PROPOSED

4TH SEMESTER

CURRICULAR STRUCTURE

AND

SYLLABI OF

FULL-TIME DIPLOMA COURSE IN

SURVEY ENGINEERING

PROPOSED CURRICULAR STRUCTURE FOR FOURTH SEMESTER OF THE FULL TIME DIPLOMA COURSE IN SURVEY ENGINEERING

WEST BENGAL STATE COUNCIL OF TECHNICAL EDUCATION

TEACHING & EXAMINATION SCHEME FOR DIPLOMA IN ENGINEERING COURSES

BRANCH: **DIPLOMA IN SURVEY ENGINEERING** SEMESTER: **FOURTH**

SL. NO.	SUBJECT	CREDITS	PERIODS			EVALUATION SCHEME						
			L	TU	PR	INTERNAL SCHEME			ESE	PR #	TW @	TOTAL MARKS
						TA	CT	TOTAL				
1	Land Laws, Land Records	2	2	-	-	5	10	15	35	-	-	50
2	Accounts & Contracts	3	3	-	-	10	20	30	70	-	-	100
3	Topography & Hydrography	3	3	-	-	10	20	30	70	-	-	100
4	Tunnel & Mine Survey	3	3	-	-	10	20	30	70	-	-	100
5	Curve Setting	2	2	-	-	5	10	15	35	-	-	50
6	Computer Aided Drafting	2	-	-	3	-	-	-	-	50	50	100
7	Quantity Survey	2	-	-	3	-	-	-	-	25	25	50
8	Professional Practice II	2	-	-	3	-	-	-	-	25	25	50
9	Development of Life Skill II	1	-	-	2	-	-	-	-	25	25	50
10	Field Survey Practices – II	5	-	-	9	-	-	-	-	100	100	200
	TOTAL	**25**	**13**	**-**	**20**	**40**	**80**	**120**	**280**	**225**	**225**	**850**

STUDENT CONTACT HOURS PER WEEK: 33 Hrs.

Theory and Practical Period of 60 Minutes each.

- External Assessment @ - Internal Assessment, **ESE** - End Semester Exam, **CT**- Class Test, **TA** - Teachers Assessment.

L – Lecturer, **TU** –Tutorial, PR – Practical, **TA** – Teachers' Assessment, **CT** – Class Test, **ESE** – End Semester Exam. **TW** – Term Work.

Name of the Course : SURVEY ENGINEERING (LAND LAWS, LAND RECORDS)			
Course code : SE / S4 / T1 / LLLR		**Semester : FOURTH**	
Duration : 15 weeks		**Maximum Marks : 50**	
Teaching Scheme		**Examination Scheme**	
Theory : 2 hrs/week		Mid Semester Exam / CT : 10 Marks	
Tutorial: - hrs/week		Attendance, Assignment & Quiz : 5 Marks	
Practical : - hrs/week		End Semester Exam: 35 Marks	
Credit :- 2			
Aim :-			
S.No			
1.	Study of rules and regulation regarding land.		
Objective :-			
S.No	Students will be able to:		
1.	Work with rules and regulation regarding land.		
Pre-Requisite :-			
S.No			
1.	Student should have knowledge of Survey Engineering.		
Contents :		Hrs/unit	Marks
Unit -1	**1.0** **BENGAL TENANCY ACT** 1.1. Bengal Tenancy Act, 1886, Sec – 3 (Definition – Estate, Holding, Agricultural year, Tenure and village). **WEST BENGAL LAND REFORMS ACT, 1955** 1.2. Sec-2 (Definition) – Land, Personal Cultivation, Raiyat, Bargadar, Encumbrance, Homestead. 1.3. Sec-4 – Salient Provisions. 1.4. Sec-14K(c) Family. 1.5. Sec-14K(f) Standard Hectare. 1.6. Sec-14M(1(&(2)-Ceiling Area 1.7. Sec-14(M)(5) – Ceiling for Trust and Endowment. 1.8. Sec-14P-Salient Provisions. 1.9. Sec-14Q(2) – Ceiling for Orchard. 1.10. Sec-14Q(3) – Ceiling for Charitable and Religious Institutions. 1.11. Sec-14U – Restriction on transfer of land by a raiyat. 1.12. Sec-14Y – Limitation on farther acquisition of land. 1.13. Sec-15A(i) Bargadar right heritable. 1.14. Sec-16 & 16(A) – Share of produce payable by Bargadar. 1.15. Sec-17 – Termination of Cultivation by Bargadar. 1.16. Sec- 19B – Salient Provisions – Restoration of Land to Bargadar – Salient Provisions. 1.17. Sec-22, Sec-23 & Sec-24 – Provisions as to Revenue. 1.18. Sec-50 – Maintenance of R-O-R. 1.19. Sec-51 – Revision & Preparation of R-O-R. **WEST BENGAL ESTATE ACQUISITION ACT, 1953** 1.20. A General Discussion On The Purpose Of The Act 1.21. Sec – 2 (Definitions) – Agricultural Year, Agriculture La Charitable purpose, Data Of Vesting, Homestead, Incumbrance	15	20

