GATEWAY INSTITUTE OF ENGINEERING AND TECHNOLOGY, SONIPAT
LESSON PLAN

Name of Faculty: Mr Sumit Kumar
Discipline:- Civil Engineering
Semester: 4th
Subjects: CONCRETE TECHNOLOGY (CE – 210B)
Lession Plan Duration: 15 Weeks (from January 2018 to April 2018)
Workload(Lecture/Practical) per week (in hours) : Lecture-03 , Practicals -02 hours

Week	Theory (CE – 210B)		Practical (CE – 220B)	
	Lecture Day	Topic (including assignment/test)	Practical Day	Topic
1st	1st	Constituents of Concrete: Properties of Cement	1st	To determine standard consistency, initial and final setting times of cement
	2nd	Tests on cement,		
	3rd	Various types of cement & their applications		
2nd	4th	Bulking of Sand, properties of good sand	2nd	To determine compressive strength of cement
	5th	Functions of sand in mortar and cement concrete substitutes of sand,		
	6th	Classification of Aggregates, Properties of aggregates		
3rd	7th	Specific gravity, bulk density, porosity	3rd	Test
	8th	Adsorption & moisture content of aggregates, deleterious substance in aggregate		
	9th	Soundness of aggregate, Grading of coarse and fine aggregates,		
4th	10th	Grading of coarse and fine aggregates, physical requirements of aggregates, and their tests,	4th	To determine the specific gravity of cement
	11th	Admixtures: their purpose, their types, properties, dosages, effects and usages.		
	12th	Revision & Test		
5th	13th	Properties of Fresh and Hardened Concrete: Properties	5th	To determine specific gravity of fine aggregate
	14th	Tests of Cement Concrete		
	15th	Workability, factors affecting workability		
6th	16th	Measurement of workability by different tests	6th	Test
	17th	Strength of concrete and factors affecting it		
	18th	Water Cement Ratio – Abram's law		
7th	19th	Degree of Compaction and Age of Conrete	7th	To determine the specific gravity of coarse aggregate
	20th	Development of Strength of Concrete		
	21st	Methods of Curing, Influence of Temperature		
8th	22nd	Steam curing, Durability, shrinkage & Creep of Concrete	8th	To determine the grading of fine aggregate
	23rd	Factors influencing Creep; Compression tests and Tension Tests		
	24th	Flexural Tests & Splitting Tests, Freeze and Thaw in Concrete.		
9th	25th	Revision & Test	9th	Test
	26th	Concrete Mix Design: Principles of Concrete Mix Design		
	27th	Basic Considerations, Factors in the choice of mix design		
10th	28th	Outline of mix design procedure	10th	To determine the grading of coarse aggregate
	29th	Proportioning of Concrete mixes by various methods – BIS Method of Mix Design		
	30th	American Concrete Institute, British Standard		
11th	31st	Quality control and Acceptance Criterion	11th	To determine the water absorption and moisture content of fine aggregate
	32nd	Grades of Concrete, stress strain curve, permissible stresses		
	33rd	Revision & Test		
12th	34th	Durability of Concrete: Sulphate attack of concrete	12th	Test
	35th	Corrosion of rebar wrt chloride and sulphate attack		
	36th	Alkali Silica Reaction, Freezing and Thawing		
13th	37th	Carbonation of Concrete	13th	To determine the water absorption and moisture content of coarse aggregate
	38th	Corrosion Measurement Techniques, Prevention of Corrosion		
	39th	Special Circumstances of Concreting		
14th	40th	Hot weather concreting	14th	To determine the compressive, tensile and flexural strengths of concrete
	41st	Cold weather concreting		
	42th	Underwater concreting		
15th	43th	Heavy Concrete	15th	TEST
	44th	Lightweight Concrete		
	45th	Revision & Test		

Name of Faculty: Ms Surbhi gupta
Discipline:- ME,and CE
Semester: 4th
Subjects: Engineering Economics (MGT-201B)
Lession Plan Duration: 15 Weeks (from January,2018 to April,2018
Workload(Lecture/Practical) per week (in hours) : Lecture-03

Week	Theory	
	Lecture Day	**Topic (including assignment/test)**
1st	1st	Definition of economics
	2nd	Nature of economic problem, micro and macro economics- their feature and scope
	3rd	Production possibility curve,
2nd	4th	Economic laws and their nature.
	5th	Utility & its features
	6th	Law of diminishing marginal utility
3rd	7th	**Test**
	8th	Law of equi-marginal utility
	9th	Its practical application and importance.
4th	10th	Meaning of demand, individual and market demand schedule,
	11th	Law of demand
	12th	shape of demand curves
5th	13th	**Test**
	14th	Elasticity of demand and degrees of price elasticity of demand.
	15th	Measurement of Elasticity of demand.
6th	16th	Factors effecting elasticity of demand
	17th	Practical importance & application of the concept of elasticity of demand.
	18th	**Test**
7th	19th	Concepts of cost-fixed cost, variable cost
	20th	fixed cost, variable cost ,Average cost, marginal cost.
	21st	money cost, real cost, opportunity cost.
8th	22nd	Shape of average cost,Marginal cost, total cost etc. In short run and long run
	23rd	Meaning of production and factors of production
	24th	law of variable proportions
9th	25th	law of return to scale
	26th	Internet and external economics andDiseconomies of scale
	27th	**Test**
10th	28th	Meaning of market
	29th	Features of market
	30th	Type of markets – perfect competition mainFeatures of these markets)
11th	31st	Monopoly(mainFeatures of these markets)
	32nd	oligopoly(mainFeatures of these markets)
	33rd	monopolistic competition (mainFeatures of these markets)
12th	34th	**Test**
	35th	Supply and law of supply
	36th	Role of demand & supply in price determination
13th	37th	Effect of changes in demand and supply on prices
	38th	Nature And characteristics of Indian economy,
	39th	**Test**
14th	40th	Privatization – meaning, merits and demerits.
	41st	Globalization of India economy – merits and demerits
	42nd	Elementary concept of WTO & Trips agreement
15th	43rd	Monitory policy
	44th	Fiscal policy
	45th	**Test**

Name of Faculty: Mr Durgesh Nandan
Discipline:- Civil Engineering
Semester: 4th
Subjects: STRUCTURAL ANALYSIS I (CE – 202B)
Lession Plan Duration: 15 Weeks (from January 2018 to April 2018)
Workload(Lecture/Practical) per week (in hours) : Lecture-03 , Practicals -02 hours

Week	Theory (CE – 202B)		Practical (CE – 212B)	
	Lecture Day	Topic (including assignment/test)	Practical Day	Topic
1st	1st	Trusses Introduction	1st	To verify Betti's Law
	2nd	Determination of forces in member		
	3rd	Trusses by method of joints, method of sections		
2nd	4th	Deflection of Joints of plane frames	2nd	To find the deflection of a pine connected truss.
	5th	Castigliano's firsttheorem		
	6th	Unit load method		
3rd	7th	Analysis of Dams	3rd	Test
	8th	Chimneys and Retaining Walls: Introduction		
	9th	Limit of eccentricity for no tension in the section, core of the section		
4th	10th	Middle third rule	4th	To determine the flexural rigidity (EI) of a given beam.
	11th	Wind pressure on chimneys		
	12th	Revision & Test		
5th	13th	Deflection of Beams	5th	To verify Moment-Area Theorems for slope and deflection of a beam.
	14th	Review of Double Integration Method		
	15th	Review of Macaulay's Method		
6th	16th	Moment area theorem	6th	Test
	17th	Conjugate beam method, unit method		
	18th	Strain energy method,		
7th	19th	Maxwel's reciprocal theorem	7th	To study the behavior of different types of struts.
	20th	Thin cylinder and Spheres		
	21st	Stresses and strains in thin cylinders and spherical shell		
8th	22nd	Volumetric change, wire wound thin cylinders	8th	To obtain experimentally the influence line for the horizontal thrust in a two hinged arch.
	23rd	Thin vessels subjected to internal pressure		
	24th	Introduction to rolling loads and influence lines		
9th	25th	Determination of shear force at a section	9th	Test
	26th	Determination of bending moment at a section		
	27th	Absolute shear force and bending moment		
10th	28th	Single point load, uniformly distributed load	10th	To determine the elastic displacement of curved members.
	29th	Several point load		
	30th	Influence Lines		
11th	31st	Construction of Influence lines for reaction	11th	To determine the horizontal displacement of the roller end in a curved beam.
	32nd	Shear forces and bending moment for simply supported		
	33rd	Shear forces and bending moment overhanging and compound beams		
12th	34th	Influence lines for girders with floor beams	12th	Test
	35th	Influence lines for forces in members of frames		
	36th	Arches: Introduction, Analysis of three hinged		
13th	37th	Two hinged and fixed arches,spandrel braced arches	13th	Revision
	38th	Influence lines for horizontal thrust		
	39th	Shear force and bending moment for three hinged		
14th	40th	Shear force and bending moment for two hinged	14th	To make computer programs for theoretical verification of the above experiments.
	41st	Cables and suspension Bridges Shape of a loaded cable		
	42th	Cable carrying point loads and UDL		
15th	43th	Cables with ends at different level, cable subjected to temperature stresses	15th	Test
	44th	Suspension bridge with two hinged and three hinged stiffening girders, influence lines		
	45th	Revision & Test		

