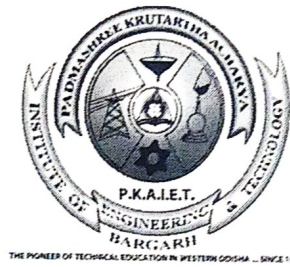


PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH



PROGRESS REGISTER

Session-2022-2023

Discipline: Civil Engg.

Semester: 5th

Subject: Water Supply & Waste Water Engineering

Name of the Teaching Faculty: Bikramaditya Bagh

Date	Topics to be covered as per Lesson Plan	Topics actually covered	Points/contents Discussed (in brief)	Signature of Teacher
15/09/2022	Introduction to water supply, Quantity and Quality of water, Necessity of treated water supply	Quantity and quality, Necessity of treated water supply	importance and necessity of water supply, water treated, necessity, quality and quantity of water	<u>BalBash</u>
16/09/2022	Per capita demand, variation in demand	Per capita demand, variation in demand	definition of per capita demand, seasonal, daily, hourly variation	<u>BalBash</u>
20/09/2022	Factors affecting demand	Factors affecting per capita demand	climatic condition, size of city, habit of people, industries, quality of water, stress on distribution system, system of supply	<u>BalBash</u>
21/09/2022	Method of forecasting population	methods of forecasting population	arithmetical increase method, Geometrical increase, Incremental increase method	<u>BalBash</u>
22/09/2022	Numerical problems using different methods	numerical problems using different method	numeric problems on arithmetic method, geometrical increase, incremental increase method	<u>BalBash</u>
23/09/2022	Impurities in water - organic and inorganic	impurities in water - organic and inorganic	silt, clay, Algae, plant growth	<u>BalBash</u>
24/09/2022	Harmful effects of impurities	harmful effects of impurities	suspended, impurities, colloidal impurities, dissolved impurities	<u>BalBash</u>
27/09/2022	Analysis of water - physical	analysis of water - physical	turbidity of water, colour of water, Test, odour, microscope, temperature, specific conductivity	<u>BalBash</u>
28/09/2022	chemical and bacteriological	chemical and bacteriological characteristics	total solids, suspended, pH value of water, Hardness, Nitrogen content, standard plate count, test, most Probable Number.	<u>BalBash</u>
29/09/2022	Water quality standards for different uses	water quality standards for different uses	turbidity, colour, Taste & odour, pH, Total dissolved solids, Total hardness, chlorides, sulphates, biocides	<u>BalBash</u>
30/09/2022	source and conveyance of water. surface source. Lake, stream, river and impounded reservoir	surface source. Lake, stream, river and impounded reservoir	brief description on river, stream, Lakes, impounded reservoir	<u>BalBash</u>

Subject: WS & WWFNo. of Days/per week class allotted 05Semester From Date : 15/09/2022To Date : 20/01/2023No. of Weeks : 15

Date	Topics to be covered as per Lesson Plan	Topics actually covered	Points/contents Discussed (in brief)	Signature of Teacher
01/10/2022	Underground sources- aquifer type & occurrence, infiltration gallery, infiltration well, spring well	aquifer type & occurrence, infiltration, gallery, infiltration well, spring well	definition aquifer, confined, unconfined, infiltration gallery, infiltration well, spring, well	<u>Bd Bash</u>
11/10/2022	Yield from well - method of determination	Yield from well - method of determination	yield from well, actual and theoretical pumping method	<u>Bd Bash</u>
12/10/2022	Numerical problems using yield formulae	numerical problems using yield formulae	numeric problem on yield from well	<u>Bd Bash</u>
13/10/2022	Intake - types, description of river intake, reservoir intake, canal intake	intake - types, description of river, reservoir, canal intake	definition of intake, detail description with sketch river, reservoir and canal intake	<u>Bd Bash</u>
14/10/2022	Pumps for conveyance, distribution, - types, selection, installation	Pumps for conveyance, distribution - types, selection, installation	definition of pump for conveyance, distribution, classification of pumps, selection of pump, installation	<u>Bd Bash</u>
15/10/2022	pipe materials - necessity, suitability, merits & demerits of each type	pipe material - necessity, suitability, merits & demerits of each type	pipe material used, classification, merits & demerits of PVC, galvanized I. pipe, asbestos cement pipe	<u>Bd Bash</u>
15/10/2022	pipe joints - necessity, types of joints, suitability, methods of jointing, laying of pipes - method	pipe joints, necessity, type of joint, suitability, method of jointing, laying of pipe method	Threaded joint on a pipe, Brazed joint, soldered joint, Butt welded, laying of pipe method	<u>Bd Bash</u>
19/10/2022	Treatment of water Flow diagram of conventional water treatment system	study of flow diagram of treated plant flow diagram of conventional water treatment system	study of flow diagram of treated plant	<u>Bd Bash</u>
24/10/2022	Aeration, Necessity	aeration, necessity	definition of aeration, necessity of aeration	<u>Bd Bash</u>
21/10/2022	plain sedimentation, necessity, working principles	plain sedimentation, necessity, working principles	definition period, theory of sedimentation, necessity and working principles	<u>Bd Bash</u>
22/10/2022	sedimentation tanks - types, essential features, operation & maintenance	sedimentation tank types, essential feature, operation & maintenance	coagulants, definition sedimentation, horizontal, vertical flow tank, design concept of plain sedimentation tank	<u>Bd Bash</u>