	Intermediary, Religious purpose, Rent. 1.22. Sec – 4, Sec – 5, Sec-5(A)– Selling Provision. 1.23. Sec-6(1)(a) to (e) & 6(3).		
Unit -2	**2.0** **LAND ACQUISITION ACT** 2.1. Land Acquisition Act, 1894. Section – 1,4,5,6,7,8,9(1), 16, 17(1), 35 and Relevant Portion of the Land Acquisition Manual regarding Valuation of Land. **BENGAL SURVEY ACT** **2.2.** Bengal Survey Act, 1875. Section – 2, 5, 6& 3, 7,8,9,10,11. **MINES & MINERALS (REGULATION & DEVELOPMENT) ACT, 1957** 2.3. Sec-3 – Definition. 2.4. Sec-4 to 11 – Salient Provisions. **W. B. MINOR MINERALS RULES, 1973** 7.1 Definition – Rule 2 : Chief Mining Offices, District Authority, Lease, Person & Quary Permit. 7.2 Rules : 4, 5, 7, 8, 10, 11, 12, 15, 16, 17, 18, 24	15	15

Text Books:-

Sl. No.	Titles of the Book	Name of Authors	Name of the Publisher

Reference books :- Nil

Suggested List of Laboratory Experiments :- Nil

Suggested List of Assignments/Tutorial :- Nil

Name of the Course : SURVEY ENGINEERING (ACCOUNTS & CONTRACTS)			
Course code : SE / S4 / T2 / AC		**Semester : FOURTH**	
Duration : 15 weeks		**Maximum Marks : 100**	
Teaching Scheme		**Examination Scheme**	
Theory : 3 hrs/week		Mid Semester Exam / CT : 20 Marks	
Tutorial: - hrs/week		Attendance, Assignment & Quiz : 10 Marks	
Practical : - hrs/week		End Semester Exam: 70 Marks	
Credit :- 3			
Aim :-			
S.No			
1.	Study of contracts, costing and budgeting of building constructions.		
Objective :-			
S.No	Students will be able to:		
1.	Differentiate between types of contract.		
2.	Prepare tender documents.		
3.	Draft tender notice for various types of construction		
4.	Prepare specification of an item of construction.		
5.	Calculate the value of a land and old buildings		
Pre-Requisite :-			
S.No			
1.	Student should know tentative rates of materials to be used.		
2.	Student should have knowledge of accounting.		
Contents :		Hrs/unit	Marks
Unit -1	**1.0 SPECIFICATION** 1.1 Definition, importance and manner of writing specification. Types of specifications. 1.2 General specification of 1st and 2nd class buildings. Detail specification of important tax items of a building. Foundation of a typical load bearing wall, foundation of a typical isolated RCC column footing, brick work in superstructure, RCC work in slab, beam and column, lime terracing, external and internal plastering, I. P. S. flooring, terrazzo flooring, woodwork in doors and windows. 1.3 Detail specification of important building materials, brick, sand, cement, coarse aggregate, steel reinforcement. 1.4 Specification for different types of survey jobs : 1.4.1 For a residential building on a plot of size upto 200 sq. m. in plain area and hilly area. 1.4.2 For a township project of size upto 8 hectares. 1.4.3 For a road project of 3 km. 1.4.4 Cadastral surveying of a village	15	20

Unit -2	**2.0 ESTIMATION** 2.2. Different types of estimates, importance of approximate estimate. General items of work for building estimate. 2.3. Estimation of building from line plan, detail estimate of double storied building. 2.4. Mode of measurements based on IS : 1200. 2.5. Calculation of volume of earthwork by midsection formula, trapezoidal formula or average end area. Principle and example of mass haul diagram. 2.6. Analysis of rate and how it is prepared. Quantities of material & labour to be analysed.	12	20
Unit -3	**3.0 VALUATION** 3.2. What is valuation? 3.3. Difference between value and cost 3.4. Purpose of valuation 3.5. Gross income, net income, scrap value, salvage value 3.6. Comparison between scrap value & salvage value 3.7. Comparison between market value and book value 3.8. Sinking fund, capitalized value, depreciation 3.9. Obsolesce, freehold property, lease hold property, mortgage property 3.10. Determination of depreciation by different methods.	9	15
Unit -4	**4.0 CONTRACT** 4.2. Definition of tender and contract, Different types of Civil Engineering contracts. 4.3. Contract documents 4.4. Clauses of general condition of contract 4.5. Tender Notice 4.6. Comparative statement and acceptance of tender 4.7. Costing	9	15

Text Books:-

Sl. No.	Titles of the Book	Name of Authors	Name of the Publisher
1	ESTIMATING & COSTING IN CIVIL ENGINEERING	**B.N. Datta**	UBS Publishers
2	Estimating & costing, Specification and Valuation in Civil Engineering	**M. Chakraborti**	M. Chakraborti , Calcutta
3	Estimating & costing	**S.C. Rangwala**	Charotar Publication
4	Civil Engineering Contracts and accounts Vol I , II	**B.S. Patil**	Orient Longman,
5	ESTIMATING & COSTING	**G. S. Birdie**	Dhanpat Rai and Sons

Reference books :- Nil

Suggested List of Laboratory Experiments :- Nil

Suggested List of Assignments/Tutorial :- Nil

Name of the Course : SURVEY ENGINEERING (TOPOGRAPHY & HYDROGRAPHY)			
Course code : SE / S4 / T3 / TH		**Semester : FOURTH**	
Duration : 15 weeks		**Maximum Marks : 100**	
Teaching Scheme		**Examination Scheme**	
Theory : 3 hrs/week		Mid Semester Exam / CT : 20 Marks	
Tutorial: - hrs/week		Attendance, Assignment & Quiz : 10 Marks	
Practical : - hrs/week		End Semester Exam: 70 Marks	
Credit :- 3			
Aim :-			
S.No			
1.	Study of topographic and hydrographic surveying.		
Objective :-			
S.No	Students will be able to:		
1.	Prepare topographical maps.		
2.	Construct contour maps.		
Pre-Requisite :-			
S.No			
1.	Student should have knowledge of basic Survey Engineering.		
Contents :		Hrs/unit	Marks
Unit -1	**1.** **GENERAL IDEA ABOUT PREPARATION OF TOPOGRAPHICAL MAPS** 1.1. General idea about Topographic Surveying and its purpose. 1.2. Legal authority for conducting this survey. 1.3. Choice of Map scale and contour interval 1.4. Use of Topographical Maps. **GENERAL FIELD PROCEDURE** 1.5. Control - Establishment of Horizontal control by Triangulation / Traversing. 1.6. Control - Establishment of Vertical control by Trigonometrical leveling/ precise leveling. 1.7. Control - Establishment of V. control by Hand level and Barometer. **1.8.** Instrument to be employed : Stadia Transit, P. Table, Level, Band-Level & Barometer, Talescopic Alidade, Clinometer etc. **LOCATION OF DETAILS** 1.9. Details by Trace contour method. 1.10. Details by Cross-Profile method. 1.11. Details by controlling pointing method. 1.12. Details by Checker Board method 1.13. Details by Precision. **RELIEF AND ITS REPRESENTATION** **1.14.** Representation of Relief by (i) Relief Models (ii) Shading, (iii) Hachures & (iv) Form – lines/ Contour lines. **CONSTRUCTION OF CONTOUR MAPS** 1.15. Plotting of Horizontal control station.	23	35

