

INSTRUMENTATION AND CONTROL SYSTEMS LAB

S.NO	NAME OF THE EQUIPMENT	SPECIFICATION OF THE EQUIPMENT	QUANTITY
1.	Bourdon tube pressure gauge with dead weight tester	0.5-40 kgf/ cm ²	1
2.	Linear variable transducer for displacement measurement	10mm range 50 – 400 Hz voltage	1
3.	Semi conductor, Thermistor, Resistance temperature detector for temperature measurement	-100 to 100 Deg C	1
4.	Photo and Magnetic pickup for Speed measurement	230 volts Ac, 50 Hz 3 phase, 230 volts 1500 rpm	1
5.	Capacitive pickup for angular displacement measurement	0-100 pf 0-180 ⁰ angular measurement	1
6.	McLeod gauge for low pressure (vacuum) measurement	0.01 to 10 mm of Hg 50 Hz 250w 1440 rpm	1
7.	Non contact tachometer	0-2000 rpm Battery type	2
8.	Infrared thermometer	Range -50 – 2200 Deg C Distance spot ration 50:1	1
9.	Electromagnetic flow meter	Model- MAGFLOW 650 Size- 1” / 25 NB Connection- Flanged Supply- 230 VAC +/-10 Output- 4-20 mA	1
10.	RTD with stainless steel heating and connector with digital temperature upto 100 ⁰ c	230 volts Ac, 50 Hz -450 ⁰ F to 2000 ⁰ F	1
11.	Flow measurement using Rotameter with air compressor	0-150 mm of water 10-120 lit/s 0.5 Hp 650 rpm	1

MMS Lab

S.No	Name of the equipment	Specification
1	Specimen Cutoff Machine	Make: Pyromatic Motor power: 2hp, 3 Ø Motor speed: 288 rpm Coolant pump head: 1.25m
2	Linisher Belt Grinder	Make: Pyromatic Type: Dry Motor speed: 1420 rpm Motor ¼ hp, 1Ø
3	Double disc polishing machine	Make: Pyromatic Motor power: 2x1/4 hp, 1Ø Disc material: Brass topped grey cast iron disc

4	Image analyser	Diwinter microscope model: DMI CROWN II with USB digital CCD camera Material Plus software: Ver 4.1
5	Heat Treatment Furnace	Make: Krishmet Internal chamber size: 30-15-15 Rating: 3.5 Kw Max Temp: 1100°C
6	Jominy End Quench Test Apparatus	Make: B.S.Pyromatic
7	Inclined Metallurgical Microscope	Make: Censico, Magnification of eye piece available: 10X, 15X Magnification of objective piece available: 10X, 20X, 45X, 100X
8	Inverted Binocular Metallurgical Microscope	Make: B.S Pyromatic Model: Pyromatic TBM 3300 Magnification of eye piece available: 10X, 15X Magnification of objective piece available: 10X, 20X, 45X, 100X
9	Inverted Trinocular Metallurgical Microscope	Make: B.S Pyromatic Model: Pyromatic ITM 4000 Magnification of eye piece available: 10X, 15X Magnification of objective piece available: 10X, 20X, 45X, 100X
10	Ultrasonicator	Model: Oscar make ultrasonic processor Ultrasonic power: 1000 W Processing capacity: Upto 1 lt Frequency: 20+-3 KHz
11	Specimen Mounting Press	Make: B.S.Pyromatic
12	Aluminium melting furnace	Make: Krishmet Capacity: 1 Kg Max Melting temp.: 1100°C

Material Testing Laboratory

Material Testing laboratory is well equipped with destructive testing machineries. This lab course is offered in the second year for the students from mechanical Engineering department . Students will be able to understand the theoretical concepts of solid mechanics course and enable them to apply it practically in this lab. Different types of tests are being conducted in this laboratory to know the various mechanical properties of a material such as young's modulus, shear modulus, hardness, toughness, deflection, fatigue strength , wear rate etc.

