

<b>Sr. No.</b>	<b>Elements</b>	<b>Topic</b>	<b>Faculty</b>
<b>01</b>	<b>Introduction</b>	Introduction to course plan	<b>PYP</b>
<b>02</b>		Introduction to Geotechnical laboratory	<b>SDG</b>
<b>03</b>		Introduction to Concrete laboratory	<b>SPA</b>
<b>07</b>	<b>Check and measure prior to operation of instruments prior to testing</b>	Demonstration of concrete laboratory equipment	<b>PYP</b>
		Demonstration of maintenance of the equipments	<b>PYP</b>
		Wear appropriate Personal Protective Equipment (PPE) as per applicability	<b>PYP</b>
		Checking calibration of instruments prior to testing as per applicability	<b>PYP</b>
		Operate equipment's as per manufacturer specifications and as per standard test procedures	<b>PYP</b>
		Maintain and upkeep all relevant tools, instruments, apparatus and equipment's	<b>PYP</b>
<b>08</b>	<b>Select and use test instrument, apparatus &amp; equipments for cement</b>	Identify, select and use IS sieves	<b>SPA</b>
		To determine the percentage of water for normal consistency for a given sample of cement	<b>SPA</b>
		To determine the initial and final setting time of a given sample of cement	<b>SPA</b>
		To determine the compressive strength of cement	<b>SPA</b>
		To determine soundness of cement by Le-Chatelier apparatus	<b>SPA</b>
		To determine fineness of cement by hand sieving.	<b>SPA</b>
<b>09</b>	<b>Select and use test instrument, apparatus &amp; equipments for aggregates</b>	To determine the bulking of fine aggregate i.e. [sand]	<b>VKG</b>
		To determine Flakiness and Elongation index of aggregate	<b>VKG</b>
		To determine elongation index of aggregate	<b>VKG</b>
		To determine fineness modulus of aggregate	<b>VKG</b>
		To determine abrasion value of given sample of aggregate	<b>VKG</b>
		To determine impact value of aggregate	<b>VKG</b>
<b>10</b>	<b>Select and use test instrument, apparatus &amp; equipments for aggregates</b>	To identify select and use concrete cube moulds/ cylindrical moulds, slump	<b>PBP</b>
		To determine compaction factor	<b>PBP</b>
		Ve Bee test apparatus for concrete test	<b>PBP</b>
		As per standard operating procedure for compressing testing machine	<b>PBP</b>
		To monitor and record temperature of curing tank.	<b>PBP</b>
		To use Flow table test apparatus	<b>PBP</b>
<b>11</b>	<b>Select and use test instrument, apparatus &amp; equipments for aggregates</b>	To operate compressing testing machine as per standard operating procedure	<b>PYP</b>
		To use weighing balance, oven and maintain temperature of curing tank as per applicability & requirement.	<b>PYP</b>
		Select, use & maintain test instrument	<b>PYP</b>
		To use weighing balance, heating oven as per applicability	<b>PYP</b>
<b>12</b>	<b>Select and use test instrument, apparatus &amp;</b>	To use weighing balance, heating oven as per applicability	<b>SPA</b>
		To identify, select and use is sieve, flakiness gauge, elongation gauge,	<b>SPA</b>
		To identify, select and use crushing value apparatus, impact	<b>SPA</b>

	<b>equipments for aggregates</b>	value apparatus, To identify, select and use abrasion value apparatus for testing of coarse aggregate as per standard operating procedure	<b>SPA</b>
		To operate compression testing machine to determine crushing value of coarse aggregate as per standard operating procedure	<b>SPA</b>
<b>13</b>	<b>Select, use &amp; maintain test instrument, apparatus &amp; equipments for soil and bitumen testing</b>	To Identify, select and use IS sieves, compaction test apparatus, rapid moisture content meter apparatus, Casagrande's device	<b>SDG</b>
		To use mechanical sieve shaker, heating oven, core cutting test apparatus for field testing of soil as per standard operating procedure	<b>SDG</b>
		To identify, select and use centrifuger extractor, thermometer, specific gravity bottle, penetrometer, bitumen compactor, flash and fire point test apparatus,	<b>SDG</b>
		To Use Marshall stability test apparatus for testing of bitumen as per standard operating procedure	<b>SDG</b>
		To maintain and upkeep all relevant tools, instrument, apparatus and equipments	<b>SDG</b>
<b>14</b>	<b>Carry out testing of cement, concrete, bricks and aggregate</b>	To read and understand relevant standard test procedure prior to commencement of test	<b>SPA</b>
		To select cement sample as per test requirement and carry out sample preparation such as weighing, measuring, oven drying the required quantity of material as per standard test procedure and applicability	<b>SPA</b>
		To weigh cement and make cement mortar for casting cement cube as per standard test procedure	<b>SPA</b>
		To cast the cement cube and concrete cube in fields and laboratory as per standard procedure for compressive strength testing of cement and concrete	<b>SPA</b>
		To perform cement test to determine consistency, initial and final setting, fineness, soundness, specific gravity, compressive strength test of cement as per standard test procedure	<b>SPA</b>
		To perform workability test (slump cone test, compacting factor, Vee-bee test) of fresh concrete and compressive strength of hardened concrete as per standard test procedure	<b>SPA</b>
		To carry out test for compressive strength of cement cube and concrete cube to determine compressive strength as per standard test procedure	<b>SPA</b>
		To perform brick test to determine water absorption, compressive strength, efflorescence per standard test procedure	<b>SPA</b>
		To perform block test to determine water absorption, density and compressive strength as per standard test procedure	<b>SPA</b>
		To observe and record readings relevant to test in standard proforma as per applicability	<b>SPA</b>
		To store tested samples safely in laboratory for specified duration ensure tested sample are reused or safely disposed	<b>SPA</b>
<b>15</b>	<b>Carry out testing of aggregate sample</b>	Select coarse and fine aggregate sample and carry out sample preparation such as washing, weighing, measuring, sieving, tamping, oven drying the required quantity of material as per	<b>VKG</b>

