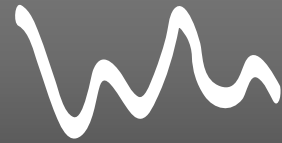


Practical Details



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1

Course content

- The course studies the time dependent behavior of constructions and buildings excited by dynamic forces.
- The course starts with the analysis of systems with one, two and several degrees of freedom, with and without damping, and also deals with simple continuous structures (beams and bars).
- Design methodology and remedial measures in case of excessive vibrations will be presented
- Parasismic calculations according to Eurocode are presented and illustrated

----- Prof A. Deraemaeker

- The course continues with a short description of the origin of earthquakes and their interaction with civil structures.
- Then, basics on wave propagation are presented, as another aspect of the dynamic behavior of structures.
- Examples of structural health monitoring based on elastic wave and vibration techniques are discussed.

----- Prof D. Aggelis

2

2

Course schedule

***Course schedule :**

- Theory (24h) : Prof A. Deraemaeker (ULB) Vibrations – 12h
Prof D. Aggelis (VUB) Wave propagation - 12h

not compulsory (but strongly advised)

- *be on time!*
- *be quiet!*

- Practice (24h) : Vibrations exercises : 12h
Wave propagation exercises and project : 12h

compulsory

3

3

Course schedule

Vibrations : Prof A. Deraemaeker

	Lundi 14:00	Mardi 15:00	Mercredi 16:00	Jeudi 17:00	Vendredi 18:00
			16:00 - 12:00 CMSTH420 (THE) 1,2, 4-7 9.000.5.112		
	12h Courses		Weeks 1,2,4-7	Podcasted	
			16:00 - 18:00 CMSTH420 (EXE) 1,2, 4		
	12h Exercises		TEAMS	Matlab/ Octave	

4

4

Course material and organization

Vibrations course slides and info available at:

<https://arnoresearch.com/dynamics-of-structures-2020-2021/>

Course podcasting



5

5

Some of the difficulties

***Coming to another country is not an easy thing:**

- Administrative problems : be patient ...
- Cultural changes : be open-minded
- Language : French, Dutch and English

***Learning in another country is a challenge, be prepared !**

- Different teaching/learning system : adapt yourself
- Notations/methods/background may be different
- Theoretical courses, practical exercises + home working
- Overall, be prepared to work between 40-60 hours a week ...

***Learning in English**

- Requires adaptation period

- > Be prepared to work hard
- > Ask the 'local' students for help !

6

6

Course evaluation

Evaluation :

-Theory : Oral examination (January) : *75 pts*

-Practice :

Exercises and projects: *25 pts*

- *50/100* : pass

< *50/100* : fail -> *Second session in August/September*

7

7

Course objectives

My main objectives

- Understanding of the fundamental concepts in vibrations applied to civil engineering structures

-Ability to apply these concepts to practical problems with a design-oriented mind.

→ I care that you become a good engineer useful to our society.

8

8

Evaluations to reach objectives

-Understanding of the fundamental concepts in vibrations applied to civil engineering structures

Theoretical courses -> 4 practical case studies
-> Oral examination (with notes)

-Ability to apply these concepts to practical problems with a design-oriented mind.

Exercise sessions -> 1 final exercise -> Oral individual assessment

9

9

My philosophy of teaching and learning

Group working vs individual assessment

-> Learn to work in groups and benefit from the others, representative of real working conditions

-> Verify that you have the sufficient knowledge to work as an engineer, representative of what is expected from you to advance in your career.

No spoon feeding

-> You learn by doing yourself and by doing mistakes. Listening and copying is not learning



10

10

Inverted class principle

- Watching pre-recorded videos before coming to the class
<https://youtu.be/FN1gSfpl13I>

- During the class :

- Wooclap sessions to consolidate knowledge
<https://app.wooclap.com/events/YQFDJT/0>
- Questions and answers
- Practical cases discussed in more details

→ Interactions are a necessity for continuous evaluation of the teaching/learning process

11

11

Exercise sessions

Exercise sessions :

- Matlab/Octave exercises related to the fundamental concepts
- Application to parasismic design (Y. Duchene – Greisch)

12

12

Questions ?