All the equipment are properly calibrated and tested by the manufacturer in a periodic manner. Final year Student's project works on testing of various materials like composite materials, ferrous and non ferrous alloys have also been done in this laboratory. Students are also utilizing this lab for the preparation of specimen to be tested. A Unique feature of this lab is the "Universal Testing Machine (UTM)" of capacity 20 tons and pin on disc testing machine integrated with the computer . Lot of researchers from various colleges / universities

are utilizing this UTM and Pin on Disc testing machine for their research works and extracting the results in various data formats.

S.NO	Name of the Equipment	Specifications	Qty
1	Universal Testing Machine computerized	Make : FIE Model : UTE-20 Capacity : 20 Tons Compression : 0-700 mm Oil pump output : 1.5 lit/ minute Motor for oil pump : 1 H.P, 3 Phase Motor for cross head : 0.33 H.P.3 Phase	1
2	Compression Testing Machine	Make : FIE Model : CTM-100 Capacity : 100 Tons Compression clearance : 0-500 mm Piston speed at no load : 30 mm/minute Motor for oil pump : 1 H.P, 3 Phase Motor for cross head : 1 H.P.3 Phase	1
3	Vickers Hardness testing machine	Make : FIE Model : VM-50 Test loads : 5, 10,20,30,50 kg-f Max Test height : 230 mm	1
4	Impact Testing Machine	Make : FIE Model : IT-30 Maximum impact energy of pendulum : 300 joules(charpy),168joules(izod) Curvature of striking edge : 2-2.5mm (charpy), 0.5-1mm(izod) Angle of striking edge : $30^{\circ} \pm 1^{\circ}$ (charpy), $75^{\circ} \pm 1^{\circ}$ (izod)	1
5	Torsion Testing Machine	Make : FSA Model : FTT-20 Max Torque Capacity : 20 kg-m Testing speed : 1.5 rpm Transverse speeds : 1, 3,5,50 and 100 mm/minute Motor drive : 0.5 H.P, 3 Phase	1
6	Rockwell Hardness testing machine	Make : SAROJ Model : RAB 250 Max Test load : 250 kg Ranges : 60,100,150,187.5,250 kg Max Test height : 295 mm	1
7	Pin on disc testing machine	Sliding Speed Range : 0.26-10 m/sec Disc Rotation Speed : 100-2000 rpm Maximum Normal Load : 200 N Frictional Force : 0-200N Wear Measurement Range : Up to 2 mm Pin Size (diagonal/diameter) : 3 , 6, 8, & 12	1

		mm Dia (Length 25-30 mm) Disc Size (EN31 material) : 165 mm Dia x 8 mm thick Wear Track Diameter : 40 to 140 mm Pin/Ball on Disc (Base) Single lever system in 1 : 1 ratio Ball Diameter : 10 mm Pin sample holder (Circular and square) :3, 6, 8 & 12 mm Ball Sample holder : 10 mm	
--	--	--	--

Machine Tools Lab

S.No	Name of the Item	Specification	Qty
1	Universal Milling machine – 1000* 200 mm table	SWIVEL OF TABLE: 45 ° SPINDLE SPEEDS: 8 SPEED RANGE: 50- 1000 RPM MIN TO MAX DISTANCES CENTER OF TABLE TO TOP: 0-400 mm SPINDLE NOSE TO TABLE : 0-300mm LONGITUDINAL FEEDS: 8 FEED RATIO: 15-150 mm/min MILLING HEAD MOTOR: 1.5 HP, 3Ø FEED MOTOR: 0.5 HP, 3Ø	1
2	Radial drilling Machine	MAKE: SIDDHAPURA DRILLING CAPACITY: M.S.....38MM C.I.....45MM SPINDLE NOSE: MT 4 NUMBER OF SPINDLE SPEEDS: 8 RANGE OF SPINDLE SPEEDS: 62-1980 RPM SIZE OF WORKING TABLE: 380*300*300MM DRILLING RADIUS MAX/MIN: 895/400 MM SWIVEL OF ARM L/R SIDE: 90 DEGREES MAIN MOTOR: 2HP, 3Ø ELEVATING MOTOR: 0.5 HP, 3Ø	1
3	Hacksaw (mechanical)		1
4	Hydraulic Power Hacksaw 8” dia	MAKE: JESWANTH MAX. : 51" NUMBER OF STROKE MINUTE: 100-120 : BLADE SIZE-14-16" ELECTRIC MOTOR: 1HP, 3 Ø CAPACITY TO CUT ROUND BAR-8" CAPACITY TO CUT SQUARE BAR-6"	1

