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**PROGRAM STUDIÓW MIĘDZYNARODOWYCH**  
**PROGRAM OF INTERNATIONAL STUDIES**  
**Fizyka z OPTOELEKTRONIKĄ / PHYSICS WITH OPTOELECTRONICS**  
**Studia II stopnia stacjonarne / Masters studies**  
**2018/2019**

**Speciality – Applied physics and nanomaterials**  
**Speciality – Physics and Astronomy**  
**Specialisation – Solid state optoelectronics**

approved by the faculty council of Physics, Electronics and Computer Systems in <b>DNIPRO NATIONAL UNIVERSITY, Ukraine</b>	unit code	
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approved by the faculty council of Faculty of Mathematics, Physics and Technical Science in Pedagogical university, Poland		
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Unit plan name	<b>Solid state optoelectronics</b>
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ECTS points	90
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Qualifications and professional privileges:

A master of Physics has professional qualifications to work in field of information-measuring technology, optical communication and research institutions in applied physics.

## Learning outcomes

KNOWLEDGE	
W01	A master has the expanded knowledge in mathematical physics.
W02	A master has a basic knowledge in general and theoretical physics.
W03	A master knows theoretical models of condensed matter physics.
W04	A master knows the most important achievements and actual problems in condensed matter physics and optoelectronics, and integrated optics
W05	A master knows technological foundations of a modern material science.
W06	A master has the advanced knowledge of the optical phenomena in various mediums.
W07	A master knows a basic methods of information processing in optical and optoelectronic systems.
W08	A master knows principles of operation of experimental equipment for physical researches.
W09	A master knows how to determine the characteristics of metamaterials, functional and smart materials and parameters of devices.
W10	A master has a basic knowledge in the issues of the prevention of accidents during physical experiments.
SKILLS	
U01	A master is able to collect and analyze the science information using communication systems.
U02	A master is able to plan and carry out the scientific researches.
U03	A master is able to determine the characteristics of functional electronics materials.
U04	A master has exploitation skills of electrical and optical equipment.
U05	A master is able to calculate the parameters of optoelectronic devices.
U06	A master is able to use knowledge obtained to develop new devices for functional, nano- and optoelectronics.
U07	A master is able to use knowledge obtained to develop a fiber-optic devices and telecommunication systems.
SOCIAL ABILITIES	
K01	A master has the creativity and the ability to conceptual thinking.
K02	A master is able to present and justify the personal point of view
K03	A master is able to use the information technologies for the communication with the scientific community
K04	A master is aimed to expand personal knowledge and skills
K05	A master has the legal erudition
K06	A master concerned about the environmental safety of physical experiment

Verification of learning outcomes:

	E – learning	gamesEducational	Recitation	Fieldwork	Labs	Individual projects	Common projects	Discussion	Essay	Oral exam	testsWriting exam/	Other
W01			x		x	x	x	x	x	x	x	
W02			x		x	x	x	x	x	x	x	
W03			x			x	x	x	x			
W04			x		x	x	x	x	x	x	x	
W05			x			x	x	x	x			
W06			x		x	x	x	x	x	x	x	
W07			x			x	x	x	x			
W08			x			x	x	x	x	x	x	
W09			x									
W10			x		x		x					
U01			x		x	x	x	x	x	x	x	
U02			x			x	x	x	x			
U03			x		x	x	x	x	x			
U04			x			x	x	x	x	x	x	
U05			x		x	x	x	x	x	x	x	
U06			x			x	x	x	x			
K01			x			x	x	x				
K02			x			x	x	x				
K03			x			x	x	x				
K04			x			x	x	x				
K05						x	x	x				
K06			x			x	x	x				
K07			x			x	x	x				

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