



**MATS School of Engineering &
Technology**



MATS University

Raipur



**Syllabus Scheme
(7th Semester)
For
Bachelor of Engineering
In
CIVIL Engineering**



**Subject Code For MATS School of Engineering & Tech.
CIVIL Deptt.**

7th Semester (Civil)

S.No.	Subject Code	Subject Name
1	BE740	Structural Engineering Design - III
2	BE741	Water Resources Engineering - I
3	BE742	Environmental Engineering - II
4	BE743	Quantity Surveying and Cost Evaluation
5	Elective- II	Professional Elective- II
Refer Table -2		Professional Elective- II
6	BE745	Structural Engineering Drawing-III Lab
7	BE746	Environmental Engineering - II Lab
8	BE747	Computer Aided design & planning
9	BE748	Minor Project

**Table -2
Professional Elective- II**

Construction Engineering Group		
S.No.	Subject Code	Subject Name
1.	BE7441	Construction Equipments and Techniques
2.	BE7442	Quality Control and Assurance in Construction
Geotechnical Engineering Group		
1.	BE7443	Expansive Soils
Environmental Engineering Group		
1.	BE7444	Industrial Waste Treatment

Note (1) - 1/4th of total strength of students subject to minimum of twenty students is required to offer an elective in the college in a particular academic session.

Note (2) - Choice of elective course once made for an examination cannot be changed in future examinations



MATS School of Engineering & Technology
MATS University, Raipur
Scheme of Teaching & Examination
7th Semester Civil Engineering



S. No.	Course code	SUBJECT	Periods per week		Evaluation Scheme		Total Marks
			L	P	IM	ESE	
THEORY							
1	BE740	Structural Engineering Design - III	5	0	30	70	100
2	BE741	Water Resources Engineering - I	5	0	30	70	100
3	BE742	Environmental Engineering - II	5	0	30	70	100
4	BE743	Quantity Surveying and Cost Evaluation	5	0	30	70	100
5	Refer Table -2	Elective- II	5	0	30	70	100
PRACTICAL							
6	BE745	Structural Engineering Design-III Lab	0	3	20	30	50
7	BE746	Environmental Engineering - II Lab	0	3	20	30	50
8	BE747	Computer Aided Design & planning	0	3	20	30	50
9	BE748	Minor Project	0	3	50	100	150

Table -2
Professional Elective- II

Construction Engineering Group		
S.No.	Subject Code	Subject Name
1.	BE7441	Construction Equipments and Techniques
2.	BE7442	Quality Control and Assurance in Construction
Geotechnical Engineering Group		
1.	BE7443	Expansive Soils
Environmental Engineering Group		
1.	BE7444	Industrial Waste Treatment

L-Lecturer, P-Practical, ESE- End Semester Examination, IM-Internal Marks

MATS UNIVERSITY

GULLU, ARANG, RAIPUR

Semester: B.E.VII Sem.

Subject:- Structural Engineering Design - III

Total Theory Periods: - **40**

Total marks in end semester Exam: **100**

Minimum Number of Class test to be conducted: **02**

Branch:- Civil Engineering

Code :- BE740

Total Tutorial Periods: **15**

Unit 1 Plate Girders

Bolted and Welded Plate Girders - Design of cross-section, curtailment of flange plates, stiffeners, splices.

Unit 2 Connections

Simple, Semi-rigid and Rigid Connections, Connection Configurations, Framed and seated connections, Moment resistant connections.

Unit 3 Fabrication and Erection

Fabrication Operations, various processes for joining, forming, cutting and welding, Inspection of fabrication,

Code provisions for tolerances and deviations, Principle of erection, Erection organisation, Assembly marks,

Code provisions for erection, allowable tolerances for plumbing, levelling and alignment.

Unit 4

Industrial Buildings

Various components of an industrial building, Loads and load combinations, Design of purlins, roof trusses, Industrial building frames, gantry girder and bracings.