		standard test procedure and applicability	
		Perform fine aggregate test to determine specific gravity, particle size distribution, silt content, bulking of fine aggregate as per standard test procedure	<b>VKG</b>
		Perform coarse aggregate test to determine specific gravity, bulk density, gradation, flakiness and elongation index , crushing value, impact value, abrasion value as per standard test procedure	<b>VKG</b>
		Observe and record readings relevant to test in standard performa as per applicability	<b>VKG</b>
		Ensure tested sample are reused or safely disposed	<b>VKG</b>
		Store tested samples safely in laboratory for specified duration	<b>VKG</b>
<b>16</b>	<b>Geotechnical Engineering</b>	Determination of Moisture content of given soil sample	<b>BJG</b>
		Determination of Specific gravity of soil	<b>BJG</b>
		Grain size Analysis – (Sieve Analysis)	<b>BJG</b>
		Determination of Liquid Limits of given soil sample	<b>BJG</b>
		Determination of Plastic Limit of given soil sample	<b>BJG</b>
		Determination of Shrinkage Limit of given soil sample	<b>BJG</b>
		Determination of Permeability by constant head method	<b>BJG</b>
		Determination of Permeability by falling head method	<b>BJG</b>
		Standard Proctors test	<b>BJG</b>
		Modified Proctors test	<b>BJG</b>
		Determination of Field Density by sand replacement method	<b>BJG</b>
		Determination of Field Density by core cutter method	<b>BJG</b>
<b>17</b>	<b>Interact and communicate in effective and conclusive manner</b>	Pass on work related information/ requirement clearly to the team members	<b>BVK</b>
<b>18</b>	<b>Interact and communicate in effective and conclusive manner Support co-workers to execute project requirements</b>	Inform co-workers and superiors about any kind of deviations from work	<b>BVK</b>
		Address the problems effectively and report if required to immediate supervisor appropriately	<b>BVK</b>
		Receive instructions clearly from superiors and respond effectively on the same	<b>BVK</b>
		Communicate to team members/subordinates for appropriate work technique and method	<b>BVK</b>
		Seek clarification and advice as per the requirement and applicability	<b>BVK</b>
		Hand over the required material, tools tackles, equipment and work fronts timely to interfacing teams	<b>BVK</b>
		Understand clearly the targets and timelines set by superiors	<b>BVK</b>
<b>19</b>	<b>Prioritize work activities to achieve desired results</b>	Plan activities as per schedule and sequence	<b>AAG</b>
		Provide guidance to the subordinates to obtain desired outcome	<b>AAG</b>
		Plan housekeeping activities prior to and post completion of work	<b>AAG</b>
		List and arrange required resources prior to commencement of work	<b>AAG</b>

20	<b>Organize desired resources prior to commencement of work</b> <b>Follow safety norms as defined by organization</b>	Select and employ correct tools, tackles and equipment for completion of desired work	<b>AAG</b>
		Complete the work with allocated resources	<b>AAG</b>
		Engage allocated manpower in an appropriate manner	<b>AAG</b>
		Use resources in an optimum manner to avoid any unnecessary wastage	<b>AAG</b>
		Employ tools, tackles and equipment with care to avoid damage to the same	<b>AAG</b>
		Organize work output, materials used, tools and tackles deployed	<b>AAG</b>
		Processes adopted to be in line with the specified standards and instructions	<b>AAG</b>
		Identify and report any hazards, risks or breaches in site safety to the appropriate authority	<b>AAG</b>
21	<b>Follow safety norms as defined by organization</b> <b>Adopt healthy &amp; safe work practices</b>	Follow emergency and evacuation procedures in case of accidents, fires, natural calamities	<b>MM</b>
		Follow recommended safe practices in handling construction materials, including chemical and hazardous material whenever applicable	<b>MM</b>
		Participate in safety awareness programs like Tool Box Talks, safety demonstrations, mock drills, conducted at site	<b>MM</b>
		Identify near miss , unsafe condition and unsafe act	<b>MM</b>
		Use appropriate Personal Protective Equipment (PPE) as per work Requirements including: <ul style="list-style-type: none"> <li>• Head Protection (Helmets)</li> <li>• Ear protection</li> <li>• Fall Protection</li> <li>• Foot Protection</li> <li>• Face and Eye Protection,</li> <li>• Hand and Body Protection</li> </ul> Respiratory Protection (if required)	<b>MM</b>
		• Follow safe disposal of waste, harmful and hazardous materials as per EHS guidelines	<b>MM</b>
22	<b>Adopt healthy &amp; safe work practices</b>	Install and apply properly all safety equipment as instructed	<b>MM</b>
		Follow safety protocol and practices as laid down by site EHS department	<b>MM</b>
		Collect and deposit construction waste into identified containers before disposal, separate containers that may be needed for disposal of toxic or hazardous wastes	<b>MM</b>
		Apply ergonomic principles wherever required	<b>MM</b>
		DURATION	<b>600 hrs.</b>