International Workshops

ESITC Caen

INTERNATIONAL WORKSHOP
Port Engineering and Maritime Works

- Project work in small groups of students tutored by a team of experienced engineers / researchers.
- Elaboration of a bid proposal to a realistic tender.
- Topics: Port planning, Design of coastal structure and ports terminals, ...
- Hands-on experience with state of the art simulation software.

From the 29th May to the 23rd June 2017
Application deadline: 28th February 2017
Contact: +33 (0)2 31 46 23 01 / international@esitc-caen.fr
www.esitc-caen.fr

INTERNATIONAL WORKSHOP
Sustainable Building Engineering

- Project work in small groups of students tutored by a team of experienced engineers / researchers.
- Elaboration of a bid proposal to a realistic tender.
- Topics: A system engineering approach to building design; Life-cycle and Energy assessment; Innovative construction materials.
- Hands-on experience with state of the art simulation software.
- Experimental work sessions in research laboratories.

From the 29th May to the 23rd June 2017
Application deadline: 28th February 2017
Contact: +33 (0)2 31 46 23 01 / international@esitc-caen.fr
www.esitc-caen.fr
Édition 2015-2016

Workshops internationaux à l’ESITC Caen
Students from 17 nationalities bid on tenders dealing with Construction

Accueil au Conseil Régional de Normandie par Elisabeth JOSSEAUME, Conseillère régionale, Elue du Calvados, le 1er juin à l’Abbaye-aux-Dames.

International Workshops
ESITC Caen
Choice between two themes:

- **Sustainable Building Engineering** [SBE]
- **Port Engineering and Maritime Works** [SEMW]

- Open to students that have completed three years of higher education in Civil Engineering or a related field
- A tailored mix of lectures, tutored group sessions and independent group work over a period of 4 weeks in June
- **Choice of lectures** depending on students background
- High level lecturers from International companies
- **Working language English**
- **Project teams** composed by students from several different European civil engineering schools (17 nationalities 2016)
- Assessment by **three project reviews & 4 technical visits + 1 lab validation**
- Successful project awarded with **8 ECTS credit points**
General outline of the workshop

- **PR0 : Project launch**
  - Project definition
- **PR1 : Project plan**
  - Data collection
  - Conceptual design
- **PR2 : Concept definition**
  - « Design »
- **PR3 : Final results**
  - Project reviews
  - Tutoring
  - Lectures (7.5h)

**Weekly Activities**

- **Week 1**
  - Personal preparation
  - Lectures (15h)
  - Tutoring (3h)
  - Project reviews (2h)
- **Week 2**
  - Technical visit 1
  - Tutoring (3h)
  - Lectures (10.5h)
  - Project reviews (1h)
- **Week 3**
  - Technical visit 2
  - Tutoring (3h)
  - Lectures (7.5h)
  - Project reviews (1h)
- **Week 4**
  - Technical visit 3
  - Tutoring (3h)
  - Lectures (10.5h)
  - Project reviews (1h)
  - Lab test

**Technical visits**
- Technical visit 1
- Technical visit 2
- Technical visit 3
- Technical visit 4

**Workshop at distance**

**Workshop**

- Week 1
- Week 2
- Week 3
- Week 4
Academic Partners

- TU WIEN (Austria)
- UAGCE SOFIA (Bulgaria)
- VIA (Danemark)
- TU DELF (Netherland)
- UPM MADRID (Spain)
- EPS BELMEZ (Spain)
- UNIVERSITY of Grenada (Spain)
- NTNU (Norway)
- THM GIESSEN (Germany)
- UNIVERSITY OF LOUGHBOROUGH (England)
- UNIVERSITY OF LOUVEN (Belgium / on going)
- UNIVERSIDAD de CANTABRIE (Spain)
- UNIVERSITY OF EDINBURGH (Scotland)
- UNIVERSITY OF PLYMOUTH (England)
- UPC BARCELONA (Spain)
- UNIVERSITY OF OTTAWA (Canada)
- UNIVERSITY of AALBORG (DK)
Professional Support Partners
2015-2016
Sustainable Building Engineering

Reconversion Building in Quai de Guinée / Le Havre

PROJECTS OF RECONVERSION AND EXTENSION OF UN EXISTING BUILDING
**Sustainable Building Engineering**

**Workshop objectives:**
- Define and organize a building design project
- Gather and analyze relevant information and data
- Elaborate and evaluate energy- and material saving strategies
- Present and justify choices of concept and design solutions
- Experimental experience in research lab
- Use of state of the Art software
- Propose a BIM model

**Addressed topics:**
- A system engineering approach to building design
- Life-cycle assessment of buildings and building materials
- Energy assessment of buildings
- Innovative construction materials
- Architectural aspects
7.1. BIM FILES

You have access to 3 BIM files:
- One Revit file of the building to construct
- One Navisworks file of the building
- One Navisworks file of the project

You have to improve these documents in order to illustrate your answer to the project. You can create new BIM files if needed.

7.2. BIM SOFTWARE

The project is based on Autodesk products. Other software are allowed but every documents transmitted should comply to format defined in the document.

Software below are advised:
- BIM modeling: Revit 2016
- BIM compilation: Navisworks 2016
- Site Integration: Intra works 2016
- Open BIM viewer: Solibri model viewer

8. EVALUATION

8.1. DELIVERABLES

Following documents are requested in the answer:
- BIM model of the building - dwg + IFC
- BIM model of the site - dwg + IFC
- BIM model of the area - on Intra works
- Compilation of all documents - .zip
- Illustration: .jpg + .pdf
- Memory: .zip

8.2. CRITERIA

The BIM evaluation will not focus on the price you could evaluate for this project. Client will look to the capability to propose good BIM process for the construction.

Evaluation will be done as below:
- Design of the entrance of the building: 10/100
- Use of data in BIM Model: 10/100
- Integration of data in BIM Model: 5/100
- Building Simulation based on BIM model: 20/100
- Integration of project in the area: 10/100
Port Engineering and Maritime Works

TEMA NEW PORT (GHANA)
Port Engineering and Maritime Works

Workshop objectives:

- Define and organize a port engineering or maritime works design project
- Identify design parameters and gather and analyze relevant information
- Elaborate and evaluate conceptual designs using dedicated simulation software
- Present and justify choices of concept and design solutions
- Experimental experience in research lab
- Use of state of the Art software

Addressed topics:

- Wind and wave analysis
- Design of engineering structures
- Geotechnical analysis
- Use of wave flume
Design criteria
- Hydraulic design conditions
- Geotechnical conditions
- Reasons for positioning the port

Seismic data
- Different layout concepts
- Caisson breakwater D& M
- Quay Dimensioning and Methods

Sediment transport and reasons for layout positioning
- Presentation of layout
- Shipmooring
- Rubble mound breakwater
- Dredging and reclamation

Layout Finalisation by wave agitation
- Mooring calculations and mooring layout
- Cost estimate
- Work planning with Gant chart

Environment
PROGRAM OF TECHNICAL VISITS
The first visit will occur with a tour of low Normandy heritage.
The port of Cherbourg is a decentralized port partly managed by a private society. But it is also maritime public domain. The port is home to 6 types of activities: commerce, military, transport, fisheries, boating and cruise.

The access to the port of Cherbourg is possible at any time 7 days a week for ships up to 12 m draft, without any lock to the quays.
Cité de la Mer et nouvelles Capitaineries de Cherbourg
The Industrial port of Honfleur

The town of Honfleur

Lunch down town the old port of Honfleur

Flight above the bridge of Normandy.
The Industrial port of Le Havre
Conference by the deputy Director of GPMH

Visit of Deauville and ‘Les Planches’.

Diner down town Villers Sur Mer
The tides of Mont-Saint-Michel Bay invade twice a day. It is characterized by movement amount (flow) and descending (reflux) of the sea. To avoid that sedimentation appears in the bay, a flood barrier is under construction.
Practical information

Fees
- The program is free of charge for the partner institution as well as for the participating students

Accommodation and living costs
- The ESITC Caen organize suitable on-campus accommodation at the charge of the participants (about 300€ per person for the four weeks)

Deadline for applications:
- The 28th February 2017

For further information contact:

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ESITC Caen

Top ranked civil engineering school

Awarded with the EUR-ACE label

Accredited by the French government
Member of « Conférence de Grandes Ecoles »

For a high-level education
On the Caen university campus
25 000 students
Canteens, dorms, sports facilities, library, …
In a beautiful region close to Paris offering an excellent quality of life for culture, leisure and sports.

- Honfleur
- Mont-Saint-Michel
- Etretat
- The Normandy Bridge
- Caen city hall
- Deauville

1h45 from Paris
15” from the sea
10” mn from Caen city
Scan du bâtiment existant et reconstitution de la maquette 3D dans Revit par les étudiants danois (VIA)
Import de la maquette dans AllPlan pour modifications architecturales

Import dans Tekla structures et Robot pour vérifications de la structure existante et étude de réhabilitation

A réaliser pendant le WS à l’ESITC Caen
1. Summary of Design Criteria
2. Definition of Local Design Conditions
4. Finalisation of the layout
5. Dimensioning of (breakwaters/ dolphins/solid quays)
6. Preliminary cost estimate
International Workshop
Port Engineering and Maritime Works

CARBONITE HARBOR AGITATION

- Layout 2,6
- Annual swell
- $H_s = 2.5\ m$
- $D_p = 135^\circ$
- $T_p = 9.6\ s$
- Water level = 2.9\ m

Design criteria for berthing agitation:
- $H_s = 1.00\ m$ for the tanker berth,
- $H_s = 0.70\ m$ for container vessels berths,
- $H_s = 0.50\ m$ for the other berths

<table>
<thead>
<tr>
<th>Berth</th>
<th>Ferries 1-2</th>
<th>Ferries 3-4</th>
<th>Ferries 5-6</th>
<th>Container</th>
<th>Tanker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean agitation (m)</td>
<td>0.53</td>
<td>0.58</td>
<td>0.60</td>
<td>0.56</td>
<td>0.71</td>
</tr>
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