

Interdisciplinary Ph.D. Studies in the field of Nanotechnology (abrev: ISD N) conducted in English – 2015-2019 (obligatory for Ph.D. students at Poznan University of Nanotechnology and Adam Mickiewicz University of Poznan)

Year	Subjects	number of hours during year						ECTS
		SUM	lectures	exercise	seminar	laboratory	internsh. and workshop	
	Pedagogical Training#	60	60					6
	Methodology of Research##	10	10					2
	Multicriterial Support of Decisions in Engineering Issues ##	10	10					1
	Methodology and Principles of Scientific Reports Editing	10	10					1
	Scientific and Research Projects	10	10					1
	Teacher Practice	0					15	
	Substantiated Work with Scientific Supervisor	10			10			2
	razem	110	100	0	10	0	15	13
	Teacher Practice	0					15	
	Editing Publications and Diploma Theses in English	30	30					3
	Obligatory Major Lecture***	20	20					2
	Substantiated Work with Scientific Supervisor	10			10			2
	Obligatory 3 months Scientific Internship at Foreign Partner Institution (internship closing date - no later than May 31st 2015.	105				105		6
	razem	165	50	0	10	105	15	13
3	Supplementary Subject Lecture###	30	30					3
	Teacher Practice						15	
	Specialization Lecture (elective) 1****	10	10					1
	Substantiated Work with Scientific Supervisor	10			10			2
	Doctoral Seminar	15			15			2
	razem	65	40	0	25		15	8
4	Teacher Practice	0					15	
	Specialization Lecture (elective) 2****	10	10					1
	Substantiated Work with Scientific Supervisor	10			10			2
	Doctoral Seminar	15			15			2
	razem	35	10	0	25	0	15	5
	program ISD N razem	375	200	0	70	105	60	39

****elective specialization lectures - 2 to be chosen by the whole Ph.D students' group

Faculty of Chemical Technology, PUT - to be consulted with Univ. Trieste

1. dr hab. inż. S. Borysiak: „Chemistry of polymers and polymer composites”
2. dr hab. inż. G. Lota: „Nanomateriały do magazynowania energii”

Faculty of Technical Physics, PUT - to be consulted with Univ. Trieste

1. Principle of photovoltaics - prof. dr hab. Danuta Wróbel
2. Spectroscopy of Nanomaterials - prof. dr hab. Alina Dudkowiak/ dr hab. Mirosław Szybowicz

Faculty of Chemistry, AMU - to be consulted with Univ. Trieste

- 1.

2.

Remarks:

Substantiated Work with Scientific Supervisor- the report form to be set individually with Ph.D. student scientific supervisor

Number of lectures or exercises conducted with students may be dependent on given Faculty limits !

elective subject among: Economics, Philosophy, Philosophy with Ethics components

Major lectures proposals

1. Solid state physics - an introduction
2. Electron properties in 1D and 2D systems
3. Unique properties of nanomaterials
4. New materials and physical phenomena in nanoelectronics
5. Nanomaterials in photovoltaics
6. Multiferroics – switchable electronic components

Elective specialization lectures proposals

1. Principles of photovoltaics
2. Electron and Scanning Probe Microscopy in nanomaterials studies
3. Magnetic materials in nanoelectronics – properties and fabrication
4. Spectroscopy of nanomaterials
5. The application of X-Ray diffraction in the studies of structure of single-nanowire silicon solar cell
6. Methods of preparation and investigation of nanostructures

