SYLLABUS

1. Course title:

METAL POWDER PRESSING TECHNOLOGIES

2. Code:

3. Cycle of study:

1

4. ECTS credits:

6

5. Type of course:

(•) Mandatory ( ) Elective

6. Prerequisites:

7. Class restrictions:

8. Duration / semester:

1 5

9. Weekly contact hours:

9.1. Lectures: 3

9.2. Seminars: 1

9.3. Laboratory/Practice classes: 1

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 fundamental theoretical and practical knowledge in the field of processing of metal powders, from production, characterization to pressing and shaping. Also, students learn about advantages and specificities of powder metallurgy technologies in manufacturing complex parts, processing of material which are difficult to process using other technologies and application of P/M technology in developing new materials.

16. Learning outcomes:

After completing this course students are able to: design technological procedure for powder production with required properties and material, select method of production and perform characterization of produced powder, find suitable shaping (pressing, compaction) technology, solve tooling problems and design technological procedure of pressing, participate in selection of appropriate consolidation technique and parameters.

17. Course content:

Introduction in powder pressing technologies and comparison with other technologies, Powder production methods, Characterization of metal powders, Preparing of metal powders for pressing (shaping,compaction), Conventional pressing, Cold Isostatic Pressing, Warm compaction, Hot isostatic pressing, Metal injection molding, Green part testing, Introduction in sintering.

18. Learning methods:

Lectures with active participation of students,
Laboratory work,
Exercises,
Preparation and presentation of seminar 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, 6 points
2 tests (solving of tasks), 2 tests x 11 points=22 points
2 test (understanding of theory), 2 tests x 11 points=22 points
Seminar/homework papers, 10 points
Final exam, 40 points

21. Required reading list:

1. Powder metal technologies and aplication, ASM Handbook Committe, 1998
2. M. Mitkov, D. Božić, Z. Vujović: Metalurgija praha, Beograd, (1998).
3. M. Oruč, R. Sunulahpašić: Savremeni metalni materijali, Zenica,2005

22. Web sources:

23. Applicable starting from the academic year:

24. Adopted in the Faculty/Academy session: