



Syllabus

Term: 2025/26/1 **Subject name:** Exercise Physiology **Subject code:** ENAEDZN1501

Unit (Unit code) (TESTNEV)

Lecturer responsible for the course: Dr. WILHELM Márta Marianna

Requirement: Term mark

Classes per week : 0/2/0

Classes per term: 0/26/0

Purpose of education:

Students will understand the facts and concepts of physiological function of the human body during physical activity and exercise, including cardiovascular, respiratory, muscular and nervous system control of movement. Moreover, acute and chronic physiological responses and adaptations resulting from exercise will be discussed.

The course consists of weekly lectures supplemented with practical experiences throughout the semester.

Objectives: The lecture intends to introduce students to the possible measurements strategies of sport performance. An overview is provided in the delineation of test systems, performance measurement types and skills. The course gives an insight into the sport performance of different ages, differences between sexes, or before and after puberty.

Learning outcomes:

1. Create a theoretical and practical knowledge of applied physiology,
2. Learn the measurement and computation of different physiological parameters in training situations or in a lab.
3. Learn the practical background of fitness assessment and training strategies to improve performance.

Analyzing and understanding data obtained from lab measurements.

Contents:

Week 1 (5th of Sept) Course instructions. Terminology. General training principles.

Week 2 (12th of Sept) Training for Health. Definitions of Health and Fitness. The psycho-neuro-endocrine balance of the body. The biological consequences of technical evolution. Health training and fitness



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training.

Week 3 (19st of Sept) Bioenergetics. Metabolism. Fuels for exercise. Energy systems in exercise.

Week 4 (26th of Sept) The cardiovascular system. Measurement of the heart rate, changes of HR throughout life. Changes of HR in exercise; measuring and computing training HR, recovery HR. Adaptation of the heart to physical activity/elite sports

Week 5 (3th of Oct) The cardiovascular system. Blood pressure. Measurement of blood pressure. Blood pressure, changes with age, and with exercise. High blood pressure.

Week 6 (10th of Oct) Respiratory functions. Pulmonary function measurement of vital capacity, changes in exercise, in sicknesses.

Week 7 (17th of Oct) *Practical testing session. Responses to steady state and maximal exercise. Principles of exercise testing, interpretations, conclusions, protocols and designs.*

Week 8 (24th of Oct) Neuromuscular system. Muscle fiber types. Muscle contraction.

Week 9 (31th of Oct) Musculoskeletal system. Movement system.

Week 10 Fall break

Week 11 (7th of Nov) Responses and adaptations to aerobic training (endurance training).

Aerobic capacity measurements

Week 12 (14th of Nov) Responses and adaptations to anaerobic training (resistance training). Explosive power of muscle movement

Week 13 (21st of Nov) Training for sports

System of examining and valuation:

Written exam is based on lectures, accessible electronic sources and lecture materials. Most common questions in the structure of



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System of examining and valuation:

end term examination are: describing notions, relations, recognizing figures, analysis, multiple choice questions.

Acceptable level is at least 50%,

Written exam in the exam period.

Final score: 1/3 from the scores of home works, 2/3 from the exam score:

Final marks:

0–49% not satisfactory

50–64% satisfactory

65–74% average

75–84% good

85–100% excellent

Attending lectures is highly recommended (at least 75% of lectures).

Home work:

Week 1 Collecting definitions about health and fitness, collecting data of own country

Week 2 Training planning (circuit and other systems)

Week 5 Heart rate measurements for a whole week

Week 6 Measurement of blood pressure



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System of examining and valuation:

Week 7-9 Exercise testing, Spiro-ergometry

Week 10 Analyzes of measured data

Week 11 aerobic capacity testing

Bibliography:

1. McCardle, Katch, Katch (2006): Exercise Physiology. (Lippincott Williams & Wilkins)
- 2. McCardle, Katch, Katch (2009) Exercise Physiology: Nutrition, Energy, and Human Performance (Lippincott Williams & Wilkins)**
3. Mader S.S.: Human Biology. C.Brown Publishers, USA, 1995

Bibliography: