

COURSE OUTLINE

(1) GENERAL

SCHOOL	UNIVERSITY OF THESSALY		
ACADEMIC UNIT	DEPARTMENT OF CIVIL ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	ΣΥ0111	SEMESTER	9
COURSE TITLE	Special Topics in Noise protection		
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
Lectures		4	6
<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, specialized general knowledge, skills development</i>	Specialized general knowledge, skills development		
PREREQUISITE COURSES:	-		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBSITE (URL)	-		

(2) LEARNING OUTCOMES

Learning outcomes <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> <i>Consult Appendix A</i> • 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
Upon successful completion of the present course, students will be able to understand the importance of noise abatement in transport projects, with emphasis on the principles, procedures and individual measures that govern the proper implementation of noise abatement in urban road and rail transport systems within the framework of Action Plans.

General Competences

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>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>	<i>Project planning and management</i>
<i>Adapting to new situations</i>	<i>Respect for difference and multiculturalism</i>
<i>Decision-making</i>	<i>Respect for the natural environment</i>
<i>Working independently</i>	<i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i>
<i>Team work</i>	<i>Criticism and self-criticism</i>
<i>Working in an international environment</i>	<i>Production of free, creative and inductive</i>
<i>Working in an interdisciplinary environment</i>	<i>.....</i>
<i>Production of new research ideas</i>	<i>Others...</i>
	<i>*****</i>

Adapting to new situations
 Decision making
 Working in an international environment
 Working in an interdisciplinary environment
 Generating new research ideas
 Project planning and management
 Respect for the natural environment

(3) SYLLABUS

Operation of the anti-fouling coating on road and rail vehicles.
 Calculation of the propagation path difference d - Single and multiple diffraction.
 Favourable and Homogeneous Airborne Noise Propagation Conditions.
 Airborne Noise Monitoring & Noise Abatement Programmes for Major Road Projects.
 Sound-absorbing pavements - Tyre-pavement interaction on ambient noise emission.
 Athens International Airport Aircraft Noise Management System (2007/2012/2017) - Noise Abatement Procedures.
 Ground-borne Noise & Vibration from the Construction & Operation of Fixed Railways.
 Applications of anti-noise and anti-vibration protection in Fixed Track Vehicles.
 Vibration effects on buildings and people.
 COMMUNICATIONAL NOISE LIMITS in Greece based on the KYA 211773 Government Gazette B 1367-27-04-2012.
 Special Acoustic Calculation & Application Studies (SACS) of anti-noise coatings.
 Visit to Athens metro and/or motorway ongoing projects.
 Work/topic presentations.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face to face, distance learning	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Use of ICT in Teaching, Laboratory Training, Communication with students	
TEACHING METHODS <i>The manner and methods of teaching</i>	<i>Activity</i>	<i>Semester workload</i>
	Lectures	50%

<i>are described in detail.</i> <i>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.</i> <i>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>	Laboratory practice, fieldwork, semester project	30%
	Field trip	20%
	Course total	100%
STUDENT PERFORMANCE EVALUATION Description of the evaluation procedure <i>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</i> <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	Semester project (written or oral examination) 60% Final examination (written or oral examination) 40%	

(5) ATTACHED BIBLIOGRAPHY

-Suggested bibliography:

1. Dr. K. Vogiatzis, Environmental Technique & Institutional Framework for Implementation, 3rd Edition, SYMMETRIA Publications, 2015, 584 p./ Environmental Technique & Institutional Framework for Implementation, 2nd Edition, SYMMETRIA Publications, 2012, 530 p./Environmental Technique & Institutional Framework for Implementation, SYMMETRIA Publications, June 2010, (ISBN 978-960-266-390-5). (in Greek)
2. Dr. K. Vogiatzis, S. Haikalis and A. Hatzopoulou, Protection of the Greek Acoustic Landscape - Institutional Framework of Environmental Noise, PAPASOTIRIOU Publications, 2009, 256 p. (ISBN 960-718-256-1). (in Greek)
3. KYA 211773/ Government Gazette 1367/B/27-4-2012 "Determination of Assessment Indicators and Maximum Permissible Limits of Environmental Noise Indicators from the Operation of Transport Projects, Technical Specifications of Special Acoustic Studies for the Calculation and Application (SACS) of Anti-Noise Screens, Specifications of Environmental Noise Monitoring Programmes and other provisions". (in Greek)

- Related academic journals:

1. K. Vogiatzis and G. Kouroussis, **Airborne and groundborne noise and vibrations from urban rail transit systems**, INTECH, "Urban Transport Systems", 25 pages, ISBN 978-953-51-4939-2 book edited by Hamid Yaghoubi, ISBN 978-953-51-2874-8, Print ISBN 978-953-51-2873-1, Published: January 18, 2017 under CC BY 3.0 license, <https://doi.org/10.5772/66571>.
2. K. Vogiatzis, N. Rémy, **"Changing the Urban Sound Environment in Greece: A Guide Based on Selected Case Studies of Strategic Noise Maps (SNM) and Noise Action Plans (NAP) in Medium and Large Urban Areas"**, MDPI: Environments 2018, 5(6), 64, <https://doi.org/10.3390/environments5060064>.
3. Ch. Mouzakis, K. Vogiatzis, V. Zafiropoulou, **"Assessing subway network ground borne noise and vibration using transfer function from tunnel wall to soil surface measured by muck train operation"**, Science of the Total Environment 650(2019), 2888-2896, <https://doi.org/10.1016/j.scitotenv.2018.10.039>.
4. K. Vogiatzis, V. Zafiropoulou, H. Mouzakis, **"Monitoring and assessing the effects from Metro networks construction on the urban acoustic environment The Athens Metro Line 3 Extension"** Science of the Total Environment 639(2018), 1360-1380, <https://doi.org/10.1016/j.scitotenv.2018.05.143>
5. G. Kouroussis, H.P. Mouzakis, K.E. Vogiatzis, **"Structural impact response for assessing railway vibration induced on building"**, Mechanics & Industry, 18, 703 (2017), 11 pages, (SCOPUS) <https://doi.org/10.1051/meca/2017043>
6. G. Kouroussis, K. E. Vogiatzis. D. P. Connolly, **"Assessment of railway ground vibration in urban area using in-situ transfer mobilities and simulated vehicle-track interaction"**, International Journal of Rail Transportation,

Taylor & Francis Group, 18 pages, *Received 24 Aug 2017, Accepted 27 Oct 2017, Published online: 06 Nov 2017*
ISSN: 2324-8378 (Print) 2324-8386(Online), 11/2017, (SCOPUS)
<http://dx.doi.org/10.1080/23248378.2017.1399093>

7. K. Vogiatzis, G. Kouroussis, **“Environmental Ground-Borne Noise & Vibration from Urban Light Rail Transportation during Construction and Operation”**, Current Pollution Reports, 12 pages, June 2017, Volume 3, Issue 2, pp 162–173, <https://doi.org/10.1007/s40726-017-0059-3>
8. G. Kouroussis, K.E. Vogiatzis, D.P. Connolly, **“A combined numerical / experimental –prediction method for urban railway vibration”**, Soil Dynamics and Earthquake Engineering Volume 97, June 2017, Pages 377-386, (SCOPUS) <http://dx.doi.org/10.1016/j.soildyn.2017.03.030>
9. K. Vogiatzis, H. Mouzakis, **“Groundborne noise and Vibration transmitted from subway networks to multi-storey reinforced concrete buildings, ID STRA-2016-0133”**, Transport, Taylor & Francis Group, 8 pages, *Received 07 Jun 2016, Accepted 04 Jan 2017, Published online: 04 Sep 2017, Vol. No (2017) ISSN: 1648-4142 (Print) 1648-3480 (Online), 09/2017 (SCOPUS)*, <http://dx.doi.org/10.3846/16484142.2017.1347895>
10. K. Vogiatzis, N. Remy, **“Soundscape design guidelines through noise mapping methodologies: An application to medium urban agglomerations”**, NOISE-D-16-00005, De Gruyter Editions / Noise Mapping Journal: Special issue on Recent Advances on Soundscape Research, 2017;4:1-19 Dec 2016, <https://doi.org/10.1515/noise-2017-0001>