

**DOCTORAL SCHOOL OF WROCLAW UNIVERSITY OF SCIENCE AND  
TECHNOLOGY**

SUPERVISOR/TEAM/ DECLARING/CONDUCTING COURSE: .....  
DEPARTMENT **Electronics W-4**

**COURSE CARD**

**Course name in Polish: Seminarium fizyki i technologii laserów**

**Course name in English: Physics and Technology of Lasers**

**Course language Polish /~~English~~\***

**University-wide general course type\*:**

3) seminar in discipline or interdisciplinary: **interdyscyplinary seminar – physics, optoelectronics, photonics, electronics**

**Subject code: AEQ100163S\*** delete as applicable

	Lecture	Foreign language course	Seminar	Mixed forms
Number of hours of organized classes in university (ZZU)			15	
Grading	Exam	Exam	Oral presentations	Exam, inspection, evaluation classes

**PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES**

**COURSE OBJECTIVES**

C1 Acquisition of knowledge in the field of global achievements in the field of discipline in which the PhD is realized.

C2 Acquiring the ability to disseminate research results, initiate debate and participate in scientific discourse. Acquisition of skills of a temporarily controlled presentation in English, helping a PhD student in conference speeches.

**PROGRAM CONTENTS**

<b>Form of classes – lecture (Lec)</b>		Number of hours
Lec1		
Lec2		
Lec3		
....		
Total hours:		

<b>Form of classes – foreign language course (Lng)</b>		Number of hours
Lng1		
Lng2		

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Lng3		
..		
	Total hours:	

<b>Form of classes – seminar (Sem)</b>		Number of hours
Sem1	Presentation of the basic principles of conducting scientific research, as well as the preparation and writing of a doctoral dissertation	2
Sem2	2 individual presentations in English of each PhD student participating in the seminar: - regarding the current state of knowledge related to the subject of the dissertation, - presentation of own research results, emphasizing the author's own original output along with discussion in the seminar group. Each presentation lasts from 25 to 35 minutes and is accompanied by a discussion at the seminar forum - from 5-10 minutes, depending on the number of participants	11
Sem3	Discussion in the seminar group on the state of literature knowledge and the assumed concept of solving the problems posed for oneself, forming a doctoral dissertation	2
	Total hours:	15

<b>Form of classes – mixed forms (mix)</b>		Number of hours
Mix1		
Mix2		
Mix3		
...		
	Total hours	

<b>TEACHING TOOLS USED</b>
N1. Multimedia presentation N2. Problem discussion N3. Praca własna

<b>ACHIEVED SUBJECT LEARNING OUTCOMES</b>		
Type of learning outcome	Code of learning outcome	Assessment of learning outcome
Knowledge		
Knowledge		
...		
Skills		
Skills		
...		
Social competence		

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Social competence		
...		

**PRIMARY AND SECONDARY LITERATURE**

**PRIMARY LITERATURE:**

[1] Current scientific literature on the scientific discipline in which the PhD is realized, with particular emphasis on the issues covered in doctorates carried out by participants of the seminar, including scientific journals, conference materials, scientific report, etc.

**SECONDARY LITERATURE:**

- [1] Dan Remenyi and Arthur Money *“Research Supervision for Supervisors and their Students”*
- [2] Robert E. Berger, *“A Scientific Approach to Writing for Engineers and Scientists”*, Wiley-IEEE Press 2014
- [3] N. Patel, *“Technical Presentations”*, IEEE Books

**SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)**

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