

SYLLABUS

1. Course title:

ERGONOMICS AND SAFETY

2. Code:**3. Cycle of study:****4. ECTS credits:****5. Type of course:** Mandatory Elective**6. Prerequisites:****7. Class restrictions:****8. Duration / semester:****9. Weekly contact hours:**

9.1. Lectures:

9.2. Seminars:

9.3. Laboratory/Practice classes:

10. Faculty:

Faculty of Technology

11. Department/study program:

Environmental Protection Engineering

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

14. Web site:

www.tf.untz.ba

15. Course aims:

Introduce students to the principles of ergonomics and its applications, methods and data from a variety of scientific disciplines such as biomechanics, anthropology and medicine.

Understanding the features and capabilities of the human body. Introduce students with the methods of adapting the working environment to man.

Master the procedures of forming tools, devices or gadgets, or designing workplaces that are safe and comfortable for work and have an impact on increasing the worker's satisfaction.

16. Learning outcomes:

To apply ergonomic principles of workplace design, machines and tools.

To properly determine human effort and muscular fatigue.

To properly establish the interdependence of mental fatigue, stress and boredom in the workplace from the standpoint of safety.

To apply ergonomic principles of shaping the workplace with computers.

17. Course content:

Development of ergonomics and definitions, General and special principles of ergonomics and its application. Ergonomics and its Application. Anthropometry and its variables. Biomechanics of the locomotor system of man. Structural scheme of the human skeleton as a kinematic chain with basic mechanical properties. Anthropodynamic and anatomical characteristics of man, with special attention to the conditions of movement and man's work. Biomechanics of solid and soft tissues in humans. Clothing and footwear of workers in different working conditions from the standpoint of ergonomic work. Methods of determining the human effort of man in different working environment conditions and methods of mechanical assessment of the weight of human effort. Biomechanical properties of man's motion in extremely dynamic conditions. Ergonomic principles of designing the workplace, machines and tools (principles in designing the work, determining the time required for making and the principles of handling materials and tools). Sitting theory and construction solutions for chairs, working and spatial environments. Security principles in work process analysis.

18. Learning methods:

The following activities of successful learning are planned: concrete experience and reflection. Learning styles are preferred: visual style, auditory, logical-mathematical and stand-alone. The most important learning methods at the course are:

- Lectures with the use of multimedia resources, active learning techniques and with active participation and discussion of students;
- Experimental exercises

19. Assessment methods:

Throughout the course, students are required to regularly attend lectures and exercises. Students' attendance records will be regularly kept. On a special form, the subject teacher will continuously monitor the presence of each student. During the semester, the student can be absent with a maximum of three lectures and three exercises, being obliged to bring proof of justification of absence (medical certificate, etc.). In the case of more unexcused absences, the student loses the right to the signature of the teacher.

- TESTS - Two tests throughout the semester, for the oral part of the exam. Each test for the oral part of the exam, consists of 20 short theoretical questions related to the previously processed material and carries 15 points (for a passing grade, one should achieve a minimum of 8 points). Tests are usually conducted after every six weeks of lectures, whereby the subject teacher will announce them to the students at least two weeks before each test.
- LABORATORY EXERCISES: the student is obliged to do all laboratory exercises, and based on activity in exercises can achieve a maximum of 25 points (for a passing grade should achieve a minimum of 12 points).
- FINAL PART OF THE EXAM - Students who have collected the required number of points by all criteria (54 points), have the option of additional (verbally or in writing exam) for a higher final grade. The maximum number of points that can be obtained on the final exam is 30. The minimum number of points, which must be reached on the final exam is 18.

All the students who did not meet the conditions in one of the tests or who are not satisfied with the grade, but who have completed all other obligations of the course (have the signature of the subject teacher in the index) take the final exam. The student can not get a final grade if he has not passed all the tests.

- SEMINAR WORK OF STUDENTS: student has the opportunity to do one seminar work. Successfully prepared and verbally performed seminar work is evaluated with a maximum of 10 points (minimum 6 points), which are added to the total number of points achieved on other bases, in the formation of the final grade.

20. Assessment components:

The final grade is based on the total number of points obtained through prerequisites and the final exam, according to the quality of the acquired knowledge and skills. It has a maximum of 100 points, according to the following scale:

Regularity of teaching attendance (lectures + exercises): 5 points

Activity in laboratory exercises: 25 points

Tests (theory): 30 points

Seminar paper: 10 points

Final exam: 30 points

21. Required reading list:

McCormick EJ, Sandeers MS (1983). Human Factors in Engineering and Desing. McGraw Hill. Singapur

Muftić O, Milčić D (1998). Ergonomija i sigurnost. IPROZ. Zagreb

22. Web sources:

<http://www.biofuelstp.eu/index.html> (20.04.2015)

23. Applicable starting from the academic year:

2015/16

24. Adopted in the Faculty/Academy session: