

# DARBHANGA COLLEGE OF ENGINEERING

## CIVIL ENGINEERING DEPARTMENT

### 1. Geotechnical Engineering Lab

Package Name: CIVIL P1

Package Code: TEQIP- III/BH/dced/191

Sr. No.	Details of instruments / equipment	Quantity
1	Cylindrical core cutter, steel dolly 25 mm high, rammer with steel rod etc.	02
2	Sand replacement method of field density Pouring cylinder, calibrating container	03
3	Oven drying method Thermostatically controlled small size oven (temperature of $110 \pm 5^{\circ}\text{C}$ ), air tight container	01
4	Field identification of Fine Grained soils Pocket Knife, Small Spatula, Test Tube and Stopper, Hand Lens, wash bottle	03
5	Specific Gravity Apparatus Density bottle of 50 ml capacity, Wash bottle	05
6	Grain size distribution by Hydrometer Analysis Hydrometer, Glass measuring cylinder-1000 ml capacity, Thermometer, Water bath, Stirring apparatus, Centimeter scale, Filter papers, Glass rod.	03
7	Liquid limit device, Grooving tool, Mixing dishes, Spatula	05
8	Plastic limit determination: Porcelain dish, Glass plate, Air tight containers	10
9	Shrinkage limit and volumetric Evaporating Dish, Porcelain dish, Spatula, Shrinkage Dish. non-corroding metal dish (3 nos.), Glass cup, Glass plates -plain and with prongs.	03
10	Permeability test apparatus: Permeameter mould- capacity of 1000 ml, Water reservoir, Graduated glass cylinder, Stop watch, A meter scale. I.S sieves 4.75 mm and 2 mm, mixing pan, Trimming knife, Compacting hammer of weight 2.76 kg	02
11	Compaction test apparatus: Proctor mould-capacity of 944 cc Rammer: weight 2.5 and 4.5 kg. Sample extruder, mixing pan, spoon, towel, spatula etc. Straight edge, Graduated cylinder, Moisture tins.	03
12	Consolidation apparatus: Loading unit, maximum capacity $20 \text{ kg/cm}^2$ , consolidation cells assembly, Perforated pressure pad, Channeled base with water inlet and gasket, Water reservoir with plastic tube	03

13	Vane shear test: Torque applicator assembly capacity 2000kg/cm with split proving ring & dial gauge. Vane (with vane rod), Torque rod (square cross section) 0.6mts long., Rods quick coupling type, 1 and 1.5 mtr. long, Dummy rod, corresponding to 37.5mm dia vane.	02
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**Note:** Detailed specification of all items will be attached in the invitation letter.

## 2. Material Testing Lab

Package Name: CIVIL P1

Package Code: TEQIP- III/BH/dced/191

Sr. No.	Details of instruments / equipment	Quantity
1	Autoclave As per ISO specification	01
2	Needle Vibrator As per ISI specification	01
3	Cube Mould- 1 Stainless steel, 150 x 150 x 150 mm size, ISI specification	10
4	Cube Mould- 2 Stainless steel, 75 x 75 x 75 mm size, ISI specification	10
5	Cylindrical Mould Stainless steel, 300 mm high, 150 mm diameter	10
6	Beam Mould Stainless Steel, 150 x 150 x 500 mm	10
7	Le-Chatelier Apparatus Split cylinder 30 mm dia.x30 mm high of spring brass, two glass plates, one lead weight approximately 100 g.	05
8	Le-Chatelier Flask Flask height 243 mm, bulb of 90 mm dia., 250 ml capacity	05

**Note:** Detailed specification of all items will be attached in the invitation letter.

### **3. Transportation Engineering Lab**

**Package Name:** CIVIL P1

**Package Code:** TEQIP- III/BH/dced/191

<b>Sr. No.</b>	<b>Details of instruments / equipment</b>	<b>Quantity</b>
1	Flash and Fire Point: Flash cup brass with a insulated handle, Thermometer	03
2	Softening point: Ring and Ball apparatus, Beaker 600ml capacity, tapered rings, steel balls, Stirring Rod and Heater.	02
3	Bitumen Penetration Apparatus: Universal penetrometer. As per IS:1203, IS:310 (Part II) :IS:1208.	01
4	Viscosity test: Stainless steel bath with oil cup	03
5	Elongation Index: hard wood base with vertically mounted metal studs as specified in the IS 2386 (Part-I), BS 812.	10
6	Flakiness Index: Flakiness Gauge In compliance with IS: 2386.	10

**Note:** Detailed specification of all items will be attached in the invitation letter.

#### 4. Environmental Engineering Lab

Package Name: CIVIL P1

Package Code: TEQIP- III/BH/dced/191

##### Separate sheet for supporting Items

Sr. No.	Details of instruments / equipment	Quantity
1	Porcelain Evaporating Dishes,	20
2	Imhoff cone	10
3	GFC filter Paper 0.44 micron	10
4	Glass rod	5
5	Volumetric Flask 1 ltr.	10
6	Volumetric Flask 500 ml	5
7	Volumetric Flask 100 ml	10
8	Volumetric Flask 50 ml	20
9	Erlenmeyer Flask 250 ml	15
10	Burette	20
11	Funnel	10
12	Beaker 2 ltr	5
13	Beaker 1 ltr	5
14	Beaker 100 ml	20
15	Beaker 250 ml	10
16	Measuring Cylinder 250 ml	10
17	Measuring Cylinder 100 ml	10
18	Measuring Cylinder 50 ml	10
19	Pipette 5 ml	10
20	Pipette 10 ml	10
21	Pipette Bulb	1 Packet
22	Reagent bottle 500 ml	20
23	Crucible	20
24	BOD bottles	25
25	Dharm Tubes	20
26	Petri Dishes	20
27	Glass beads	1
28	Reagent bottle 1000 ml	2
29	Magnet bar	20
30	Reagent bottle 250 ml	20
31	Wash bottle 500 ml	10
32	Burette stand with clamp	15
33	Aspirator bottle	3
34	Funnel Holder	15
35	Test tube stand (Having 5 rows)	5
36	Analytical Balance	1
37	Distillation Plant	1
38	Thermometer	2
39	Electric heater	1

40	Filtration Flask	10
41	Desiccators (Dia. 300 mm)	1 Packet
42	Vacuum Pump	2
43	Filter Assembly	2
44	Conical Flask (250 ml)	20
45	Conical Flask (150 ml)	20
46	COD Vials 15 ml	15
47	Test Tubes with stand	1 packet
48	Pipette Box	1

**Note:** Detailed specification of all items will be attached in the invitation letter.

## 5. Fluid Mechanics Lab

**Package Name:** CIVIL P2

**Package Code:** TEQIP- III/BH/dced/192

<b>Sr. No.</b>	<b>Details of instruments / equipment</b>	<b>Quantity</b>
1	Utube Manometer Casing: M.S. /Aluminum Casing from three sides - Packing : Teflon / Neoprene - For Glass Tube : 250 - 0 - 250 mm , 750 - 0 - 750 mm	02
2	Digital Barometer Digital Altimeter range: -2296ft to 29500ft, Resolution-1 meter Digital Clock: 2 time zones, 12/24 hours Digital Barometer range: 350 to 1100hpa	02
3	Stability of Floating Body Size: 300x300 mm, Water Tank Size: 550 x 500x 400 mm (approx.)	02
4	Venturimeter Line Size: 100 mm to 800 mm. Accuracy: +/-0.25% to +/-3.0%. Flow coefficient value: 0.98 for all ratios of diameter.	02
5	Flow Visualization Actual viewing area: 500 mm x 700 mm., Dye tank with flow control, Dye injection system, Piping Flow control valve and by pass valve.	02

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