Appendix number 1.5 to The Rector UR Resolution No. 12/2019

SYLLABUS

**concerning the cycle of education 2024-2030**

(date range)

* 1. BASIC INFORMATION CONCERNING THIS SUBJECT / MODULE

|  |  |
| --- | --- |
| Subject / Module | CLINICAL PHARMACOLOGY |
| Course code / module \* | FmK/E |
| Faculty of (name of the leading direction) | Medical College of Rzeszów University |
| Department Name | Medical College of Rzeszów University |
| Field of study | medical direction |
| Level of education | uniform master's studies |
| Profile | practical |
| Form of study | stationary / extramural |
| Year and semester | year V, semester IX |
| Type of course | obligatory |
| Coordinator | prof. dr hab. n. med. Piotr Tutka |
| First and Last Name of the Teacher | prof. dr hab. n. med. Piotr Tutka  dr hab. Dorota Bartosiuk  mgr farm. Patrycjusz Kołodziejczyk |

\* - According to the resolutions of the Faculty of Medicine

1.2. Forms of classes, number of hours and ECTS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Lecture | Exercise | Conversation | Laboratory | Seminar | ZP | Practical | Self-learning | **Number of points ECTS** |
|  |  |  |  | 30 |  |  |  | 2 |

1.3. The form of class activities

☒classes are in the traditional form

☐classes are implemented using methods and techniques of distance learning

1.4. Examination Forms / module (exam, credit with grade or credit without grade)

2. REQUIREMENTS

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| Basics of knowledge in the field of anatomy, physiology, biochemistry, microbiology, pathology.  Basics of knowledge, skills and competences in the field of clinical sciences according to the 3rd, 4th and 5th year programs. |

**3. OBJECTIVES, OUTCOMES, AND PROGRAM CONTENT USED IN TEACHING METHODS**

* 1. Objectives of this course/module

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| --- | --- |
| C1 | Obtaining knowledge about the principles of rational pharmacotherapy, including pharmacokinetics, pharmacodynamics and pharmacoeconomics of individual drug groups |
| C2 | Acquisition of knowledge about clinical effects, indications, contraindications and adverse drug reactions |
| C3 | Obtaining the ability to monitor the safety of pharmacotherapy |
| C4 | Obtaining knowledge on the interaction between drugs with particular emphasis on polypragmasy |
| C5 | Acquiring the ability to plan and monitor the therapy of the most common diseases in accordance with applicable standards |
| C6 | Acquiring the ability to adapt therapeutic options (resulting from mechanisms of drug action) to pathological processes taking place in the body |
| C7 | Obtain basic knowledge on the separateness of pharmacotherapy for children, the elderly, pregnant women and patients with liver and kidney damage |
| C8 | Obtaining the ability to individualize pharmacological treatment in specific clinical situations |
| C9 | Acquiring knowledge on formal and legal issues and ethical problems related to clinical trials of medicines |
| C10 | Acquiring the ability to analyze the results of scientific research |
| C11 | Obtaining knowledge about the directions of development of pharmacological treatment of diseases |

3.2 OUTCOMES FOR THE COURSE / MODULE (TO BE COMPLETED BY THE COORDINATOR)

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| --- | --- | --- |
| EK (the effect of education) | The content of the learning effect defined for the subject (module) | Reference to directional effects (KEK) |
| EK­\_01 | He lists the indications for the implementation of monitored therapy | E.W40. |
| EK\_02 | Defines the basic pharmacoeconomic concepts | E.W41. |
| EK\_03 | It analyzes possible side effects of individual drugs and their interactions | E.U17. |
| EK\_04 | He proposes to individualize the existing therapeutic guidelines and other methods of treatment for ineffectiveness or contraindications to standard therapy | E.U18. |
| EK\_05 | Recognizes the symptoms of drug dependence and proposes therapeutic treatment | E.U19. |
| EK\_06 | Interprets the pharmaceutical characteristics of medicinal products and critically evaluates advertising materials regarding medicines | E.U31. |
| EK\_07 | Knows and understands the causes, symptoms, principles of diagnosis and therapeutic treatment in the case of the most common diseases of children | E.W3. |
| EK\_08 | Knows and understands the causes, symptoms, principles of diagnosis and therapeutic treatment in relation to the most common internal diseases occurring in adults and their complications: | E.W7. |
| EK\_09 | He knows and understands the basic principles of pharmacotherapy of elderly people's diseases | E.W10. |
| EK\_10 | Knows and understands the causes, symptoms, principles of diagnosis and therapeutic treatment in the most common diseases of the nervous system, including | E.W14. |
| EK\_11 | He knows the symptoms, principles of diagnosis and therapeutic treatment in the most common mental diseases | E.W17. |
| EK\_12 | He knows the possibilities of modern cancer therapy (including multimodal therapy), perspectives of cell and gene therapies and their undesirable effects | E.W25. |
| EK\_13 | He knows the principles of pain treatment, including cancer and chronic pain | E.W29. |
| EK\_14 | Knows and understands the causes, symptoms, principles of diagnosis and therapeutic and prophylactic treatment in the most common bacterial, viral, parasitic and fungal diseases, including pneumococcal infection, viral hepatitis, acquired immune deficiencies, sepsis and nosocomial infections | E.W32. |
| EK\_15 | Team work skills when planning therapy | K02 |
| EK\_16 | Active search for information about medicines with the use of additional teaching aids | K04 |
| EK\_17 | Reliable preparation for exercises | K04 |
| EK\_18 | Possessing the ability of analytical and synthetic thinking based on acquired knowledge | K04 |
| EK\_19 | He actively discusses topics related to the effects of drugs and their use in therapy | K04 |

**3.3 CONTENT CURRICULUM (filled by the coordinator)**

1. **Lectures**

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| **Course contents** |
| 1. The role of a clinical pharmacologist in the treatment process. Pre-registration drug testing system. Pharmacoeconomics.  2. Principles and differences in pharmacotherapy in children and the elderly  3. The principles and dissimilarities of pharmacotherapy in pregnant women, in kidney failure  and liver  4. Adverse drug reactions and the principle of post-authorization drug safety supervision. Clinically significant interactions between drugs and between drugs and supplements and food.  5. The most common errors of doctors in the field of pharmacotherapy. |

**B**. **Seminars**

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| **Course contents** |
| 1. Principles of pharmacotherapy of selected diseases of the cardiovascular system part I (with special emphasis on hypertension, ischemic heart disease and cardiology)  2. Principles of pharmacotherapy of selected diseases of the cardiovascular system part II (with particular emphasis on chronic heart failure, the most common arrhythmias and the use of drugs that affect blood clotting)  3. Principles of pharmacotherapy of bronchial asthma, chronic obstructive pulmonary disease and selected allergic disorders.  4. Principles of pharmacotherapy in diseases of the urinary system. Distinctions of pharmacotherapy  in patients with kidney damage.  5. Principles of treatment of selected hormonal disorders (with particular emphasis on diabetes mellitus I and II and thyroid diseases)  6. Completion I. Clinical exercises.  7. Principles of pharmacotherapy of selected neurological disorders (with special emphasis on epilepsy, Alzheimer's disease, emergencies in neuroscience)  8. Principles of pharmacotherapy of selected psychiatric disorders (with particular emphasis on affective disorders and schizophrenia). Addiction to psychoactive drugs.  9. Selected aspects of pharmacological treatment of tumors. Pharmacotherapy for pains  for different reasons.  10. Principles of chemotherapy of the most common infections. Rational antibiotic therapy.  11. Analysis of cases and clinical situations related to the safety of drug use. Analysis of clinical scenarios concerning incorrect pharmacotherapy.  12. Credit II. Clinical exercises. |

**3.4 TEACHING METHODS**

Seminar / exercises: discussion, case analysis, resolving clinical scenarios, clinical exercises "at the patient's bedside".

4 METHODS AND EVALUATION CRITERIA

4.1 Methods of verification of learning outcomes

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| --- | --- | --- |
| Symbol of effect | Methods of assessment of learning outcomes (Eg.: tests, oral exams, written exams, project reports, observations during classes) | Form of classes |
| EK\_01 | oral answer, colloquium, practical pass, test pass | Exercises |
| EK\_02 | colloquium, test pass | Exercises |
| EK\_03 | colloquium, practical pass, test pass | Seminar, Exercises |
| EK\_04 | oral answer, colloquium, practical pass, test pass | Seminar, Exercises |
| EK\_05 | oral answer, colloquium, practical pass, test pass | Exercises |
| EK\_06 | Oral answer | Seminar, Exercises |
| EK\_07 | oral answer, colloquium, practical pass, test pass | Exercises |
| EK\_08 | oral answer, colloquium, practical pass, test pass | Exercises |
| EK\_09 | oral answer, colloquium, practical pass, test pass | Exercises |
| EK\_10 | oral answer, colloquium, practical pass, test pass | Exercises |
| EK\_11 | oral answer, colloquium, practical pass, test pass | Exercises |
| EK\_12 | colloquium, test pass | Exercises |
| EK\_13 | oral answer, colloquium, practical pass, test pass | Exercises |
| EK\_14 | oral answer, colloquium, practical pass, test pass | Exercises |
| EK\_15 | student's observation by the teacher | Seminar, Exercises |
| EK\_16 | student's observation by the teacher |
| EK\_17 | student's observation by the teacher |
| EK\_18 | student's observation by the teacher |
| EK\_19 | student's observation by the teacher |

4.2 Conditions for completing the course (evaluation criteria)

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| The condition for passing the subject is:  - presence at all seminars and exercises  - demonstration of knowledge and skills at least on a sufficient level as regards the material in accordance with the program (see substantive content)  - demonstrating skills of critical analysis of acquired information and application of pharmacological knowledge in clinical practice  - obtaining at least a satisfactory final rating  The final grade will be a resultant of all learning outcomes, i.e. knowledge, skills and social competences of the student, it will be based on internal regulations, which assumes collecting partial points of students. The score will include oral responses, written tests / tests with clinical case analysis (minimum two) and assessment of activity (assessment of competence and attitude). The condition for passing the subject will be obtaining the minimum number of points determined in the regulations. The final mark in the semester will depend on the number of points obtained. Students who do not get the required minimum number of points will not be able to pass the course. The possibility of obtaining the final pass will be specified in detail in the regulations. |

5. Total student workload required to achieve the desired result in hours and ECTS credits

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| --- | --- |
| Activity | Hours / student work |
| Hours of classes according to plan with the teacher | 30 |
| Preparation for classes |  |
| Participation in the consultations |  |
| The time to write a paper / essay |  |
| Preparation for tests |  |
| Participation in colloquia |  |
| Other (e-learning) | 30 |
| SUM OF HOURS | 60 |
| TOTAL NUMBER OF ECTS | **2** |

6. TRAINING PRACTICES IN THE SUBJECT / MODUL

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| --- | --- |
| Number of hours |  |
| Rules and forms of apprenticeship |  |

1. LITERATURE

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| **READING:**   1. Orzechowska-Juzwenko K., praca zbiorowa, Farmakologia Kliniczna - znaczenie w praktyce medycznej, 2006 2. Charakterystyka produktów leczniczych 3. Aktualne wytyczne polskich i międzynarodowych towarzystw naukowych w zakresie podstawowych farmakoterapii |
| Additional literature:   1. Brenner G. M., Stevens C. W., Farmakologia, 2010 2. Katzung B.G., Masters S.B., Trezor A.J., pod red. Buczko W., Farmakologia ogólna i kliniczna, Tom I i II, 2012 3. Brunton L.L., Lazo J.S., Parker K.L. pod red. Buczko W., Farmakologia Goodmana & Gilmana. Tom I i II, 2007 4. Mamcarz A., Farmakoterapia kardiologiczna. Tom I i II, 2011 |

Acceptance Unit Manager or authorized person