

General Information

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| Name of course: | SEISMIC DESIGN |
| | MSM414AN-EA-00, Structural-engineer |
| Course Code: | |
| Semester: | 2 nd |
| Number of Credits: | 3 |
| Allotment of Hours per Week | 2 lectures/week |
| Evaluation: | Written examination, Home project |
| Prerequisites: | Dynamics |
| Instructor: | Dr Adél Len Office: 7624 Pécs, Boszorkány utca 2, No. B307 E-mail: len.adel@mik.pte.hu Ivica Guljas E-mail: iguljas@gfos.hr |

General Course Description

The course describes the earthquakes, their effect on built structures, and presents the seismic design strategies according to the Eurocode 8.

Learning objectives

The objective of the course is that the students understand what the consequences of the earthquakes are, what are the environmental conditions that need to be taken into account when a building is designed. At the end of the course the students should be able to use their knowledge to model earthquake effects on a given structure.

Methodology:

Lectures: theoretical basics, definitions, formulae, understanding the processes, examples

Exam: Written exam + Home Project

Schedule:

| Week | Topic of the lecture |
|-------------------------------------|---|
| Week 2 – Adél Len 15. February | Vibrational systems Earthquakes and groundshaking. |
| Week 8 – Adél Len 29. March | How buildings resist earthquakes? Eurocode 8 – presentation of the document. |
| Week 12 – Ivica Guljas 26. April | Seismic analysis of structures according to the Eurocode 8 |
| Week 14 – Ivica Guljas 10. May | Modelling, seismic design strategies |

Attendance

Attendance is required in the classes, and will impact the grade (max. 10%). The students are required to be punctual in the class. The continuous following of the subjects and taking notes is mandatory. The subject of the missed class has to be worked out by the student based on the notes of the classmates and reference reading materials.

Grading

10% attendance
50% written exam
40% project

| Grade | 5 | 4 | 3 | 2 | 1 |
|-----------------------|------------|-----------|-----------|-----------|---------|
| Evaluation in percent | 85% - 100% | 74% - 84% | 63% - 73% | 51% - 62% | 0 - 50% |

Bibliography

Victor Gioncu, Federico Mazzolani: Earthquake engineering for structural design, Spon Press, 2011

Andrew Charleson: Seismic design for architects, Elsevier, Oxford, 2008

Chopra, Anil K: Dynamics of Structures: Theory and Applications to Earthq. Eng., Prentice-Hall, 1995

Mazzolani, F.M., Piluso, V.: Theory and Design of Seismic Resistant Steel Frames, E&FN Spon, 1996