

Government Polytechnic, Nanakpur

Lesson Plan (Even Semester)

Name of the Faculty : Dr. Rajeev kumar
Discipline : Civil Engg
Semester : 4th
Subject : WSWWE & IRRIGATION DRAWING
Lesson Plan Duration : 15 weeks (from January 9, 2020 to 30 April, 2020)
Work load (Lecture / Practical) per week(in hours): Lectures-Nil, practicals -03

Week	Theory		Practical	
	Lecture day	Topic (Including assignment / test)	Practical Day	Topic
1st			1st	Drains and Sewers Cross section of standard types of open drains (circular, v-shaped and m-shaped) with their foundations
			2nd	Drains and Sewers Cross section of standard types of open drains (circular, v-shaped and m-shaped) with their foundations
2nd			3rd	Cross section of earthen ware and RCC sewer pipes Cross sections of masonry sewers (circular and egg shaped)
			4th	Cross section of earthen ware and RCC sewer pipes Cross sections of masonry sewers (circular and egg shaped)
3rd			5th	Traps, manholes and inspection chamber Detailed section of floor trap and gully trap
			6th	Traps, manholes and inspection chamber Detailed section of floor trap and gully trap
4th			7th	Detailed plan and cross sections of a domestic septic tank with soak pit for 10 and 50 users
			8th	Detailed plan and cross sections of a domestic septic tank with soak pit for 10 and 50 users
5th			9th	Cross-section through the external wall of lavatories at ground and first floor showing the one and two pipe system and the connections of the lavatory to inspection chamber
			10th	Cross-section through the external wall of lavatories at ground and first floor showing the one and two pipe system and the connections of the lavatory to inspection chamber
6th			11th	Plan of a bathroom showing positions of lavatory, bath tub, wash-basin, taps and showers
			12th	Plan of a bathroom showing positions of lavatory, bath tub, wash-basin, taps and showers
7th			13th	Draw sectional elevation of a two storeyed building showing details of one pipe and two pipes systems with sanitation system.

			14th	Draw sectional elevation of a two storeyed building showing details of one pipe and two pipes systems with sanitation system.
8th			15th	Practice of reading water supply and sanitary engineering working drawings (PWD/urban Development agencies) including hot water and cold water supply system of a two room set.
			16th	Practice of reading water supply and sanitary engineering working drawings (PWD/urban Development agencies) including hot water and cold water supply system of a two room set.
9th			17th	Detailed Layout Plan of Sewage Treatment Plant for a residential area and Effluent Treatment Plant for an industrial unit.
			18th	Detailed Layout Plan of Sewage Treatment Plant for a residential area and Effluent Treatment Plant for an industrial unit.
10th			19th	Typical cross-section of a channel,L-section of a channel for given data
			20th	Typical cross-section of a channel,L-section of a channel for given data
11th			21th	Typical cross section of an unlined and lined channel in cutting, partly cutting and partly filling and fully in filling with given design data.
			22th	Typical cross section of an unlined and lined channel in cutting, partly cutting and partly filling and fully in filling with given design data.
12th			23th	Layout plan of a canal head works.
			24th	Layout plan of a canal head works.
13th			25th	Draw the X-section of an Earthen Dam
			26th	Draw the X-section of an Earthen Dam
14th			27th	Cross section of a tube well
			28th	Cross section of a tube well
15th			29th	Layout and cross section of rain water harvesting system.
			30th	Layout and cross section of rain water harvesting system.
Any additional available hours shall be used for revision				

(Signature of the teacher concerned with date)

Government Polytechnic, Nanakpur

Lesson Plan (Even Semester)

Name of the Faculty : Er. Manoj Kumar/Sachin
Discipline : Civil Engg.
Semester : 4th
Subject : CONCRETE TECHNOLOGY
Lesson Plan Duration : 15 weeks (from January 9, 2020 to 30 April, 2020)
****Work load (Lecture / Practical) per week(in hours): Lectures-03, practicals -02**

Week	Theory		Practical	
	Lecture day	Topic (Including assignment / test)	Practical Day	Topic
1st	1st	Chapter 1. Introduction Definition of concrete uses of concrete in comparison to other building material	1st	To determine the physical properties of cement as per IS Codes
	2nd	Chapter 2. Ingredients of Concrete Cement: physical properties of cement; different types of cement as per IS Codes Aggregates		
	3rd	Classification of aggregates according to size and shape Characteristics of aggregates: Particle size and shape, surface texture, specific gravity of aggregate		
2nd	4th	Bulk density, water absorption, surface moisture, bulking of sand deleterious materials soundness	2nd	To determine flakiness and elongation index of coarse aggregates
	5th	Grading of aggregates: coarse aggregate, fine aggregate; All-in-aggregate; fineness modulus; interpretation of grading charts		
	6th	Water: Quality requirements as per IS:456-2000		
3rd	7th	Chapter3. Water Cement Ratio Hydration of cement, principle of water-cement ratio	3rd	To determine silt in fine aggregate
	8th	Duff Abram's Water-cement ratio law: Limitations of water-cement ratio law		
	9th	Limitations of water-cement ratio law and its effects on strength of concrete		
4th	10th	Chapter4. Workability Workability factors affecting workability, Measurement of workability	4th	Determination of specific gravity and water absorption of aggregates

