



TRAINING CATALOGUE

Academy Korea

1001 Hull Structure & Strength – Concept & Rules

3 DAYS

Contents

- Maritime Regime
 - Class Systematic & its role
 - The importance of ship's operational aspects and critical points in designs
 - Organisation of maritime regime and its effect on shipyard
 - Overview & background of various conventions
- Hull strength basic
 - Shipbuilding trend
 - Ship's operation and typical damages
 - Hierarchy of hull structure & strength
 - Strength criteria & requirements
 - Hull steel materials logic
- Practical design aspects
 - Background of prescriptive rule requirement
 - Welding and detail construction design
 - Inspection & N.D.T.

Objective

Upon completion of this course the participants will understand general information on shipbuilding, Class systematic, ship's operation condition and critical points, hull structure and force flow, strength concept & design points, general hull Rules and the background, etc.

Target Group

- All engineers working in shipping/shipbuilding (Design, production, QC & Supervisors)
- New designers in basic hull design departments

1002 System General & Statutory – Concept & Rules

3 DAYS

Contents

- Basic principles of accommodation design
- Basic principles of machinery arrangement, piping, ventilation and insulation
- Rules and regulations introduced by IMO, ILO and Class
- General review of machinery outfitting, hull outfitting, piping and accommodation outfitting
- Application of international conventions

Objective

Upon completion of this course the participants will understand role of Class, purpose of Rules, regulations and recommendations, ship's function, basic concept of system, etc.

Target Group

- All engineers working in shipping/shipbuilding (Design, production, QC & Supervisors)
- New designers in basic system design departments

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1003 Electric general - Principles & Rules 2 DAYS

Contents

- Basic concept of electric systems
- Electrical equipment and the function
- General principles and requirements
- Instrumentation and control systems
- Emergency source

Objective

Upon completion of this course the participants will understand what are Rules and regulations, electrical systems in principle, alarm & control system and instrumentation in principle, etc.

Target Group

- All engineers working in shipping/shipbuilding (Design, production, QC & Supervisors)
- New designers in basic electric design departments

2003 Container carriers - Hull design 2 DAYS

Contents

- General hull structure of container carriers
- Container carrier statistic and market & design trend
- Class Rules and application
- Guidance for strength analysis
- Tensional strength analysis method
- Operational aspects and design concept
- Container ship evolution & current design trend
- Container securing
- Interaction between hull structure & outfitting
- Critical areas for hull structure
- Typical hull damages

Objective

Upon completion of this course the participants will understand container carrier operation, container carrier strength & design, container carrier rules background, container securing & outfitting and critical areas in design, etc.

Target Group

Engineers who have attended the basic hull course or Engineers who have more than 2 years experience in hull Design.

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2006 Piping System & Statutory Design 3 DAYS

Contents

- Cargo handling system and cargo vessels
- Applicable Class Rules and international requirements
- Design principles of ballast, bilge, air, sounding, deck fire-fighting, fire integrity, load line and ventilation system in cargo area
- Rule background and the application
- Relevant MARPOL, SOLAS, LL and BC code

Objective

Upon completion of this course the participants will understand ship cargo handling system, applicable class rules & international requirements, design principle of each system, Classification of cargoes, etc.

Target Group

Engineers who have attended the system general course or engineers who have more than 2 years experience in hull Piping.

2007 Accommodation design 2 DAYS

Contents

- Background of Rules for accommodation and the application
- Relevant regulations of SOLAS and ILO convention
- Arrangement of means of escape
- Ventilation system in accommodation
- Fire insulation/detection/alarm/fight system in accommodation
- General requirements for ship's piping system
- Rules and convention for sanitary and fresh water system

Objective

Upon completion of this course the participants will understand SOLAS 74 & ILO requirements, fire technical considerations, means of escape, details of construction, accommodation comfort, ventilation system, etc.

Target Group

Engineers who have attended the system general course or Engineers who have more than 2 years experience in accommodation design.

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2008 Electric design 2 DAYS

Contents

- General requirements, class & statutory
- Design principles
- Distribution principles & redundancy
- Emergency source
- Control systems
- Instrumentation
- General installation onboard

Objective

Upon completion of this course the participants will understand applicable Rules & regulations, electrical system in principle, alarm & control system, instrumentation in principle, etc.

Target Group

Engineers who have attended the electric general course or Engineers who have more than 2 years experience in electric Design.

2010 Safety of navigation I –Equipment 2 DAYS

Contents

- SOLAS Chapter V
 - IMO performance standards
- NAUT-class notations
 - additional performance requirements
 - certification requirements
- Interconnection of navigational systems
 - IEC 61162 series of standards
- Integrated Navigation Systems INS
 - IEC standards 61924-2 (INS)
 - IEC standards 61162-450 (LAN)
- NAUT-suffix ICS (integrated computer systems)
- eNavigation
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Objective

Upon completion of this course the participants will understand IMO SOLAS carriage requirements, DNV Rules and application, etc.

Target Group

Experienced engineers/designers more than 2 years

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3000 Harmonized CSR 3 DAYS

Contents

- General hull structure of tanker and bulker
- Design basis
- Load concepts and application of loads
- Hull girder strength
 - Hull girder yield strength, hull girder ultimate strength & hull girder residual strength
- Hull local scantlings
 - Prescriptive requirements
- Direct strength analysis
 - Hold structural strength analysis
 - Local fine mesh structural strength analysis
- Buckling
- Fatigue
- Material & welding
- Ship type specific requirements

Objective

Upon completion of this course the participants will get an overview of harmonized CSR with reference to hull strength & design concept, technical rule background and differences between harmonized CSR and CSR Tank or CSR Bulk.

Target Group

Engineers who are familiar with basic hull concepts & design or experienced engineer for CSR Tank and CSR Bulk.

3002 Fatigue Assessment 3 DAYS

Contents

- Fatigue damages
- SN-curves and miner summation
- Fatigue assessment for NAUTICUS(Newbuilding), Classification Notes 30.7
- Introduction to fatigue assessment for PULS-1/PULS-2

Objective

Upon completion of this course the participants will understand fatigue basic, DNV CN for fatigue and the procedure for PULS notations, NAUTICUS software for fatigue strength assessment, etc.

Target Group

Engineers in hull/outfitting department having more than 2 Years experience.

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3005 Material Technology 3 DAYS

Contents

- Basic requirements to construction materials
- Basic facts about metallic materials
- Phase diagrams
- Steels, carbon manganese, aluminum, stainless steels and others

Objective

Upon completion of this course the participants will understand materials, application to ships, requirements, etc.

Target Group

Engineers in hull/outfitting design department having more than 2 years experience

3006 Noise & Vibration 2 DAYS

Contents

- Concept of noise & vibration
- 1st step, 2nd step and 3rd step analysis
- Measurements and trouble shooting
- Design recommendations to reduce noise & vibration

Objective

Upon completion of this course the participants will understand concept of noise & vibration, approach method, analysis steps, design against noise & vibration, etc.

Target Group

Engineers having basic knowledge in noise & vibration and in FEA

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**3007 LNG – Hull
2 DAYS****Contents**

- Rules and regulations
- Strength analysis
- Temperature analysis and materials

Objective

Upon completion of this course the participants will obtain improved understanding of LNG carriers, strength of hull structures, Rules and regulations, material selection for lower temperature cargoes, etc.

Target Group

Engineers having basic knowledge in hull design and gas carriers

**3008 LNG – System
2 DAYS****Contents**

- LNG cargo handling, systems & operation
- Cargo piping
- Cargo tank safety relief valves
- Fire protection
- Personnel protection equipment
- Electric installations in cargo area
- Instrumentation & cargo equipment

Objective

Upon completion of this course the participants will understand LNG carriers, cargo containment system, Rules and regulations, etc.