Subject: WS&WWE No. of Days/per week class allotted 05

Semester From Date : 19/09/2022 To Date : 20/01/2023 No. of Weeks : 15

Date	Topics to be covered as per Lesson Plan	Topics actually covered	Points/contents Discussed (in brief)	Signature of Teacher
26/10/2022	Sedimentation with coagulation: Necessity principles of coagulation	Sedimentation with coagulation, Necessity principles of coagulation	clay ppt, detention period, flocc, electric usual coagulation	<u>BdBagh</u>
27/10/2022	Types of coagulants, Flash mixer, Flocculation clarifier	types of coagulants flash mixer, flocculation clarifier	Aluminium sulphate flash mixer definition design of flocc chamber definition clarifier	<u>BdBagh</u>
28/10/2022	Filtration: Necessity types of filters	Filtration: Necessity types of filters	definition of filtration, principles, essential parts of filtration, slow sand filter	<u>BdBagh</u>
29/10/2022	principles of filtration types of filters, essential features	principles of filtration types of filters, essential features	principle of filter, rapid sand filter, pressure filter, purpose	<u>BdBagh</u>
01/11/2022	Disinfection: Necessity method of disinfection chlorination - free and combined chlorine demand	Disinfection: Necessity method of disinfection chlorination - free and combined chlorine demand	definition, chlorine boiling of water, treated with excess lime, Treated with ozone	<u>BdBagh</u>
02/11/2022	available chlorine, residual chlorine, pre-chlorination, breakpoint chlorination, super-chlorination	available chlorine, residual chlorine, pre-chlorination, breakpoint chlorination, super-chlorination	free available chlorine plain chlorination pre-chlorination, free residual chlorine breakpoint, super-chlorination	<u>BdBagh</u>
03/11/2022	softening of water - Necessity, methods of softening	water softening temporary and permanent hardness Boiling, Addition of lime	Water softening temporary and permanent hardness boiling, addition of lime	<u>BdBagh</u>
04/11/2022	Lime soda process and ion exchange method	Lime soda process and ion exchange method	Lime soda process for removing hardness Base exchange zeolite softener	<u>BdBagh</u>
05/11/2022	Distribution system and appurtenance distribution system, General requirement types of distribution system, gravity	Distribution system and appurtenance in distribution system general requirement types of distribution system gravity	General requirement of distribution system gravity system, diagram details	<u>BdBagh</u>
09/11/2022	direct and combined system	direct and combined system	gravity and pumping system, combined pumping system diagram detailed	<u>BdBagh</u>
10/11/2022	method of supply intermittent	method of supply intermittent	definition of intermittent system	<u>BdBagh</u>

Subject: WS & WWF No. of Days/per week class allotted 05

Semester From Date : 15/09/2022 To Date : 20/01/2023 No. of Weeks : 15

Date	Topics to be covered as per Lesson Plan	Topics actually covered	Points/contents Discussed (in brief)	Signature of Teacher
11/11/2022	continuous, Distribution system layout	continuous system, distribution system layout	definition of continuous system, Dead end grid iron, circular radial method	<u>Bd Bash</u>
12/11/2022	types of layout, comparison suitability	types of layout comparison, suitability	dead end, advantages & disadvantages, circular, Radial grid iron method	<u>Bd Bash</u>
15/11/2022	Valve-types, features	valves - types feature	definition of valve sluice, check, Air valve features of valves	<u>Bd Bash</u>
17/11/2022	Uses purpose- sluice, valves, check valves	uses, purpose, sluice valves, fire hydrant & check valves	detail description of sluice & check valve and uses	<u>Bd Bash</u>
18/11/2022	Air valves, scour valves, Fire hydrant, Water meters	scour valves, scour valve, fire hydrant, water meter	details description of air valves, fire hydrants, flush hydrant, post hydrant, water meter uses	<u>Bd Bash</u>
19/11/2022	W/s plumbing building method of connection from water mains to building supply	W/s plumbing building method of connection from water mains to building supply	method of water connection from water mains to building supply direct connected method	<u>Bd Bash</u>
22/11/2022	General layout of plumbing arrangement for water supply in single and multi storied building I.S. code	General layout of plumbing arrangement for water supply in single and multi storied building I.S. code	multi-story, in hill area in single water supply, solar water system, electric water supply, hot water supply	<u>Bd Bash</u>
22/11/2022	Introduction, Aim and objectives of Sanitary Engg.	Introduction, Aim and objectives of Sanitary Engg.	Sanitation definition aim and objective of sanitary engg.	<u>Bd Bash</u>
24/11/2022	Definition of terms related to Sanitary Engineering	definition of terms related to sanitary engineering	antisiphonage, p.p.c, siphonage, vent, pipe, refuse, gas, base, sewage, fresh sewage, septic sewage	<u>Bd Bash</u>
25/11/2022	system of collection of waste	system of collection of waste	disposal of waste collection Introduction to conservancy system	<u>Bd Bash</u>
26/11/2022	Conservancy carriage system features	conservancy carriage system features	definition of conservancy carriage system, Garbage stream, water	<u>Bd Bash</u>