	11th	slump test, compacting factor and Vee Bee consistometer; Recommended slumps for placement in various conditions as per IS:456-2000/SP-23		
	12th	Revision Assignment No.1 1 Classification of aggregates according to size and shape 2 slump test, compacting factor and Vee Bee consistometer		
5th	13th	Sessional Test No.1	5th	Determination of bulk density and voids of aggregates
	14th	Chapter5. Properties of Concrete Properties in plastic state		
	15th	Workability, Segregation, Bleeding and Harshness		
6th	16th	Properties in hardened state: Strength, Durability, Impermeability, Dimensional changes	6th	To determine surface moisture in fine aggregate by displacement method
	17th	Chapter 6. Proportioning for Normal Concrete Objectives of mix design		
	18th	introduction to various grades as per IS:456 2000; proportioning for nominal mix design as prescribed by IS 456-2000		
7th	19th	Adjustment on site for: Bulking of fine aggregate, water absorption of aggregate, workability	7th	Determination of particle size distribution of fine, coarse and all in aggregate by sieve analysis (grading of aggregate)
	20th	Difference between nominal and controlled concrete Introduction to IS-10262-2009-Code for controlled mix design		
	21st	Chapter7. Introduction to Admixtures Admixtures (chemicals and minerals)		
8th	22nd	Admixtures (chemicals and minerals) for improving performance of concrete	8th	To determine necessary adjustment for bulking of fine aggregate
	23rd	Revision Assignment No.2 1 Segregation, Bleeding and Harshness 2 Bulking of fine aggregate, water absorption of aggregate		
	24th	Sessional Test No.2		
9th	25th	Chapter8. Special Concretes (only features) Concreting under special conditions	9th	To determine workability by slump test

	26th	difficulties and precautions before, during and after concreting, Cold weather concreting		
	27th	Ready mix concrete, Fibre reinforced concrete, Polymer Concrete, Silica fume concrete, Fly ash concrete		
10th	28th	Chapter9. Concreting Operations Storing of Cement, Storing of cement in a warehouse	10th	To verify the effect of water, fine aggregate/coarse aggregate ratio and aggregate/Cement ratio on slump
	29th	Storing of cement at site, Storing of cement in a warehouse, Effect of storage on strength of cement		
	30th	Storing of Aggregate: Storing of aggregate at site, Batching (to be shown during site visit)		
11th	31st	Batching of Cement, Batching of aggregate by: Volume, using gauge box (farma) selection of proper gauge box	11th	Compaction factor test for workability
	32nd	Weight spring balances and batching machines		
	33rd	Measurement of water, Mixing, Hand mixing		
12th	34th	Machine mixing - types of mixers, capacities of mixers, choosing appropriate size of mixers, operation of mixers	12th	Non destructive test on concrete by rebound hammer
	35th	Maintenance and care of machines, Transportation of concrete: Transportation of concrete using: wheel barrows, transit mixers, chutes, belt conveyors, pumps, tower crane and hoists etc		
	36th	Placement of concrete, Checking of form work, shuttering and precautions to be taken during placement		
13th	37th	Compaction, Hand compaction, Machine compaction - types of vibrators, internal screed vibrators, and form vibrators	13th	Non destructive test on concrete by ultrasonic pulse velocity test
	38th	Selection of suitable vibrators for different situations		
	39th	Finishing concrete slabs - screeding, floating and trowelling, Curing		

14th	40th	Objectives of curing, methods of curing like ponding, membrane curing, steam curing, chemical curing, Duration for curing and removal of form work	14th	Tests for compressive strength of concrete cubes for different grades of concrete
	41st	Objectives of curing, methods of curing like ponding, membrane curing, steam curing, chemical curing, Duration for curing and removal of form work		
	42nd	Jointing: Location of construction joints, treatment of construction joints, expansion joints in buildings - their importance and location		
15th	43rd	Chapter 10; Importance and methods of non-destructive tests (introduction only) non-destructive tests	15th	Revision
	44th	Revision Assignment No.3 1 Cold weather concreting, Compaction: 2 Fibre reinforced concrete, Fly ash concrete, Mixing:		
	45th	Sessional Test No.3		
Any additional available hours shall be used for revision				

(Signature of the teacher concerned with date)

Govt Polytechnic, Nanakpur

Lesson Plan (Even Semester)

