

## I. SUBJECT SHEET

<b>Name of the subject/ module:</b>		<b>Biomedical foundations of human development</b>				
<b>Course:</b>		Physical education				
<b>Study form/level:</b>		Full-time studies / first cycle – Bachelor				
<b>Study profile:</b>		practical				
<b>Educational entity:</b>		the Karkonosze College in Jelenia Góra, the Faculty of Natural Sciences and Technology, the Department of Physical Education				
<b>Teacher:</b>						
<b>Courses, number of hours</b>						
<b>Semester</b>	<b>Lecture</b>	<b>Practical classes</b>	<b>Laboratory</b>	<b>Workshop</b>	<b>Total</b>	<b>ECTS</b>
II	15				15	2
<b>Subject objective:</b>						
<p>C1. Becoming familiar with factors determining human development in ontogenesis, including periodisation and specification of the main stages of human development. Shaping an environmentally friendly attitude and culture.</p> <p>C2. Presenting the phenomenon of development acceleration on selected examples, including threats to the modern school.</p> <p>C3. Explanation of methods and techniques of assessing and controlling physical and psychomotor development of children and adolescents, including the ability to use them, analyse test results, draw conclusions and take appropriate measures. Ability to assess the state of health of children and adolescents.</p> <p>C4. Analysing the development and the shaping of the motor system in ontogenesis (in prenatal and postnatal development), the most frequent dysfunctions of the motor system among children and adolescents, their causes and ways to counteract them.</p> <p>C5. Becoming familiar with lifestyle and school age diseases, including their aetiology, symptoms and prevention. Shaping pro-health attitude and culture.</p> <p>C6. Discussing chosen chromosomopathy and genopathy causes and mechanisms of their occurrence and prevention.</p> <p>C7. Raising awareness of the significance of pre-natal diagnosis and of the operating genetics clinics.</p> <p>C8. Conducting a discussion concerning the ageing of European societies, the results of the conducted seminological studies, in-vitro fertilisation and perspectives of using stem cells in the medical practice.</p> <p>C9. Becoming familiar with the method of designing preventive education programmes in schools and educational institutions.</p>						
<b>Preliminary requirements in terms of knowledge, skills and other competences:</b>						
The knowledge of programme contents, acquired intellectual and sensometric abilities as well as competence on the 4th education level (secondary and technical secondary school).						
<b>Expected educational effects:</b>						
<ul style="list-style-type: none"> <li>- Has knowledge in terms of factors determining physical and psychomotor human development, is able to characterise and evaluate them.</li> <li>- Is able to explain and describe development acceleration phenomenon on selected examples, being aware of the associated dangers.</li> <li>- Knows the physical and psychomotor development assessment and control methods for children and adolescents.</li> <li>- Presents knowledge on the development of particular systems in ontogenesis, taking into consideration their construction and functions, including most common medical conditions, their symptoms and prevention.</li> </ul>						

- Knows the most common genetic loads (genopathies and chromosomopathies), their causes and generating mechanisms, taking into consideration prevention and diagnosis of pre-natal tests.
- Has knowledge of seminological studies, in vitro fertilisation, and perspectives of using stem cells in the medical practice.
- Knows the rules for creating preventive education projects.
- Is able to notice the connections, relationships between the known development factors and growth and the observed quality-quantity changes in the system on different stages of ontogenetic human development (development periodisation).
- Is able to use the methods and techniques to assess physical and psychomotor development in children and adolescents, drawing adequate conclusions.
- Shows the ability of evaluation, integration and presentation of knowledge in various biomedical disciplines.
- Perceives, formulates and solves various problems of biomedical nature. Describes, analyses, compares and interprets the course of specific biomedical processes and phenomena. Formulates hypotheses on the basis of the knowledge acquired from various source materials.
- Is able to actively participate in group work, takes part in problem solving tasks. Is able to use the acquired knowledge in practice.
- Shows the capability of independent, creative and critical thinking, including the ability to choose optimum solutions and adequate action.

K-01 – Is aware of the importance and influence of specific development factors on human body at various stages of ontogenesis.

K-02- Is fully aware of various dangers both at prenatal and postnatal development stage, including the ability to take adequate preventive measures.

- Is characterised with mature, fully developed pro-health and environmentally friendly attitude, also being able to design preventive education programmes.
- Has acquired and understood the shaping processes of major organs of particular systems at various development stages, including critical moments in their development of particular importance both in the context of the possibility of occurrence of various disorders/dysfunctions, and preventive measures.

### Curriculum:

Lectures	Form of classes: lecture	Number of hours
1	Factors determining human ontogenetic development.	2
2	Characteristics of endogenic genetic, (paragenetic) and non-genetic maternal factors and their influence on the psychophysical development of children and adolescents.	2
3	Mutagens, teratogens and oncogens in the environment and their influence on the human system on chosen examples.	2
4	Chosen exogenous factors and their influence on psychophysical development of children and adolescents.	2
5	Definition, classification and characteristics of human somatotypes. Determining one's own somatotype.	2
6	Development and formulation of basic features of the motor system and motor skills in ontogenesis. Physical effort of athletes and occurrence of exercise- induced asthma (analysis of test results).	1
7	Genetic diseases (chromosomopathies and genopathies), their aetiology, symptoms, prevention and treatment. Prenatal diagnostics and its significance.	2
8	Seminological studies and the problem of in vitro fertilisation. Stem cells in cord blood and their significance.	1
9	Methodology of designing educational preventive programmes connected with threats found in the modern school.	1
<b>Total hours</b>		<b>15</b>
Practical classes	Form of class: practical	Number of hours
1	Nutrition as the basic factor influencing human growth and psychophysical development.	1
2	Lifestyle and health culture and psychophysical development of children and adolescents.	1
3	Human development periodisation. Characteristics of main stages of prenatal and postnatal development, including critical periods in psychophysical development	2
4	Development and formation of the most important organs of selected systems in ontogenesis.	3
5	The most common development disorders, their aetiology, treatment and prevention.	1

6	The phenomenon of development acceleration based on selected examples, including their implications	1
7	Methods and techniques of assessment and control of physical and psychomotor development of children and adolescents.	1
8	The influence of diversified physical activity on the psychophysical development of children and adolescents.	1
9	Lifestyle diseases and school age diseases and their influence on psychophysical development of children and adolescents.	2
10	The presentation and assessment of the developed preventive programmes. A summary of the completed programme.	2
<b>Total hours</b>		<b>15</b>
<b>Educational tools:</b>		
1.	Multimedia, films, transparencies.	
2.	Boards, atlases, models, microscopes + microscopic samples of tissues and human organs, etc.	
3.	Monthlies, quarterlies, academic medical course books, and other sources of information.	
<b>Assessment (F – formative, P – summative)</b>		
<b>F1</b>	Mid-term/ partial/ marks.	
<b>F2</b>	Assessment of the mid-term project	
<b>P</b>	Mid-term written test (December) and final (February) including programme content of the lectures and practical classes using a designed test assessing the students' knowledge and abilities	
<b>Student workload</b>		
<b>Form of activity</b>		<b>Total and average number of hours for the completion of the activity</b>
Hours of contact with the teacher (during classes)		<b>15</b>
Hours of contact with the teacher (during consultations, on average per student)		<b>6</b>
Preparation for classes		<b>29</b>
<b>TOTAL</b>		<b>50</b>
<b>TOTAL NUMBER OF ECTS POINTS FOR THE SUBJECT</b>		<b>2</b>
<b>Basic and supplementary bibliography</b>		
<b>Basic bibliography:</b>		
1. Bartkowiak Z. – Biomedyczne podstawy rozwoju i wychowania. WSiP, Warszawa 1986.		
2. Connor J.M. i wsp. – Podstawy genetyki medycznej. PZWL, Warszawa 1991..		
3. Demel M, Skład A. – Teoria wychowania fizycznego. PWN Warszawa 1974.		
4. Dzygóra W. – ŚRODOWISKO-CZŁOWIEK-ZDROWIE. Problemy ekologiczne i ekologiczno-zdrowotne. Wyd. Kolegium Karkonoskie. Jeleniej Górze 2009.		
5. Jaczewski A. – Biologiczne i medyczne podstawy rozwoju i wychowania. WSiP, Warszawa 2001.		
6. Jopkiewicz A. – Biologiczne podstawy rozwoju człowieka. ITiE, Kielce 1995.		
7. Radiukiewicz S. B. – Medycyna szkolna. PZWL, Warszawa 1996.		
8. Sylwanowicz W. i wsp. – Anatomia i fizjologia człowieka. PZWL, Warszawa 1995.		
9. Trzeźniowski R. – Zabawy i gry ruchowe. WSiP Warszawa 1995.		
10. Wolański N. – Biomedyczne podstawy rozwoju i wychowania. PWN, Warszawa 1983.		
11. Wolański N. – Rozwój biologiczny człowieka. PWN, Warszawa 2006.		
12. Jarygin W. – Biologia. PZWL, Warszawa 1991.		
<b>Supplementary bibliography:</b>		
1. Bartel H. – Embriologia dla studentów medycyny. PZWL, Warszawa 2004.		
2. Bugaj T. – Zdrowie publiczne. KTN, Jelenia Góra 1992.		
3. Bugaj T. – Ekologia środowiskowa a zdrowie. KTN, Jelenia Góra 1996.		
4. Passarge E. – Genetyka – ilustrowany przewodnik. Wydawnictwo Lekarskie PZWL. Warszawa 2004.		

### **III. OTHER USEFUL INFORMATION ABOUT THE SUBJECT**

1. Education Project, materials for practical classes, etc., can be found in the Medical Biology Laboratory [room 204/205].
2. Classes in biological basis of human development take place in the Medical Biology Laboratory [room 204/205].
3. The dates of classes in accordance with the plan/semester.
4. Consultations are carried out according to the plan in the Medical Biology Laboratory (room 204) [changes each semester].