

CIVIL ENGINEERING DEPARTMENT

List of Machines/Equipments

S. N.	Name of equipments	Specification
Soil Mechanics Laboratory		
1	LIQUID LIMIT DEVICE Motorised	Liquid Limit Device, motorised with Casagrande grooving tools and gauge block (Suitable for operation on 50 Hz, single phase AC supply. AIMIL MAKE
2	SOIL CONE PENETROMETER	Complete with a stainless steel penetration test cone 35 mm long with smooth polished surface with an angle of 30 ⁰ with Penetration Test Cup 55mm diax40mm deep, Digital type. AIMIL MAKE
3	Pycnometer	Pycnometer :Standard IS: 2385(Part 3) consist of a 1Kg Glass jar with Brass Cone, Locking Ring and Rubber Seal. AIMIL MAKE
4	Triaxial Test Apparatus	Ref. IS: 2720 (Part-XII)- Load frame motorized, triaxial cell (38mm), top loading pad, perspex 38mm dia, plain perspex 38mm X 6mm thick, porous stone 38mm dia X 6mm thick, sheath stretcher 38mm dia specimen Rubber Sheath for 38mm dia specimen, Drainage tube (Short and Long), O-ring for 38mm dia specimen, Lateral pressure Assembly with Analog foot pump, Pore pressure apparatus. Analog AIMIL MAKE
5	Relative Density Apparatus	Relative Density Apparatus(Ref. IS 2720(Part-xiv with all accessories) AIMIL MAKE
6	Permeability Apparatus (Falling Head method)	Stand with three glass tubes of 6mm, 10mm and 20mm dia approx, Metallic Mould 100mm dia X 127.3 mm height, 1000ml volume, Extension Collar 100mm dia X 60mm height, Drainage Base Plate with a recess for Porous Stone and an Outlet Valve, Metallic Clamping Ring, Drainage Cap with recess for a Porous Stone and fitted with Inlet Valve and Air Release Valve, Dummy Plate to serve as False Bottom during compaction. AIMIL MAKE
7	Swell Test Apparatus	Load Frame, Hand operated, Capacity 5kN, Mould 100 mm dia X 127.3mm height (1,000 ml volume) with base plate and collar, Proving Ring, 2.5 kN (250kgf) capacity, Dial Gauge 25mm travel, 0.01 mm least count, Perforated Swell Plate 100 mm dia X 16mm thick, Space r100mm dia X 12.7 mm thick, Pair of Porous Stones 100mm dia X 12.7 mm thick, Load Transfer Bar, Steel Ball, Soaking Tank, 250mm dia X 210mm high AIMIL MAKE
8.	Proving Ring	1KN AIMIL MAKE 2KN AIMIL MAKE
Rock Mechanical & Geology Lab		
9	Point Load Index Tester	Loading Frame fitted with Hydraulic jack, hand operated, capacity 100 kN As per IS : 8764 AIMIL MAKE
10	Brazilian Test Apparatus	Loading Frame fitted with hand operated Hydraulic Loading Jack of 100 kN capacity Provided with self retracting Piston, pair of plain platens, pair of semi-circular jaws for 50mm dia samples., Load gauge 0-200kN X 1kN capacity, provided with maximum load indicator As per IS 10082, AIMIL MAKE
11	Core Cutting and Gridding machine	For 35-75 mm dia. Suitable for operation on 415V, three Phase, AC Supply AIMIL MAKE

