Training Course on Publishing and Managing Web Services

Professional Development Training Course Outline

Category	GIS	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

In today's **data-driven world**, the ability to effectively share and manage **geospatial information** is paramount for organizations across diverse sectors. This training course delves into the critical realm of **web service publishing** and management, focusing on industry-leading platforms: **ArcGIS Server** and **GeoServer**. Participants will gain comprehensive expertise in leveraging these powerful tools to transform raw spatial data into accessible, interoperable **web services**, unlocking new possibilities for **geospatial data sharing**, **visualization**, and **analysis** within a **cloud-native environment**. Training Course on Publishing and Managing Web Services is designed to equip professionals with the **practical skills** and theoretical understanding necessary to establish robust, **scalable**, and secure **geospatial web infrastructures**.

The demand for readily available **spatial data** has surged, necessitating efficient methods for its dissemination. This course addresses that need by providing an in-depth exploration of **OGC standards** and their implementation within ArcGIS Server and GeoServer. By mastering the intricacies of **WMS (Web Map Service)**, **WFS (Web Feature Service)**, and **WCS (Web Coverage Service)**, attendees will be able to design, deploy, and maintain **high-performance web services** that integrate seamlessly with various **client applications**. The training emphasizes **best practices** for **data optimization**, **security configuration**, and **performance tuning**, ensuring participants can build **resilient geospatial solutions** that meet the evolving demands of modern **digital transformation** initiatives.

Programme Curriculum

Training Course on Publishing and Managing Web Services

Introduction

In today's **data-driven world**, the ability to effectively share and manage **geospatial information** is paramount for organizations across diverse sectors. This training course delves into the critical realm of **web service publishing** and management, focusing on industry-leading platforms: **ArcGIS Server** and **GeoServer**. Participants will gain comprehensive expertise in leveraging these powerful tools to transform raw spatial data into accessible, interoperable **web services**, unlocking new possibilities for **geospatial data sharing**, **visualization**, and **analysis** within a **cloud-native environment**. Training Course on Publishing and Managing Web Services is designed to equip professionals with the **practical skills** and theoretical understanding necessary to establish robust, **scalable**, and secure **geospatial web infrastructures**.

The demand for readily available **spatial data** has surged, necessitating efficient methods for its dissemination. This course addresses that need by providing an in-depth exploration of **OGC standards** and their implementation within ArcGIS Server and GeoServer. By mastering the intricacies of **WMS (Web Map Service)**, **WFS (Web Feature Service)**, and **WCS (Web Coverage Service)**, attendees will be able to design, deploy, and maintain **high-performance web services** that integrate seamlessly with various **client applications**. The training emphasizes **best practices** for **data optimization**, **security configuration**, and **performance tuning**, ensuring participants can build **resilient geospatial solutions** that meet the evolving demands of modern **digital transformation** initiatives.

Course Duration

5 days

Course Objectives

Upon completion of this course, participants will be able to:

1. Architect and Deploy scalable geospatial web services using ArcGIS Server and GeoServer.
2. Publish and Consume OGC-compliant WMS, WFS, and WCS for seamless data interoperability.
3. Optimize spatial data for efficient web delivery and performance enhancement.
4. Implement robust security measures for geospatial web services, including authentication and authorization.
5. Configure GeoWebCache and ArcGIS Server caching for accelerated map tile delivery and improved user experience.
6. Integrate web services with popular GIS client applications and web mapping libraries (e.g., OpenLayers, Leaflet).
7. Troubleshoot common web service deployment and performance issues.
8. Understand and apply geospatial data modeling principles for web service publishing.
9. Leverage REST APIs for programmatic interaction with ArcGIS Server and GeoServer.
10. Explore cloud deployment strategies for geospatial web services (e.g., AWS, Azure).
11. Implement real-time data streaming for dynamic geospatial visualization.
12. Design and develop interactive web mapping applications utilizing published services.
13. Stay updated with the latest geospatial technology trends and open-source GIS solutions.

Organizational Benefits

- Facilitate wider access to crucial **geospatial data** across departments and with external partners, fostering enhanced collaboration and **information sharing**.
- Enable seamless integration of **spatial data** with various systems and applications, reducing data silos and promoting a unified operational picture.

- Leverage **open-source GeoServer** to reduce licensing costs while optimizing the use of existing **ArcGIS Server** infrastructure, maximizing return on investment.
- Empower developers to rapidly build and deploy **custom web mapping applications**, accelerating innovation and time-to-market for new **geospatial solutions**.
- Build **robust** and **scalable web service architectures** capable of handling increasing data volumes and user demands, ensuring high availability and responsiveness.
- Implement best practices for securing **sensitive geospatial data** published as web services, adhering to **data governance** and compliance requirements.
- Provide stakeholders with timely and accurate **geospatial insights** through intuitive web-based interfaces, leading to more informed and effective decision-making.
- Stay at the forefront of **geospatial technology**, gaining a competitive edge by efficiently managing and disseminating **spatial intelligence**.

Target Audience

1. GIS Professionals & Analysts.
2. Web Developers.
3. Database Administrators.
4. System Administrators.
5. Project Managers
6. Data Scientists.
7. Academics & Researchers.
8. IT Professionals.

