ArcGIS Network Analyst

ArcGIS Desktop extensions

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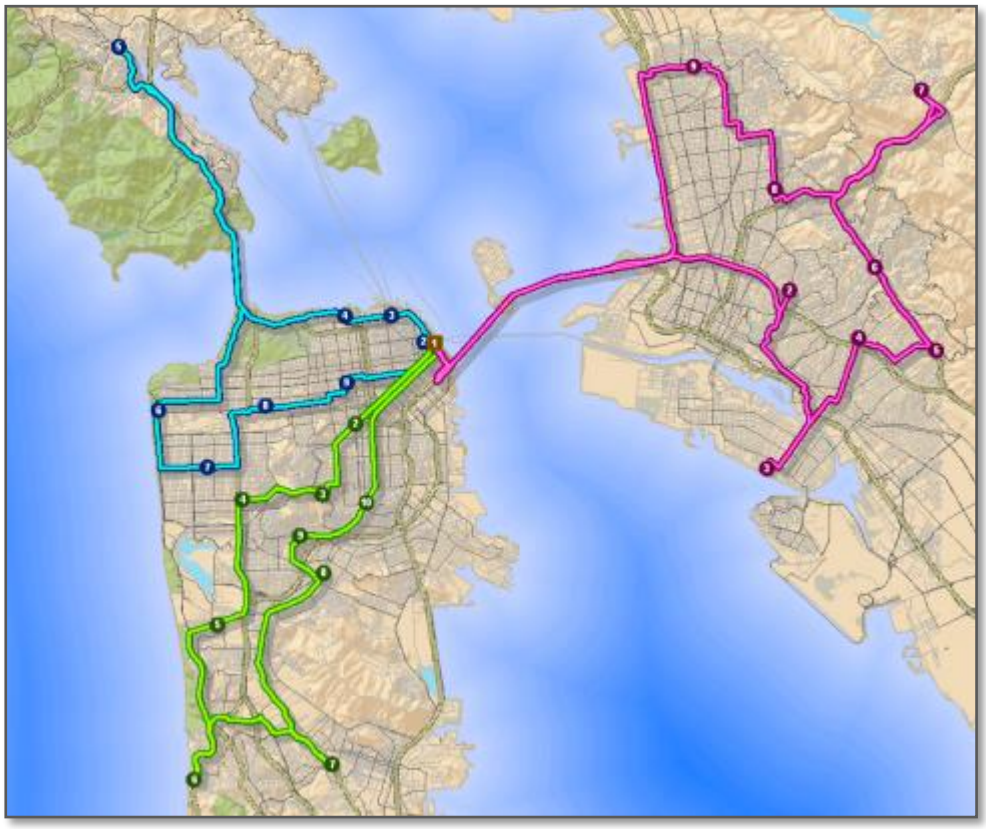
SGD$960 / pax

Level: Advanced | Course duration: 2 days

ArcGIS Network Analyst provides network-based spatial analysis tools for solving complex routing problems, allowing organizations to accurately represent their unique network requirements.



What is the course about?

ArcGIS Network Analyst provides network-based spatial analysis tools for solving complex routing problems. It uses a configurable transportation network data model, allowing organizations to accurately represent their unique network requirements. You can plan routes for an entire fleet, calculate drivetimes, locate facilities and solve other network related problems.

Who is the target audience?

ArcGIS users who want to plan routes for an entire fleet, calculate drive-times, locate facilities and solve other network related problems.

Are there any prerequisites?

Completion of ArcGIS 1: Introduction to GIS and ArcGIS 2: Essential Workflows or equivalent knowledge is required.

What skills will I learn?

After completing this course, you will be able to:

- Reduce your mileage to decrease fuel cost and save time by driving less
- Give more accurate service time window estimates and miss fewer appointments
- You will be able to define order, driver, vehicle, and other constraints and requirements critical to how the organisation functions

Course topics

Fundamentals of network systems

- What is a network?
- Types of network systems
- Components of a network: Physical & Logical
- General geometry of networks
- Understanding turns in a network system
- Networks in ArcGIS
- Geometric networks vs network datasets

Network Analyst basics and the Route solver

- Network analysis workflow, toolbar & window
- Network layer & network analysis layer
- Properties of network analysis layers
- Network locations
- Analysis properties of network analysis layers
- Network layer vs network analysis layer
- Route solver & options
- Directions

Additional network solvers

- Closest Facility solver & options
- Service Area solver
- Service Area polygon & line options
- Origin-Destination (OD) Cost Matrix solver
- OD Cost Matrix solver results
- Vehicle Routeing Problem (VRP) solver

Advanced network analysis options

- Network locations in the network
- Location fields of network locations
- Analysis properties of network locations
- Advanced network solver options
- Incorporating time
- Using time windows
- Route solver results with time windows
- Curb approach
- Setting a curb approach & options
- Hierarchy
- Reasons to use hierarchy
- Exact route vs hierarchical route
- Hierarchy requirements
- Using hierarchy and with ranges

Preparing data for network analysis

- Workflow for using Network Analyst
- Source data for network datasets
- Source data's level of quality
- Examples of data quality
- Verifying coincident geometry
- Creating coincident geometry: Integrate tool
- Common attribute fields for street data
- Migrating existing Esri network data
- Turn Table To Turn Feature Class tool

Course topics (cont.)

Network dataset connectivity

- Network dataset, properties & connectivity
- Modeling network dataset connectivity
- Connectivity groups and policies
- Multiple connectivity groups
- Coincident geometry for line features and point features
- Overview of connectivity policies
- Line feature connectivity
- Edge connectivity policies
- Common line feature connectivity errors
- Point feature connectivity
- Junction connectivity policies
- Common point feature connectivity error
- Summary of connectivity policies
- Methods of network dataset connectivity
- Elevation fields
- Intersection scenario
- Overpass/underpass scenario

Network attributes

- Network dataset attributes & properties
- Four types of network attributes
- Cost attributes
- Restriction attributes
- Hierarchy attributes
- Descriptor attributes
- Assigning network attributes
- Attributes and edge directionality
- Evaluators
- Parameterised attributes
- Using network attributes

Creating and building network datasets

- Constructing a network dataset
- Select network sources
- Set network connectivity
- Set turns in the network dataset
- Turn features
- Global turns
- Modeling penalties for global turns
- Set network attributes
- Set properties for directions
- Building a network dataset
- Network building process
- Types of network datasets

Modifying network datasets

- Editing network sources
- Modifying turn feature classes
- Turn Feature Class toolset
- Editing network dataset properties
- Rebuilding the network dataset
- Multimodal network systems
- Multimodal networks in the real world
- Modeling a multimodal network
- Connectivity in a multimodal network
- Multimodal network analysis

Network Analyst and geoprocessing

- Learning objectives
- Review of ArcGIS geoprocessing framework
- Network Analyst Tools toolbox
- Analysis toolset functionality
- Review of ModelBuilder concepts
- Network solvers in ModelBuilder