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12	Jolly's Apparatus	Jolly's apparatus for the determinations of specific gravity of any substance AIMIL MAKE
13	Mohr's Scale of Hardness	Mohr's scale of hardness (Hardness Box of standard minerals) AIMIL MAKE
TRANSPORTATION LABORATORY		
14	WEIGHTING BALANCES	Electronic Balance , Capacity 600g x 0.01g Pan Size 116mm dia AIMIL MAKE
		Electronic Balance , Capacity 20kg x 2g Pan Size 290 x 210mm AIMIL MAKE
15	DRYING OVENS	Laboratory Electronic Oven, Thermostatically Controlled, Range 50deg C to 300 deg C+/- 1deg C with Air Circulating Fan, S.S. Inside, Size 450x450x450mm AIMIL MAKE
16	Pavement Dynamic Cone Penetrometer	Top and Bottom Rod, Handle, Hammer, 1m Scale, 60 ⁰ Cone, Anvil Supplied with a wooden carrying case. AIMIL MAKE
17	Jaw Crusher	Three phase, New Model AIMIL MAKE
18	Ductility Testing Machine	Electrically operated Digital Temp. Indicator with Base plate. AIMIL MAKE
19	Water Baths	Serological Water Bath, Double Walled, with digital controller cum Indicator with stirring arrangement, inside Stainless Steel, Temp. Range Amb +5 ⁰ C to 95 ⁰ C +/- 0.2 ⁰ C, size 450 x 300 x 175mm (for 6 racks) AIMIL MAKE
20	Crushing value apparatus	AIMIL MAKE
21	Standard Tar Viscosity meter	10mm cup and ball valve Electrical Heating with Immersion Heating Elements and Dimmerstat for controlling the temperature. Complete with 10mm cup and valve. Suitable for operation of 220V, 50Hz, single phase, AC Supply, AIMIL MAKE
22	Marshall Apparatus - Two speed	Marshall Load Frame Cap 50KN- two speed, 50.8mm/min, Breaking Head Stability Mould Compaction Mould Steel, cylindrical Base plate Extension Collar Compaction Pedestal, Manual Operation, comprising a Steel Plate capped on a wooden post. A Mould Clamp is fitted to the top of the plate. Compaction Hammer- for use with Compaction Pedestal and Mould, weight 4.5 kg with a free fall of 457mm Load Transfer Bar Sample Eject for 4" dia Sample Dial Gauge 25mm travel, 0.01mm least count Proving Ring capacity 25 kN AIMIL MAKE
ENVIRONMENTAL LAB		
23	B.O.D. INCUBATOR	Controlled by a Digital indicator cum controller. With an accuracy of +/- 0.5 ⁰ C. Supplied with removable shelves. Works on 220 volts AC. AIMIL MAKE
24	PH Meter	AIMIL MAKE
SURVEY LAB		
25	Auto Level (with Stand)	TELESCOPE Tube length –(7.5 in) 190mm or Better Image- Erect Magnification – 24 X Effective diameter of objective lens – 1.2 in (30mm) Field of view – 1 ⁰ 30' minimum focusing distance 2.46 ft (.75m) or less 2 Level VIAL SENSITIVITY Circular level – 10/2mm 3 HORIZONTAL CIRCLE Diameter of Circle – 4.3 in (110mm) Graduation interval Degree- 1 ⁰ Type wire-hung magnetic damper Working range- + 16' or better setting accuracy- + 0.5" or better AUTOMATIC COMPENSATOR type wire hung magnetic damper

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		<p>Working range- $\pm 16'$ or better Setting accuracy - $\pm 0.5''$ or better STANDARD DEVIATION per 1- Km double run leveling - ± 2.0 mm or better WEIGHT Instrument Not More than 1.30 Kg AIMIL MAKE</p>
26	Total Station	<p>Accuracy : $5''$ Least count: $1''$ Telescope: Magnification: $30X$ (min) or better, Resolving power: $3''$ (min) Field of view: $1^{\circ}20'$. Minimum Focusing Distance: 1.5 or Better Distance accuracy with Prism: $2\text{mm}+2\text{ppm} \times D$ Distance accuracy with Reflector less: $3\text{mm}+2\text{ppm} \times D$. Measurement range: Single Prism: 3000m or more Reflector less: 350mm or more. Facel QVGA, 16bit colour, TFT LCD backlit with electronic bubble, graphical display of points, Lines etc Face2 backlit graphic LCD (128X 64 pixel) Tangent/clamp: Endless, Dust and water protection: IP66 Operating temperature: -20°C to $+50^{\circ}\text{C}$ Instrument weight: main body unit $\leq 4\text{kg}$. COGO : Should have COGO functionality. Data memory: Internal 128MB with provision for UDB pen drive as extra memory Device. Plummer: Built in laser Plummet. Tilt Sensor: Dual Axis, Compensation Range: $\pm 3.5'$ or more Batter operating time: Min 5 hours with each better. AIMIL MAKE</p>
27	Dumpy level (with stand)	Dumpy level with accessories. AIMIL MAKE
28	Prismatic Compass (with stand)	Prismatic compass $4''$ dia in fiber case with telescopic aluminum stand in case AIMIL MAKE
29	Plane Table (with accessories)	Plane table set with P.T. Board 600 mm X 750 mm made of best quality Fir Wood with hard wood battens at the back fitted with brass screws and washers, nuts for clamping, provided with brass sight vane, AIMIL MAKE
30	Leveling staff	Aluminium levelling staff 4m (4 fold) AIMIL MAKE
31	Theodo Lite (with stand)	<p>Telescope: Image...Erect Magnification...$30X$ or better Aperture.....45mm (1.7in) Focus Distance..1.35m to ∞ (4.43 ft) to ∞ Field of View $1^{\circ}30'$ or better standia Ratio/Constant$100/0$ Optical Plummet Image Erect Magnification... $30X$ or better Angle of view..... 5° or better Focusing range $0.5\text{m} \sim \infty$ (1.6 ft $\sim \infty$) Reticle type ... Crosshair Angle Measuring System Minimum Reading$1''$ or $5''$ Precision ...$2''$ Units.....Deg/mil gon/V% Display..... Dual, Large Character, Backlit LCD Tilt Sensor Automatic Compensation.....$+3'$ Range Weight- Instrument... 4.5Kg (9.9ib) Dust/Water..... IP- 54 Operating Temperature..... -20° to $+50^{\circ}\text{C}$ One Touch Button Functions AIMIL MAKE</p>
CONCRETE LAB		
18	Air Permeability Apparatus (Blaine Type)	Ref: Standards – IS:5516 Part 2 It is a variable flow type Air Permeability Apparatus of Permeability Cell. 'U' Tube Manometer, mounted on stand Performed Metal Disc. Plunger. Rubber Tube, 20cm long. Filter Paper Discs (Twelve Nos.) Dibuty lphthalate Liquid, 100 ml bottle. Punch. Non Perforated Disc. Suction Bulb. AIMIL MAKE
32	Vicat Apparatus	With ISI Certification Mark, IS: 5513 AIMIL MAKE
33	Rebound Hammer (Heavy Weight)	Concrete test Hammer N Type for Compressive Strength of 10-70 N/mm^2 Impact energy : 2.2 Nm Readings of measured values on a sale weight 1.7 with NCCBM certificate AIMIL MAKE

