



is presenting a five-day short course on

## Map Projections & Co-ordinate Systems

from 25 July 2011 to 29 July 2011 and 15 August 2011 to 19 August 2011

### Aim of the Course

The aim of this course is to review basic geometric geodesy, with special reference to mapmaking and co-ordinate systems in the South African context.

### Who should attend?

Any person involved in writing technical reports, developing learning material/training manuals or presenting research results, who is moderately computer literate and has a working knowledge of Microsoft Word and Excel, will benefit from this course.

### Course Outline

- **Introduction**  
History of mapmaking and geodesy; Definitions and terminology; Important latitudes and longitudes; Solving the longitude problem; Flattening the globe.
- **Size and shape of the earth**  
Definitions, terminology and symbols; Calculations of distances between two points on the surface of the globe; On a great circle; On a small circle; Spherical triangles; Map scales; Scaling and plotting of geographical co-ordinates.
- **Map projections**  
In search of a good map projection; Definitions, terminology and symbols; Types of map projections; Plane; Conical and Cylindrical map projections; Calculation and plotting of the graticule using various map projections; Maps and map projections used in South Africa; The history of national mapping in South Africa; Indexes to map series of South Africa.
- **Introduction to geometric geodesy**  
Definitions, terminology and symbols; The geoid; Spheroids/Ellipsoids; Datums used in South Africa; Cape datum and Hartbeeshoek 94 datum.
- **Co-ordinate systems**  
Geographical co-ordinate system; Grid co-ordinate systems; The South African Lo system; The UTM co-ordinate system.
- **Co-ordinate transformations**  
Geographical co-ordinates to South African Lo co-ordinates, Geographical coordinates to UTM co-ordinates; South African Lo co-ordinates to Geographical co-ordinates; UTM co-ordinates to Geographical co-ordinates; Lo co-ordinates to UTM co-ordinates; UTM co-ordinates to Lo co-ordinates; Lo to Lo Transformation; 2D Helmert transformation.

### Learning Material and Stationery

TSMA will provide all the necessary stationery and learning materials needed by the delegate to complete the course successfully - these items are included in the course fees. Please bring your own laptop with MS Office 2003 or later.

### Meals and Refreshments

Morning and afternoon tea/coffee and a light lunch will be served and these are included in the course fees.

### Training and Accommodation Venues

The course will be presented at Ntambama Events Centre, situated in the Dinokeng South area, 10km north of Pretoria. Limited accommodation is available at the training venue, at an additional cost, therefore it is necessary to book well in advance to avoid disappointment. There are various other accommodation options available in the area.

### Course Dates

Course dates are available on the TSMA web site at [www.tзма.co.za](http://www.tзма.co.za)

### Course and Accommodation Fees

The course fees are R5 950-00 per delegate and accommodation is available at R380-00 (2-3 persons sharing a chalet) and R480-00 (single room) per delegate per night. The accommodation fees include dinner and breakfast but exclude VAT.

### Contact Us

For further information or to make a booking, please contact Karin Coetzee on 012 544 9441, Mobile 079 039 5583 or email her at [info@tзма.co.za](mailto:info@tзма.co.za).

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Physical Address: Ntambama Events Centre, Holding 35 Haakdoorn Road, Haakdoornlaagte, Buffelsdrift,

Pretoria GPS Co-ordinates: S25° 36' 20.40" E28° 18' 06.06"

Postal Address: P.O. Box 1647, Derdepark, Pretoria, 0035



Developing Leadership and Scarce Skills