Course Syllabus

Code - Course Title	**ECZ503 - Introduction to Pharmaceutical Technology**
Course Type	
Laboratory + Practice	3+0
ECTS	**6.0**
Language of Instruction	Türkçe
Course Type	Required Courses
Course Instructor(s)	PROF. DR. MUSTAFA SİNAN KAYNAK

Mode of Delivery	This course is delivered face to face only.
Place of Delivery	On Campus
Used Educational Platforms	Face-to-face
Prerequisites	This course has no prerequisites or co-requisites.
Courses Recomended	KOZ523 Basic Formulation Calculations, KOZ525 Basic Laboratory Knowledge
Recommended Resources	1) Turkish Pharmacopoeia 2017 and its supplements. Turkish Medicines and Medical Devices Agency (TITCK).2) European Pharmacopoeia, current edition. EDQM, Council of Europe.3) Aulton's Pharmaceutics: The Design and Manufacture of Medicines. Elsevier, current edition.4) Martin's Physical Pharmacy and Pharmaceutical Sciences. Wolters Kluwer, current edition.5) Lecture notes and weekly reading lists (MERGEN).
Work Placement	Not applicable for this course.
Aims of the Course	To introduce the fundamental concepts of pharmaceutical technology, including pharmacopoeias and information sources, basic pharmaceutical unit operations, pharmaceutical water, colligative properties, solubility, interfacial phenomena, disperse systems, dosage forms and stability, from the perspective of cosmetic product development.

Course Syllabus

Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 1	**LO-1**	Definition and history of pharmaceutical technology, information sources and pharmacopoeias	Lecture, Question & Answer, Discussion, Document/Text/Data Analysis
Week - 2	**LO-2**	Basic pharmaceutical operations I: Particle size, milling, sieving and mixing	Lecture, Question & Answer, Discussion
Week - 3	**LO-2**	Basic pharmaceutical operations II: Drying, filtration and extraction	Lecture, Question & Answer, Discussion
Week - 4	**LO-3**	Water for pharmaceutical use	Lecture, Question & Answer, Discussion, Document/Text/Data Analysis

Course Syllabus

Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 5	LO-4	Colligative properties I	Lecture, Question & Answer, Discussion, Problem Solving
Week - 6	LO-4	Colligative properties II: Osmotic pressure and isotonicity	Lecture, Question & Answer, Discussion, Problem Solving
Week - 7	LO-5	Solubility and factors affecting solubility	Lecture, Question & Answer, Discussion
Week - 8	LO-6	Interfacial phenomena: Surface tension, surfactants and HLB	Lecture, Question & Answer, Discussion
Week - 9	LO-6	Introduction to disperse systems and rheology	Lecture, Question & Answer, Discussion
Week - 10	LO-7	Pharmaceutical dosage forms I: Liquid systems	Lecture, Question & Answer, Discussion, Case Study
Week - 11	LO-7	Pharmaceutical dosage forms II: Semisolids and biphasic systems	Lecture, Question & Answer, Discussion, Case Study
Week - 12	LO-7	Pharmaceutical dosage forms III: Solid systems	Lecture, Question & Answer, Discussion, Case Study
Week - 13	LO-8	Introduction to drug stability: Degradation types and kinetic principles	Lecture, Question & Answer, Discussion
Week - 14	LO-1 LO-2 LO-3 LO-4 LO-5 LO-6 LO-7 LO-8	General review and case study	Lecture, Question & Answer, Discussion, Case Study

Learning Outcomes

#	Learning Outcome
1	Distinguishes pharmacopoeias and pharmaceutical information sources and locates the required information in a monograph.
2	Explains the principles and critical process parameters of size reduction, sieving, mixing, drying, filtration and extraction.
3	Compares the grades of water defined in pharmacopoeias and matches them with their intended uses.
4	Explains colligative properties and performs osmotic pressure and isotonicity adjustment calculations.
5	Explains the factors affecting solubility and relates them to formulation decisions.
6	Explains interfacial phenomena, surfactants, disperse systems and basic rheological behaviour.
7	Classifies liquid, semisolid, biphasic and solid dosage forms and relates them to cosmetic products.

Learning Outcomes

#	Learning Outcome
8	Explains physical, chemical and microbiological degradation types and the kinetic basis of shelf life.

Sustainable Development Goals

✓ Health and Quality of Life ✓ Quality Education ✓ Clean Water and Sanitation ✓ Responsible Production and Consumption

Course Theme

✓ Advanced Materials and Nanotechnology ✓ Health Sciences and Medical Technologies

AKTS Workload

Activity	Duration (Hour)	Count	Workload
Teorik Derse Katılım	3.00	14	42
Sınıf Dışı Çalışma (Ön Hazırlık & Pekiştirme Amaçlı)	5.00	14	70
Ödevler	0.00	0	0
Proje - Rapor - Sunum Hazırlama	0.00	0	0
Ara Sınav Hazırlığı (sınav süresi dahil)	16.00	1	16
Final Sınavı Hazırlığı (sınav süresi dahil)	22.00	1	22
Uygulama (Laboratuvar, Müzik/Enstrüman Uygulaması, Atölye/Saha Çalışması vb.)	0.00	0	0
Staj Uygulaması	0.00	0	0
		Calculated ECTS	**6.0**

Assessment Method and Passing Requirements

✓ Open-Ended Test ✓ Multiple Choice Test ✓ Short-Answer Test ✓ Fill-in-the-Blank Test