



**INTEGRATED ACADEMIC
PHARMACY STUDIES**

FOURTH YEAR OF STUDY

academic 2023/2024.

CLINICAL PHARMACY 1

Course:

CLINICAL PHARMACY 1

The course is evaluated with 7 ECTS credits. It consists of 4 active teaching hours per week (3 hours of lectures and 1 hour of practical classes).

TEACHERS AND ASSOCIATES:

	Name and surname	E-mail	Title
1.	Olivera Milovanovic	olivera.milovanovic@medf.kg.ac.rs	Associate professor
2.	Milena Jurisevic	milena.jurisevic@medf.kg.ac.rs	Assistant professor
3.	Tamara Nikolic Turnic	tamara.nikolic@medf.kg.ac.rs	Associate professor
4.	Srdjan Stefanovic	sstefanovic@medf.kg.ac.rs	Associate professor
5.	Radisa Pavlovic	r.pavlovic2407@gmail.com	Assistant professor
6.	Aleksandra Stojanovic	vranicaleksandra90@gmail.com	Assistant professor
7.	Marko Ravic	markoravic@hotmail.com	Assistant
8.	Katarina Djordjevic	kacka96kg@gmail.com	Assistant
9.	Bozidar Pindovic	pindovic.bozidar@gmail.com	Assistant trainee
10.	Natasa Mijailovic	nacakg@gmail.com	Assistant (PhD)
11.	Katarina Mihajlovic	katarina.radonjic@medf.kg.ac.rs	Assistant (PhD)

COURSE STRUCTURE:

Module	Module name	Week	Lectures	Work in a small group	Teacher-supervisor module
1	Basics of clinical pharmacy	4	3	1	
2	Diagnostic tests, basic pharmacokinetic parameters, drug interactions	5	3	1	
3	Individual Pharmacotherapy Management	6	3	1	
					$\Sigma 45++15=60$

EVALUATION:

The student overcomes the course based on the points achieved in the pre-examination activities and the final exam. The score is equivalent to the number of gained points (table). Points are earned as follows:

Activity during classes: The student can gain up to 30 points by taking 2 exam question from that week, answering and receiving 0-2 points in accordance with the demonstrated knowledge.

Final exam: The student can gain up to 70 points. The student answers 70 exam questions (written examination) (each question 0-1 point).

Module		MAXIMUM POINTS		
		Activity during classes	Final exam	Σ
1	Basics of clinical pharmacy	8		
2	Diagnostic tests, basic pharmacokinetic parameters, drug interactions	10		
3	Individual Pharmacotherapy Management	12		
	Final exam (written examination)		70	70
Σ		30	70	100

Final grade is formed as follows:

In order to pass the course, student must gain a minimum of 51 points.

To pass the module, the student must achieve more than 50% of the maximal number of points for the module.

To pass the Final exam (written examination), the student must achieve more than 50% of the maximal number of points.

The final grade will be formed according to the following table:

Grading system		
Grade	Total No of points	Description
10	91-100	Excellent
9	81-90	Exceptionally good
8	71-80	Very good
7	61-70	Good
6	51-60	Passing
5	< 51	Failing

Literature:

Title	Authors	Publisher	LIBRARY
Pharmacotherapy: a Pathophysiologic	DiPiro J, et al.	8th edition. McGraw-Hills Companies; 2011	
Principles of Clinical Pharmacology,	Atkinson JA, Huang SM, Lertora JLL, Markey SP.	3rd ed., Academic Press, 2012.	
Basic & Clinical Pharmacology	Katzung B, Trevor A.	Approach 13th edition, McGraw-Hill Medical, 2014.	
Drug Information: A Guide for Pharmacists	Malone P, Malone M, Park S.	6th Edition. McGraw Hill. 2017.	
Goodman And Gilman Manual Of Pharmacology And Therapeutics	Hilal-Dandan R, Brunton L.	Second Edition, (Int'l Ed). McGraw Hill. 2014	
Basic and Clinical Pharmacology,	Trevor A, Katzung B.	15th Edition, International Edition. McGraw Hill. 2020.	
Pharmacotherapy Principles and Practice	Chisholm-Burns M, Schwinghammer T, Wells B, Malone P, Dipiro J, Kolesar J.,	4rd Edition. McGraw Hill. 2016.	

THE PROGRAM:

MODULE 1: BASICS OF CLINICAL PHARMACY

TEACHING UNIT 1 (FIRST WEEK):

Lectures: 3 hours	Practical classes: 1 hour
Introduction to the practice of clinical pharmacy - patient in focus	Introduction to the practice of clinical pharmacy - patient in focus

TEACHING UNIT 2 (SECOND WEEK):

Lectures: 3 hours	Practical classes: 1 hour
Communication with patients and healthcare professionals	Communication with patients and healthcare professionals

TEACHING UNIT 3 (THIRD WEEK):

Lectures: 3 hours	Practical classes: 1 hour
Pharmacotherapy of specific population groups	Pharmacotherapy of specific population groups-clinical problems

TEACHING UNIT 4 (FOURTH WEEK):

Lectures: 3 hours	Practical classes: 1 hour
Basic principles of evidence-based practice by pharmacists	Personalized Drug Dosage

MODULE 2: DIAGNOSTIC TESTS, BASIC PHARMACOKINETIC PARAMETERS, DRUG INTERACTIONS

TEACHING UNIT 5 (FIFTH WEEK):

Lectures: 3 hours	Practical classes: 1 hour
Basic biochemical parameters, diagnostic methods and tests I	Basic biochemical parameters, diagnostic methods and tests I

TEACHING UNIT 6 (SIXTH WEEK):

Lectures: 3 hours	Practical classes: 1 hour
Basic biochemical parameters, diagnostic methods and tests II	Basic biochemical parameters, diagnostic methods and tests II

TEACHING UNIT 7 (SEVENTH WEEK):

Lectures: 3 hours	Practical classes: 1 hour
Basic principles of pharmacokinetics	Basic principles of pharmacokinetics

TEACHING UNIT 8 (EIGHTH WEEK):

Lectures: 3 hours	Practical classes: 1 hour
Pharmacokinetic Equations and Calculations	Pharmacokinetic Equations and Calculations.

TEACHING UNIT 9 (NINTH WEEK):

Lectures: 3 hours	Practical classes: 1 hour
Drug interactions	Drug interactions- Drugs, Food, and Alcohol

MODULE 3: INDIVIDUAL PHARMACOTHERAPY MANAGEMENT

TEACHING UNIT 10 (TENTH WEEK):

Lectures: 3 hours	Practical classes: 1 hour
Detection, assessment and prevention of adverse drug reactions	Reporting adverse drug reactions

TEACHING UNIT 11 (ELEVENTH WEEK):

Lectures: 3 hours	Practical classes: 1 hour
Pharmacotherapy according to the individual characteristics of the patient	The role of clinical pharmacists in patient-centric care models

TEACHING UNIT 12 (TWELVE WEEK):

Lectures: 3 hours	Practical classes: 1 hour
Pharmacoeconomic aspects of rational pharmacotherapy	Pharmacoeconomic evaluations of new drugs

TEACHING UNIT 13 (THIRTEENTH WEEK):

Lectures: 3 hours	Practical classes: 1 hour
Introduction to Therapeutic Drug Monitoring and the Clinical Laboratory's Role	Therapeutic Drug Monitoring

TEACHING UNIT 14 (FOURTEENTH WEEK):

Lectures: 3 hours	Practical classes: 1 hour
Parenteral nutrition	Administration of parenteral nutrition

TEACHING UNIT 15 (FIFTEENTH WEEK):

Lectures: 3 hours	Practical classes: 1 hour
Repetition and consolidation of previous material	Repetition and consolidation of previous material

TEACHING SCHEDULE FOR THE COURSE CLINICAL PHARMACY 1

module	week	date	time	place	type	the name of the method unit	teacher
1	1				L	Introduction to the practice of clinical pharmacy - patient in focus	Olivera Milovanovic, <i>Lecturer</i>
					P	Introduction to the practice of clinical pharmacy - patient in focus	Marko Ravic
	2				L	Communication with patients and healthcare professionals	Radisa Pavlovic, <i>Lecturer</i>
					P	Communication with patients and healthcare professionals	Natasa Mijailovic
	3				L	Pharmacotherapy of specific population groups	Milena Jurisevic, <i>Lecturer</i>
					P	Pharmacotherapy of specific population groups- clinical problems	Katarina Djordjevic
	4				L	Basic principles of evidence-based practice by pharmacists	Olivera Milovanovic, <i>Lecturer</i>
					P	Personalized Drug Dosage	Bozidar Pindovic
2	5				L	Basic biochemical parameters, diagnostic methods and tests I	Srdjan Stefanovic, <i>Lecturer</i>
					P	Basic biochemical parameters, diagnostic methods and tests I	Katarina Mihajlovic
	6				L	Basic biochemical parameters, diagnostic methods and tests II	Radisa Pavlovic, <i>Lecturer</i>
					P	Basic biochemical parameters, diagnostic methods and tests II	Marko Ravic
	7				L	Basic principles of pharmacokinetics	Milena Jurisevic, <i>Lecturer</i>
					P	Basic principles of pharmacokinetics	Natasa Mijailovic
	8				L	Pharmacokinetic Equations and Calculations	Olivera Milovanovic, <i>Lecturer</i>
					P	Pharmacokinetic Equations and Calculations	Katarina Djordjevic

TEACHING SCHEDULE FOR THE COURSE CLINICAL PHARMACY 1

module	week	date	time	place	type	the name of the method unit	teacher
	9				L	Drug interactions	Milena Jurisevic, <i>Lecturer</i>
					P	Drug interactions- Drugs, Food, and Alcohol	Bozidar Pindovic
3	10				L	Detection, assessment and prevention of adverse drug reactions	Radisa Pavlovic, <i>Lecturer</i>
					P	Reporting adverse drug reactions	Katarina Mihajlovic
	11				L	Pharmacotherapy according to the individual characteristics of the patient	Aleksandra Stojanovic, <i>Lecturer</i>
					P	The role of clinical pharmacists in patient-centric care models	Marko Ravic
	12				L	Pharmacoeconomic aspects of rational pharmacotherapy	Aleksandra Stojanovic, <i>Lecturer</i>
					P	Pharmacoeconomic evaluations of new drugs	Natasa Mijailovic
	13				L	Introduction to Therapeutic Drug Monitoring and the Clinical Laboratory's Role	Milena Jurisevic, <i>Lecturer</i>
					P	Therapeutic Drug Monitoring	Katarina Djordjevic
	14				L	Parenteral nutrition	Aleksandra Stojanovic, <i>Lecturer</i>
					P	Administration of parenteral nutrition	Bozidar Pindovic
	15				L	Repetition and consolidation of previous material	Olivera Milovanovic, <i>Lecturer</i>
					P	Repetition and consolidation of previous material	Katarina Mihajlovic
							FINAL EXAM

