DEVELOPMENT OF WEB BASED GIS APPLICATIONS USING ESRI PRODUCTS, CARTO, MAPBOX AND GOOGLE MAPS

ONLINE TRAINING
The course offers a complete introduction to web programming for GIS applications. The training material is focused on the latest commercial tools and services like ESRI products, Carto or Mapbox.

Throughout the course the student will learn to create complex cartographic viewers using powerful visual tools. In the same time will learn how to build a WEB GIS application using different API tools, exploring the new functionalities and capabilities that they offer.

At the end of the course, students will acquire the necessary knowledge to create their own Web GIS applications which display and analyze geospatial information, in an accessible, intuitive and professional manner.

- Offer an overview about the available tools used for the development of Web GIS applications without the need of programming skills.
- Learn about the basics of Web programming, HTML, JavaScript and display your customized map applications.
- Initiate the students in the development of Web GIS applications using JavaScript programming language.

The course is aimed at professionals of the GIS world who, with knowledge or not of programming, want to know all the possibilities that programming with Open Source Softwares offers.
Our online courses are distributed via Moodle, the world’s most popular learning platform. It is a highly flexible Learning Management System that can be used to conduct and access courses, accomplish tasks of practical exercises, interact face-to-face to the teaching staff or benefit of support and resources at any time.

The online platform can be accessed 24 hours a day, in which the student will be able to ask for help at any given moment. The instructors will act as supervisors during all the training process, offering support for any possible difficulty encountered by the students along the course.

The course is structured in different modules, making it easy for the student to search for training material, download information, complete practical exercises and take assessments in order to verify their new gained abilities. The instructors will assist the students throughout all the course period, offering progressive help and information according to their evolution.

**Instructors**

**Isaac Perez**

holds a Bachelor Degree in Geology at University of Granada and has more than 14 years of experience in the field of GIS and groundwater studies. His Master Degree in Web GIS applications and abilities in handling tools like JavaScript APIs, Open Layers, Google, Python and ArcGIS recommend him as one of the best expert in web programming and development for GIS applications.

**Beatriz Ramos López**

Beatriz holds a Bachelor Degree in Biology at University of Sevilla, a Master in Geographic Information Systems and another one in Geographic Information Technologies, both of them at the University of Alcalá. She has experience in the execution of Web GIS related projects, in the usage of open source software products and in the development of cartographic viewers.
**INTRODUCTION TO WEB GIS**

What is a cartographic viewer? What is Web GIS?
Evolution of Desktop GIS to Cloud GIS.
Examples
Different types of applications for the development of cartographic viewers. Examples
Download free spatial data from different sources
How to integrate and process this data in a GIS: QGIS
Evaluation

**WEB PROGRAMMING**

Basic concepts of HTML, CSS and JavaScript
Getting familiar with Web GIS development environment
How to develop your own application
Debugging tools
Notions about Responsive Web Design
Evaluation

**CARTO PLATFORM**

What is CARTO?
CARTO Builder installation
Guidelines for the development of a viewer using CARTO Builder
How to upload and use the data. Different types of analysis
Create a viewer using CARTO (CARTO Builder)
Introduction to CARTO.js library
Programming a viewer with CARTO.js library
Examples and API documentation
Evaluation

**MAPBOX PLATFORM**

What is Mapbox
Introduction to Mapbox Studio
Guidelines for the development of a viewer using Mapbox Studio
How to upload and use the data. Different types of analysis
Create a viewer using Mapbox Studio
Introduction to the Mapbox API GL JS
Programming a viewer with the Mapbox API GL JS
Examples and API documentation
Evaluation

**USE GOOGLE MAPS**

Introduction Google Maps JavaScript API
Create a basic viewer using Google Maps
Apply styles in a map
Map interaction: controls and event management
Data visualization
Geocoding service
Evaluation

**ESRI PLATFORM: ARCGIS ONLINE AND WEB APP BUILDER**

What is Web App Builder?
Working with ArcGIS Online. Loading data and services. Functionality
Guidelines for the development of a viewer using Web App Builder
Add and configure widgets
How to use templates
Generate and modify templates
Create a viewer using Web App Builder
Practical exercise
Evaluation

**HOW TO DEVELOP A 3D CARTOGRAPHIC VIEWER**

How to implement a 3D viewer
List of applications used for the development of 3D cartographic viewers
Create and display a 3D cartographic viewer
Practical exercise
Evaluation

**FINAL PROJECT**

Final practical exercise