



University of Pretoria Yearbook 2022

Geometrical and space geodesy 310 (GMC 310)

Qualification	Undergraduate
Faculty	Faculty of Natural and Agricultural Sciences
Module credits	22.00
NQF Level	07
Programmes	BSc (Geoinformatics) BSc (Meteorology) BSc (Geography and Environmental Science)
Prerequisites	GMC 110 and WTW 114/WTW 134
Contact time	1 practical per week, 2 lectures per week
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Semester 1

Module content

Spherical trigonometry. Geometrical Geodesy: Datum surfaces and coordinate systems in Geodesy, Calculations on the ellipsoid, Datum transformations. Map projections: Projection principles, distortion determination, construction of conformal, equivalent and equidistant projections, the Transverse Mercator projection and UTM projection of an ellipsoidal earth, projection transformations. Space Geodesy: Time systems, Celestial and observer coordinate systems, Global Navigation Satellite Systems (GNSS), Satellite orbits and orbital parameters, 3-D positioning. A project or assignments of at least 64 notional hours. Examples using data from South Africa are implemented.

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