	1.16. Plotting of details. 1.17. Construction of contour lines/ground points. **INTERPOLATION** 1.18. By (i) Estimation, (ii) Computation & (iii) Graphical means 1.19. System of ground points(as stated above). **FINISH THE MAP** 1.20. Choice of Map-scale 1.21. Heading and numbering the sheet. 1.22. Location of natural and artificial features insitu. **USE OF TOPOGRAPHICAL MAP** **NUMERICAL PROBLEMS**		
Unit -2	**1. Tides:** a) Tidal theory – Tide generating forces, various type of tide, Characteristics, major harmonic constituents. b) Tide measurement, setting of coastal and off shore tide gauges. Selection of site for tide gauge. c) Principle operations and limitation of various types of tide gauges – Visual tide gauges, float actuated, pressure sensitive and automatic tide gauges etc. d) Definition of tidal terms – Current, Tidal streams, Tidal flow residual motion etc. e) Selection and Establishments of datum, Recovery and transfer of datum – Datum in estuaries and river. Determination of mean sea level. f) Basic idea of general tidal flow pattern in estuaries and off shore. g) Bores, surges, Screeches, Gorging, Tidal Prisms, Tidal pyramid, Tidal Wedge etc. **2. Electronic Instruments & Hydrographic Software:** a) Principle, Operations, accuracy and limitations of various Positions fixing system like GPS & DGPS. b) Principle error and operations of various type of echo sounders like Deso-25, Deso-17, Deso15, Deso-30, Hydro-track, Echo track, MK-II, Raytheon and Sonar etc. c) Common Hydrographic Softwares like Hypac, Hydas (ISAH), PDS 2000, Tower software etc. d) Gyro Compass, Radar etc. e) Current Meters with electromagnetic sensors. **3. Marks, Mark Work & Demarcation of Channel & Coast Lining:** a) Erection, description and recovery of surveying marks. b) Erection and maintenance of navigational marks, laying of transit mark for navigation. c) Laying of barrel buoy, mooring and channel buoys d) Method of coastal lining, important points for coast lining, necessity of coast lining. **4. Soundings:** Interlines, cross lines, test lines, open lines, leading lines etc. recording, importance for straight line sounding. Line spacing, orientation and planning of sounding lines. Reduction of soundings. Adjustment for settlement, squat etc. Interpretation of Echo Sounder records, sedimentation. **5. Calculation of Cubic Capacity and Discharge of a Cross section of a river, Knowledge of Simpson's rule.**	22	35

Text Books:-

Sl. No.	Titles of the Book	Name of Authors	Name of the Publisher
1	Surveying and Levelling (Vol. 2)	Dr. B. C. Punmiya	Laxmi Publication

2	Surveying and Levelling (Vol. 2)	S. K. Duggal	TATA MC GRAW-HILL
3	Surveying (Vol. 2)	Dr. K. R. Arora	STANDARD BOOK HOUSE
Reference books :- Nil			
Suggested List of Laboratory Experiments :- Nil			
Suggested List of Assignments/Tutorial :- Nil			

Name of the Course : SURVEY ENGINEERING (TUNNEL & MINE SURVEY)			
Course code : SE / S4 / T4 / TH		**Semester : FOURTH**	
Duration : 15 weeks		**Maximum Marks : 100**	
Teaching Scheme		**Examination Scheme**	
Theory : 3 hrs/week		Mid Semester Exam / CT : 20 Marks	
Tutorial: - hrs/week		Attendance, Assignment & Quiz : 10 Marks	
Practical : - hrs/week		End Semester Exam: 70 Marks	
Credit :- 3			
Aim :-			
S.No			
1.	Developing the underground survey skill required for survey engineering.		
Objective :-			
S.No	Students will be able to:		
1.	Gather knowledge of dip and strike.		
2.	Gather knowledge about setting out of curve in underground.		
3.	Gather knowledge about reserve, mines regulation, correlation and tunnel survey.		
Pre-Requisite :-			
S.No			
1.	Students should have the knowledge of basic surveying with drawing and sketching.		
Contents :		Hrs/unit	Marks
Unit -1	**1.0** **DIP AND STRIKE PROBLEM** 1.1. Types of Dip and derivation of the formula used to connect true dip, apparent dip and included angles. 1.2. Borehole problems for determining the dip (amount and direction) of loads and seams. 1.3. Borehole surveying 1.4. Computation of quantity of coal in certain block (between boreholes). **FAULT PROBLEM** 1.5 Types of faults, folds etc. 1.6 Problems of faults 1.7 Occurrence of faults in mines.	15	20
Unit -2	**2.0** **CURVE SETTING** 2.1 Designation of curve 2.2 Elements of simple circular curve 2.3 Setting out a simple circular curve by 2.3.1. Chord and offset method. 2.3.2. Chord and angle method. 2.4 Example covering the above	15	25

