

For Syllabus, Question Papers, Notes & many More

CE6404 SURVEYING II

DETAILED SYLLABUS

UNIT I CONTROL SURVEYING

Horizontal and vertical control – Methods – specifications – triangulation- baseline – instruments and accessories – corrections – satellite stations – reduction to centre-trigonometrical levelling – single and reciprocal observations – traversing – Gale's table.

UNIT II SURVEY ADJUSTMENT

Errors Sources- precautions and corrections – classification of errors – true and most probable values- weighed observations – method of equal shifts –principle of least squares - normal equation – correlates- level nets- adjustment of simple triangulation networks.

UNIT III TOTAL STATION SURVEYING

Basic Principle – Classifications -Electro-optical system: Measuring principle, Working principle, Sources of Error, Infrared and Laser Total Station instruments. Microwave system: Measuring principle, working principle, Sources of Error, Microwave Total Station instruments. Comparison between Electro-optical and Microwave system. Care and maintenance of Total Station instruments. Modern positioning systems – Traversing and Trilateration.

UNIT IV GPS SURVEYING

Basic Concepts - Different segments - space, control and user segments - satellite configuration - signal structure - Orbit determination and representation - Anti Spoofing and Selective Availability - Task of control segment – Hand Held and Geodetic receivers –data processing - Traversing and triangulation.

UNIT V ADVANCED TOPICS IN SURVEYING

Route Surveying - Reconnaissance - Route surveys for highways, railways and waterways - Simple curves – Compound and reverse curves - Setting out Methods –

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Transition curves - Functions and requirements - Setting out by offsets and angles - Vertical curves - Sight distances- hydrographic surveying – Tides - MSL - Sounding methods - Three-point problem - Strength of fix - Sextants and station pointer- Astronomical Surveying – field observations and determination of Azimuth by altitude and hour angle methods – fundamentals of Photogrammetry and Remote Sensing

TEXTBOOKS

1. James M. Anderson and Edward M. Mikhail, "Surveying, Theory and Practice", 7th Edition, McGraw Hill, 2001.
2. Bannister and S. Raymond, "Surveying", 7th Edition, Longman 2004.
3. Laurila, S.H. "Electronic Surveying in Practice", John Wiley and Sons Inc, 1993

REFERENCES

1. Alfred Leick, "GPS satellite surveying", John Wiley & Sons Inc., 3rd Edition, 2004.
2. Guocheng Xu, " GPS Theory, Algorithms and Applications", Springer - Berlin, 2003.
3. Satheesh Gopi, rasathishkumar, N. madhu, "Advanced Surveying, Total Station GPS and Remote Sensing" Pearson education , 2007.

OBJECTIVES

This subject deals with geodetic measurements and Control Survey methodology and its adjustments. The student is also exposed to the Modern Surveying.