

3rd Semester	RMN3C002	Mine Surveying-I	L-T-P 3-0-0	3 CREDITS
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Module – I (10 hours)

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

Module –II (10 hours)

Compass Survey: Uses of prismatic compass, temporary adjustment, bearing of a line, Local attractions, Correction of bearing.

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

Module – III (10 hours)

Leveling: Use of dumpy level and leveling staff. Temporary and permanent adjustment of dumpy level. Reduction of levels by Height of Instrument method 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.

Module – IV (08 hours)

Measurement of Area and Volume by different methods. Contouring: Contour interval and horizontal equivalent, characteristics of contours, methods of contouring- direct and indirect method, contour gradient.

Module – V (07 hours)

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:

- *Surveying & Levelling. Vol-I* by T.P.Kanethar & S.V.Kulkarni, Pune Vidyarthi Griha Prakashan
- *Surveying and Leveling* by R. Subramanian, Oxford University Press
- *Surveying- Vol.I*, by B.C. Purmia, Laxmi Publications
- *Surveying Vol-I* by R Agor, Khanna Publishers
- *Mine Surveying and Levelling* S.Ghatak
- *A Textbook of Surveying*, C. Venkatramaiah, Universities Press
- *Surveying And Leveling*, N.N. Basak, McGraw-Hill Education