

Course Title	Course Code	Number of Study Hours				Year	Level	Prerequisites
		Theo.	Lab.	Credit	ECTS			
Research Seminar	PHYS695	3	-	3	15	2nd	3rd	-

Student's workload				
In-class activities	Contact Hours		Self-learning/study	Hours
Lectures	45		Preparation for classes	136
Laboratory	-		Case studies	172
Exams and quizzes	5		Working on lab experiment	-
Lab demo	-		HW/Assignments	-
	-		Study for exam	63
Total	50		Total	371
Total Learning Hours = 421			Equivalent ECTS points = Total LH/28 = 15	

#### BRIEF COURSE DESCRIPTION

- This course is a precursor and prerequisite to the master's thesis. It is designed to help students start their master's research program at an early stage to save time and reduce the time spent to produce thesis which usually takes more than is needed. In their third semester along with specialized courses this seminar option will prepare the student for the final requirement of the Master's program which is the thesis so that by the time the student completes the seminar and passes to fourth semester where they need to start their thesis she/she will immediately start on the main part of the project calculations without wasting time in the thesis topic selection or literature review (this is part of the seminar).

## COURSE OBJECTIVES

**The main objectives of this course are focused on the following:**

1. Identify the basic principles and skills to identify and formulate research problems based on analysis of relevant previous studies.
2. Analyze literature survey in similar research areas to prepare gap analysis.
3. Report on preliminary findings using reference and presentation software.
4. Report on the chosen research methodology with justification.
5. Present findings and recommendations orally.

## COURSE CONTENTS

- Survey of the subject area of research. Search and selection of a personal area of interest. Review of sources in the subject area of research
- Presentation of the results of the analytical review in the selected area of interest. Collective discussion of the research topic.
- Development of a research plan. Discussion of the main idea for the practical implementation of the research results. Collective brainstorming to shape the proposed scientific novelty of the research
- Preparation of the theses of the report and overview presentation of the project
- Development of a dissertation plan, formation of a list of the main sources used and design of the first section of the dissertation
- Preparation of an article based on the results of the work. Project presentation for collective discussion.
- Preparation of an article based on the results of practical development of the technical solutions obtained.
- Complex presentation of dissertation work.

## ASSESSMENT CRITERIA

- Writing a literature review: 30 %
- Participation / discussion / set up of small research project: 20 %
- Writing a brief proposal and giving a seminar for a graduation project: 50%

## COURSE TEACHING STRATEGIES

- Discovery learning , expository learning, demonstration, case study, problem-based learning, guided discussion, interactive discussion, and orientation sessions.

**TEXT BOOK**

- M. Cargill and P. O'Connor, Writing Scientific Research Articles: Strategy and Steps, 2nd Edition, ISBN-13: 978-1118570708. 2013. Wiley-Black Well Press.
- E. M. Fisher and R. C. Thompson, Enjoy Writing Your Science Thesis or Dissertation: A Step by Step Guide to Planning and Writing a Thesis or Dissertation for Undergraduate and Graduate Science Students, 2nd Edition, ISBN-13: 978-1783264216. 2014. Imperial College Press

**REFERENCE BOOKS**

- Y. N. Bui, How to Write a Master's Thesis. Third Edition. SAGE publications, Inc. 2020. p.298. ISBN-13: 978-1506336091, ISBN-10: 1506336094.
- D. Hitchcock. Patent searching made easy: how to do patent searches on the internet & in the library. Sixth edition. Berkeley, CA: Nolo, 2013 p.257. ISBNs: 9781413318722, 141331872X, 9781413318739.