

### Course Curriculum: Medical Physics and Biophysics (2019/20)

Subject	Lecturer	Location	Literature
<b>Part 1: Physics of diagnostic imaging</b>			
L1/2: Introduction. Basics of nuclear physics	Raguž	MEFMO	Web
L2/2: Radiation and matter	Raguž	MEFMO	Web
L3/2: Physical basis of nuclear medicine	Raguž	MEFMO	Web
S1/2: Recapitulation seminar I: L1 – L3	Raguž	MEFMO	Web
L4/2: Physics of diagnostic radiology	Raguž	MEFMO	Web
L5/1: Physics of MR imaging	Raguž	MEFMO	Web
L6/1: Ultrasound physics	Raguž	MEFMO	Web
S2/2: Recapitulation seminar II: L4 – L6	Raguž	MEFMO	Web
S3/2: Comparison of diagnostic methods	Raguž	MEFMO	Web
<b>Part 2: Biophysical basis of physiology</b>		MEFMO	Web
L7/2: Biotransports, membrane potential	Raguž	MEFMO	Web
L8/2: Action potential	Raguž	MEFMO	Web
S4/2: Potentials on the surface of the body	Raguž	MEFMO	Web
S5/2: Recapitulation seminar III: L7 – L8	Raguž	MEFMO	Web
L9/2: Biophysics of senses, ear and hearing	Raguž	MEFMO	Web
L10/2: Biophysics of eye and sight	Raguž	MEFMO	Web
S6/2: Recapitulation seminar IV: L9 – L10	Raguž	MEFMO	Web
L11/1: Biomechanics of tissues	Raguž	MEFMO	Web
L12/1: Body biomechanics	Raguž	MEFMO	Web
S7/2: Recapitulation seminar V: L11 – L12	Raguž	MEFMO	Web
L13/2: Hemorheology I	Raguž	MEFMO	Web
L14/2: Hemorheology II	Raguž	MEFMO	Web
S8/2: Recapitulation seminar V: L13 – L14	Raguž	MEFMO	Web
E1/2: Introduction to cyclic exercises. Overview. Statistics.	Galić	MEFMO	
E2/2: Cyclic exercises C1 – C6	Galić	MEFMO	
E3/2: Cyclic exercises C1 – C6	Galić	MEFMO	
E4/2: Cyclic exercises C1 – C6	Galić	MEFMO	
E5/2: Cyclic exercises C1 – C6	Galić	MEFMO	
E6/2: Cyclic exercises C1 – C6	Galić	MEFMO	
E7/2: Cyclic exercises C1 – C6	Galić	MEFMO	
E8/2: Radioactivity and Radiation Protection	Galić	UHMO	
E9/2: Computer Tomography	Galić	UHMO	
E10/2: External Beam Radiotherapy	Galić	UHMO	

Total classes: 24 L + 16 S + 20 E

L=lecture; S=seminar; E=exercise;

**Cyclic exercises:**

C1: Microscopy

C2: Periodic Signal Analysis

C3: Electric Circuit

C4: Viscosity

C5: Surface Tension

C6: Air Humidity

**Locations:**

School of Medicine, University of Mostar - MEFMO

University Hospital Mostar - UHMO

**Literature:**

Materials accessible at the following web site cover the great majority of subjects

<http://www.mefst.unist.hr/education/courses/biophysics/1488>

Additional literature: 1. JA Pope: Medical Physics (second edition); Heinemann, 1989.

**Students' obligations**

Students have to attend all course lectures, seminars and exercises. Up to 20% of **justified** absence from seminars and lectures can be tolerated. If a student doesn't appear for an exercise, he/she will have to take a short exam related to that exercise. Students are expected to participate actively during the course.

**Types of seminars**

*First type* is described in the course curriculum by a name of the topic to be covered. The names in the curriculum correspond to the chapter titles in the literature. Seminars are interactive. The teacher explains the topic at hand and can pose questions to the students in order to assess their current knowledge. Students are expected to prepare the content of corresponding seminars in advance.

*Second type* of seminar is a recapitulation seminar. The goal of this type of seminar is to address the most common issues regarding the topics covered during few previous lectures and seminars.

The student's positive response at recapitulation seminar will be awarded with a plus. Only one plus per seminar can be obtained by one student. Bonus points are valid only for the first exam term and will only be added to the written exam score if a student passes the threshold for the written exam (32 points).

**Exam:**

Students have to pass the written exam (in form of a test, comprised of 60 questions, each containing 5 statements: 4 false and 1 true). The threshold for the written exam is 32 points.

Students are strongly advised to participate actively during the course since the first exam is held only a couple of days after the course is completed.

Criteria for passing grades:

33 – 39 sufficient (2)

40 – 46 good (3)

47 – 53 very good (4)

54 – 60 excellent (5)

1st exam term – November 29, 2019