**description of the course of study**

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| **Course code** | **0912-7LEK-C5.2-IW** |
| **Name of the course in**  | Polish |  **Choroby wewnętrzne** |
| English | **Internal medicine** |

1. **LOCATION OF THE course OF STUDY within the system of studies**

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| **1.1. Field of study** | Medicine |
| **1.2. Mode of study** | Full-time |
| **1.3. Level of study** | Uniform Masters’ study |
| **1.4. Profile of study\*** | General Academic |
| **1.5. Person preparing the course description** |  dr hab. med. prof. UJK Zbigniew Siudak |
| **1.6. Contact** | zbigniew.siudak@ujk.edu.pl |

1. **General characteristicS of the course of study**

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| **2.1. Language of instruction** | English |
| **2.2. Prerequisites\*** | Knowledge of modules: morphological science and scientific basis of medicine |

1. **DETAILED CHARACTERISTICS OF THE COURSE OF STUDY**

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| * 1. **Form of classes**
 | Lectures: 75 (including 6 hours of e-learning), classes- 65 (including 5 hours of e-learning); practical classes: 95 |
| * 1. **Place of classes**
 | Lectures – Courses in the teaching rooms of the JKU |
| * 1. **Form of assessment**
 | Lectures semest. 5 – 8, 10-Zo (credit with grade)Classes- credit with grade |
| * 1. **Teaching methods**
 | Conversational lecture, discussion, a case study in natural condition |
| * 1. **Bibliography**
 | **Required reading** | 1. Harrison’s Principles of Internal Medicine, Vol. 1 & Vol. 2; 20th Edition. Authors: Longo, Dan; Fauci, Anthony; Jameson, J.; Hauser, Stephen; Kasper, Dennis; Loscalzo, Joseph;
2. Podstawy badania klinicznego / Basics i Clinical Examination. Piotr Zaborowski. Medipage 2016
 |
|  **Further reading** | 1. Kumar and Clark’s Clinical Medicine, 8th or 9th Edition by Parveen Kumar, Michael L Clark.
2. Bates’ Guide to Physical Examination and History-Taking by Lynn Bickley, Lippincott Williams & Wilkins 2012
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1. **Objectives, syllabus CONTENT and intended teaching outcomes**

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| * 1. **Course objectives *(including all form of classes)***

The aim of the course is to provide knowledge, practical skills and social competence on diseases in adults. Prepare students to: Plan diagnosis, treatment prophylaxis both primary and secondary.Plan and analyze diagnostic tests.Techniques of medical history taking and physical examination.Shaping attitudes about relation between doctor and patient, doctor – doctor, doctor – team, patient family – doctor. Compliance with laws and professional ethics.Learn specifics of hospital and out-patient department treatment. Learn indications and contraindications to specific diagnostic tests and medications including drug interactions. Practical skills:Ability to perform, analyse and interpret basic tests (ECG, spirometry, arterial blood gas test, strip tests, temperature measurement, swabs).Ability to perform peripheral vein cannulationAbility to perform advanced CPR with defibrillation.Ability to insert gastric tube. |

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| * 1. **Detailed syllabus *(including all form of classes)***

**IIIrd year****Sem. V Lectures*** Symptomatology of cardiovascular diseases (3h)
* Symptomatology of respiratory diseases (3h)
* Symptomatology of digestive system diseases (3h)
* Symptomatology of kidney and urinary system diseases (3h)
* Symptomatology of endocrine system diseases and diabetes (3h)

**Sem. V Classes*** Conducting a targeted medical interview.

Perform a targeted physical examination in relation to internal diseases.Assessing and describing the somatic statePlanning of diagnostic, therapeutic and prophylactic procedures.Taking heart rate measurements, blood pressure and monitoring vital signs.Keeping the medical records of the patient.* Performing a standard resting electrocardiogram with interpretation.

Correct ECGSinus rhythm and its disturbancesAtrioventricular conduction: PQ shortening, PQ prolonging.Second and third degree atrioventricular blockIntraventricular conduction disordersSupraventricular and ventricular arrhythmias.Changes in ECG related to ischemia and necrosis.Features of ventricular hypertrophy in the ECG image* Administration of drugs by intravenous, intramuscular, subcutaneous routes, peripheral venous cannulation, blood culture collection, arterial blood collection, arterialized capillary blood collection.

