

**DEENBANDHU CHHOTU RAM UNIVERSITY OF SCIENCE & TECHNOLOGY, MURTHAL,
SONEPAT, HARYANA-131039**



**APPARATUS / SOFTWARES FOR M. TECH. 2 YEARS IN HIGHWAY SAFETY AND
ENGINEERING**

Credit Based Scheme w.e.f. 2013-14

	INFRASTRUCTURE	REQUIRED	AVAILABLE	DEFICIENCY
List of Labs / Equipments / Softwares				
S. No.	Name of Equipments / Softwares	Quantity		
1st Year Lab: TE Lab, HM Lab, RS and A Lab				
1st Year (Semester-I)				
Name of the Lab: CEH-511B Traffic Engineering Lab				
1.	High Speed Automatic Traffic Counter Cum Classifier System	01 no.		
2.	Portable Road Tube Speed and Axle Classifier with software and tube kit	01 no.		
3.	Hand Tally Counters	02 no.		
4.	Laser based speed recorder with printer	01 no.		
5.	Enoscope	04 no.		
6.	Stop watches	04 no.		
7.	VISSIM/VISSUM	3 users		
Name of the Lab: CEH-513B: Highway Materials Lab				
I	Aggregate Testing Sections			
1.	Mechanical Sieve Shaker with timer along with sieve Set mounted IS Certified	01 no.		
2.	Measures for Bulk density (IS Certified)	01 no.(set)		
3.	Length Gauge as per IS Certified 2386 for elongation	01 no.		
4.	Thickness gauge as per IS-2386 for flakiness index	01 no.		
5.	Soundness test apparatus as per IS-2386 (V)	01 no.		
6.	Aggregate impact value test apparatus (IS-2386) with counter scale	01 no.		
7.	Specific gravity test apparatus with Pycnometer	01 no.		
8.	20 kg. balance digital	01 no.		
9.	Riffle sample Divider IS Certified	01 no.		
10.	Density basket (with Bouncy balance) IS Certified IS -2386	01 no.		
11.	Screen/sieve set with lid and pan, i.e., 80 mm, 63 mm., 53 mm., 40 mm, 37.5 mm., 26.5 mm, 20 mm, 16 mm, 12.5 mm, 13.6 mm., 10 mm, 9.5 mm., 6.7 mm., 4.75 mm., 2.36 mm., 2.0 mm., 1.18 mm., 600 micron, 425 micron, 300 micron, 150 micron and 90 micron, 75 micron.	01 no. each		
12.	Impact Test Apparatus	01 no.		
13.	Los Angeles Abrasion Test apparatus	01 no.		
14.	Crushing strength Testing Machine	01 no.		
II	Testing of bituminous mixes			
1.	Universal penetrometer with timer(with Bituminous penetration Kit)	01 no.		
2.	Marshall stability apparatus 50 KN electronic for normal and modified compacted bitumen specimen	01no.		
3.	Automatic compactor for standard compaction mixes	01 no.		
4.	Automatic compactor for modified compaction mixes	01 no.		
5.	Sample ejector (mechanical 1 each for standard and modified moulds)	02 no.		
6.	Centrifuge type bitumen extractor	01 no.		

	automatic (new design)			
7.	Pavement core cutting machine with 150 mm. diameter (petrol)	01 no.		
8.	Vacuum pump with specific gravity determination apparatus as per IS-1202-1978	01 no.		
9.	Ductility test apparatus digital	01 no.		
10.	Bituminous stripping of aggregate test apparatus	01 no.		
11.	Asphalt mixer	01 no.		
12.	Asphalt mix ϕ theoretical density meter	01 no.		
13.	Water bath electrically operated and thermostatically controlled with adjustable shelves IS Certified suitable for marshal stabilities bitumen moulds	01 no.		
14.	Ring & ball softening point test apparatus	01 set		
15.	Flash point . Cleveland open cup test apparatus	01 set		
16.	Saybolt Furol Viscometer	01		
III	Testing of soil			
1.	Atterberg limits apparatus a) Liquid limit device (cone penetrometer digital) Plastic limit apparatus and uppal ϕ syringe for P.I.	01 no. 01 no.		
2.	California Bearing ratio (CBR) apparatus motorized and electronic)	01 no.		
3.	Swell test apparatus IS Certified	01 no.		
4.	Proctor density test	01 no.		
IV	Pavement evaluation			
1.	Benkelman Beam apparatus	01 no.		
2.	Falling weight deflectometer	01 no.		
3.	Unevenness Indicator	01 no.		
1st Year (Semester-II)				
Name of the Lab: CEH-508B: Road Safety and Audit Lab				
1	Breath Alcohol Analyser With Printer	1 no.		
2	Round Bollard	1 no.		
3	Plastic Crash Barriers	1 no.		
4	Traffic Cones with plastic chains	1 set of 6		
5	Flexible post delineator	1 set of 6		
6	Flap lane dividers	1 set of 6		
7	Safety Lite Bollard	1 no.		
8	Square Bollard	1 no.		
9	Reflective Road Studs	1 set of 6		
10	Hexagonal Barriers	1 set		
11	Traffic Barriers	1 set of 2		
12	Channelizer	1 set		
13	Rubberised Speed Breakers	1 set		
14	Cautionary/ Warning / Mandatory/ Regulatory Signs/ Compulsory Direction Control Signs/ Facility Informatory Signs/ Parking Signs/ Construction Zone Signs	1 no. of each		
15	A chart showing all traffic signs	1 no.		
16	Safety jackets	12		
17	Safety halmets	6		
18	Convex Mirrors	1		
19	Check lists (IRC: 88)	4 sets		
20	IRC codes	1 set		
2nd Year Lab: GIS Lab				
1	Total station	1no.		
2	Stereoscope	5 no.		
3	Hand held GPS	2 no.		
4	Image processing software	5 licenses		

	ERDAS/GEOMEDIA			
5	GIS softwares ArcGIS/MapInfo	5 licenses		
6	Satellite images/aerial photographs	5 nos.		
2nd year (Semester III & IV)				
Dissertation/Seminar/				
Softwares and other equipments				
1	MXROAD	3 users		
2	VISSIM/VISSUM	3 users		
3	Seminar Room	1 no.		
4	Projector	1 no.		
5	Computers	20 nos.		
6	Printer	2 nos.		

Certified by the Director / Principal