Technical English for Civil Engineers.

HARBOURS
COURSE DESCRIPTION

• The activities for this module are intended for Spanish students of Civil Engineering who have an intermediate level of English and are already acquainted with the basic vocabulary of construction.

• The units have been devised to help learners at this level to improve their knowledge and use of English in an engineering environment. Each standalone unit covers vocabulary related to a particular topic area—such as harbours, bridges, tunnels etc.—, and is designed to reinforce the grammar knowledge of students and improve their communicative skills.

• The texts and multimedia reflect an authentic use of the language so that students will get a detailed understanding of the terminology.

• Further bibliography for both the students who study on their own and the teacher in the classroom is provided at the end of each unit.
Harbour:

“sheltered water where ships can lie and, in some harbours, load or unload. It may be natural or artificially sheltered (by breakwaters)”. Scott, J. Dictionary of Civil Engineering. New York: Chapman and Hall, 4th ed.1992, p.209
ACTIVITY 1. What does it mean? Match the following words/ phrases with their equivalent in Spanish:

- To ebb
- Waterfront
- Island
- Varied nature
- Pond
- Muddy
- Lock
- Tidal Control
- Ebb and flow

Control de las mareas
Estanque/alberca/balsa
Naturaleza diversa
Con barro
Exclusa
Flujo y reflujo
Isla
Puerto/costa/Muelle

ACTIVITY 2. The title of the text that you are about to read is Green Masterplan for the Expansion of Tianjin. Can you predict the content of the story in five sentences?

1. -
2. -
3. -
4. -
5. -
The Netherlands based DHV Group has won a contract to provide a masterplan for the development of the harbour at Tianjin in China.

The population of the area surrounding the port, the Tianjin Economic Development Area (TEDA), is expected to increase by more than 200,000 over the next 10 years, and working closely with de Architekten Cie, DHV Group will provide a plan for the reclamation of 43km² of land from the Bohai Sea.

The masterplan accommodates the demands of urban and economic growth, as well as the need for a clean and sustainable living environment. It also incorporates innovations in the areas of construction, environmental protection, water management, architecture and civil engineering.

The Bohai Sea is characterised by a tidal variation of 3m, and a considerable level of salinity and pollution, factors which have posed particular challenges for DHV in planning the reclamation project.

The plan is based on the delta concept and contains typical elements such as ebb and flow, islands, varied nature, ponds and (urban) waterfronts. A square enclosure dam around the area provides for high water protection, prevents the drying out of a large muddy area during low tide, and renders the area resistant to climate change. Locks in the dam will allow for tidal control and guarantee water quality. The dam is based on the classical Dutch ‘polder’ concept.

The new area of land will consist of islands that can be built in a flexible fashion, so that the resulting waterfront can be up to five times larger than that produced by a single large area of land. This extra waterfrontage brings with it a significantly higher land price thus strengthening the project’s economic feasibility.

More recently, the BRR, Indonesia’s Agency for Rehabilitation and Reconstruction, which is charged with the reconstruction of Aceh and Nias following recent tsunamis and earthquakes, has awarded a US$ 5m consultancy contract to DHV and a consortium of Indonesian companies, including MLD, DHV’s Indonesian subsidiary.

Nias is an island off the coast of Sumatra in the Indian Ocean and has a population of about 700,000. Three months after the tsunami of December 2004, the island was hit by an earthquake measuring 8.7 on the Richter Scale. The earthquake caused a great deal of damage and devastated much of the island, including its infrastructure and capital.

DHV is responsible for coordinating the reconstruction of the infrastructure on the island of Nias, which is 120km long and 40km wide. The project involves primarily roads and bridges, but also urban development, drinking water, waste water, drainage and harbours.
Were your predictions correct? Work in pairs. Discuss with your partner the topic of the text.

**ACTIVITY 4.** Work in groups, read the text again and bid on each true statement. Good luck and get the highest score!

a) The population of the area surrounding the port will decrease in the future.

b) The new project for the harbour of Tianjin is based on a system typical of Holland.

c) In 2004, an earthquake was catastrophic for the island of Nias.

d) The resulting waterfront in the new port of Tianjin is smaller if it is constructed with islands than with a single area of land.

**ACTIVITY 5.** Vocabulary. Match the following words with an appropriate definition:

| Outer Harbour | -A charge for towing |
| Breakwater | -The area of water between two piers or alongside a pier that receives a ship for loading |
| Mooring | -The depth of a vessel’s keel below the water line, especially when loaded |
| Moorage | -The part of a harbor toward the sea, through which a vessel enters the inner harbour |
| Tow | -A charge for mooring |
| Towage | -A platform extending from a shore over water and supported by piles or pillars, used to secure, protect, and provide access to ships or boats. |
| Docks | -A barrier that protects a harbor or shore from the full impact of waves. |
| Pier | -Securing a boat so it’s free to respond to wind and waves |
| Draught | -To draw or pull behind a chain or a line |
| Frontages | -The length of a lot line or a building site along a street or other public way, or along a body of water forming a boundary. |
Now try with these expressions and their equivalents in Spanish:

<table>
<thead>
<tr>
<th>Levelling works</th>
<th>Mar abierto</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheltered waters</td>
<td>Dique discontínuo</td>
</tr>
<tr>
<td>Pilotage</td>
<td>Canales dragados</td>
</tr>
<tr>
<td>Semi sheltered waters</td>
<td>Aguas semibrigadas</td>
</tr>
<tr>
<td>Layout of harbour works</td>
<td>Enrase</td>
</tr>
<tr>
<td>Storage area</td>
<td>Diques verticales</td>
</tr>
<tr>
<td>Dredge channels</td>
<td>Derechos de practicaje</td>
</tr>
<tr>
<td>Open sea</td>
<td>Superficie de almacenamiento</td>
</tr>
<tr>
<td>Discontinuous breakwater</td>
<td>Trazados de obras portuarias</td>
</tr>
<tr>
<td>Composite/vertical breakwaters</td>
<td>Aguas abrigadas</td>
</tr>
<tr>
<td>Rubble breakwaters</td>
<td>Diques rompeolas</td>
</tr>
</tbody>
</table>

**ACTIVITY 6. Grammar. Modal revision.** Complete the following sentences using an appropriate modal verb. Choose between could, have to, need to, will, must, can

a) The masterplan of the new port _____ accommodate the demands of urban and economic growth.

b) The new area of the land _____ be built in islands of a flexible fashion.

c) The plan also _____ incorporate innovations in the areas of construction, environmental protection, water management, architecture and civil engineering.

d) DHV _____ coordinate the reconstruction of the infrastructure of the island of Nias.

e) a. _____ you name two factors which have posed challenges to the DHV project?  
   b. Sure! The level of salinity and pollution of the Bohai Sea.

d) The earthquake at Nias was devastating but it _____ have been worse.

**REMEMBER!**
- Modal verbs are used to express ability, possibility, certainty, requirements...
- The Modal Verbs in English are: CAN, COULD, WILL, WOULD, SHALL, SHOULD, OUGHT TO, MAY, MIGHT, HAVE TO, DON'T HAVE TO, NEED, NEEDN'T, MUST, MUSTN'T.

**KEY:** Murphy, R. *English Grammar in Use.* Cambridge: CUP, 2004, pp. 52-75.
ACTIVITY 7: “A Floating City”.

A. See the picture of the city below. Do you know what a floating city is? Can you think about ways of building a floating city? Discuss with your partner.

COMMUNICATIVE SKILLS:

We can use the following phrases to express the phases of a plan or a project:

First,.../Firstly,.../On the first place,...
Second,.../Secondly,.../ On the second place...
Then...
Moreover.../Furthermore.../In addition
Finally.../ To conclude…

B. Now watch the following video:
“Mega Engineering: Building A Floating City”

(See Appendix for transcript)

C. Does the project of the new city of New Orleans match your idea of the construction of a floating city?

D. Watch the video again. Try to find out three problems that engineers will have to face in the different phases of the project.

<table>
<thead>
<tr>
<th>Problem 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem 2</td>
</tr>
<tr>
<td>Problem 3</td>
</tr>
</tbody>
</table>

E. Explain in your own words the following expressions from the video:

- Land-based factory:
- Float out the city:
- Offshore:
- Break new ground:
- Sustainability challenges:

ACTIVITY 8 Write a short description (max. 350 words) of Alicante’s harbour using the vocabulary of the unit.

http://www.fotoviaja.com/images/puerto_alicante.jpg
APPENDIX

TRANSCRIPT 1

“Building a Floating City”


Thousands of buildings could be built in just a few years in a land-based factory, then floated out to the city and connected to each other. Standardized platforms fused with pre-built buildings mean the city will grow faster expanding exponentially in all directions. And residents would be able to move into their ready-made floating homes immediately.

“After disasters, as we've seen after Katrina, people are more willing to accept technology. These things will only be accepted after a big disaster.”

A floating New Orleans just off shore within reach! But engineers want to go further and cut the cord from land entirely. That means finding a self-sustaining way to provide food, and water and electricity to the city's 300,000 people. No easy task, but not impossible.

Building an entirely new offshore city of New Orleans will take a few years. For starters, it would take a fleet of industrial-strength toad boats a whole year just to assemble the ten-squared-miles of floating platforms. The city would become the largest floating structure on the planet. Bigger than all the existing cargo ships put together!. But as it took shape the city and sea would break new ground in another way. Since it floats, it could be possible for the entire city to change location and will. But while a mobile New Orleans presents new opportunities, it also presents sustainability challenges. New-land New Orleans would be able to to tap into the utility of the old city. But once on some plot from shore and on the move the city would have to be able to draw its resources from the ocean.
REFERENCES:


FURTHER STUDY:


http://news.bbc.co.uk/local/bristol/hi/people_and_places/history/newsid_8027000/8027396.stm