280823 - Mooring Systems
Lesson 0 - Course Information

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Outline

Classes Miscellanea

1. Total of 45h (45h).
2. 3h per class (2h30min) each Thursdayin the reserved slot from 18 : 00 h to 21 : 00 h
3. Break around 50% of the lecture.
4. Organise groups of: ?.

Classes Miscellanea

https://github.com/rpacheco-blazquez/Mooring-Systems_Public

Outline

Syllub

1. Mooring System Concepts.
2. Line Modelling.
3. Design.
4. Dynamic Position.

Mooring System Concepts

1. Introduction to the concept of Mooring (Terminology).
2. Applications (Platforms and wind turbines).
3. Types (Tendon, Spred, Turret, Monobuoy).
4. Elements (Anchorage, Anchorage Line, Connectors).

Line Modelling

1. Linear Wave Theory (Airy Wave, Potential Flow) (Marine Hydromechanics).
2. Catenary Model (Parabolic/Quadratic Approxmation, Catenary, Boundary Conditions).
3. Finite Element Analysis (Truss, Direct Method, Cable, Iterative Scheme (N-R), Fatigue).

What's the average student level (MATLAB/FEM)?

Design

1. Requirements.
2. Forces.
3. Analysis.
4. Regulations.

Dynamic Position

1. Inertial/Non-Inertial Frame of Reference.
2. Rigid Body Movement.
3. Path Finding.
4. Actuators/Monitoring.

Have you ever used SIMULINK?

Outline

Activities

1. Catenary (Individual).
2. FEM (Group).
3. DPS (Group).

- Dates will be fixed a posteriori.
- Deadlines are fixed, however **extra submission** is allowed in exchange of a penalty ponderation on the overall mark of the activity. Generally the penalty is 10%per each extra day after the deadline submission.
- Generally activities shall be submitted no later than the deadline date at **23:59:59**. Failing to achieve this is equivalent as an extra submission.

Activities

- Group activities are undertaken with the very same and initial group.
- Plagiarism shall never occur amongst groups.

Outline

Examination

Two tests:

1. Mid-term.
2. Final.

Individual open-book examination. Exchange of information is forbidden, anyone found guilty of copying shall be awarded a 0% mark.

Outline

Rubric

Assessment of the understanding of concepts. Correctness of the results are a plus – the goal of each student should always be excellency – and appreciated, nevertheless the application of concepts explained in class is the primordial focus on the assessment of an activity.

Specially in this subject there is no unique solution as long as the assumptions and procedure is correct.

Outline

Grading

Final grade consists of :

$$G_F = 0.2G_{MT} + 0.4G_{CW} + 0.4G_{FE} \quad (1)$$

where:

- G_F : Final Grade
- G_{MT} : Mid-Term Examination Grade
- G_{CW} : Coursework Grade
- G_{FE} : Final Examination Grade

Submission of the **Final Examination** is mandatory.

Outline

Professor Office Hours

1. Every non-festive Thursday from 11:00h to 13:00h.
2. By previous appointment in all the cases.
3. In office E013 (CIMNE NAVAL) - NT3.

Useful remarks for a better communication, e-mail me to:

- rafael.pacheco@upc.edu
- use the following code:
  [280823]*space*<message title>

QUESTIONS?

THE END

References


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Yasuhisa Okumoto, Yu Takeda, Masaki Mano, and Tetsuo Okada.
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