Course Outline

Module 1: Introduction to Web Services & Geospatial Concepts

- Understanding Web Services: SOAP vs. REST, JSON, XML.
- Fundamentals of Geographic Information Systems (GIS) and Spatial Data Types.
- Introduction to OGC Standards: WMS, WFS, WCS – what they are and why they matter.
- Overview of ArcGIS Server and GeoServer architectures and their roles in a Spatial Data Infrastructure (SDI).
- **Case Study**: Examining how a local government agency uses WMS to share zoning maps with the public and other departments.

Module 2: ArcGIS Server: Installation, Configuration & Basic Publishing

- **ArcGIS Server** architecture, components, and licensing models.
- Installation and initial configuration of **ArcGIS Server** and **ArcGIS Web Adaptor**.
- Publishing **map services** from **ArcGIS Pro** to **ArcGIS Server**.
- Understanding **service definitions**, capabilities, and parameters.
- **Case Study**: A utility company publishing its underground infrastructure data as a secure ArcGIS Map Service for field crews to access on mobile devices.

Module 3: Advanced ArcGIS Server Management & Optimization

- Managing **ArcGIS Server services**: starting, stopping, deleting, and editing properties.
- **Caching strategies**: creating and managing map caches for performance.
- Implementing **security** for **ArcGIS services**: users, roles, and data access.
- Monitoring **ArcGIS Server performance** and troubleshooting common issues.
- **Case Study**: A large environmental consultancy optimizing their **ArcGIS Server** performance by pre-generating map caches for frequently accessed environmental data layers,

significantly reducing loading times for their clients.

Module 4: GeoServer: Installation, Configuration & Data Sources

- **GeoServer** architecture, open-source philosophy, and key features.
- Installation of **GeoServer** on various operating systems (Windows/Linux) and deployment with servlet containers (e.g., Tomcat).
- Connecting **GeoServer** to various **data sources**: Shapefiles, PostGIS, GeoPackage, Oracle Spatial.
- Creating **workspaces** and **stores** for organizing spatial data.
- **Case Study**: An NGO using **GeoServer** to publish open-source satellite imagery and thematic maps sourced from various formats to support disaster response efforts.

Module 5: GeoServer: Publishing & Styling Web Services

- Publishing **WMS**, **WFS**, and **WCS** layers from configured data stores.
- Introduction to **Styled Layer Descriptors (SLD)** for powerful and flexible map styling.
- Advanced **SLD techniques**: rule-based styling, external graphics, and filtering.
- Configuring **layer groups** and **virtual services** in **GeoServer**.
- **Case Study**: A city planning department using GeoServer and custom SLD files to dynamically style parcels based on zoning regulations, providing clear visual distinctions for public inquiries.

Module 6: Web Client Development & Integration

- Introduction to **web mapping libraries**: OpenLayers and Leaflet.
- Consuming **ArcGIS Server** and **GeoServer** services in web applications.
- Building **interactive web maps**: adding layers, controls, and pop-ups.
- Introduction to **JavaScript**, **HTML**, and **CSS** for basic web mapping.
- **Case Study**: A real estate firm developing a custom web application using OpenLayers to display property listings overlayed with flood zone and school district data from both ArcGIS Server and GeoServer.

Module 7: Security & Advanced Topics in Web Services

- Implementing **authentication** and **authorization** for **GeoServer** services.
- **GeoWebCache** for efficient map tile caching and serving.
- Understanding **security considerations** and best practices for **geospatial web services**.
- Introduction to **OGC API** standards and their future implications.
- **Case Study**: A defense organization securing their classified geospatial intelligence services using token-based authentication and IP whitelisting on their GeoServer deployment.

Module 8: Monitoring, Troubleshooting & Future Trends

- **Monitoring** the health and performance of **web services** (logs, metrics).
- Common **troubleshooting techniques** for **ArcGIS Server** and **GeoServer**.
- **Version control** for **service configurations** and **SLD styles**.
- Exploring emerging trends: **cloud-native GIS**, **serverless GIS**, **AI/ML in geospatial**.
- **Case Study**: A large infrastructure project using automated monitoring tools to track the uptime and performance of their ArcGIS Server and GeoServer instances, ensuring critical data availability during construction phases.

Training Methodology

This training course employs a **blended learning approach**, combining **interactive lectures**, **hands-on practical exercises**, and **real-world case studies** to ensure a comprehensive and engaging learning experience. The methodology is designed to foster **active participation** and **skill development**.

- **Instructor-Led Sessions:** Expert trainers will deliver clear and concise theoretical concepts, complemented by practical demonstrations.
- **Hands-on Labs:** Participants will engage in extensive practical exercises, configuring and managing **ArcGIS Server** and **GeoServer** instances in a dedicated training environment. This **experiential learning** reinforces theoretical knowledge.
- **Case Study Analysis:** Real-world scenarios will be presented and analyzed, providing context and demonstrating the practical application of learned concepts in various industries. This promotes **problem-solving skills**.
- **Group Discussions & Q&A:** Facilitated discussions and dedicated Q&A sessions will encourage knowledge sharing, clarify doubts, and foster a collaborative learning atmosphere.
- **Troubleshooting Workshops:** Dedicated sessions will focus on common challenges in **web service deployment** and management, equipping participants with practical troubleshooting skills.
- **Resource Materials:** Comprehensive training manuals, code samples, and links to relevant documentation will be provided for ongoing reference and self-study.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com