Unit 5

Steel Bridges

Plate girder and Truss Bridges, General arrangement, Design loads for Highway / Railway steel bridges, Design of Truss bridge for Railway loading.

Name of Text Books:

Design of Steel Structures – B.C. Punmia, Jain & Jain (Laxmi Publication, New Delhi)

Design of Steel Structures – A.S. Arya and J.L. Ajamani (Nemchand and Bros., Roorkee)

Name of Reference Books:

Design of Steel Structures (Vol. - I & II) – Ram Chandra (Standard Book House, New Delhi)

Design of Steel Structures – Dayaratnam (Wheeler Publishing, New Delhi)

Design of Steel Structures – E.H.Gaylord and C.N. Gaylord (Mc Graw Hill, New York)

Steel Structures: Design and Behaviour – C.G.Salmon and J.E.Johnson (Harper and Row, New York)

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GULLU, ARANG, RAIPUR

Semester: B.E.VII Sem.

Subject:- Water Resources Engineering – I

Total Theory Periods: - **40**

Total marks in end semester Exam: **100**

Minimum Number of Class test to be conducted: **02**

Branch:- Civil Engineering

Code :- BE741

Total Tutorial Periods: **15**

Unit 1

Introduction

Need for Irrigation, Advantages and Disadvantages of irrigation, development of irrigation in India.

Types of Irrigation systems – Flow Irrigation, Tank Irrigation, Lift Irrigation, Tube Well Irrigation. Soil-Water-Crop relationship, Soil groups in India.

Methods of Irrigation

Introduction, requirement of irrigation methods, surface and sub surface irrigation, sprinkler and drip irrigation.

Water Requirement of Crops

Introduction, Water requirement of crop, quantity of water for irrigation, consumptive use of water or evapo-transpiration, crop season and crops of India, crop period and base period, delta, duty of water, relationship between delta duty and base period, factors affecting duty, methods of improving duty, Intensity of irrigation, irrigation requirement of crops.

Unit 2

Canal Irrigation

Classification of canal, parts of canal irrigation system, canal alignment, lay-out of canal system, typical canal cross section, command areas, losses in irrigation systems, water requirement of irrigation channels.

Design of Stable Channels in Alluvium

Introduction, Kennedy's silt theory, Garret's diagram, Lacey's Theory, Lacey's regime equations, Lacey's shock theory, Design of channels by Kennedy's and Lacey's theories, Use of Lacey's diagrams, maintenance of Irrigation channels, sediment transport, silting of canals and its control.

Unit 3

Water Logging and its Control

Causes and ill effects of water logging, prevention and control, reclamation of water logged and saline lands, surface drainage.

Design of Lined Channels

Introduction, benefits of lining, types of lining, economics of lining, procedure and design of lined canals.

Distribution of canal waters

System of regulation and control, requirement of a good outlet, types of outlet.

Water Distribution System

Rotational delivery (Warabandi), Continuous delivery and delivery on demand, Role of command area development authority, Functions and organisational structures.

Unit 4

River behaviour, Control and Training

Objects, river characteristics, river patterns, classification of river training works, methods of river training embankments, bank protection, spurs, cutoffs, pitched island, river diversion, meandering causes and parameters.

Flood Control

Introduction, Flood estimation, levees and embankments, channel improvement, flood ways evacuation and flood plain zoning, economics of flood control, National Policy of floods, flood forecasting.

Unit 5

Reservoir Planning

Introduction, Type of reservoirs, storage zones of a reservoir, mass curve and demand curve, determination of reservoir capacity, safe field.

Flood Routing

Graphical method, trial and error method, reservoir losses, reservoir sedimentation, life of reservoir, environmental effects of reservoirs.

Name of Text Books:

Irrigation Engineering and Hydraulic Structures – S.K. Garg (Khanna Publications)

Irrigation Engineering – B.C. Punmia (Laxmi Publications)

Name of Reference Books:

Irrigation, Water Resources and Water Power Engineering – Dr. P.N. Modi (Standard Book House)

Theory and Design of Irrigation Structures (Volume – I & II) – Varshney (Nem Chand & Bros.)

