

INFUSION THERAPY AND PARENTERAL NUTRITION	
GENERAL INFORMATION	
Course coordinator	Professor Slavica Kvolik, MD, PhD
Assistant/Associate	Assoc. Prof. Ozana Katarina Tot, MD, PhD Asst. Prof. Ivana Haršanji Drenjančević, MD, PhD Nenad Nešković, MD, PhD Gordana Kristek, MD, PhD Višnja Ikić, MD Sonja Škiljić, MD
Study Programme	Integrated undergraduate and graduate university study of Medicine
Status of the course	Elective
Year of study, semester	6 th year, 11 th semester
ECTS	2
Workload (hours)	Lectures (7); Seminars (10); Exercises (8)
Expected number of students	30
COURSE DESCRIPTION	
Course objectives	
To teach students in understanding the effects of therapeutic infusion applications. Identify differences in the composition of infusion solutions and distinguish specific indications for their use. To acquaint students with the method of application, indications, therapeutic effects, side effects and contraindications for the use of specific solutions for infusion therapy, their supplements and solutions for parenteral nutrition. Recognize the side effects of infusion therapy and side effects of parenteral nutrition preparations.	
Enrolment requirements and entry competencies	
Passed all exams of previous years of study	
Learning outcomes at the Programme level	
1.1.; 1.2.; 2.1.; 3.1.; 3.4.; 4.1.; 4.2.	
Learning outcomes (5-10)	
<ol style="list-style-type: none"> 1. After completing the course, the student will be able to independently calculate the circulating volume of the patient's blood. 2. Student will distinguish cellular parts and plasma. Calculate the patient's need for water and electrolytes. Select the types and composition of infusion solutions and indications for their use. 3. Recommend crystalloids, colloidal solutions, lipids, amino acids and combined preparations. 4. Depending on the patient's condition and his laboratory findings, the student will determine the composition and volume of infusions required. The student will operate venous access equipment and infusion dosing systems. 5. The student will independently determine the type and volume of preparations for parenteral nutrition according to specific indications. 	
Course content	
Lectures	
Calculation of circulating volume, water and electrolyte requirements. Parenteral nutrition. Calculation of caloric needs. Complications of parenteral nutrition.	
Seminar	

Introduction to the types and composition of infusion solutions and indications for their use: crystalloids, colloidal solutions, lipids, amino acids and combined preparations. Complications of infusion therapy.

Exercises

Venous pathway equipment, infusion dosing systems, volume compensation. Parenteral nutrition - setting the indication and calculating the volume of the solution.

Mode of teaching

Lectures; Seminars; Exercises

Student obligations

Attendance at all forms of lectures, seminars and exercises is mandatory, and the student must access all knowledge tests. A student may justifiably miss 30% of each form of lectures. Missed exercise must be colloquial.

Monitoring student work (alignment of learning outcomes, teaching methods and grading)

Teaching activity	ECTS	Learning outcome	Student activity	Assessment methods	Grade points	
					Min.	Max.
Class attendance	0.5	1-5	Attending classes	Evidences	5	10
Seminar	0.5	1-5	Preparation of seminars	Presentation within the group	5	10
Exercises	0.5	1-5	Attendance and active participation in exercises	Exercise diary	20	30
Final exam	0.5	1-5	Learning for the written exam	Written exam	30	50
Total	2				60	100

Evaluation of final exam:

Percentage of accurate answers provided (%)	Grade points
60,00-69,99	30
70,00-79,99	35
80,00-89,99	40
90,00-94,99	45
95,00-100,00	50

Calculation of final grade:

Grades obtained during the final exam are added to the points earned during the course. The evaluation is performed by absolute distribution, ie on the basis of the final achievement and is compared with the numerical system as follows:

0-59.99 rating points - DID NOT PASS; 60-100 evaluation points – PASSED

Required reading (available in the library and through other media)

Title	Number of copies in the library	Availability through other media
Slavica Kvolik: Intravenous therapy and treatment of electrolyte disorders; in: Vlatka Sotošek, Višnja Ivančan et al. INTENSIVE, EMERGENCY AND TRANSFUSION MEDICINE, manual of the 3rd CEEA course. Zagreb, 2021 - electronic record	1	Online available
Additional reading		
Marko Jukić, Ino Husedžinović, Slavica Kvolik, Višnja Majerić, Kogler, Mladen Perić, Josip Žunić "Clinical Anesthesiology", published by Medicinska naklada, 2012.		
Course evaluation procedures		
Anonymous, quantitative, standardized student survey on the subject and work of teachers conducted by the Office for Quality of the Medical Faculty Osijek.		
Note /Other		
E-learning is not included in the total course hours, but it is used in teaching and contains links to various pages, video and audio materials available on the website.		