GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA IN TRANSPORTATION ENGINEERING

TEACHING SCHEME (w.e.f. 18th July '2011)

SEMESTER- V

SR. NO	SUB. CODE	SUBJECT	TEACHING SCHEME (HOURS)			CREDITS
			THEORY	TUTORIAL	PRACTICAL	
1	2350601	Design of Concrete Structure	2	0	0	2
2	2350602	Quantity Survey and Valuation	2	0	0	3
3	2350603	Construction Works Management	2	0	2	4
4	2356001	Traffic Engineering – I	3	0	0	3
5	2350605	Quality Control and Monitoring	3	0	2	5
6	2350608	Practices of Design of Concrete Structure	0	0	2	4
7	2356002	Traffic Engineering – I Practice	0	0	6	6
8	2350607	Quantity Survey and Valuation Practice	0	0	2	4
9	2350609	Project - I	0	0	4	4
		Total	**12**	**0**	**18**	**30**

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN TRANSPORTATION ENGINEERING
Semester – V

Subject Code **: 2350601**
Subject Name **: Design of Concrete Structure**

Sr. No.	Subject Content	Hrs.

1.	**Introduction to is – 456:2000**
	    1.1. Importance of use of steel as reinforcement
	    1.2. Limit state design method
	    1.3. Limit state of collapse and serviceability
	    1.4. Characteristic strength of concrete and grades of concrete
	    1.5. Characteristic strength of steel and grades of steel
	    1.6. Partial safety factors for material
	    1.7. Types of loads, load combinations and partial safety factors for loads
	    1.8. Limit state of collapse – FLEXURE and its assumptions
	    1.9. Limit state of collapse – SHEAR and its assumptions
	    1.10. Limit state of collapse – COMPRESSION and its assumptions
	    1.11. Limit state of serviceability – DEFLECTION
	    1.12. Limit state of serviceability – CRACKING
		2

2.	**General is Requirements for Design According to is - 456:2000**
	   2.1 Exposure conditions and minimum cover to the reinforcement, spacing of bars in a layer and different layers
	   2.2 Define effective depth
	   2.3 Effective span for different support conditions
	   2.4 Basic factors for control of deflection and different modification factors
	   2.5 Requirements of minimum and maximum flexural reinforcement in beam
	   2.6 Requirement of minimum flexural reinforcement, maximum diameter and maximum spacing of reinforcement in slab
	   2.7 Requirements of minimum shear reinforcement in beam
	   2.8 Short column, minimum eccentricity and requirements of longitudinal and lateral reinforcement in column
	   2.9 Bond stress: τ_{bd} and development length of bar
		2

3.	**Beam and Lintel:**
	
	   3.1 Classification of rectangular beam according to reinforcement: balanced section, under reinforced section, over reinforced section, singly reinforced section and doubly reinforced section
	   3.2 Singly reinforced rectangular beam: (Annexure-G, IS – 456:2000)
		8

		3.2.1. Depth of neutral axis: Xu_{max}, Xu	
		3.2.2. Limiting percentage of steel: pt_{lim}	
		3.2.3. Moment of resistance factor: Q	
		3.2.4. Use of SP-16 tables for $\dfrac{Xu_{max}}{d}$, pt_{lim} and Q	
		3.2.5. Limiting moment of resistance: Mu_{lim}	
		3.2.6. Moment of resistance: Mu	
		3.2.7. Design of tension reinforcement: A_{ST} for given Mu, its check against requirement of reinforcement	
		3.2.8. Use of SP-16 tables for A_{ST}	
		3.3 Doubly reinforced rectangular beam: (Annexure-G, IS – 456:2000)	
		3.3.1. Need of doubly reinforced section	
		3.3.2. Moment of resistance: Mu	
		3.3.3. Design of tension reinforcement: A_{ST} and compression reinforcement: A_{SC} for given Mu, its check against requirement of reinforcement	
		3.3.4. Use of SP-16 tables for A_{ST} and A_{SC}	
		3.4 Singly reinforced flanged (TEE and ELL) beam:	
		3.4.1 IS criteria for effective width of flange: BF	
		3.4.2 Limiting moment of resistance: Mu_{lim} (Annexure-G, IS – 456:2000)	
		3.4.3 Moment of resistance: Mu	
		3.5 Shear reinforcement	
		3.5.1. Nominal shear stress: τ_V	
		3.5.2. Design shear strength of concrete without shear reinforcement: τ_C	
		3.5.3. Maximum shear strength of concrete shear reinforcement: τ_{Cmax}	
		3.5.4. Correction factor: k according to depth of concrete	
		3.5.5. Contribution of bent-up bars in shear	
		3.5.6. Design of shear reinforcement with and without bent-up bars	
		3.6 Development length of bar at support	
		3.7 Lintels: Load calculations according to height of masonry above lintel, design of flexural and shear reinforcement in lintel, check for reinforcement	
4.	**Slab and Staircase:**		**6**
		4.1 Classification of slab panel according to span ratio: One way slab and Two way slab	
		4.2 Live Load on slab according to IS – 875:1987 (Part-II)	
		4.3 Effective span for One way simply supported slab	
		4.4 Design of One way simply supported slab with checks for flexure, shear, bond, deflection and cracking	
		4.5 Shear force and bending moment coefficient for One way continuous slab	
		4.6 Effective span for One way continuous slab	
		4.7 Design of One way continuous slab with checks for flexure, shear, bond, deflection and cracking	

	4.8 Provisions for Two way slab (Annexure-D, IS – 456:2000)	
	4.9 Design of Two way simply supported slab with torsion reinforcement with checks for flexure, shear, bond, deflection and cracking	
	4.10 Design of Two way simply supported slab without torsion reinforcement with checks for flexure, shear, bond, deflection and cracking	
	4.11 Design of waist slab for stair without stringer beam with checks for flexure, shear, bond, deflection and cracking	
5.	**Axially Loaded Short Column:**	3
	5.1 Effective length of column	
	5.2 Check for eccentricity	
	5.3 Factored/Design load capacity: Pu for different types of cross-section for given percentage of A_{SC}	
	5.4 Increase in factored load capacity for helically reinforced circular column	
	5.5 Design of longitudinal and lateral reinforcement for axially loaded short column	
6.	**Isolated Column Footing:**	4
	6.1 Bearing capacity of soil	
	6.2 Types of footing	
	6.3 Critical sections for flexure and shear	
	6.4 Bearing stress at junction of column and footing, provision of dowel bars	
	6.5 Design of rectangular pad footing with checks for flexure, One way and Two way shear, bearing, bond and cracking	
	6.6 Design of rectangular slopped footing with checks for flexure, One way and Two way shear, bearing, bond and cracking	
7.	**Ductile Detailing of Structures Subjected to Seismic Forces in Accordance With is – 13920:**	3
	7.1 Definition: ductility, space frame, moment resisting frame, shear wall, soft storey and weak storey, space frame	
	7.2 Terminology: cross tie and hoop its IS requirement	
	7.3 Necessity of ductility in structure	
	7.4 Scope of ductile detailing	
	7.5 Methods of improving ductility of structure	
	7.6 Force-displacement response of ductile and brittle materials	
	7.7 Ductility requirements for beam section and steel provision	
	7.8 Ductility requirements for column section and steel provision	
	7.9 Requirements for special confining reinforcement	
	Total	28

Laboratory Experiences:

1. IS – 456:2000, IS – 875:1987, IS – 13920-1993
2. SP-16: Design Aids to IS – 456
3. SP-34: Reinforcement detailing
4. Limit state design of RC structures (Vol.-I)   by H J Shah
5. Limit state design of RC structures   by A K Jain
6. Limit state design of RC structures   by B C Punmia
7. Limit state design of RC structures   by P C Verghese
8. Limit state design of RC structures   by P Dayaratnam

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN TRANSPORTATION ENGINEERING
Semester – V

