Faculty of Civil Engineering

B.E. Civil Engineering

(R2021) Semester: II

Course Code: BE3272
Course Title: Basic Electrical, Electronics and Instrumentation Engineering Laboratory

Sl. No.	Description of Equipment	Required numbers (for batch of 30 students
1.	**Verification of ohms and Kirchhoff's Laws**	
	1. DC Regulated Power supply (0 - 30 V variable)	1
	2. Bread Board	1
	3. Resistors	As per Circuit diagram
	4. Multimeter	1
	5. Connecting wires	As Required
2.	**Three Phase Power Measurement**	
	1. Three Phase Variable Load,	1
	2. Ammeters 0-10 A, MI,	2
	3. Wattmeters 0-5 A, 300V,	2
	4. Voltmeter 0-300v,MI	1
	5. Connecting wires	As Required
3.	**Load test on DC Shunt Motor.**	
	1. Ammeter MC (0-20A)	1
	2. Voltmeter MC (0-300)V	1
	3. Rheostat 7.5 Ω, 10 A	1
	4. Tachometer	1
	5. Field Rheostat 175 Ω, 1.5 A	1
	6. Connecting wires	As Required
	7. DC Shunt Motor	1
4.	**Load test on Self Excited DC Generator**	
	1. Voltmeter(0- 300V)	**1**
	2. Ammeter (0-30 A), (0-2A)	**1**
	3. Voltmeter (0-30V)	**1**
	4. Rheostat 175Ω, 250 Ω	**1**
	5. Tachometer	**1**
	6. Connecting Wires	As Required
	7. DC Shunt Motor coupled with DC shunt Generator	1
5.	**Load test on Single phase Transformer**	
	1. Ammeter (0-30) A, (0-5) A	**1**
	2. Voltmeter (0-150)V, (0-300)V	**1**
	3. Wattmeter – 300V, 5A, UPF	**1**
	4. Autotransformer	**1**
	5. Single phase Transformer	**1**
	6. Connecting Wires	As Required
6.	**Load Test on Induction Motor**	
	1. Ammeter MI (0-20A)	1
	2. Voltmeter MI (0-300)V	1
	3. Wattmeter – 300V, 30 A	1
	4. Tachometer – Digital	1
	5. Connecting Wires	As Required
	6. Single phase Induction motor	1
7.	**Characteristics of PN and Zener Diodes**	

	1. PN Diode (BY127, OA79), Zener diode (6.8V, 1A) 2. Resistor 1 KΩ, 100Ω 3. Bread Board 4. DC Regulated Power supply (0 - 30 V variable) 5. Multimeter 6. Connecting wires 7.DC Shunt Motor coupled with DC shunt Generator	1 1 1 1 1 As Required
8.	**Characteristics of BJT** 1.Transistor (No-BC548) 2. Resistors- 1kΩ, 470KΩ, 1MΩ 3. Bread Board DC Regulated Power supply (0 - 30 V variable) 5. Multimeter 6. Connecting wires **Characteristics of SCR** 1. D C Power Supply (0-128 V), (0-32V), 2. Voltmeter (0-100V) 3. SCR TYN604 4. Digital multimeter 5. Ammeters (0-100mA, 0-25mA, 0-1mA) 6. Resistors 1KΩ, 1KΩ 7. Bread board 8. Connecting Wires **Characteristics of MOSFET** 1. MOSFET (2N7000) 2. Bread board 3. resistor (1KΩ, 100KΩ) 4. DC power supply (0-30V 5. Multimeter 6. Connecting Wires	 1 1 1 1 1 As Required 1 1 1 1 1 1 1 As Required 1 1 1 1 1 1 As Required
9.	**Design and analysis of Half wave and Full Wave rectifiers** 1. Diodes (Si-1N4007) – 4 2. Resistor 1KΩ 3. Capacitor 100μF 4. Digital Multimeter 5. CRO 6. Transformer (6-0-6)V 7. Bread Board 8. Connecting Wires	 1 1 1 1 1 1 1 As Required
10.	**Measurement of displacement of LVDT** 1. LVDT Kit 2. Multimeter	 1 1