Irrigation Engineering – Asawa G.L. (New Age International Publications)

Fundamentals of Irrigation Engineering – Bharat Singh (Nem Chand & Bros.)

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Semester: B.E.VII Sem.

Subject:- Environmental Engineering-II

Total Theory Periods: - **40**

Total marks in end semester Exam: **100**

Minimum Number of Class test to be conducted: **02**

Branch:- Civil Engineering

Code :- BE742

Total Tutorial Periods: **15**

Unit 1

Sewage and Sewerage, definitions and some common terms, object of sewage disposal.

System of sanitation: Conservancy systems, Water system, sewage system-combined, separate and partially separate, patterns of collection system.

Amount of sewage-Estimation of domestic and storm sewage, variations in the quantity of sewage, Design of sewers (Only circular sewer) Manholes, Pumping stations, Wet well capacity.

Unit 2

Characteristics of sewage-physical, chemical and biological characteristics, fundamentals of aerobic & anaerobic process. Sewage treatment-preliminary treatment systems, Racks and screens, comminuters, Grit chambers.

Primary treatment systems-Plain sedimentation, detention time and over-flow rates, types of inlets and outlets, onsite wastewater treatment- septic tank, Imhoff tank, oxidation pond .

Unit 3

Secondary treatment systems-(i) Attached growth process-Trickling filters, standard and high rates, efficiency (NRC) formula, operational problems of trickling filters (ii) Suspended growth process, principle of suspended growth process, Activated sludge process, Oxidation ditch aeration and mixing techniques, Operational problems of activated sludge systems, stabilisation tools aerobic, anaerobic and facultative lagoon.

Unit 4

Sewage sludge treatment-Importance, amount and characteristics of sludge, sludge digestion, Anaerobic digestion, aerobic digestion, sludge drying beds.

Sewage disposal: disposal by dilution, self purification of polluted streams, factors affecting self purification, Sag curve, disposal on land surfaces.

Stream standards, Effluent standards, theories of waste treatment (Volume reduction, strength reduction, new Equalization and proportioning) Summary of Industrial waste, its origin, character and treatment.

Unit 5

Solid waste management, source and characteristics, environmental and health implications, refuse characteristics, collection methods, disposal of solid waste by land filling, composting and incineration methods. Collection and disposal of refuse, Composting of refuse.

Name of Text Books:

1. Environmental Engineering – Peavy & Rowe (Tata McGraw Hill, New Delhi).
2. Waster Water Engineering – S.K. Garg (Khanna Publication).
3. Waste Water Engineering – B.C. Punmia (Laxmi Publication, New Delhi)

Name of Reference Books:

1. Environmental Science and Engineering – Henry and Heinke (Pearson Education).
2. Waste Water Engineering – Metcalf Eddy (Tata McGraw Hill, New Delhi).
3. Introduction to Environmental Science – Y Anjaneyulu (B S Publications).
4. Environmental Science and Engineering – henry and heinke (Pearson Education).
5. Waste Water Engineering – Metcalt Eddy (Tata McGraw Hill, New Delhi)

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Semester: B.E.VII Sem.

Subject:- Quantity Surveying and Cost Evaluation

Total Theory Periods: - **40**

Total marks in end semester Exam: **100**

Minimum Number of Class test to be conducted: **02**

Branch:- Civil Engineering

Code :- BE743

Total Tutorial Periods: **15**

Unit 1

General

Introduction to quantity surveying, methods of measurements and units of measurements of various items of work, Principles of estimating, different types of estimates, procedure for computation of stage I estimate.

General Terms

Administrative approval, technical sanction, Competent authority, Deposit works, suspense account, imprest account, indent of stores, muster roll. Measurement book, material at site account, stock account, establishment charges, contingencies.