Target Group

Engineers having basic knowledge in system design and gas carriers

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3012 Offshore – Hull General 2 DAYS

Contents

- FPSO Hull design
- DNV offshore standard and recommended practices for offshore ships
- Direct analysis of wave bending moments and shear forces
- FPSO design by DNV Software
- Preliminary section scantlings
- Design of FPSO specific details

Objective

Upon completion of this course the participants will understand structure design of FPSO units from the initial design phase to the detail design phase, etc.

Target Group

Structural engineers/naval architects with basic knowledge of structural design of ship and/or offshore structures

3014 LPG – Hull 2 DAYS

Contents

- Basic properties of gas carriers
- LPG carriers – Tank type A and type C
- Rules and regulations
- Design loads
- Material selection for lower temperature cargoes
- Strength of hull structure and cargo tanks
- Critical details

Objective

Upon completion of this course the participants will obtain improved understanding of LPG carriers, strength of hull structures, Rules and regulations, material selection for higher and lower temperature cargoes, etc.

Target Group

Engineers having basic knowledge in hull design and gas carriers

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3015 LPG – System 2 DAYS

Contents

- Applicable rules & regulations, Type of cargoes
- Damage stability & cargo tank location
- Ship arrangement
- Cargo containment
- Cargo handling systems I & II
- Design of pressure vessel type cargo tanks
- Design of prismatic type cargo tanks

Objective

Upon completion of this course the participants will understand LPG carriers, cargo containment system, Rules and regulations, etc.

Target Group

Engineers having basic knowledge in system design and gas carriers

3021 FLNG Hull 2 DAYS

Contents

- Basic design concept and design philosophy of FLNG
 - General arrangement and layout
 - Material selection
 - Structural strength
 - Stability
- Rules, Regulations to be applied
- Scope of DNV Classification
- Use of Risk Assessment in FLNG design
 - Collisions
 - Sloshing
 - Stability and Buoyancy hazards

Objective

Upon completion of this course the participants will understand basic design concept of FLNG, strength criteria & requirements and maintenance/inspection philosophies of FLNG

Target Group

All engineers working in LNG FPSO & FSRU segment (design, production, QC & supervisors)

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3022 FLNG System 2 DAYS

Contents

- Basic design concept and design philosophy of FLNG
 - Process descriptions and process flow diagrams
 - Operation/Safety philosophy
- Conceptual level design
 - Safety systems
 - Emergency shutdown
 - Electric systems
 - Mechanical systems
- Rules & Regulations to be applied
- Use of Risk Assessment in FLNG design
 - Loss of well containment for LNG production installations
 - Gas release into confined space
 - Release of toxic on other hazardous substance
 - Loss of mooring, propulsion, station keeping

Objective

Upon completion of this course the participants will understand basic design concept of FLNG's safety, novel aspects and application in LNG transfer, conceptual system design

Target Group

All engineers working in LNG FPSO & FSRU segment (design, production, QC & supervisors)

4101 Welding in Structure & Piping 2 DAYS

Contents

- p-WPS
 - Welding metallurgy
 - Rule requirements
- Welding Procedure Specification
 - Essential Valuable (ASME,AWS,ISO,NORSOK &DNV GL)
- Welder qualification
- Rule interpretation

Objective

Upon completion of this course the participants will understand general information on general requirements of code and DNV GL rule, Welder qualification procedure and how to establish WPS

Target Group

Welding Engineers or QC person working for manufacturers supplying structures or steel products manufacturers

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3023 LNG as Ship Fuel 2 DAYS

Content

The introduction of stricter local, national and international environmental legislations demands new solutions for fuels within the maritime industry

One possible approach to meet the emission requirements is to use natural gas as fuel for propulsion and electric power generation on board.

Until recently, there was a lack of international safety requirements for gas as fuel for non- LNG tankers. However, on 1 January 2017 the IGF-Code (International Code of Safety for Ships using Gases or other Low-flashpoint Fuels) entered into force.

This Code provides mandatory provisions for the arrangement and installation of low- flashpoint fuelled machinery.

DNV GL has recently updated its Rules to include all statutory requirements (except risk assessment, operational requirements and training). Our Rules provides clear and prescriptive criteria together with function-based requirements enabling more innovative solutions.

While exploring the details of typical LNG fuel systems this course will show how safety challenges and associated risks are mitigated through applicable rules and regulations. The course aim to engage technical personnel through discussions and challenging cases giving them a better understanding of LNG as ship fuel. With over 15 years of experience with gas fuelled vessels DNV GL can be considered your trusted partner preparing ships

Objective

The course will give the participants an overview about the current developments in the field of LNG as ship fuel.

Target Group

Technical personnel within shipping companies, yards and designers (e.g. engineers, technical directors, fleet managers, superintendents etc.)

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6002-1 Norsok Standard - Material 2 Days

Contents

- Basic, Melting and Rolling
- M-001 Material Selection
- M-101 Structural Steel Fabrication
- M-120 Material Data
- M-122 Cast Structural Steel
- M-123 Forged Structural Steel
- M-601 Welding and Inspection of piping
- M-630 Material Data Sheets for piping

Objective

Upon completion of this course the participants will understand the background of the Norsok Regime and how the standards are developed and maintained

Target Group

All engineers working in offshore plant project

6002-2 Norsok Standard - Safety/Working Environment 2 Days

Contents

- Introduction of S-001, S-002, S-003, S-005, S-006, S-011, S-012
- S-002 Working Environment
- S-012 Health, Safety and Environment (HSE) in construction – related activities
- Rules and Regulations – PSA Regulations

Objective

Upon completion of this course the participants will understand the background of the Norsok Regime and how the standards are developed and maintained

Target Group

All engineers working in offshore plant project

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6002-5 NORSOK projects – Lessons Learned 2 DAYS

Contents

This course highlights the most challenging areas when applying the NORSOK standards including specific solutions for how these challenges can be effectively addressed

Objective

Upon completion of this course the participants will have an understanding of typical pitfalls and challenges related to the application of NORSOK and how these can be effectively addressed. The course offers some interactive parts where the participants get the chance to share and reflect upon their own experiences from NORSOK projects.

Target Group

Project personnel involved in implementing NORSOK standards in design

6004 LNG Essential & Liquefaction System 2 DAYS

Contents

- LNG value chain overview
- LNG facts
- Feed pretreatment
 - Acid gas removal
 - Dehydration / Mercury removal
- LNG liquefaction cycle
 - Cascade cycle
 - Mixed refrigerant cycle (single MR, C3MR and etc)
 - N2 expander cycle
- Evaluation of liquefaction process for FLNG
- Cryogenic equipment for LNG liquefaction
 - Transfer system
 - Compressor / Expander / Heat exchanger

Objective

Upon completion of this course the participants will understand general information on LNG value chain and LNG liquefaction system including feed treatment system, various liquefaction cycles and FLNG applications etc.

Target Group

All engineers working in LNG projects and managers and marketing personnel who need to present and profile LNG capabilities

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6005 Wave Load Analysis for Ship 3 DAYS

Contents

- Introduction of basis for hydrodynamics
- Overview of ship motion in waves
- Ship motion analysis using HydroD
- Estimation of roll damping using WAVESHIP
- Overview of statistics for sea waves
- Statistical post-processing using POSTRESP

Objective

Upon completion of this course the participants will understand hydrodynamic basis, ship motion in wave, etc. and will perform ship motions analysis, statistical post-processing using DNV SESAM package

Target Group

Engineers having basic knowledge in hydrodynamic analysis

6011 Dynamic Positioning System 3 DAYS

Contents

- DP system in general
- Design features - Interpretation of class rules
- ERN and FMEA – concepts and appreciation
- DP – Functionality, redundancy and failure response testing
- Survey requirements in terms of class rules

Objective

Upon completion of this course the participants will understand the design features, class rules related to DP system, Operational Challenges and Survey / Inspection requirements

Target Group

All engineers with experience of general ship systems and the fields of instrumentation, automation and electrical engineering

For more information

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