



# Civil Engineering for Mitigation of Risk from Natural Hazards

## Course: Dynamics of Structures

a.y.: 2018/2019

Lecturer: Dr. Haluk Sucuoğlu

Date: 26/09/2018 – 22/10/2018

Classroom: 1-17 and 1-14 @ IUSS (see detailed schedule below)

## Course schedule

| Week | Date                    | Lecture hours<br>From____<br>To____ | Tutorial hours<br>From____<br>To____ | Subject                                                | Tot<br>h |
|------|-------------------------|-------------------------------------|--------------------------------------|--------------------------------------------------------|----------|
| 1    | 26.09.18 We             | 10-13                               |                                      | Equation of motion for SDOF systems, its solution      | 3        |
|      | 27.09.18 Th             | 9-12                                |                                      | Free vibration response, viscous damping               | 3        |
|      | 27.09.18 Th             |                                     | 14-16                                | Problem session                                        | 2        |
|      | 28.09.18 Fr             | 9-12                                |                                      | Response to harmonic excitation                        | 3        |
|      | 28.09.18 Fr             |                                     | 14-16                                | Problem session                                        | 2        |
| 2    | 01.10.18 Mo             | 9-12                                |                                      | Response to general excitation                         | 3        |
|      | 02.10.18 Tu             | 9-12                                |                                      | Numerical evaluation of dynamic response               | 3        |
|      | 02.10.18 Tu             |                                     | 14-16                                | Tutorial on numerical integration                      | 2        |
|      | 04.10.18 Th             | 9-12                                |                                      | Generalized SDOF systems                               | 3        |
|      | 04.10.18 Th             |                                     | 14-16                                | Problem session- Solution of homework problems         | 2        |
| 3    | 08.10.18 Mo             | 9-12                                |                                      | Equations of motion for MDOF systems                   | 3        |
|      | 08.10.18 Mo             |                                     | 14-16                                | Tutorial on the modelling of MDOF systems              | 2        |
|      | 09.10.18 Tu             | 9-12                                |                                      | Free vibration analysis                                | 3        |
|      | 11.10.18 Th<br>Cl. 1-14 | 9-12                                |                                      | Modal expansion, damping in structures, damping matrix | 3        |
|      | 11.10.18 Th<br>Cl. 1-14 |                                     | 14-16                                | Solution of homework problems                          | 2        |
| 4    | 15.10.18 Mo             | 9-12                                |                                      | Modal response analysis of undamped systems            | 3        |
|      | 16.10.18 Tu<br>Cl. 1-14 | 9-12                                |                                      | Modal response analysis of damped systems              | 3        |
|      | 16.10.18 Tu<br>Cl. 1-14 |                                     | 14-16                                | Tutorial on forced vibration analysis                  | 3        |
|      | 18.10.18 Th             | 9-12                                |                                      | Torsional response of 3D systems                       | 3        |
|      | 22.10.18 Mo             | 14-17                               |                                      | Final Exam                                             |          |

## Brief Contents Description and Course Syllabus: