Faculty of Medicine / PHARMACY / PHARMACEUTICAL TECHNOLOGY III

Course:	PHARMACEUTICAL TECHNOLOGY III			
Course ID	**Course status**	**Semester**	**ECTS credits**	**Lessons** (Lessons+Exercises+Laboratory)
7623	Mandatory	8	7	2+0+3
Programs	PHARMACY			
Prerequisites	Does not have			
Aims	Getting to know the types, composition, manufacturing processes and pharmaceutical-technological testing of pharmaceutical forms for rectal and vaginal use, aerosols, solid pharmaceutical forms, preparations with modified release of the medicinal substance and therapeutic systems			
Learning outcomes	The student is expected to: 1. Recognize different types, properties and roles of auxiliary substances in the production of solid pharmaceutical forms of drugs; 2. Recognize the types and characteristics of different solid pharmaceutical preparations (capsules, tablets, pellets, preparations with modified drug release, suppositories and vagitories, inhalation preparations); 3. Make solid pharmaceutical preparations; 4. Perform pharmaceutical-technological and biopharmaceutical tests of solid pharmaceutical preparations.			
Lecturer / Teaching assistant	Asst. Dr. Tanja Vojinović			
Methodology	Lectures, laboratory exercises, consultations, practical preparations.			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	Rectal pharmaceuticals forms			
I week exercises	Introduction labaratory exercises			
II week lectures	Vaginal pharmaceutical forms			
II week exercises	Production of rectal preparations; determination of displacement factor			
III week lectures	Aerosols			
III week exercises	Production of vaginal preparations			
IV week lectures	Properties of powders important for the production of solid pharmaceutical forms			
IV week exercises	Liquid preparations for inhalation; Powders for inhalation; Pharmaceutical preparations packed under pressure (Aerosols)			
V week lectures	Capsules			
V week exercises	Production and testing of capsules			
VI week lectures	Capsules			
VI week exercises	Production of calcium-alginate hydrogel microparticles by in situ gelation process; examination of swelling ability and pH sensitivity of calcium-alginate microparticles			
VII week lectures	Colloquium I. Pellet			
VII week exercises	Production and testing of granules			
VIII week lectures	Tablets, definitions, properties, general characteristics			
VIII week exercises	Production and testing of tablets			
IX week lectures	Types of tablets			
IX week exercises	Production and testing of tablets			
X week lectures	Excipients for making tablets			
X week exercises	Examination of the dissolution rate of medicinal substances from solid pharmaceutical forms			
XI week lectures	Methods for making tablets			
XI week exercises	Biopharmaceutical characterization of drugs; solubility test; determination of the partition coefficient			
XII week lectures	Examining tablets			
XII week exercises	Pharmaceutical-technological tests of tablets			
XIII week lectures	Colloquium II. Preparations with modified release of medicinal substance			

XIII week exercises	General considerations when designing preparations with modified release of medicinal substance
XIV week lectures	Therapeutic systems for oral administration of drugs
XIV week exercises	Technologies for oral administration of drugs
XV week lectures	Preparations for the Final Exam
XV week exercises	Practical exam
Student workload	Weekly 6 credits x 40/30 = 8 hours and 40 minutes. Structure: 2 hours of lectures, 3 hours of exercises, 3 hours and 40 minutes of independent work . In the semester Classes and final exam 8.40 hours x 16 = 134.4 hours. Necessary preparations before the beginning of the semester (registration, certification...) 8.40 x2 = 16.8 hours. Total load: 6 x 30= 180 h Additional work 28.8 h Load structure: 134.4 hours (teaching) + 16.8 hours (preparation) + 28.8 hours (additional work) = 180 hours

Per week	**Per semester**
7 credits x 40/30=9 hours and 20 minuts 2 sat(a) theoretical classes 3 sat(a) practical classes 0 excercises **4 hour(s) i 20 minuts** of independent work, including consultations	Classes and final exam: **9 hour(s) i 20 minuts x 16 =149 hour(s) i 20 minuts** Necessary preparation before the beginning of the semester (administration, registration, certification): **9 hour(s) i 20 minuts x 2 =18 hour(s) i 40 minuts** Total workload for the subject: **7 x 30=210 hour(s)** Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) **42 hour(s) i 0 minuts** Workload structure: **149 hour(s) i 20 minuts (cources), 18 hour(s) i 40 minuts (preparation), 42 hour(s) i 0 minuts (additional work)**
Student obligations	Regular attendance of classes and exercises
Consultations	Consultations with the subject teacher according to established terms
Literature	1. European Pharmacopoeia (Ph. Eur.) 10th Edition 2019. 2. Đurić Z. Pharmaceutical technology with biopharmacy, Part I, Nyansa, Zemun, 2004. 3. Parojčić J., Ibrić S., Đurić Z. Pharmaceutical technology with biopharmacy (Biopharmacy-Tablets-Capsules), manual for practical teaching, Konstisi, Belgrade, 2006. 4. Allen L.V. Popovich N.G. Ansel H.C., Ansels. Pharmaceutical Dosage Forms and Drug Delivery Systems, Ninth edition, Lippinciot Williams and Wilkins. Philadelphia. in 2011 5. Swarbrick J. Encyclopedia of Pharmaceutical Technology, Third edition, Informa Healthcare USA, New York. in 2007 6. Vranić E., Hadžiabdić J., Elezović A., Rahić O. Pharmaceutical technology. Problem tasks I solutions II. University of Sarajevo, Faculty of Pharmacy, Sarajevo 2018. 7. Đuriš J., Cvijić S., Aleksić I. Practicum in Pharmaceutical Technology III. University of Belgrade Faculty of Pharmacy. White City. in 2021
Examination methods	Attendance and activity during lectures: 0-5 points - Practical lessons: 0-5 points - Colloquium I and II: (0-10)+(0-10) points - Practical part of the exam: (0-20) points - Final exam: 0-50 points Grade: A B C D E F Number of points: 90-100 80-89 70-79 60-69 50-59 < 50
Special remarks	Does not have
Comment	Additional information for the subject can be obtained from the subject teacher

Grade:	F	E	D	C	B	A
Number of points	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points