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Aspen GeoDepthTM Study Guide Study Guide for Certification



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Exam Scope for 3D Depth Velocity Model Building and Depth Imaging (GDE131)

- Getting Started in Aspen Epos
- 3D Survey Setup, Data Loading and QC
- Grid Based Velocity Modeling
- Horizon Based Velocity Modeling
- Depth Imaging
- Preparing for Tomography
- Updating Velocity Models with 3D Tomography
- Additional Workflows

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Prove your Credibility

An Aspen GeoDepth Certified User possesses the essential knowledge and practical skills needed to set up surveys, import and manage data, build initial velocity models, perform depth imaging and subsequently update their velocity models. They have a strong understanding of Aspen GeoDepth and can apply their knowledge to different scenarios, and are able to troubleshoot problems that they may encounter.



Step 1: Take the Class

• 3D Depth Velocity Model Building and Depth Imaging using Aspen GeoDepth (GDE131) – 5 Days

AspenTech offers a variety of delivery methods in which you can take training.

- Register for public training (face to face or virtual)
- Register for private training (face to face or virtual)
- Subscribe to eLearning (on-demand)

Step 2: Review Scope and Objectives

This guide contains 100% coverage of all objectives for the Aspen GeoDepth certification exam. You can use as both a study tool and an on-the job reference.

Step 3: Take the Exam: Aspen GeoDepth 3D Depth Velocity Model Building and Depth Imaging Certification

The total time for this certification exam is 4 hours.

The passing score is 70%.

SCOPE	TECHNICAL CONTENT	COMPETENCY OBJECTIVE
Getting Started in Aspen Epos	Launching the Session Manager, activating Applications and Utilities	Understand what the Session Manager is used for
		Explain what an Epos User does
		Recognize where to perform administrative tasks
		Identify the working software version
3D Survey Setup,	Survey Setup and QC	Recognize the difference between Epos study types
Data Loading and		Understand where seismic data is stored
QC		Understand where other Epos data is stored
		Manage disk space usage
		Describe the relationship between datums
		Understand how to define datums
		Identify what is required to create a 3D survey
		Understand how to handle a rotated survey orientation
		Explain how survey parameters are used
	Seismic Data Loading and QC	Understand how to load seismic files
		Recognize how customization formats are stored and used
		Troubleshoot data loading problems
		Manage disk space usage during data import
		Recognize where to perform seismic data QC tasks
		Identify the correct sequence in a seismic geometry QC workflow
		Recognize where to perform seismic geometry QC tasks
		Understand the purpose of seismic geometry QC tasks
		Recognize what is required to perform offset binning
		Understand the purpose of a Voronoi diagram
	Vertical Function Data Loading and QC	Understand how to load vertical functions
		Recognize how Epos handles vertical functions and datums
		Explain how mute functions are handled in Epos
		Recognize what the Vertical Functions window can be used for
		Identify what the Interpretation Data Manager can be used for
	Interpretation Data	Recognize the types of ASCII data that can be imported into Epos

	Loading and QC	Identify which applications can be used to QC interpretation data
Grid Based Velocity Modeling	Velocity Data Preparation and QC	Understand how to perform vertical velocity analysis
		Recognize the impact of parameters on velocity analysis
		Understand how to transform velocities from one domain to another
	Constrained Velocity Inversion	Explain what CVI does
		Understand when to use CVI
		Identify what is required as input for CVI Create Mode
		Recognize how CVI parameters are used
		Explain how to generate geologically sensible velocity models
		Understand the impact of the CVI data weight parameter
		Understand the impact of the CVI trend weight parameter
		Understand the impact of the CVI damper weight parameter
Horizon Based	Formations and Models	Explain what an Epos Formation is
Velocity		Understand what an Epos model is and how it is used
Wodening		Identify how to correctly apply dominance
		Understand the impact of modifying the Formation Table
	Velocity Modeling and Depth Conversion	Recognize the limitations of DIX in a velocity modeling workflow
		Understand how to perform horizon-consistent gridding of seismic velocities
		Recognize how different depth conversion methods work
		Explain how gradient information is used
Depth Imaging	3D Kirchhoff Prestack Depth Migration	Outline a typical depth imaging workflow
		Understand what is required as input to traveltime calculation
		Recognize the impact of traveltime methods on performance
		Explain how to QC traveltime calculation results
		Identify how to quickly access technical information
		Recognize how to determine common parameters
		Understand how to optimize imaging parameters
		Recognize the impact of different imaging parameters
		Understand how parameters affect quality and performance

		Identify how to improve productivity
		Recognize the impact of changing geometry
Preparing for Tomography	Generating Structural Information	Outline a typical velocity model updating workflow
		Understand how structural attributes are calculated
		Understand how different parameters are used
		Explain the impact of parameter changes on output results
		Identify how to improve results
		Recognize which applications to use in different workflows
		Understand what a pencil is and how pencils are used
		Recognize how to manage pencils
		Identify how to QC structural information
		Explain the purpose of a formation volume
	Interactive Ray Tracing	Understand the purpose of illumination analysis
		Explain how to perform illumination analysis
		Recognize the impact of parameter changes on illumination
	RMO Autopicking	Understand how to perform RMO autopicking
		Recognize how to determine optimal parameterization
		Identify how to QC RMO autopicks
		Understand how to use RMO attributes
		Explain the use of masking
Updating	Overview	Explain what 3D Reflection Tomography does
Velocity Models with 3D Tomography		Understand how tomography works
	Build Matrix	Explain how to determine key parameters
		Explain how to determine other parameters
		Understand the relationship between parameterization and performance
		Recognize how to resolve problems
	Solve Matrix and QC	Explain how to determine update parameters
		Recognize the impact of different update parameters
		Understand how to control tomographic update
		Identify how to evaluate output results

		Explain how to improve results
Additional Workflows	Using FastVel and CVI to Update Velocity Models	Understand how to perform residual velocity analysis
		Explain what residual moveout analysis is
		Identify what FastVel does
		Understand how to determine key parameters
		Recognize the impact of parameter changes on autopicking quality
		Recognize the impact of changing parameters on autopicking quality
		Understand how CVI Update Mode works