Subject Code **: 2350602**
Subject Name **: Quantity Survey and Valuation**

Sr. No.	Subject Content	Hrs.
1.	**Introduction: (Considering Residential Building)** 1.1 Meaning & objectives of estimating & costing. 1.2 Skills required for a good estimator. 1.3 Interpretation of drawing.	01
2.	**Mode of measurement : (Considering Residential Building)** 2.1 Purpose, accuracy, units, Rules. 2.2 Mode of measurements for content related items (as per I.S.)	01
3.	**Specifications: (Considering Residential Building)** 3.1 Definition, purpose & importance of specifications 3.2 Types of specifications 3.3 Design and drafting of specifications 3.4 Specification writing for some useful items viz. Brick masonry, stone masonry, Excavation, Concrete etc.	02
4.	**Rate Analysis: (Considering Residential Building)** 4.1 Definitions, importance, purpose & factors affecting the rate analysis. 4.2 Task work, Rate of materials and Labours, water charges etc. 4.3 Rate analysis of important items from excavation to completion of work of Civil Engineering Structure. (also use Computer software). 4.5 Rate analysis of the special items such as carving works, Anti-termite treatment, etc. 4.6 Study of S.O.R. and market rates.	02

5.	**Estimating : (Considering Residential Building)**	**12**

	5.1 Types of estimates, purpose.
	5.2 **Methods of computing the quantities**
	    (i) Centerline method
	    (ii) Long wall and short wall method
	
	5.3 **Detailed estimate of :**
	     (i) Compound wall
	     (ii) Two room up to plinth
	     (ii) Single storey and two- storey (G+1) residential building,
	5.4 **Detail estimate of RCC**
	    (i) Beam, column with footing , slab , weather shed
	
	5.5 RCC retaining wall.	

6.	**Valuation:**
	6.1 Define terms : Cost, Price, Value, Real estate , Personal estate
	6.2 Objects of valuation
	6.3 Mortgage, freehold property, lease-hold property
	6.4 Property income, gross income, net income, outgoing
	6.5 Depreciation and obsolescence
	6.6 **Explain:**
	     Market value, book value, distress value, monopoly
	     value, scrap value, salvage value, accommodation value,
	     replacement value, sentimental value, speculative value.
	6.7 Factors affecting the value of a property.
	6.8 Characteristics of good valuer .
	6.9 **Sinking fund :** its computation and application
	6.10 Valuation table and their use.
	      6.10.1 Table 1 Fixed Deposit Formula (amount accumulated at
	             compound interest "i" after "n" years.
	               $A = (1 + i)^n$
	      6.10.2 Table 2 Present value of Rs. 1 after n nos of years
	               $A= (1+i)^{n-1}$
	      6.10.3 Table 3 Coefficient of Sinking Fund
	               $S= [\, i\, /\, (1+i)^{n-1}\,]$
	6.11 Valuation methods for property & land.
	     (i) Rental Method
	     (ii) Land and Building Method
	     (iii) Profit and Loss Method
	     (iv) Developmental Method
	6.12 Installments for repayment of loan.
	6.13 Valuation report- case study
	6.14 Types of rent
	6.15 Procedure of fixing standard rent
		10

		Total	**28**

References Books:

1. I.S 1200 Part I to XXV (Revised) B.I.S. Publication
2. Estimating & Costing in Civil Engg. B.N. Dutta
3. Estimating & Costing (Civil Engg.) S.C.Rangwala
4. Estimating & Costing M.C.Chakraborthy
5. A text book of Estimating & Costing G.S.Birdie
6. Estimating & Costing Vazirani & Chandola
7. Theory & Practice of Valuation Roshan H. Namavati
8. Valuation of Real properties Roshan H. Namavati
9. Valuation of Real properties S.C.Rangwala

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN TRANSPORTATION ENGINEERING
Semester – V

Subject Code **: 2350603**
Subject Name **: Construction Works Management**

Sr. No.	Subject Content	Hrs.
1	**Introduction:** 1.1 Definition of management, & construction management. 1.2 Object & types of management. 1.3 Modern behavioral management science.	1
2	**Construction Team:** 2.1 The engineers Contractors and Owners. 2.2 Their role in construction management process 2.3 Construction works manager & skills required for managers at different level.	1
3	**Scientific Management & Its Function:** 3.1 Definition 3.2 Planning of projects like Dams, Highways, Bridges, Railways etc. 3.3 Organizing 3.4 Directing and motivating	1
4	**Construction Planning Scheduling & Controlling:** 4.1 Pre and Post tender planning. 4.2 Planning process, Survey Collection and analysis of data. 4.3 Interpretation of plans, Maps, Drawings and Specifications. 4.4 Identification of activities, their execution, and requirement of resources. 4.5 Introduction to CPM & PERT 4.6 Network Compression.	6
5	**Organizations:** 5.1 Definition and function 5.2 Principles of organization 5.3 Basics components of organizing process 5.4 Primary means of departmental responsibilities, authority, and accountability in PWD .	4

	5.5 Organizational practices in Public works department (PWD). 5.6 Tendering process in PWD ,	
6	**Material Management:** 6.1 Identifications of scare materials and preparing schedule for material. 6.2 Cost Index Layout. 6.3 Material handling Storage and safety precautions.(IS-7969, 1975& IS 4082 1977) 6.4 Economic quantity of Oder and purchase procedure. 6.5 Inspection & testing the quality of material.	**3**
7	**Labour Management:** 7.1 Essential steps for Optimum labour output and preparation of schedule. 7.2 Labour characteristics Wages and their payment. 7.3 Labour incentives &motivations. 7.4 Relevant labour laws and case studies related to labour disputes.	**3**
8	**Equipment Management:** 8.1 Identifications of different alternative equipment and preparing schedule. 8.2 Importance of Owning & Operating costs in making decisions for Hiring & purchase of equipment. 8.3 Inspection, testing and maintenance of equipment. 8.4 safety considerations.	**3**
9	**Safety Management in Construction Work:** **Study the following BIS codes**. 9.1 IS 3969(I) -1966 for Scaffoldings 9.2 IS 3696(II)-1966 for Ladders 9.3 IS 3764 1966 for Execution 9.4 IS 4130 1976 for Demolition of Building 9.5 IS 7205 1974 for Erection of steel structure 9.6 IS 5121 1969 for pilling and other deep foundation 9.7 IS 5916 1970 for construction involving hot bituminous material 9.8 IS 8969 1978 for Erection of Concrete Framed Structure.	**2**
10	**Management information system:** 10.1 Purpose and needs. 10.2 System of Management Information System. 10.3 Format of Management Information System. 10.4 Implementation of Management Information System.	**2**
11	**Disaster management:** 11.1 Introduction. 11.2 Pre- Disaster Management.	**2**

			28
	11.3 Management During and after Disaster.		
	Total		**28**

Exercise:

No	Exercise	Student activity	Hrs.
Assignments:			
1	Preparing structure charts of different organization.	Student will prepare assignment as per instructions.	**2**
2	Job layout for different construction sites formats of material schedule.		**2**
3	Labour laws study & preparation of labour schedule.		**2**
4	Equipment schedule.		**2**
5	Material schedule		**2**
6	Safety precautions.		**2**
7	Management Information System.		**2**
Tutorials:			
8	C.P.M.	Student will be given data and asked to draw C.P.M. network with necessary calculation	**06**
9	Tender	Student will be given task to collect different tender notices in Newspaper, and analyze them.	**2**
Visits:			
10	Major Construction site nearby.	Student will submit the detailed report on visits carried out. Enforce the knowledge what they got.	**4**
11	**Seminar:** Presentation in form of a seminar with report about the different equipment and their utility.		**2**
	Total		**28**

References Book:

No.	Name	Author
1	Professional construction management	Donald S Berry
2	Construction Planning & Management	PS Gahlot & BM Dhir Willey Eastern Ltd.
3	Construction Management and Accounts	Harpalsingh Tata McGraw Hill
4	Construction Equipment and its Management	SC Sharma Khanna Publishers.
5	Construction Planning Equipment & Methods	Robert Peurifoy & Willium Ledbetter
6	Management in Construction Industry	PP Dharwadkrer
7	A management guide to PERT/CPM	
8	Construction Management Practice	VK Raina Tata MeGraw Hill
9	Construction Management and Planning	Sengupta & Guha Tata MeGraw Hill
10	Construction of Structures Management & Works	S.C. Rangwala
11	Project Planning by CPM & PERT	B.C. Punmia & Khandelwal

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN TRANSPORTATION ENGINEERING
Semester – V

Subject Code **:** **2356001**
Subject Name **:** **Traffic Engineering - I**

Sr. No.	Subject Content	Hrs.	% Weightage
1.	**Introduction, basic components and their characteristics:** - Road user characteristics - Vehicular characteristics	02	5
2.	**Traffic flow characteristics:** - Definitions - Basic flow parameters - Types of traffic flow - Relation between flow parameters, Speed – Density relationship, - Speed – Volume relationship, Volume – Density relationship	04	10
3.	**O-D survey, methodology and analysis:** **-** Purpose of OD studies - Methods of OD studies - Zoning of study area - Presentation of OD data	06	15
4.	**Traffic Volume Study and characteristics:** - Traffic Volume Study - Purpose of Traffic Volume Study - Methods of Traffic Volume Study - Analysis and presentation of Volume data	06	15
5.	**Travel time and Delay studies:** - Purpose of travel time and delay study - Methods of travel time and delay study	06	15

	- analysis and presentation of data		
6.	**Spot Speed studies and characteristics:** - Definitions - Factors affecting spot speed - Purpose of spot speed study - Methods of spot speed studies - Analysis and presentation of data	06	15
7.	**Parking survey, characteristics and interpretation:** - Need for parking - Purpose of parking study - Methods of parking study - Analysis of data - emand and deficiency for	06	15
8.	**Road accidents and safety measures:** - Accident reporting and recording - Causes of accidents - Purpose of accident study - Preventive measures for accidents - Speed analysis	06	15
	Total	42	

Reference Books:

1.   L.J.Pingnataro, Traffic Engineering; Theory and Practice.   Prentice Hall, Englewood Clitts, 1973.
2.   Traffic planning and design , Dhanpatrai Publications, By S.C.Saxena
3.   M.Wohi and B.V.Martin, Traffic System Analysis for Engineering and Planners,
         McGrraw-Hill. New York,1983.
4.   D.R.Drew, Traffic Flow Theory and Control, McGraw Hill. New York 1968.
5.   W.R.McShane, R.P.Roess and E.S.Prassas, Traffic Engineering, Prentice Hall, New Jersey, 1990.
6.   R.J.Salter, Highway Traffic Analysis and Design, McMillan, Hampshire, 1989.
7.   Highway Capacity Manual, Transportation Research Board, Washington D.C., 1997
8.   W.R.Mcshane and R.P.Ross, Traffic Engineering
9.   Wohl and Martin, Traffic system analysis for Engineering and planners –Wohl and Martin

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN TRANSPORTATION ENGINEERING
Semester – V

Subject Code **: 2350608**

Subject Name **: Practices of Design of Concrete Structure**

(2Hrs/week = Total , 28 Hrs.)

Sr. No.	Subject Content	Hrs.
1.	**Singly Reinforced Beam** (10 Problems) 1.1 Select and solve at least three problems for finding Mu of rectangular beams 1.2 Select and solve at least three problems for design and detailing of flexural reinforcement 1.3 Select and solve at least three problems for design and detailing of shear reinforcement with and without bent up bars 1.4 Select and solve a problem for Design and detail cantilever balcony	
2	**Doubly Reinforced Beam** (6 Problems) 2.1 Solve at least three problems for finding Mu of rectangular beams 2.2 Solve at least three problems for design and detailing of flexural reinforcement	
3	**Tee Beam** (4 Problems) 3.1 Solve at least three problems for finding Mu of TEE beams (Problems are so selected that cases of $X_u \leq D_f$, $D_f \leq \frac{3}{7} X_u$ and $D_f > \frac{3}{7} X_u$ each is included) 3.2 Select and solve a problem for Design and detail a TEE beam	
4	**One Way Slab** (3 Problems) 4.1 Select a problem on design and detail of One way simply supported slab with all necessary provisions of flexure, shear, bond, deflection and cracking 4.2 Select a problem on design and detail of One way continuous slab with all necessary provisions of flexure, shear, bond, deflection and cracking	

