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EUROPEAN UNIVERSITY FOR CUSTOMISED EDUCATION

STUDY GUIDE

RESEARCH METHODS & TECHNICAL WRITING

Organised by

University of the Peloponnese

1. IDENTIFYING DATA.	
· **Course Name.**	Research Methods & Technical Writing
· **Coordinating University.**	University of the Peloponnese
· **Partner Universities Involved.**	-
· **Course Field(s).**	Research Design
· **Related Study Programme.**	
· **ISCED Code.**	-
· **SDG.**	Quality Education (SDG 4); Decent Work and Economic Growth (SDG 8); Industry, innovation and infrastructure (SDG 9)
· **Study Level.**	The course is part of the integrated Master (M) of Mechanical Engineering dept. of the University of the Peloponnese. The course is open for Bachelor (B) and Master (M) level students
· **EUNICE Key Competencies**	[Indicate the Key Competencies required for the course.] • Green – strongly • Orange- moderately • Red – partially • Blank cell - not at all

Problem solving	strongly
Teamworking	moderately
Communication	strongly
Self-management	moderately
Cognitive flexibility	strongly
Digital competence	partially

	Technical competence	partially
	Global intercultural competence	strongly

· Number of ECTS credits allocated.	5 ECTS
· Mode of Delivery.	the course will be delivered "Online live" (Synchronous)
· Language of Instruction.	the language of instruction will be English
· Course Dates.	06-Oct-2025 to 19-Jan-2026
· Precise Schedule of the Lectures.	Weekly lectures; Assignments; Discussions; Guest instructors; Student presentations [2 hours] Monday Oct. 06, 09.00 – 11.00 Central European Time (CET) Monday Oct. 13, 09.00 – 11.00 (CET) Monday Oct. 20, 09.00 – 11.00 (CET) Monday Oct. 27, 09.00 – 11.00 (CET) Monday Nov. 03, 09.00 – 11.00 (CET) Monday Nov. 10, 09.00 – 11.00 (CET) Monday Nov. 17, 09.00 – 11.00 (CET) Monday Nov. 24, 09.00 – 11.00 (CET) Monday Dec. 01, 09.00 – 11.00 (CET) Monday Dec. 08, 09.00 – 11.00 (CET) Monday Dec. 15, 09.00 – 11.00 (CET) Monday Jan. 12, 09.00 – 11.00 (CET) Monday Jan. 19, 09.00 – 11.00 (CET)
· Key Words.	Problem statement; Desk Research; Qualitative, Quantitative, and Mixed Methods
· Catchy Phrase.	From Insight to Impact & from Thesis to Publication

· Prerequisites and co-requisites.	No Recommended prerequisites - The study levels this course is available for B, M
· Number of EUNICE students that can attend the Course.	Max 25
· Course inscription procedure(s).	the standard EUNICE process

2. CONTACT DETAILS.	
· **Department.**	Mechanical Engineering
· **Name of Lecturer.**	George Xydis
· **E-mail.**	gxydis@go.uop.gr
· **Other Lecturers.**	None

3. COURSE CONTENT.

This course provides a comprehensive overview of research methodologies, equipping participants with essential skills for conducting and publishing high-quality research. It covers key topics such as goal-driven research strategies, peer-reviewed publishing, text mining, and research design across qualitative, quantitative, and mixed methods approaches. Participants will engage with various research techniques, including desk research, interviews, surveys, case studies, and experimental methods, while also exploring critical aspects of academic writing, data management, and statistical analysis. The course combines theoretical insights with hands-on training, ensuring a well-rounded understanding of research methodologies applicable across disciplines.

4. LEARNING OUTCOMES.

By the end of this course, participants will be equipped with the essential skills to design and conduct rigorous research across various disciplines. They will learn to formulate clear research questions, develop goal-driven research strategies, and navigate the peer-reviewed publishing process. The course will enable them to apply diverse research methodologies, including qualitative, quantitative, and mixed methods approaches, as well as data collection techniques such as interviews, surveys, case studies, and text mining. Ultimately, participants will be prepared to apply these research methods effectively in their own academic or professional projects.

5. OBJECTIVES.

The course objectives will be:

- Introduce research fundamentals – Establish a strong foundation in research problem formulation and goal-driven strategies.
- Familiarize with peer-reviewed publishing – Understand the structure, process, and significance of academic publishing.
- Differentiate research methodologies – Compare and apply social science, engineering management, and design science approaches.
- Develop data collection skills – Conduct desk research, interviews, surveys, observations, and case studies effectively.
- Strengthen research design capabilities – Apply qualitative, quantitative, and mixed methods research designs appropriately.
- Improve academic writing and reporting – Structure research reports, manage references,

and enhance clarity in academic writing.
- Assess research validity and reliability – Understand measurement reliability, validity, and critical evaluation of research findings.
- Summarize and apply research methods – Integrate acquired knowledge to develop and execute high-quality research projects.

6. COURSE ORGANISATION.

UNITS

1.	Unit 1: Introduction to the course and responsible research
2.	Unit 2: Problem statement & Goal-Driven Research Strategy
3.	Unit 3: Design Science Research
4.	Unit 4: Research Design: Qualitative, Quantitative, & Mixed Methods Approaches
5.	Unit 5: Desk Research, Report Structure & Reference management
6.	Unit 6: Interviews & Surveys
7.	Unit 7: Observation & Visual Methods
8.	Unit 8: Fieldwork and Practice
9.	Unit 9: Social Science Research versus Engineering Management research - Text Mining Research
10.	Unit 10: Sampling, Data Collection Protocols, & Data Management
11.	Unit 11: Experimental research & Statistical analysis
12.	Unit 12: Case Studies
13.	Unit 13: Academic Writing: Publishing and the concept of peer reviewed materials
14.	Unit 14: Exams

LEARNING RESOURCES AND TOOLS.

- Textbooks and academic articles.
- Case studies.
- Online platforms and databases for accessing reports and statistical data.
- Interactive lectures and presentations.
- Group discussions and debates to encourage critical thinking and knowledge exchange among students.
- Online forums or discussion boards for collaborative learning and sharing of resources.
- Educational videos and documentaries.

PLANNED LEARNING ACTIVITIES AND TEACHING METHODS.

Lectures
Group Discussions
Problem-Solving Exercises
Case Studies
Presentations
Online Learning Modules

7. ASSESSMENT METHODS, CRITERIA AND PERIOD.

oral exam with a presentation and a methods or a literature review section of an article (Take-home assignment) submitted.

OBSERVATIONS.

The report/paper is expected to include the following sections:

Abstract
Introduction, delineating the main objective and

- Literature review providing theoretical foundation **OR**
- Methodology detailing research design, methods, data collection and analysis procedures

The section of the paper should be approximately 4-5 standard pages.

In the oral examination, students are required to deliver a dynamic PowerPoint presentation of their section. The focus lies on delivering independent, pertinent, and factual content that captures the interest of peers. Utilizing diverse visual aids like tables, graphs, figures, and animations, students should effectively illuminate the key points of their section.

8. BIBLIOGRAPHY AND TEACHING MATERIALS.

Bhattacherjee, A. (2012). Social science research: Principles, methods, and practices. Available from: Open Textbook Library, https://open.umn.edu/opentextbooks/textbooks/79

Qualitative Research Methods: A Data Collector's Field Guide, https://www.fhi360.org/resource/qualitative-research-methods-data-collectors-field-guide

Additional readings will be posted