SYLLABUS

1. Course title:

TECHNOLOGIES OF USABILITY OF RENEWABLE ENERGY RESOURCES IN AGRICULTURE

2. Code:

3. Cycle of study:

1

4. ECTS credits:

4

5. Type of course:

(●) Mandatory ( ) Elective

6. Prerequisites:

No prerequisites

7. Class restrictions:

No class restrictions

8. Duration / semester:

1 3

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:

Agronomy

12. Lecturer:

Zoran Iličković, associate professor

13. Lecturer's e-mail:

zoran.ilickovic@untz.ba

14. Web site:

www.tf.untz.ba

15. Course aims:

Acquiring knowledge on renewable energy sources that can be applied in agriculture with an emphasis on waste processing technology from agriculture to obtain solid, liquid and gaseous biofuels.

16. Learning outcomes:

The students will acquire knowledge in the area of production and consumption of biomass and biofuels from agriculture, ways of disposing of organic waste for the purpose of producing heat and electricity, and the possibility of producing biofuels. They will be able to identify available biomass raw materials and their potential for biofuel production.

17. Course content:

Availability and types of biomass in agriculture for energy production. Existing barriers to use and opportunities for overcoming them. Direct combustion of biomass. Production of pellets. Technology of bio-ethanol from biomass. Technology of biodiesel. Biogas production technology. Possibilities of using digestate. Comparison of technologies for disposal of residues of agricultural production. Technologies for the treatment of high-risk and low-risk waste in agriculture, assessment of the possibility of applying the concept of biorefineries, arguing the importance of using biomass, biofuels and residues of agricultural production in environmental protection.

18. Learning methods:

Lectures, laboratory exercises, site visits, seminar papers. Lectures will be multimedia supported when appropriate, with the expected active participation of students in the discussion. The exercises will be conducted in interactive form, through the practices of the laboratory experiments. Visits to relevant business organizations will demonstrate the link between theory and practice. Consultations will facilitate and deepen understanding of the subject matter.

19. Assessment methods:

Throughout the course, students are required to attend lectures and exercises on a regular basis, which will be monitored by the subject teacher and associates and, on special forms, keep records. During the semester, the student can be absent from a maximum of three lectures and three exercises, being obliged to bring proof of justification of absence (medical certificate, etc.). Laboratory exercises are a must for the student to complete. In the case of more unexcused absences, the student loses the right to the signature of the teacher.
Two tests will be held during the semester.

Each test consists of a maximum of 20 short theoretical questions related to the previously processed material and carries 30 points (for a passing grade, one should achieve a minimum of 15 points). Tests are usually conducted after every six weeks of instruction, whereby the subject teacher will announce them to the students at least two weeks before each test.
The maximum number of points of a seminar paper is 5.
• FINAL PART OF THE EXAM - Students who have collected the minimum required number of points for the pass grade (54 points) by all criteria, have the right on deserved grade or to use the option of additional (verbally or in writing exam) for a higher final grade. The maximum number of points that can be obtained on the final exam is 30. The minimum number of points, which must be reached on the final exam is 15.
All the students who did not meet the conditions in one of the tests or who are not satisfied with the grade, but who have completed all other obligations of the course (have the signature of the subject teacher in the index) take the final exam.

20. Assessment components:

The final grade is based on the total number of points obtained through pre-requisites and the final exam, according to the quality of the acquired knowledge and skills. It has a maximum of 100 points, according to the following scale:
Regularity of teaching attendance (lectures + exercises): 5 points
Seminar paper: 5 points
Tests (theory): 60 points
Final Exam: 30 points

21. Required reading list:

Iličković Z., Biogoriva, Univerzitet u Tuzli, IN SCAN, Tuzla, 2014.
Strezov, V., Evans T.J. (2014). Biomass Processing Technology. CRC Press.
Rosendahl, L. (2013) Biomass combustion science, technology and engineering. Woodhead Publishing Limited.

22. Web sources:

23. Applicable starting from the academic year:

2016/2017

24. Adopted in the Faculty/Academy session: