**SYLLABUS – Earth and sediments chemical processes**

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| **Basic informations:**  |
| **Academic unit:**  | **FMNS- Departameni of Chemistry** |
| **Name of module:** | **Chemical processes of Earth and sediments**  |
| **Level:** | **Bachelor – Engineering Chemistry** |
| **Status of module:** | **Obligative** |
| **Year of study:** | **III (semestri VI-th)** |
| **Number of hours per week:** | **2 +1** |
|  **ECTS:** | **4** |
| **Time / location:** |  |
| **Lecturer:** | **Dr. sc. Albana R. Mehmeti** |
| **Contact:**  | **Tel:** 044190 022 |
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| **Module description** | *Land surface processes , landforms and sediments are closely linked to the erosion of rocks , sediment generation and transport and sediment generation through various environments surfaces of the Earth. These processes as well as storage and landform formation are of a fundamental importance in engineering, environmental issues and public safety, the recovery of economic resources , and in understanding the history of the Earth* |
| **Purpose of the module:** | Students within the subject matter in the soil chemical processes and sediments have the opportunity : - to learn together geomorphology and sedimentology disciplines in order to understand better the processes of the Earth ,- Formation of landform and sediment depositions in a more integrated way .- To see the progress of production phenomena , the formation of sediments on Earth , as well as erosion and deposition environments ranging from rivers , lakes , seas and oceans deep  |
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| **Learning outcomes:** | After completing this course ( course ) students will understand that : - To recognize the formation and sedimentation forms of inorganic and organic substances , - Understand the solid phase equilibria in solutions of Earth - Processes and kinetics of ion exchange earth chemical  *processes.*  |
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| **Student contribution (which should correspond with students learnin outcomes)** |
| **Activity**  | **Hour**  |  **day/week**  | **Total** |
| Lectures | 2 | 1/15 | 30 |
| Theoretical/laboratory exercises | 1 | 1/15 | 15 |
| **Total** | **3** | **2/15** | **45** |
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| **Teaching methodology:** | *Lecture accompanied by a discussion with students and laboratory exercise* |
| **Methods of assesment:** | Assessment will be by examination of test questions, taking into account the discussions during the lecture, results from tests, regular attendance, but also the outcome of laboratory exercises. |
| **Literature** |
| **Basic Literature:**  | 1. D.L. Sparks; Environmental Soil Chemistry; Second Edition 2003
2. J.Bridge; R. Demicco*;* Earth Surface Processes, Landforms and Sediment Deposits; Cambridge University Press, New York
 |
| **Additional Literature:**  | Consulting with literature from internet too.  |

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| **Designed learning plan:**  |
| **Week** | **The Lecture** |
| ***Week one:***  | - Introduction to the module curriculum- Objectives, goals and objectives of this module- Knowledge of the literature that students will use as basic and additional literature- Notification of students with curriculum and laboratory exercises |
| **Week two:**  | * Environmental soil chemistry
* Inorganic soil components
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| **Week three:** | * Organic soil matters
* Soil solutions – the solid phase equilibria
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| ***Week four:*** | * Sorbtion as a phenomenon in soil
* Ion exchange processes
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| ***Week five:***  | * Kinetics of soil chemical processes
* Redox chemisrty of earth
* Chemistry of soil acidity
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| **Week six:** | * **Test one**
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| ***Week seven:***  | - Production of the surface of the Earth sediments - Production of biogenic and chemigenic sediments |
| ***Week eight:***  | Fundamentals of fluid flow , sediment transport , erosion and deposition- Movement by gravity of sediments- The movement of volcaniclastic sediments |
| ***Week nine:***  | * Biogenic and chemigenic structures
* Deformation of post depositing of soft sediment
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| ***Week ten:*** | * Erosion and depositing environment
* Alluvial lakes and fields
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| **Week eleven:** | * Lakes
* Coasts and shallow seas
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| **Week twelve:**  | * Dry environments
* Glacial and periglacial environments
* Oceans
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| **Week thirteen:**  | * **Second test**
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| **Week fourteen:**  | * Sedimentation within rocks
* Diagenesis
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| ***Week fifteen:***  | * Long steps processes: mountains and sedimeting ponds
* Long tectonic controlls, climatic, long scale of erosion and deposition.
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| **Academic policies and codes of conduct:** |
| Lectures will allow students to hear more expanded explanations , discussion and proper conversation topics directly related to the subject matter of planned program . While the presence in laboratory exercises is mandatory for students with experimental work will look closely analyzes conducted to determine the parameter contaminants in the sample analyzed. Attendance and arrival time in lecture and exercises should be fully respected |