Name of the Faculty : Er. Sachin
Discipline : Civil Engg
Semester : 4th
Subject : IRRIGATION ENGINEERING
Lesson Plan Duration : 15 weeks (from 9 January, 2020 to 30 April, 2020)
****Work load (Lecture / Practical) per week(in hours): Lectures-03, practicals –Nil**

Week	Theory		Practical
	Lecture day	Topic (Including assignment / test)	Practical Day
1st	1st	Chapter 1. Introduction Definition of irrigation, Necessity of irrigation	N / A
	2nd	History of development of irrigation in India , Major, medium and minor irrigation projects	N / A
	3rd	Chapter 2. Water Requirement of Crops Principal crops in India and their water requirements	N / A
	4th	Crop seasons – Kharif and Rabi	N / A
2nd	5th	Soil water, soil crop and water relationships	N / A
	6th	Duty, delta and base period, their relationship	N / A
	7th	Gross commanded area (GCA), culturable commanded area (CCA), intensity of irrigation, irrigable area	N / A
	8th	Chapter 3. Hydrological Cycle Catchment Area and Run-off Rainfall Definition rain-gauges – automatic and non-automatic	N / A
3rd	9th	Methods of estimating average rainfall (Arithmetic system)	N / A
	10th	Catchment area runoff, factors affecting runoff,	N / A
	11th	Hydrograph, basic concept of unit hydrograph.	N / A
	12th	Chapter 4. Methods of Irrigation Flow irrigation - its advantages and limitations	N / A
4th	13th	Lift Irrigation – Tube well and open well irrigation, their advantages and disadvantages	N / A
	14th	Sprinkler irrigation conditions favourable and essential requirements for sprinkler irrigation,	N / A
	15th	Sprinkler system – classification and component parts	N / A
	16th	Drip irrigation, suitability of drip irrigation,	N / A
5th	17th	Layout, component parts, advantages	N / A
	18th	Revision Assignment No. 1: 1. Definition of Irrigation. 2. Principal crops in India. 3. Crop season	N / A
	19th	Sessional Test No. 1	N / A
	20th	Chapter 5. Canals Classification, apurtenancs of a canal and their functions	N / A
6th	21st	Sketches of different canal cross-sections (unlined)	N / A

	22nd	Various types of canal lining - their related advantages and disadvantages,	N /A
	23rd	sketches of different lined canal x-sections	N /A
	24th	Breaches and their control	N /A
7th	25th	Maintenance of lined and unlined canals	N /A
	26th	Revision	N /A
	27th	Chapter 6. Tube Well Irrigation Introduction, occurrence of ground water	N /A
	28th	Location and command, advantages and disadvantages, comparison with canal irrigation	N /A
8th	29th	Tube wells, explanation of terms: water table	N /A
	30th	Radius of influence, depression head, cone of depression	N /A
	31st	Confined and unconfined aquifers.	N /A
	32nd	Yield of a well and methods of determining yield of well	N /A
9th	33rd	Types of tube wells, cavity, strainer and slotted type	N /A
	34th	Method of boring, installation of well assembly, development of well, pump selection and installation and maintenance	N /A
	35th	Water Harvesting Techniques: Need and requirement of various methods,	N /A
	36th	Run-off from roof top and ground surface, construction of recharge pits and recharge wells and their maintenance.	N /A
10th	37th	Chapter 7. Dams Classification of dams; earthen dams - types, causes of failure; crosssection of zoned earthen dams, method of construction, gravity dams – types, cross-sections of a dam, method of construction	N /A
	38th	Gravity dams – types, cross-sections of a dam, method of construction	N /A
	39th	Concept of small and micro dams	N /A
	40th	Concept of spillways and energy dissipators	N /A
11th	41st	Revision Assignment No. 2: 1. Various types of canal Lining. 2. Tubewell and terms water table, Radius of influence 3. Methods of Boring.	N /A
	42nd	Sessional Test No. 2	N /A
	43rd	Chapter 8. Canal Head Works and Regulatory Works Definition, object, general layout, functions of different parts of head works Difference between weir and barrage	N /A
	44th	Chapter 9. Cross Drainage Works Functions and necessity of the following types:	N /A
12th	45th	Super passage, level crossing, inlet and outlet, pipe crossing	N /A
	46th	Sketches of the above cross drainage works	N /A