	ESTIMATION OF RESERVES (ONLY METALLIFEROUS DEPOSIT) 2.5 Minerals, mineral resources, reserves. 2.6 Methods of calculation of reserves. 2.6.1. Contour lines method 2.6.2. Mean arithmetic method 2.6.3. Polygon method 2.6.4. Section method 2.7 Problems on calculation of average width and grade of an ore body 2.8 Mine sampling :- 2.8.1. Purpose and scope 2.8.2. Sampling method and sampling calculations.		
Unit -3	**3.0** **MINE SURVEY REGULATIONS** 3.1 Practical experience of candidates for surveyor's examination 3.2 Appointment of surveyors 3.3 Duties and responsibilities of surveyors 3.4 General requirements about mine plans and sections 3.5 Types of plans and sections 3.6 Preparation and preservations of plans and sections according to safety code under the survey legislation 3.7 Management of survey office and its various equipments **MINE CO-RELATION AND SHAFT SURVEY** 3.8 Definition and type of mine correlation 3.9 Correlation through inclines and shafts 3.10 Methods of correlation **3.10.1. Single shaft methods:** 3.10.1.1. Assumed bearing method **3.10.2. Double shafts methods:** 3.10.2.1. Alignment methods 3.10.2.2. Weisbach triangle method **3.10.3. Gyroscopic method of correlation – an introduction.** **TUNNEL SURVEY** 3.11 Triangulation in Tunnel 3.12 Fixing shaft in a straight tunnel 3.13 Fixing shaft in a curved tunnel 3.14 Construction survey of a straight tunnel 3.15 Construction survey of a curved tunnel 3.16 Construction survey of a sloping tunnel 3.17 **Numerical problems.**	15	25

Text Books:-

Sl. No.	Titles of the Book	Name of Authors	Name of the Publisher
1	Surveying and Levelling (Vol. I, II & III)	**S. Ghatak**	COALFIELD PUBLISHERS
2	Surveying (Vol. 2)	**Dr. K. R. Arora**	STANDARD BOOK HOUSE

Reference books :- Nil

Suggested List of Laboratory Experiments :- Nil

Suggested List of Assignments/Tutorial :- Nil

Name of the Course : SURVEY ENGINEERING (CURVE SETTING)	
Course code : SE / S4 / T5 / CS	**Semester : FOURTH**
Duration : 15 weeks	**Maximum Marks : 50**
Teaching Scheme	**Examination Scheme**
Theory : 2 hrs/week	Mid Semester Exam / CT : 10 Marks
Tutorial: - hrs/week	Attendance, Assignment & Quiz : 5 Marks
Practical : - hrs/week	End Semester Exam: 35 Marks
Credit :- 2	

Aim :-	
S.No	
1.	Developing the survey skill required for survey engineering.

Objective :-	
S.No	Students will be able to:
1.	Gather knowledge of different types of curve required for land survey.
2.	Gather knowledge of curve setting.

Pre-Requisite :-	
S.No	
1.	Students should have the knowledge of basic surveying with drawing and sketching.

Contents :		Hrs/unit	Marks
Unit -1	**1.0 CURVE** 1.1 Definition of curve. 1.2 Classification of curve. 1.3 Elements of curve. 1.4 Designation of curve. 1.5 Relation between radian and degree. 1.6 Methods of curve ranging :- 1.6.1 Location of tangent points 1.6.2 Setting out of curve by chain or tape. 1.6.3 Setting out of curve by ordinates or offsets from long chord, 1.6.4 Setting out of curve by offsets from tangent. 1.6.5 Setting out of curve by offsets from chords produced. 1.6.6 Setting out of curve by deflection angles(Rankine's method). 1.6.7 Setting out of curve by two theodolites method. 1.7 Method of calculation when curve start and end with subchords. 1.8 Difficulties in ranging simple curve:- 1.8.1 When the complete curves cannot be set from starting points. 1.8.2 When an obstacle intervenes 1.8.3 When the point of intersection of tangents is inaccessible. 1.8.4 When the first or second tangent point is inaccessible 1.8.5 When both tangent points are inaccessible. 1.9 Elements of compound curve. 1.10 Problems on simple curve. 1.11 Transition curve :- (i) Definition of transition curve, (ii) Super elevation, (iii) Characteristic of transition curve. 1.12 Elements of Cubic parabola. 1.13 Vertical curves	30	35

	1.14 Characteristic of vertical curve. 1.15 Length of vertical curve. 1.16 Problem on vertical curve.		

Text Books:-

Sl. No.	Titles of the Book	Name of Authors	Name of the Publisher
1	Surveying and Levelling	**N N Basak**	Tata Mc Graw-Hill
2	Surveying and Levelling (Part 2)	**T .P. Kanetkar & S. V, Kulkarni**	PUNE VIDHYARTHI GRIHA Prakashan
3	Surveying and Levelling (Vol. 2)	**Dr. B. C. Punmiya**	Laxmi Publication
4	Text book of Surveying	**S.K.Husain, M.S. Nagaraj**	S. Chand and company
5	Surveying and Levelling (Vol. 2)	**S. K. Duggal**	TATA MC GRAW-HILL
6	Plane Surveying	**Dr. A.M.Chandra**	NEW AGE INTERNATIONAL PUBLISHERS
7	Surveying (Vol. 2)	**Dr. K. R. Arora**	STANDARD BOOK HOUSE
8	Fundamentals of Surveying	**S. K. Roy**	PHI Learning Pvt. Ltd.

Reference books :- Nil

Suggested List of Laboratory Experiments :- Nil

Suggested List of Assignments/Tutorial :- Nil

Name of the Course : SURVEY ENGINEERING (COMPUTER AIDED DRAFTING)	
Course code : SE / S4 / P1 / CAD	**Semester : FOURTH**
Duration : 15 weeks	**Maximum Marks : 100**
Teaching Scheme	**Examination Scheme**
Theory : - hrs/week	Continuous Internal Assessment : 50 Marks
Tutorial: - hrs/week	Attendance, Assignment & Quiz : - Marks
Practical : 3 hrs/week	External Assessment : 50 Marks
Credit :- 2	

Aim :-	
S.No	
1.	Developing the computerized drawing skill required for survey engineering.

Objective :-	
S.No	Students will be able to:
1.	Work with drawing software.
2.	Make a drawing, create text, dimension a drawing, hatch patterns and make & insert symbols.
3.	Draw and plot a drawing with the help of computer, software and plotter / printer.
4.	Prepare a set of orthographic projections of a building.

Pre-Requisite :-	
S.No	
1.	Perfection in drawing and sketching.
2.	Students should be familiarized with Computer environment.

Contents : (Practical)	
Sl. No.	**Assignments**
1.	**GETTING STARTED – I** Starting AutoCAD – AutoCAD screen components – Starting a drawing: Open drawings, Create drawings (Start from scratch, Use a template & Use a wizard) – Invoking commands in AutoCAD –Drawing lines in AutoCAD – Co-ordinate systems: Absolute co-ordinate system, Relative co-ordinate system – Direct distance method – Saving a drawing: Save & Save As – Closing a drawing – Quitting AutoCAD
2	**GETTING STARTED – II** Opening an existing file – Concept of Object – Object selection methods: Pick by box, Window selection, Crossing Selection, All, Fence, Last, Previous, Add, Remove – Erasing objects: OOPS command, UNDO / REDO commands – ZOOM command – PAN command, Panning in real time – Setting units – Object snap, running object snap mode – Drawing circles
3.	**DRAW COMMANDS** ARC command – RECTANG command – ELLIPSE command, elliptical arc – POLYGON command (regular polygon) – PLINE command – DONUT command – POINT command – Construction Line: XLINE command, RAY command – MULTILINE command

4.	**EDITING COMMANDS** MOVE command – COPY command – OFFSET command – ROTATE command – SCALE command – STRETCH command – LENGTHEN command –TRIM command – EXTEND command – BREAK command – CHAMFER command – FILLET command – ARRAY command – MIRROR command –MEASURE command – DIVIDE command – EXPLODE command – MATCHPROP command – Editing with grips: PEDIT
5.	**DRAWING AIDS** Layers – Layer Properties Manager dialog box – Object Properties: Object property toolbar, Properties Window – LTSCALE Factor – Auto Tracking – REDRAW command, REGEN command
6.	**CREATING TEXT** Creating single line text – Drawing special characters – Creating multiline text – Editing text – Text style
7.	**BASIC DIMENSIONING** Fundamental dimensioning terms: Dimension lines, dimension text, arrowheads, extension lines, leaders, centre marks and centrelines, alternate units – Associative dimensions – Dimensioning methods – Drawing leader
8.	**INQUIRY COMMANDS** AREA – DIST – ID – LIST – DBLIST – STATUS – DWGPROPS
9.	**EDITING DIMENSIONS** Editing dimensions by stretching – Editing dimensions by trimming & extending – Editing dimensions: DIMEDIT command – Editing dimension text: DIMTEDIT command – Updating dimensions – Editing dimensions using the properties window – Creating and restoring Dimension styles: DIMSTYLE
10.	**HATCHING** BHATCH, HATCH commands – Boundary Hatch Options: Quick tab, Advance tab – Hatching around Text, Traces, Attributes, Shapes and Solids – Editing Hatch Boundary – BOUNDARY command
11.	**BLOCKS** The concept of Blocks – Converting objects into a Block: BLOCK, _BLOCK commands – Nesting of Blocks – Inserting Blocks: INSERT, MINSERT commands – Creating drawing files: WBLOCK command – Defining Block Attributes – Inserting Blocks with Attributes – Editing Attributes
12.	**PLOTTING DRAWINGS IN AUTOCAD** PLOT command – Plot Configuration – Pen Assignments – Paper Size & Orientation Area – Plot Rotation & Origin – Plotting Area – Scale
13.	**PRACTICE WITH COMPLETE DRAWING** Each student is required to prepare a set of orthographic projections of a building. The drawing of the building will be supplied by the teacher-in-charge.