Degree: UG	Name of the Course: B. E. CIVIL ENGINEERING	
Course Code: CE3361	Course Title: SURVEYING AND LEVELLING LABORATORY Semester: III	
Sl. No.	**Description of Equipment**	**Required numbers**
1.	Chain	**10**
2.	Cross Staff	**10**
3.	Ranging Rod	**50**
4.	Steel Arrows	**100**
5.	Prismatic Compass	**10**
6.	Dumpy Level	**5**
7.	Tilting Level	**5**
8.	Levelling Staff	**10**
9.	Theodolite	**10**
10.	Total Station	**5**

Degree: UG	Name of the Course: B. E. CIVIL ENGINEERING	
Course Code: CE3311	Course Title: WATER AND WASTEWATER ANALYSIS LABORATORY Semester: III	
Sl. No.	**Description of Equipment**	**Required numbers**
	ANALYSIS OF WATER SAMPLE	
1.	**Sampling and preservation methods for water & wastewater** i. Sample container ii. Glues & Eye protection glass iii. Filteration Equipment	 **2** **2** **1**
2.	**Measurement of Electrical Conductivity & turbidity** I. Electrical Conductivity meter II. beakers III. Turbidity meter	 2 As Required 2
3.	**Determination of Fluoride in water by Spectro photo meter method** i. Spectrophotometer/ (UV visible) ii. Cuvette iii. Beakers & Pipette & bulb iv. Volumetric Measuring cylinder	 1 1 Set As Required 1
4.	**Determination of Iron in water** i. Pipette & bulb (2ml) ii. Beakers iii. Measuring cylinders 100ml iv. Burette	 4 2 As Required 1

5.	**Determination of Sulphate in water** i. Spectrophoto meter/ (UVvisible) ii. Cuvette iii. Pipette & Bulb iv. Beakers v. Volumetric Flask (1000ml) vi. Volumetric Flask (25ml/50ml)	 1 1 Set 2 As Required 1 7
6.	**Determination of Optimum Coagulant Dosage by Jar test Apparatus** i. Digital Flocculator ii. Pipette & Bulb (5ml) iii. Beakers iv. Volumetric Measuring cylinder (100ml)	 1 2 As Required 2
7.	**Determination of available chlorine in bleaching powder & residual Chlorine in water** i. Burette ii. Pipette & Bulb (2ml) iii. Beakers iv. Measuring cylinder (100ml) v. Conical Flask (250ml)	 2 4 As Required 2 2
	ANALYSIS OF WASTEWATER SAMPLE	
8.	**Estimation of Suspended Volatile & Fixed Solids** i. Porcelain weighing dishes ii. Evaporation dishes iii. Hot air oven iv. Muffle furnaces v. Whatman filter paper No.42 vi. Conical Flask vii. Desiccator	 As Required As Required 1 1 As Required As Required 1
9.	**Determination of sludge volume index in wastewater** I. Imhoff cone II. Hot air Oven III. Filter paper IV. Porcelain weighting dishes V. Funnel (glass) VI. Measuring cylinder	 1 1 As Required As Required 1 1
10.	**Determination of Dissolved Oxygen** i. BOD bottle (300ml) ii. Burette iii. Pipette & bulb (2ml) iv. Measuring cylinder (100ml) v. Conical Flask (250ml)	 2 2 4 2 2
11.	**Estimation of BOD** i. BOD bottles (300ml) ii. Incubator Electrical iii. Burette iv. Conical Flask (250ml) v. Measuring cylinder (50ml) vi. Beaker	 6 1 2 2 2 1 As Required
12.	**Estimation of COD** i. Reflexing Apparatus	 1

	ii. Conical Flask (250ml) iii. Burette iv. Pipette & bulb (5ml) v. Measuring cylinder (50ml) vi. Beakers	2 2 2 1 As Required
13.	**Determination of TKN & Ammonical Nitrogen in wastewater** i. Kjeldhal Nitrogen Analyser(Digital) ii. Conical Flask (250ml) iii. Measuring Jar iv. Beakers v. Burette & Pipette	 1 1 1 1 As Required
14.	**Determination of total & fecal coliforms (Demonstration only)** i. Laminar Flue hood ii. Test tubes (5ml,10ml) iii. Measuring Jar iv. Micro Pipettes v. Incubator vi. Beakers	1 AS Required AS Required 1 1 1 2 As Required

