Successful introduction and assessment of innovation in Medicine

1. IMPRINT

Academic Year	2025/2026
Department	Faculty of Medicine
Field of study	Medicine
Main scientific discipline	Medical sciences
Study Profile	General academic
Level of studies	Uniform MSc
Form of studies	Full time studies
Type of module / course	Non-compulsory (optional)
Form of verification of learning outcomes	Completion
Educational Unit / Educational Units	Department of Medical Informatics and Telemedicine 00-581 Warsaw, 14/16 Litewska St., room 317, III floor phone (+48) 22 116 92 44, (+48) 22 116 92 43 http://zimit.wum.edu.pl/ e-mail: zimt@wum.edu.pl
Head of Educational Unit / Heads of Educational Units	**Dr hab. n. med. Andrzej Cacko**
Course coordinator	**Lek. Jakub Rokicki** e-mail: jakub.rokicki@wum.edu.pl
Person responsible for syllabus	**Lek. Jakub Rokicki** e-mail: jakub.rokicki@wum.edu.pl
Teachers	**Lek. Jakub Rokicki** e-mail: jakub.rokicki@wum.edu.pl

2. BASIC INFORMATION

Year and semester of studies	I-II year, summer, and winter semester	**Number of ECTS credits**	2.00

FORMS OF CLASSES **Contacting hours with academic teacher**	**Number of hours**	**ECTS credits calculation**
Lecture (L)		
Seminar (S)	30 (e-learning)	1.20
Classes (C)		
e-learning (e-L)		
Practical classes (PC)		
Work placement (WP)		
Unassisted student's work		
Preparation for classes and completions	20	0.80

3. COURSE OBJECTIVES

O1	Understand and analyze the medical innovation process
O2	Apply evaluation tools and frameworks to assess innovations
O3	Critically evaluate case studies and propose solutions to barriers

4. STANDARDS OF LEARNING – DETAILED DESCRIPTION OF EFFECTS OF LEARNING

Code and number of the effect of learning in accordance with standards of learning	**Effects in the field of:** *(in accordance with appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023)*
Knowledge – Graduate* knows and understands:	
D.W15	the concept of humanism in medicine and the main concepts, theories and ethical principles that serve as a general framework for properly interpreting and analysing moral-medical issues
D.W18	**.** history of medicine, features of modern medicine and the most important discoveries and achievements of the leading representatives of Polish and world medicine
G.W4	the concept and functions of public health, the concept, tasks and methods of health promotion, the concept of quality in health care and factors influencing it, the structure and organization of the health care system at the national and global level, as well as the impact of economic conditions on health care opportunities;
G.W5	legal regulations regarding patients' rights and the Patient Ombudsman, as well as legal regulations relevant to medical activities in the field of labor law, the basics of practicing the medical profession and the functioning of the medical self-government

G.W6	legal regulations regarding the organization and financing of the health care system, the provision of health services financed from public funds and the principles of organizing healthcare entities, the principles of operation of information and communication tools and services in health care (e-health);
Skills– Graduate* is able to:	
E.U30	apply the principles of providing feedback (constructive, non-judgmental, descriptive) as part of team cooperation
E.U31	accept, explain and analyze your own role and responsibilities in the team and recognize your role as a doctor in the team
E.U32	obtain information from team members, respecting their diverse opinions and specialized competences, and take this information into account in the patient's diagnostic and therapeutic plan
E.U33	discuss the patient's situation within the team, excluding subjective assessments, respecting the patient's dignity
E.U34	use the following protocols (e.g. when transferring patient care, requesting or providing patient consultation): 1) ATMIST (A (Age), T (Time of injury), M (Mechanism of injury), I (Injury suspected), S (Symptoms/Signs) , T (Treatment/Time – treatment and arrival time)); RSVP/ISBAR (R (Reason), S (Story), V (Vital signs), P (Plan)/I (Introduction), S (Situation), B (Background), A (Assessment), R (Recommendation).
G.U5	explain to people using health services their basic rights and the legal basis for providing these services
G.U6	issue medical certificates and medical opinions, prepare opinions for the patient, authorized bodies and entities, prepare and maintain medical records (in electronic and paper form) and use information and communication tools and services in health care (e-health);

** In appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023 „graduate", not student is mentioned.*

5. ADDITIONAL EFFECTS OF LEARNING *(non-compulsory)*

Number of effect of learning	**Effects in the fields of:**
Knowledge – Graduate knows and understands:	
K1	The stages of the medical innovation process, from identifying healthcare needs to evaluating outcomes.
K2	Types of success indicators (KPIs, ROI, benchmarking) and evaluation methods (quantitative, qualitative, mixed)
K3	Common barriers to implementing innovations in healthcare (financial, organizational, regulatory, technological, adoption-related) and evidence-based strategies to overcome them
Skills– Graduate is able to:	
S1	Analyze a healthcare problem and formulate a justified innovation need statement.
S2	Select and apply appropriate evaluation tools and metrics to assess the effectiveness and sustainability of a medical innovation.
S3	Critically examine case studies of healthcare innovations and propose practical solutions or improvements.
Social Competencies – Graduate is ready for:	

SC1	Collaborate effectively in interdisciplinary teams (clinicians, engineers, IT specialists, business experts) to plan and evaluate innovations.
SC2	Recognize the importance of stakeholder engagement (patients, providers, regulators, policymakers) in the innovation process and advocate for inclusive collaboration.
SC3	Demonstrate openness to change and a proactive attitude toward introducing and supporting innovations that improve patient care and healthcare system efficiency.

6. CLASSES

Form of class	Class contents	Effects of Learning
Seminar	Introduction to Medical Innovation	D.W18, G.W4, G.W6, G.W5, D.W15
	Identifying Healthcare Needs and Gaps	G.W4, G.W6, G.W5, E.U31, E.U32
	Market Analysis and Existing Solutions	G.W4, G.W6, G.W5, D.W18
	Resources and Team Competencies	E.U31, E.U32, E.U30, E.U33, E.U34, G.U6
	Service Delivery Models and Business Strategy	G.W6, G.W4, G.W5, G.U6
	Project Management and Stakeholder Engagement	E.U30, E.U31, E.U32, E.U33, E.U34, G.U5
	Success Metrics – KPIs and ROI	G.W4, G.W6
	Evaluation Methods – Quantitative, Qualitative, Mixed	G.W4, G.W6, G.U6
	Tools for Data Analysis and Best Practices	G.U6, G.W6
	Telemonitoring of Implantable Devices	G.W6, G.U6, E.U32, E.U34, G.W5
	Telemedicine Service Implementation	G.W6, G.U6, G.W5, E.U31, E.U32, E.U34, D.W15
	Common Challenges and Barriers in Medical Innovation	G.W4, G.W6, G.W5, D.W15, E.U30, E.U31, E.U32, E.U33, E.U34
	Strategies to Overcome Obstacles	E.U30, E.U31, E.U32, E.U33, E.U34, G.W6, G.W5, G.U6, D.W15
	Emerging Trends and Future Directions	D.W18, G.W4, G.W6, D.W15
	Conclusion and Course Integration	E.U30, E.U31, E.U32, E.U33, E.U34, G.U6, G.U5, D.W18

7. LITERATURE

Obligatory

1. Presentation and materials provided during the classes
2. L.R. Burns The Business of Healthcare Innovation (3rd edition). Cambridge University Press 2020

Supplementary

Yen-Wei Chen, Satoshi Tanaka, Robert J. Howlett, Lakhmi C. Jain Innovation in Medicine and Healthcare: Proceedings of 12th KES-InMed 2024 Springer Nature

8. VERIFYING THE EFFECT OF LEARNING

Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
D.W15, D.W18, G.W4, G.W5, G.W6, E.U30, E.U31, E.U32, E.U33, E.U34, G.U5, G.U6 K1, K2, K3	Watching seminars with subsequent solving tasks and tests provided during the classes	*80% points*
D.W15, D.W18, G.W4, G.W5, G.W6, E.U30, E.U31, E.U32, E.U33, E.U34, G.U5, G.U6 S1, S2, S3	Asessments of tasks and tests provided during the course	Providing responses on time
SC1, SC2, SC3	Individual marking of the participants	Attendance

9. ADDITIONAL INFORMATION

1. Classes are held as e-classes (use of distance learning techniques).
2. materials are published on the platform www.e-learning.wum.edu.pl. I kindly ask each student to check before class if they can log on to the WUM Platform. In case of problems, please contact the person responsible for the course: Jakub Rokicki (jakub.rokicki@wum.edu.pl).
3. After this date, the student will have access to the course: " Successful introduction and assessment of innovation in Medicine 2025/2026". After accessing the course, the student is required to read the detailed information in the course. Watching all seminars is mandatory to proceed to tests.
4 The course should be started within 4 weeks of the opening of the course. Completion of the last assignments in the course should take place no later than the end date of the course, i.e. 25.01.2026.
5. closing date of the course: 25.01.2026.
6. continuous contact with the tutor via e-mail is possible during the course: Jakub Rokicki (jakub.rokicki@wum.edu.pl).
7. At the Department there is a Students' Club MedIT which associates students willing to improve their knowledge about medical informatics, artificial intelligence and using advanced omputer methods in Medicine. Shall you be interested in it please contact the tutor: Jakub Rokicki, Jakub.rokicki@wum.edu.pl

ATTENTION

The final 10 minutes of the last class of the block/semester/year should be allotted for students to fill out the Survey of Evaluation of Classes and Academic Teachers