Course Outline: "1101 - General and Inorganic Chemistry"

1. General information

FACULTY/SCHOOL	Physical Education, Sport Science & Nutrition		
DEPARTMENT	Nutrition & Dietetics		
LEVEL OF STUDY	Undergraduate		
COURSE UNIT CODE	**1101**	**SEMESTER**	**1st**
COURSE TITLE	**General and Inorganic Chemistry**		

INDEPENDENT TEACHING ACTIVITIES in case credits are awarded for separate components/parts of the course, e.g. in lectures, laboratory exercises, etc. If credits are awarded for the entire course, give the weekly teaching hours and the total credits	**WEEKLY TEACHNG HOURS**	**CREDITS**
Lectures	3	
Laboratory Exercises	2	
Add rows if necessary. The organization of teaching and the teaching methods used are described in detail under section 4	**5**	**5**

COURSE TYPE *Background knowledge, Scientific expertise, General Knowledge, Skills Development*	General Knowledge
PREREQUISITE COURSES	No
LANGUAGE OF INSTRUCTION	GREEK
LANGUAGE OF EXAMINATION/ASSESSMENT	GREEK
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES (in English)
COURSE WEBSITE (URL)	

2. LEARNING OUTCOMES

Learning Outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate (certain) level, which students will acquire upon successful completion of the course, are described in detail. It is necessary to consult:Συμβουλευτείτε το ***APPENDIX A***

- *Description of the level of learning outcomes for each level of study, in accordance with the European Higher Education Qualifications' Framework.*
- *Descriptive indicators for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and* ***APPENDIX B***
- *Guidelines for writing Learning Outcomes*

To teach the student the basic concepts and principles of chemistry and chemical analysis, to conduct simple laboratory exercises aimed at familiarizing with the utensils, instruments and devices of a chemical laboratory, the sample processing techniques and other basic concepts, principles and applications in statistical processing of experimental data. Upon completion of the course it is expected that the student will be able to:

1. Recognize the categories of chemical reactions and perform under these calculations.
2. Perform the necessary calculations for preparing, mixing-dilution solutions.
3. Understand the state of simple chemical reactions over time.
4. Understand the condition of chemical equilibrium and to perform the calculations.
5. Understand the concept of active acidity and ways of assessment.
6. Understand the establishment of buffers.
7. Perform experiments correctly implementing the above theoretical knowledge.

8. Know the meanings of different techniques, methods and determinations of Chemical Analysis.

9. Suitably handle a sample depending on its origin and the desired analysis.

10. Evaluate and select the necessary laboratory equipment for making the analysis.

11. Perform single determinations of classical chemical analysis.

12. Process using basic statistical techniques experimental results.

13. Perform the necessary calculations based on experimental results.

14. Apply principles of Quality Control in an Analytical Laboratory.

15. Apply principles of Health and Safety in an Analytical Laboratory.

General Competences

Taking into consideration the general competences that students/graduates must acquire (as those are described in the Diploma Supplement and are mentioned below), at which of the following does the course attendance aim?

Search for, analysis and synthesis of data and information by the use of appropriate technologies, Adapting to new situations Decision-making Individual/Independent work Group/Team work Working in an international environment Working in an interdisciplinary environment Introduction of innovative research

Project planning and management Respect for diversity and multiculturalism Environmental awareness Social, professional and ethical responsibility and sensitivity to gender issues Critical thinking Development of free, creative and inductive thinking …… (Other…….citizenship, spiritual freedom, social awareness, altruism etc.) …….

- Individual/Independent work
- Group/Team work

3. COURSE CONTENT

• Units Systems. Structure of the Atom. Elements System. Nomenclature of inorganic compounds. Chemical reactions, chemical equations.

• Chemical bonds. Molecular geometry.

• Introduction to chemical thermodynamics.

• Introduction to the states of matter.

• Introduction to ideal and non-ideal solutions and in colloidal dispersion systems.

• Introduction to chemical kinetics.

• The chemical equilibrium of acids, bases, salts and complexes.

• Introduction to Chemical Analysis. Data sources. Techniques and Methods of Quantitative Chemical Analysis.

• Reagents and utensils. Sampling and preservation of samples.

• Physical and chemical processes in Chemical Analysis.

• Statistical analysis of experimental results.

• Measurement of mass and volume: principles of operation and control of scales, errors in weighing. Utensils volume measurement and control them.

• Principles, methods and applications of gravimetric analysis. Gravimetric analysis of precipitation. Methods vent. Electrogravimetric resolution. Thermogravimetric analysis.

• Principles, methods and applications of titrametric analysis: titration acid - base, precipitation, complexometric, redox.

• Introduction to the techniques of Instrumental Analysis. •Quality control. Hygiene and laboratory safety.

4. TEACHING METHODS - ASSESSMENT

MODES OF DELIVERY *Face-to-face, in-class lecturing, distance teaching and distance learning etc..*	In class lecturing	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY *Use of ICT in teaching, Laboratory Education, Communication with students*	E class	
COURSE DESIGN *Description of teaching techniques, practices and methods: Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, Internship, Art Workshop, Interactive teaching, Educational visits, projects, Essay writing, Artistic creativity, etc. The study hours for each learning activity as well as the hours of self-directed study are given following the principles of the ECTS.*	***Activity/Method***	***Semester workload***
	Lectures	50
	Laboratory Classes	50
	Personal Study	25
	Total	***125***
STUDENT PERFORMANCE EVALUATION/ASSESSMENT METHODS *Detailed description of the evaluation procedures:* *Language of evaluation, assessment methods, formative or summative (conclusive), multiple choice tests, short- answer questions, open-ended questions, problem solving, written work, essay/report, oral exam, presentation, laboratory work, other……etc.* *Specifically defined evaluation criteria are stated, as well as if and where they are accessible by the students.*	Written final exam (100%) which includes: - Multiple choice questions - short- answer questions, - open-ended questions, - problem solving, - written work, essay/report	

5. SUGGESTED BIBLIOGRAPHY

-Suggested bibliography:

1. Χημεία - Μοριακή Προσέγγιση, Έκδοση: 1η έκδ./2011, Tro N. Εκδότης: BROKEN HILL PUBLISHERS LTD
2. ΣΥΓΧΡΟΝΗ ΓΕΝΙΚΗ ΧΗΜΕΙΑ (10η Διεθνής Έκδοση), Έκδοση: 1η/2014, Darrell Ebbing, Steven Gammon, Εκδότης: ΤΡΑΥΛΟΣ & ΣΙΑ ΟΕ
3. Αναλυτική χημεία και ενόργανη ανάλυση στον τομέα της διατροφής. Έκδοση: 1η έκδ./2011, Γεώργιος Βλάτσιος, Εκδότης: UNIVERSITY STUDIO PRESS - ΑΝΩΝΥΜΟΣ ΕΤΑΙΡΙΑ ΓΡΑΦΙΚΩΝ ΤΕΧΝΩΝ ΚΑΙ ΕΚΔΟΣΕΩΝ
4. Εισαγωγή στην ποσοτική χημική ανάλυση, Έκδοση: 1η έκδ./1999, Βουλγαρόπουλος Αναστάσιος, Ζαχαριάδης Γεώργιος, Στρατής Ιωάννης, Εκδότης: Ζήτη Πελαγία & Σια Ι.Κ.Ε