COURSE OFFERED

Name of the course	Polish	**Fizyka statystyczna**
	English	**Statistical Physcs**

1. LOCATION OF THE COURSE OF STUDY WITHIN THE EDUCATION SYSTEM

1.1. Section [1]	Natural Sciences
1.2. Discipline[2]	Physics
1.3. Type of education	Stationary
1.4. Level of education	PhD School/ 3 year
1.5. Person preparing the course description	Francesco Giacosa
1.6. Contact	fgiacosa@ujk.edu.pl

2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

2.1. Type of course [3]	specialized subjects in the discipline
2.2. Language of the course	English

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Type of classes[4]		Lecture
3.2. The number of hours[5]		15
3.3. Location of classes		UJK, WNSiP
3.4. Type of assessment		Zaliczenie z oceną
3.5. Didactic methods		Oral lectures, problem solving
3.6. Literature	**basic**	K. Huang, statistical mechanics.
	supplementary	E. Fermi, Thermodynamics

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDEND LEARNING OUTCOMES

4.1. Course objectives (including the form of classes)

Description of the basic features and formalism of classical and quantum gases.
Understanding the tools related to statistical physics.
Developing skills to solve exercises

Syllabus content

1. Recall of thermodynamics of a classical gas from a statistical point of view: binomial distribution, entropy, velocity distribution.
2. Ensembles. Microcanonical, Canonical, grand canonical.
3. Time arrow. What does Entropy tells us?
4. Indistinguishable particles: gas of bosons.
5. Condensation of a Bose gas at low temperature.

[1] Section of Humanities:, Social Sciences, Section of Exact and Natural Sciences, Section of Medical and Health Sciences, Section of Arts.

[2] History,Linguistics, Literary Studies, Medical Sciences, Health Sciences, Political and Administrative Sciences, Legal Sciences, Security Sciences, Pedagogy, Communication and Media Studies, Management and Quality Studies, Biological Sciences, Chemical Sciences, Physical Sciences, Earth and related Environmental Sciences, Visual Arts and Artwork Conservation, Musical Arts.

[3] General courses, domain specific subjects in the section, disciplinary subjects in the sections, specialized subjects in the discipline.

[4] Classes, lecture, seminar.

[5] Consistent with the education program at the Doctoral School
Jan Kochanowski University in Kielce.

6. Indistinguishable particles: gas of fermions. 7. Neutron stars as an example of a Fermi gas.

5. SUBJECT LEARNING OUTCOMES

Learning outcomes	A doctoral student who has passed the subject:	Reference to the learning outcomes of Doctoral School (according to the training program at the Doctoral School)
in the area of KNOWLEDGE:		
W01	The doctoral student has advanced knowledge of development trends in disciplines related to the research theme being pursued	SD_W02
in the area of SKILLS:		
U01	The doctoral student is capable of utilizing knowledge from various disciplines to identify, formulate, and creatively solve complex problems or undertake research tasks.	SD_U03
in the area of SOCIAL COMPETENCE:		
K01	The doctoral student can independently conduct scientific research activities, adhering to the principles of public ownership of research results outcomes and ensuring intellectual property protection.	SD_K04

6. METHODS OF ASSESSMENT OF THE INTENDED LEARNING OUTCOMES

SUBJECT LEARNING OUTCOMES	METHOD OF ASSESSMENT (+/-)																				
	Oral/written exam			Kolokwium			Project			activity in class			Own work			Group work			Others		
	The type of classes			*The type of classes*			*The type of classes*			*The type of classes*			*The type of classes*			*The type of classes*			*The type of classes*		
	L	*C*	*S*	*L*	*C*	*S*	*L*	*C*	*S*	*L*	*C*	*S*	*L*	*C*	*S*	*L*	*C*	*S*	*L*	*C*	*S*
W01	***x***																				
U01	***x***																				
K01	***x***																				

7. CRITERIA OF ASSESSMENT OF THE INTENDED LEARNING OUTCOMES

Form of classes	Grade	Criterion of assessment
Lecture (L) [6]	3,0	51-60% correct exercises with exam
	3,5	61-70% correct exercises with exam
	4,0	71-80% correct exercises with exam
	4,5	81-90% correct exercises with exam
	5,0	91-100% correct exercises with exam

Accepted for execution

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[6] Niepotrzebne usunąć.