

COURSE OUTLINE

(1) GENERAL INFORMATION

SCHOOL	FACULTY OF ENGINEERING		
DEPARTMENT	ELECTRICAL AND COMPUTER ENGINEERING		
LEVEL OF STUDIES	POSTGRADUATE		
COURSE CODE		SEMESTER	2o
COURSE TITLE	Research Methodology		
COURSEWORK BREAKDOWN		TEACHING WEEKLY HOURS	ECTS CREDITS
Lectures and tutorials		3	5
<i>Add extra space if necessary</i>			
COURSE TYPE Scientific field <i>special knowledge</i> Development of special skills	Compulsory/Elective		
PREREQUISITES:			
LANGUAGE OF INSTRUCTION and EXAMS:	Greek		
COURSE AVAILABLE TO ERASMUS STUDENTS:	yes		
COURSE WEB PAGE (URL)			

(2) LEARNING OUTCOMES

Learning Outcomes
<p>Learning Outcomes</p> <p>Upon successful completion, students will:</p> <ol style="list-style-type: none"> 1. Understand principles of research design, ethics, and data collection (quantitative/qualitative). 2. Develop skills in literature review, hypothesis formulation, and academic Writing(LATEX) . 3. Apply statistical tools (e.g., SPSS, R) for data analysis. 4. Critically evaluate research papers and design original studies. 5. Address ethical issues in research (e.g., plagiarism, informed consent).

General Skills

- Critical thinking and analysis
- Independent research and project management
- Teamwork in interdisciplinary projects
- Ethical responsibility and academic integrity
- Use of digital tools for data analysis and presentation

(3) COURSE CONTENT

Part 1: Research Fundamentals

1. Introduction to Research Methodology: Types of research, ethics.
2. Literature Review: Strategies, databases (Scopus, PubMed).
3. Research Design: Quantitative vs. qualitative approaches.

Part 2: Data Collection & Analysis

1. Sampling methods and data collection tools (surveys, interviews).
2. Statistical Analysis: Descriptive/inferential statistics, software.
3. Qualitative Analysis: Coding, thematic analysis.

Part 3: Academic Writing & Dissemination

1. Structuring research papers/theses.
2. Citation styles (APA, IEEE) and reference management tools.
3. Presenting research findings (posters, oral presentations).



(4) TEACHING and LEARNING METHODS - ASSESSMENT

COURSE DELIVERY MODE <i>lectures, face-to-face, distance learning etc.</i>	Lectures and tutorials	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY <i>e.g. use of audiovisual media and computers etc.</i>	<ul style="list-style-type: none"> Support of learning process through e-class platform. 	
TEACHING METHODS <i>Derailed description of the teaching methods used: Lectures, Seminars, Laboratory exercises, Study & bibliography analysis, Tutoring, Internship/Practicum, Art Workshop, Interactive Teaching, Projects, Written Assignments, Artistic creation etc.</i> <i>Study hours for each learning activity are included along with the non-guided study hours according to the ECTS principles</i>	Method Description	Semester workload
	Lectures and tutorials	39
	Individual project	70
	Individual Study	41
ASSESSMENT METHODS AND CRITERIA <i>Description of the assessment methods and criteria:</i> <i>Language of Assessment, Assessment Methods, Formative or Concluding Assessment, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Reports, Oral Exam, Essay, Oral Presentation, Clinical Examination of patient, Artistic Performance, Others</i> <i>Assessment criteria are explicitly defined and stated.</i>	Total 150	
	<p>I. Written final examination (80%) including</p> <ul style="list-style-type: none"> - Multiple choice questions - Multiple Choice Questions - Multi-choice essay questions Short answer questions - Comparative assessment of theoretical elements - Laboratory work <p>II. Presentation of individual/group work (20%)</p>	

(5) RECOMMENDED BIBLIOGRAPHY

<p>- Recommended Bibliography:</p> <ul style="list-style-type: none"> - Creswell, J. W. (2014). <i>Research Design: Qualitative, Quantitative, and Mixed Methods Approaches</i>. Sage Publications. • Field, A. (2018). <i>Discovering Statistics Using SPSS</i>. SAGE. • Bryman, A. (2016). <i>Social Research Methods</i>. Oxford University Press. <p>Related Journals:</p> <ul style="list-style-type: none"> - <i>Journal of Mixed Methods Research</i> - <i>Qualitative Research</i> - <i>IEEE Transactions on Education</i>
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