wall (1) 10.Emissivity measurement apparatus (1) 11.Stefan boltman apparatus (1) 12.Thermal conductivity of insulating Powder (1) 13.Thermal conductivities of liquid (1) 14.Heat transfer in forced convection (1) 15.Heat transfer in natural convection (1) 16.Unsteady state of heat transfer (1) 17.Heat pipe demonstrator (1) 18.Dropwise & filmwise condensation Apparatus (1) 19.Critical heat flux apparatus (1)	Prof. M. R. Valse	Mr. J. M. Hajare

			20.Parallel flow & counter flow Apparatus (1) 21.Heat tranfer through lagged pipe (1) 22.Thermal conducting of metal rod (1) 23.Computerized heat pipe apparatus (1)		
7	Theory of Machines & Maintenance Lab	20	1.Motorised gyroscope (1) 2.Cut section model of gear box with Cluth (1) 3.Motorised governer apparatus (1) 4.Static and Dynamic Balancing Machine 5.Vibration Experimental set – Up 6. Whirling of Shaft (1) 7.Vibit -Wi-Fi based 6 Khz Edge IoT Tri-axial Vibration sensor (2) 8. Wi-Fi router 2.4GHz (6-8 sensors based on location of Assets) (1) 9.Software Application for Machine Diagnostics and prognostics 10. Power Supply Panel	Prof. S. D. Gaikwad	Mr. Sohel Shaikh
8	Mechatronics & Mechanical Engineering Measurement	20	1.Mechatronics training package (1) 2.8085 microprocessor kites (1) 3.Various control systems (1) 4.Electro hydraulic trainer (1) 5.Dead weight pressure gauge (1) 6.Vibration measurement system (1) 7.Vacuum gauge (1) 8.Profile projector (1) 9.Surface roughness tester (1) 10.Angle gauge set (1)	Dr. N. J. Panaskar / Prof. Nikhil V. S.	Mr. Sohel Shaikh
9	CAD/CAM Lab	20	1.HP Computer (20) 2.LG Computer (4) 3.Stabilzer (1) 4.3d printer (1) 5.printer (1) 6.ANSYS Version (25) (Software)	Prof. A. L. Mangrulkar	Mr.R.T.Sangale
10	Laboratory based on IOT	20	1.DTH 1 Temperature Sensor (5) 2.HCO5 bluetooth Module (10) 3.PIR Sensor (5) 4.SG-90 Servo motot (10) 5. Arduino Uno with cable (15) 6. Arduino Nano with cable (5) 7. LCD (5) 8. LED (100) 9.Male to male wires (240) 10. Female to female wires (160) 11.Male to female wire (80) 12.Wire stripper (2) 13.Breadboards (20) 14. Resistors (20) 15.12C Connectors (2)	Prof. A.K. Gawde	Mr. R.T.Sangale

11	Project Lab & E Yantra Lab	20	1.Fire Bird V 2560 Robot (6) 2.Spark V Robot (5) 3.Metal Gear Servo Motors (10) 4.Infrared sensor (1) 5.Zigbee Modules (1)	Prof. R.M. Siddiqui / Dr. A.V. Gotmare	Mr. Sohel Shaikh
12	CNC & 3D Printing Lab	20	1.CNC Machine 2.3D Printer	Prof. A.L. Mangrulkar	Mr. S.M.Hajare

Additional facilities created for improving the quality of learning experience in laboratories

Sr. NO.	Facility Name	Details	Reason(s) for creating facility	Utilization	Areas in which students' are expected to have enhanced learning	Relevance to POs/PSOs
1	ICT classroom	**Smart Board, Projector, CCTV cameras**	**To enhance Teaching & Learning**	**Faculties and Students**	**All engineering subject Domains**	**PO1,PO2, PO10, PO12**
2	3 D Printer Open Source Software cura	**1. Cura Blender Open Form 2. Blender education software fusion 360 3.Inventer altair**	**Fusion 360 Inventer Altair**	**By Students**	**ASME SAE Robotics students professional bodies, competition project work**	**All PO's & PSO's**
3	R & D Lab	Ansys	**Analyzing & Design of models.**	By Students	FEM design	**PO1, PO2, PO3, PO4, PO12**
4	Robots	1.Fire Bird V 2560 Robot 2.Spark V Robot 3.Metal Gear Servo Motors 4.Infrared sensor 5.Zigbee Modules	**Students can use Facility for better understanding**	**By Students, Faculties and Staff**	**Used for Projects & Mini Projects Students**	PO1, PO12 PSO2
5	Internet (80 Mbps)	**Leased Line**	**To enhance Teaching & Learning**	**By Students, Faculties and Staff**	**All engineering subject domains**	**PO1, PO5, PO9, PSO1, PSO2**
6	Wi-Fi	**300 Mbps**	**Project Lab**	**By Students, faculties and staff**	**Mini & Major Project works**	**PO1, PO5, PO9, PSO1, PSO2**
7	Server		**For online classes, workshops by MHRD, IITB, Industry experts etc**	**All engineering subject domains**		**PO1, PO9, PO10,PSO1**
8	Plagiarism software	**Turnitin**	**Promote academic integrity, improve student outcomes, improve students' academic writing.**	**UG, PG students and research scholars**	**Mini projects and major projects**	**PO5, PO8, PSO1, PSO2**
9	Tool Box, Arc Welding M/c	**Include spanner, Hammer, Screw Driver etc**	**Given to project group for students who do in House Project**	**By Students**	**Used by Project Students**	**PO1, PO9, ,P012**

10	**1.** Orifice Meter 2.Venturimeter 3.Rotameter 4..Magnetic Flow Indicator 5. Purge Type Level Indicator 6.valve models 7.Cut Section of Valve	Flow Measurement	**Students can use Facility for Mini Project & Major Project**	**By Students**	**FM , HM & TM**	**PO1, PO2, PO3, PO12**
11	Exhaust Gas Analyser	Petrol Gas Analyser	**To understand PUC norms**	By Students	Theory of Engineering	PO1, PO2, PO3, PO12
12	Computerized heat pipe equipment		**Students can use Facility for better understanding**		**HT**	**PO1, PO2, PO3, PO12**
13	Virtual Lab	**http://vlab.co.in/**	**To provide remote-access to IIT Labs for courses like Software Engineering, Computer Organizations and architecture**	**By students for R&D, Project and to perform experiments beyond curriculum**	**All engineering subject domains**	**PO1, PO9, PO10,PSO1**
14	SAE / ASME Additional Space	**All the required facilities including Wi-Fi,**	**Students Build Car for FSAE Competition**	**By Students**	**Design and Manufacture domain**	**All PO's & PSO's**
15	Department Library	Several Technical reference books of Engineering	**To provide additional Books**	**By Students, faculties and staff**	**All engineering subject domains**	**All PO's & PSO's**