SYLLABUS

1. Course title:

DESIGN AND ANALYSIS OF INDUSTRIAL EXPERIMENTS

2. Code:

(max. 20 characters)

3. Cycle of study:

1

4. ECTS credits:

5

5. Type of course:

● Mandatory   ○ Elective

6. Prerequisites:

Enthusiasm to learn the subject

7. Class restrictions:

(max. 150 characters)

8. Duration / semester:

1   7

9. Weekly contact hours:

9.1. Lectures: 2

9.2. Seminars: 1

9.3. Laboratory/Practice classes: 1

10. Faculty:

Mechanical Faculty

11. Department/study program:

Production Mechanical Engineerin

12. Lecturer:

dr.sc. Emir Šarić, associate prof.

13. Lecturer's e-mail:

emir.saric@untz.ba

14. Web site:

www.mf.untz.ba

15. Course aims:

It is to understand importance of statistically designed experiments in data analysis and to gain knowledge how to perform and analyse : Simple Comparative Experiments, ANAOVA, Multiple Regression and Factorial Designs manually and using Software.
The knowledge of above said methods will enhance the knowledge level of students to match industrial requirements.

16. Learning outcomes:

After learning course the students should be able to
- present the experimental data numerically and graphically
- build the mathematical models using simple and multiple linear regression
- understand importance of statistically designed experiments in data analysis
- design industrial experiments
- analyze and interpret the results of: Simple Comparative Experiments, ANOVA, Multiple Regression and Factorial Designs

17. Course content:

Goals of Experimental Modeling, Response and Explanatory variables, Measures of the Center (mean value, median), Measures of Spread (Variance, Standard Deviation), Relatins between variables, Scatter plot, Correlation, , Simple Linear Regression, Simple Comparative Experiments, ANOVA, Least-Squres Regression, Regression Diagnostics, Design of Experiments Terminology, Full Factorial Designs

18. Learning methods:

Lecture and Discussions: voice and Power point lecture notes
Practice: Numerical examples and homework handout problems
Short projects summarized in reports

19. Assessment methods:

Midterms exams during scheduled exam weeks
Final exam
Short projects
Activity during lectures

20. Assessment components:

2 tests (Computational tasks)	30 %
Short projects	20 %
Final exam (Theory)	45 %
Attendance and activity	5 %

21. Required reading list:

1. Holman, J.P.: Experimental Methods for Engineers, McGraw Hill Int., New York.
2. Davis, O.V.; The Design and Analysis of Industrial Experiments, Longman, London.
3. Ekinović, S.; Metode statističke analize U MS Excel-u, MF Zenica, 1997.

22. Web sources:

23. Applicable starting from the academic year:

2015/16

24. Adopted in the Faculty/Academy session:

01.06.2015