ΜΟΝΑΔΑ ΔΙΑΣΦΑΛΙΣΗΣ ΠΟΙΟΤΗΤΑΣ Α.Π.Θ.

Organic Chemistry Laboratory

1. GENERAL			
SCHOOL	Faculty of Sciences in collaboration with Faculty of Engineering, Aristotle University of Thessaloniki		
DEPARTMENT	Materials Science and Engineering		
LEVEL OF STUDIES	ISCED level 7 (5-year Integrated Master's programme) ISCED level 6 (4-year BSc programme)		
COURSE CODE	**MSEN 302**	**SEMESTER**	2rd Semester
COURSE TITLE	**Organic Chemistry Laboratory**		
TEACHING ACTIVITIES Lectures, tutorials/problem sessions, laboratory/computer exercises (where applicable), case studies and guided self-study.		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
		Lectures: 1 Lab work: 3 Total: 4	6
COURSE TYPE	Background and Scientific Area, Skill Development		
PREREQUISITES	No prerequisities		
TEACHING AND EXAMINATION METHODS	English		
COURSE OFFERED TO ERASMUS STUDENTS	Yes		
COURSE URL	https://elearning.auth.gr/course/view.php?id=xxxxx		

2. LEARNING OUTCOMES	
Learning Outcomes	By the end of this course, students will be able to: • Understand the concept of organic molecules, materials, their properties and synthesis • Design the synthesis and retrosynthesis of organic molecules as precursors of organic materials • Practice on common reactions for organic materials synthesis. • Practice on spectroscopy and chromatography for structure determination of organic compounds and materials.
General Skills	• Applying knowledge in practice • Searching, analyzing and synthesizing data and information, using the necessary spectroscopic and analytic technologies • Decision-making • Independent work • Teamwork • Generate new research ideas • Promoting free, creative and inductive thinking

	• Modeling and solving real-world problems • Working in a multidisciplinary environment

3. COURSE CONTENT
Laboratory exercises 1. Hydrolysis of methyl ester and isolation of benzoic acid with recrystallization technique. 2. Synthesis of benzoic methyl ester. Separation with acid/base extraction technique. 3. Photochemical synthesis of benzopinacol. Radical dimerization process. 4. Aldol Condensation for organic material synthesis: Synthesis of conjugated enones. 5. Pericyclic reactions. Synthesis of polyaromatic materials with cycloaddition reaction. 6. Characterization of organic precursors of materials using NMR spectroscopy. 7. Structure determination of organic materials: Combination of spectroscopy with chromatography.

4. LEARNING & TEACHING METHODS - EVALUATION	
Teaching method	Face-to-face.
Use of ICT	Use of ICT in Course Teaching, Use of ICT in Laboratory Teaching, Use of ICT in Communication with Students Description: Use of Information and Communication Technologies (ICT) in teaching the course with tools of modern distance learning (ZOOM) and asynchronous education (eclass). Use of learning aids based on ICT: Excel, Word Use of ICT in student assessment: Electronic grading (eclass, universis). Use of ICT in communication with students: eclass, email, ZOOM.
Teaching organization	The supervised and unsupervised workload per activity is indicated below (total workload complies with ECTS standards).

Activity	Workload/semester (hours)
Lectures	13
Bibliographic written, research and problem solving	44
Laboratory exercises	39
Writing of Assignments	52
Exams	2
Total	**150**

Student evaluation	Assessment Language: English Assessment Methods: Written assignment, Problem Solving, Laboratory report,Written exams
5. SUGGESTED BIBLIOGRAPHY	
EUDOXUS	

«A Small-Scale Approach to Organic Laboratory Techniques» Ed. Donald L. Pavia, Gary M. Lampman, George S. Kriz, Randall G. Engel, 4th Edition, 2015, ISBN 130544602X, 9781305446021
Additional bibliography for study
• Teaching material slides