PARALA MAHARAJA ENGINEERING COLLEGE, BERHAMPUR

LESSON PLAN

Semester- 3rd SEM
Subject(PCCE4205)- Surveying(3)
Branch/Course- Civil Engineering

Lecture No	Module	Topics to be delivered
1	I	Introduction to surveying, Principle of survey, Types of chain and tape
2	I	Measurement of correct length of lines
3	I	Direct and indirect ranging, chaining along sloping ground
4	I	Errors in linier measurements
5	I	Corrections in linier measurements
6	I	Introduction to Chain surveying, Offset & their types, Instruments for setting right angles
7	I	Basic problems in chaining, obstacles in chaining, problem
8	I	Introduction to compass surveying, bearing and angles, fore bearing, back bearing
9	I	Calculation of angle from bearing
10	I	Calculation of bearing from angle
11	I	Local attraction, detection and elimination
12	I	Magnetic declination
13	II	Introduction to leveling, types of level, principle of leveling
14	II	classification temporary and permanent adjustment of level
15	II	Rise and fall method
16	II	Height of Instrument method
17	II	Curvature and refraction correction
18	II	Reciprocal leveling
19	II	Sensitivity of bubble tube
20	II	leveling problem, error in leveling, Determination of stadia constant, modern surveying instrument
21	III	Introduction to contouring, contour interval, horizontal equivalent, characteristics of contour
22	III	Methods of contouring, contour gradient, use of contour
23	III	Use of theodolite, Temporary & Permanent adjustment
24	III	Measurement of horizontal & vertical angle, **,** Method of repetition and reiteration
25	III	Checks for Close and open Traverse, Closing error and its limitation
26	III	Traverse Balancing, computation of Latitude and departure, Digital theodolite
27	IV	Introduction to Electromagnetic distance measurement (EDM), Types of EDM equipment, Electromagnetic spectrum, correction to measurement
28	IV	Introduction to Total Station, Basic calculations, features and functions performed by total station. Smart Station
29	IV	Introduction to remote sensing, Idealized remote sensing system, Basic principle, applications of remote sensing
30	IV	Introduction to GIS (Geographical Information System), Components and operation of GIS, Application of GIS

Course Outcomes (CO's):

Course Outcome	Descriptions (At the end of the semester students will be able to)
CO1	Demonstrate the basic and conventional surveying instruments, principle behind them and working of the instruments.
CO2	Make use of the different techniques of measurements of distances, directions and elevations and their practical applications.
CO3	Analyze survey errors and their elimination for different methods.
CO4	Define the modern surveying instruments and their usage.