Degree: UG	**Name of the Course: B. E. CIVIL ENGINEERING**	
Course Code: CE3411	**Course Title: HYDRAULIC ENGINEERING LABORATORY**	**Semester: IV**
Sl. No.	**Description of Equipment**	**Required numbers**
1.	Rotameter	**1**
2.	Orifice meter/mouthpiece,Venturimeter and Notches	**1**
3.	Bernoulli's Experiment	**1**
4.	friction factor in pipes.	**1**
5.	minor losses	**1**
6.	Centrifugal pumps	**1**
7.	Gear pump	**1**
8.	Submersible pump	**1**
9.	Reciprocating pump	**1**
10.	Pelton wheel turbine	**1**
11.	Francis turbine	**1**
12.	metacentric height of floating bodies	**1**

Degree: UG	Name of the Course: B. E. CIVIL ENGINEERING	
Course Code: CE3412	**Course Title: MATERIALS TESTING LABORATORY** **Semester: IV**	
Sl. No.	**Description of Equipment**	**Required numbers**
1.	**BEAM MOULD-15 X 15 X 70 CM- CAST IRON** Weight approx.28-30 kg. Made of Cast Iron **Compliance with following International Standards:** IS : 516	**1 No**
2.	**COMPACTION FACTOR APPARATUS - IS 1199** **COMPLIANCE STANDARDS:** **IS 5515, IS 1199** **Details:** The apparatus consist of two conical hoppers and a cylinder, mounted on a rigid metal frame. The lower openings of the hoppers are fitted with hinged trap doors for release and during the fall of the material. Complete with trowel and tamping bar **0-60 cm long X 16mm dia.**	**1 No**
3.	**CYLINDRICAL MOULD-150 MM DIA X 300 MM HT** Made of cast iron, 150 mm dia x 300 mm height, Split Lengthwise, Supplied with base plate, Weight : 12 kg approx. IS-10086-82 **Compliance Standards** EN 12390-1, EN 12390-3	**1 No**
4.	**BULK DENSITY CYLINDERICAL METAL MEASURE-3 LTR.** **Compliance with following International Standards:** IS : 1199, IS : 10079, BS : 1881, ASTM C29, ASTM C138	**1 No**
5.	**COARSE SIEVES - 45 CM DIA-G.I.-12.50MM** COARSE SIEVES - 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 12.50MM COARSE SIEVES - 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 12.50MM	**1 No**
6.	**COARSE SIEVES - 45 CM DIA-G.I.-10.00MM** COARSE SIEVES - 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 10 MM COARSE SIEVES - 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 10 MM	**1 No**
7.	**COARSE SIEVES - 45 CM DIA-G.I.-2.36 MM** COARSE SIEVES - 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 2.36 MM COARSE SIEVES - 45 CM DIA	**1 No**

	TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 2.36 MM	
8.	**COARSE SIEVES - 45 CM DIA-G.I.-40.00MM** COARSE SIEVES - 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 40 MM. TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 40 MM COARSE SIEVES - 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 40 MM	**1 No**
9.	**COARSE SIEVES - 45 CM DIA-G.I.-31.50MM** COARSE SIEVES - 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 31.50MM COARSE SIEVES - 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 31.50MM	**1 No**
10.	**COARSE SIEVES - 45 CM DIA-G.I.-25.00MM** COARSE SIEVES - 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 25.00MM COARSE SIEVES - 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 25.00MM	**1 No**
11.	**COARSE SIEVES - 45 CM DIA-G.I.-20.00MM** COARSE SIEVES - 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 20MM COARSE SIEVES - 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 20MM	**1 No**
12.	**COARSE SIEVES - 45 CM DIA-G.I.-16.00MM** COARSE SIEVES - 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 16.00 MM COARSE SIEVES – 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 16.00 MM	**1 No**
13.	**COARSE SIEVES - 45 CM DIA-G.I.-12.50MM** COARSE SIEVES - 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 12.50MM COARSE SIEVES – 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 12.50MM	**1 No**
14.	**COARSE SIEVES - 45 CM DIA-G.I.-10.00MM** COARSE SIEVES - 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 10 MM COARSE SIEVES - 45 CM DIA TEST SIEVES MOC: G.I. TEST SIEVE SIZE: 10 MM	**1 No**

15.	**COARSE SIEVES - 45 CM DIA-G.I.-6.30MM** COARSE SIEVES 45MM	**1 No**
16.	**LENGTH GAUGE (ELONGATION GAUGE)** As per IS:2386 (Part I) **Complies with following International Standards:** IS : 2386 (PART-1) **Distance between nails (mm) Passing/Retained (mm)** ----- 63/50 81.0 50/40 58.5 40/31.5 ----- 31.5/25 40.5 25/20 32.4 20/16 25.6 16/12.5 20.2 12.5/10 14.7 10/6.3	**1 No**
17.	**MASONARY TROWEL MEDIUM - 6"** **HSN : 82060090**	**1 No**
18.	**G.I.TRAY – 450 X 450 X 50MM** **(18" X 18" X 2")**	**1 No**
19.	**PYCNOMETER BOTTLE** **Compliance Standards:** BS 812, BS 1377:2, ASTM D854, IS 2386 (Part-III, Method-III)	**1 No**
20.	**EVAPORATING BASIN - PORCELAIN DISH - 150 MM DIA** Evaporating Basins (Porcelain Dish) With spout, both sides glazed 150	**1 No**
21.	**FINE SIEVE -20 CM DIA-BRASS-4.75 MM** Salient Features · Test Sieve Brass · 200mm diameter (20 cm) · Made out of rolled Brass material · Spun Body frame without any joint · Folded bottom having beading at top · Tight fitting with each other · Mounted with stainless steel cloth OR punched steel sheet FINE SIEVE -20CM DIA TEST SIEVES MOC: BRASS TEST SIEVE SIZE: 4.75 MM	**1 No**
22.	**FINE SIEVE - 20 CM DIA-BRASS-2.36 MM** Salient Features · Test Sieve Brass · 200mm diameter (20 cm) · Made out of rolled Brass material · Spun Body frame without any joint · Folded bottom having beading at top · Tight fitting with each other · Mounted with stainless steel cloth OR punched steel sheet FINE SIEVE -20CM DIA TEST SIEVES MOC: BRASS TEST SIEVE SIZE: 2.36 MM	**1 No**
23.	**FINE SIEVE - 20 CM DIA-BRASS-1.18 MM** Salient Features · Test Sieve Brass · 200mm diameter (20 cm) · Made out of rolled Brass material · Spun Body frame without any joint · Folded	**1 No**

	bottom having beading at top · Tight fitting with each other · Mounted with stainless steel cloth OR punched steel sheet FINE SIEVE -20CM DIA TEST SIEVES MOC: BRASS TEST SIEVE SIZE: 1,18 MM	
24.	**FINE SIEVE - 20 CM DIA-BRASS-0.600MM (600 MIC)** Salient Features · • Test Sieve Brass · • 200mm diameter (20 cm) · • Made out of rolled Brass material · Spun Body frame without any joint · • Folded bottom having beading at top · Tight fitting with each other · • Mounted with stainless steel cloth OR punched steel sheet • Test Sieves Size: 0.600mm (600 mic)	**1 No**
25.	**FINE SIEVE - 20 CM DIA-BRASS-0.300MM (300 MIC)** **Salient Features** · • Test Sieve Brass • 200mm diameter (20 cm) • Made out of rolled Brass material • Spun Body frame without any joint • Folded bottom having beading at top • Tight fitting with each other • Mounted with stainless steel cloth OR punched steel sheet	**1 No**
26.	**FINE SIEVE - 20 CM DIA-BRASS-0.150MM (150 MIC)** Salient Features · Test Sieve Brass · 200mm diameter (20 cm) · Made out of rolled Brass material · Spun Body frame without any joint · Folded bottom having beading at top · Tight fitting with each other · Mounted with stainless steel cloth OR punched steel sheet	**1 No**
27.	**FINE SIEVE - 20 CM DIA-BRASS-0.075MM (75 MIC)** Salient Features · Test Sieve Brass · 200mm diameter (20 cm) · Made out of rolled Brass material · Spun Body frame without any joint · Folded bottom having beading at top · Tight fitting with each other · Mounted with stainless steel cloth OR punched steel sheet • FINE SIEVE -20CM DIA • TEST SIEVES MOC: BRASS • TEST SIEVE SIZE: 0.075MM (75 MIC)	**1 No**
28.	**SLUMP TEST APPARATUS WITH TAMPING ROD 16MM DIA X 600MM LONG GRADUATED*** The apparatus will comprise of a slump cone with handles made of mild steel sheet, a chrome plated steel tamping rod of 16 mm diameter X 600 mm long, rounded off at one end, with a scale	**1 No**