Unit 2

Quantity estimate

Types, data required for estimation detailed estimates of civil engineering works. Buildings, canals, roads steel works, water supply and sanitary works.

Unit 3

Analysis of rates

Purpose and principles factors affecting the rates of items of works, Analysis of rates of different items such as cement concrete of different proportions, brick masonry in different mortars, flooring (tiles, mosaic, cement concrete flooring). Use of Schedule of rates.

Specifications

Purpose and basic principles, types of specifications: brief and detailed specifications for various items of works.

Unit 4

Contracts

General requirements of contract, types of contract, conditions, termination of contract. Brief idea about types of tender, tender notice, earnest money, security deposit, liquidated damages, arbitration, escalation.

Unit 5

Valuation of property

General, object of valuation, definitions of terms related to valuation, methods of determining value of property, development method of valuation, concept of capitalized value and year purchase, depreciation, lease, mortgage, easement.

Name of Text Books:

Estimating and Costing in Civil Engineering – B.N. Dutta (UBS Publishers, New Delhi)

Estimating and Costing and specifications – M. Chakrabarty (UBS Publishers, New Delhi)

Name of Reference Books:

Textbook of Estimating and Costing – G.S. Birdi (Dhanpat Rai Publications)

Valuation of real properties – S.C. Rangwala (Charotar Publication)

A Textbook of Estimating and Costing – Kohli & Kohli (S. Chand & Co.)

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Semester: B.E.VII Sem.

Branch:- Civil Engineering

Subject:- Construction Equipments and Techniques Code :- BE7441

Total Theory Periods: - **40**

Total Tutorial Periods: **15**

Total marks in end semester Exam: **100**

Minimum Number of Class test to be conducted: **02**

Unit 1

Construction Equipments

Fundamentals of earthwork operations - Earth moving operations -Types of Earthwork Equipment-Tractors, Motor Graders, Scrapers, Front end loaders, Earth Movers. Equipment for Dredging, Trenching, Tunnelling, Drilling, Blasting-Equipment for compaction-Erection Equipment.

Types of pumps used in construction - Equipment for Dewatering and Grouting - Foundation and Pile Driving Equipment. Forklifts and Related Equipment - Portable Material Bins – Conveyors - Hauling Equipment.

Unit 2

Equipment for Production of Aggregate and Concreting

Crushers-Feeders-Screening Equipment-Handling Equipment-Batching and Mixing Equipment-Hauling, Pouring and Pumping Equipment-Transporters.

Unit 3

Sub-structure Construction Techniques

Box jacking -Pipe Jacking-Under Water Construction of diaphragm walls and basement –Tunnelling techniques piling techniques-driving well and caisson-sinking cofferdam-cable anchoring and grouting-driving diaphragm walls, sheet piles-laying operations for built up offshore system-shoring for deep cutting-Large reservoir, construction with membranes and Earth system-well points-Dewatering and stand by Plant equipment for underground open excavation

Unit 4

Super Structure Construction

Vacuum Dewatering of concrete flooring-Concrete paving technology-Techniques of construction for continuous concreting operation in Tall buildings of various shapes and Varying sections-Launching Techniques-Suspended from work-erection techniques of tall structures, Large span structures-Launching techniques for heavy decks in situ prestressing in high rise structures, aerial transporting handling erecting light weight components on tall structures-erection of lattice tower as and rigging of transmission line structures.

Unit 5

Repair Construction

Mud jacking grout through slab foundation-micropiling for strengthening floor and shallow profile-pipeline laying protecting sheet piles, screw anchors-sub grade water proofing under piling advanced techniques and sequence in demolition and dismantling.

Name of Text Books:

Construction Planning, Equipment and Methods (5th Edition) – Peurifoy, R.L., Ledbetter, W.B. and Schexnayder, C. (McGraw Hill, Singapore, 1995)

Construction Equipment and Management – Sharma S.C. (Khanna Publishers New Delhi, 1988)

Name of Reference Books:

Construction Equipment and Job Planning – Deodhar, S.V. (Khanna Publishers, New Delhi, 1988)

Construction Equipment and its Planning and Application – Dr. Mahesh Varma
(Metro-politan Book Company, New Delhi-, 1983)

Practical foundation engineering hand book – Robertwade Brown (McGraw Hill
Publications, 1995)

Construction Dewatering: New Methods and Applications – Patrick Powers. J. (John
Wiley and Sons, 1992) Advanced Construction Techniques – Jerry Irvine (CA
Rocketr, 1984)

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Semester: B.E.VII Sem.

Branch:- Civil Engineering

Subject:- Quality Control and Assurance in Construction **Code :- BE7442**

Total Theory Periods: - **40**

Total Tutorial Periods: **15**

Total marks in end semester Exam: **100**

Minimum Number of Class test to be conducted: **02**

Unit 1

Construction Projects ,Agencies involved in Construction Projects, mutual relationship, quality control at site; and whose job is it.

Unit 2

ISO / IS Requirements ,IS 9000 (Parts 1 to 4) (Pt 1; 1994, Pt 2; 1993, Pt 3; 1991, Pt 4; 1993) for Total Quality Management. ISO 14000 – 1988 for environment – Impact of large construction projects.

Unit 3

Quality Control on Construction Projects ,Inspection of reinforced concrete, masonry and steel works, testing techniques and quality at reports.

Unit 4

Statistical Analysis ,Sampling frequencies, statistical and reliability analysis, optimum sample size.

Unit 5

Quality Assurance ,Quality Assurance in constructions

Name of Text Books:

ISO 9000 in Construction – Nee, Paul A. (Wiley Interscience Publication, 1994)

IS: 14000, – Quality System – Guidelines for Selection and Use of Standards on Quality System 1988.

Name of Reference Books:

ISO 9000 in Construction – Wah, L.S., Min., L.C. & Ann, T.W. (McGraw Hill Book Company, 1996)

Construction Engineering and Management – S. Seetaraman (Umesh Publication)

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Semester: B.E.VII Sem.

Subject:- Expansive Soils

Total Theory Periods: - **40**

Total marks in end semester Exam: **100**

Minimum Number of Class test to be conducted: **02**

Branch:- Civil Engineering

Code :- BE7443

Total Tutorial Periods: **15**

Unit 1

Introduction and Identification

Expansive Soils of India, related civil engineering problems, formation of expansive soils in field, identification of expansive solids in laboratory by X-ray diffraction method and differential thermal analysis.

Unit 2

Physical and Chemical Properties

Soil structure and clay mineralogy of expansive soil, atomic bond and molecular bonds, honey comb structure, base exchanges capacity, clay water relation, electrolysis processes.

Unit 3

Foundation on Black Cotton Soil

Foundations on swelling soils, swelling potential and mechanism of volume change, chemical composition of black cotton soil, construction techniques in black cotton soil, modern method of construction in under reamed coil.

Unit 4

Ground Improvement Techniques

Stabilization of expansive soils with lime, slag (silica fume and aluminium sludge), cement, fly ash, chemicals, reinforced earth technique, micro reinforced vegetation, vibro floatation, grouting and soil nailing.

Unit 5

Liquifaction Hazard Mitigation

Factors affecting the expansive soil, method of assessment for liquifaction, effect instrumentation for monitoring, consolidation of marine clay deposits, expansive soil model of Bingham fluid bounded by porous beds.

Name of Text Books:

Design Aids in Soil Mechanics and Foundation Engineering – S.R. Kaniraj (Tata McGraw Hill, New Delhi) Foundation Engineering – Dr. B.J. Kasmalkar (Pune Vidyarthi Griha Prakashan, Pune)

Name of Reference Books:

Basic and applied Soil Mechanics (Revised Edition) – Gopal Rajan and Rao A.S.R. (New Age, New Delhi.

