

1.1.1 Dynamics of Structures II

GENERAL

SCHOOL	Engineering		
ACADEMIC UNIT	CIVIL ENGINEERING		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	ΔOM021	SEMESTER	7th
COURSE TITLE	Dynamics of Structures II		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>	WEEKLY TEACHING HOURS	CREDITS	
	4	5	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Specialization Course		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)	https://elearning.cm.ihu.gr		

LEARNING OUTCOMES

<p>Learning outcomes</p> <p><i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.</i></p> <p>Consult Appendix A</p> <ul style="list-style-type: none"> • Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area • Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B • Guidelines for writing Learning Outcomes 		
<p>Determine the dynamic behaviour of complex structural systems (in both time and frequency domains). Understand, model and compute the nonlinear dynamic response of structures exposed to various environmental loads Clarify and evaluate the effect of randomness of environmental loads.</p>		
<p>General Competences</p> <p><i>Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?</i></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> Search for, analysis and synthesis of data and information, with the use of the necessary technology Adapting to new situations Decision-making Working independently Team work Working in an international environment Working in an interdisciplinary environment Production of new research ideas </td> <td style="width: 50%; border: none;"> Project planning and management Respect for difference and multiculturalism Respect for the natural environment Showing social, professional and ethical responsibility and sensitivity to gender issues Criticism and self-criticism Production of free, creative and inductive thinking Others... </td> </tr> </table>	Search for, analysis and synthesis of data and information, with the use of the necessary technology Adapting to new situations Decision-making Working independently Team work Working in an international environment Working in an interdisciplinary environment Production of new research ideas	Project planning and management Respect for difference and multiculturalism Respect for the natural environment Showing social, professional and ethical responsibility and sensitivity to gender issues Criticism and self-criticism Production of free, creative and inductive thinking Others...
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- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Adapting to new situations
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- Working independently
- Team work
- Working in an interdisciplinary environment
- Project planning and management
- Criticism and self-criticism
- Production of free, creative and inductive thinking

SYLLABUS

Generalized sdof systems. Static condensation and Static correction methods. Rayleigh-Ritz methods. Non-classically damped systems. Dynamics of inelastic structure. Earthquake response of base-isolated buildings. Frequency-domain method of elastic response analysis. Introduction to random vibration.

TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face to face.	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Communication via e-mail and Zoom platform. Additional material is provided via a dedicated e-learning website.	
TEACHING METHODS <i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i>	Activity	Semester workload
	Lectures	40
	Practice/exercises	12
	Individual study	78
	Course total (26 hours workload per ECTS credit)	130
STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	The evaluation of the students is composed of marks collected from different parts of the teaching process, as follows: 1. Individual projects (2-3) during the semester (30% of the final grade) 2. Final written exams (70% of final grade)	

ATTACHED BIBLIOGRAPHY

A.Chopra (2016), Dynamics of Structures, Prentice-hall International Series