Course Syllabus

Code - Course Title	**FTE543 - Pharmaceutical Unit Operations**
Course Type	II. SEMESTER
Laboratory + Practice	3+0
ECTS	**6.0**
Language of Instruction	Türkçe
Course Type	Elective Courses
Course Instructor(s)	PROF. DR. AHMET ALPER ÖZTÜRK

Mode of Delivery	Face to face
Prerequisites	-
Courses Recomended	-
Recommended Resources	Required Textbooks:Aulton M.E., Taylor K.M.G. Aulton's Pharmaceutics: The Design and Manufacture of Medicines, 6th Edition, Elsevier, 2021.(A core reference covering pharmaceutical technology and basic pharmaceutical operations.)Lachman L., Lieberman H.A., Kanig J.L. The Theory and Practice of Industrial Pharmacy, 3rd Edition, Lea & Febiger, 1986.(A classical and foundational source for the industrial application of pharmaceutical operations.)Recommended Readings:Carstensen J.T., Rhodes C.T. Drug Stability: Principles and Practices, 3rd Edition, CRC Press, 2000.(Focuses on how processes like drying and sterilization affect drug stability.)Allen L.V. Ansel’s Pharmaceutical Dosage Forms and Drug Delivery Systems, 12th Edition, Wolters Kluwer, 2022.(Links fundamental pharmaceutical operations with dosage form development.)Rowe R.C., Sheskey P.J., Quinn M.E. Handbook of Pharmaceutical Excipients, 7th Edition, Pharmaceutical Press, 2012.(Provides detailed information on excipients used in various pharmaceutical processes.)Gupta R.B., Kompella U.B. (Eds.) Pharmaceutical Suspensions: From Formulation Development to Manufacturing, Springer, 2010.(Covers the role of mixing and filtration in specific dosage forms such as suspensions.)
Work Placement	-

Course Syllabus

Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 1		Introduction to Pharmaceutical Basic Operations-1	
Week - 2		Introduction to Pharmaceutical Basic Operations-2	
Week - 3		Filtration	
Week - 4		Mixing Powders and Liquids	
Week - 5		Grinding	
Week - 6		Drying Processes-1	
Week - 7		Drying Processes-2	

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Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 8		Sterilization-1	
Week - 9		Sterilization-2	
Week - 10		Examples of Pharmaceutical Basic Processes in Raw Materials-1	
Week - 11		Examples of Pharmaceutical Basic Processes in Raw Materials-2	
Week - 12		Examples of Pharmaceutical Basic Processes in the Production of Dosage Forms-1	
Week - 13		Examples of Pharmaceutical Basic Processes in the Production of Dosage Forms-2	
Week - 14		Validation in Pharmaceutical Basic Operations	

Learning Outcomes

#	Learning Outcome
1	Explains the concept of basic pharmaceutical operations.
2	Defines the purposes and principles of basic operations such as filtration, mixing, grinding, drying, and sterilization.
3	Describes the equipment used in basic operations and their working principles.
4	Analyzes the role of basic operations in pharmaceutical manufacturing processes.
5	Compares mixing methods for powders and liquids and selects the appropriate technique.
6	Compares sterilization methods and identifies appropriate application areas.
7	Evaluates examples of basic operations applied to pharmaceutical raw materials.
8	Explains the application of basic operations in the production of dosage forms.
9	Explains the importance and requirements of validation in basic pharmaceutical operations.
10	Evaluates process parameters of basic operations and proposes improvements.

Sustainable Development Goals

No content has been provided.

Course Theme

No content has been provided.

AKTS Workload

Activity	Duration (Hour)	Count	Workload
Teorik Derse Katılım	0	0	0
Sınıf Dışı Çalışma (Ön Hazırlık & Pekiştirme Amaçlı)	0	0	0

AKTS Workload

Activity	Duration (Hour)	Count	Workload
Ödevler	0	0	0
Proje - Rapor - Sunum Hazırlama	0	0	0
Ara Sınav Hazırlığı (sınav süresi dahil)	0	0	0
Final Sınavı Hazırlığı (sınav süresi dahil)	0	0	0
Uygulama (Laboratuvar, Müzik/Enstrüman Uygulaması, Atölye/Saha Çalışması vb.)	0	0	0
Staj Uygulaması	0	0	0
		Calculated ECTS	**0**

Assessment Method and Passing Requirements

No content has been provided.