	4.3 Select a problem on design and detail of waist slab for stair without stringer beam with all necessary provisions of flexure, shear, bond, deflection and cracking	
5	**Two Way Slab** (2 Problems) 5.1 Select a problem on design and detail of Two way simply supported slab with torsion reinforcement and all necessary provisions of flexure, shear, bond, deflection and cracking 5.2 Select a problem on design and detail of Two way simply supported slab without torsion reinforcement and all necessary provisions of flexure, shear, bond, deflection and cracking	
6	**Axially Loaded Short Column** (5 Problems) 6.1 Select at least three problems (one each for square, rectangular and circular section) for finding Pu of columns 6.2 Select Two problem on design and detail of axially loaded short column with all necessary provisional checks	
7	**Isolated Column Footing** (2 Problems) 7.1 Select a problem for isolated pad footing and all necessary provisions of flexure, one way and two way shear, bearing, bond and cracking 7.2 Select a problem for isolated slopped footing and all necessary provisions of flexure, one way and two way shear, bearing, bond and cracking	
8	**Miscellaneous Structures** (Sketches on A_4 size papers) 8.1 Details the reinforcement of One way simply supported slab, One way continuous slab, Two way simply supported slab with and without torsion steel, Short columns (Rectangular and Circular), Pad footing, Sloped footing 8.2 Detail the reinforcement for cantilever bus stop shed 8.3 Detail the reinforcement for Circular water tank with flexible base 8.4 Detail the reinforcement for Circular water tank with rigid base 8.5 Detail the reinforcement for Rectangular water tank vessel 8.6 Detail the reinforcement for Cantilever retaining wall 8.7 Detail the reinforcement for Counterfort type retaining wall 8.8 Detail the reinforcement for beam and intermediate column joint for ductility 8.9 Detail the reinforcement for beam and end column joint for ductility 8.10 Special confining reinforcement detail for beam and column ductility	
	Total	**28**

Note:

1. Student shall use uniform ruled pages for calculations for problems and blank A4 size papers for sketches.
2. Student shall furnish detailed drawings on three A2 size drawing sheets containing details of One way simply supported slab, One way continuous slab, Two way slab with and without torsion reinforcement, column and column footing.

Laboratory Experiences:

1. IS – 456:2000, IS – 875:1987, IS – 13920-1993
2. SP-16: Design Aids to IS – 456
3. SP-34: Reinforcement detailing

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN TRANSPORTATION ENGINEERING
Semester – V

Subject Code **: 2356002**
Subject Name **: Traffic Engineering - I Practice**

(A)Surveys:
   (a) **Time allocation for Survey and Term work preparation :**

Sr. No.	Subject Content	Hrs.
1.	**Vehicular Characteristics:** - Physical Characteristics - Operating Characteristics	06
2.	**Traffic Volume Stud (Any two):** - Classified volume counts - Intersection volume counts - Cordon volume counts	24
3.	**Spot Speed Study:** - Stop Watch method	10
4.	**Travel Time and Delay study (Any two):** - License plate method - Interview method - Test car method	20
5.	**Parking Study (Any two):** - Space inventory - Parking interviews - Parking Usage study - Cordon counts	20
6.	**Accident Study:** - Accident Reporting - Accident Recording	04
	Total	84

(B) For all Surveys, there is compulsion in presence for Students

Sr. No.	Subject Content
1.	- Conducting Survey - Data collection - Filling of appropriate proformas - Calculations - Analysis and presentation of data - Preparation of various charts