Name of Faculty: Mr. Sudhir Malik
Discipline:- Civil Engg.
Semester: 4th
Subjects: Geomatics Engineering (CE-206B)
Lession Plan Duration: 13 Weeks (from January 2018 to April 2018)
Workload(Lecture/Practical) per week (in hours) : Lecture-03, Practicals -02 hours

Week	Theory (CE-206B)		Practical (CE – 216B)	
	Lecture Day	**Topic (including assignment/test)**	**Practical Day**	**Topic**
1st	1st	Introduction to Geomatic Engineering,	1st	Study of Aerial photographs.
	2nd	GIS, GPS, DEM, DTED		
	3rd	History of surveying and mapping, Importance		
2nd	4th	Maps and Maps Numbering systems, Large scale mapping, small scale mapping	2nd	Test
	5th	Components of GIS, Application of GIS in civil engineering		
	6th	Revision & Test		
3rd	7th	Remote Sensing, Fundamentals, EMS, RS System,	3rd	Study and image interpretation of remote sensing data.
	8th	Active and Passive radiation – Electromagnetic Radiation -Nomenclature		
	9th	Reflectance, Transmission and Absorption		
4th	10th	Thermal Emission – Plank's formula, Stefan Boltzman Law,	4th	Test
	11th	Wein's Displacement Law; Emissivity – Kirchoff's Law		
	12th	Characteristics of Solar Radiant Energy, Application of remote sensing to various engineering fields		
5th	13th	Interaction of EMR with Atmosphere	5th	Introduction to CAD/GIS/Image Processing software
	14th	Scattering, Refraction, Absorption,		
	15th	Transmission, Atmospheric Windows.		
6th	16th	Interaction of EMR with Earth Surface – Spectral Reflectance Curves.	6th	Test
	17th	Interaction of earth surface, with EM radiation in visible		
	18th	NIR, TIR and Microwave regions. Idealised & Real sequence of remote sensing.		
7th	19th	Sensors and Platforms: Platforms,	7th	Study of digital image characteristics such as: · DN value, · Histogram, · Color image generation, · Simple Image enhancement, · On-screen digitization from images, · Area computation, · Geo-registration of images etc
	20th	Orbital characteristics, Storage and Retrieval of data.		
	21st	IRS satellite systems – Introduction		
8th	22nd	Stages of development, Sensors, Types of scanning system		
	23rd	Data Processing: Initial data statistics		
	24th	Pre-processing – Atmospheric		
9th	25th	Radiometric and Geometric corrections		
	26th	Image Histogram, Classification of images		
	27th	Revision & Test		
10th	28th	Data analysis: Image Interpretation Elements,	8th	Test
	29th	Keys and Aids.		
	30th	Basic Instrumentation.		
11th	31st	Visual analysis of data		
	32nd	Photogrammetry: Aaerial and terrestrial,		
	33rd	Applications		
12th	34th	Types and geometry of aerial photograph,		
	35th	flight planning,		
	36th	Relief displacement,		
13th	37th	Stereoscopy		
	38th	Photogrammetric mapping, Mosaics		
	39th	Revision & Test		

Name of Faculty: Mr. Ravi Chopra
Discipline:- Civil Engg.
Semester: 4th
Subjects:OPEN CHANNEL FLOW(CE-204B)
Lession Plan Duration: 13 Weeks (from January 2018 to April 2018)
Workload(Lecture/Practical) per week (in hours) : Lecture-03, Practicals -02 hours

