



# Fatigue Methodology of Offshore Ships

## Invitation to a DNV Technical Seminar

DNV invites you to a seminar on Fatigue Methodology of Offshore ships. Design against fatigue is of increasing importance as structures are designed more cost-efficiently and for longer service. The seminar is designed to maintain awareness of fatigue assessment processes and the applicable codes and standards to be used. There will also be the opportunity for discussion of fatigue issues within the industry.

### What is this event and who should attend?

This seminar provides an introduction to the Fatigue Design of Offshore Ships. It is targeted at designers of marine structures where a reliable fatigue assessment and resistance against is important.

### What is the focus of the event?

The course will be based on the DNV Recommended Practice C206 "Fatigue Methodology of Offshore Ships".

### What are the objectives?

The course will present the fundamentals of the DNV Recommended Practice C203 "Fatigue Design of Offshore Steel Structures", and describe the methods and procedures of DNV Recommended Practice C206 "Fatigue Methodology of Offshore Ships", such that after the course the participants should be able to perform fatigue analysis on offshore ships based on these documents. How the RP-C206 compares with the Classification Note 30.7 will also be addressed.

### What is the format and agenda?

The seminar is structured to allow time for questions and answers on the Methodology and the worked examples.

### Seminar Date, Venue and Price

The course will take place on Wednesday 22<sup>nd</sup> and Thursday 23<sup>rd</sup> February 2012 at DNV, Cromarty House, 67-72 Regent Quay, Aberdeen, AB11 5AR.

Costs for attendance are £900.00 per delegate, for attendance at both days.

### Lecturers

**Mr Geir Olav Kaase** (MSc), is a Senior Engineer in the "Floating Offshore Structures" section of the Technical Advisory division of DNV. He has more than 8 years of experience with maritime and floating offshore structures and has been undertaking several direct fatigue calculations for offshore and sailing ships. He is currently managing the development of new international fatigue standards for sailing ships (IACS CSR-H).

**Mr Thomas Johansen** (MSc), is a Senior Engineer in "Floating Offshore Structures" section of the Technical Advisory division of DNV. He has more than 7 years of experience with floating and fixed offshore structures and has been working with life extension and conversion of ships and FPSO for the last three years. He is currently involved in JIP relating to new RBI practical guideline for offshore structures.

### Registration

To register for this event please complete the booking form attached and email to Jane Simpson:

Email [jane.simpson@dnv.com](mailto:jane.simpson@dnv.com)

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## Invitation to a DNV Technical Seminar

### Agenda

Day 1 Wednesday 22<sup>nd</sup> February 2012

#### Introduction

Overview of content of RP-C206

The fatigue design process, FPSO configuration, topside and turret designs and interface with hull.

Introduction to S-N fatigue.

#### Fatigue Loads

Meteorological ocean criteria

Heading profile on operation conditions

Hydrodynamic analysis and post processing

#### Basics of fatigue and analysis methods

Fatigue basics:

Stress concentrations, failure modes, S-N curves, thickness effect, fatigue stress and direction, Miner-Palmgren rule

#### Exercise

Present exercise and discuss answers in groups

#### Basics of fatigue and analysis methods (continued)

Overview of fatigue analysis methods:

Simplified and spectral analysis (component and full stochastic)

#### Exercise

Present exercise and discuss answers in groups

#### Selections of Ship Structural Details

Show critical elements; explain relationship between loads and critical elements

#### Overview of Modelling Techniques for Fatigue Analysis

Global structural model

Cargo hold

Part ship model

Hull topside model

Hull turret model

### Agenda

Day 2 Thursday 23<sup>rd</sup> February 2012

#### Fatigue analysis based on FE analysis – Hot spot stress methods

Modeling of details for derivation of hot spot stress

Read out of hot spot stress

Hot spot stress S-N curve

#### Exercise

Present exercise and discuss answers in groups

#### Low cycle fatigue

Critical areas

Combination of low and high cycle fatigue

#### Post weld improvement methods

Grinding

TIG dressing

Peening and benefit factors

#### Exercise

Present and discuss answers to exercise

#### Effective notch stress method

Modeling requirements

Stress read out

S-N curve

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[For further information and to book](#)

If you would like further information on this course, please contact Elisabeth Legg  
Tel. 01224 335082 or Email: [elisabeth.legg@dnv.com](mailto:elisabeth.legg@dnv.com)

To book a place on this course, please complete the form below and submit to Jane Simpson  
Tel. 01224 335091 or Email: [jane.simpson@dnv.com](mailto:jane.simpson@dnv.com)

Name of person making booking:					
Company:					
Email address:					
Telephone number:					
Delegate details (name and job title):					
Details of additional delegates:					
Contact address:					
Invoice address/billing address for card payment (if different from contact address):					
*Card type:		Expiry date:		Security no.:	
Card Number:		Total:			
Purchase order number:					
Authorised signature:					

\* All cards accepted, apart from American Express

**A set of course materials, including DNV-RP-C206 and DNV-RP-C203 will be given to each delegate.**