(C) Practical(Viva) Examination after term end exam

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN TRANSPORTATION ENGINEERING
Semester – V

Subject Code : **2350607**
Subject Name : **Quantity Survey and Valuation Practice**

Expt. No.	Description of the Experiment	Action	Hrs.
1	Rate analysis for at least ten items of construction	Home work	-
2	Specifications for at least ten items of construction	Home work	-
3	Drawing of one room is to be provided to guide the students for the interpretation of drawing.	Interpretation of drawing.	2
4	List of different items is to be provided. The modes of measurements according to prevailing I.S.	Prepare a list of construction Items & mode of measurement	2
5	Detailed estimate of a small residential building having two rooms, w.c; bath, verandah, passage etc. from a given working drawing. (centre line and Long wall ,short wall method)	Work out estimate in the class.	2
6	Detailed estimate of a two- storey residential building having drawing room, two bed rooms, kitchen, store, W.C. bath, staircase, verandah, balcony, passage from given working drawing.	Students have to work out the estimate by themselves, with help of faculty. (Incorporate field visit)	6
7	Detailed estimate of R.C.C. framework consisting beam, column and slab and weather shed.	Work out estimate in the class. (Incorporate field visit)	6

8	Detailed estimate of R.C.C. retaining wall.	Work out estimate in the class.	4

9	**Valuation :** Valuation : Tables I, II , III
	   i) Calculation of Sinking fund
	   ii) Calculating values of different types of Civil engineering buildings using appropriate Valuation methods.
	   iii) Calculation of Installment for Loan
	   iv) Fixing of standard Rent
		Minimum two problems for each topic.	6

		Total	28

References Books:

1. I.S 1200 Part I to XXV (Revised) B.I.S. Publication
2. Estimating & Costing in Civil Engg. B.N. Dutta
3. Estimating & Costing (Civil Engg.) S.C.Rangwala
4. Estimating & Costing M.C.Chakraborthy
5. A text book of Estimating & Costing G.S.Birdie
6. Estimating & Costing Vazirani & Chandola
7. Theory & Practice of Valuation Roshan H. Namavati
8. Valuation of Real properties Roshan H. Namavati
9. Valuation of Real properties S.C.Rangwala

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA IN TRANSPORTATION ENGINEERING
Semester – V

Subject Code **:** **2350609**
Subject Name **:** **Project – I**

(A) **Visit to an important traffic infrastructure.**

(B) **Project**

In general the projects are of following types

(i) Geometric Design
-Sight Distance Requirements
-Vehicle Cornering
-Horizontal and Vertical Alignments

(ii) Traffic Flow and Queuing Theory
-Traffic Stream Parameters and Relationships
-Models of Traffic Flow
-Queuing Theory and Traffic Flow Analysis

(iii) Highway Capacity and Level of Service Analysis
-Level of Service Concept
-Basic Freeway Segments
-Multilane Highways
-Two-lane Highways

(iv) Traffic Control and Analysis at Signalized Intersections
-Basic Signal Control
-Probabilistic Arrivals
-Traffic Signal Timing
-Signal coordination

(v) Travel Demand and Traffic Forecasting:
-Trip Generation
-Mode and Destination Choice Models
-Highway Route Choice Models

(vi) Environmental Impact of Traffic
-Air Pollution
-Noise Pollution

(vii) Parking

-Parking problems
-Parking design
-Parking management

(viii) Material Testing
-Soil testing
-Aggregate testing
-Bituminous material testing

(x) Transportaion planning
-trip generation
-trip distribution
-modal split analysis
-trip assignment techniques
-Land use planning

(xi) Traffic Surveys
-O-D surveys
-Volume count survey
-Travel time , Saturation and delay study
-Speed studies
-Accident studies

(xii) Pavement Design
-Flexible pavement design
-Rigid pavement design

Note : Project work should consist of following activities;

(i)   Survey work
(ii) Planning an designing
(iii) Preparation of drawings
(iv) Report writing