	marked on it and a steel base plate with a carrying handle. As per IS:1199 and IS:7320 with test certificate for conformity. **APPARATUS :** **MOULD:** The mould for the test specimen will be in the form of frustum of a cone having the following internal dimensions • Bottom diameter: 20 cm • Top diameter: 10cm • Height: 30cm The mould will be constructed of metal of at least 1.6 mm (16 SWG) thickness and the top and bottom will be open and at right angles to the axis of the cone. The mould will have a smooth internal surface. It will be provided with suitable foot pieces to a base plate and also handles to facilitate lifting it from the molded concrete test specimen in a vertical direction as required by the test. The mould will be provided with a suitable guide attachment. Unit will be provided with cleats & swivel handle. **TAMPING ROD:** The tamping rod will be of steel, 16 mm in diameter, 60 cm long and rounded at one end.	
29.	**TAMPING ROD-16MM DIA X 600MM LONG-GRADUATED-(FOR SLUMP TEST)** Made of S.S.304 A Tamping rod 16mm diameter and 60cm long with one end rounded and graduated from 0‑30 cm in 0.5 cm spacing to measure the slump	**1 No**
30.	**FLEXURAL STRENGTH TESTING MACHINE ANALOG – MOTORISED** Although generally not such an important property of concrete than compressive strength tensile strength values are often important to know when the concrete used is free of reinforcement and may be subjected to some tensile force. The machine consists of a motorized load frame. The lower platen has two rollers, the distance between which is adjustable. For 150 mm x 150 mm x 700 mm beam, the centre distance between the rollers is 600 mm, while it is 400 mm for beams of size 100 mm x 100 mm x 500 mm. The upper platen has also a pair of rollers whose distance adjustable. It is 200 mm centre to centre, for 150 mm x 150 mm x 700 mm size beam and 133 mm for 100 mm x 100 mm x 500 mm size beam. A pressure gauge to indicate load is fixed on the load frame. Total capacity of the machine is 100 KN and a 150 mm dia pressure gauge 0-100 KN x 1 KN is fitted on the machine. A separate electrically pumping unit	**1 No**

	housed in a cabinet is supplied. On/Off switch and a slow/fast lever to control rate of loading are fitted on the front panel of the pumping unit. A micro switch and relay fitted inside the pressure gauge protects the unit from over loading. **As per IS: 516, IS: 9399, BS: 1881, ASTM C78**	
31.	**COATING THICKNESS GAUGE - DIGITAL - MODEL ELECOAT-M** For Measuring Coating Thickness on Ferrous (Magnetic) Substrate. Range: 0-1500 Microns. **Standard Features :** • Latest technology with use of smart micro-controller. • Direct Measurement - No Calibration Required for Most Of Surfaces. • Highest Accuracy and Resolution. • "Zero" and "SET" functions along with Foils and Zero base simplicities Calibration. • Calibration Retaining System. **Probe Design :** • Fully Metallic / High Quality Plastic Probe For High Service Life. • Well Balanced and Spring Loaded Probe for Accurate measurements. • Ideal Probe design to take reading in complex Field Areas. • Strong Wear-Resistant Tip For Extra Service Life. • Highly flexible Probe cable with Strain relief. **Ergonomics :** • Compact and Light Weight Instrument. • Full ABS high impact resistant body. • Attractive Instrument display and visuals. • External battery Compartment. **Energy Efficient :** • Auto-Off Function. • Sun Readable and Energy Saving Display. **Technical Specification** •Range : 0-1500 Microns •Resolution : 0.120 Microns •Minimum Base Thickness : 0.3 MM •Minimum Measuring Area : 6 MM •Instrument Size : 135 x 70 x 24 •Battery Supply Voltage / type : 9 Volts (6F22) •Working Temperature:10 15 degree C •Standard Probe Size : 18 MM * 14 MM (D*L), 40 MM * 25 MM (D*L), (For 12000 microns) **Note :** **One Year Warranty Against Mnfg. Defect. No Warranty for Prob.**	**1 No**
32.	**ELECTRONIC WEIGHING BALANCE -50 KG-1 GM** **Salient Features :** • Constructed from High Impact FRP Sheet Heavy Duty & Industrial, Stainless Steel Pan • Bright & Clear, Wide Angle LED display	**1 No**