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HYDRAULIC LAB		
34	V-notch apparatus	Apparatus for determination of Cd of V-not with accessories and collecting tank.
35	Venturimeter Apparatus	Venturimeter set with collecting tank (900×450×450mm)
36	Pipe friction Apparatus	Apparatus for determining the friction losses in pipes (different dia) with accessories and collecting tank.
37	Bernoulli's theorem apparatus	Bernoulli's apparatus with collecting tank
38	Automatic Rain gauge etc.	Automatic Rain gauge with all accessories
39	Hydraulic Bench	Hydraulic Bench with accessories such as i. Dead weight ii. Hydrostatic pressure iii. Flow over weir iv. Impact of jet v. Metacentric height etc.
40	Impact of jet	Impact of jet consists of nozzle dia-10mm, test plates-plate and hemispherical with weight beam, water flow 20 to 30 lit/minutes, with suitable pipe fittings

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ELECTRICAL ENGINEERING DEPARTMENT

MACHINE LAB

SL. No	NAME OF THE EQUIPMENT
1.	Generalized M/c
2.	Salient pole synchronous generator driven by D.C. Shunt rotor with complete protection scheme (4-5KVA)
3.	Cylindrical pole synchronous generator driven by D.C. Shunt rotor with complete protection scheme (4-5 KW)
4.	Synchronous motor with protection(4-5 Kw)
5.	Reluctance motor(Single Phase ½ KW))
6.	3-Phase bridge rectifier (up to 30Ampere rating)
7.	Amplidyne set 1.5 KVA 2-3 Hp
8.	Single phase shaded pole motor ½ KW
9.	Single phase Hysteresis motor ½ KW
10.	Water Load 3-Phase

MEASURING INSTRUMENT

1.	Wattmeter(unity power PF) (10KW)
2.	Low P.F. Wattmeter (0.2 PF)(2.5KW)
3.	Tachometer (Analogue, range of speed-(100-3000rpm)
4.	Ammeter (0-2A)AC/DC
5.	Ammeter (0-5A)AC/DC
6.	Ammeter (0-20 A)AC/DC
7.	Voltmeter (0-175-300-600V)AC
8.	Voltmeter (0-75-150V)DC
9.	Digital Multi meter
10.	Tongue tester of 11KV & 500A
11.	Frequency Meter
12.	Power factor meter
13.	0.5 Power factor wattmeter(5KW)
14.	PMMC volt meter 0-01 V,0-3V,0-05V, 0-10 V,0-15V, 0-30 V, 0-50V,0-100V, 0-200V, 0-300 V, 0-600V (All small size)
15.	Moving Iron Type Volt meter 0-1V,0-3V,0-05V,0-10 V,0-15V, 0-30 V, 0-50V,0-100V, 0-200V, 0-300 V, 0-600V (All small size)
16.	PMMC Ammeter 0-50µA,0-100 µA,0.250 µA,0-10mA,0-30mA, 0-50 mA,0-100mA,0--500 mA,0-1A,0-5A,0-10A,0-20A(All small size)
17.	Moving Iron Type Ammeter 0-50µA,0-100 µA,0.250 µA,0-10mA,0-30mA,0-50 mA,0-100mA,0--500 mA,0-1A,0-5A,0-10A,0-20A (All small size)

POWER SYSTEM & PROTECTION LAB

1.	Synchronous motor protection scheme (Both field and armature)
2.	Synchronous Generator protection scheme(Both field and armature)
3.	IDMT relay i. Solid state ii Electromagnetic iii Microprocessor Based