5	Cylindrical Grinder Grinding length 225 mm	<p>MAKE: RIAT SONS MAX. GRINDING LENGTH: 225mm MAX. HEIGHT OF CENTERS: 110mm MAX. GRINDING DIAMETER: 40mm MAX TABLE SWIVEL: 7° WORK HEAD SWIVELLING ON EITHER SIDE:90° WORK HEAD MOTOR: 1HP, 3 Ø,1440 rpm WHEEL HEAD MOTOR: 2HP, 3 Ø,1440 rpm SIZE OF GRINDING WHEEL: 340*25*101 mm</p>	1
6	capston Lathe 25 mm collect	<p>MAX COLLECT CAPACITY: 25mm NUMBER OF SPINDLE SPEEDS: 3 RANGE OF SPINDLE SPEEDS: 650-1660 rpm STROKE OF CAP. SLIDE: 95mm LENGTH OF THE BED: 980mm WIDTH OF THE BED: 150mm HEIGHT OF THE CENTERS: 150mm MOTOR: 1.5HP,3Ø DRIVE: V-BELT</p>	1
7	Bhurji make surface grinder – Table size 225 * 500 mm	<p>MAKE: B M T BHURJI GRINDING AREA: 225*500 mm MAX. MAGNETIC TABLE TRAVEL: 250/525 mm MAX GRINDING HEIGHT UNDER WHEEL:240 VER. FEED GRADULATION: 0.01mm CROSS FEED GRADULATION: 0.05mm MICRO FEED VERTICAL: 0.002mm SPINDLE SPEED: 2800 rpm MAIN MOTOR: 1HP, 3 Ø</p>	1
8	Vikrant all geared 6' bed	<p>LENGTH OF THE BED: 1830 mm HEIGHT OF THE CENTERS: 180mm SWING OVER BED: 360mm DISTANCE BETWEEN CENTERS: 1000 mm TAPER BORE M.T: 3 NUMBER OF SPINDLE SPEEDS: 8/48-1000 RPM METRIC THREADS: 17/05-60mm PITCH BRITISH THREADS: 36/4-60 TPI MAIN MOTOR: 2 HP, 3Ø</p>	2
9	Panther Make all geared 6' bed	<p>HEIGHT OF THE CENTERS: 177mm SWING OVER BED: 335mm SWING OVER CROSS SLIDE: 205mm DISTANCE BETWEEN CENTERS:240 mm NUMBER OF SPINDLE SPEEDS: 8/16-1250 RPM METRIC THREADS: 38/02-60mm BRITISH THREADS: 36/4-60 TPI MAIN MOTOR: 2 HP, 3Ø</p>	2