Date	Topics to be covered as per Lesson Plan	Topics actually covered	Points/contents Discussed (in brief)	Signature of Teacher
29/11/2022	Water carriage system features	water carriage system, features	definition water carriage system detailed feature	<u>BafBad</u>
30/11/2022	Comparison, suitability	comparison, suitability	detailed comparison of conservancy and carriage system and its shift	<u>BafBad</u>
01/12/2022	Quantity and Quality of sewage Quantity of Sanitary sewage domestic & industrial sewage	Quantity of sanitary sewage - domestic industrial sewage	Introduction to quantity of sewage, sources of sanitary sewage, Dry weather flow, Variation of sewage discharge	<u>BafBad</u>
02/12/2022	Variation in sewage flow	Variation in sewage flow	variation in sewage flow, maximum daily flow, hourly flow Design period design discharge	<u>BafBad</u>
03/12/2022	numerical problem on computation quantity of sanitary sewage	numerical problem on computation quantity of sanitary sewage	numerical problem on design period design discharge sanitary sewage	<u>BafBad</u>
06/12/2022	Computation of size of sewers, applications of chezy's formulae Limiting velocities of flow	computation of size of sewers, application of chezy's formulae limiting velocities of flow	hydraulic formulae for determination of flow, velocity, chezy's formulae, manning formulae	<u>BafBad</u>
07/12/2022	self-cleaning and scouring General importance strength of sewage	self-cleaning and scouring, General importance of sewage	self-cleaning velocity non-scouring velocity size of sewer quantity of sewage	<u>BafBad</u>
08/12/2022	characteristics of sewage physical, chemical & biological	characteristics of sewage physical, chemical biological	Temperature, colour odour, Turbidity, organic matter, Solids BOD, DO, PH, Nitrogen, Bacteria, Acid sewage bacteria	<u>BafBad</u>
09/12/2022	concept of sewage sampling tests for solids, pH, dissolved oxygen, BOD, COD	concept of sewage sampling, test for solids, pH, dissolved oxygen, BOD, COD	pH test, acid, base, Dissolved oxygen, BOD, COD	<u>BafBad</u>
10/12/2022	Sewerage System Types of system - separate, combined & partial separate	sewerage system Types of system, separate combined, partial separate	separate system, combined system, partial separate system, combined system and partial separate system	<u>BafBad</u>
13/12/2022	features comparison between the types	features, comparison between the type	features of separate & combined system combined partial separate open comparison	<u>BafBad</u>

Subject: WS & WVENo. of Days/per week class allotted 05Semester From Date : 15/09/20To Date : 20/01/2023No. of Weeks : 15

Date	Topics to be covered as per Lesson Plan	Topics actually covered	Points/contents Discussed (in brief)	Signature of Teacher
14/12/2022	Suitability, shapes of sewers - rectangular, circular	suitability, shapes of sewers, rectangular, circular	definition, shape of sewers, detailed description of circular, rectangular sewers	<u>BdBasb</u>
15/12/2022	avoid-features, suitability laying of sewers	avoid-features, suitability, laying of sewers	selecting material for sewers, material for sewers, making center lines, excavation of trenches	<u>BdBasb</u>
16/12/2022	setting out sewer alignment	setting out sewer alignment	tail end, step of setting out sewer alignment	<u>BdBasb</u>
17/12/2022	sewer appearance and sewage disposal, Manhole and lampholes - types, features, location	sewer appearances and sewage disposal, Manholes and lampholes types, features, location, function	definition, Manholes, Lamphole, Drop manhole, Deep manhole, catch basins, flushing tanks, shallow, narrow, deep manhole, component	<u>BdBasb</u>
20/12/2022	Inlets, Grease & oil trap, features, location, function	Inlets, grease & oil traps, features, location, function	definition of inlets, types, curb, gutter, grass and oil trap, combine silt and oil trap, location, function	<u>BdBasb</u>
21/12/2022	storm regulator, inverted siphon - features, location, function	storm regulator, inverted siphon, features, location, function	side flow weir, leaping weir, float, inverted siphon, features and its function	<u>BdBasb</u>
22/12/2022	Disposal on land - sewage farming	disposal on land, sewage farming	sewage farming, definition of sewage disposal	<u>BdBasb</u>
23/12/2022	Sewage application and closing sewage sickness - causes and remedies	sewage application and closing sewage sickness, causes and remedies	surface irrigation, subsoil irrigation, flooding, ridge and burrow, sprays, sewerage, remedies	<u>BdBasb</u>
24/12/2022	Disposal by dilution - standard for disposal in different types of water bodies	disposal by dilution, standard for disposal in different types of water bodies	definition of dilution, standard of protected sea on tidal river, water use of polluted water	<u>BdBasb</u>
27/12/2022	self purification of stream	self purification of stream	Degradation zone, active decomposition, Recovery, critical loads	<u>BdBasb</u>
28/12/2022	Sewage treatment principles of treatment	sewage treatment principles of treatment	detailed principles of treatment	<u>BdBasb</u>

Subject: WS & WWENo. of Days/per week class allotted 05Semester From Date : 15/09/2022 To Date : 20/01/2023 No. of Weeks : 15

Date	Topics to be covered as per Lesson Plan	Topics actually covered	Points/contents Discussed (in brief)	Signature of Teacher
29/12/2022	flow diagram of conventional treatment	flow diagram of conventional treatment	study of flow diagram of conventional treatment	<u>BdBagh</u>
30/12/2022	primary treatment necessity	primary treatment necessity	state primary treatment screens, Grit chamber, types of screen, coarse medium, fine	<u>BdBagh</u>
31/12/2022	function, secondary treatment - necessity	function, secondary treatment, necessity	function of grit chamber contact bed construction & operation	<u>BdBagh</u>
03/01/2023	principles - essential features of primary treatment	construction & operation cleaning of principle essential features	construction & operation cleaning of grit chamber screen	<u>BdBagh</u>
04/01/2023	function and principle of secondary treatment	function and principle of secondary treatment	function of grit chamber primary sedimentation contact bed construction & operation	<u>BdBagh</u>
05/01/2023	essential features	essential features	Trickling filter, elements of trickling filter	<u>BdBagh</u>
06/01/2023	Sanitary plumbing for building Requirements of building drainage, layout of lavatory block for residential building, layout of building drainage	Requirement of building drainage, layout of lavatory, block in residential building layout of building drainage	Requirement of building drainage, drainage plans of building, layout in residential building	<u>BdBagh</u>
07/01/2023	Plumbing arrangement of single storied & multi storied building as per IS code practice.	Plumbing arrangement of single storied & multi storied building as per IS code practice	direct supply system, hydro pneumatic type, overhead tank distribution	<u>BdBagh</u>
10/02/2023	Sanitary fixtures, features, function and maintenance and fixing of the fixtures, water closet, flushing cistern, urinal, inspection, chambers, traps, anti-siphonage pipe	sanitary fixtures, features, function and maintenance and fixing of the fixtures, water closet, flushing cistern, urinal, inspection, chambers, traps, anti-siphonage pipe	Flushing cisterns water closets, types long span pattern, cross pattern, Requirement of sanitary fittings, traps, Tyres	<u>BdBagh</u>
11/02/2023	Revision	various types of demand	domestic, industrial demand, commercial fire demand, demand for public use	<u>BdBagh</u>
12/02/2023	Revision	various method discussed, numerical problem	Arithmetical, Geometrical method	<u>BdBagh</u>

Subject: WS & WVE No. of Days/per week class allotted 05

Semester From Date : 15/09/2022 To Date : 20/01/2023 No. of Weeks : 15

Date	Topics to be covered as per Lesson Plan	Topics actually covered	Points/contents Discussed (in brief)	Signature of Teacher
14/01/2023	Revision	numeric problem solved by yield boom well	Actual discharge theoretical discharge numeric problem	<u>BalBash</u>
17/01/2023	Revision	different types of pipe & pipe joint their advantages	Rcc pipe, Asbestos, PVC, spigot joint Flanged joint, Expansion joint, Flexible joint, collar joint	<u>BalBash</u>
18/01/2023	Revision	chlorine demand problem	numerical problem on chlorine demand both disinfection	<u>BalBash</u>
19/01/2023	Revision	design discharge of sewage.	numerical problem on design discharge of sewage in city	<u>BalBash</u>
20/01/2023	Revision	Design of sewer	differentiate between water supply and sewer pipes	<u>BalBash</u>
21/01/2023	Revision	Variation in flow and velocities	Variation in flow and velocities problem	<u>BalBash</u>