

MIPC2002 MINE SURVEYING (3-0-0)

Module-I (08 Hours)

Linear Measurements and Chain Survey: Uses of various types of chains and tapes. Measurement of the correct length of line. Direct and Indirect ranging. Chaining along the sloping ground. Obstacles in chaining. Errors and their elimination

Compass Survey: Uses of the prismatic compass, Temporary adjustment, Bearing of a line, Local attractions, Correction of bearing

Module -II (10 hours)

Leveling: Use of dumpy level and leveling staff. Temporary and permanent adjustment of dumpy level. Reduction of levels by HI and rise & fall method. Error due to curvature & refraction. Sensitiveness of bubble tube, reciprocal leveling, leveling difficulties, and common errors. Automatic and Electronic or Digital levels, Contouring: Contour interval and horizontal equivalent, characteristics of contours, methods of contouring- different and indirect method, contour gradient

Theodolite Survey: Use of theodolite, Temporary adjustment, Measuring horizontal and vertical angles, Theodolite traversing

Module-III(10 hours)

Correlation: Purposes of correlation survey in mines, Different methods adopted to conduct correlation survey in mines, Allowable limits of error in correlation survey, Norms of errors in correlation survey in terms of total angular error and error of closure in terms of horizontal length, Direct traversing, Co-planning, Weisbach triangle, Weiss quadrilateral, Optical, Precise magnetic method of correlation survey, Correlation survey with Gyro-theodolite, Correlation survey with Nadir plummet and Laser Correlation survey by two shaft method, Precautions to be taken during correlation surveying in mines

Setting out curves: Elements of curves, Curves, types of curves, simple circular curves, compound curves, reverse curves, transition curves and vertical curve, setting out of curves.

Module-IV(07 hours)

Stope Surveying: Introduction to stope survey; necessity, requirements & purpose of stope survey; instruments required in stope survey; Methods of stope survey-(a) Tape triangulation (b) Tying method (c) Ray method, (d) Shrinkage stope survey (e) Rill stope survey, Preparation of stope plans, plotting the stope station, plotting the faces, transfer of stope faces to the Mine plan.

Module-V(07hours)

Modern Surveying Instruments: Electromagnetic Spectrum, Radar, Electronic Distance Measurement, EDM Equipment, Corrections to measurement, Digital Theodolite, Total Stations, Introduction to Remote Sensing and GIS.

Books:

1. Surveying (Vol-I & II), S. Duggal, Tata McGraw Hill
2. Surveying & Levelling, N. Basak, Tata McGraw Hill
3. Surveying & Levelling (Vol-I & II), T.P Kanetkar, Pune Vidyarthi Griha Prakashan
4. Surveying (Vol-I & II), Dr. K.R. Arora Standard Book House
5. Surveying (Vol-I & II), Dr. B.C. Punima
6. Surveying, Alak De, S. Chand & Company