Puncture of the pericardial sac.Performing electrical cardioversion and cardiac defibrillation.Recognition of imminent threat to life.Identifying patient agony and confirming his death**Sem. V Practical classes*** Interview and physical examination of the circulatory system
* Interview and physical examination of the respiratory system
* Interview and physical examination of the digestive system
* Interview and physical examination of the nervous system
* Differential diagnosis of dyspnea and edema
* Acute Coronary Syndrome - NSTEMI
* Acute Coronary Syndrome - STEMI
* Left ventricular heart failure
* Right ventricular heart failure

**Sem. VI Lectures*** Stable ischemic heart disease (3h)
* Acute Coronary Syndromes (3h)
* Congenital and acquired heart defects (4h)
* Chronic heart failure (2h)
* Primary and secondary hypertension (3h)

**Sem. VI Classes*** Acquired heart valve disease
* Congenital heart defects
* Dyslipidemias including familial hypercholesterolaemia
* Primary and secondary hypertension
* Atrial fibrillation
* Pulmonary embolism
* Infective endocarditis and pericarditis. Myocarditis.
* Pulmonary hypertension
* Hypertrophic cardiomyopathy
* Indications for implantation of pacing systems and CRT / ICD in primary and secondary prevention

**Sem. VI Practical classes*** Prevention of cardiovascular diseases in practice
* Diabetes mellitus in cardiac patients - treatment principles
* Cardiological diseases in pregnant women
* Principles of antiplatelet and anticoagulant therapy, including comorbidities
* Indications for coronary revascularization in stable coronary syndromes
* Management of supraventricular tachycardia
* Occlusive atherosclerosis of the arteries of the lower extremities - diagnosis and treatment
* Syncope diagnosis

**IVth year****Sem. VII Lectures*** **Respiratory system diseases**. Chronic obstructive pulmonary diseases, Asthma, Cystic Fibrosis, Respiratory tract infections, Interstitial lung disease, Diseases of the pleura and mediastinum, Sleep apnea, Respiratory failure, Respiratory tract neoplasm. Nicotine addiction.
* **Diseases of kidneys and urinary tract**: Urinary Tract infections, Acute Kidney Injury AKI, Chronic Kidney Disease CKD, Glomerulopathies, Tubulointerstitial nephritides, Polycystic kidney disease, Renal calculus, Uurinary Tract neoplasms, Renal and urinary cancer.
* **Hematologic diseases**. Aplastic Anemia, Anemias, Neutropenia, Thrombocytopenia, Agranulocytosis, Leukemias, Hodgkin’s disease, Non-Hodgkin’s lymphoma, Life-threatening condition.

**Sem. VII Classes*** Techniques of medical history taking.
* Physical examination focused on respiratory system, kidneys and urinary tract, Hematologic diseases.
* Patient clinical status.
* Diagnostic plan, treatment and prophylaxis.
* Implementation of oxygen therapy.
* Thoracentesis procedure.
* Planning medical consultations.
* Urinary catheterization in male and female.
* Blood Transfusions procedure.

**Sem. VII Practical classes*** Respiration Rate, Body Temperature, Heart Rate, Blood Pressure measurement.
* Cardiac monitoring. Pulse oximetry monitoring.
* Techniques of oropharyngeal airway insert.
* Administer a drugs via subcutaneous injection, intravenous injection, intramuscular injection. Collection of blood samples.
* Collection of nasopharyngeal specimens with the swab technique.
* Compile medical documentation.

**Sem. VIII Lectures*** **Disturbances in electrolytes balance**. Acid-base disturbances. Overhydration. Dehydration. Acidosis. Alkalosis.
* **Endocrine diseases**: hypothalamus, pituitary gland, thyroid gland parathyroid glands adrenal glands (of cortex and medulla), ovaries, testes, neuroendocrine tumors, hypoglycemia, secondary obesity and electrolyte homeostasis. Metabolic syndrome.

**Sem. VIII Classes***Using the knowledge and skills in the field of internal medicine obtained in previous semesters during clinical exercises.** Performing a targeted physical examination in relation to diseases of the digestive system and water-electrolyte and acid-base disorders, to diseases of the endocrine system
* Performing differential diagnosis
* Assessing and describing the somatic state of known disease entities
* Planning diagnostic, therapeutic and prophylactic procedures
* Planning diagnostic, therapeutic and prophylactic procedures
* Proposing nutritional treatment (including enteral and parenteral nutrition)

**Sem. VIII Practical classes*** Blood glucose monitoring. Measurement techniques.
* Gastric lavage procedure.
* Paracentesis procedure. Fine-needle aspiration biopsy.

**Vth year****Sem. X Lectures*** **Rheumatic diseases**. Systemic conditions and connective tissue diseases, Inflammatory arthropathies, Osteoarthritis, Osteoporosis, Gout.
* **Allergic Diseases**. Anaphylaxis, Angioedema.
* **Gastrointestinal diseases**. Esophagus, stomach, small intestine, large intestine and rectum. Liver, gallbladder, and pancreas.

**Sem. X Classes**Using the knowledge and skills in the field of internal medicine obtained in previous semesters during clinical exercises.* Techniques of medical history taking.
* The clinical examination of the rheumatic and allergic disease patient.
* Performing differential diagnosis
* Patient clinical status.
* Diagnostic plan, treatment and prophylaxis.
* Qualification for home or hospital treatment.
* Planning medical consultations.
* Proposing individual therapeutic solutions and implementing other methods of treatment in the case of ineffectiveness or contraindications to standard therapy

**Sem. X Practical classes*** assists in the performance of epidermal tests, intradermal and scarification tests and interprets their results
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* 1. **Education outcomes in the discipline**

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| **Code** | **A student, who passed the course** | **Relation to teaching****outcomes** |
| within the scope of **knowledge**, the graduate knows and understands: |
| W01 | environmental and epidemiological conditions for the most common diseases; | E.W1. |
| W02 | the causes, symptoms, principles of diagnosis and therapeutic management in relation to the most frequent internal diseases occurring in adults and their complications: 1) cardiovascular diseases, including coronary heart disease, heart defects, endocarditis, myocarditis, pericarditis, heart failure (acute and chronic), arterial and venous diseases, primary and secondary hypertension, pulmonary hypertension,2) respiratory diseases, including diseases of the respiratory tract, chronic obstructive pulmonary disease, bronchial asthma, bronchiectasis, cystic fibrosis, respiratory infections, interstitial lung disease, pleura, mediastinum, obstructive and central sleep apnea, respiratory failure (acute and chronic), respiratory cancers, 3) gastrointestinal diseases, including diseases of oral cavity, esophagus, stomach and duodenum, intestine, pancreas, liver, biliary tract and gall bladder,4) endocrine diseases, including diseases of the hypothalamus and pituitary, thyroid, parathyroid, cortex and adrenal medulla, ovaries and testes as well as neuroendocrine tumors polyglandular syndromes, different types of diabetes and metabolic syndrome: hypoglycemia, obesity, dyslipidemia,5), diseases of kidney and urinary tract, including acute and chronic renal failure, renal glomeruli diseases, cystic kidney disease, kidney stones, urinary tract infections, urinary tract tumor, particularly bladder cancer and kidney cancer,6) hematological diseases, including bone marrow aplasia, anemia, neutropenia and agranulocytosis, thrombocytopenia, acute leukemia, myeloproliferative neoplasms and myelodysplastic –myeloproliferative disorders, myelodysplastic syndromes, cancer of mature B and T lymphocytes, bleeding disorders, thrombophilia, states of a direct threat to life in hematology, blood disorders, diseases of other organs,7) rheumatic diseases, including systemic connective tissue disease, systemic vasculitis, inflammation of joints involving the spine, metabolic bone diseases, especially osteoporosis and degenerative diseases of the joints, gout,8) allergic diseases, including: anaphylaxis and anaphylactic shock and angioedema,9) water-electrolyte abnormalities and acid-base disorders: states of dehydration or fluid overload, electrolyte disorders, acidosis and alkalosis, | E.W7. |
| within the scope of **ABILITIES**, the graduate knows how to: |
| U01 | conduct a review of medical history of the adult patient; | E.U1. |
| U02 | conduct full and targeted physical examination of the adult patient | E.U3. |
| U03 | assess patient’s general condition, consciousness and ife styl; | E.U7. |
| U04 | perform differential diagnosis of the most common diseases in adults and children; | E.U12. |
| U05 | assess and describe the somatic and mental state of patients; | E.U13. |
| U06 | recognize states of a direct threat to life; | E.U14. |
| U07 | recognize when a patient is under the influence of alcohol, drugs and other addictive products; | E.U15. |
| U08 | plan diagnostic, therapeutic and preventive procedures; | E.U16. |
| U09 | conduct analysis of the potential side effects of each drug and the interaction between them; | E.U17. |
| U10 | qualify the patient for home treatment and hospitalization; | E.U20. |
| U11 | recognize states in which functional status of the patient’s or his/her preferences restrict the treatment in accordance with specific guidelines for the disease; | E.U21. |
| U12 | interpret laboratory test results and identify the reasons for deviations;  | E.U24. |
| U13 | apply dietary treatment with the consideration of enteral and parenteral feeding;  | E.U25. |
| U14 | qualify the patient for vaccination; | E.U27. |
| U15 | collect and secure samples of material used in laboratory diagnostics; | E.U28. |
| U16 | perform basic medical procedures and treatments, including:1) measurement of body temperature, pulse measurement, non-invasive blood pressure measurement, 2) monitoring of vital signs using a cardio-monitor or pulse oximetry, 3) spirometry, oxygen therapy, assisted and control mode ventilation 4) introduction of the oropharyngeal tube, 5) intravenous injection , intramuscular and subcutaneous injections, cannulation of peripheral veins, collection of peripheral venous blood, collection of arterial blood, collection arterialized capillary blood,6) collecting swabs from the nose, throat and skin, puncture of pleural cavity, 7) catheterization of the urinary bladder in women and me, nasogastric intubation, gastric lavage, enema, 8) standard electrocardiogram along with its interpretation, cardioversion and defibrillation of the heart, 9) simple test strips and measuring the concentration of glucose in the blood; | E.U29. |
| U17 | assist when the following procedures and medical treatments are performed: 1) transfusions of blood and blood products,2) drainage of the pleural cavity, 3) puncture of the pericardium, 4) puncture of the peritoneal cavity, 5) lumbar puncture, 6) needle biopsy, 7) epidermal tests, 8) intradermal and scarification tests and interpret their results; | E.U30. |
| U18 | plan specialist consultations;  | E.U32. |
| U19 | implement the basic therapeutic procedure in acute poisoning;  | E.U33. |
| U20 | monitor the status of a patient poisoned by chemical substances or drugs; | E.U34. |
| U21 | evaluate decubitus and apply appropriate dressings | E.U35. |
| U22 | recognize the agony of the patient and pronounces him/her dead; | E.U37. |
| U23 | keep medical records of the patient | E.U38. |
| U24 | comply with the aseptic and antiseptic rules; | F.U3. |
| U25 | use peripheral venous catheter; | F.U5. |
|  | within the scope of **SOCIAL COMPETENCE**, the graduate is able to: |  |
| K01 | establish and maintain deep and respectful contact with the patient and show understanding towards ideological and cultural differences;  | H.S1 |
| K02 | do what is right for the patient; | H.S2 |
| K03 | respect medical confidentiality and patient’s rights; | H.S3 |
| K04 | take actions concerning the patient on the basis of ethical principles, being aware of social conditions and restrictions resulting from illness; | H.S4 |
| K05 | recognize his/her own limitations and self-evaluate educational deficiencies and needs; | H.S5 |
| K06 | ife st ife s ife style; | H.S6 |
| K07 | use reliable information sources; | H.S7 |
| K08 | conclude on the basis of own surveys and observations; | H.S8 |
| K09 | introduce rules of social conduct and teamwork to the group of specialists, including specialists form other medical professions also in the multicultural and multinational environment; | H.S9 |
| K10 | give opinions concerning various aspects of professional activity; | H.S10 |
| K11 | take responsibility for own decisions made during professional activities including own safety and safety of other people; | H.S11 |

