

OrcaWave Training

COURSE CONTENT

GET IN TOUCH



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About Multisoft

Train yourself with the best and develop valuable in-demand skills with Multisoft Systems. A leading certification training provider, Multisoft collaborates with top technologies to bring world-class one-on-one and certification trainings. With the goal to empower professionals and business across the globe, we offer more than 1500 training courses, which are delivered by Multisoft's global subject matter experts. We offer tailored corporate training; project Based Training, comprehensive learning solution with lifetime e-learning access, after training support and globally recognized training certificates.

About Course

OrcaWave Training by Multisoft Systems is a comprehensive program designed for engineers and offshore professionals seeking expertise in hydrodynamic diffraction analysis and offshore simulation technologies. The course provides in-depth knowledge of OrcaWave software, widely used in marine and offshore industries for analyzing wave-body interactions, floating structures, and hydrodynamic behavior in offshore environments.

Module 1: Introduction to OrcaWave

- ✓ Overview of OrcaWave software and applications
- ✓ Importance of diffraction and radiation analysis in offshore engineering
- ✓ Understanding hydrodynamic analysis concepts
- ✓ OrcaWave interface and workflow
- ✓ Integration with OrcaFlex and other offshore tools
- ✓ Installation and licensing setup

Module 2: Fundamentals of Wave-Structure Interaction

- ✓ Linear wave theory fundamentals
- ✓ Wave diffraction and radiation principles
- ✓ Hydrodynamic coefficients overview
- ✓ Added mass and damping concepts
- ✓ Response Amplitude Operators (RAOs)
- ✓ First-order and second-order wave loads

Module 3: Geometry Creation and Import

- ✓ Creating vessel and offshore structure geometry
- ✓ Importing CAD and mesh models
- ✓ Surface panel generation techniques
- ✓ Mesh quality checking and optimization
- ✓ Symmetry and simplification methods
- ✓ Model validation procedures

Module 4: Environment and Wave Definition

- ✓ Defining environmental conditions
- ✓ Regular and irregular wave inputs
- ✓ Wave spectrum models
- ✓ Water depth configuration

- ✓ Frequency range selection
- ✓ Directional wave setup

Module 5: Hydrodynamic Analysis Setup

- ✓ Setting body properties
- ✓ Defining mass and inertia
- ✓ Boundary conditions setup
- ✓ Radiation and diffraction analysis configuration
- ✓ Multi-body interaction setup
- ✓ Numerical solver settings

Module 6: Running OrcaWave Simulations

- ✓ Simulation execution workflow
- ✓ Monitoring solver convergence
- ✓ Troubleshooting simulation errors
- ✓ Computational efficiency optimization
- ✓ Batch analysis execution
- ✓ Data management practices

Module 7: Hydrodynamic Results Interpretation

- ✓ Understanding RAO plots
- ✓ Added mass and damping interpretation
- ✓ Wave load analysis
- ✓ Pressure distribution results
- ✓ Motions and response evaluation
- ✓ Frequency-domain result assessment

Module 8: Second-Order Hydrodynamics

- ✓ Mean drift forces

- ✓ Newman approximation methods
- ✓ Quadratic Transfer Functions (QTFs)
- ✓ Low-frequency vessel responses
- ✓ Slow drift motion analysis
- ✓ Offshore mooring applications

Module 9: Coupling OrcaWave with OrcaFlex

- ✓ Exporting hydrodynamic data to OrcaFlex
- ✓ Vessel type creation
- ✓ Hydrodynamic database integration
- ✓ Time-domain simulation workflow
- ✓ Coupled dynamic analysis
- ✓ Offshore floating system applications

Module 10: Offshore Engineering Applications

- ✓ FPSO hydrodynamic analysis
- ✓ Semi-submersible analysis
- ✓ Ship motion studies
- ✓ Floating wind platform analysis
- ✓ Offshore crane and lifting studies
- ✓ Mooring and riser interaction overview

Module 11: Advanced Modeling Techniques

- ✓ Multi-body hydrodynamic interaction
- ✓ Forward speed effects
- ✓ Green water considerations
- ✓ Panel refinement strategies
- ✓ Irregular geometry handling
- ✓ Advanced solver techniques

Module 12: Validation and Industry Best Practices

- ✓ Model verification techniques
- ✓ Comparing results with experimental data
- ✓ Industry standards and guidelines
- ✓ Accuracy improvement methods
- ✓ Documentation and reporting
- ✓ Project case studies