

Faculty of Civil Engineering
M.E. Soil Mechanics and Foundation Engineering
(R 2017) Semester – II
SF5211 Advanced Soil Mechanics Laboratory - I
(Requirements for a batch of 25 students)

Sl. No.	Description of Equipment	Quantity required (R)	Quantity available (A)	Deficiency (R - A)
1.	Density Bottle with Stopper	5		
2.	Set of IS Sieves (0.075mm, 0.125mm, 0.212mm, 0.425mm, 0.710mm, 1.18mm, 2.36 mm, 4.75mm)	1		
3.	Mechanical Sieve Shaker	1		
4.	Hydrometer	2		
5.	Mixer	1		
6.	Glass cylinder (1000ml)	2		
7.	Thermometer	2		
8.	Casagrande Liquid limit apparatus with tools	2		
9.	China dish	4		
10.	Spatula	10		
11.	3mm diameter M.S. Rod	1		
12.	Measuring Jar (100 ml)	10		
13.	Mercury – ½ lit	1		
14.	Mercury displacement device	1		

15.	Rubber Pad (15cm x 15 cm x 1cm)	1		
16.	Wash bottle	10		
17.	Glass plate (30cm x 30cm x 1cm)	1		
18.	Sand pouring cylinder	1		
19.	Calibrating Container	1		
20.	Metal Tray	1		
21.	Hammer	1		
22.	Weighing balance (10 kg capacity with 100 g accuracy)	1		
23.	Weighing balance (500 g capacity with 0.1 g accuracy)	1		
24.	Thermostatically Controlled oven	2		
25.	Containers	1		
26.	Bench top pH meter with combination pH electrode	1		
27.	Glass beaker (100 cc)	6		
28.	Wash bottle	4		
29.	Stirrer	2		
30.	Bench top Conductivity / TDS meter with conductivity cell	1		
31.	Digital flame photometer	1		
32.	Conical flask (200 ml)	2		

33.	Pipette (10 x 0.1 ml)	2		
34.	Burette (50 x 0.1 ml)	2		
35.	Measuring jar (50 ml)	2		
36.	Measuring jar (100 ml)	2		
37.	Standard Proctor Mould with Collar	1		
38.	2.6 kg hammer	1		
39.	4.9 kg hammer	1		
40.	Mixing Pan	1		
41.	Soil trimmer	1		
42.	Sample Ejector	1		
43.	CBR Mould with Collar and disc	1		
44.	Hammer	1		
45.	Compression testing machine (5T capacity)	1		
46.	One dimensional consolidation equipment with all accessories	1		
47.	Filter paper	1		
48.	Porous stone	2		
49.	Wash bottle	1		
50.	Stop watch	1		

51.	Measuring jar	2		
52.	Measuring scale	1		
53.	Permeameter Mould	1		
54.	Constant Head Tank	1		
55.	Drainage Pad	4		
56.	Burette of different diameter with stand	1		
57.	Load frame hand operated capacity 5kN	1		
58.	Mould 1000ml volume with base plate and collar	1		
59.	Proving ring 2.5kN capacity	1		
60.	Dial gauge 25mm travel, 0.01mm least count	2		
61.	Perforated swell plate 100mm dia x 16mm thick	1		
62.	Spacer 100 mm dia x 12.7mm thick	1		
63.	Pair of porous stone 100mm dia x 12.7mm thick	4		
64.	Load transfer bar	1		
65.	Steel ball	2		
66.	Soaking tank 250mm dia x 210mm height	1		

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M.E. Soil Mechanics and Foundation Engineering
(R 2017) Semester – III
SF5311 Advanced Soil Mechanics Laboratory - II
(Requirements for a batch of 25 students)

