



UNIVERSITY OF
PATRAS
ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΑΤΡΩΝ

DEPARTMENT OF PHARMACY

SCHOOL OF HEALTH SCIENCES

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



COURSE DESCRIPTION: **PHARMACEUTICAL TECNOLOGY II**
COURSE CODE: **PHA-D12-NEW**

**PHARMACEUTICAL TECHNOLOGY II
COURSE DESCRIPTION**

1. GENERAL

SCHOOL	HEALTH SCIENCES		
SEPARTMENT	PHARMACY		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	PHA-D12-NEW	SEMESTER OF STUDIES	7th
COURSE TITLE	PHARMACEUTICAL TECNOLOGY II		
INDEPENDENT TEACHING ACTIVITIES	TEACHING HOURS PER WEEK	ECTS CREDITS	
Lectures	5	9	
Tutorials	2		
Laboratory course	4		
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-D12-EN.pdf		

2. LEARNING OUTCOMES

Learning Outcomes
<p>Student will be able to:</p> <ul style="list-style-type: none"> • Design dosage forms and formulate drugs according to the route of administration selected • Select appropriate excipients for specific dosage forms, according to the legislation and regulations applying in the specific area where the product will be used • Formulate stable and safe dosage forms at small scale • Know the importance of each step of the manufacturing procedure, for the production of safe and stable formulations with high bioavailability • Give pharmaceutical care information to patients in respect to the dosage form preparation (if applying), storage, and administration • Test the quality of dosage forms/pharmaceutical products, according to the current regulations/legislation
General Abilities
<ul style="list-style-type: none"> • Self-study • Work in inter œ interdisciplinary environment

- Adapt to new situations
- Search, analysis and synthesis of information
- Design and execute projects

3. COURSE CONTENT

Pharmaceutical Dosage Forms:

Scope

Advantages, Disadvantages

Ingredients

Formulation

Manufacture

Drug Release

Quality Control

Stability

Packaging and Storage

Liquid and Semi-Solid Dosage Forms:

Pharmaceutical Solutions (Syrups, Elixirs, Spirits, Tinctures, Liniments etc)

Suspensions

Colloidal Dispersions

Emulsions

Gels

Magmas

Lotions

Pastes

Solid Dosage Forms (suppositories, capsules, tablets, etc)

Aerosols

Special Controlled Release/Nanotechnology Dosage Forms

Stability of formulations

Quality Design and Quality Control

Practical Courses on formulation of

1. Solutions, Syrups, Suspensions, Tinctures, Colloidal Dispersions,
2. Emulsions, Ointments, Creams, Pastes, Gels
3. Suppositories
4. Divided Powders, Effervescent granules (dry-granulation), Hard-gelatin Capsules
5. Tablets, Wet granulation
6. Quality Control of a batch of tablets (Pharmacopoeia regulations)

4. TEACHING AND LEARNING METHODS - ASSESSMENT

Teaching method	Face-to-Face, Essays, Practical courses, Exercises, Self-study												
Use of information and communication technologies	E-class platform												
Teaching organization	<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;"><i>Teaching Method</i></th> <th style="text-align: right;"><i>Semester Workload</i></th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td style="text-align: right;">65</td> </tr> <tr> <td>Laboratory Exercises/ Practical course</td> <td style="text-align: right;">52</td> </tr> <tr> <td>Directed Exercises</td> <td style="text-align: right;">26</td> </tr> <tr> <td>Self-study</td> <td style="text-align: right;">82</td> </tr> <tr> <td>Total number of hours for the Course (25 hours of work-load per ECTS credit)</td> <td style="text-align: right;">225</td> </tr> </tbody> </table>	<i>Teaching Method</i>	<i>Semester Workload</i>	Lectures	65	Laboratory Exercises/ Practical course	52	Directed Exercises	26	Self-study	82	Total number of hours for the Course (25 hours of work-load per ECTS credit)	225
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STUDENT ASSESSMENT	<p>Written exams; MCQ; Essays and exercises</p> <p>Final Grade</p> <ul style="list-style-type: none"> • Written Exam (70-80%) • Bibliographic exercise [volunteer] (10%) • Practical Laboratory course (20%) <p>The practical course grade is based on short tests and questions during practicals, grade of Lab book and final written exam on the laboratory experiments</p>
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5. RECOMMENDED LITERATURE

Proposed Literature for self-study:

1. Aulton's *Pharmaceutics. The Design and Manufacturing of Medicines*. Edited by M.E. Aulton, Churchill Livingstone Elsevier, Third Edition, reprinted 2010
2. *Biopharmaceutics and Clinical Pharmacokinetics*. Fourth Edition. By Milo Gibaldi. Lea and Febiger: Malvern, PA, 1991.
3. FASTtrack *PHARMACEUTICS-DRUG DELIVERY AND TARGETING*, Yvonne Perrie, Thomas Rades, Pharmaceutical Press, 2010
4. Lachman, L et al., (Eds.). *The Theory and Practice of Industrial Pharmacy*. Lea and Febiger, Philadelphia, 1986.