



## Geomatics: Geodesy and Cartography - GEOM1

### COURSE

#### About the Course

Use of incorrect geodetic parameters can cause major errors in positions of wells, pipelines, and seismic surveys, with significant financial losses and sometimes with HSE risks, as demonstrated by case studies. Awareness of geodetic datums, coordinate reference systems, and map projections is provided via interactive demonstrations and hands-on workshop exercises using the online EPSG Geodetic Registry. Students learn how Global Navigation Satellite Systems (GNSS) including GPS work, as well as the resultant accuracies obtainable using different receiver types and data processing techniques. Hands-on GPS exercises show potential errors. Google Earth is examined with focus on its strengths and weaknesses for E&P purposes. Lastly, the importance of geospatial metadata is stressed, since often such metadata is implemented at the end of a project. This critical geospatial data component is discussed with recommendations for best practices using current industry references.

*"All of the course is good. I want to develop and make more exercises about coordinate transformations!!"* - Geophysicist Engineer, Algeria

*"Liked map projections, project coordinate systems."* - Geophysicist, Algeria

#### Target Audience

Geologists, geophysicists, exploration and production managers, reservoir engineers, drilling engineers, data acquisition and data managers, and GIS specialists.

#### You Will Learn

Participants will learn how to:

- To identify bad geodetic parameters within your project data, and ensure that geodetic parameters provided to you are correct
- Advantages and disadvantages of using various map projections
- To apply this course to projects in your specific geoscience software applications
- Evaluation of geospatial metadata in your projects; learn how to generate good geospatial metadata
- The limitations on reasonable use of Google Earth for your own applications
- The accuracy limits of different types of GNSS/GPS receivers and technology

## Course Content

- How much trouble coordinate errors can cause (with case studies)
- Key geomatics/geodesy definitions
- Geospatial reference surfaces
- Geodetic datums, coordinate reference systems, and transformations
- Global Navigation Satellite Systems (GNSS), including GPS
- Map projection methods
- What is North
- Effects of different linear units
- Vertical datums, geoidal models, vertical CRS, and transformations
- Google Earth and associated geospatial data issues
- Geospatial metadata: what is it and how can it be made part of the normal workflow process
- Recap and course references

## Product Details

Categories: [Upstream](#)

Disciplines: [Data Management](#), [Science and Analytics](#)

Levels: [Foundation](#)

Product Type: [Course](#)

Formats Available: [In-Classroom](#)

Instructors: [PetroSkills Specialist](#)