UNIVERSITY OF PATRAS
SCHOOL OF HEALTH SCIENCES
DEPARTMENT OF PHARMACY
UNDERGRADUATE STUDIES' COURSES

COURSE DESCRIPTION: **PHARMACEUTICAL TECHNOLOGY I**
COURSE CODE: **PHA-C22-NEW**

PHARMACEUTICAL TECHNOLOGY I
COURSE DESCRIPTION

1. GENERAL

SCHOOL	HEALTH SCIENCES		
SEPARTMENT	PHARMACY		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	**PHA-C22-NEW**	**SEMESTER OF STUDIES**	**6th**
COURSE TITLE	PHARMACEUTICAL TECHNOLOGY I		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	5	6
Tutorials	1	
Lac Courses	3	

COURSE TYPE	Scientific Field course
PREREQUISITE COURSES:	-
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes [Instructed/Guided self study in english for Erasmus+ Students]
COURSE WEBPAGE (URL)	http://www.pharmacy.upatras.gr/images/DS/PHA-C22-EN.pdf

2. LEARNING OUTCOMES

Learning Outcomes
Students will: • Have the theoretical knowledge to design a potential safe, stable and bioavailable dosage form for a specific drug (select route of administration, dosage form type, excipients, manufacture method) • Be capable of reading and executing medical prescriptions (dispensing) in a pharmacy environment • Be capable to design and carry out basic pharmaceutical processing, such as particle size reduction (solids), particle size separation (solids), particle size analysis, mixing, drying, filtration, sterilization in pharmaceutical industry • Acquire expertise in powder technology • Be capable of performing preformulation studies
General Abilities
• Self-study • Group work • Work in interdisciplinary environment

- Adapt to new situations
- Search, analysis and synthesis of information using the necessary relevant technologies
- Design and execute projects

3. **COURSE CONTENT**

Theoretical courses

- Pharmaceutical Dispensing and compounding
- Physical and chemical incompatibilities in medicines dispensing and administration
- Pharmaceutical Processing: particle size reduction (solids), particle size separation (solids), particle size analysis, mixing, drying, filtration, sterilization, design of clean rooms
- Strategic Design of Drug Formulations- Preformulation Studies
- Biopharmaceutical considerations of Pre-formulation/ Formulation Design
- Excipients (Categories, Roles, Characteristics)
- Pharmaceutical packaging

Laboratory (practical) courses

Practical 1: Galenic preparations: Solutions

Practical 2: Galenic preparations: Mixing topical pharmaceuticals

Practical 3: Galenic preparations: Suspensions

Practical 4: Galenic preparations: Pediatric suspension

Practical 5: Galenic preparations: Preparation and quality control of hard gelatin capsules

Practical 6: Pharmaceutical Processing I: Particle size reduction of solids (Milling), Effect of milling time on the particle size and particle size distribution of a powder

Practical 7: Pharmaceutical Processing II: Mixing of solids, Determination of optimum mixing time for powders

Practical 8: Preformulation: Improvement of dissolution rate of a drug with low aqueous solubility through its dispersion in hydrophilic carrier

Practical 9: Mechanical strength of pharmaceutical tablets: Investigation of the relationship between the mechanical strength of the tablets and their density

4. TEACHING AND LEARNING METHODS - ASSESSMENT

Teaching method	Face-to-Face, Essays, Practical courses, Exercises Self-study	
Use of information and communication technologies	Eclass platform	
Teaching organization	***Teaching Method***	***Semester Workload***
	Lectures	65
	Practical Exercises	39
	Directed exercises	13
	Individual study	33
	Total number of hours for the Course **(25 hours of work-load per ECTS credit)**	**150**

STUDENT ASSESSMENT	Written exams; MCQ; Essays and exercises Language: Greek Final Grade: performance in written exam on the theoretical courses (80%), performance in practical (laboratory) courses: 20%.

5. RECOMMENDED LITERATURE

Suggested Books:

1. Aulton, M. E., (Ed.). Pharmaceutics: The Science of Dosage Form Design. Churchill Livingstone, U.K., 1988.
2. Lachman, L et al., (Eds.). The Theory and Practice of Industrial Pharmacy. Lea and Febiger, Philadelphia, 1986.
3. Remington: The Science and Practice of Pharmacy, 19th edition, 1995, Mack Publishing Company, Easton Pennsylvania.
4. Lembeck, F. Συνταγολογία (μετάφραση Ι. Σ. Παπαδόπουλου και Θ. Λουκά), 5η έκδοση, 1975, Εκδόσεις Παρισιάνος, Αθήνα.
5. Stoklosa, M. J. and Ansel, H. C. Pharmaceutical Calculations, 7th edition, 1980, Lea and Febiger, Philadelphia.
6. Aulton's Pharmaceutics. The Design and Manufacturing of Medicines. Edited by M.E. Aulton, Churchill Livingstone Elsevier, Third Edition, reprinted 2010
7. Biopharmaceutics and Clinical Pharmacokinetics. Fourth Edition. By Milo Gibaldi. Lea and Febiger: Malvem, PA, 1991.

Suggested Journals:

Journal of Pharmaceutical Sciences