	47th	Revision	N /A
	48th	Chapter 10. Definitions of following Hydraulic Structures with Sketches Falls, Cross and head regulators	N /A
13th	49th	Canal Escapes	N /A
	50th	Chapter 11. River Training Works Methods of river training, guide banks, retired (levees) embankments	N /A
	51st	Groynes and spurs, pitched island, cut-off	N /A
	52nd	Chapter 12. Water Logging and Drainage and Ground Water Re-charge Definition of water logging	N /A
14th	53rd	Water logging – its causes and effects	N /A
	54th	Water logging detection, prevention and remedies	N /A
	55th	Reclamation of soil	N /A
15th	56th	Surface and sub-surface drains and their layout	N /A
	57th	Concept and various techniques used for ground water re-charge	N /A
	58th	Revision	N /A
	59th	Revision Assignment No. 3: 1. Define Falls. 2. River Training Works. 3. Water logging and Drainage	N /A
	60th	Sessional Test No. 3	N /A
Any additional available hours shall be used for revision			

(Signature of the teacher

GOVT Polytechnic Nanakpur

Name of teacher		Er Manoj kumar	
Discipline		: Civil Engg.	
Semester		: 4TH SEMESTER	
Subject		: SOIL & FOUNDATION ENGG	
Lesson Plan Duration		: 15 weeks	
		Practical	jan 9, 2020 to 30 april 2020
Week	Theory		Practical Day
	Lecture Day	Topic (including assignment / test)	1.
1.	1.	1. Introduction: 1.1 Importance of soil studies in Civil Engineering, Scope of Soil Mechanics in Civil Engg.	1. To determine the Moisture content of a given sample of soil.
	2.	1.2 Geological origin of soils, soil profiles in India: residual and transported soil, alluvial deposits, lake deposits, local soil found in J&K, dunes and loess, glacial deposits, black cotton soils, conditions in which above deposits are formed.	
	3.	1.3 Names of organizations dealing with soil engineering work in India, soil map of India, classification of Soil as per major deposits in India.	
	4.	2. Physical Properties of Soils: 2.1 Constituents of soil and phase diagram	
2.	1.	2.2 Definitions of void ratio, porosity, water content, degree of saturation, specific gravity, unit weight, bulk density/bulk unit weight, dry unit weight,	2. Auger Boring and Standard Penetration Test a) Identifying the equipment and accessories b) Conducting boring and SPT at a given location c) Collecting soil samples and their identification d) Preparation of boring log and SPT graphs e) Interpretation of test results
	2.	saturated unit weight and submerged unit weight of soil grains and correlation between them	
	3.	2.3 Simple numerical problems on phase diagrams	

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	4	3. Classification and Identification of Soils 3.1. Particle size, shape and their effect on engineering properties of soil, particle size classification of soils 3.2 Gradation and its influence on engineering properties	3.	
3.	1.	3.3 Relative density and its use in describing cohesionless soils 3.4 Behaviour of cohesive soils with change in water content, Atterberg's limit - definitions, use and practical significance		3. Extraction of Disturbed and Undisturbed Samples a) Extracting a block sample b) Extracting a tube sample c) Extracting a disturbed samples for mechanical analysis. d) Field identification of samples
	2.	3.5 Field identification tests for soils 3.6 Soil classification system as per BIS 1498; basis, symbols, major divisions and sub divisions, groups, plasticity chart; procedure for classification of a given soil		
	3.	4. Flow of Water Through Soils: (04 hrs) 4.1 Concept of permeability and its importance 4.2 Darcy's law, coefficient of permeability, seepage velocity and factors affecting permeability		
	4.	4.3 Comparison of permeability of different soils as per BIS	4.	
4.	1.	4.4 Measurement of permeability in the laboratory		4. Field Density Measurement (Sand Replacement and Core Cutter Method) a) Calibration of sand b) Conducting field density test at a given location c) Determination of water content d) Computation and interpretation of results
	2.	5. Effective Stress: (Concept only) 5.1 Stresses in subsoil 5.2 Definition and meaning of total stress, effective stress and neutral stress and their interrelationships.		
	3.	5.3 Principle of effective stress.	5.	
	4.	5.4 Importance of effective stress in engineering problems		

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5.	1.	REVISION	6.	5. Liquid Limit and Plastic Limit Determination: a) Identifying various grooving tools b) Preparation of sample c) Conducting the test d) Observing soil behaviour during tests e) Computation, plotting and interpretation of results
	2.	FIRST SESSIONAL		
	3.	6. Deformation of Soils 6.1 Meaning, conditions/situations of occurrence with emphasis on practical significance of: a) Consolidation and settlement b) Creep c) Plastic flow		
	4	d) Heaving e) Lateral movement f) Freeze and thaw of soil		
6.	1.	6.2 Definition and practical significance of compression index, coefficient of consolidation, degree of consolidation. 6.3 Meaning of total settlement, uniform settlement and differential settlement; rate of settlement and their effects	6.	6. Mechanical Analysis a) Preparation of sample b) Conducting sieve analysis c) Computation of results d) Plotting the grain size distribution curve e) Interpretation of the curve
	2.	6.4 Settlement due to construction operations and lowering of water table 6.5 Tolerable settlement for different structures as per BIS		
	3.	7. Shear Strength Characteristics of Soils: 7.1. Concept and Significance of shear strength		
	4	DO		
7.	1.	DO	7.	REVISION
	2.	7.2 Factors contributing to shear strength of cohesive and cohesion less soils, Coulomb's law and application in soil mechanics.		
	3.	7.3 Examples of shear failure in soils		
	4	DO		
8.	1.	DO	8.	7. Laboratory

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	2.	8. Compaction: 8.1 Concept and necessity of compaction and consolidation.	9.	Compaction Tests (Standard Proctor Test) a) Preparation of sample b) Conducting the test c) Observing soil behaviour during test d) Computation of results and plotting e) Determination of optimum moisture content and maximum dry density	
	3.	8.2 Laboratory compaction test (standard and modified proctor test as per BIS) definition and importance of optimum water content, maximum dry density; moisture dry density relationship for typical soils with different compactive efforts			
	4	8.3. Compaction control; Density control, measurement of field density by core cutter method and sand replacement method, moisture control, Proctor's needle and its use, thickness control, jobs of an embankment supervisor in relation to compaction			
9.	1.	9. Soil Exploration:	10.	8. Demonstration of Unconfined	
		9.1 Purpose and necessity of soil exploration		10.	Compression Test a) Specimen preparation b) Conducting the test c) Plotting the graph d) Interpretation of results and finding/bearing capacity
	2.	DO			
	3.	9.2 Reconnaissance, methods of soil exploration, Trial pits, borings (auger, wash, rotary, percussion to be briefly dealt)			
10.	4	DO	10.	REVISION	
	1.	9.3 Sampling; undisturbed, disturbed and representative samples; selection of type of sample; thin wall and piston samples; area ratio,			
	2.	recovery ratio of samples and their significance, number and quantity of samples, resetting, Sealing and preservation of samples.			
	3.	9.4 Presentation of soil investigation results			

Govt. Polytechnic Nanakpur
Lesson Plan (Even Semester)

Name of the Faculty : **Dr. Rajeev Kumar/Er. Sachin**
Discipline : Civil Engg.
Semester : 4th
Subject : WATER SUPPLY & WASTE WATER ENGG.
Lesson Plan Duration : 15 weeks (from January 9, 2020 to 30 April, 2020)
****Work load (Lecture / Practical) per week(in hours): Lectures-04, practicals -02**

Week	Theory		Practical	
	Lecture day	Topic (Including assignment / test)	Practical Day	Topic
1st	1st	A. WATER SUPPLY Chapter 1st: Introduction	1st	To determine turbidity of water sample
	2nd	Chapter 2nd: Quantity of Water Water requirement, Rate of demand and variation in rate of demand		
	3rd	Per capita consumption for domestic, industrial, public and fire fighting uses as per BIS standards		
	4th	Population Forecasting		
	5th	Chapter 3rd: Quality of Water Meaning of pure water and methods of analysis of water		
2nd	6th	Physical, Chemical and bacteriological tests and their significance	2nd	To determine dissolved oxygen of given sample
	7th	Standard of potable water as per Indian Standard		
	8th	Maintenance of purity of water (small scale and large scale quantity)		
	9th	Revision		
	10th	Chapter 4th: Water Treatment Sedimentation - purpose, types of sedimentation tanks		
3rd	11th	Coagulation flocculation - usual coagulation and their feeding	3rd	To determine pH value of water
	12th	Filtration - significance, types of filters, their suitability		
	13th	Necessity of disinfection of water, forms of chlorination, break point chlorine, residual chlorine, application of chlorine.		

	14th	Flow diagram of different treatment units, functions of (i) Aeration fountain (ii) mixer (iii) flocculator, (iv) classifier, (v) slow and rapid sand filters (vi) chlorination chamber.		
	15th	Revision Assignment No 1		
4th	16th	Sessional Test 1	4th	To perform jar test for coagulation
	17th	Chapter 5th Conveyance of Water Different types of pipes - cast iron, PVC, steel, asbestos cement, concrete and lead pipes. Their suitability and uses		
	18th	Types of joints in different types of pipes, Appurtenances: Sluice, air, reflux valves, relief valves, scour valves, bib cocks		
	19th	Distribution site: Requirement of distribution, minimum head and rate, methods of layout of distribution pipes		
	20th	Systems of water supply - Intermittent and continuous service reservoirs - types, necessity and accessories.		
5th	21st	Wastage of water - preventive measures, Maintenance of distribution system	5th	To determine BOD of given sample
	22nd	Leakage detection in detail		
	23rd	Chapter 6th: Laying out Pipe Setting out alignment of pipes		
	24th	Excavation for laying of pipes and precautions to be taken in laying pipes in black cotton soil.		
	25th	Testing of pipe lines, Back filling and use of boring rods		
6th	26th	Chapter 7th. Building Water Supply Connections to water main (practical aspect only)	6th	To determine residual chlorine in water
	27th	Water supply fixtures and installations and terminology related to plumbing		
	28th	Revision		
	29th	B. Waste Water Engineering Chapter 8. Introduction Purpose of sanitation		
	30th	Necessity of systematic collection and disposal of waste		

7th	31st	Definition of terms in sanitary engineering, Collection and conveyance of sewage	7th	To determine conductivity of water and total dissolved solids
	32nd	Conservancy and water carriage systems, their advantages and Disadvantages		
	33rd	Surface drains (only sketches) : various types, suitability		
	34th	Types of sewage: Domestic, industrial, storm water and its seasonal variation		
	35th	Chapter9th: Sewerage System Types of sewerage systems		
8th	36th	Appurtenance: Location, function and construction features.	8th	To study the installation of Water meter
	37th	Manholes, drop manholes, tank hole, catch basin,		
	38th	Inverted siphon, flushing tanks grease and oil traps, storm		
	39th	Chapter10th. Laying and Construction of Sewers Setting out/alignment of sewers		
	40th	Excavations, checking the gradient with boning rods preparation of bedding, handling and jointing testing and back filling of sewers/pipes.		
9th	41st	Construction of surface mains and different sections required	9th	To study the installation of Connection of water supply of building with main
	42nd	Revision Assignment No 2 1., function and construction features. Manholes, drop manholes, tank hole, catch basin, inverted siphon, 2. Water supply fixtures and installations and terminology		
	43rd	Sessional Test 2		
	44th	Chapter 11th Sewage characteristics: Properties of sewage		
	45th	Revision		
10th	46th	Chapter 12th. Natural Methods of Sewerage Disposal	10th	To study the installation of Pipe valves and bends and Water supply and sanitary fittings
	47th	Disposal methods		
	48th	Disposal by dilution		
	49th	Disposal by land treatment		
	50th	Nuisance due to disposal		

11th	51st	Revision	11th	To study and demonstrate the joining/threading of GI Pipes, CI Pipes, SW pipes, D.I. pipes and PVC pipes.
	52nd	Chapter 13th. Sewage Treatment Meaning and principle of primary and secondary treatment		
	53rd	Activated sludge process their flow diagrams		
	54th	Introduction and uses of screens, grit chambers		
	55th	Detritus tanks		
12th	56th	Skimming tanks	12th	To demonstrate the laying of SW pipes for sewers
	57th	Plainsedimentation tanks		
	58th	Primary clarifiers		
	59th	Secondary clarifiers		
	60th	Filters		
13th	61st	Control beds	13th	Study of water purifying process by visiting a field lab.
	62nd	Intermittent sand filters		
	63rd	Trickling filters		
	64th	Sludge treatment and disposal		
	65th	Oxidation ponds		
14th	66th	Revision	14th	To test house drainage
	67th	Chapter 14th. Building Drainage Aims of building drainage		
	68th	Building drainage requirements		
	69th	Different sanitary fittings		
	70th	Sanitary fittings installations		
15th	71st	Traps, seals	15th	Revision
	72nd	Causes of breaking seals		
	73rd	Revision Assignment No 3 1. Disposal methods 2. Filters		
	74th	Revision		
	75th	Sessional Test No. 3		
Any additional available hours shall be used for revision				

(Signature of the teacher concerned with date)

Govt. polytechnic, Nanakpur
Lesson Plan (Even Semester)

Name of the Faculty : Er. Sachin/Manoj kumar/Dinesh
Discipline : Civil Engg
Semester : 4th
Subject : Surveying-II(Theory and Practical)
Lesson Plan Duration : 15 weeks (from January 9, 2020 to 30 April, 2020)
****Work load (Lecture / Practical) per week(in hours): Lectures-03, practicals -06**

Week	Theory		Practical	
	Lecture day	Topic (Including assignment / test)	Practical Day	Topic
1st	1st	Chapter1. Contouring Concept of contours	1st	Preparing a contour plan by radial line method by the use of a Tangent Clinometer/Tachometer
	2nd	Contour interval and horizontal equivalent, factors effecting contour interval, characteristics of contours	2nd	Preparing a contour plan by radial line method by the use of a Tangent Clinometer/Tachometer
2nd	3rd	Methods of contouring: Direct and indirect, use of stadia measurements in contour survey	3rd	Preparing a contour plan by method of squares
	4th	Interpolation of contours; use of contour map	4th	Preparing a contour plan by method of squares
3rd	5th	Computation of earth work and reservoir capacity from a contour map	5th	Preparing a contour plan of a Road/Railway track/Canal by taking cross sections.
	6th	Chapter2. Theodolite Surveying Working of a transit vernier theodolite, axes of a theodolite and their relation	6th	Preparing a contour plan of a Road/Railway track/Canal by taking cross sections.

