2026 VENTSIM TRAINING PROGRAM

VENTSIM

Part A: Suitable for Beginners: Airflow, Stages, Calibration & more…

Day	Topic	Content
1	**Ventsim / Ventilation Basics**	• Introduction to mine ventilation simulation. • Using the mouse and toolbars. • Managing the display (colours, data, views). • Drawing, moving, copying and deleting airways. • Creating airflow. • Specifying airway attributes – sizes, friction factors and resistances.
	Building a Model (Tas)	• Constructing shafts, ramps and stopes in 3D. • Import mine design, simplifying and filtering. • Using grouping, levels, layers and saved views. • Constructing and simulating ventilation ducts and auxiliary ventilation systems. • Multiple duct arrangements and methods. • Leakage factors and techniques.
	Optimisation of Airway Sizes	• Calculating the most efficient airway sizes. • Ventilation power, fan and mining costs. • Selected and global optimisation of models.
	Fans	• When to utilise fans, fixed pressures and fixed flows to produce ventilation. • Entering a fan curve into Ventsim DESIGN, FSP versus FTP. • Fan efficiencies, power and operating density. • Fan configurations, parallel vs series, shock losses, diffusers. • Fan problems, stalling and low / no pressure. • Fan stall predictor tool, Fan database.
	Practical Exercise	
2	**Stages**	• Recapitulation on building a model. • Advantages of using stages. • How to use stages. • How to apply specific changes. • Common mistakes and how to avoid them.
	Surveying for Modeling	• How to plan for an efficient survey. • Where and what to measure. • Which instruments to use (advantages and disadvantages of different units). • How to use VentLOG to take readings.
	Model Calibration	• Using VentLOG to compare reading and simulation. • How to calibrate the model.
	Practical Exercise	

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Part B: Suitable for Advanced Users: Trade Offs, Gas, Heat, Fire & more…

Day	Topic	Content
3	**Recapitulation Exercise (Pajingo)**	• DXF construction techniques. • Error finding and solutions. • Placement of ventilation controls. • Installing fans and optimising airway sizes. • Methods of improving ventilation quality.
	Contaminant, Gases and Recirculation	• Simulating smoke, fumes and other contaminants in a mine. • Concentration and spread of contaminants. • Modifying ventilation models during simulation – open / closing doors, fans etc. • Graphing contaminant levels over time, reducing clearance times. • Calculating gas and fume building over time in a mine (dynamic and steady state simulations).
	Heat and DPM Simulation	• Introduction and theory to heat simulation. • Types of heat present in a mine. • Configuring the simulation environment for heat simulation. • Physiological effect of heat on people. • Simulating equipment, diesel machines and electrical motors in models. • Problems and solutions in thermodynamic modelling.
	Practical Exercise	
4	**Trade Off Simulation (BEV, Cooling, etc.)**	• Estimate ventilation reduction when using BEV. • Study pro's and con's of different cooling options.
	Fire Simulation	• Introduction and theory to fire simulation. • Adding a fire in Ventsim. • Adding events in Ventsim. • Analysing results from the Fire Simulation. • Using the escape routes simulation.
	Blast Pressure	• Blast simulation demonstration used to display potential control failures.
	Question Time	