SYLLABUS

1. Course title:

LASER TECHNOLOGIES

2. Code:

3. Cycle of study:

1

4. ECTS credits:

3

5. Type of course:

○ Mandatory ◉ Elective

6. Prerequisites:

7. Class restrictions:

8. Duration / semester:

1 5

9. Weekly contact hours:

9.1. Lectures:	2
9.2. Seminars:	1
9.3. Laboratory/Practice classes:	0

10. Faculty:

Faculty of Mechanical Engineering Tuzla

11. Department/study program:

Production Mechanical Engineering

12. Lecturer:

Dr.sc. Samir Butković, associate professor

13. Lecturer's e-mail:

samir.butkovic@untz.ba

14. Web site:

http://mf.untz.ba/

15. Course aims:

Acquiring theoretical and practical knowledge in the field of material processing by laser.

16. Learning outcomes:

- Independently perform calculations of laser systems for various applications.
- Describe interaction of the laser beam and a suitable material which facilitates the selection of the parameters of the laser system for particular laser processing of materials (cutting, welding, heat treatment, surface alloying, etc.)

17. Course content:

Introduction in Laser technologies, Laser beam properties, Laser devices, Systems for the shaping of laser beam, Material/laser interaction, Laser types, Laser welding, Laser cutting, Laser drilling, Laser deposition (cladding), Laser hardening, Selective laser sintering/melting, Laser micromachining, Laser measuring principles, Application of lasers in powder metallurgy.

18. Learning methods:

Lestures with active participation of students,
Exercises,
Preparation and presentation of seminar/homework papers,

19. Assessment methods:

Activity during lectures,
2 tests (solving of tasks),
2 test (understanding of theory)
Seminar/homework papers,
Final exam,

Knowledge tests results are recognized as cumulative result if achieved results are positive after each individual exam and gives at least 50% of the planned and/or the necessary knowledge and skills. In order to pass the subject the student must achieve a minimum of 54 cumulative points.

20. Assessment components:

Attendance and activity during lectures, 5 points
2 tests (solving of tasks), 2 tests x 15 points=30 points
2 test (understanding of theory), 2 tests x 10 points=20 points
Seminar/homework papers, 10 points
Final exam, 35 points

21. Required reading list:

1. I. Belić: „Obrada metala laserskim zračenjem“, Beograd, 2003. Godine.
2. W.W .Duley: „Laser Processing: Fundamentals, Applicatios and Systems Engineering“, 2001.
3. Laser Applications, Bilten Laser Inc., 2000. godine

22. Web sources:

(max. 687 characters)

23. Applicable starting from the academic year:

(max.10)

24. Adopted in the Faculty/Academy session:

(max. 10 char.)