ETE 716. Introduction to medicinal chemistry

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF ENGINEERING		
ACADEMIC UNIT	DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	**ETE 716**	**SEMESTER**	**7th**
COURSE TITLE	Introduction to medicinal 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 introductory course of medicinal chemistry which aims in the transfer of general knowledge and principles that govern the design and mechanism of action of drugs. It is addressed primarily to students who intend to specialize in the field of biomaterials and work in designing new drugs and targeted molecular biomaterials.

Learning outcomes: Upon successful completion of this course, the students will be able to understand the concept of molecular target, the mechanism of action of drugs through their

interactions with molecular targets as well as the basic principles of rational drug design

Skills: Through the acquired knowledge, the students will develop skills in the design of targeted drugs/biomaterials and successfully cope with the demands of the diploma work in biomedical chemical engineering projects.

Competences: The students will be able to cope in an interdisciplinary environment where the design of new targeted biomaterials and/or drugs (e.g. liposomes, nanoparticles, drug conjugates with peptides/proteins, drug conjugates with polymeric materials) is one of the key components of the program.

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

- Work in interdisciplinary environment
- Teamwork

(3) SYLLABUS

Introduction: definition of drugs. Drug targets (lipids, carbohydrates, proteins, nucleic acids). Proteins as drug targets: enzymes and receptors. Nucleic acids as drug targets: DNA and RNA. Drug discovery: identification of a lead compound. Drug design: optimizing drug-target interactions. Drug design: optimizing access of the drug to the target. Drug development. Quantitative structure-activity relationships (QSAR). Combinatorial chemistry. Computer aided drug design. Antibacterial agents. Anticancer agents.

(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*	

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

visits, project, essay writing, artistic creativity, etc. *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:
- Related academic journals:

- "An Introduction to Medicinal Chemistry", Graham L. Patrick, 4th Edition, Oxford University Press, New York, USA, 2009.