4th	7th	Temporary adjustments of a transit theodolite; concept of transiting, swinging, face left, face right and changing face measurement of horizontal and vertical angles.	7th	Taking out the Theodilite, mounting on the tripod and placing it back in the box
	8th	Prolonging a line (forward and backward) measurement of bearing of a line; traversing by included angles and deflection angle method	8th	Taking out the Theodilite, mounting on the tripod and placing it back in the box
5th	9th	Traversing by stadia measurement, theodolite triangulation, plotting a traverse; concept of coordinate	9th	Study of a transit vernier theodolite; temporary adjustments of theodolite
	10th	Errors in theodolite survey and precautions taken to minimize them; limits of precision in theodolite traversing	10th	Study of a transit vernier theodolite; temporary adjustments of theodolite
6th	11th	Errors in theodolite Height of objects – accessible and non-accessible bases	11th	Reading the vernier and working out the least count, measurement of horizontal angles by repetition and reiteration methods
	12th	Revision Assignment No. 1: 1. Method of Contour. 2. Use of Contour. 3. Adjustment of Theodolite. 4. Method of Theodolite	12th	Reading the vernier and working out the least count, measurement of horizontal angles by repetition and reiteration methods
7th	13th	Sessional Test No. 1	13th	Measurement of vertical angles and use of tachometric tables
	14th	Chapter3. Tacho-metric surveying Tachometry, Instruments to be used in tachometry	14th	Measurement of vertical angles and use of tachometric tables

8th	15th	Methods of tachometry, stadia system of tachometry, general principles of stadia tachometry	15th	Measurement of magnetic bearing of a line
	16th	Examples of stadiatachometry and Numerical problems.	16th	Measurement of magnetic bearing of a line
9th	17th	Chapter 4. Curves Need and definition of a simple circular curve; Elements of simple circular curve - Degree of the curve, radius of the curve, tangent length, point of intersection (Apex point)	17th	Running a closed traverse with a theodolite (at least five sides) and its plotting
	18th	Tangent point, length of curve, long chord deflection angle, Apex distance and Mid-ordinate. Setting out of simple	18th	Running a closed traverse with a theodolite (at least five sides) and its plotting
10th	19th	By linear measurements only and Offset from The Tangent	19th	Height of objects with and without accessible bases
	20th	Need (centrifugal force and super elevation) and definition of transition curve; requirements of transition curve; length of transition curve for roads; by cubic parabola;	20th	Height of objects with and without accessible bases
11th	21st	Calculation of offsets for a transition curve; setting out of a transition curve by tangential offsets only	21st	Setting out of a simple circular curve with given data by the following methods : Offsets from the chords produced
	22nd	Vertical curve Setting out of a vertical curve	22nd	Setting out of a simple circular curve with given data by the following methods : Offsets from the chords produced

12th	23rd	Revision Assignment No.2: 1. Tachometric Method. 2. Simple Curve . 3. Transition Curve 4. Setting out Vertical Curve.	23rd	Setting out of a simple circular curve with One theodolite method
	24th	Sessional Test No. 2	24th	Setting out of a simple circular curve with One theodolite method
13th	25th	Chapter 5. Introduction to the use of Modern Surveying equipment and techniques such as a) EDM or Distomat b) Planimeter	25th	Demonstration and use of minor instruments like Ceylon Ghat Tracer, Tangent Clinometer, Pantagraph, Abney level etc.
	26th	Total station, Introduction to remote sensing, GIS and GPS	26th	Demonstration and use of minor instruments like Ceylon Ghat Tracer, Tangent Clinometer, Pantagraph, Abney level etc.
14th	27th	Chapter 6 Minor Instruments Introduction and use of minor instruments like Ceylon Ghat Tracer, Clinometer, Pantagraph, Abney Level etc.	27th	Demonstration of digital instruments through field visits to Survey of India and other government agencies.
	28th	Use of planimeter for computing areas	28th	Demonstration of digital instruments through field visits to Survey of India and other government agencies.
15th	29th	Revision Assignment No. 3: 1. Explain EDM 2. Explain Total station. 3. Explain Remote Sensing 4. Pentagraph.	29th	Total Station (only demonstrations).
	30th	Sessional Test No. 3	30th	Total Station (only demonstrations).
Any additional available hours shall be used for revision				

(Signature of the teacher concerned with date)

Govt Polytechnic, Nanakpur

Lesson Plan

Name of the Faculty : Er.Sachin /Er. Manoj Kumar

Discipline : CIVIL ENGINEERING

Semester : 4th SEMESTER

Subject : SOFT SKILLS - II

Lesson plan duration : 15 weeks (from January,2020 to April, 2020)