Text Books:-

Sl. No.	Titles of the Book	Name of Authors	Name of the Publisher
1	Reference Manual of AutoCAD		AutoDesk

Reference books :- Nil

Suggested List of Laboratory Experiments :- Nil

Suggested List of Assignments/Tutorial :- Nil

Name of the Course : SURVEY ENGINEERING (QUANTITY SURVEY)	
Course code : SE / S4 / P2 / QS	**Semester : FOURTH**
Duration : 15 weeks	**Maximum Marks : 50**
Teaching Scheme	**Examination Scheme**
Theory : - hrs/week	Continuous Internal Assessment : 25 Marks
Tutorial: - hrs/week	Attendance, Assignment & Quiz : - Marks
Practical : 3 hrs/week	External Assessment : 25 Marks
Credit :- 2	

Aim :-	
S.No	
1.	To estimate the various quantities materials regarding civil engineering construction work.

Objective :-	
S.No	Students will be able to:
1.	Estimate the quantities of Building Materials.
2.	Estimate the quantities of road Materials.
3.	Estimate earthwork.

Pre-Requisite :-	
S.No	
1.	Perfection in drawing and sketching.

Contents : (Practical)	
Sl. No.	**Assignments**
1.	**INTRODUCTION** 1.1 Definition of the estimate and its different types: factors to be considered during preparation of a detailed estimate, 1.2 Units of dimensions for materials and works and mode of measurement for different items of works and materials with the background of BIS:1200 . 1.3 Degree of accuracy in estimating.
2.	**QUANTITY ESTIMATE**: 2.1 (i)Symmetrical and(ii) Unsymmetrical boundary wall using modular bricks following long and short wall or" out to out" and "in to in" method 2.2 Underground masonry water tank (reservoir) by centre line method . 2.3 A single storeyed double roomed pucca building with front varandah , one kitchen and one W.C. & bath. 2.4 Earth work for 1 km . road in embankment having longitudinal slope only. (Discussion of different methods and terms.) 2.5 A single leaf wooden paneled door with frame. 2.6 A masonry surface drain o 50m length.
3.	**WRITING OF SPECIFICATION IN A SIMPLE WAY OF THE FOLLOWING ITEMS OF WORK WITH PWD SCHEDULE BACK GROUND.** i.) Earth work in excavation ii) Foundation concrete iii) Brick work in foundation and superstructure iv) Damp proof course v) RCC roof vi) Plastering and pointing vii) Flooring viii) Door/window shutters and frame ix) Painting to wood work and steel work x) White washing

Text Books:-

Sl. No.	Titles of the Book	Name of Authors	Name of the Publisher
Text Books:- Nil.			
Reference books :- Nil			
Suggested List of Laboratory Experiments :- Nil			
Suggested List of Assignments/Tutorial :- Nil			

Name of the Course : SURVEY ENGINEERING (PROFESSIONAL PRACTICE II)	
Course code : SE / S4 / P3 / PP2	**Semester : FOURTH**
Duration : 15 weeks	**Maximum Marks : 50**
Teaching Scheme	**Examination Scheme**
Theory : - hrs/week	Continuous Internal Assessment : 25 Marks
Tutorial: - hrs/week	Attendance, Assignment & Quiz : - Marks
Practical : 3 hrs/week	External Assessment : 25 Marks
Credit :- 2	

Aim :-

S.No	
1.	Development and evaluation of individual skills.
2.	Enhancement in soft skills through innovation.
3.	Development of professional approach

Objective :-

S.No	Students will be able to:
1.	Acquire information from different sources.
2.	Prepare notes for given topic.
3.	Present given topic in a seminar.
4.	Interact with peers to share thoughts.
5.	Prepare a report on industrial visit, expert lecture.

Pre-Requisite :-

S.No	
1.	Communication skill must be perfect.

Contents : (Practical)

Sl. No.	**Assignments**
1.	**Industrial Visits** Structured industrial visits be arranged and report of the same should be submitted by the individual student, to form a part of the term work. Industrial visits may be arranged in the following areas / industries: • Survey Site
2.	**Lectures by Professional / Industrial Expert** be organized from any survey topic.
3.	**Individual Assignments :** Seminar and report preparation**.**

Text Books:- Nil.

