

Study program: Integrated academic studies of Pharmacy				
Type and level of the study program: integrated academic studies				
Course title: CLINICAL TOXICOLOGY (PhV-CTOX)				
Teacher: Velibor M. Vasović, Branislava U. Srđenović Čomić, Vesna M. Mijatović				
Course status: elective				
ECTS Credits: 3				
Condition: Basic toxicology				
Course aim The main objective of training in clinical toxicology is to introduce students to routes of toxin penetration, the basic physical and chemical poison properties, poison toxicokinetics and toxicodynamics, prevention and treatment of acute and chronic poisoning. Development of critical thinking skills and scientific research.				
Expected outcome of the course: Students will gain knowledge about the basic properties of poisons, ways of organism intoxication, the interaction between the toxin and the organism, the basic measures aimed at preventing and treating the poisoned. Application of knowledge in the field: the principles of resuscitation of acutely poisoned patients, methods of preventing penetration of toxins into the body, natural and artificial methods of detoxification, symptomatic treatment and antidotal therapy..				
Course description				
<i>Theoretical education</i>				
A brief historical review, the importance of toxicology today, the definition of poison, chemical structure and toxicity, exposure and routes of entry of toxins into the body.				
Types of poisoning, toxic and lethal doses, accumulation of toxines, poisons tolerance, factors affecting toxicity.				
Therapeutic approach for medicamentous and non-medicamentous intoxication.				
Poisoning with drugs used in treatment of mental and nervous disorders.				
Poisoning with drugs acting on the cardiovascular system.				
Poisoning with drugs acting on the respiratory tract, gastrointestinal tract and endocrine system.				
Poisoning with drugs used in treatment of blood and blood-forming organs diseases, drugs acting on the metabolic and nutritional diseases, immune system, drugs in treatment of infectious and parasitic diseases.				
Poisoning with opiates and drugs.				
Poisoning with drugs that act on the disease of muscle-connective-skeletal system				
Pesticide poisoning - concepts, general characteristics and means of protection, pesticides classification, therapeutic approach (2 hours).				
Poisoning through chemical warfare. Occupational poisoning.				
Toxicity data bases and importance of toxicology in forensic medicine.				
<i>Practical education: exercises, other forms of education, research related activities</i>				
CPR - cardiopulmonary resuscitation of acutely intoxicated patients. Rescue breathing and airway skills (deflexed head position, triple grip, oropharyngeal tube placement, manual clearing of the airway, coma position, Haymlich grip, orotracheal intubation).				
Methods of artificial ventilation (mouth-to-mouth, mouth-to-nose, mouth-to-mask, mouth to tube, use of hand-held Ambu bag attached to mask or the endotracheal tube, the use of mobile respirator).				
Methods of artificial circulation maintenance (heart massage, use of a defibrillator in cardiac arrest, CPR techniques with a single rescuer, two rescuer CPR in acutely poisoned children, techniques of peripheral and central venous cannulation. Drugs used in the resuscitation of the acutely intoxicated.				
Prevention of the entry of toxins into the body via oral route - induced vomiting, nasogastric suction, use of medicinal charcoal, forced laxation. Natural means of detoxification - forced diuresis, forced ventilation, hyperbaric oxygenation.				
Artificial detoxification - peritoneal dialysis, hemodialysis, hemoperfusion, plasmapheresis.				
Prevention of the entry of toxins into the body through the respiratory and dermal routes and iatrogenic poisoning, adequate detoxification methods.				
Antidotal therapy in acutely and chronically intoxicated.				
Symptomatic and infusion therapy in acute and chronically poisoned.				
Posioning diagnosis - medical history, clinical and laboratory algorithms.				
Toxicology databases and forensic toxicology importance. Artificial detoxification - peritoneal dialysis, hemodialysis, hemoperfusion, plasmapheresis.				
Prevent the entry of toxins into the body through the respiratory , dermal, iatrogenic means, adequate detoxification methods .				
Antidotal therapy in acutely and chronically intoxicated .				
Symptomatic and infusion therapy in acute and chronically poisoned .				
Diagnosis of poisoning - medical history , clinical and laboratory scientific algorithms .				
Toxicology databases and forensic toxicology importance .				
Literature				
<i>Compulsory</i>				
1. True BL, Dreisbach RH. Dreisbach's Handbook of Poisoning: Prevention, Diagnosis and Treatment, Thirteenth Edition: Taylor & Francis; 2001.				
<i>Additional</i>				
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Number of active classes				Other:
Lectures: 30	Practice: 15	Other types of teaching:	Research related activities:	
Teaching methods: lectures; practical work: diagnostic methods, prevention, therapy for acute and chronic intoxication of patients				
Student activity assessment (maximally 100 points)				
Pre-exam activities		points	Final exam	points
Lectures		5	Written	
Practices		30	Oral	50
Colloquium			
Essay		15		