



COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Technology		
ACADEMIC UNIT	Department of Environmental Sciences		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	AY602	SEMESTER	6th
COURSE TITLE	SOLID WASTE PROCESSING and MANAGEMENT TECHNOLOGIES		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
Teaching Hours		5	6
COURSE TYPE	Special Background		
PREREQUISITE COURSES	None		
LANGUAGE OF INSTRUCTION and EXAMINATIONS	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)	https://eclass.uth.gr/courses/ENV_U_180		

(2) LEARNING OUTCOMES

Learning outcomes
The aim and purpose of the course is to introduce students to the waste management processes (collection, transport and disposal of waste), the methods of sorting and recycling of solid waste, the analysis of waste disposal methods such as landfill, incineration and incineration with heat recovery, composting, stabilization, as well as the analysis of their advantages and disadvantages. The course also aims to familiarize students with the procedures and selection criteria for landfills, and their basic structure and operation.
General Competences
• Search for, analysis and synthesis of data and information, with the use of the necessary technology • Decision-making • Working independently • Team work • Respect for the natural environment • Criticism and self-criticism • Production of free, creative and inductive thinking

(3) SYLLABUS

• Introduction: Definitions, classification of Solid Waste (domestic, industrial, special, infectious solid waste). • Quantitative and qualitative composition of waste. • Particular physical, chemical and biological characteristics of waste. • Collection and temporary storage of solid waste. • Advantages and disadvantages of the use of wheelie bins and stationary bins. • Distinction between refuse collection vehicles, frequency of waste collection, transfer stations. • Physical, chemical and biological processes of solid waste treatment. • Recyclable materials: methods of recycling solid waste, development and implementation of recyclable material sorting centers, mechanical sorting equipment for recyclable materials, markets for recyclable materials. • Composting, incineration-digestion and heat recovery. • Air emission control and ash management. • Landfill: landfill selection criteria, landfill structure and operation, basic design features, landfill installation and operation costs, biogas production, landfill gas production, landfill sludge management, environmental protection and landfill remediation.
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(4) TEACHING and LEARNING METHODS – EVALUATION

DELIVERY	Face-to-face		
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	• Use of PowerPoint slides • View material in video • Communication with students via e-mail • Use of asynchronous distance learning (e-class)		
TEACHING METHODS		Activity	Semester workload
		Lectures	50
		Exercises - Tutorial	25
		Educational visits	12
		Written work	25
		Study and analysis of bibliography	38
		Course total	150
STUDENT PERFORMANCE EVALUATION	Students' performance is evaluated in the Greek language. The final grade is determined by: • A written exam (at the end of the semester) that contributes 70% to the final grade, applying one or more of the following evaluation methods: Multiple-choice questions, short-answer questions, problem-solving. • The elaboration of an individual written project, in the 2nd half of the semester, which forms 30% of the final grade. Students may present the individual written project in class. Final Grade =70% Exam Grade + 30% Written project Grade		

(5) ATTACHED BIBLIOGRAPHY

• Komilis, D. (2023) <i>Solid Waste Management and Engineering</i>. Thessaloniki: Tziola Publications. ISBN: 9786182210239. (in Greek) • Kougolos, A. and Emmanuel, H. (2020) <i>Solid Waste Management</i>. Thessaloniki: Tziola Publications. ISBN: 9789604188697. (in Greek) • Panagiotakopoulos, D. (2007) <i>Sustainable management of municipal solid waste</i>. Thessaloniki: Zygos Publications. ISBN: 9789608065314. (in Greek) • Savvidis, S. (2019) <i>Enrichment of Primary & Secondary Materials</i>, Edition: 1/2019. Alexandrosikebooks. ISBN: 9786188444867. (in Greek) • Skordilis, A. (2006) <i>Controlled Disposal of Solid Non-Hazardous Waste</i>. Athens: ION Publishing Group. (in Greek) • Tchobanoglous, G. and Kreith, Frank, (2018) <i>Handbook of Solid Waste Management</i>, 2nd Edition - Improved, Thessaloniki: Tziola Publications. ISBN: 9789604182855. (in Greek)