Sl. No.	Description of Equipment	Quantity required (R)	Quantity available (A)	Deficiency (R - A)
1.	Motorized Direct shear apparatus Strain rate (mm/min) : 1.25 – 0.0002 Specimen size : 60mmx60mmx25mm	1		
2.	Shear box assembly	1		
3.	Shear box housing with two linear bearing case with steer	1		
4.	Specimen cutter	1		
5.	Surcharge weights to attain normal stress of 3 kg/cm ²	1		
6.	Compression tension proving ring 2kN capacity	1		
7.	Dial gauge 0-25 x 0.01 mm	2		
8.	Triaxial cell stationary bushing assembly with all accessories	1		
9.	Constant Pressure System Oil water type/air water type Range : 0 to 10 kg/cm ² Resolution : 0.05kg/cm ² Accuracy : +/- 1 % Suitable for operation on 220V, 50Hz, single phase, AC supply	2		
10.	Sensitive volume change gauge / Automatic volume change gauge – pressure capacity 20 kg/cm ²	1		
11.	Pore pressure apparatus / Pore pressure transducer 1 to 10 kg/cm ²	1		

12.	Loading frame 50 kN	1		
13.	Plain platen with adapter and steel ball	1		
14.	High sensitivity proving ring capacity 2kN	1		
15.	Dial gauge 25mm travel, 0.01mm least count	2		
16.	Split mould 38mm dia x 76mm long	1		
17.	Rubber sheath for 38mm dia specimen	1		
18.	Motorized vane shear apparatus	1		
19.	Container	5		
20.	Set of 4 Springs (one each of capacity 2 kg.cm, 4kg.cm, 6kg.cm, 8kg.cm)	1		
21.	15 Bar pressure plate extractor	1		
22.	15 Bar pressure plate cells	2		
23.	Connecting hose for 1500 extractor - 5 m	1		
24.	Soil sample retaining rings	12		
25.	Compressor 220V	1		
26.	Dry sieve test apparatus	1		
27.	Motorized sieve shaker	1		
28.	Rounded beads made of glass - size : 0.85mm , 0.425mm , 0.25mm , 0.18mm , 0.15mm, 0.075mm - each 100 g	1		
29.	UTM for geotextile	1		

30.	Narrow strip tensile strength grip	1		
31.	Wide width tensile strength grip	1		
32.	Interface friction measurement apparatus (shear box assembly) - 1 set	1		
33.	Long term flow apparatus with all essential accessories	1		
34.	Overhead tank	1		
35.	Load Gauge 0-25 kN x 0.25 kN	1		
36.	Load Gauge 0-100 kN x 0.5 kN	1		
37.	Conical loading platens	1		
38.	Loading frame with hydraulic jack, hand operated, capacity 100kN - each	1		
39.	Loading frame fitted with hand operated hydraulic loading jack of 200kN capacity provided with self-retracting piston, pair of plain platens	1		
40.	Pair of semi-circular jaws for 50mm dia samples	1		
41.	Load gauge 0-200kN x 1kN capacity	1		
42.	Direct shear apparatus of shear box size 300mm x 300mm x 100mm	1		
43.	Jack capacity 100kN	3		
44.	Dial gauges 25mm x 0.01mm	6		
45.	Hand operated hydraulic pump	2		
46.	Load gauge 0 – 100 kN x 0.5 kN	2		

47.	Flexible hose pipe 2m	3		
48.	Moulds for casting the samples (wooden)	2		
49.	Load frame 200kN capacity	1		
50.	Proving ring 100kN	1		
51.	Dial gauge 25mm travel, 0.01 mm least count	2		
52.	Load frame setup – 2T Capacity	1		
53.	Mild steel tank – (1m x 1m x 1m)	1		
54.	Mild steel plate – (100mm x 100mm x 10mm)	1		
55.	Mild steel extension rod of suitable length to fix plate	1		
56.	Ball and socket arrangement consisting of two steel plates, with one steel ball in-between the plates	1		
57.	Magnetic base assembly	2		
58.	Dial gauges / Strain gauges – travel 50mm	2		
59.	Proving ring capacity – 20 kN	1		
60.	LVDT / Load cell with reading units (optional)	1		
61.	Hand operated Hydraulic jack, capacity 500 kN	1		
62.	Hydraulic Hand operated pump with 200mm dia load gauge capacity 500 kN	1		