	• Multi Weighing Units Like Gram, Tola, Piece Counting • Multi Function Series • Extra Display Connector Ready • Alert Audio - Visual Indications • Display Intensity Adjustment • Fast Response < 2 Seconds • 100% Tare Facility • Battery Save Mode • Inbuilt Battery Pack **Technical Specification** •Power : 230 Volt AC ± 10 %, 50 Hz •Capacity : 50 Kg •Accuracy : 1 gram •Platform Size : 250 x 300 mm •Temperature range : 10 °C to 50 °C •Display : 12.5 mm LED display •Resolution : 1,00,000 Internal Resolution •Sensor : High Quality Load Cell •Overload capacity : Safe Overload Up to 200% of Rated Capacity	
33.	**High Precision Table Top Balance** **Model : CWS 20SL,** **Capacity : 20kg,** **Readability : 0.5g**	**1 No**
34.	**High Precision Table Top Balance** **Model : CWS 3SL,** **Capacity : 3kg,** **Readability : 0.1g**	**1 No**
35.	**COMPRESSION TESTING MACHINE - 2000 KN-ANALOG - SINGLE GAUGE** Compliance with following international standards - IS 516, IS 14858. Detailed specification as follows: **Compliance with following international standards:** IS 516, IS 14858 **Salient Features:** • Aesthetically designed unit • The electric pumping unit is fixed with a micro? switch to switch off the motor • automatically as the load on the machine approaches the rated capacity. • The unit is equipped with a 8" dia pressure gauges with maximum red pointer. • Four column high stiffness and high stability fully welded construction of the load frame. **Construction Details:** • The compression testing machine consists of separate pumping unit and loading unit. • Detailed descriptions of both the devices are narrated below. **Loading Unit:** • The upper platen has got a self aligning action and is attached to a rigid cross head plate.	**1 No**

	• The lower platen rests on the jack ram and is positioned with the help of a centering pin. • Loading is accomplished by upward movement of lower platen. • A dust cover is provided on the jack to prevent any dust from going into the cylinder. • A spacer with a centering locating pin is provided to test small specimens. • The lower and upper platens of the machine are hardened ground and polished. **Pumping Unit:** • The pumping unit is a separate unit connected to the jack by means of a high pressure hose pipe. • A junction box is suitably fixed to connect the motor to the mains through a push button starter. • Calibrated against N.P.L. Tested Master Gauge or Proving Ring. • A max red pointer is provided to facilitate taking readings after failure of the specimen. • The pressure gauge is fixed at an Angle for easy readability. **Scope of supply:** • High strength rigid structure (Loading Frame) • Pumping unit (Oil source cabinet) • Pressure gauge • Pair of compression platens • High pressure hose pipe **Technical Specification** •Capacity : 2000 kn •Platen size in mm : 300 mm dia •Ram Dia in mm : 205 mm •Ram Travel in mm : 50 mm •Vertical daylight in mm : 350 mm •Horizontal daylight in mm : 350 mm •Weight approx in kg : 616 Kg •Platen hardness : More than 550 Vickers hardness •Electric Motor : 1 HP, Single Phase •Operation on : 220 V AC Single Phase. •Least count : 0.5% of the full load •Pumping : Motorized •Pump Speed : Dual speed •Motor : Induction Motor •Reading : Analog •Accuracy : ± 2% •Release valve operation : Required •Auto stop after failure of specimen : Not available, need to stop the machine manually •Auto Release of Pressure after specimen failure : Not Available, Need to release pressure manually after the completion of test •Calculation of result : Manual •Holding of Max.Load : Available •Pace Rate or Rate of Loading Indication : Not Available •Operator skill to control Pace Rate : Not	

