

TEACHING & EVALUATION SCHEME

DISCIPLINE: CIVIL ENGINEERING

SIXTH SEMESTER

Sl.No.	SUBJECT	Evaluation Scheme							Total Marks
		L	P	THEORY			PRACTICAL		
				END EXAM	INTERNAL ASSESSMENT	Class Test	Assignment	End Examination	
	THEORY								
1.	Structural Design-II	5	--	80	15	5	--	--	100
2.	Estimating - II	5	--	80	15	5	--	--	100
3.	Advanced Construction Technology	5	--	80	15	5	--	--	100
4.	Elective(Any One) i). Disaster Management. ii)Concrete Technology iii)Low cost Housing iv)Environmental Engineering v) Elements Of Interior Design	5	--	80	15	5	--	--	100

PRACTICAL/SESSIONAL

1.	Structural Detailing Practice-II	--	3	--	--	--	--	50	50
2.	Estimating Practice- II	--	3	--	--	--	-	50	50
3.	Construction workshop Practice	--	7	--	--	--	50	50	100
4.	Project and Seminar	--	6	--	--	--	100	50	150
		20	19	320	60	20	150	200	750

NOTE: Evaluation for I.A.(Theory)& Sessional /Practical to be made as per guidelines of SCTE&VT.

STRUCTURAL DESIGN– II (Th- 1)

Theory:

L/wk:05 P/Wk

Total Marks:100

Theory: End Term Exam.80,

Total Periods:75,

Evaluation Scheme:

I.A :-15(Class Test)+5(Assignment)

Topic wise Distribution of Periods:

Sl. No.	Topics	No. of Periods
01.	(Group – A) Design of simple steel structures (Connections)	09
02.	Tension Members	08
03.	Compression Members	12
04.	Column Bases and Foundation	10
05.	Design of simple steel beams for bending and shear	10
06.	(Group – B) Stair case (RCC-LSM)	12
07.	Design of footings (RCC-LSM)	12

RATIONALE:

Safety and durability of a structure depend on appropriate design, proper detailing and construction as per detailed drawing and specification. For this reason, 'Design & Detailing – II' is an important subject of Civil Engineering Diploma holders. They are most often asked to act as a supervisor in construction projects. In addition to this they may also require to work as a draftsman responsible for preparing detailed drawing for construction sites. Diploma holders are also called upon to assist designers, suggest modifications for repair and renovation works and also to design simple structural elements. The subject attempts to cover the above aspects of Civil Engineering profession.

OBJECTIVES :

On completion of the subject a student will be able to –

- i) Design simple steel structure such as tension members, compression members and simple beams.
- ii) Design timber structural elements
- iii) Design staircase, footings by limit method of design.
- iv) Draw the details of a steel roof truss.
- v) Draw the reinforcement details of an underground RCC water tank and RCC footings.

COURSE CONTENTS:

Group – A (50 marks)

1.0 Design of simple steel structures(Connections)

- 1.1 State and sketch types of joints, explain and show failure joints through sketches.
- 1.2 State the permissible stresses in rivets and bolts; Design joints (excluding joints subjected to moments).

- 1.3 Design determinate framed structure connections; solve problems for riveted and bolted connections.
- 1.4 Welding: State and explain the uses and types of welding.
- 1.5 State the permissible stresses in welding, minimum size of welding
- 1.6 Design simple welded connections for axial forces.

2.0 Tension Members

- 2.1 State and sketch the common sections of tension members. State the permissible stresses for structural steel.
- 2.2 Explain the net effective sectional area for angles and tees under different conditions, use structural steel section hand book, Design tension members (angle & tubular sections) with detailing and solve problems

3.0 Compression Members

- 3.1 Distinguish between a strut and a column, short column and a long column. Explain effective length, state minimum slenderness ratio of different compression members.
- 3.2 Explain and perform design of axially loaded compression members (angle and tubular sections) as per IS 800, solve problems

4.0 Column Bases and Foundation

- 4.1 Types of column bases
- 4.2 Design of gusseted base subjected to axial loading with concrete footing

5.0 Design of simple steel beams for bending and shear

- 6.0 Design (as per IS ; 883 – 1970) of timber structural elements for tension, compression and flexure as well as detailing joints

Group – B (30 Marks)

7.0 Stair case (RCC-LSM)

- 7.1 State & draw important types of stair case, explain effective span & principles of design
- 7.2 Design the waist slab and cantilever type stair case and show the details of reinforcement
- 7.3 Tread –riser staircase(with detailing of reinforcement)

8.0 Design of footings (RCC-LSM)

- 8.1 State and sketch different types of footings
- 8.2 Explain design loads for foundation design, basis of design of independent footings, checking for development lengths, procedure for design of footings

- 8.3 Design simple masonry foundation and R.C. slab foundation for a masonry wall
- 8.4 Design of isolated reinforced concrete square , rectangular and sloped footings for given data & draw detailed drawings.

Recommended Books:

- | | |
|--|------------------------------|
| 1.Design of Steel Structure | -P.Dayaratnam. |
| 2.Design of steel structure | -. T Segui, Cengage Learning |
| 3. Design of Steel Structure | - B.N.Duggal |
| 4. Design of steel structure | -Kazmi&Zindal. |
| 5. Analysis,Design&Detailing
of Structures;Vol-III,Steel Structures&Timber Structures | -V.N.Vazirani & Rathwani. |
| 6. Structural Steel Design | - D.M laugh lin |
| 7. Design of steel structure | -S.Ramamutham. |
| 8. Limit State design | -P.C.varghese. |
| 9. Reinforced Concrete:Limit State Design | -A.k.Jain. |
| 10. Design Aids for reinforced concrete to I.S 456-1978,BIS Publication,S.P-16. | |
| 11. Handbook on concrete Reinforcement and detailing,BIS Publication,S.P-34 | |
| 12.Code of Practice for General Construction in steel:I.S.800:2008. | |
| 13.Structural Engineers' Handbook,Vol-I,II,III;BIS,Publication. | |
| 14.Code of Practice for design of Structural timber in building-I.S:883-1970. | |

ESTIMATING – II (Th- 2)

L/wk:05 P/Wk
Total Marks:100
Theory: End Term Exam.80,

Total Periods:75,
Evaluation Scheme:
I.A :-15(Class Test)+5(Assignment)

Topic wise Distribution of Periods:

Sl. No.	Topics	No. of Periods
01.	Detailed estimate of culverts and bridges	25
02.	Estimate of irrigation structures	30
03.	Detailed estimate of roads	12
04.	PWD accounts works	08

RATIONALE :

The subject of estimating is very important for Civil Engineering Diploma students. The students are required to know the various aspects of rates analysis, types of estimates, details of specifications for deriving a correct estimate of a construction unit.

OBJECTIVES :

On completion of the subject a student will be able to –

- i) The different components of estimate like simple culverts and bridges
- ii) Take measurement of structures like culverts, bridges and RCC structures
- iii) Estimate the quantity of dry materials required for each items of work
- iv) Undertake the analysis of rates of each item of work
- v) Understand the working of engineering department

COURSE CONTENTS:

1.0 Detailed estimate of culverts and bridges

- 1.1 Detailed estimate of a simple hume pipe culvert with right angled wing walls
- 1.2 RCC deck slab culvert with right angled wing wall
- 1.3 RCC deck slab culvert with spalyed wing wall
- 1.4 Quality of steel for deck slab with bar bending schedule of the above jobs

2.0 Estimate of irrigation structures

- 2.1 Detailed estimate of simple type fall to given specification
- 2.2 A simple type of siphon to given specification

3.0 Detailed estimate of roads

- 3.1 Detail estimate of a water bound macadam road
- 3.2 Detailed estimate of a National Highway in cutting / filling

4.0 PWD accounts works

- 4.1 Works
 - 4.1.1 Classification of work-original, major, petty, repair work, annual repair, special repair, quadrantal repair
 - 4.1.2 Method of execution of works through the contractors, departmentally, contract and agreement, work order, item rate contract, lump sum contract, labour contract and daily labour, piece work agreement, scheduled contract, cost plus percentage contract
- 4.2 Accounts of works

- 4.2.1 Explanation of various terms
Administrative approval, technical sanction, contingency budget, tender, preparation of notice inviting tender, receiving of quotations, earnest money, security deposit, advance payment, on account payment, intermediate payment, final payment, running bill, final, regular and temporary establishment, cash, major & subhead of account, temporary advance, issue rate, storage, supervision charges, suspense account, debit, credit, book transfer, sub – voucher and related accounts vouchers
- 4.2.2 Measurement book use & maintenance, procedure of marking entries of measurement of work and supply of materials, labour employed, standard measurement books and common irregularity
- 4.2.3 Master roll : Its preparation & use for making payment of pay & wages
- 4.2.4 Acquittance Roll : Its preparation & use for making payment of pay & wages
- 4.2.5 Labour & labour report, method of labour payment, use of forms and necessity of submission
- 4.2.6 Classification of stores, receipt / issue statement on standard form, method of preparation of stock account, preparation and submission of returns, verification of stocks, shortage and excess

RECOMMENDED BOOKS:

- | | |
|--|----------------------|
| 1. Estimating, Costing, specification & Valuation in Civil Engineering | -M.Chakraborty. |
| 2. A text Book of Estimating & Costing | -D.Kohli &R.C Kohli. |
| 3. Estimating & Costing | -B.N.Dutta. |
| 4. Estimating & Costing | -Birdi & Ahuja. |
| 5. Latest Orissa PWD Schedule of Rates & Analysis of rates. | |

Subject: Advanced Construction Technology (Th- 3)

Total Contact Hrs :75 periods			
<i>Contents</i>			
S.No.	Topics		No. of Hours Allocated
1	Concrete mix Design	PART A	12
2	Handling and Transporting of Concrete		6
3	Earthquake Resistant Construction		18
4	Building Services	PART B	18
5	Construction and earth moving equipments	PART C	18
6	Prefabricated structures	PART D	3
		Total	75

PART A

COURSE CONTENT

1.0 Concrete mix Design

- a) Introduction
- b) Properties of Concrete
- c) Data or input required for mix design.
- d) Nominal mix concrete
- e) Methods of proportioning concrete mix –
B.S. method, BIS method and ACI method. Problems on above methods
Minimum cement content for various grades of concrete.

2.0 Handling and Transporting of Concrete

- a) Methods of handling and transporting concreting
 - i) Hand buggies
 - ii) Power driven buggies
 - iii) Belt conveyers
 - iv) Concrete pumps

PART B

3.0 Earthquake Resistant Construction

- i) Building Configuration
- ii) Lateral Load resisting structures
- iii) Building characteristics
- iv) Quality of concrete and material
- i) Effect of structural irregularities-vertical irregularities, plan configuration problems.
- ii) Safety consideration during additional construction and alteration of existing Buildings.
- iii) Additional strengthening measures in masonry building-corner reinforcement, lintel band, sill band, plinth band, roof band, gable band etc.

4.0 Retrofitting of Structures

Seismic retrofitting of reinforced concrete buildings :

- i) Considerations in retrofitting of structures
- ii) Sources of weakness in RC frame building
- iii) Classification of retrofitting techniques
- iv) Retrofitting strategies for RC buildings

PART -C

5.0 Building Services

- a) Cold Water Distribution in high rise building, lay out of installation
- b) Hot water supply – General principles for central plants-layout
- c) Sanitation –soil and waste water installation in high rise buildings
- d) Electrical services –
 - i) requirements in high rise buildings
 - ii) Layout of wiring - types of wiring
 - iii) Fuses and their types
 - iv)Earthing and their uses
- e) Lighting – Requirement of lighting, Measurement of light intensity
- f) Ventilation
 - i) Methods of ventilation – Natural and artificial
 - ii) Systems of ventilation, problems on ventilation
- g) Mechanical Services- Lifts, Escalator, Elevators – types and uses

PART- D

6.0 Construction and earth moving equipments -

- a) Planning and selection of construction equipments
- b) Study on earth moving equipments like drag line, tractor, bulldozer, Power shovel
- c) Study and uses of compacting equipments like tamping rollers, Smooth wheel rollers, Pneumatic tired rollers and vibrating compactors
- d) Owning and operating cost – problems

PART- E

7.0 Pre Fabrication

- a) Introduction to pre-fabrication
- b) Types of prefabrication
- c) Comparison of prefabrication and monolithic construction methods
- d) Advantages and disadvantages of pre-fabrication
- e) Merits of partial fabrication in Indian conditions

