# SYLLABUS

**1. Course title:**

Physiology of sport and exercise

**2. Code:**

**3. Cycle of study:**

1

**4. ECTS credits:**

5

**5. Type of course:**

(•) Mandatory ( ) Elective

**6. Prerequisites:**

**7. Class restrictions:**

**8. Duration / semester:**

1 6

**9. Weekly contact hours:**

| | |
|---|---|
| 9.1. Lectures: | 3 |
| 9.2. Seminars: | 0 |
| 9.3. Laboratory/Practice classes: | 1 |

**10. Faculty:**

Faculty of Physical Education and Sport

**11. Department/study program:**

All study programs

**12. Lecturer:**

Dr. sc. Farid Ljuca, Full Professor

**13. Lecturer's e-mail:**

farid.ljuca@untz.ba

**14. Web site:**

wwww.ftos.untz.ba

**15. Course aims:**

To introduce and to transfer knowledge about basic physiological mechanisms in rest and during exercise of all body systems of the human body to the students of Faculty of Physical Education and Sport

**16. Learning outcomes:**

Students who realize all requests and pass exam they will have knowledge about basic physiological mechanisms in rest and during exercise at all levels of the human body, which Bachelor of Physical education and Sport has to have it.

**17. Course content:**

Module 1
Functional organization of the human body. Body fluids and homeostasis. Membrane potentials and action potentials. Muscle physiology. Molecular mechanism of the muscle contraction. Types of muscle contraction. Motor units. Muscle strength, power and endurance. Metabolic systems of the muscle. Neuromuscular transmission. The cardiac cycle. Cardiac output, mean arterial blood pressure and their regulation in rest and during exercise. The systemic circulation. Muscle blood flow in rest and during exercise. Pulmonary ventilation in rest and during exercise. Diffusion of oxygen and carbon dioxide through the respiratory membrane. Transport of oxygen and carbon dioxide in the blood. Regulation of respiration in rest and during exercise. Physiological mechanisms of alimentary tract in rest and during exercise. Body temperature regulation.

Module 2
Functional organization of the nervous system. Physiology of the synapse. Neurotransmitters. Neuronal mechanisms and circuits for processing information. Somatic sensations. Motor functions of the spinal cord and brain stem. Cortical and cerebellar control of motor functions. Physiology of the autonomic nervous system. Pituitary hormones, The thyroid metabolic hormones, adrenocortical hormones, Insulin and glucagon. Parathyroid hormone and calcitonin. Sex hormones.

**18. Learning methods:**

Lectures and laboratory exercises.

**19. Assessment methods:**

Written test exam (essay and MCQ).
Pre-exam activities 50 points:
- Attention to lectures and laboratory exercises 5 points.
- Test (content of the module 1) 40 points
- Laboratory exercise exam 5 points

Final exam 50 points (content of the module 2)

Final exam is held after realized and finished VI semester.

**20. Assessment components:**

| | |
|---|---|
| Pre-exam activities | 50 points |
| - Attention to lectures and laboratory exercises | 5 points (minimum 3 points) |
| - Test (Module 1) | 40 points (minimum 21 points) |
| - Laboratory exercise exam | 5 points (minimum 3 points) |
| Final exam (Module 2) | 50 points (minimum 26 points) |

Grading system

| | |
|---|---|
| 94–100 | (10) A |
| 84–93 | (9) B |
| 74–83 | (8) C |
| 64–73 | (7) D |
| 53–63 | (6) E |
| <53 | (5) F |

**21. Required reading list:**

1. Farid Ljuca (urednik) i saradnici.  Fiziologija čovjeka. Tuzla, Eurografika, 2010.
2. Ljuca F., Nuhbegović S.  Praktikum iz fiziologije sa radnom sveskom. Tuzla: "OFF-SET", 2005.
3. Jack H. Wilmore and David L. Costill. Physiology of sport and exercise. Human Kinetics, 2015.

**22. Web sources:**

**23. Applicable starting from the academic year:**

2014/2015

**24. Adopted in the Faculty/Academy session:**