	Applicable •Bar Graph : Not Available •Multi Channel operation : Not Available •Load indication and Control : Manual •Saving of records : Not Available •Pen drive slot : Not Applicable •Real time graph : Not Applicable •Printer interface (Direct connectivity to printer w/o computer) : Not Applicable •Computer operation software and data Acquisition software : Not Applicable •Displacement controlled operation : Not Available •Modulus of Elasticity Calculation : Not Available •Flexural attachment : Possible, all calculations will be made manually •Splitting Tensile Test : Possible but manual calculation required •LAN Connectivity : Not Available •Auto internal Calibration without proving ring : Not Available •Piston over travel safety cut off : Not Available •Over load safety cut off : Available •Shot circuit protection : Available	

Degree: UG	Name of the Course: B. E. CIVIL ENGINEERING	
Course Code: CE3413	Course Title: SOIL MECHANICS LABORATORY Semester: IV	
Sl. No.	**Description of Equipment**	**Required numbers**
1.	**DETERMINATION OF INDEX PROPERTIES** 1. Sieves 2. Hydrometer 3. Liquid and Plastic limit apparatus 4. Shrinkage limit apparatus 5. Thermometer	 2 Sets 2 Sets 2 Sets 3 Sets 2
2.	**DETERMINATION OF INSITU DENSITY AND COMPACTION CHARACTERISTICS** 1. Sand replacement method accessories and core cutter method accessories 2. Proctor Compaction apparatus 3. Relative Density apparatus	 2 Sets 2 Sets 1
3.	**DETERMINATION OF ENGINEERING PROPERTIES** 1. Permeability determination i. Constant head method ii. Falling head method 2. Three Gang Consolidation test device 3. Direct Shear apparatus 4. UTM of minimum of 20 kN capacity 5. Van Shear apparatus 6. Triaxial shear apparatus 7. California bearing ratio test apparatus 8. Weighing machine 20 kg capacity 9. Weighing machine – 1 kg capacity	 1 1 1 1 1 1 1 1 1 3

Degree: UG	Name of the Course: B. E. CIVIL ENGINEERING	
Course Code: CE3511	Course Title: HIGHWAY ENGINEERING LABORATORY Semester: V	
Sl. No.	**Description of Equipment**	**Required numbers**
1.	**Specific gravity determination of the coarse aggregate sample** 1. Pycnometer/Specific gravity bottle 2. Weighing Machine	 **4** **1**
2.	**Determination of abrasion value of the coarse aggregate sample.** 1. Los Angeles Abrasion Testing Machine 2. Weighing Machine 3. Sieve	 **1** **1** **As Required**
3.	**Determination of water absorption capacity of the coarse aggregate sample.** 1. Hot Air Oven 2. Weighing Machine	 **1** **1**
4.	**Specific gravity determination of the**	

	bitumen/asphalt sample. 1. Specific Gravity bottle 2. Weighing Machine	 **4** **1**
5.	**Determination of consistency of the bituminous material.** 1. Penetrometer 2. Time Measuring Device	 **1** **3**
6.	**Viscosity determination of bituminous binder.** 1. Orifice Viscometer 2. Stirrer 3. Thermometer	 **1** **1** **1**
7.	**Determination of softening point of the asphalt/bitumen sample** 1. Ring and Ball Apparatus 2. Steel Balls – 2 nos (9.5mm dia)	 **1** **1**
8.	**Determination of ductility value of the bitumen sample** 1. Briquette Mould 2. Ductility Machine	 **2** **1**
9.	**Estimation of loss of bitumen on heating** 1. Oven with Rotating Shelf 2. Weighing Scale 3. Thermometer	 **1** **1** **1**
10.	**Determination of optimum binder content by Marshall method** 1. Mould Assembly 2. Sample Extractor 3. Marshall Stability Test Machine 4. Compaction Pedestal and Hammer 5. Breaking Head	 **6** **1** **1** **1** **1**
11	**Determination of stripping value of the bituminous mix Demonstration** 1. IS Sieves 2. Thermometer 3. Beaker	 **As Required** **1** **1**
12	**Determination of bitumen content in the bituminous mix by cold solvent extraction method** 1. Centrifuge Extractor 2. Weighing Machine	 **1** **1**

Degree: UG	**Name of the Course: B. E. CIVIL ENGINEERING**	
Course Code: CE3611	**Course Title: BUILDING DRAWING AND DETAILING LABORATORY** **Semester: VI**	
Sl. No.	**Description of Equipment**	**Required numbers**
1.	AUTOCAD	**(Total no. of Students Intake /2) +1 (Staff)**
2.	Revit	**10 users**