# LESSON PLAN FOR SUMMER 2022

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| **DISCIPLINE:- CIVIL ENGG.** | | **SEMESTER:-4TH SEM SEC A** | **NAME OF THE TEACHING FACULTY:-KALYANI MOHANTY** |
| **SUBJECT:-LAND SURVEY-I ,TH.3** | | **NO. OF DAYS/PER WEEK CLASS ALLOTED:- 5T** | **SEMESTER - 4TH Sem SEC A**<br>**FROM DATE-10/03/2022 TO DATE- 10/06/2022**<br>**NO. OF WEEKS-14WEEKS** |
| **WEEK** | | **CLASS DAY** | **THEORY TOPICS** |
| | | | **CHAPTER-1 INTRODUCTION TO SURVEYING, LINEAR MEASUREMENTS:(7P)** |
| **1st WEEK** | **3/12/2022** | **1st** | 1.1 Surveying: Definition, Aims and objectives |
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| **2nd WEEK** | **3/14/2022** | **1st** | 1.2 Principles of survey-Plane surveying- Geodetic Surveying-Instrumental surveying. |
| | **3/15/2022** | **2nd** | 1.3 Precision and accuracy of measurements Instruments used for measurement of distance |
| | **3/16/2022** | **3rd** | 1.3 Types of tapes and chains<br>1.4 Errors and mistakes in linear measurement – classification, Sources of errors and remedies. |
| **3rd WEEK** | **3/21/2022** | **1st** | 1.5 Corrections to measured lengths due to-incorrect length, temperature variation, pull, sag |
| | **3/22/2022** | **2nd** | Numerical problem applying corrections. |
| | | | **CHAPTER-2 CHAINING AND CHAIN SURVEYING :(7P)** |
| | **3/23/2022** | **3rd** | 2.1 Equipment and accessories for chaining<br>2.2 Ranging – Purpose, signaling, direct and indirect ranging, Line ranger – features and use, error due to incorrect ranging |
| | **3/26/2022** | **4th** | 2.3 Methods of chaining –Chaining on flat ground, Chaining on sloping ground – stepping method, Clinometer-features and use, slope correction. |
| **4th WEEK** | **3/28/2022** | **1st** | 2.4 Setting perpendicular with chain & tape, Chaining across different types of obstacles –Numerical problems on chaining across obstacles. |
| | **3/29/2022** | **2nd** | 2.5 Purpose of chain surveying, Its Principles, concept of field book.Selection of survey stations, base line, tie lines, Check lines. |
| | **3/30/2022** | **3rd** | 2.7 Offsets – Necessity, Perpendicular and Oblique offsets, Instruments for setting offset – Cross Staff, Optical Square. 2.8 Errors in chain surveying – compensating and accumulative errors causes &remedies, Precautions to be taken during chain surveying |
| | | | **CHAPTER-3 ANGULAR MEASUREMENT AND COMPAS SURVEYING :(12P)** |
| | **4/2/2022** | **4th** | 3.1 Measurement of angles with chain, tape & compass<br>3.2 Compass – Types, features, parts, merits & demerits, testing & adjustment of compass |
| | **4/4/2022** | **1st** | 3.3 Designation of angles- concept of meridians – Magnetic, True, arbitrary; Concept of bearings – Whole circle bearing, |
| | **4/5/2022** | **2nd** | Quadrantal bearing, Reduced bearing, suitability of application, numerical problems on conversion of bearings |

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| **5th WEEK** | **4/6/2022** | **3rd** | Numerical problems on conversion of bearings<br>3.4 Use of compasses – setting in field-centering, leveling, taking readings, concepts of Fore bearing, Back Bearing, |
| | **4/9/2022** | **4th** | Numerical problems on computationof interior & exterior angles from bearings. |
| **6th WEEK** | **4/11/2022** | **1st** | 3.5 Effects of earth's magnetism – dip of needle, magnetic declination, variation in declination. |
| | **4/12/2022** | **2nd** | Numerical problems on application of correction for declination. |
| | **4/13/2022** | **3rd** | 3.6 Errors in angle measurement with compass – sources & remedies.<br>3.7 Principles of traversing – open & closed traverse, Methods of traversing. |
| | **4/16/2022** | **4th** | 3.8 Local attraction – causes, detection, errors, corrections, Numerical problems of application of correction due to local attraction. |
| **7th WEEK** | **4/18/2022** | **1st** | 3.9 Errors in compass surveying – sources & remedies. Plotting of traverse – check of closing error in closed & open traverse, Bowditch's correction,Gales table |
| | | | **CHAPTER-4 MAP READINGS CADASTRAL MAPS &NOMENCLATURE(7P)** |
| | **4/19/2022** | **2nd** | 4.1 Study of direction, Scale, |
| | **4/20/2022** | **3rd** | Grid Reference and Grid Square Study of Signs and Symbols 4.2 Cadastral Map Preparation Methodology |
| | **4/23/2022** | **4th** | 4.3 Unique identification number of parcel |
| **8th WEEK** | **4/25/2022** | **1st** | 4.4 Positions of existing Control Points and its types |
| | **4/26/2022** | **2nd** | 4.5 Adjacent Boundaries and Features |
| | **4/27/2022** | **3rd** | Topology Creation and verification.<br>**CHAPTER-5 PLANE TABLE SURVEYING(7P)**<br>5.1 Objectives, principles and use of plane table surveying. |
| | **4/30/2022** | **4th** | 5.2 Instruments & accessories used in plane table surveying |
| **9th WEEK** | **5/2/2022** | **1st** | 5.3 Methods of plane table surveying – (1) Radiation, |
| | **5/4/2022** | **3rd** | (2) Intersection, (3) Traversing (4) Resection |
| | **5/7/2022** | **4th** | 5.4 Statements of TWO POINT and THREE POINT PROBLEM. Errors in plane table surveying and their corrections, precautions in plane table surveying. |
| **10th WEEK** | **5/9/2022** | **1st** | 5.4 Statements of TWO POINT and THREE POINT PROBLEM. Errors in plane table surveying and their corrections, precautions in plane table surveying. |
| | | | **CHAPTER-6 THEODOLITE SURVEYING AND TRAVERSING(15P)** |
| | **5/10/2022** | **2nd** | 6.1 Purpose and definition of theodolite surveying, |
| | **5/11/2022** | **3rd** | 6.2 Transit theodolite- Description of features, component parts, Fundamental axes of a theodolite, concept of vernier, reading a vernier, Temporary adjustment of theodolite.<br>6.3 Concept of transiting –Measurement of horizontal and vertical angles. |
| | **5/14/2022** | **4th** | 6.4 Measurement of magnetic bearings, deflection angle, direct angle, |
| | **5/17/2022** | **2nd** | 6.4 Setting out angles, prolonging a straight line with theodolite, Errors in Theodolite observations |

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| **11th WEEK** | **5/18/2022** | **3rd** | 6.5 Methods of theodolite traversing with – inclined angle method,deflection angle method, bearing method 6.5 Plotting the traverse by coordinate method,angle method, bearing method, Checks for open and closed traverse. |
| | **5/21/2022** | **4th** | 6.6 Traverse computation – consecutive coordinates |
| **12th WEEK** | **5/23/2022** | **1st** | 6.6 Latitude and departure,Gale's traverse table |
| | **5/24/2022** | **2nd** | 6.6 Numerical problems on omitted measurement of lengths &bearings |
| | **5/25/2022** | **3rd** | 6.7 Closing error – adjustment of angular errors, adjustment of bearings numerical problems 6.8 Balancing of traverse – Bowditch's method, transit method |
| | **5/28/2022** | **4th** | 6.8 Graphical method, axis method. |
| **13th WEEK** | **5/31/2022** | **2nd** | 6.8 Calculation of area of closed traverse. |
| | **6/1/2022** | **3rd** | NUMERICAL PROBLEMS<br>**CHAPTER-7 LEVELLING AND CONTOURING(15P)**<br>7.1 Definition and Purpose and types of leveling– concepts of level surface, Horizontal surface, vertical surface, datum, R. L., B.M. |
| | **6/4/2022** | **4th** | 7.2 Instruments used for leveling, concepts of line of collimation, axis of bubble tube, axis of telescope, Vertical axis. |
| **14th WEEK** | **6/6/2022** | **1st** | 7.3 Levelling staff – Temporary adjustments of level, taking reading with level,concept of bench mark, BS, IS, FS, CP, HI. |
| | **6/7/2022** | **2nd** | 7.4 Field data entry – level Book – height of collimation method |
| | **6/8/2022** | **3rd** | 7.4 Rise & Fall method, comparison, Numerical problems on reduction of levels applying both methods, Arithmetic checks. |
| **EXTRA CLASSES REQUIRED** | | | 7.5 Effects of curvature and refraction, numerical problems on application of correction. |
| | | | 7.6 Reciprocal leveling – principles, methods |
| | | | 7.6 Numerical problems, precise leveling. |
| | | | 7.7 Errors in leveling and precautions, Permanent and temporary adjustments of different types of levels. |
| | | | 7.8 Definitions, concepts and characteristics of contours. |
| | | | 7.9 Methods of contouring, plotting contour maps, Interpretation of contour maps, toposheets. |
| | | | 7.10 Use of contour maps on civil engineering projects – drawing cross┐ sections from contour maps |
| | | | 7.10 Locating proposal routes of roads / railway /canal on a contour map, computation of volume of earthwork from contour map for simple structure. |
| | | | 7.11 Map Interpretation: Interpret Human and Economic Activities (i.e.: Settlement, Communication, Land use etc.), Interpret Physical landform (i.e.: Relief, Drainage Pattern etc.), Problem Solving and Decision Making |
| | | | **CHAPTER-8 COMPUTATION OF AREA & VOLUME:(5P)** |
| | | | 8.1 Determination of areas, computation of areas from plans. |

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| | | | 8.3 Calculation of volumes by prismoidal formula and trapezoidal formula,Prismoidal corrections, curvature correction for volumes. |
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