10	Master make tool and cutter grinder Table size 500 * 113 mm	MAKE: MITTER(MTCG-101) LONGITUDINAL TRAVERSE: 250mm CROSS TRAVERSE: 175mm TABLE DIMENSIONS: 500*113mm TABLE SWIVEL CLOCKWISE: 90° TABLE SWIVEL COUNTER CLOCK: 90° MOTOR HEAD SWIVEL: 360° MAIN MOTOR: 2HP, 3 Ø	1
11	Sagar make Shaping machine 18" stroke	LENGTH OF RAM STROKE: 457 mm(18") LENGTH OF RAM: 914mm WORKING SURFACE OF TABLE: 381*279 mm MAX. HOR. TABLE TRAVEL: 457 mm MAX. VER. TABLE TRAVEL: 305 mm ANGULAR MOVEMENT OF TABLE: ±60 DEGREES MAX. VER. TRAVEL OF TOOL SLIDE: 152mm NUMBER SPEEDS / STROKE: 4 RANGE OF RAM STROKE/mm: 17 TO 75 RANGE OF TABLE SPEEDS : 0.22 - 0.88 mm MAIN MOTOR DRIVE: 2 HP, 3Ø	1
12	Padmini Student all geared 4' bed	HEIGHT OF THE CENTERS: 175mm SWING OVER BED: 350mm DISTANCE BETWEEN CENTERS:700 mm SPINDLE SPEEDS: 8/54-1200 RPM METRIC THREADS: 12/05-60mm PITCH BRITISH THREADS: 32/4-60 TPI MAIN MOTOR: 2 HP, 3Ø	2

Production Technology Lab

S.No.	Name of the Equipment	Qty.
1	Power operated hydraulic press - 40 tons	1
2	Power press (Crank Press) - 15 tons	1
3	Motorised Pipe Bending Machine (3/4th and 1 inch)	1
4	Blow moulding machine (40 Grams)	1
5	Blower	1
6	Injection moulding machine	1
7	Arc welding machine (Oil Cooled -75 to 250 amps)	1
8	Grinding machine	1
9	Arc/TIG welding machine 400 amps DC with Torch	1
10	Portable Arc/TIG Welding M/C - 250 Amps	1
11	TIG welding machine 225 Amps	1
12	Gas welding torch, Gas cutter, Flash arrester, Cleaner, Oxygen and Acetylene regulator	1
13	Hand Drilling machine	1
14	Spot welding machine (0 to 25 amps) - 10 KVA	1

15	Ultrasonic Flaw Detector (ARJUN-10) with normal and angle probe, V1 & V2 calibration blocks	1
	Sand Testing Equipment	
16	Sand Siever with variable Sieve sets	1
17	Sand Muller - 5kg	1
18	Sand Rammer with Base Block and Attachments	1
19	UTM with attachments	1
20	Sand Permeability Tester with attachment	1
21	Mold hardness tester - B scale	1
22	Hand Grinding machine	2

CAD/CAM Lab

S.No.	Name of the Equipment	Qty
1	ANSYS 8.1 Advanced Research Version Software	5 User
2	I-Deas Nx CAD Modular Software	5 User
3	HP Workstation (XW 4200)	1
4	Server HP Proliant ML 350 G4	1
5	ALG NASTRAN+EDGE CAM Softwares	5 User
6	Pro-Engineer	50 User
7	ZN Tutor-cfd-10 licences & CFD expert+12 licences (Network version)	10 User
8	HP Compaq 2300 Systems	40
9	Dell Power Edge 1900 Server	1
10	DEll Power Edge T 620 Server	1
11	D-Link 8-Port LAN Switch	7
12	D-Link 24-Port LAN Switch	2
13	Creo-2 Upgradation	50 User
14	HP Pro3330 MT Desktop systems	60
15	Windchill PDMLink/Project Link Upgradation	100 User
16	EdgeCAM upgradation EdgeCAM 2014	15 User
17	EdgeCAM upgradation EdgeCAM 2015	15 User
18	Ansys Academic research Mechanical & CFD (Unlimited Nodes)	25 User
19	Ansys Academic Teaching Mechanical & CFD (256000 Nodes)	1 User
20	Canon IR 220 Xerox	1
21	HP Back-Up UPS 1100	15
22	HP280 GT MT Desktop System	18
23	Edge CAM 2018	15 User