Geographical coordinates.

Application of spherical trigonometry to the transformation of the coordinates and solution of the astronomical triangle.

Sidereal, solar and mean time, equation of time, astronomical, civil and standard time.

The Ephemeris or Nautical Almanac.

Interpolation.

Parallax, refraction, dip, semi-diameters.

Corrections to be made to the observed altitude of thesun, moon and stars.

To find the latitude of a place by the meridian altitude of the sun or a star, or from the altitude of a star on the prime vertical.

To find the time and szimuth by the altitude of the sun or a star. To find the meridian line by an observation of a circumpolar star

at its greatest elongation, by observation of the pole star at any time, use of the tables given in the Nautical Almanac.

Different methods of finding time, latitude, longitude and azimuth.

Use of the transit instrument and the zenith telescope.

Text Book :-- Chauvenct's Spherical and Practical Astronomy, Green's Spherical and Practical astronomy, Galbraith & Houghton's Astronomy,- Francœur.

Differential Calculus

First principles.

Differentiation of functions of one variable.

Differentiation of functions of two or more variables

Differentiation of implicit functions.

Application of the above principles to the most usual functions. Successive differentiation of functions.

Development of functions. — 'l'aylor's and MacLaurin's theorem. Analytical applications.—Maxima and minima.

Geometrical applications.-Tangents and normals to plane curves. Asymptotes.-Envelopes. Convexity and concavity.-Radius of curvature. -Evolute and Involute.-Osculating circle.-Singular points.-Curvature.

Text Books.—Sonnet, Calcul differentiel.—Williamson's Differential Calculus.

Land Surveying

Surveying with chain and with theodolite.

Establishment and prolongation of lines with and without obstacles, with and without instruments.

Measurement of regular and irregular fields,— of inaccessible lands.

Different methods of surveying.

Dividing up land.

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Division of triangles, trapezoids, parallelograms, and ef any irregular rectilineal figures.