ETE713 - Special topics in organic chemistry

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF ENGINEERING		
ACADEMIC UNIT	DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	ETE713	**SEMESTER**	7
COURSE TITLE	Special topics in organic chemistry		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures	3	3
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Specialized
PREREQUISITE COURSES:	NO
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK
IS THE COURSE OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBSITE (URL)	

(2) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

This course is an advanced organic chemistry course which aims to transfer knowledge of special areas of organic chemistry to students who intend to specialize in the field of functional materials (polymer chemistry/polymer materials, biomaterials/biomedical applications).

Learning outcomes: Upon successful completion of this course, the students will acquire advanced knowledge of organic chemistry in order to specialize in the field of functional

materials and to successfully meet the requirements of other courses (background/specialized) that pertain to the synthesis/modification of materials with principles of organic chemistry.

Skills: Through the acquired knowledge, the students will develop skills in the synthesis and modification of materials via synthetic organic chemistry. They will be well positioned to meet the needs of the diploma work, especially in projects where the design of new materials requires advanced knowledge of synthetic organic chemistry.

Competences: The students will be able to cope in an interdisciplinary environment where synthetic organic chemistry is one of the key components in the design and synthesis of new materials.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking
……
Others…
…….

- Work in interdisciplinary environment
- Teamwork
- Production of new research ideas
- Autonomous work

(3) SYLLABUS

Review of organic reactions. Chemistry of alcohols and thiols: ethers and epoxides. Chemistry of carbonyl compounds: aldehydes, ketones, carboxylic acids, derivatives of carboxylic acids, substitution reactions at the α-carbonyl carbon, aldol condensation reactions of carbonyl compounds. Aliphatic amines. Aryl amines and phenols. Biomolecules: carbohydrates, amino acids, peptides and proteins, lipids, heterocyclic compounds and nucleic acids.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face to face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	
TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.*	

Activity	***Semester workload***
Lectures	39
Study and analysis of bibliography	20
Essay writing	16

The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS		
	Course total	75
STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	LANGUAGE OF EVALUATION: Greek METHOD OF EVALUATION: • Written work (50%) • Public Presentation/Oral Examination (50%)	

(5) ATTACHED BIBLIOGRAPHY

- *Suggested bibliography:*

Organic Chemistry, L. G. Wade, Tziolas Publications, Thessaloniki, 2011
Organic Chemistry, John McMurry, Crete University Press, Iraklio, 2012
Organic Chemistry for Life Sciences, David Klein, Utopia Publications, Athens, 2015