Week	Theory (CE-204B)		Practical (CE-214B)	
	Lecture Day	**Topic (including assignment/test)**	**Practical Day**	**Topic**
1st	1st	Flow in Open Channels	1st	To determine Manning's co-efficient of roughness for the rough bed of a given flume.
	2nd	Difference between pipe flow and channel flow		
	3rd	Types of channels		
2nd	4th	Classification of flows	2nd	To measure the velocity distribution in a rectangular channel by Prandtl Pitot tube and to determine the energy correction factors
	5th	Sub Critical and Supercritical Flows		
	6th	Velocity distribution and Uniform flow formulae		
3rd	7th	Flow Measurement: Flow over notches and weirs	3rd	Test
	8th	Pitot tube floats and current meters for velocity measurement		
	9th	Flow over Spillways		
4th	10th	Sluice gates, free overfall	4th	To study the flow through a horizontal contraction in a rectangular open channel
	11th	Revision & Test		
	12th	Unsteady flow and Hydraulic jump: Froude number and types of hydraulic jump		
5th	13th	Applications Jumps in channels.	5th	To calibrate a current meter
	14th	Unsteady flow equation, Pre jump and post jump depths		
	15th	Length of Hydraulic Jump and energy dissipation, Surges		
6th	16th	Concepts of Specific energy and specific Force: Specific energy and specific curve	6th	Test
	17th	Momentum Equation in open channels		
	18th	Specific force & specific force curve Critical depth and its computation.		
7th	19th	Revision & Test	7th	To study the formation of hydraulic jump in a horizontal rectangular open channel (Measurement of Froude no. and energy loss)
	20th	Gradually Varied Flow: Channel transitions		
	21st	Non-uniform flow in open channels		
8th	22nd	Dynamic equation for GVF	8th	To study the flow over a hump in a channel bed.
	23rd	Water surface profiles in channels of different slopes GVF flow computations.		
	24th	Design of Channels: Design of Channels		
9th	25th	Most efficient channel sections		Test
	26th	Revision & Test		
	27th	Pumps and Turbines: Reciprocating pumps, their types		
10th	28th	work done by single and double acting pumps.	9th	To study the pressure distribution along the spillway surface for different heads.
	29th	Centrifugal pumps, components		
	30th	Centrifugal pumps,parts and working		
11th	31st	Types, heads of a pump-statics and manometric heads	10th	To calibrate a broad-crested weir and to study the pressure distribution along its surface.
	32nd	Force executed by fluid jet on stationary and moving flat vanes		
	33rd	Define Turbines		
12th	34th	Turbines classifications of turbines based on head and specific speed	11th	Test
	35th	Component and working of Pelton wheel turbines		
	36th	Component and working of Francis turbines		
13th	37th	Cavitation and setting of turbines	12th	To calibrate a venturi flume
	38th	Numericals		
	39th	Revision & Test		
			13th	To study the flow under a sluice gate and formation of hydraulic jump at different Froude no.
			14th	Test

Name of Faculty: Mr VIJAY ROHILLA
Discipline:- Civil Engineering
Semester: 4th
Subjects: ENGINEERING GEOLOGY(CE-208 B)
Lession Plan Duration: 15 Weeks (from January 2018 to April 2018)
Workload(Lecture/Practical) per week (in hours) : Lecture-03 , Practicals -02 hours

Week	Theory (CE – 208 B)		Practical (CE – 218 B)	
	Lecture Day	**Topic (including assignment/test)**	**Practical Day**	**Topic**
1st	1st	Introduction: Divisions of Geology	1st	Study of minerals-hand specimens
	2nd	Importance of Engineering Geology		
	3rd	Geology applied to civil engineering practices		
2nd	4th	Weathering: Agents and effects, Geological works of rivers	2nd	Study of rocks-hand specimens
	5th	Wind, glaciers and oceans as agents of erosion		
	6th	Transportation and deposition		
3rd	7th	Resulting features and engineering importance	3rd	Test
	8th	Rocks and Minerals: Classification of rocks for engineering purposes		
	9th	Rock Quality Designation (RQD)		
4th	10th	Igneous, sedimentary and metamorphic rocks: their formation and structures	4th	Field description of rocks for engineering practices
	11th	Identification and physical properties of minerals		
	12th	Revision & Test		
5th	13th	Structural Geology: Stratification, dip and strike	5th	Study of elements of symmetry and Crystal systems with crystal models
	14th	Unconformities: Causes and types of unconformities		
	15th	Folds: Definition, parts of a fold, classification		
6th	16th	Causes, relation to engineering operations	6th	Test
	17th	Faults: Definition, parts of a fault, classification		
	18th	Causes, relation to engineering purposes		
7th	19th	Joints: Definition, attitude, joint set, joint systems	7th	Study of Geological Maps
	20th	Classification, relation to engineering operations		
	21st	Revision & Test		
8th	22nd	Methods of geological explorations: gravity	8th	Dip and strike problems
	23rd	Electrical and seismic methods		
	24th	Remote sensing techniques, Geology of India		
9th	25th	Introduction to GIS, components	9th	Test
	26th	Database structure,software packages		
	27th	Geological considerations in the Engineering projects		
10th	28th	Tunnels and its design considerations	10th	Study of optical properties of minerals
	29th	Highways, foundations		
	30th	Dams and anchorage of dams		
11th	31st	Rreservoirs. Under ground water in engineering Projects	11th	Test
	32nd	Aquifers, aquicludes, artisan wells		
	33rd	Revision & Test		
12th	34th	Earthquakes: Definition, terminology		
	35th	Causes, earthquake waves, intensity		
	36th	Vibration quantification and natural damping		
13th	37th	Recording of earthquakes, seismic zones in India		
	38th	Factors to be considered and methods in earthquake proof construction		
	39th	Earth movements: Landslides and land subsidence		
14th	40th	Elementary idea about classification		
	41st	factors causing landslides and land subsidence		
	42th	Preventive measures for landslides viz retaining walls		
15th	43th	slope treatment		
	44th	Chemical stabilization and drainage control		
	45th	Revision & Test		