

Course Curriculum: Medical Physics and Biophysics (2023/24)

Subject	Lecturer	Location	Literature
Part 1: Physics of diagnostic imaging			
L1/1: Introduction	Raguž	A116	Web
L2/2: Basics of nuclear physics	Raguž	A116	Web
L3/2: Radiation and matter	Raguž	A116	Web
E1/3: Radioactivity and radiation protection	Boban, Mardešić	A429: EG 1, 3, 4, 5, 6 A430: EG 2	Web
S1/2: Physical basis of nuclear medicine	Raguž, Boban	B102: SG 1,2 A429: SG 3	Web
Physics of Nuclear Medicine			
S2/2: Recapitulation seminar I	Raguž, Mardešić	B102: SG 1, 2 A430: SG 3	Web
E2/2: Absorbed radiation dose	Barić	Firule, Department of nuclear medicine	Web
E3/2: Measurements in nuclear medicine	Brdar	Firule, Department of nuclear medicine	Web
S3/2: Physics of MR imaging	Raguž, Boban	B103: SG 1, 2 A429: SG 3	Web
Radiology Physics			
S4/2: Physics of diagnostic radiology	Boban, Mardešić, Raguž	B102: SG 1 A529: SG 2 A102: SG 3	Web
E4/2: Radiogram contrasts	Hrepić	Firule, Department of Oncology	Web
Physics of ultrasound imaging			
S5/2: Ultrasound physics	Boban, Raguž, Mardešić	B102: SG 1 A529: SG 2 A102: SG 3	
E5/2: Echogram resolution	Boban, Mardešić	A426	Web
Integration			
L4/2: Comparison of diagnostic methods	Raguž	A116	Web
S6/2: Recapitulation seminar II	Mardešić, Boban, Raguž	A102: SG 1 A530: SG 2 A104: SG 3	Web
Part 2: Biophysical basis of physiology			
S7/3: Biotransports, resting potential	Boban, Raguž, Mardešić	B103: SG 1 A429: SG 2 B102: SG 3	Web
S8/2: Action potential	Raguž, Boban, Mardešić	A530: SG 1 A429: SG 2 A104: SG 3	Web
E6/2: Neural signal	Boban, Mardešić	A428: EG 2 A429: EG 1, 3	Web

		A430: EG 4, 6 A529: EG 5	
S9/2: Potentials on the surface of the body	Raguž, Boban, Mardešić	A530: SG 1 A429: SG 2 A104: SG 3	Web
S10/2: Recapitulation seminar III	Raguž, Boban, Mardešić	A104: SG 1 B101: SG 2 A430: SG 3	Web
Biophysics of senses			
L5/2: Biophysics of senses, ear and hearing	Raguž	B104	Web/Pope
E7/2: Audiometry	Boban, Mardešić	A428: EG 1-5 A430: EG 6	Web
S11/2: Biophysics of eye and sight	Raguž, Mardešić, Boban	A104: SG 1 A429: SG 2 A117: SG 3	Pope
E8/2: Optical bench	Boban, Mardešić	A429	Web
S12/2: Recapitulation seminar IV	Raguž, Mardešić, Boban	A104: SG 1 A429: SG 2 A117: SG 3	Web
Biomechanics			
S13/2: Biomechanics of tissues	Raguž, Boban, Mardešić	A529: SG 1 A430: SG 2 A429: SG 3	Web
S14/2: Body biomechanics	Raguž, Boban, Mardešić	A529: SG 1 A428: SG 2 A429: SG 3	Web
S15/2: Recapitulation seminar V	Boban, Raguž, Mardešić	A429: SG 1 A430: SG 2 A428: SG 3	Web
Physics of heart and circulation			
L6/2: Hemorheology	Raguž	A116	Web
E9/3: Viscosity	Boban, Mardešić	A101: EG 1, 3, 4, 6 A102: EG 2, 5	Web
S16/2: Heart as a pump – straining of the blood vessels	Mardešić, Raguž, Boban	A102: SG 1 B102: SG 2 A429: SG 3	Web
E10/3: Hemodynamics	Radović	A104	Web
S17/2: Workings of the heart, arteries	Raguž, Boban, Mardešić	A102: SG 1 A429: SG 2 A101: SG 3	Web
S18/2: Recapitulation seminar VI	Raguž, Boban, Mardešić	A102: SG 1 A429: SG 2 A101: SG 3	Web

11 L + 36 S + 23 E

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

MEFST = School of Medicine, Šoltanska 2

Department of Oncology is located at the University Hospital Split location Firule (Spinčićeva 1)

Literature:

Materials accessible on Faculty web pages cover most of the topics.

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.

There are two types of seminars.

The 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.

The 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.

During recapitulation seminars (second seminar type), depending on the demonstrated understanding of the subject, a student can be awarded a plus. One plus equals one point on the written exam. Only one plus per recapitulation seminar can be obtained by one student. Bonus points are valid only for the first exam term and will only be added to the exam score if a student passes the threshold for the written exam (33 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) before approaching the oral exam. The threshold for

the written exam is 33 points. Students are strongly advised to participate actively during the course since the first exam is held shortly after the course is completed.

Results from the written exam are valid throughout the entire academic year.

1st exam term: February 2, 2024, A116 at 9:00

2nd exam term: July 18, 2024, A116 at 9:00

3rd exam term: August 29, 2024, A116 at 9:00.

4th exam term: September 12, 2024, A116 at 9:00