SYLLABUS

Concerning the cycle of education **2024-2030**
Academic year 2025/2026

1. BASIC INFORMATION CONCERNING THIS SUBJECT

Subject	**Images in medicine, telemedicine and beyond**
Course code *	**L/M**
Faculty of (name of the leading direction)	**Faculty of Medicine, University of Rzeszow**
Department Name	**Department of Photomedicine and Physical Chemistry**
Field of study	**Medicine**
level of education	**Uniform master studies**
Profile	**General academic**
Form of study	**Stationary / non-stationary**
Year and semester	**Year II, semester III**
Type of course	**Facultative**
Language	**English**
Coordinator	**Assoc. Prof. David Aebisher, University of Rzeszów**
First and Last Name of the Teachers	**Assoc. Prof. David Aebisher, University of Rzeszów**

** - According to the resolutions of Educational Unit*

1.1. Forms of classes, number of hours and ECTS

Semester No.	Lecture	Exercise	Conversation	Laboratory	Seminar	Praktical	Other	**Number of points ECTS**
III					**25**			**1**

1.2. The form of class activities

X CLASSES are in the traditional form
classes are implemented using methods and techniques of distance learning

SEMINARS- HYBRID FORM, ON LINE

1.3 Examination Forms (exam, **credit with grade** or credit without grade)

2.BASIC REQUIREMENTS

PHYSICS
CHEMISTRY
BIOLOGY
SKILLS TO RECOGNIZE BASIC COMPUTER PROGRAMS

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

3.1 Objectives of this course

C1	Introduce students to aspects of graphics, computer graphics accessible anywhere with a connected laptop, imaging, and the use of image in medical practice considering basic physics, tissue interactions, diagnostics and therapeutics, and therapeutic guidelines.
C2	Provide students with the technical basics of medical imaging systems and telemedicine, Unlimited access and scans for all users, associated instruments, modes of laser light delivery, and endoscopy
C3	Provide students with an introduction to application of telemedicine, virtual scanning close to the real images, and diagnostics, and disease treatment in medical sub-disciplines including: ophthalmology, dermatology, cardiovascular disease, urology, otorhinolaryngology, neurology, dentistry, and oncology

3.2 OUTCOMES FOR THE COURSE

EK (the effect of education)	The content of learning outcomes defined for the class (module)	Reference to directional effects [1]
EK_01	KNOWS THE POSSIBILITIES OF MODERN TELEMEDICINE AS A TOOL TO SUPPORT THE WORK OF A DOCTOR	**B. W33**
EK_02	USES DATABASES, INCLUDING WEBSITES, AND SEARCHES FOR THE NECESSARY INFORMATION USING THE AVAILABLE TOOLS	**B. U11**
EK-03	SELECTS THE APPROPRIATE STATISTICAL TEST, CONDUCTS BASIC STATISTICAL ANALYZES AND USES APPROPRIATE METHODS OF PRESENTING THE RESULTS; INTERPRETS THE RESULTS OF THE META-ANALYSIS, AND ALSO ANALYZES THE LIKELIHOOD OF SURVIVAL	**B.U12**

[1]In the case of a path of education leading to obtaining teaching qualifications, also take into account the learning outcomes of the standards of education preparing for the teaching profession.

3.3 CONTENT CURRICULUM

A. Problems of the lecture

B. Problems of auditorium, seminar, laboratory and practical classes

C.

Course contents	Hours
1. Virtual imaging, art and medicine, virtual scanning close to the real	5h
2. Understanding the possibilities of modern telemedicine	5h
3. Understanding information about patient base on image (picture, MRI, Xray, CT, USG)	5h
4. Making images and associated laboratory equipment	5h
5. Current Virtual medicine	5h
6. Basic physics of telemedicine	2,5h
7. Current devices of telemedicine used in practice	2,5h

3.4 Didactic methods

Seminar

multimedia presentation, distance learning methods

image analysis with discussion, project method (research, implementation, practical project), group work (task solving, discussion), didactic games, distance learning methods

4. METHODS AND EVALUATION CRITERIA

4.1 Methods of verification of learning outcomes

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	LECTURES - FINAL WRITTEN TEST SEMINARS - FINAL CREDIT WITH AN ASSESSMENT INCLUDING: STUDENT'S SKILLS, ATTENDANCE AND ASSESSMENT OF THE ABILITY TO WORK ON A COMPUTER	**SEMINARS**
EK_ 02	LECTURES - FINAL WRITTEN TEST SEMINARS - FINAL CREDIT WITH AN ASSESSMENT INCLUDING: STUDENT'S SKILLS, ATTENDANCE AND ASSESSMENT OF THE ABILITY TO WORK ON A COMPUTER	**SEMINARS**
EK_03	LECTURES - FINAL WRITTEN TEST SEMINARS - FINAL CREDIT WITH AN ASSESSMENT INCLUDING: STUDENT'S SKILLS, ATTENDANCE AND ASSESSMENT OF THE ABILITY TO WORK ON A COMPUTER	**SEMINARS**

4.2 Conditions for completing the course (evaluation criteria)

Seminars - final credit with an assessment of the ability to work on a computer, presentation, written test

5.0 - has knowledge of each of the contents of education at the level of 90% -100%

4.5 - has knowledge of each of the content of education at the level of 84% -89%

4.0 - has knowledge of each of the content of education at the level of 77% -83%

3.5 - has knowledge of each of the content of education at the level of 70% -76%

3.0 - has knowledge of each of the content of education at the level of 60% -69%

2.0 - has knowledge of each of the contents of education below 60%.

Skill assessment

5.0 - the student actively participates in classes, recognizes and knows how to properly call computer programs. Skillfully uses basic information techniques,

4.5 - the student actively participates in classes, with little help from the teacher he recognizes and is able to correctly name computer programs. He uses basic information techniques well

4.0 - the student actively participates in classes, with minor corrections of the teacher, committing minor mistakes in recognizing computer programs. He uses the information techniques well.

3.5 - the student participates in classes, with numerous corrections and teacher's instructions recognizes and is able to correctly name computer programs, often making mistakes while using information techniques

3.0 - the student participates in classes, with very many corrections and teacher's instructions recognizes and is able to correctly name computer programs, very often making mistakes when using information techniques 2.0 - the student passively participates in classes, commits blatant mistakes in recognizing and correct naming of computer programs, misusing information techniques

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

Activity	**The average number of hours to complete the activity**
Contact hours (with the teacher) resulting from the study schedule of classes	30
Contact hours (with the teacher) participation in the consultations, exams	30
Non-contact hours - student's own work (preparation for classes, exam, writing a paper, etc.)	
SUM OF HOURS	30
TOTAL NUMBER OF ECTS	1

** It should be taken into account that 1 ECTS point corresponds to 25-30 hours of total student workload.*

6. TRAINING PRACTICES IN THE SUBJECT

NUMBER OF HOURS	-
RULES AND FORMS OF APPRENTICESHIP	-

7. LITERATURE

1. **Basic literature**: **THE SCIENCE OF IMAGING (TEACHER PROVIDES CURRENT MATERIALS BASE ON DATA BASE)** **AN INTRODUCTION TO TELEMEDICINE (TEACHER PROVIDES CURRENT MATERIALS BASE ON DATA BASE)**
Additional literature: virtual platform with programming

Acceptance Unit Manager or authorized person