Reference Books

- a) Building Technology by –TTTI Chennai-113
- b) A Text Book of R.C.C By – A.K. Jain Chand & Bro Publishers
- c) Construction equipments by –Singh
- d) Building services
- e) Building Technology – N. Sreenivasulu
- f) Basics of Electrical Engineering - B.L. Theraja
- g) Construction planning & equipment - Peurify

DISASTER MANAGEMENT (ELECTIVE)

Lecturer(Th.): P/Wk:05

Total Periods: 75, Total Marks:100

Evaluation Scheme:

Theory: End Term Exam.80,

I.A :-15(Class Test)+5(Assignment)

Topic wise Distribution of Periods:

Sl. No.	Topics	No. of Periods
01.	INTRODUCTION	05
02.	EARTHQUAKES	05
03.	TSUNAMI	05
04.	LANDSLIDES	05
05.	CYCLONE	05
06.	FLOODS	05
07.	DROUGHT	05
08.	FOREST FIRE	05
09.	OTHER TYPE OF HAZARDS	05
10.	POLICY, PLANNING AND INSTITUTIONS FOR DISASTER MITIGATION	30
	Total	75

Course Contents:

1.0-Introduction

1.1- Definition of hazards, disasters. Explain the difference between hazard and disaster.

1.2 – Concept of risk and vulnerability. Risk reduction: preparedness and mitigation.

1.3 – Disaster management cycle.

1.4- Personal and community awareness.

1.5- Types of disasters, earthquake,Tsunami,Landslide,cyclone ,flood,drought,forest fire,

Chemical and industrial accidents.

2.0-Earthquakes.

2.1- definition and concept ,intensity, Richter's scale.

2.2- Element of risk.

2.3- Hazard Zones in India.

2.4- Typical effects.

2.5- Main mitigation strategies, safe Engineering practice,Indian Standard code and enforcement Bye-Laws.

3.0- Tsunami.

- 3.1- Definition concept.
- 3.2- Onset, type and cases.
- 3.3- Warming.
- 3.4- Elements at risk.
- 3.5-Typical effects :Physical damage, environmental damage ,casualties and Public health.
- 3.6-Specific preparedness: Hazard mapping, early warning systems, Community preparedness.
- 3.7- Main mitigation strategies: Site planning and land management, Engineering structures. Flood management.

4.0- Landslides.

- 4.1-Definition, concept.
- 4.2- Onset time and warning.
- 4.3- Causes.
- 4.4-Elements at risk.
- 4.5-Hazard zones and Indian landslides.
- 4.6-Typical effects: Physical damage, casualties.
- 4.7- Main mitigation strategies: Hazard mapping, Landslide practice, retaining walls, Surface drainage control works, Engineering structures.
- 4.8- Community based mitigation.

5.0-Cyclones.

- 5.1-Definition, concept.
- 5.2-Onset type, Warning.
- 5.3-Elements at risk.
- 5.4-Typical effects.
- 5.5-Indian Hazard Zones.
- 5.6- Main mitigation strategies: Hazard mapping, Land use control , Engineering Structures, Flood management, improving vegetation cover.
- 5.7- community based mitigation.

6.0- Floods.

- 6.1- Definition, concept, Onset type.
- 6.2- Warning.
- 6.3- Elements at risk.
- 6.4- Hazard zones and Indian floods.
- 6.5- Typical effects: Physical damage, Casualties and Public health ,Crops and flood.
- 6.6- Main mitigation strategies: Mapping of the flood prone areas, land use control, Flood control and management.
- 6.7- Community based mitigation.

7.0- Droughts.

7.1- Definition, concept.

7.2- Onset type and warning.

7.3- Elements at risk.

7.4- Typical effects.

7.5- Main mitigation strategies: drought monitoring, water supply augmentation and conservation.

7.6- Drought Planning.

8.0- Forest Fire.

8.1- Definition and concept.

8.2- Forest fire damages in India.

8.3- Operational fire management systems and organizations.

8.4- Community involvement.

8.5- Public policies concerning fire.

8.6- the needs of fire management.

9.0- Other type of Hazards and disasters.

9.1- Chemical and Industrial disasters: brief description, effects, preparedness.

9.2- Epidemic: Onset type, warning, causes and effects, risk reduction measures.

9.3- Heat waves: definition, dangers and effects, Forecasts and warning, awareness.