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4.	Model Transmission line installation with distance relay protection scheme (complete with input & loading system)
5.	Differential Relay
6.	Study of induction type quantity over current relay
7.	Study of thermal relay
8.	Study of ABCD parameter of transmission line
9.	Determination of zero & negative sequence reactance
10.	Determination of C.T. Ratio & Phase Angle error
11.	Determination of Dielectric Strength of Transformer oil
12.	Study of distance relay

BASIC/DIGITAL ELECTRONICS LAB

1.	Transistor biasing techniques & Stability KIT
2.	FET Characteristics KIT
3.	Integrating Differentiating & clamping Circuit KIT
4.	Hybrid Parameters of a transistor KIT
5.	Comparative study of CE, CB & CC Amplifiers KIT
6.	Transistor Feedback Amplifier KIT
7.	30 MHZ CRO
8.	Digital Multi meter
9.	Half/Full Rectifier With Filter Trainer kit
10.	PN Junction Diode Characteristics kit
11.	Voltage Stabilization Characteristics of Zener Diode Kit
12.	General purpose Power Supply : 0-150 V.D.C., 10A (variable)
13.	Analogue multi meter
14.	Bread Board
15.	Connecting Wire of bread board
16.	L.E.D. (Different Types & Different colour All 100-100 Pices)
17.	Seven Segments Display
18.	DC Power Supply 5V,2A
19.	DC Power Supply 12V,2A
20.	DC Power Supply 0-30V,5A(variable)
21.	Digital Electronics trainer board
22.	IC=7400,7401,7402,7403,7404,7421,7430,7432,7486,74107, 74109, 74174,74173,7473,7474,7475,741,555,3130, UM66, DAC0808,ADC0808,ADC0801,7420,74290,74293, 74121,74193, CD4017,74194,4002,4001,CD4011,(All 20-20 Pices)
23.	Soldering Iron 25W,35W,65W,125W(All 5-5 Pices)
24.	Soldering Wire (Raga of Bharti) 100 Gram
25.	Soldering Flux (Big Size)
26.	Di-Soldering Kit
27.	Di-Soldering Pump
28.	DC wire 7/36 & 14/36 (Different colour 2-2 coil)
29.	SCR Characteristics kit
30.	Transistor Characteristics kit
31.	Basic Electronics Trainer board
32.	Xerox WC5225, Item No.20,Copier/ Printer Speed 25 PPM,A3,256M RAM DUPLEX

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33.	MAT Lab Software
34.	Study of various type of flip-flop with power supply
35.	UJT Relaxation Oscillator
36.	Study of various Decoder with power supply
37.	4-Bit binary Decade Up/Down counter using with power supply
38.	Battery Exide invar Tubular 12V,150AH
39.	Half/Full Adder circuit trainer
40.	Connecting wire for digital laboratory of different color with thin pin
41.	Transformer(1) Step down-6-0-6(1A) (2) Step down12-0-12(2A,) (3)Stepdown12-0-12(6A)
42.	Diode-4007,5408,6A
43.	Resistance of different value of 1/4w,1/2w,1watt & 2watt
44.	Capacitor(1)1000Mfd/25V(2)2500Mfd/25V
45.	Transistor BC107,SL100,BF195, SK100, 2N2222,BC147,BC177,BF194,2N3055, BC547,BC548,(All 10-10 Paces)
46.	Capacitor- 4700,3300,3000,2500,2200,2000,1500,1000,680,500,470,400,330,300,270,250,240,220,200,180,150,100,82,80,75,68,56,50,47,39,33,30,27,25,22,20,18,15,10,8.2,8,6.8,6,5.6,5,4.7,4,3.9,3.3,3,2.7,2.2,2,1.8,1.5,1.2,1,0.82,0.68,0.56,0.5,0.47,0.39,0.33,0.3,0.27,0.25,0.22,0.2,0.18,0.15,0.12,0.1,0.082,0.068,0.06,0.056,0.05,0.047,0.04,0.039,0.033,0.03,0.027,0.02,0.08,0.015,0.012, 0.01, Mfd 9100,8200,8000,7500,6800,6200,6000,5600,5100,5000,4700,4300,4000,3900,3600,3300,3000,2700,2500,2400,2200,2000,1800,1600,1500,1300,1200,1100,1000,910,820,750,680,620,560,510,500,470,430,390,360,330,300,270,250,240,220,200,180,160,150,130,120,110,100,91,82,75,68,62,56,51,50, 47,43,39, 36, 33,30,27, 24,22,20, 18,15,12,10,5 pf
47.	Resistor 820,680,560,470,390,330, 270,220,180, 150,120,100, 82, 68,56,47,39,33, 27,22,18, 15, 12, 10,8.2,6.8,5.6,4.7, 3.9, 3.3,2.7, 2.2, 1.2,1 Ohm Resistor-820,680,560,470,390,330, 270,220,180, 150,120,100, 82, 68,56,47,39,33, 27,22,18, 15, 12, 10,8.2,6.8,5.6,4.7, 3.9, 3.3,2.7, 2.2, 1.2,1 K Ohm 820,680,560,470,390,330, 270,220,180, 150,120,100, 82, 68,56,47,39,33, 27,22,18, 15, 12, 10,8.2,6.8,5.6,4.7, 3.9, 3.3,2.7, 2.2, 1.2,1 M Ohm (All 1/4W,1/2W,1W,2W)
48.	Diode 1N 4001 To 4007,5408,6A,BY127,OR1204, OR604, 1N4002(All 50-50P)
49.	Potentiometer -10,20,50,100,150,200,250,350,500,750 Ohm 1,1.5,2,2.5,3.5,5,7.5,10,15,20,25,35,50,75,100,200,250,500,750 K Ohm 1,2,2.5 M Ohm
50.	Coils/IFT 5.6 μ H, 22 μ H
51.	OP-Amp IC 741
52.	IC Checker
53.	DC Supply(1)Dual Supply 0-30V (2)Single Supply 0-15V
54.	Digital Function Generator
55.	Watt meter AC 0-350watt 250V
56.	Volt meter AC 250V
57.	Ammeter 0-5Amp 250V

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58.	Ammeter 0-10Amp 250V
59.	PVC Wire 3/20
60.	PVC Wire 3/22
61.	Bulb (Lamp) 100 Watt
62.	PVC Tape
63.	Diode rectifier 4001 To 4007
64.	Low power rectifier 5391 To 5399
64.	Zanier Diode- 1N957A TO 1N986A 1N745 To 1N759,1N957A,1N4370 TO 1N 4372,8.2V
65.	BJT npn 2N3903 & 2N3904
66.	BJT pnp 2N3905 & 2N3906,2N3251
67.	Transistor Hit sink model no. 401,403,421,423,441,
68.	FET 2N5457,2N4856
69.	OP-AMP- 741,108,308,353.
70.	SCR-2N1597,2N 5170, 2N64.
71.	Thyristor- OE102,OE101,OE104,OE804 or equivalent
72.	Triac-OT301,OT302.
73.	UJT-2N2646
74.	Transformer 230/110V,2A
75.	Inductance -4mH, 5A.
76.	Magnifying Glass (Eye Glass)
77.	Socket (Mail & female) 5A
78.	Tongs (Chamita)(Use for electronics works)
79.	IC Base (Stand) (Different Size)
80.	Arial(3 Feet)

CIRCUIT LABORATORY/INSTRUMENTATION/COMMUNICATION LABORATORY

1.	Digital Multi Meter
2.	Digital Stop Clock Up to 999.9 Sec.
3.	Kirchhoff's Law (Training board KIT)
4.	Single Phase Energy meter
5.	Wattmeter(0-150W)25/5Amp 150/300V
6.	Wattmeter(0-375W),25/5 Amp 150/300/600V
7.	AC/DC Ammeter (0-1A)(big size)
8.	AC/DC Ammeter (0-5A)
9.	AC/DC Ammeter (0-10A)
10.	Rheostats 200 Ohm,2A
11.	Rheostat 100 Ohm,5A
12.	11,Auto transformer input 233/240 output 0-270V,3A
13.	Wheat stone bridge
14.	Thevin's Theorem (Training board KIT)
15.	Super position theory(Training board kit)
16.	Experiment on 1- Φ Transformer (Open, Short, Efficiency & Ratio)2KVA
17.	Calibration of Wattmeter using Crompton potentiometer Training Board
18.	Measurement of power in a 1- Φ circuit by (1) Three Ammeter method (2) Three Voltmeter method. Training Board.
19.	Calibration of single-Phase energy meter by (1) Direct loading method (2) Comparing.
20.	Power & power factor in a 1- Φ Ac circuit by Wattmeter & Power factor meter(CR),

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21.	Pulse position Modulation & Demodulation (PPM)
22.	Time division multiplexing & De-multiplexing
23.	Pulse code modulation and De-modulation Trainer (PCM)
24.	Linier Variable differential Transducer(LVDT),Trainer
25.	Temperature measurement -using transducer
26.	Advanced Digital storage oscilloscope and mixed signal oscilloscope
27.	Thermistor characteristic
28.	To convert a galvanometer into volt/Amp. Meter
29.	Anderson bridge
30.	One way Switch 5A
31.	Lamp Holder Baton type
32.	Lamp (1) 40W/230V,60W/230V,100W/230V,200W/230V (2) 100W/110V,100W/150V,100W/200V,100W/250V
33.	1-mm & 1.5mm Insulated copper wire
34.	Two way switch 5A
35.	Intermediate switch 5A
36.	DPDT switch 5A
37.	SPDT switch 5A
38.	Siren (Buzzer) 0-12V
39.	Line taster
40.	Screw driver 100mm,150mm,
41.	Insulated combination pliers 150mm
42.	Nose pliers 150mm
43.	Hammer Ball Pen 0.25Kg
44.	PVC Tape
45.	Cold formal chisel 150mm
46.	Steel rule 30 cm
47.	Wire striper 75mm
48.	Hydro meter

NETWORK THEORY LAB

1.	Verification of laws & network theorems in DC Circuits
2.	Verification of Maximum Power Transfer Theorem & Reciprocity theorems

MICROPROCESSOR LAB

1.	8085 microprocessor trainer kit
2.	Anti Virus Software
3.	Cartridge HP Laser get P1606dn

POWER ELECTRONICS LAB

1.	Study of SCR & AC-Phase control
2.	SCR Convertor & Reactive load
3.	1- Φ fully controlled bridge converter
4.	Triggering circuit for SCR
5.	1- Φ half wave controlled converter
6.	1- Φ series inverter
7.	SCR Parallel inverter
8.	Voltage commutated Thyristorized chopper
9.	Current commutated Thyristorized chopper
10.	3- Φ half controlled Thyristorized bridge converter with triggering circuit
11.	3- Φ fully controlled Thyristorized bridge converter with triggering circuit
12.	Switching Diode 1N914 to 1N917

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ANALOG ELECTRONICS LAB

1.	RF (L-C) Oscillators (Hartley's, colitis)
2.	Wien bridge(R-C) Audio Oscillator
3.	Cristal oscillator(Using CMOS ICS)
4.	OP-AMP Used as scalier summer and voltage follower
5.	O-P AMP as Differentiator and integrator
6.	Two stage R-C coupled transistor amplifier
7.	Class A,B,C & AB amplifier
8.	BI-Stable multi vibrator
9.	Mono-stable multi vibrator
10.	SCHMITT,S Trigger
11.	Transistor 2N3055 & MJ2955
12.	Transistor 2N6121 & 2N6124

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MECHANICAL ENGINEERING DEPARTMENT

S. N.	Name of equipments
Steam Power Laboratory	
1	Marcet Boiler (Model)
2	Model of Steam Trubine
3	Steam Engine (Model)
MOS Lab	
1	UTM-4 OT
2	Hardness Testing M/c (Brinell+Vickers)
3	Hardness Testing M/c (Rockwell)
4	Charpy Impact Testing
5	Izod Impact Testing M/c
Workshop	
1	Universal Milling M/c with accessories (HMT)
2	Radial Drilling M/c (HMT)
Applied Mechanics Laboratory	
1	Belt Friction apparatus complete with accessories
2	Young's modulus apparatus
3	Jib-Crone apparatus capacity of 10 kg
4	Deflection of Beam apparatus
5	Apparatus for finding polygon law of forces
6	Worm and worm wheel apparatus
7	Apparatus for finding centre of gravity for regular lamina and irregular lamina

ELECTRONICS & COMMUNICATION ENGINEERING DEPTT.

Basic Instruments, Devices & Ics for all Labs of ECE Dept.	
S.N	ITEMS WITH SPECIFICATION
1.	30MHz Two Channel Four Trace Microcontroller Based Oscilloscope with Built-in Curve Tracer
2.	60MHz Two Channel Microcontroller Based Oscilloscope with Built-in Sweep Optional, RS-232 interface and PC software
3.	Digital Storage Oscilloscopes 100 MHz, Bandwidth Models; □2-channel Models; □Up to 2 GS/s Sample Rate on All Channels; □2.5k point Record Length on All Channels; □Advanced Triggers including Pulse Width; Trigger and Line-Selectable Video Trigger
4.	Digital Multimeter 3.5 digit Metravi 702
5.	General Purpose Power Supply:0-150 VD.C., 10 Amp (variable) , DC Output
6.	Universal Electronic Trainer kit with 4(four) Bread Board; Power Supply :analog (AC& DC)constant & variable and Digital 8 bit Input ; display: Digital 8 bit Input & output
7.	Universal IC Tester NB 9350
8.	10 MHz Function Generator Frequency Range:0.5Hz to 10MHz;Resolution:10MHz;Waveforms;Sine,Square;Traingle,Ram,Pulse;DC Offset; AM/FM; 40MHz Auto Ranging Frequency Counter.
9.	Spectrum Analyzer 100 MHz
10	Vacuum Cleaner (Eureka Forbes)
Basic Electronics & Power Electronics Lab	
1.	Diode & Zener Diode Characteristic Trainer kit
2.	Voltage Stabilization Characteristics of Zener Diode
3.	Half wave Full wave Rectifier Kit with Filter CKT
4.	Clipper & Clamper Training Kit
5.	Transistor Characteristic Trainer kit
6.	MOSFET Characteristic Trainer kit
7.	UJT experimental Kit
8.	OP-AMP Characteristics Trainer
9.	OP-AMP Application Trainer
10.	SCR Characteristics Apparatus
11.	SCR Triggering Technique Trainer kit
12	IGBT Characteristics Trainer kit
13.	Single phase controled half wave & Bridge Rectifier using SCR experimental Kit
14.	Chopper circuit experimental Kit
15.	Diode 4007/5408; Zener Diode:5V, 10V
16.	Transistor BC 107, SL 100, SK 100, BF 195
17.	Power diode & SCR
18	Capacitor

