

Discipline =	Semester =	Name of the teaching faculty =
Civil Engg.	4 th	Bhagyanaya Ganesha
Subject =	No. of days per week	Semester term dates =
Land Surveying-I	class allotted =	10.03.2022
	05	To: date =
		10.06.2022
		No. of weeks = 16

MONTH	WEEK	CLASS DAY	THEORY TOPICS
March	2 nd	1 st	<u>Chapter-1</u>
			* <u>Surveying</u> → Definition of surveying, aims and objectives of surveying.
		2 nd	* <u>Principles of surveying</u> - • Plane table surveying & describe.
		3 rd	* Describe Geodetic surveying & Instrumental surveying.
		4 th	* Precision and accuracy of measurement.
		5 th	* Instruments used for measurement of distance type and chains.
	3 rd	1 st	* Errors and mistakes of linear

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			measurement.
		2 nd	* Classifications of linear measurement and sources of errors and remedies.
		3 rd	* Corrections to measured lengths due to - incorrect length.
		4 th	* Corrections due to measured lengths due to temperature variation, pull, sag.
		5 th	* Solving numerical problems applying correction * Solve numerical problems.
			<u>Chapter - 2</u>
	4 th	1 st	<u>Chaining And Chain Surveying</u> * Equipment and accessories for chaining.
		2 nd	* Ranging - Purpose, signalling, direct and indirect ranging, line ranger features and use, error due to incorrect ranging.
		3 rd	* Methods of chaining - chaining on flat ground, chaining on sloping ground.

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			stepping method, Clinometer - features and use, slope correction.
		4 th	* Setting perpendicular with chain & tape, chaining across different types of obstacles. * Numerical problem on chaining across obstacles.
		5 th	* Purpose of chain surveying, Its principles, concept of field book.
		5 th	1 st * Selection of survey station, base line, tie lines, check lines.
		2 nd	* Offsets - Necessity, perpendicular and oblique offsets, Instruments for setting offset - Cross staff, Optical square.
		3 rd	* Errors in chaining surveying - Compensating and accumulative errors causes & remedies, Precautions to be taken during chain surveying.
April	1 st	1 st	* Class test <u>Chapter - 3</u>
		2 nd	* Measurement of angles with chain, tape & compass.

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	2 nd	1 st	* Compass - Types, features, parts, merits & demerits. * Testing & adjustment of compass.
		2 nd	* Designation of angles - Concept of meridian - Magnetic, True, arbitrary.
		3 rd	* Concept of bearings - Whole circle bearing, Quadrantal bearing, Reduced bearing.
		4 th	* Suitability of application, numerical problems on conversion of bearing.
		5 th	* Use of compasses - Setting in field - centering, leveling, taking readings.
	3 rd	1 st	* Concepts of fore bearing, Back bearing. * Numerical problems on computation of interior & exterior angles from bearings.
		2 nd	* <u>Effects of earth's magnetism</u> - dip needle, magnetic declination, variation in declination

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		3 rd	* Numerical problems on application of correction for declination.
		4 th	* Errors in angle measurement with compass - sources & remedies.
		5 th	* Principles of traversing - Open & closed traverse, Methods of traversing.
	4 th	1 st	* Local attraction - Causes, direction, errors, corrections.
		2 nd	* Numerical problems of application of correction due to local attraction.
		3 rd	* <u>Errors in compass surveying</u> - Sources & remedies. * Plotting of traverse - Check of closing error in closed & open traverse.
		4 th	* Bowditch's correction, Gales table.

MONTH	WEEK	CLASS DAY	THEORY TOPIC
		5 th	<u>Chapter-4</u> <u>Map Reading Cadastrial Maps</u> <u>& Nomenclature</u> * Study of direction, scale * Grid reference and Grid Square study of signs and symbols.
	5 th	1 st	* Cadastrial maps preparation methodology. * Unique identification number of parcel.
		2 nd	* Positions of existing control points and its types. * Adjacent Boundaries and features.
		3 rd	* Topology Creation and verification.
			<u>Chapter-5</u> <u>Plane Table Surveying</u>
		4 th	* Objectives, principles and use of plane table surveying. * Instruments & accessories used in plane table surveying.

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		5 th	* Methods of plane table surveying - ① Radiation ② Intersection ③ Traversing ④ Resection
May	1 st	1 st	* Statements of Two points and Three point problems. * Errors in plane table surveying and their corrections, precautions in plane table surveying.
		2 nd	<u>Chapter-6</u> <u>Theodolite Surveying and Traversing:</u> * Purpose and definition of theodolite surveying. * Transit theodolite - Description of features, component parts;
		3 rd	* Fundamental axes of a theodolite, concept of vernier.
		4 th	* Temporary adjustment of theodolite. * Concept of transiting - Measurement of horizontal and vertical angles.

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		5 th	* Measurement of magnetic bearings, deflection angles. * Direct angles, setting out angles.
	2 nd	1 st	* Prolonging a straight line with theodolite. * Errors in Theodolite observations.
		2 nd	* Methods of theodolite traversing with - inclined angle method. * Methods of theodolite traversing with deflection angle method, bearing method.
		3 rd	* Plotting the traverse by coordinate method. * Check for open and closed traverse.
		4 th	* Traverse computation - Consecutive coordinate, latitude and departure.
		5 th	* Gales traver table. * Numerical problems on omitted measurements of

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			lengths & bearings.
	3 rd	1 st	* Closing error - Adjustment of angular errors. * Closing error - Adjustment of bearing, numerical problems.
		2 nd	* Balancing of traverse - Bowditch's method, transit method.
		3 rd	* Balancing traverse of graphical method, axis method. * Calculation of area of closed traverse.
		4 th	* Class test <u>Chapter - 7</u>
			<u>LEVELLING AND CONTOURING:</u>
		5 th	* Definition and purpose and types of levelling - Concept of level surface, horizontal surface, vertical surface, datum, R.L, B.M.
		4 th	1 st * Instruments used for levelling concepts of line of collimation. * Axis of bubble tube, axis of

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			Telescope, Vertical axis.
		2 nd	* Levelling staff - Temporary adjustments of level, taking reading with level. * Concept of benchmark, BS, IS, FS, CP, HI.
		3 rd	* Field data Entry - Level Book Height of collimation method.
		4 th	* Field data Entry - Level Book Rise & fall method.
		5 th	* Comparison of Height of collimation method and Rise and fall method.
5 th	1 st		* Solve Numerical problems on reduction of levels applying both method, Arithmetic check. * Effects of curvature and refraction. * Numerical problems on application of connection.
		2 nd	* Reciprocal levelling - Principles methods, precise levelling numerical problems.

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			* Errors in levelling and precautions.
Jun	1 st	1 st	* Permanent and temporary adjustment of different types of levels. * Definitions, change concepts and characteristics of contours.
		2 nd	* Methods of contouring, plotting contour maps. * Interpretation of contour maps, toposhets.
		3 rd	* Use of contour maps on civil engineering project - drawing cross-sections from contour maps. * Location proposal routes of roads / railway / canal on a contour map.
		2 nd 1 st	* Computation of volume of earthwork from contour map for simple structure. * Map Interpretation: Interpret Human and Economic Activities (i.e. ... settlement, communication, land use etc)

MONTH WEEK CLASS DAY THEORY TOPICS

* Interpret physical landforms (i.e. ... Relief, Drainage Patterns etc)

2nd * Problem solving and Decision making and solve numerical problems.

Chapter - 8

Computation of Area & Volume:

* Determination of area, computation of areas from plans.

3rd * Calculation of area by using ordinate rule, trapezoidal rule.

* Calculation of area by using Simpson's rule.

4th * Calculation of volume by prismoidal formula.

* Calculation of volume by prismoidal corrections, curvature correction for volume.