

SYLLABUS

1. Course title:

CHEMICAL ENGINEERING THERMODYNAMICS

2. Code:

(max. 20 characters)

3. Cycle of study:

1

4. ECTS credits:

7

5. Type of course: Mandatory Elective**6. Prerequisites:**

(max. 110 characters)

7. Class restrictions:

(max. 150 characters)

8. Duration / semester:

1

4

9. Weekly contact hours:

9.1. Lectures:

3

9.2. Seminars:

2

9.3. Laboratory/Practice classes:

0

10. Faculty:

Faculty of Technology

11. Department/study program:

Chemical Engineering and Technologies

12. Lecturer:

Professor Muhamed Bijedić

13. Lecturer's e-mail:

muhamed.bijedic@untz.ba

14. Web site:

www.tf.untz.ba

15. Course aims:

to present thermodynamics from a chemical engineering viewpoint, including calculation of heat and work requirements for chemical processes, determination of equilibrium conditions for chemical reactions, determination of equilibrium conditions for the transfer of chemical species between phases.

16. Learning outcomes:

evaluating volumetric properties of real fluids,
evaluating thermodynamic properties of real fluids,
solving problems of phase equilibria,
solving problems of chemical equilibria.

17. Course content:

Postulates of thermodynamics. Auxiliary functions and criteria of equilibria. Thermodynamics of gases. Chemical reaction equilibria in gaseous phase. Phase rule. Phase equilibria in single component systems. General properties of solutions. Intermolecular potential. Virial equation of state. Corresponding states. Equations of state. Models of activity coefficient. Phase equilibria in multicomponent systems. Thermodynamic properties from speed of sound.

18. Learning methods:

Lectures, seminars, consultations.

19. Assessment methods:

Test 1: Eight questions from theory taught during the first third of semester.

Assignment 1: Two exercises like those exercised during the first third of semester.

Test 2: Eight questions from theory taught during the second third of semester.

Assignment 2: Two exercises like those exercised during the second third of semester.

Test 3: Eight questions from theory taught during the last third of semester.

Assignment 3: Two exercises like those exercised during the last third of semester.

Final exam: Ten questions from theory taught during the semester.

20. Assessment components:

Tests: 24 points (3 tests by 8 points, where each correct answer to the question from theory carries 1 point)

Assignments: 24 points (3 assignments by 8 points, where each correctly solved exercise carries 4 points)

Lectures attendance: 1 point

Seminars attendance: 1 point

Final exam: 50 points (each correct answer to the question from theory carries 5 points)

Final grade is based on total points earned during the semester, in any way.

Grading system: F (0-53 points), E (54-63 points), D (64-73 points), C (74-83 points), B (84-93 points), A (94-100 points)

21. Required reading list:

Smith, J.M., Van Ness, H., Abbott, M., Introduction to Chemical Engineering Thermodynamics, McGraw-Hill, 2005.

Bijedić, M., Thermodynamics of Real Systems, University of Tuzla, 2006.

Walas, S.M., Phase Equilibria in Chemical Engineering, Butterworth, 1985.

22. Web sources:

(max. 687 characters)

23. Applicable starting from the academic year:

2015/2016

24. Adopted in the Faculty/Academy session:

(max. 10 char.)