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	i) 1000 Mfd 25 Volt ii) 2500 Mfd 25 Volt
19	Capacitor 22, 33, 470, 2.2, 1, 0.01, 0.1, 0.033 3.3 μ F, 100 pF
20	Resistor 0.25 & 0.5Watt: 1.0, 1.2, 2.2, 3.3, 3.9, 10, 12, 15, 47, 82, 100, 220, 470, 560 K Ohm 100, 470, 680, 180, 22 Ohm, 1 M Ohm
21	Potentiometer 4.7K, 10 K
22	Coils/IFT 5.6 μ H, 22 μ H
23	Op-amp IC 741
Analog & Digital Electronics Lab	
1.	Class A Power Amplifier MARS AMP 17
2.	CE Amplifier with built in variable frequency Oscillator
3.	Push Pull Amplifier with built in variable frequency Oscillator
4.	BJT amplifier Training Kit
5.	Boolean Algebra Trainer with Power Supply
6.	Logic Training Board with Power Supply LTB 804 omega
7.	Study of various type of FLIP FLOP with Power Supply
8.	4-Bit Binary Full Adder & Subtractor with Power Supply
9.	4 Bit binary Diced Up/Down counter using with Power Supply LTB 857 using IC 74/92 omega
10.	Study of various Decoders with Power Supply LTB 825 omega
11.	Analog To Digital Converter Trainer
12.	Digital To Analog Converter Trainer
13.	Hartley and Colpitts Oscillator Trainer
14.	Wein Bridge Oscillators Trainer
15.	Frequency Meter Training Kit
16.	Connecting wires for digital laboratory of different color with thin pin
Analog & Digital Communication Lab	
1.	Sampling & Reconstruction (standard comp.) Trainer
2.	TDM Pulse Amplitude Modulation/Demodulation Trainer
3.	TDM Pulse code modulation Transmitter Trainer
4.	TDM Pulse code modulation Receiver Trainer
5.	Adaptive Delta And Delta Sigma modulation And Demodulation Trainer
6.	Data Formatting And carrier modulation/Transmitter Trainer
7.	Data Reformatting And carrier Demodulation Receiver Trainer
8.	DSB/SSB AM Transmitter Trainer
9.	DSB/SSB AM Receiver Trainer
10.	Frequency Modulation And Demodulation trainer
11.	FDM Trainer On board frequency division multiplexing & Demultiplexing with sinusoidal & Audio Input,
12.	QPSK Trainer Kit
13.	FSK Trainer Kit
14.	BPSK Trainer Kit
15.	PCM Trainer kit
Electronics Instrumentation & Measurement Lab	
1.	Bench LCR Meter

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	Specification: Five-terminal measuring technology; It can be used for measuring inductance (L) Capacitance (C), resistance (R), quality factor (Q) and dissipation factor (D).With a basic Accuracy of 0.25% and five digit display resolution
2.	Single Phase Watt Meter
3.	Maxwell's Bridge Trainer Kit
4.	Kelvin's Bridge Trainer Kit
5.	Hey's Bridge Trainer
6.	Optical Transducer Trainer
7.	Temperature Transducer Trainer
8.	Pressure Transducer Trainer
9.	Ultrasonic Transducer Trainer
10	Frequency meter Training Kit
11.	Schering Bride Aquile/Lale Make with built in regulated Power supply 230v,AC
12.	Measurement of temperature with Thermister
13.	Linear variable differential transducer (L.V.D.T)
14.	Optical transducer trainer Omega type ICT-904
Digital Signal Processing Lab	
1.	<p>DSP Lab Version 2</p> <p>Features:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Based on TMS320C6713 processor. <input type="checkbox"/> Sampling & Waveform Generation <input type="checkbox"/> Quantization <input type="checkbox"/> PCM Encoding <input type="checkbox"/> Delta Modulation <input type="checkbox"/> Digital Modulation Schemes (ASK, PSK, FSK) <input type="checkbox"/> Error Correcting Codes <input type="checkbox"/> Read Write from CODEC <input type="checkbox"/> Fast Fourier Transform <input type="checkbox"/> FIR Filter implementation (Low Pass, High Pass Band Stop) <input type="checkbox"/> IIR Filter implementation <input type="checkbox"/> Linear Convolution <input type="checkbox"/> Auto Correlation <input type="checkbox"/> Power Spectral Density <input type="checkbox"/> Play Sound, Echo, Echo with Fading <input type="checkbox"/> Multiple Echo, Reverberation <input type="checkbox"/> Sound Mixing <input type="checkbox"/> On board Switch and LED Inter <input type="checkbox"/> DSK 6713-MATLAB Interface facing Program with DSK 6713
2.	<p>DSP Development Platform</p> <p>Model- ST6000</p> <p>Features:</p> <ul style="list-style-type: none"> <input type="checkbox"/> External 5 V DC power supply <input type="checkbox"/> IEEE 1284 compliant male-to-female cable <input type="checkbox"/> Code Composer Studio DSK tools <input type="checkbox"/> Study and Analysis of FIR Filter <p>Low Pass, High Pass, Band Pass, Band Stop filter</p> <ul style="list-style-type: none"> <input type="checkbox"/> Study and Analysis of IIR Filter <p>Butterworth Approximation</p>

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	<p>Chebychev Approximation</p> <ul style="list-style-type: none"> <input type="checkbox"/> Study and Analysis of Adaptive Filters <p>LMS Algorithm</p> <p>Noise Cancellation</p> <ul style="list-style-type: none"> <input type="checkbox"/> Study and Analysis of Digital Modulations Technique <p>QAM, BPASK, PSK, FSK</p> <ul style="list-style-type: none"> <input type="checkbox"/> Interface MATLAB (Simulink)with 6713 <input type="checkbox"/> Read-Write using Simulink-6713 <input type="checkbox"/> Smart Tech-Book model. <input type="checkbox"/> Smart E-manual for easy understanding.
3.	<p>DSP Development Board.</p> <p>Model- ST6001</p> <p>Features:</p> <ul style="list-style-type: none"> <input type="checkbox"/> High performance 32 bit, TMS320F2812 Digital Signal Controller <input type="checkbox"/> 32 x 32 bit or dual 16 x 16 bit MAC <input type="checkbox"/> 8-stage fully protected pipeline <input type="checkbox"/> Fast interrupt response manager <input type="checkbox"/> 128Kw on-chip flash memory <input type="checkbox"/> Code Security Module (CSM) <input type="checkbox"/> Two event managers <input type="checkbox"/> 56 shared GPIO pins <input type="checkbox"/> Watchdog timer <input type="checkbox"/> Communications peripherals <input type="checkbox"/> 12 channel PWM <input type="checkbox"/> 12 bit 16 channel ADC module <input type="checkbox"/> Interfacing with Stepper Motor, Servo Motor, DC motor. <input type="checkbox"/> Interfacing with Character LCD and Graphic LCD. <input type="checkbox"/> Interfacing with Temperature sensor and relay. <input type="checkbox"/> Interfacing with DIP Switch and LED. <input type="checkbox"/> Smart Tech-book Model. <input type="checkbox"/> Smart Manual for easy understanding. <input type="checkbox"/> DSP Technology learning software.
Microprocessor Lab	
1.	8051 Microcontroller Training Kit with in-built P.S.
2.	8085 Micro processor Training Kit with in built Power Supply ;opcode input facility.
3.	8251 Serial Data Interface card
4.	ADC Peripheral interface study Card
5.	DAC Peripheral interface study Card
6.	Temperature Control interface card
7.	Seven Segment Display Interface Card
8.	Stepper Motor control Interface Card
9.	DC motor speed controller Interface Kitek IC – 14
Micro Wave Lab	
1	Microwave Trainer Bench
2	Microwave Trainer Bench-Antenna

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DEPARTMENT OF PHYSICS

List of Apparatus :

1. Complete set of SCR for Study its Characteristic	Rs. 25000.00
2. Complete set of JFET, MOSFET	Rs. 45000.00
3. Complete Set of DIAC and TRIAC for Study its Characteristic	Rs. 45000.00
4. Determination of Plank's Constant and work function of Materials by Photoelectric Effect	Rs. 70000.00
5. Complete Set of Hall Effect experiment	Rs. 65000.00
Total	Rs. 250000.00

DEPARTMENT OF CHEMISTRY

S. No.	Particulars
1.	Digital Balance
2.	Burette (50ml)
3.	Pipetter (20ml)
4.	Ostwald's Viscometer
5.	Rubber tube (For Ostwald's Viscometer)
6.	Wire Gauze
7.	Eriochrome Black-T-Indicator (100gm)
8.	Filter Paper
9.	Chemicals

REQUIREMENT OF GENERAL LIBRARY

1. Books from 1st year to IVth year as per syllabus of Aryabhat Knowledge University, Patna
2. Book shelf as per specification given below :
Steel book shelf of size 6' X 3' X 1.5' with five shelves and double glass door with lock, of standard guage.

REQUIREMENT OF TRAINING & PLACEMENT CELL AND EXAMINATION SECTION

1. Photo Copier (RICOH, Model –MPC-2030)
2. Photo Copier (RICOH)