**Subject: Chemical Engineering**

**Lecturer: Prof. Dr. Ramë Vataj**

**Course status: Obligatory**

**ECTS: 6**

**Short description of the content:** Introduction (the importance of chemical engineering in the field of technology, science, and economy, trends in chemical engineering). Process variables, presentation and analysis of experimental data, least squares method, calculation examples. The concept of quantitative solution of chemical engineering (definition of the system, problem determination, its mathematical formulation, solution and verification, calculation examples). General material balance of steady and unsteady state system. The Process and the processing scheme (the basic processing variables, the basic phases of chemical process: preparation, chemical conversion, isolation and purification of product, batch, continuous and semi batch processes, recurring or recycle flow). Examples of synthesis of individual procedures into the process (calculus examples).

**The aim of the course**: Understanding of characteristics in the chemical engineering field. Ability to identify the problem, solve it and to interpret it in quantitative form. The knowledge of using material and energy balances, mathematical tools and basic chemical and physics laws to solve practical problems. Ability to analyse processes and the processing schemes. To develop an interest in engineering problem proceedings.

**Expected learning aims and outcomes:** After completing the course the students will :

* Understand the principals of chemical engineering as knowledge required in further courses and employment.
* Perform basic analysis, synthesis, and qualitative estimation of complete processes of chemical technology. Use the knowledge of chemical engineering to solve practical chemical technology cases.
* Develop skills for analysis and critic evaluation of the technologic scheme or equipment.

**Ratio between the theoretical and practical part of teaching: 3:2**

**Teaching and learning methods:** Lectures, numerical exercises, lab exercises.

**Concretization means/ IT:** pencil, table, projector, computer.

**Evaluation methods and passing criteria:** The first evaluation: 20%, second evaluation 20%, homework 5%, regular attendance 5%, final exam (written and oral) 50%, total 100%.

**Basic Literature**:

1. R. M. Felder and R.W.Rousseau: Elementary Principles of Chemical Processes. John Wiley & Sons, 2005.
2. R. K. Sinnott, Chemical Engineering Design, Coulson & Richardson’s Chemical Engineering, Volume 6, Fourth edition, Elsevier, 2005.