COURSE OUTLINE

This online course builds on the delegates existing knowledge of QGIS. It comprises a series of presentations, demos and computer practical sessions using FREE open source GIS software. The example datasets are taken from a variety of fields.

Delegates are introduced to advanced analysis techniques using both raster and vector data. The course includes a basic introduction to the PostgreSQL/PostGIS enterprise database as well as the Python programming language. The course is designed for existing users of QGIS that want to expand their knowledge and carry out higher-level analysis.

This course is intended for those who have either completed our Introduction to QGIS course or have equivalent knowledge and experience.

The course is run via a series of zoom video calls.

ANTICIPATED COURSE OUTCOMES / ACHIEVEMENTS

Aims and objectives

- To develop delegates understanding of the fundamental concepts of GIS including its strengths and limitations.
- To expand on the concept of Open Source software
- To introduce the more advanced functionality of QGIS software package.
- To teach the advanced skills needed to obtain, import, manipulate, analyse, interpret, manage and output spatial data in order to investigate topics in the delegate’s area of interest.
- To demonstrate real-world uses of GIS.

Learning outcomes - by the end of the course, delegates will have a knowledge and understanding of:

- Working with spatial databases including importing existing data sets.
- Manipulating coordinate systems in QGIS.
- Advanced field calculations.
- Working with topologies.
- Vector processing including tools such as union.
- Raster processing and how to use the raster calculator.
- Graphical Modeller.
- PostGIS databases.
## Advanced QGIS Online

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<th>Session</th>
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<tr>
<td><strong>Session 1:</strong> Connection check</td>
<td>This is a short session to test your zoom connection and to ensure you have correctly installed QGIS on your computer.</td>
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<td><strong>Session 2:</strong> Group training</td>
<td><strong>1 – Spatial databases</strong>&lt;br&gt;Recap on GIS data types&lt;br&gt;SpatiaLite databases&lt;br&gt;PostgreSQL / PostGIS&lt;br&gt;ESRI file geodatabases&lt;br&gt;Shapefiles &amp; GeoPackages&lt;br&gt;Creating drop down menus (Value Map)&lt;br&gt;&lt;br&gt;<strong>Exercise 1a – SpatiaLite databases</strong>&lt;br&gt;<strong>Exercise 1b – PostGIS databases</strong>&lt;br&gt;<strong>2 – Manipulating coordinate systems in QGIS</strong>&lt;br&gt;Fundamentals of coordinate systems&lt;br&gt;Datums&lt;br&gt;Parameters in QGIS&lt;br&gt;What system is best?&lt;br&gt;<strong>Exercise 2 – Manipulating coordinate systems</strong></td>
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<td><strong>Session 3:</strong> Group training</td>
<td><strong>3 – Introduction to Python</strong>&lt;br&gt;Python as a language&lt;br&gt;Python in QGIS&lt;br&gt;Syntax&lt;br&gt;Python Console&lt;br&gt;Pitfalls&lt;br&gt;&lt;br&gt;<strong>Exercise 3 – Introduction to python in QGIS</strong>&lt;br&gt;<strong>4 – Advanced Field Calculations, Expressions and Actions</strong>&lt;br&gt;Field Calculator refresher&lt;br&gt;Advanced Field calculations&lt;br&gt;Functions&lt;br&gt;Expressions&lt;br&gt;Actions&lt;br&gt;<strong>Exercise 4 – Field calculation</strong></td>
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<td><strong>Session 4:</strong> Group training</td>
<td><strong>5 – Advanced Editing</strong>&lt;br&gt;Editing recap&lt;br&gt;Snapping&lt;br&gt;Feature topology&lt;br&gt;Topology checker&lt;br&gt;Reshaping features&lt;br&gt;Splittings features&lt;br&gt;Advanced digitising (CAD style)&lt;br&gt;Forms and Field widgets&lt;br&gt;&lt;br&gt;<strong>Exercise 5 – Advanced digitising</strong>&lt;br&gt;<strong>6 – Advanced Symbologies, Labelling and Presentation of data</strong>&lt;br&gt;Labelling using expressions&lt;br&gt;Data defined labelling&lt;br&gt;Matching label colour to features&lt;br&gt;Setting label properties&lt;br&gt;Label engine&lt;br&gt;Label priority&lt;br&gt;Creating an Atlas and dynamic maps&lt;br&gt;<strong>Exercise 6a – Advanced symbologies and Presentation of data</strong>&lt;br&gt;<strong>Exercise 6b – Creating an Atlas</strong></td>
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<td><strong>Session 5:</strong> Group training</td>
<td><strong>7 – Vector processing in QGIS</strong>&lt;br&gt;Processing framework&lt;br&gt;Batch processing&lt;br&gt;Geoprocessing tools&lt;br&gt;&lt;br&gt;<strong>Exercise 7 – Spatial analysis case study</strong>&lt;br&gt;<strong>8 – Raster processing in QGIS</strong>&lt;br&gt;Raster menu&lt;br&gt;Raster calculator&lt;br&gt;Interpolation&lt;br&gt;Using GRASS&lt;br&gt;&lt;br&gt;<strong>Exercise 8 – Interpolation and raster algebra</strong>&lt;br&gt;<strong>9 – Graphical Modeller</strong>&lt;br&gt;What is Graphical Modeller?&lt;br&gt;Defining inputs&lt;br&gt;Algorithms&lt;br&gt;Saving, loading and editing a model&lt;br&gt;Documenting a model&lt;br&gt;<strong>Exercise 9 – Graphical modeller</strong></td>
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