

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

| Subject | Lecturer | Location | Literature |
|--|----------|----------|------------|
| Part 1: Physics of diagnostic imaging | | | |
| 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 |
| Part 2: Biophysical basis of physiology | | 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.

Criteria for passing grades:

32 – 39 sufficient (2)

40 – 46 good (3)

47 – 53 very good (4)

54 – 60 excellent (5)

1st exam term – January 7, 2021