Attachment No. 1 to Rector's ordinance No. /2016

DESCRIPTION OF THE COURSE OF STUDY

Course code	**0912-7LEK-F-16-AM**	
Name of the course in	Polish	**Aparatura medyczna**
	English	**Medical Apparatus**

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

1.1. Field of study	Medicine
1.2. Mode of study	Full-time
1.3. Level of study	Uniform Master's studies
1.4. Profile of study*	General academic
1.5. Specialization*	Lack
1.6. Unit running the course of study	The Faculty of Medicine and Health Sciences
1.7. Person/s preparing the course description	Professor Janusz Braziewicz
1.8. Person responsible for the course of study	Professor Janusz Braziewicz
1.9. Contact	janusz.braziewicz@ujk.edu.pl

2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

2.1. Affiliation with the module	elective
2.2. Language of instruction	English
2.3. Semesters in which the course of study is offered	Choice between 2nd-9th semesters
2.4. Prerequisites*	

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes		Lecture- 15h
3.2. Place of classes		Courses in the teaching rooms of UJK
3.3. Form of assessment		Credit with grade
3.4. Teaching methods		
3.5. Bibliography	**Required reading**	**1.** *Diagnostic Radiology Physics – A Handbook for Teachers and Studenta*, IAEA Viena 2014 2. *Nuclear Medicine for Medical Students and Junior Doctors*, J W Frank, 2009 3. *Essential Nuclear Medicine Physics*, RA Powners , ER Powners, Blackwell Publishing (2006) 4. *Nuclear Medicine Therapy*, JF Eary, W Brenner, Informa Healthcare, NY London 2007 5. *Nuclear Medicine for Medical Students and Junior Doctors*, J W Frank, 2009
	Further reading	http://medline.pl/

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED TEACHING OUTCOMES

4.1. Course objectives ***(lecture)***

C1- acquaintance with the physical basics of diagnostic and therapeutic techniques used in medicine;
C2- familiarity with techniques which use non-ionizing radiation;
C3- familiarity with techniques that use ionizing radiation;
C4- acquaintance with the procedures of medical research;
C5- acquaintance with the control of the equipment quality.

4.2. Detailed syllabus ***(lecture)***

1. Familiarity with the basics of radiological techniques.
2. Acquaintance with the basics of operation of tomographic techniques.
3. Magnetic resonance imaging in the anatomical and functional studies.
4. Infrared tomography in medical diagnostics.
5. Electrical Impedance Tomography.
6. Optical tomography.
7. Data archiving.

4.3. Education outcomes in the discipline

Code	A student, who passed the course	Relation to teaching outcomes
within the scope of **KNOWLEDGE:**		
W01	knows natural and artificial sources of ionizing radiation and its interaction with the matter;	B.W6
W02	knows the physical basis of non-invasive imaging methods;	B.W8
W03	knows the physical principles of selected therapeutic techniques, including ultrasound and radiation;	B.W9
within the scope of **ABILITIES:**		
U01	uses the knowledge of the laws of physics to explain the impact of external factors such as temperature, acceleration, pressure, electromagnetic fields and ionizing radiation on the body and its elements;	B.U1
U02	assesses harmful ionizing radiation dose and applies the principles of radiation protection;	B.U2
U03	uses databases, including online ones, and searches for necessary information using available tools;	B.U11

4.4. Methods of assessment of the intended teaching outcomes

Teaching outcomes *(code)*	Method of assessment (+/-)																					
	Exam oral/written*			Test*			Project*			Effort in class*			Self-study*			Group work*			Others*/ presentation		
	Form of classes			*Form of classes*			*Form of classes*			*Form of classes*			*Form of classes*			*Form of classes*			*Form of classes*		
	L	*C*	...	*L*	*C*	...	*L*	*C*	...	*L*	*C*	...	*L*	*C*	...	*L*	*C*	...	*L*	*C*	...
W01				+															+		
W02				+															+		
W03				+															+		
U01				+															+		
U02				+															+		
U03				+															+		

****delete as appropriate***

4.5. Criteria of assessment of the intended teaching outcomes		
Form of classes	**Grade**	**Criterion of assessment**
lecture (L)	**3**	61% -68% correct answers
	3,5	69% - 76% correct answers
	4	77% - 84% correct answers
	4,5	85 % -92% correct answers
	5	93-100

5. BALANCE OF ECTS CREDITS – STUDENT'S WORK INPUT

Category	**Student's workload**
	Full-time studies
NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT HOURS/	**35**
*Participation in lectures**	**15**
*Participation in classes, seminars, laboratories**	**20**
*Preparation in the exam/ final test**	
*Others**	
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/	**15**
*Preparation for the lecture**	
*Preparation for the classes, seminars, laboratories**	**5**
*Preparation for the exam/test**	**10**
*Gathering materials for the project/Internet query**	
Preparation of multimedia presentation	
*Others**	
TOTAL NUMBER OF HOURS	**50**
ECTS credits for the course of study	**2**

Accepted for execution *(date and signatures of the teachers running the course in the given academic year)*

.....