1998) Foundation Engineering (2nd Edition) – Peck,R.B., Hanson (W.E. and Thornburn. W.H. Johan Wiley, New York 1976)

Foundation Analysis and Designing – J.E. Bowles (McGraw Hill)

Soil Engineering in Theory and Practice (Vol. - II) – Alam Singh (Asia Publishing House, New Delhi, 1981)

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Semester: B.E.VII Sem.

Subject:- Industrial Waste Treatment

Total Theory Periods: - **40**

Total marks in end semester Exam: **100**

Minimum Number of Class test to be conducted: **02**

Branch:- Civil Engineering

Code :- BE7444

Total Tutorial Periods: **15**

Unit 1

General

Effect of discharge of industrial wastewaters on streams, land and environment, Importance and scope, Problems involved in treatment, Variation in quality and quantity of industrial wastewaters.

Standards & Criteria

Indian standards for discharge of treated wastewaters onland, into municipal sewer and natural water courses.

Sampling of Wastewaters

Representative sample, Grab and composite samples.

Unit 2

Effluent Quality and Quantity

Approaches to minimization – good house keeping, equalization and neutralization by mixing of different effluent streams; recycling of wastewater streams. Process modifications in terms of raw materials and chemicals used, Treatment of industrial wastes, Removal of dissolved and suspended solids, Organic waste treatment processes, Sludge treatment and handling.

Unit 3

General Approaches to Planning of Industrial Wastewater Treatment and Disposal

Equalization and proportioning, Neutralization

Treating different effluent streams separately

Treating different streams jointly after mixing them partly or fully

Including / excluding domestic wastewater along with the industrial waste

Treating industrial wastewaters along with town waste.

Unit 4

General Approaches for Handling and Treatment of Specific Characteristics of Industrial Wastewaters

Stream Water Quality, DO Sag Curve, etc. Approaches for treating wastes having shock loads, colours, toxic metal-ions, refractory substances, e.g., ABS and other detergents, growth inhibiting substances such as insecticides, high concentration of nutrients (N.P.K., etc.), oil and grease, suspended solids, BOD., hot wastes, wastes with acidity, alkalinity, etc.

Unit 5

Process Flow Diagrams, Characteristics and Treatment of Various Industrial Wastes

Industrial wastes of pulp and paper, textile, tannery, food, canning, sugar mill, distillery, dairy, pharmaceutical, electroplating, etc. Industrial pollution abatement measures, referring to case studies in fertilizer industries, textile, petroleum refineries and distilleries.

Name of Text Books:

Introduction to Environmental Science – Y. Anjaneyulu (B.S. Publications)

Elements of Environmental Engineering – K.N. Duggal (S. Chand & Co., New Delhi)

Name of Reference Books:

The Treatment of Industrial Wastes – Besseliure, E.B. and Schwartz, M. (McGraw Hill Kogakusha Ltd., New Delhi, 1969)

Industrial Water Pollution – Nemerow, N.L. (Ann Arbour, New York, 1978)

Waste Water Engineering – MetCalaff Eddy (Tata McGraw Hill, New Delhi)

Environmental Engineering – G.N. Pandey & G.C. Karney (Tata McGraw Hill, New Delhi)

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Semester: B.E.VII Sem.

Branch:- Civil Engineering

Subject:- Structural Engineering Drawing - III Lab

Code :- BE745

Total Theory Periods: - **40**

Total Tutorial Periods: **15**

Total marks in end semester Exam: **100**

Minimum Number of Class test to be conducted: **02**

Experiments to be performed (Min 10 experiments)

1. Drawing of plan and section of various types of bolted and welded joints.
2. Detailing of a Axially Loaded angle Tension Member
3. Detailing of an Axially Loaded Compression Member with base plate.
4. Detailing of an Axially Loaded Built up Laced Compression Member.
5. Detailing of an Axially Loaded Built up Battened Compression Member.
6. Detailing of a Riveted / Bolted Plate girder.
7. Detailing of a Welded Plate girder.
8. Detailing of flexible connections
9. Detailing of Semi – Rigid Connections
10. Detailing of Rigid Connections
11. Detailing of a Industrial shed
12. Detailing of a Truss Bridge Railway Bridge.
13. Preparation of Bill of Materials
14. Preparation of Fabrication drawings.
15. Preparation of Erection drawings.

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Semester: B.E.VII Sem.

Branch:- Civil Engineering

Subject:- Environmental Engineering - II Lab

Code :- BE746

Total Theory Periods: - **40**

Total Tutorial Periods: **15**

Total marks in end semester Exam: **100**

Minimum Number of Class test to be conducted: **02**

Experiments to be performed (Min 10 experiments)

1. To determine acidity of Sewage / Industrial wastewater sample.
2. To determine Alkalinity of Sewage / Industrial wastewater sample.
3. To determine Hardness of Sewage / Industrial wastewater sample.
4. To determine Chloride Content of Sewage / Industrial wastewater sample.
5. To determine DO Content of Sewage / Industrial wastewater sample.
6. To determine Estimation of BOD of Sewage / Industrial wastewater sample.
7. To determine Optimum Coagulant Dose Test of Sewage / Industrial wastewater.
8. Determination of Total Solids in Sewage / Industrial wastewater.
9. Determination of Turbidity in Sewage / Industrial wastewater.
10. Determination of MPN in Sewage / Industrial wastewater.
11. Determination of COD in Sewage / Industrial wastewater.
12. Determination of Fluoride content in Sewage / Industrial wastewater.
13. Determination of Nitrates in Sewage / Industrial wastewater.
14. Determination of Phosphates in Sewage / Industrial wastewater.
15. Determination of Iron in Sewage / Industrial wastewater.
16. Microbiological Examination of Sewage / Industrial wastewater.

List of Equipments / Machine Required:

BOD Incubar
Turbidity meter
Microscope
pH meter
Muffle Furnace
Hot Air Oven
Jar Test Apparatus
Spectrophotometer

Name of Text Books:

Environmental Engineering Lab Manual – Dr. B. Kottaiah & N. Kumaraswamy
(Charotar Publications)
Environmental Science and Engineering – Henry and Heinke (Pearson Education).
Waste Water Engineering – Metcalf Eddy (Tata McGraw Hill, New Delhi).
Introduction to Environmental Engineering and Science – Masters, G.M. (Prentice
Hall of India Pvt. Ltd., 1991)

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Semester: B.E.VII Sem.

Subject:- Computer Aided design & planning

Total Theory Periods: - **40**

Total marks in end semester Exam: **100**

Minimum Number of Class test to be conducted: **02**

Branch:- Civil Engineering

Code :- BE747

Total Tutorial Periods: **15**

Experiments to be performed (Minimum 10 experiments)

1. Introduction to AutoCAD drafting package.
2. Introduction to AutoCAD drafting package.
3. To draw the cross section of a wall and its foundation.
4. To draw the foundation details of internal and external walls.
5. To draw the line plan of a primary school building.
6. To draw the line plan of a hostel building.
7. To draw the line plan of a hospital building.
8. To draw the line plan of a single storey residential building.
9. To draw the ground floor plan of a residential building.
10. To draw the section for the above plan showing maximum details.
11. To draw the corresponding front elevation of the above residential building.
12. To draw the plan and section of a fully furnished bathroom.
13. To draw the plan and section of a fully furnished kitchen.
14. To draw section and elevation of flush shutter, paneled shutter doors and windows.
15. To draw section and elevation of fully glazed, half glazed, half glazed and half paneled doors and windows

List of Equipments / Machine Required:

PC system.

AutoCAD Software.

Recommended Books:

AutoCAD 2000 Complete – et. al. (BPB Publications)

An introduction to AutoCAD 2000 – A. Yarwood (Pearson Educations)