

FLOW BENCH

Engine Modeling using Ricardo Wave (1 day) Price RM 650 per pax (minimum 10 pax)

“Wave” is an engine simulation software from Ricardo Engineering. It is a 1- dimensional fluid dynamics model in which all gaseous passages are modeled as pipes of various lengths. The model includes a combustion model, a combustion chamber mixing model (for ERG), as well as various thermal conductivity and friction models and emissions models. It does not do a detailed 3-dimensional analysis of gaseous flow, or combustion, but instead uses “lumped parameter” models (such as a 2-zone combustion model). This makes it exceptionally easy to set up, and quick to run. Running various scenarios on a given engine typically takes only a few seconds, where as a 3-D model might take hours or days

Cover topics

- What is WAVE used for?
- Inputs
- Outputs: Cycle Averaged
- Outputs: Crank Angle Resolved
- Starting a model
- Displacement
- Compression Ratio
- Valve Lift
- Fuel Introduction (Carbureted, EFI, DI)
- Fine Details
- Combustion Properties
- Emissions Factors
- Performance Predictions
- Power, Emissions, Fuel Consumption
- Crank Angle Resolved Data
- Pressure
- Intake/Exhaust Tuning
- Model Tuning
- Techniques for matching real performance

