Road Design with Civil 3D & Global Mapper

Value Addition | Offline

Duration: 6 days

REGISTER NOW

KIG

KHAGOLAM

Institute of Geoinformatics

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An ISO 9001-2015 Certified Organization
Registered under Ministry of Corporate Affairs, Govt. of India

Course Information

Course Title: **Road Design with Civil 3D & Global Mapper**
Duration: **6 continuous days /** 8 hours/day
Training Modes: **Offline**

Course Eligibility

- Civil Engineers with knowledge road design fundamentals
- Knowledge of surveying instruments like Total Station, engineering drawing fundamentals will benefit
- Must have basic AutoCAD skills

Corporate and group admission only, no admission for individual

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Duration and Fees:

45,000 INR, for resident Nationals of India, Nepal, Bhutan, Bangladesh, Sri Lanka and Maldives, & Myanmar.

900 USD, For Non-Residents of India

Overview

This intensive course is designed to provide practical skills in road design using industry-standard tools like Autodesk Civil 3D, Global Mapper, and Google Earth. The course covers the complete workflow—from data collection and terrain modeling to alignment design, profile creation, corridor modeling, and final output generation. Participants will learn how to integrate satellite imagery and elevation data, perform route planning, and analyze terrain for efficient road design.

Through hands-on sessions, learners will gain experience in creating surfaces, designing horizontal and vertical alignments, generating cross-sections, and producing construction drawings. The course also emphasizes real-world applications such as highway planning, rural road development, and infrastructure projects.

By the end of the program, participants will be able to independently plan, design, and visualize road projects using modern geospatial and civil engineering software tools.

You will learn to

Google Earth Pro & Google Earth Studio

1. Get familiar with GEP interface
2. Add existing GIS, CAD and overlay it
3. Add/edit point, line and polygon layers, digitize and export it as kml/kmz format
4. Measure length and area, view historical data of your AOI/road alignments
5. Draw elevation profile for road alignment
6. Use slope maps to validate alignments
7. Get familiar with Google earth Studio
8. Loading datasets and creating animation videos

Global Mapper

9. Understand what is GIS, how it works, spatial data models, GIS analysis
10. Understand and get familiar with Global mapper Interface

11. Use inbuilt online data sources, add custom data sources from Survey of India and ISRO
12. Importing & Managing GIS Data (Raster, Vector, Elevation Models)
13. Downloading DEM, satellite image, topo maps for offline uses
14. Visualize terrain, use default and custom shader
15. Generate contour as per desire interval for road design
16. Creating & editing road alignment, extracting elevation from DEM
17. Perform terrain analysis, watershed, viewshed and hillshed to fine-tune road design
18. Using viewshed and hillshed to tune alignment invisible area
19. Create watershed & drainage analysis for road design
20. Generating path profiles from road alignment, generate cross-sections, calculate cut-fill volumes
21. Exporting data for CAD & other GIS/CAD software
22. Customizing map layers & thematic mapping
23. Exporting data for reconnaissance survey
24. Printing & generating reports DPR preparation

Civil 3D

25. Explain Civil 3D Setting up project templates and workspace customization understanding tool space object styles. label styles
26. Understand the way civil 3D handle road design life cycle with complete workflow
27. Importing and managing survey data from surveying and GIS sources
28. Create and manage with descriptions keys and point groups
29. Create point manually, on vertex, on road alignment
30. Export points for demarcation or stakeout by Total Station or DGPS
31. Create, edit and interpolate point on surface
32. Create surface from various sources like contour data, DEM, survey points, CAD objects, texts, lidar point cloud
33. Analyses surfaces, generate contour, terrain modeling, terrain analysis, slope, watershed
34. Visualize the surface in 3D, add surface labels, annotate with dynamic surface legends tables
35. Edit surface, add/remove break lines, rise/lower surface, define boundaries

36. Generating and modify profiles of existing ground, apply and edit profile view styles
37. Create existing and design horizontal and vertical alignments based on IRC standards as per design speed
38. Create best-fit alignment, offset alignment with appropriate annotations
39. Apply super elevation to horizontal alignment
40. Using cross-section assembly as per IRC standard, modify pavement thickness and material.
41. Creating cross-section assembly from polyline, integrating IIT Pave results for design validation
42. Do corridor modeling, cross section assembly design using IRC standards
43. Create sample line at desire chainage and offsets, sample sections using different source surfaces
44. Generate cross-sections, apply and edit cross section view styles, add volume table in section view
45. Create road corridors with frequency settings, build corridor surfaces, add regions, visualize corridor in 3D
46. Extract existing alignment from survey data, draw alignment for road widening
47. Using hydrology data to manage water flow
48. Design drainage & permanent structures, drainage systems including culverts. ditches, and cross drain
49. Integrating bridges, tunnels, and retaining walls
50. Perform earthwork calculation & quantity estimation cut & fill analysis for cost estimation, produce earthwork calculation reports and plot maps
51. Understand quantity takeoffs and material volumes terminology
52. Generate material takeoff reports and BOQ preparation
53. Creating plan sheets and generating construction documentation for DPR preparation
54. Exporting data, printing design sheets for DPR preparation
55. Prepare DPR with alignment plans, profile views, sections and quantity takeoffs
56. Project work

How to Apply

Step 1: register at: https://www.khagolam.com/home/register
Step 2: Check mail for course & bank details
Step 3: Transfer payment & share transaction receipt on What's App
Step 4: You will receive registration confirmation, by SMS/Call/Whats App.

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REGISTRATION SHALL CLOSE 4 DAYS BEFORE THE START DATE. SPOT REGISTRATIONS ARE NOT ALLOWED.

FAQ's

Q: Do fees include accommodation and food?
A: No. but we can help you to get the nearest accommodation.

PEOPLE WHO KNOW ROAD DESIGN ALSO ENROLL FOR:

32 hours course: Advance Surveying with Total Station

Learn how to perform topographic surveying, road alignment stakeout, monitor design slope, levelling, hight & distance measurement, area calculation, rection function.
4 days field practical course

Why Khagolam:

- Specialize institute for geospatial technologies
- Job oriented curriculum
- Comprehensive training material
- 100% placement assistance
- Professional Trainers
- Exposure to live projects
- Flexible timings
- Exposure to 3D GIS
- Practice, aptitude and interview rounds
- e-library facility

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Be in touch @