RayatShikshanSanth's

SADGURU GADAGE MAHARAJ COLLEGE, KARAD

Department of Geography

BA-III COC

Certificate Course in Land Measurement & Surveying

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Certificate Course in Land Measurement & Surveying

Board of Studies (BoS)

1) Prin. Dr. M. M. Rajmane : Chairman (Principal, S. G. M. College, Karad)

2) Dr. V. L. Jawan : Co-ordinator

3) Dr. J. D. Yadav : Member (Placement Officer, S. G. M. College, Karad)

4) Dr. K. N. Sonttake : Member (KisanveerMahavidhylaya, Wai)

5) HOD, Civil Engi. Dept. : Member (Government Engineering College, Karad)

Title of the Course: Certificate Course in Land Measurement & Surveying

Faculty: Faculty of Humanities

Year of Implementation: Syllabus will be implemented from June 2018 onwards

Course Duration: 6 Months

General Objectives of the Course:

1. To introduce the students a new technology of Land Surveying.
2. To acquaint the students with reading obtained with Total Station/GPS forming a database for surveying and mapping
3. To offer practical training in land surveying to the students and make them surveying experts.
4. To generate job opportunities in the corporate and government sector.

Structure of Course

Paper	Title	Periods	Marks
Paper No. 1	Fundamentals of Land Surveying	75	100
Paper No. 2	Land Surveying Techniques	75	100
Paper No. 3	Field Work and Laboratory Work	110	100
Total		**260**	**300**

Question Paper Structure

Paper No. 1Fundamentals of Land Surveying **Total Marks: 100**

Paper No. 2Land Surveying Techniques **Total Marks: 100**

Q 1.	Objective type questions (Multiple Choice)	:	20 Marks
Q 2.	Essay type question with internal option	:	20 Marks
Q 3.	Essay type question with internal option	:	20 Marks
Q 4.	Short notes (any two out of four)	:	20 Marks
Q 5.	Brief answers (any four out of six)	:	20 Marks
			100 Marks

Paper III (Practical)

Paper No. 3 : Field Work and Laboratory Work **Total Marks : 100**

Q 1.	Question based on Scale and Measurement	: 10Marks
Q 2.	Question based on Field Survey	: 30 Marks
Q3.	Question based on Lab Work (ETS / GPS Data Processing/Presentation)	: 30 Marks
Q 4.	Evaluation of Project Work (Land Survey and Final Reporting)	: 10 Marks
Q 5.	Viva –Voce	: 10 Marks
Q 6.	Journal	: 10 Marks
		100 Marks

Standard of Passing: 40 Per cent in each Subject

SYLLABUS

Paper – I (Theory)

Paper No. 1: Fundamentals of Land Surveying Total Periods-75

Unit No.	Topic	Subtopic	No. of Periods
1.	**Introduction to Surveying**	Meaning and definition of surveying, History of survey Types of surveying Concept of Surveying Uses of surveying	**15**
2.	**Scale and Contours**	Definitionandmeaning Characteristics and properties, Methods of contour Definition and Methods of expression of Scale, Measurement units	**10**
3.	**Land and Land use**	Meaning of Land, Ownership of Land Land use zones -Urbanizable Zone, Industrial Zone, Recreational Zone, Forest Zone, Green Zone	**15**
4.	**Land Revenue Administration**	Departments of Revenue Administration- Recovery of Revenue, Measuring of lands, The registration of land alienations, and Treasury Revenue Officers: Their Powers and Duties	**15**
5.	**Land Related Laws**	Maharashtra Land Revenue Code 1966 Maharashtra Regional And Town Planning Act, 1966 Bombay Tenancy And Agricultural Lands Act, 1948 And Its Rules The Maharashtra Agricultural Lands (Ceiling On Holdings) Act, 1961 The Bombay Village Panchayat Act, 1958 The Bombay Provincial Municipal Corporations Act, 1949 Maharashtra Gunthewari Developments Act2001	**20**

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1. Singh &Kanujia : Map work and Practical Geography.
2. Maslov A.V. Gordeev A.V.,BatrakovYu.G. Geodetic surveying,1984, Mir Publishers,Moscow
3. Kanetakar T.P. &Kukarni S.V. 1986. Surveying & leveling, Pune VidyarthiGrihaPrakshan, Pune
4. V. Natarajan P., Adler Ron K. Advanced Surveying, B.1 Publ. Bombay
5. Rangwala S.C. 2011. Surveying and Leveling, Charotar Publishing HousePvt. Ltd. Anand,(GJ)
6. www.mahabhulekh.maharashtra.gov.in

Paper – II (Theory)

Paper No. 2: Land Surveying Techniques **Total Periods: 75**

Unit No	Topic	Subtopic	No. of Periods
1.	**Surveying**	Introduction to chain and tape, plane table and prismatic compass survey Survey instruments and its use, merits and demerits	**15**
2.	**Theodolite Survey**	Definition and Principles, Horizontal & Vertical angles, Instrument and its use, Merits and demerits	**15**
3.	**Computer Cartography**	Principles of Computer Cartography, Hardware and Software, Application of Computer Cartography, Advantages and Limitation	**15**
4.	**GPS Survey**	Global Positioning System (GPS) Introduction, GPS Segment, Datum & Geodesy, Signal & Errors, GPS Receiver,	**15**
5.	**Total Station Surveying**	Basic Terms used in Total Station Surveying, Total Station instrument components, Phases of Total Stations Survey, Sources of error for total stations, Electronic Notebook, Advantage and disadvantage	**15**

REFERENCES

1. Jordan Naoum (2012) : Total StationDuc publication,
2. Mishra, R.P. (1973): Elements of Cartography. Prasaranga, University of Mysore.
3. S. K. Roy (2004) Fundamentals of Surveying, PHI Learning Pvt. Ltd.
4. Robinson, A.H & Sale R.D.: Elements of Cartography. Johns House & Sons, London.
5. Sing R. L. (1996) : Map Work & Practical Geography, Central Book Dept. Allahabad.
6. Ahmed, E-I. Rabbany 2006) :Introduction to GPS: The Global Positioning System, Artech House, Boston

Nel, S . (2008):Global Positioning, John Wiley and Sons, Hoboken

Paper – III (Practical)
Paper No. 3 Field Work and Laboratory Work **Total Periods: 110**

Unit No	Topic	Subtopic	No. of Periods
1.	**Scale and Area Measurement**	i) Conversion of units ii) Conversion and Construction of scale iii) Exercises on area measurement. iv) Interpolation of contour lines	**10**
2.	**Modern Land Surveying Techniques**	i) **<u>GPS Survey</u>**- Hands-on GPS Receiver, field observation and GPS Reading, Introduction of Latitude, Longitude, Height, Route Tracking, GPS Data (Point, Line , Polygon) Collection and Attachment of the GPS data, Introduction of GPS Software (Map Source /Arc GIS/ Global Mapper/ Easy GPS), GPS data processing and presentation, Measurements of height, distance, area, slope and Preparation of Map. ii) **<u>Total Station-</u>** Vertical and horizontal angle measurement, topographical survey (plain table and contour survey), Stake out / Demarcation/ Survey of Building Layouts / Plot Layouts / Roads / Alignments, Establish Benchmarks, Measurement of remote distance and elevation using special function of TS, Solution of trigonometric problems using COGO function on the field / Site, Calculate 2D, 3D area on the field / Site, Calculation of surface volume on the field / Site, Survey work estimation factors, procedure for download and upload data to TS, TS data formats, Preparation simple survey map using Software.	**50**
3.	**Project work**	(Application of GPS and Total Station in specific domain area) GPS & Total Station data acquisition, Processing and Presentation Project Report : Final Reporting	**50**
4.	**Viva – voce**	Based on Project Work	
5.	**Journal**	Record of Practical's	

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1. SatheeshGopi, (2007),Advanced Surveying: Total Station, GIS and Remote Sensing Pearson Education India,
2. Charles D. Ghilani, Paul Richard Wolf (2008): Elementary Surveying: An Introduction to Geomatics, Prentice Hall,
3. N. N. Basak (1994): Surveying and Leveling, Tata McGraw Hill Publishing Company LTD., New Delhi.
4. Parkinson, B. Spilker J. : (Eds.) (1996) GPS : Theory and Applications Vol. I & II, AIAA, Washington.
5. Agarwal, N.K. (2004) : Essentials of GPS, Spatial Network Pvt. Ltd, New Delhi.
6. www. garmin.in

Chairman **Co-ordinator** **Member** **Member** **Member**