

COST▪ 300^{DT}000**AIMS**

Key aspects in the design of ports and harbours are the sheltering conditions for short (swell) and long waves (seiches). Traditionally, swell penetration was better always assessed than seiching, due to the difficulty in predicting long wave action in harbours with irregular shapes.

The course deals with harbour sheltering and in particular the case of seiches that should be studied in the design stage. The model used in the course is the CGWAVE (U.S. Army Corps of Engineers) for short and long waves. The course is "hands on" and the participants will have the chance to do the model setup using a real case, studying the resonance of the Leixões harbor in Portugal. A computer will be available for each group of two students, on the practical sessions. The SMS – Surface Modelling System and the model CGWAVE will be used.

This course is mainly for consultants, researchers, university students and managers in port administration that have interest in sheltering conditions of ports and harbours (Commercial, fisheries and Marinas). Poor sheltering can disrupt operation and cause damage to ships and port infrastructure. A background in Maritime or Coastal Hydraulics or professional activity in this area is also an advantage to follow the course.

LANGUAGE

The course will be taught in English (however informal discussions can also be done in French, Portuguese or Italian).

COURSE SCHEDULE**19th November**

09H00 – 10H30

Course overview.*António Trigo Teixeira (IST)*

10H30 – 11H00

Coffee break

11H00 – 12H30

Harbour Sheltering Conditions.

Wave diffraction, transmission and reflection.

Samira Rais (ENIT)

12H30 – 14H00

Lunch break

14H00 – 15H30

Seiching in harbours.

Physics of the phenomenon.

Samira Rais (ENIT)

15H30 – 16H00

Coffee break

16H00 – 17H30

Seiching in harbours.

Mechanical analogy. Analytical solutions

*António Trigo Teixeira (IST)***20th November**

09H00 – 10H30

SMS – Surface Modelling System.*António Trigo Teixeira (IST), Samira Rais (ENIT), Silvia di Bona (Padova)*

10H30 – 11H00

Coffee break

TUNÍZIA - TUNIS**HARBOUR HYDRODYNAMICS.
WAVE PENETRATION IN HARBOURS.****19th – 21st NOVEMBER 2014****COORDINATORS****Prof. António Trigo Teixeira:** Professor at Instituto Superior Técnico.**Prof.^a Samira Rais:** Professor at École Nationale d'Ingénieurs de Tunis.

11H00 – 12H30	CGWAVE model. Short and long waves. <i>António Trigo Teixeira (IST), Samira Rais (ENIT), Silvia di Bona (Padova)</i>
12H30 – 14H00	Lunch break
14H00 – 15H30	CGWAVE Tutorial. <i>António Trigo Teixeira (IST), Samira Rais (ENIT), Silvia di Bona (Padova)</i>
15H30 – 16H00	Coffee break
16H00 – 17H30	CGWAVE Tutorial. <i>António Trigo Teixeira (IST), Samira Rais (ENIT), Silvia di Bona (Padova)</i>

21st November

09H00 – 10H30	Leixões Harbour Example. Model Setup. Background information. <i>António Trigo Teixeira (IST), Samira Rais (ENIT), Silvia di Bona (Padova)</i>
10H30 – 11H00	Coffee break
11H00 – 12H30	Leixões Harbour Example. Domain definition and mesh generation. <i>António Trigo Teixeira (IST), Samira Rais (ENIT), Silvia di Bona (Padova)</i>
12H30 – 14H00	Lunch break
14H00 – 15H30	Leixões Harbour Example. Reflection Coefficients and bottom friction. <i>António Trigo Teixeira (IST), Samira Rais (ENIT), Silvia di Bona (Padova)</i>
15H30 – 16H00	Coffee break
16H00 – 17H30	Leixões Harbour Example. Results visualization and reporting. <i>António Trigo Teixeira (IST), Samira Rais (ENIT), Silvia di Bona (Padova)</i>

LOCATION, DATE AND TIMETABLE

Classes at ENIT, Room 111
19th – 21st November 2014
Hours: 9h00 to 17h30

CERTIFICATE

Participants will receive a
Certificate of Attendance of
Professional Training.

CONTACTS / SECRETARIAT

Prof.^a Samira Rais, ENIT
Tel.: 71 874 700
Fax: 71 872 729
e-mail: samira.rais@enit.rnu.tn