** Work load(Lecture/Practical) per week (in hours) : **Practicals-02**

Week	Practicals	
	Practical day	Topic
1st	1st	Overview of the whole syllabus, students must be aware about the subject ,meaning and need of this subject and its practical implementation in their real day to day life activities
	2nd	Basic aspects need to be discussed and how to improve communication
	3rd	Practice to improve communication
2nd	4th	Repeation of previous lectuer
	5th	Concept of team building , Behavior in a team
	6th	Behavior in a team
3rd	7th	Activities based on team building to be done
	8th	Developing Interpersonal Relations- Empathy
	9th	Developing Interpersonal Relations-Sympathy
4th	10th	Students motivated to take part in day to day activities organised in college like Debate,declamation,stage conduction etc
	11th	How to improve communication skills
	12th	How to improve communication skills
5th	13th	How to improve non-verbal communication skills
	14th	Queries if any of students to be sort out
	15th	practice
6th	16th	Students motivated to take part in day to day activities organised in college to increase their confidence level
	17th	Conflict Management
	18th	Activities based on how to manage conflicts to be done
7th	19th	Activities based on how to manage conflicts to be done
	20th	Practice and Doubts if any of students to be discussed
	21st	Students motivated to take part in day to day activities organised in college like Debate,declamation,stage conduction etc
8th	22nd	Motivation
	23rd	Activities based on how to motivate ourself and others
	24th	Practice
9th	25th	Practice and Doubts if any of students to be discussed

	26th	Students motivated to take part in day to day activities organised in college like Debate, declamation, stage conduction etc
	27th	demonstration of various activities by students
10th	28th	Leadership
	29th	Activities based on Leadership
	30th	Activities based on Leadership
11th	31st	Practice and Doubts if any of students to be discussed
	32nd	What are professional Ethics and Values
	33rd	How to develop professional Ethics and Values
12th	34th	Their importance in life
	35th	Issues related to health
	36th	Issues related to Hygiene
13th	37th	Issues related to Cleanliness
	38th	Issues related to Safety
	39th	Extension Lecture
14th	40th	Students motivated to take part in day to day activities organised in college like Debate, declamation, stage conduction etc
	41st	Various activities to be done to implement and analyse above studied aspects
	42nd	Various activities to be done to implement and analyse above studied aspects
15th	43rd	Various activities to be done to implement and analyse above studied aspects
	44th	Various activities to be done to implement and analyse above studied aspects
	45th	Various activities to be done to implement and analyse above studied aspects

Govt Polytechnic, Nanakpur

Lesson Plan

Name of the Faculty : Sh Shalander Mor/Sh. Amit Kumar/ Sh. Sanjay Kumar

Discipline : Mechanical Engineering

Semester : 4th

Subject : Soft Skills - II

Lesson plan duration : 15 weeks (from January, 2020 to April, 2020)

** Work load(Lecture/Practical) per week (in hours) : **Practicals-02**

Week	Practicals	Topic
	Practical day	
1st	1st	Overview of the whole syllabus, students must be aware about the subject ,meaning and need of this subject and its practical implementation in their real day to day life activities

	2nd	Basic aspects need to be discussed and how to improve communication
	3rd	Practice to improve communication
2nd	4th	Repeation of previous lectuer
	5th	Concept of team building , Behavior in a team
	6th	Behavior in a team
3rd	7th	Activities based on team building to be done
	8th	Developing Interpersonal Relations- Empathy
	9th	Developing Interpersonal Relations-Sympathy
4th	10th	Students motivated to take part in day to day activities organised in college like Debate,declamation,stage conduction etc
	11th	How to improve communication skills
	12th	How to improve communication skills
5th	13th	How to improve non-verbal communication skills
	14th	Queries if any of students to be sort out
	15th	practice
6th	16th	Students motivated to take part in day to day activities organised in college to increase their confidence level
	17th	Conflict Management
	18th	Activities based on how to manage conflicts to be done
7th	19th	Activities based on how to manage conflicts to be done
	20th	Practice and Doubts if any of students to be discussed
	21st	Students motivated to take part in day to day activities organised in college like Debate,declamation,stage conduction etc
8th	22nd	Motivation
	23rd	Activities based on how to motivate ourself and others
	24th	Practice
9th	25th	Practice and Doubts if any of students to be discussed
	26th	Students motivated to take part in day to day activities organised in college like Debate,declamation,stage conduction etc
	27th	demonstration of various activities by students
10th	28th	Leadership
	29th	Activities based on Leadership
	30th	Activities based on Leadership
11th	31st	Practice and Doubts if any of students to be discussed
	32nd	What are professional Ethics and Values
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	44th	Various activities to be done to implement and analyse above studied aspects
	45th	Various activities to be done to implement and analyse above studied aspects