Reference books :- Nil

Suggested List of Laboratory Experiments :- Nil

Suggested List of Assignments/Tutorial :- Nil

Name of the Course : SURVEY ENGINEERING (DEVELOPMENT OF LIFE SKILL II)	
Course code : SE / S4 / P4 / DLS2	**Semester : FOURTH**
Duration : 15 weeks	**Maximum Marks : 50**
Teaching Scheme	**Examination Scheme**
Theory : - hrs/week	Continuous Internal Assessment : 25 Marks
Tutorial: - hrs/week	Attendance, Assignment & Quiz : - Marks
Practical : 2 hrs/week	External Assessment : 25 Marks
Credit :- 1	
Details syllabus as per common syllabus of all discipline	

Name of the Course : SURVEY ENGINEERING (FIELD SURVEY PRACTICES – II)	
Course code : SE / S4 / P5 / FSP2	**Semester : FOURTH**
Duration : 15 weeks	**Maximum Marks : 200**
Teaching Scheme	**Examination Scheme**
Theory : - hrs/week	Continuous Internal Assessment : 100 Marks
Tutorial: - hrs/week	Attendance, Assignment & Quiz : - Marks
Practical : 9 hrs/week	External Assessment : 100 Marks
Credit :- 5	

Aim :-	
S.No	
1.	Developing the survey skill required for survey engineering.

Objective :-	
S.No	Students will be able to:
1.	Identify different survey instruments.
2.	Record and observe necessary observation with the survey instruments
3.	Compute necessary survey data from field observation for drawing.
4.	Prepare drawing using survey data.

INSTRUCTIONS:	
S.No	
1.	Group size for survey practical work should be maximum 6 students.
2.	Each student from a group should handle the instrument independently to understand the function of different components and use of the instrument.
3.	Drawing and plotting should be considered as part of practical.
4.	Term work shall consist of record of all practical and projects in field book and drawing of Project work on full / half imperial size drawing sheets.

Pre-Requisite :-	
S.No	
1.	Perfection in drawing and sketching.
2.	Students should have basic knowledge of Surveying.

Contents : (Practical)	
Sl. No.	**Assignments**
1.	**1.0 LEVELLING** 1.1 Temporary Adjustment of Levels. 1.2 Holding and Reading the Staff. 1.3 B.M. connection from G.T.S.B.M. or local B.M. 1.4 Fly levelling with dumpy level and check levelling and recording level book 1.5 Profile levelling and recording 1.6 Plotting longitudinal section in suitable scales from field notes.

2.	**2.0 THEODOLITE TRAVERSE** 2.1 Temporary adjustment of Theodolite. 2.2 Measurement of horizontal angle by repetition method and reiteration method. 2.3 To traverse by the method of included angles. 2.4 To compute and plot. 2.5 **Individual Traverse** : To measure and compute for 5+ sided traverse (for each student).
3.	**3.0 TRIGONOMETRICAL LEVELLING** **3.1** To determine height of tower by the theodolite and tape.
4.	**4.0 MINOR INSTRUMENTS** 4.1 Field practice with the following instruments: — 4.1.1. Hand level 4.1.2. Abney level 4.1.3. Sextant 4.1.4. Pentagraph 4.1.5. Planimeter 4.2 Measurement of distance by subtense bar.

Text Books:-

Sl. No.	Titles of the Book	Name of Authors	Name of the Publisher
1	Surveying and Levelling	**N N Basak**	Tata Mc Graw-Hill
2	Surveying and Levelling (Part I)	**T .P. Kanetkar & S. V, Kulkarni**	PUNE VIDHYARTHI GRIHA Prakashan
3	Surveying and Levelling (Vol. I)	**Dr. B. C. Punmiya**	Laxmi Publication
4	Text book of Surveying	**S.K.Husain, M.S. Nagaraj**	S. Chand and company
5	Surveying and Levelling (Vol. I)	**S. K. Duggal**	TATA MC GRAW-HILL
6	Plane Surveying	**Dr. A.M.Chandra**	NEW AGE INTERNATIONAL PUBLISHERS
7	Surveying (Vol. I)	**Dr. K. R. Arora**	STANDARD BOOK HOUSE
8	Fundamentals of Surveying	**S. K. Roy**	PHI Learning Pvt. Ltd.

Reference books :- Nil

Suggested List of Laboratory Experiments :- Nil

Suggested List of Assignments/Tutorial :- Nil