

PROGRAMME (1st week)

Monday 29th September 2008

14.15-18.00

Modelling uncertainty and variability. Different interpretations of probability. Descriptive statistics of samples. Histograms and analytical probability distribution functions.

Tuesday 30th September 2008

14.15-18.00

Estimation and model building from data. Methods of fit and tests of fit. Multiple random variables, univariate and multivariate distributions. First- and second-order approximations of moments.

Wednesday 1st October 2008

14.15-18.00

Probabilistic modelling of waves and wave induced load effects and wave induced responses. Uncertainty in models of wave induced load effects: Probabilistic modelling of still water induced load effects. Stochastic load combination.

Thursday 2nd October 2008

14.15-18.00

Probabilistic modelling of the strength of ship structures. Probabilistic modelling of plate strength: Review of design methods, effect of material properties, initial imperfection.

Friday 3rd October 2008

14.15-18.00

Probabilistic modelling of the ultimate longitudinal strength of the ship hull girder. Longitudinal strength of damaged ship structures. Model uncertainty.

PROGRAMME (2nd week)

Monday 8th December 2008

14.15-18.00

Principles of Structural Reliability. Basic formulation of structural component reliability. Second-moment reliability method: Cornell Reliability Index. Problem of lack of invariance.

Tuesday 9th December 2008

14.15-18.00

First-order reliability methods (FORM). Transformation to the standard normal space. Reliability sensitivity measures; the second-order reliability method (SORM). Time-invariant reliability analysis.

Wednesday 10th December 2008

14.15-18.00

Monte Carlo, importance sampling and directional simulation methods for structural reliability evaluation.

Thursday 11th December 2008

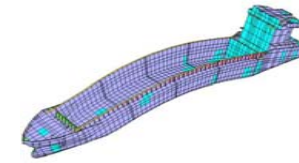
14.15-18.00

Time-variant reliability analysis. Systems reliability methods: Bounds on the reliability of series systems; Approximate methods for non-series systems.

Friday 12th December 2008

14.15-18.00

Probabilistic design. Codified design formats. Partial factor design and LRFD code formats. Assessment of partial safety factors for the longitudinal strength of ships.



ASDEPP

Advanced Ship Design for Pollution Prevention

Ship Structural Reliability with Respect to Ultimate Strength



Course announcement

29th September-3rd October 2008
8-12th December 2008
Zagreb, Croatia

About the Course

The main aim of the lectures is to provide theoretical background and numerical modelling techniques that are necessary for ship structural reliability assessment.

The syllabus will include: modelling uncertainty and variability, introduction to structural reliability, probabilistic modelling of load and ultimate strength of ship structures, stochastic load models, system reliability and probabilistic design.

For more information about course please visit **ASDEPP** web page: <http://www.mar.ist.utl.pt/asdepp>

Lecturers

Prof. Carlos Guedes Soares, IST, Portugal

Prof. Kalman Žiha, FAMENA Zagreb, Croatia

Prof. Angelo Teixeira, IST, Portugal

Who should attend

Course targets three main groups of students:

- a. **post-graduate Master of Naval Architecture (MNA) students.** Each course could bring up to 4 ECTS credits. Exercises and examinations will be organized using distance learning internet-based methods.
- b. **PhD students in Naval Architecture and Ocean Engineering.** Each course could bring up to 10 ECTS credits. Exercises, seminar work and examinations will be organized using distance learning internet-based methods.
- c. **Naval Architects and Marine Engineers** (shipyards, design offices, classification societies, personnel from Local Authorities, facilities operating companies ...).

Cost

The cost of the course is covered by **EU Tempus Programme**. Therefore, registration fees are not required to attend courses and to receive course papers.

Students should make their own arrangements for travel and accommodation, although we can help by providing list of nearby hotels or budget accommodation.

For more information on accommodation in Zagreb please visit <http://www.zagreb-touristinfo.hr/>

Admission

If you belong to group **a.** or **b.** and wish to participate in the course, E-mail should be sent to **ASDEPP Secretary** with short CV. Please note that for final acceptance, students will need to provide support letter by head of their study, department or research project on which they are working. Engineers from industry sector need to send E-mail with short CV to **ASDEPP Secretary** in first instance, while for final acceptance they will need to provide support letter of their company.

Deadline

Deadline for submitting final application for the course with support letter is **15th September 2008**.

Contact

ASDEPP Secretary:

Mrs. Silvana Škoko Gavranović
Faculty of Mechanical Engineering and Naval Architecture
University of Zagreb
Ivana Lučića 5
10000 Zagreb
Croatia
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Location



The course will be held at the **Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb (FAMENA)** <http://www.fsb.hr>. The Faculty is situated in the city of Zagreb, the capital of the Republic of Croatia).

The **University of Zagreb** is the oldest Croatian university and also the oldest university of Southern-Eastern European, founded in 1669. The modern University of Zagreb is founded in 1874, since when more than 200000 students have graduated and more than 8000 candidates have received PhD degree at University of Zagreb. Today, University of Zagreb consists of 33 organizational parts (faculties, academies etc.) with 60000 students.

The **Faculty of Mechanical Engineering and Naval Architecture** was founded in Zagreb in 1919. The teaching and research activities that are conducted at the Faculty cover wide areas of mechanical engineering, naval architecture and aerospace engineering.

Zagreb is an old Central European city. It is located on the intersection of several important routes between the Adriatic coast and Central Europe. Zagreb offers its guests the Baroque feel of the Upper town, picturesque open-air markets, various kinds of shops and delicious local cuisine.

Zagreb International Airport is located 17km from the centre of the city, or 20-25 minutes by bus.