10.0- Policy, Planning and Institutions for disaster mitigation.

10.1- Role of policy makers in disaster risk reduction, course for specific action.

10.2- Institutional arrangement in India: Central level, State Level, District and Block level.

10.3- Major institutions in National and State level.

REFERENCE BOOKS

- | | |
|---|---------------------------|
| 1.0 Natural hazards and Disasters | -Donald and david Hyndman |
| 2.0 Disaster Management | -Tej Singh |
| 3.0 Towards Basics of Natural Disaster | - D.K.Sinha |
| 4.0 Disaster Reference: A Hand Book for Emergencies | - Babu Thomas |
| 5.0 Introduction to Hazards | -S.B.Reed |
| 6.0 Man Made Disaster | - B.A. Turner |

- 2.3 Biochemical cycles-C,N,P
- 2.4 Interrelationships between communities in an ecosystem.
- 2.5 Sustainable development.
- 3.0 Environmental Pollution:
 - 3.1 definition of terms,parameters of pollution,types of pollution
 - 3.2 Water Pollution:- types of pollutants &their characteristics,sources of pollutants,effects of water pollution,standards of Industrial effluents,remedial measures for control.
 - 3.3 Noise pollution:-Definition and measure of noise,types ,sources of Pollution,effects of noise pollution,prevention and control measures.
 - 3.4 Land Pollution:- Causes, Effects of pesticides &fertilizers used in agricultural practice,impacts of blasting &open cast mining,degradation due to deforestation and due to natural disaster like land subsidence,case studies on mining;blasting and deforestation,soil pollution management-land conservation and land reclamation.
- 4.0 Pollution Survey:
 - 4.1 Planning survey,sampling locations,criterion,equipment and techniques for water and air pollution survey.
 - 4.2 Analysis of water and air pollutants-Principles&methods.
- 5.0 Solid Waste Management:
 - 5.1 Definition of related terms and purpose.
 - 5.2 Sources of solid wastes, characteristics of wastes-urban and rural communities,sampling methods.
 - 5.3 Storage and collection- storage methods,frequency of collection,methods of collection,comparison.
 - 5.4 Disposal of solid wastes- Principles,description of process,planning,operation,maintenance & suitability of different methods of disposal- sanitary land fill,Composting,incineration.
- 6.0 Environmental management:
 - 6.1 Environmental:- legislation, salient features of different environment protection acts in India.
 - 6.2 Roles of pollution control boards,local bodies and city environmental pollution management.
 - 6.3 Environmental impact assessment-requirements and definition,related terms,method of assessment.
 - 6.4 Environmental Ethics.

RECOMMENDED BOOKS:

1. Text Book of Environmental Studies -Dave and Katewa
2. Environmental Engineering – Duggal
3. Water supply and Sewage - Steel
4. Environmental engineering: - A. K. Chatterjee.
5. A text Book of Environmental Engineering - Peavy,et.al
6. Water supply and pollution control –by Clark
7. Air Pollution-by Rao
8. Environmental protection-by Chanlett.
9. Fundamentals of ecology-by Odum.
10. Concept of ecology- by Koromondy
11. Ecology and environment – by P.D Sharama.
12. Chemistry for environmental engineers-by Sawyer &Macarty.
13. Standard methods of examination of water and wasyt water-by ALPHA.
14. Water and waste water analysis a course Manual-by NEERI.
15. Environmental science and engineering-by Aloka Debi ,an Universities Press Publication.

CONCRETE TECHNOLOGY (ELECTIVE)

Periods per week-4 Total marks:100 Evaluation scheme:

Total periods:60

Theory: End term Exam:80,I.A:15+5(assignment)

TOPIC WISE DISTRIBUTION OF PERIODS:

Sl. No.	Topics	Lecturer in periods
1.	Concrete as a construction material:	2
2.	Cement:	4
3.	Aggregate:	4
4.	Water:	4
5.	Admixtures:	4
6.	Properties of fresh concrete:	4
7.	Properties of hardened concrete:	4
8.	Quality and control of concrete:	4
9.	Proportioning of concrete mixers:	12
10.	Production of concrete	6
11.	Inspection and testing	6
12.	Special concrete	5
13.	Deterioration of concrete and its prevention	4
14.	Repair technology for concrete structures.	12
	Total	75

RATIONALE:

The use of cement concrete in modern construction work has established its importance. The Diploma students during their course of studies acquire only working knowledge on the development and research on cement concrete the elective subject has been introduced as a elective paper.

OBJECTIVE:

After completion of study of the students will be able to:-

- i) Explain the properties of cement concrete.
- ii) State the quality control majors to be undertaken.
- iii) Inspect and undertake the testing of cement concrete.

COURSE CONTENTS:

1.0 Concrete as a construction material:

- 1.1 Grades of concrete.
- 1.2 Advantages and disadvantages of concrete.
- 1.3 Concept of quality control of concrete.

2.0 Cement:

- 2.1 composition, hydration of cement, water cement ratio and compressive strength, fitness of cement, setting time, soundness, types of cement.

3.0 Aggregate:

- 3.1 Classification and characteristics of aggregate, deleterious substances in aggregates, fineness modulus, grading of aggregate.

4.0 Water:

- 4.1 Quality of mixing water, curing of water.
- 5.0 Admixtures:
 - 5.1 Important functions, classification of admixtures, I.S 7861 (Part-II) 1981, accelerating admixtures, retarding admixtures, water reducing admixtures, air containing admixtures.
- 6.0 Properties of fresh concrete:
 - 6.1 concept of fresh concrete, workability, slump test, compacting factor test, Ve-bee consistency test and flow test, requirement of workability.
- 7.0 Properties of hardened concrete:
 - 7.1 Cube and cylinder compressive strengths, flexural strength of concrete, stress-strain and elasticity, phenomena of creep and shrinkage, permeability, durability of concrete, sulphate and acid attack on concrete, efflorescence.
- 8.0 Quality and control of Concrete:
 - 8.1 Factors causing the variations in the quality of concrete, field quality control, advantages of quality control, quality management in concrete construction.
- 9.0 Proportioning of concrete mixtures:
 - 9.1 Basic consideration for concrete mix design, factors influencing the choice of mix proportions, grade designation, types of cement, maximum nominal size of coarse aggregate, grading of combined aggregate (I.S: 483-1963 limits), analytical method, water cement ratio, workability, durability.
- 10.0 Production of concrete:
 - 10.1 Batching of materials, mixing of concrete materials, transportation, placing of concrete, compaction of concrete, compaction methods, vibrators, curing and maturity of concrete, effects of delayed curing, formwork-requirements and types, stripping of forms.
- 11.0 Inspection and testing:
 - 11.1 Inspection and testing of fresh concrete, workability tests, acceptance testing of hardened concrete, surface hardness method, pulse velocity method, core test method.
- 12.0 Special concrete:
 - 12.1 Introduction to silica fume concrete, mass concrete, shot-crete concrete or gunning, ferrocement, construction in ferro-cement and applications. Fibre reinforced concrete and its application. Polymer concrete-types and application.
- 13.0 Deterioration of concrete and its prevention:
 - 13.1 Types of deterioration, prevention of concrete deterioration, corrosion of reinforcement, effects and prevention.
- 14.0 Repair technology for concrete structures:
 - 14.1 Symptom, cause and prevention and remedy of defects during construction, cracking of concrete due to different reasons. repair of cracks for different purposes, selection of techniques, polymer based repairs, common types of repairs.

RECOMMENDED BOOKS:

1. Concrete technology- M.L.Gambhir; Tata McGraw Hill.
2. Concrete technology- M.S Shetty, S.Chand & Company Limited, New Delhi.
3. Concrete technology- A.M.Neville; ELBS.

7.1 Principle.

7.2 Method.

7.3 Equipment and machinery.

7.4 Quality control.

8.0 MAINTENANCE:

RECOMMENDED BOOKS:

1. Low Cost Housing - Jayadeva, Yadavan,
2. Impediments to Rural Technology - Malgaonkar & Panandiker,
3. Transfer of Technology among developing countries - T. N. Chatruvedi,
4. Appropriate Technology-Problems & Promises - Nicolas Je'quier.

