**SYLABUS**

**applies to the** 2024-2027 **education cycle**

(extreme dates)

2024/2025 academic year

1. BASIC INFORMATION ABOUT THE COURSE

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| --- | --- |
| Name of the course | Modern technologies in the research process |
| Course Code\* |  |
| Name of the direction unit | College of Medical Sciences |
| Name of the unit realizing the course | Institute of Physical Culture Sciences |
| Field of study | Physical Education |
| Level of study | Master studies |
| Profile | Academic |
| Form of studies | Full time |
| Year and semester/s of studies | 2 year, sem. III |
| Subject type | Basic |
| Language of lectures | Polish, English |
| Coordinator | Dr hab. inż. Krzysztof Przednowek, prof. UR |
| Name and surname of the person(s) conducting the course | Dr hab. inż. Krzysztof Przednowek, prof. UR |

\* -optionally, as agreed in the Unit

1.1. FORMS OF CLASSES, NUMBER OF HOURS AND ECTS CREDITS

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Semester(No.) | Lecture | Classes | Conv. | Lab. | Sem. | Pract.Classes | Teaching practice | Other(s)(?) | **No. of ECTS** |
| Winter  |  |  |  | 20 |  |  |  |  | 3 |
| **Total** |  |  |  | **20** |  |  |  |  | **3** |

1.2. The way of carrying out the classes

classes in the traditional form

☐ classes conducted using distance learning methods and techniques

1.3 Form of crediting the subject (ongoing) (exam, pass with a grade, pass without a grade)

Tutorials – assessment with a grade

2. Prerequisites

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| Basic concepts of research methodology, sports theory, anthropomotor science and statistical methods. |

3. goals, learning outcomes, curriculum content and teaching methods used

3.1 OBJECTIVES (O) OF THE COURSE

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| --- | --- |
| O1  | Prepare students to plan and conduct research using modern technology |
| O2 | Familiarize students with research techniques using modern diagnostic technologies |

**3.2 LEARNING EFFECTS FOR THE COURSE**

|  |  |  |
| --- | --- | --- |
| EK (LEARNING EFFECT) | COURSE-DEFINED LEARNING EFFECT CONTENT | REFERENCE TO DIRECTIONAL EFFECTS \* |
| EK­\_01 | The student has an in-depth knowledge of the ethics of the profession of teacher-educator, instructor, the need to protect intellectual property and copyright law. | K\_W19 |
| EK\_02 | Selects contemporary information and communication applications for activity and fitness formation. | K\_U05 |
| EK\_03 | Students are able to independently plan and implement lifelong learning, including obtaining successive degrees of professional promotion of teachers and participating in various forms of continuing education. | K\_U22 |
| EK­\_04 | The student is able to use modern technologies in the diagnosis of physical activity and fitness. | K\_U24 |
| EK\_05 | The student observes bioethical principles in the implementation of research and scientific work. | K\_K07  |

 **\* *i****n the case of the educational path leading to a teaching qualification, the learning outcomes from the standards of education preparing for the teaching profession should also be taken into account.*

**3.3 PROGRAM CONTENT**

A. Issues of auditorium, seminar, laboratory, and practical classes

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| **Content** |
| Motion capture systems as research tools in sports. |
| Measurement using ground reaction plates in the research process. |
| Inertial sensors as tools for complex analysis in team games. |
| Mobile applications as tools to support the research process. |
| Introduction to advanced data analysis methods in the R environment. |

3.4 Teaching methods

Classes:

Practical methods: course classes, project

Feeding methods: informative lecture, instruction classes

Exposing methods: showcase

Problem methods: activating methods

4. ASSESSMENT METHODS AND CRITERIA

4.1 METHODS OF VERIFICATION OF LEARNING OUTCOMES

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| --- | --- | --- |
| LEARNING EFFECT SYMBOL(EK) | METHODS OF LEARNING RESULTS ASSESSMENT(E.G.: TEST, ORAL EXAMINATION, WRITTEN EXAMINATION, PROJECT, REPORT, OBSERVATION DURING CLASSES) | FORM OF TEACHING(LECTURE, CLASSES, …) |
| EK\_ 01 | Test, research project | classes |
| EK\_ 02 | Test, research project |  classes |
| EK\_ 03 | research project | classes |
| EK\_ 04 | Test, research project | classes |
| EK\_ 05 | Test, research project | classes |

4.2 CONDITIONS FOR PASSING THE COURSE (ASSESSMENT CRITERIA)

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| --- |
| **CONDITIONS FOR PASSING THE SEMESTER**the condition for passing the course is to obtain at least 51% of the theoretical knowledge test; pass with a grade on the basis of test51%- 60% satisfactory61%-70%- satisfactory plus71%-80%- good81%-90%- good plus 91%-100%-very good |

5. TOTAL STUDENT WORK NEEDED TO ACHIEVE THE TARGET OUTCOMES IN HOURS AND ECTS POINTS

|  |  |
| --- | --- |
| **Form of activity** | **The average number of hours to complete the activity** |
| Contact hours resulting from the schedule of studies | 20 h |
| Others with the participation of an academic teacher(participation in consulting hours, exam) | 25 h(participation in consulting hours) |
| Non-contact hours - student's own work(preparation for classes, exam, writing a paper, etc.) | 30 h (preparation for classes 5 hourspreparation for passing 35 hours) |
| TOTAL NUMBER OF HOURS | 75 |
| **TOTAL NUMBER OF ECTS CREDITS** | 3 |

*\** IT SHOULD BE TAKEN INTO ACCOUNT THAT 1 ECTS CREDIT EQUALS 25-30 HOURS OF TOTAL STUDENT WORK.

6. **TEACHING PRACTICE WITHIN THE COURSE**

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| --- | --- |
| NUMBER OF HOURS | None |
| PRINCIPLES AND FORMS OF TEACHING PRACTICE | None |

7. LITERATURE

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| OBLIGATORY LITERATURE:1. Kusy K., Zieliński J.: Diagnostyka w sporcie, podręcznik nowoczesnego trenera. Wydawnictwo AWF Poznań, 2018.
2. Sozański H., Sadowski J., Czerwiński J.: Podstawy teorii i technologii treningu sportowego tom 1 i 2. Wydawnictwo AWF Warszawa, 2015.
3. Przednowek K., Iskra J., Krzeszowski T., Wiktorowicz K.: Wspomaganie procesu treningowego w biegach przez płotki z wykorzystaniem modelowania komputerowego, Wydawnistwo Ubiwersytetu Rzeszowskiego, 2019.
 |
| Supplementary Literature: 1. Przednowek, K.; Barabasz, Z.; Zadarko-Domaradzka, M.; Przednowek, K.H.; Nizioł-Babiarz, E.; Huzarski, M.; Sibiga, K.; Dziadek, B.; Zadarko, E. Predictive Modeling of VO2max Based on 20 m Shuttle Run Test for Young Healthy People. Appl. Sci. 2018, 8, 2213.
2. Przednowek, K.; Krzeszowski, T.; Przednowek, K.H.; Lenik, P. A System for Analysing the Basketball Free Throw Trajectory Based on Particle Swarm Optimization. Appl. Sci. 2018, 8, 2090.
3. Przednowek, K., Wiktorowicz, K., Krzeszowski, T. et al. A web-oriented expert system for planning hurdles race training programmes. Neural Comput & Applic 31, 7227–7243 (2019).
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APPROVAL OF THE MANAGER OF THE UNIT OR AN AUTHORIZED PERSON