



UNIWERSYTET
IM. ADAMA MICKIEWICZA
W POZNANIU

Dissertation lab (diploma) 2

Educational subject description sheet

Basic information

Study programme Fizyka (Physics of Advanced Materials for Energy Processing) Speciality - Organizational unit Faculty of Physics Study level Second-cycle programme Study form Full-time Education profile General academic		Didactic cycle 2023/24 Subject code 04FENS.24S.05175.23 Lecture languages English Course type Obligatory Block specialty subjects
Subject coordinator	Marcin Ziótek	
Lecturer	Marcin Ziótek	
Period Semester 3	Activities and hours • Laboratories: 140, Graded credit	Number of ECTS points 16

Goals

Code	Goal
C1	The main aim is the preparation of Master Thesis.
C2	The additional aim is to learn working in the research group under the guidance of the group leader (supervisor).

Subject learning outcomes

Code	Outcomes in terms of	Learning outcomes	Examination methods
Knowledge - Student:			
W1	knows the detailed physical issues related to the materials for energy processing investigated for the Master Thesis.	FEN_K2_W01, FEN_K2_W02, FEN_K2_W03	Report
W2	knows the latest scientific achievements in the field of his/her dissertation.	FEN_K2_W04, FEN_K2_W05	Report
W3	knows the issues related to the ownership of data, publications and/or patents.	FEN_K2_W06	Report
Skills - Student:			
U1	can analyze the results obtain in his/her dissertation experiments or calculations.	FEN_K2_U01, FEN_K2_U02, FEN_K2_U03	Report
U2	is able to prepare a written report and an oral presentation of the results for the dissertation.	FEN_K2_U04, FEN_K2_U05	Report
U3	is able to collaborate in the supervisor group.	FEN_K2_U06	Report, Observation of the master student work by the supervisor
U4	can solve the scientific problems during the dissertation research by his/her own.	FEN_K2_U02, FEN_K2_U07	Report, Observation of the master student work by the supervisor
Social competences - Student:			
K1	is ready for critical use of his/her knowledge in the dissertation research and is ready for using the experts help.	FEN_K2_K01, FEN_K2_K02	Report, Observation of the master student work by the supervisor
K2	is ready for playing a certain role in the research group.	FEN_K2_K03	Observation of the master student work by the supervisor
K3	is ready for being the author of the Thesis and/or co-author of the scientific publication.	FEN_K2_K01, FEN_K2_K02, FEN_K2_K05	Report, Observation of the master student work by the supervisor

Study content

No.	Course content	Subject learning outcomes	Activities
1.	Individual learning and studies of literature related to the dissertation.	W2, U1, U3, U4, K1	Laboratories
2.	Realizing experiments or calculations related to the dissertation.	W1, W2, U1, U3, U4, K1	Laboratories
3.	Participation in the group seminars and preparation of written reports and oral presentations of the obtained results related to the dissertation.	U2, U3, U4, K2	Laboratories
4.	Writing the Master Thesis and/or participation in writing the scientific publication.	W1, W2, W3, U3, K1, K2, K3	Laboratories

Additional information

Activities	Teaching and learning methods and activities
Laboratories	Laboratory method, Project method

Activities	Credit conditions
Laboratories	<p>The supervisor makes the assessment of the master student based on the scientific value of given reports as well as on the observation of student's work in his/her research group, all in accordance with grading system:</p> <p>Very good (bdb; 5,0) Good plus (+db; 4,5) Good (db; 4,0) Satisfactory plus (+dst; 3,5) Satisfactory (dst; 3,0) Unsatisfactory (ndst; 2,0)</p>

Literature

Obligatory

1. Depending on individual topics of Master Thesis.

Optional

1. Depending on individual topics of Master Thesis.

Calculation of ECTS points

Activities	Activity hours*
Laboratories	140
Preparation of a diploma thesis	140
Reading the indicated literature	60
Preparation of a multimedia presentation	20
Report preparation	40
Student workload	Hours 400
Number of ECTS points	ECTS 16

* academic hour = 45 minutes

Efekty uczenia się dla kierunku

Kod	Treść
FEN_K2_K01	The graduate is ready to critically evaluate own knowledge and received content
FEN_K2_K02	The graduate is ready to recognize the importance of knowledge in solving cognitive and practical problems and seeking expert opinion (also from other scientific disciplines) to overcome difficulties during independent problem solving
FEN_K2_K03	The graduate is ready to fulfill social obligations, inspire and organize activities for the benefit of the social environment and initiate activities in the public interest
FEN_K2_K05	The graduate is ready to responsibly perform professional roles, incorporating changing social needs, including advancing the achievements of the profession and maintaining its ethos, as well as the observance and development of the principles of professional ethics and actions to comply with these principles
FEN_K2_U01	The graduate can use their knowledge to formulate and solve complex and unusual problems in the field of physical sciences; select and apply appropriate methods and tools necessary to solve a given problem (including advanced IT techniques), as well as adapt existing methods and tools or develop completely new ones
FEN_K2_U02	The graduate can find the necessary information in the professional literature, databases and other sources, in particular in scientific journals basic to physics, and perform critical analysis, synthesis and creative interpretation of the collected information
FEN_K2_U03	The graduate can formulate and test hypotheses related to simple research problems in physics (plan and perform observations, experiments, theoretical calculations or computer simulations and critically evaluate and discuss the results obtained)
FEN_K2_U04	The graduate can prepare, for various audiences, oral presentations and written studies presenting specialized topics in the field of physical sciences in a communicative way, as well as debate on such topics
FEN_K2_U05	The graduate can use English in accordance with the requirements set out for level B2+ of the Common European Framework of Reference for Languages, as well as specialist English terminology in the field of physical sciences
FEN_K2_U06	The graduate can interact with others as part of teamwork and take a leading role in such work; manage team work
FEN_K2_U07	The graduate can independently determine the directions of further learning and implement a self-education program, learn throughout lifetime using the available international literature and be able to guide others in this regard
FEN_K2_W01	The graduate knows and understands in-depth selected facts, phenomena, concepts and theories specific to physics and complex relationships between them (constituting advanced general knowledge in the field of physical sciences and representing both key and other selected issues in the field of advanced detailed knowledge in this discipline)
FEN_K2_W02	The graduate knows and understands in-depth selected research methods and tools as well as mathematical models used in physics
FEN_K2_W03	The graduate knows and understands in-depth selected computational methods and information technology tools and techniques used to solve complex problems in physics
FEN_K2_W04	The graduate knows and understands main development trends in the discipline of physical sciences
FEN_K2_W05	The graduate knows and understands the role of physical sciences in the context of fundamental dilemmas and challenges of modern civilization
FEN_K2_W06	The graduate knows and understands basic concepts and principles in the area of industrial property protection and copyright