ELEMENTS OF INTERIOR DESIGN (ELECTIVE)

Periods per week-4 Total marks:100 Evaluation scheme:

Total periods:60

Theory: End term Exam:80,I.A:15+5(assignment)

TOPIC WISE DISTRIBUTION OF PERIODS:

Sl. No.	Topics	Lecturer in periods
1.	Introduction to interior design:	10
2.	Elements of interior design	20
3.	Lighting	14
4.	Finishes and decorative accessories	16
5.	Furniture	05
	Total	75

COURSE CONTENTS:

1.0 Introduction to interior design:

- 1.1 History of interior design.
- 1.2 Definition of interior design.
- 1.3 Elements and principles.
- 1.4 Interior design typologies- their function with activities,example:Living,Bed room,kitchen.
- 1.5 Office,Reception,workstation,executive showroom etc.
- 1.6 Themes and concepts.
- 1.7 Colour.
- 1.8 Anthropometrics details.

2.0 ELEMENTS OF INTERIOR DESIGN- enclosing elements:

- 2.1 Ceiling-Walls,Flooring-Fenestrations-Openings doors and windows access-Corridor,staircase enclosing,fenestration and access elements their function,character aesthetic and psychological.Their composition in terms of scale proportion,texture,colouretc. With various method of treatment in terms of material and construction to express functional aesthetics and psychological effects.

3.0 LIGHTING:

- 3.1 Study of interior lighting.
- 3.2 Artificial and natural lighting
- 3.3 Requirement of light for specific purpose.
- 3.4 Different types of lighting and their effects.
- 3.5 Locating lighting points in interiors and planning electrical layouts.

4.0 FINISHES AND DECORATIVE ACCESSORIES:

- 4.1 Carpets
- 4.2 Rugs
- 4.3 Wallpapers
- 4.4 Valances.
- 4.5 Painting.
- 4.6 Murals.
- 4.7 Sculpture.
- 4.8 Plants.

4.9 Fountains

4.10 Wall hanging.

4.11 Venetian blinds.

5.0 FURNITURE:

5.1 Study of relationship of furnitures to space human movements.

5.2 Furniture design as related to human comfort,functions.

5.3 Materials.

5.4 Methods of construction.

5.5 Innovations and design ideas.

5.6 Study on furniture for specific function of interior, like Office furniture, residential furniture.

5.7 Display systems etc., cabinet, ward robes, Curio shelves,room dividers.

RECOMMENDED BOOKS:

1. Designing and decorating interiors by David Van Dommalan.
2. National building code of India- B.I.S
3. Time saver standard building types- by Callender.
4. Architectural graphic standards – by Ramsay & Sleeper.
5. Human dimension &interior space- by Julius panero
6. Interior design illustrated-Frank D.K Ching.

PRACTICALS

STRUCTURAL DETAILING – II (PRACTICE) (Pr – 1)

3P/Wk. Total: 45Weeks, Evaluation Scheme: Sessional-50Marks

1.0 Structural Detailing

1.0.1 Draw details of the following steel structures from the given line diagrams :

- a) A steel roof truss with details of bolted or riveted and welded joints and connections including that of the steel column at base level with foundation (Plate1)
- b) A two storeyed steel building frame showing typical details of possible bolted and welded connections including that of column at base with the foundation (Plate II)

1.1 Details of an underground RCC water tank (such as Sheet No. 19 of SP34 or any other) – Plate III

1.2 Combination detailed drawing of a two storeyed building with load – bearing wall spread footing and R.C. isolated column footing. (Plate IV)

Recommended Books:

- | | |
|--|----------------------------|
| 1.Design of Steel Structure | -P.Dayaratnam. |
| 2.Design of steel structure | -B.N.Duggal. |
| 3. Design of Steel Structure | -T Segui, Cengage Learning |
| 4. Design of steel structure | -Kazmi&Zindal. |
| 5. Analysis,Design&Detailing
of Structures;Vol-III,Steel Structures&Timber Structures | -V.N.Vazirani & Rathwani. |
| 6. Design of steel structure | -S.Ramamutham. |
| 7. Limit State design | -P.C.varghese. |
| 8. Reinforced Concrete:Limit State Design | -A.k.Jain. |
| 9. Design Aids for reinforced concrete to I.S 456-1978,BIS Publication,S.P-16. | |
| 10. Handbook on concrete Reinforcement and detailing,BIS Publication,S.P-34 | |
| 11.Code of Practice for General Construction in steel:I.S.800:2008. | |
| 12.Structural Engineers' Handbook,Vol-I,II,III;BIS,Publication. | |
| 13.Code of Practice for design of Structural timber in building-I.S:883-1970 | |

ESTIMATING – II PRACTICE (Pr- 2)

3P/Wk. Total:45P/Wk. , Evaluation Scheme :
Sessional Marks:50

Detailed estimate from working drawings / standard drawings as mentioned at Sl. No. 1, 2 & 3 of theory – 2 (Estimating-II) are to be taken in the practical classes.

RECOMMENDED BOOKS:

- | | |
|--|-----------------------|
| 1. Estimating, Costing, specification & Valuation in Civil Engineering | -M.Chakraborty. |
| 2. A text Book of Estimating & Costing | -D.Kohli & R.C Kohli. |
| 3. Estimating & Costing | -B.N.Dutta. |
| 4. Estimating & Costing | -Birdi & Ahuja. |
| 5. Latest Orissa PWD Schedule of Rates & Analysis of rates. | |

CONSTRUCTION WORKSHOP(PRACTICE) (Pr – 3)

Practical:
07 P/Wk , Total Periods:105,

Evaluation Scheme:
End Term Exam.50, Sessional:50

- 1.0 Study of tools required for construction of masonry.
- 2.0 Setting out centre line for a building.
- 3.0 Construction of 1 & 1 ½ Brick thick walls in English Bond in Mud mortar including a corner.
- 4.0 Construction of 1 & 1 ½ Brick thick Pillar in Mud mortar .
- 5.0 Fabrication of timber or steel formwork for a beam.
- 6.0 Fabrication of timber or steel formwork for a slab.
- 7.0 Fabrication of timber or steel formwork for a Column.
- 8.0 Bar bending and fabrication of reinforcements for a beam.
- 9.0 Bar bending and fabrication of reinforcements for a slab.
- 10.0 Bar bending and fabrication of reinforcements for a lintel with chajja & column.
- 11.0 Bar bending and fabrication of reinforcements for a column.
- 12.0 Conducting a Non destructive compressive strength test on concrete beam using rebound Hammer as per I.S:1311(Part-2)-1992.
- 13.0 Casting of a prestressed concrete beam using a prestressing unit.
- 14.0 Field visits.

Visit to a construction site of a building where the following works are in progress.

- a)Excavation of foundation b)Masonry works c)White washing d)Painting(interior&exterior)
- e)Wood works f)Fabrication& concreting works.g)Flooring

PROJECT AND SEMINAR (Pr - 4)

Practical:

06 P/Wk , Total Periods:105P/Wk,

Evaluation Scheme:

End Exam.100,

Sessional:50

RATIONALE :

The diploma holders in Civil Engineering, many times, are involved with project work on designs and drawings in offices. The major works involve making survey, planning of buildings with preparation of plan and sections, collection of data, organization and analysis of data, estimation and elementary design of structures or their components. They are also expected to have some knowledge of actual practice in construction work. The course "Project Work" should therefore be very important to the diploma students of Civil Engineering to make them professionally sound and valuable.

OBJECTIVES:

On completion of the project work the students will be able to:-

- iv) Apply Knowledge gained in different subjects through solving real life problems in Civil engineering.
- v) Develop self-confidence for working in Civil Engineering Projects.
- vi) Prepare necessary drawings, estimates and project reports.
- vii) Develop an idea of the state of art of construction practices through Industrial Visits.

SUGGESTED PROJECTS:-

- 1) Planning of an Educational Institution Campus.
- 2) Industrial Complex- Industrial Sheds/workshop for small scale Industries.
- 3) Irrigation Projects;-a Canal/Fall/Syphons.
- 4) Rural water Supply Scheme for villages./Colony.
- 5) Water Supply and sanitary Engineering Schemes- Sewage disposal of a cluster of houses.
- 6) Culvert/small Bridges.
- 7) Low cost housing scheme by adopting appropriate technology.
- 8) Design of Framed structure type building with software package.
- 9) A plotted scheme comprising more than100 residential buildings.

NOTE:

Students shall be divided in to suitable groups.Each group shall be assigned a problem that calls for application of knowledge acquired in the course of and also which involves some extra study of reference materials.any individual student can also take up a suitable project of his/her choice.