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| * 1. **Methods of assessment of the intended teaching outcomes**
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| **Teaching** **outcomes*****(code)*** | **Method of assessment (+/-)** |
| **Exam oral/written\*** | **Test\*** | **Project\*** | **Effort** **in class\*** | **Self-study\*** | **Group work\***  | **Others\*****Observation** |
| ***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 | + | + |  |  | + |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| U01 |  | ***+*** |  |  | ***+*** |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U02 |  | ***+*** |  |  | ***+*** |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U03 |  | ***+*** |  |  | ***+*** |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U04 |  | ***+*** |  |  | ***+*** |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U05 |  | ***+*** |  |  | ***+*** |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U06 |  | ***+*** |  |  | ***+*** |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U07 |  | ***+*** |  |  | ***+*** |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U08 |  | ***+*** |  |  | ***+*** |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U09 |  | ***+*** |  |  | ***+*** |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U10 |  | ***+*** |  |  | ***+*** |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U11 |  | ***+*** |  |  | ***+*** |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U12 |  | ***+*** |  |  | ***+*** |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U13 |  | ***+*** |  |  | ***+*** |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U14 |  | ***+*** |  |  | ***+*** |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U15 |  | ***+*** |  |  |  |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U16 |  | ***+*** |  |  |  |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U17 |  | ***+*** |  |  |  |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U18 |  | ***+*** |  |  |  |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U19 |  | ***+*** |  |  |  |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U20 |  | ***+*** |  |  |  |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U21 |  | ***+*** |  |  |  |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U22 |  | ***+*** |  |  |  |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U23 |  | ***+*** |  |  |  |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U24 |  | ***+*** |  |  |  |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| U25 |  | ***+*** |  |  |  |  |  |  |  |  | ***+*** |  |  |  |  |  |  |  |  |  |  |
| K01-K11 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ***+*** | ***+*** |  |

***\*delete as appropriate***

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| * 1. **Criteria of assessment of the intended teaching outcomes**
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| **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% correct answers |
| **classes (C)\*** | **3** | 61%-68% Carring out the targeted interview independently. During physical examination requires requires a teacher’s support.Imprecise description of the somatic state. Independent solution of the basic diagnostic and therapeutic tasks. During the performance of practical skills needs to be supported by a teacher.Presents correct ethical posture in the relationship with the patient. Has difficulties in relations with the therapeutic team.Decisions confirming little knowledge of legal regulations. |
| **3,5** | 69%- 76% Carring out the targeted interview independently. During physical examination requires requires a little teacher’s support.Precise description of the somatic state. Independent solution of the basic diagnostic and therapeutic tasks. Differentiation of the basic clinical units. During the performance of practical skills needs to be supported by a teacher.Presents correct ethical posture in the relationship with the patient. Has difficulties in relations with the therapeutic team.Decisions confirming little knowledge of legal regulations. |
| **4** | 77%-84% Carring out the targeted interview and physical examination independently. Precise description of the somatic state. Independent solution of the basic diagnostic and therapeutic tasks. Differentiation of the basic clinical unitsIndependent performance of practical skills.Presents correct ethical posture in the relationship with the patient and the therapeutic team.Decisions confirming little knowledge of legal regulations |
| **4,5** | 85%- 92%Carring out the targeted interview and physical examination independently. Precise description of the somatic state. Independent solution of the basic and complex diagnostic and therapeutic tasks. Differentiation of the basic clinical units.Independent performance of practical skills.Presents correct ethical posture in the relationship with the patient and the therapeutic team.Decisions confirming knowledge of legal regulations. |
| **5** | 93%-100% Carring out the targeted interview and physical examination independently. Precise description of the somatic state. Independent solution of the complex and difficult diagnostic and therapeutic tasks. Differentiation of the clinical units.Independent performance of practical skills.Presents faultless ethical posture in the relationship with the patient and the therapeutic team.Decisions confirming knowledge of legal regulations. |
| **Practical classes\*** | **3** | 61%-68% Ability to perform basic diagnostic and therapeutic tests. Knowledge of antiseptic rules. Patient vital status monitoring. Assisting physicians with medical procedures within the core curriculum of internal medicine.  |
| **3,5** | 69%- 76% Ability to perform basic diagnostic and therapeutic tests. Knowledge of antiseptic rules. Patient vital status monitoring. Assisting physicians with medical procedures within the core curriculum of internal medicine. |
| **4** | 77%-84% Ability to perform basic diagnostic and therapeutic tests. Knowledge of antiseptic rules. Patient vital status monitoring. Assisting physicians with medical procedures within the core curriculum of internal medicine. |
| **4,5** | 85%- 92%Ability to perform basic diagnostic and therapeutic tests. Knowledge of antiseptic rules. Patient vital status monitoring. Assisting physicians with medical procedures within the core curriculum of internal medicine. |
| **5** | 93%-100% Ability to perform basic diagnostic and therapeutic tests. Knowledge of antiseptic rules. Patient vital status monitoring. Assisting physicians with medical procedures within the core curriculum of internal medicine. |

* [**Thresholds**](https://pl.bab.la/slownik/angielski-polski/thresholds) **are valid from 2018/ 2019 academic year**
1. **BALANCE OF ECTS CREDITS – STUDENT’S WORK INPUT**

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| **Category** | **Student's workload** |
| **Full-time****studies** |
| *NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT HOURS/* | **235** |
| *Participation in lectures\** | **69** |
| *Participation in classes, seminars, laboratories\** | **160** |
| *Preparation in the exam/ final test\** |  |
| *Others\** | **11**1 |
| *INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/* | **90** |
| *Preparation for the lecture\** | **60** |
| *Preparation for the classes, seminars, laboratories\** | **30** |
| *Preparation for the exam/test\** |  |
| *Gathering materials for the project/Internet query\** |  |
| *Preparation of multimedia presentation* |  |
| *Others\** |  |
| *TOTAL NUMBER OF HOURS* | **325** |
| ECTS credits for the course of study | **13** |

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

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1 e-learning (without participation of the lecturer)