SYLLABUS

1. Course title:

Molecular spectrometry

2. Code:

Do not fill up

3. Cycle of study:

1

4. ECTS credits:

3

5. Type of course:

○ Mandatory   ● Elective

6. Prerequisites:

No

7. Class restrictions:

No

8. Duration / semester:

1   5

9. Weekly contact hours:

9.1. Lectures: 2

9.2. Seminars: 0

9.3. Laboratory/Practice classes: 1

10. Faculty:

Faculty of Technology

11. Department/study program:

Chemical Engineering and Technologies

12. Lecturer:

13. Lecturer's e-mail:

14. Web site:

www.untz.tf

15. Course aims:

Analysis of analytical data and their processing in order to define the structure, composition and quantity of the substance in the sample. Self-solving of laboratory tasks in preparation and measurement, and analysis of obtained analytical data-spectra by measuring with the application of selected method and technique, as well as combined spectra.

16. Learning outcomes:

The anticipated program should allow students to link the acquired knowledge to the whole with the knowledge gained from the programs of professional courses. Based on the information obtained, students should assess the quality according to standard requirements.

17. Course content:

The basic principles of spectrum generation. Relationship of IR, MS and NMR spectra and molecular structures. Interpretation of the spectra and definition of the final molecular structure. Application in chemical quality control.

18. Learning methods:

Lectures, classes (laboratory and laboratory data processing), seminar papers (task from qualitative analysis based on combined spectra solving; UV / Vis, IR, 1H NMR and MS spectra). Preparation and presentation of group seminar papers.

19. Assessment methods:

Assessment of theoretical knowledge:

I partial part of the exam includes knowledge check from the theoretical basics, analytical data processing methods and calculations in the field: UV / Vis (absorption and emission method) and IR.

II partial part of the exam includes knowledge check from the theoretical basics, analytical data processing methods and calculations in the field: NMR and MS.

The final part of the exam: includes knowledge check from the theoretical basics, analytical data processing methods and calculations in the field of X-ray diffraction, automation of methods and combined spectra, and is done as a seminar work - solving the assigned task and the results obtained are publicly discussed.

20. Assessment components:

Student gets a final grade based on:

1. Prerequisites (18 to 25 points): attendance at lectures (3-5 points); Laboratory classes (15-20 points).
2. Exam results (36-75 points): II partial (10-20 points); II partial (10-20 points); Final exam (16-35 points).

The score is based on the total number of points achieved on the preliminary activities and the results of the partial exams (min.18 + 36 = 54 and max.25 + 75 = 100) and according to the approved Evaluation rules.

21. Required reading list:

R.Kubicek, J.Budimir, S.Marić (2004) Osnove spektrometrijskih metoda, Univerzitet u Tuzli

R.Kubicek, J.Budimir, S.Maric(2009) Praktični primjeri i zadaci, dodatak uz knjigu,

D.G.Antonovic(2003) Instrumentalne metode u organskoj hemiji, Zbirka zadataka, Univerzitet u Beogradu

22. Web sources:

23. Applicable starting from the academic year:

2015/2016

24. Adopted in the Faculty/Academy session: