

- Hobart, Australia (includes site visits)
- Client site as negotiated

HYDRO VIBRATION INTEGRATED ANALYSIS

The hydro vibration integrated approach and methodology (INTVibrATM) has been formulated based on significant practical experience and intellectual investment, making this course highly valuable for hydropower engineers and unlocking many misunderstandings relating to hydro vibration.

This inspirational hydro vibration analyses training is proven in practice and recognised and awarded nationally and internationally. It's based on the best technical paper at HPPEE 2014, Hobart, Australia, and 1st place technical paper at Hydro Vision International Conference 2015.

An Integrated approach and methodology allows complex hydro vibration concepts to be more easily understood. Proven and refined since 1983, it provides students with a higher level of understanding of hydro vibration analysis through the use of real case studies, plots, and graphs to captivate and inspire the attendees mind.

Specialist hydropower engineers have designed this course strategically for the hydro generating industry, using extensive experience and proven knowledge, skills and competencies, making the material applicable to hydro rotating machines in operation, under design and investigation.

COURSE CONTENT

- Definition of the vibration as a ratio of the dynamic forces acting on the machine to its support stiffness [INTVibrATM: KE01 -VDEF]
- System of Logic, looking for difference [INTVibrATM: KE02 – SOLOG]
- Key elements of an integrated approach and methodology [INTVibrATM: KE02 to KE17]
 - Vibration standards
 - Precision dynamic balancing
 - Shaft alignment
 - Shaft critical speed
 - Stiffness
 - Mechanical machining tolerances
 - Precision installation tolerances
 - Natural frequencies, exciting frequencies
 - Rotor dynamics, resonance: shaft and structural, site validation tests
 - Vibration software plots: plus, advanced plots: slow roll vector, shaft deflections, bearing centres alignment, shaft critical speed, stiffness
 - People, plant, process, training
 - Failure modes: unbalance, misalignment, lack of stiffness, rub, resonance, hydraulic, electrical
 - History, RCA, RCM
 - Technical specification, design review
 - Vibration condition monitoring and diagnostic programs and systems.

PARTICIPANT PROFILE

- Reliability and condition monitoring engineers and technicians
- Asset and risk engineers and managers
- Site testing engineers and technicians

LEARNING OBJECTIVES

- Practical understanding of analyses and diagnostics to solve challenging vibration problems
- Ability to perform key elements of integrated vibration analyses
- Interpret and apply international standards on vibration acceptance, monitoring and vibration analyses
- Analyse and plan approaches to vibration technical problems or to assess risk management requirements

LEARNING METHODS

- Lectures
- Case studies
- Practical group sessions
- Self-learning tasks
- Site inspections

COURSE PROVIDERS

Technical specialist experts, recognised and awarded nationally and worldwide with extensive international experience in the hydropower vibration field.

CUSTOMISATION

This training can be customised in content, duration and level (basic to advanced) to suit client requirements.