



Successful introduction and assessment of innovation in Medicine

Skuteczne wdrażanie i ocena innowacji w medycynie

1. IMPRINT

Academic Year	2026/2027
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	Zakład Informatyki Medycznej i Telemedycyny ul. Litewska 14/16, 00-581 Warszawa, pokój 317, III piętro tel. (+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 jakub.rokicki@wum.edu.pl
Person responsible for syllabus	Lek. Jakub Rokicki jakub.rokicki@wum.edu.pl
Teachers	Lek. Jakub Rokicki jakub.rokicki@wum.edu.pl

2. BASIC INFORMATION

Year and semester of studies	IV-V year, winter & summer semester		Number of ECTS credits	2.00
FORMS OF CLASSES		Number of hours	ECTS credits calculation	
Contacting hours with academic teacher				
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	

1. 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

2. 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: <i>(in accordance with appendix to the Regulation of Minister of Science and Higher education from 26th of July 2019)</i>
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Knowledge – Graduate* knows and understands:

D.W8	how healthcare institutions operate and the social role of physicians
D.W18	rules of teamwork;
D.W21	modern medicine and its most important discoveries;

D.W22	process of the development of new medical disciplines, as well as the achievements of the leading representatives of Polish and world medicine;
G.W4	term of public health, its purposes, objectives, as well as the structure and organisation of the healthcare system at the national and global levels, as well as the influence of economic conditions on healthcare availability;
G.W5	legal regulations relating to granting healthcare benefits, patient rights, the basics of the profession of a physician and functioning of the medical self-government;
G.W6	basic regulations concerning the organisation and financing of the healthcare system, the general health insurance and the rules of organisation of healthcare entity enterprises;

Skills– Graduate* is able to:

G.U1	basic regulations concerning the organisation and financing of the healthcare system, the general health insurance and the rules of organisation of healthcare entity enterprises;
G.U5	explain to healthcare users their basic entitlements and the legal basis of providing services;

* In appendix to the Regulation of Minister of Science and Higher education from 26th of July 2019 „graduate”, not student is mentioned.

3. ADDITIONAL EFFECTS OF LEARNING (non-compulsory)

Number of effect of learning	Effects in the fields of:
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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.

4. CLASSES

Form of class	Class contents	Effects of Learning
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Seminar	Introduction to Medical Innovation	D.W8, D.W22
	Identifying Healthcare Needs and Gaps	G.W4, G.U1
	Market Analysis and Existing Solutions	G.W4
	Resources and Team Competencies	D.W18
	Service Delivery Models and Business Strategy	G.W4, G.W6
	Project Management and Stakeholder Engagement	D.W8, D.W18, G.W5, G.U5
	Success Metrics – KPIs and ROI	G.W6
	Evaluation Methods – Quantitative, Qualitative, Mixed	G.U1
	Tools for Data Analysis and Best Practices	D.W18
	Telemonitoring of Implantable Devices	D.W21, G.W5, G.U5
	Telemedicine Service Implementation	D.W21, G.W5, G.U5
	Common Challenges and Barriers in Medical Innovation	D.W8, G.W6
	Strategies to Overcome Obstacles	D.W18
	Emerging Trends and Future Directions	D.W21, D.W22, G.U1
	Conclusion and Course Integration	D.W22

5. 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

6. VERIFYING THE EFFECT OF LEARNING

Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
K1, K2, K3	Watching seminars with subsequent solving tasks and tests provided during the classes	80% points
S1, S2, S3	Assessments of tasks and tests provided during the course	Providing responses on time
SC1, SC2, SC3	Individual marking of the participants	Attendance

7. ADDITIONAL INFORMATION

1. Classes are held as e-classes: an asynchronous online e-learning course on the WUM e-learning platform (use of distance learning techniques).
2. Materials are published on the platform www.e-learning.wum.edu.pl. Each student is asked to check before the course whether 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. The course is delivered in the summer semester of the academic year 2026/2027. After the course is opened, the student will have access to the course: "Successful introduction and assessment of innovation in Medicine 2026/2027". 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. 31.01.2027 (winter) and 13.06.2027 (spring).
5. Closing date of the course: 31.01.2027 winter, 13.06.2027 spring semester.
6. Maximum number of students: 60. Minimum number of students required to run the course: 20.
7. Continuous contact with the tutor via e-mail is possible during the course: Jakub Rokicki (jakub.rokicki@wum.edu.pl).
8. 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 computer methods in medicine. If you are interested, please contact the tutor: Jakub Rokicki (jakub.rokicki@wum.edu.pl).

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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