COURSE DESCRIPTION (SYLLABUS)

1.	Course: **PCR Method - Technique and Application**	
2.	Language of instruction: **English**	
3.	Faculty: **Faculty of Biotechnology**	
4.	Course/module code: **29-BT-S2-E1-EngPCR**	
5.	Course/module type (*mandatory* or *elective*): **mandatory**	
6.	Programme: **Medical Biotechnology**	
7.	Study cycle: **2nd cycle**	
8.	Year: **1st**	
9.	Semester (*autumn* or *spring*): **Autumn**	
10.	Form of tuition and number of hours: **Lecture, 15 h**	
11.	Name, Surname, academic title: **Mariusz Olczak, Prof.**	
12.	Initial requirements (knowledge, skills, social competences) regarding the course/module and its completion **Knowledge of basic molecular biology techniques.**	
13.	Objectives: **Understanding of theory and practice of PCR methods.**	
14.	Content: **Amplification od DNA using standard PCR, basis of the technique, designing of primers used in PCR, analysis of PCR products, degenerate primers, modified primers, mutagenesis based on PCR, rapid amplification of 5' and 3' cDNA ends (RACE), reverse transcription, RT-PCR (one and two-step), real-time PCR - basis of the method, reaction parameters, analysis of the results, application of real-time PCR in research, medicine and industry, gene expression analyses using real-time PCR.**	
15.	Learning outcomes: • **Acquiring the advanced knowledge about PCR bases,** • **learning the terminology and nomenclature of practical application of PCR,** • **developing the ability of using the professional**	Outcome symbols: K_W01, K_W02, K_W04, K_W07, K_U01, K_U06, K_K05,

<table>
<tr><td></td><td colspan="2">literature dealing with PCR.</td></tr>
<tr><td>16.</td><td colspan="2">Recommended literature:
• JM Berg, JL Tymoczko, L Stryer, Biochemistry, Palgrave Macmillan, 2011
• J Sambrook, DW Russel, Molecular Cloning. A laboratory manual, Cold Spring Harbor Laboratory Press, 2001 or later.
• Protocols provided with kits and chemicals.</td></tr>
<tr><td>17.</td><td colspan="2">Methods of verification of the assumed learning outcomes:
• exam</td></tr>
<tr><td>18.</td><td colspan="2">Conditions of earning credits:
• exam</td></tr>
<tr><td rowspan="5">19.</td><td colspan="2">Student’s workload:</td></tr>
<tr><td>Activity</td><td>Number of hours for the activity</td></tr>
<tr><td>Hours of instruction (as stipulated in study programme):</td><td>15 h</td></tr>
<tr><td>Student’s own work:</td><td>15 h</td></tr>
<tr><td>Total number of hours:</td><td>30 h</td></tr>
<tr><td></td><td>Number of ECTS:</td><td>2 ECTS</td></tr>
</table>