**Practical Course SYLLABUS (**64 hours**)**

• **Generalities**

- Elements of legislation and authorization of medicines

- Pharmacopoea

- Formulations

- Recipe - General and examples of the main forms of pharmaceutical prescription

• **Disciovery and development of medications**

*1.* ***Drug Discovery Stage***

*- Pharmacological research method*

*- Demonstrate the mechanism of action of receptor*

*- Classical pathway of drug discovery: chemical structure- pharmacological properties relationship; method of reverse pharmacology; industrial-scale reproduction of endogenous biologically active substances; chemical structure modulation of endogenous biologically active substances followed by industrial-scale reproduction*

*2****. Non - Clinical Drug Evaluation Stage***

*- Pharmacodynamic(PD) evaluation: primary PD, secondary PD and toxicological PD*

*Pharmacokinetics evaluation: absorption, distribution, metabolism and excretion of drugs*

*- Non-clinical toxicological evaluation: single dose acute toxicity; Subacute repeated dose toxicity; Chronic repeated dose; embryo-fetal and maternal toxicity; genotoxicity; mutagenicity.*

**• Experimental models**

* Experimental design
* Protocol
* Data predictability

**• Statistical manipulation and interpretation of data**

• **Laboratory Animals Experiments Ethics and Legislature**

• **Experimental evaluation of medicines’ pharmacokinetics**: Primary pharmacokinetic parameters measurements; Primary pharmacokinetic parameters calculations; evaluating the absorption of drugs; medicines distribution assessments; assessing drug metabolism; evaluating the excretion of drugs; enzymatic induction problems; establishing dose of drugs arrangements depending on the particular pharmacokinetics.

• **Experimental evaluation of pharmacodynamy of drugs with cholinergic action. The method of monitoring blood pressure in mammals**

**• Experimental evaluation of pharmacodynamy of drugs with adrenergic action. The method of monitoring the blood pressure in mammals.**

• **Experimental evaluation of pharmacodynamy of non-clinical CNS active drugs:**

- ***Assessment of general anaesthetics*** *- phases of general anaesthesia, peculiarities of action of general anaesthetics - evaluation of general anaesthetic effect of ether in mice*

*-* ***Evaluation of medicinal sedative-hypnotics*** *- sedative-hypnotic action of barbiturates in mice by potentiating the action of sedative-hypnotic type neuroleptics*

*-* ***Assessment of neuroleptics*** *- neuroleptic syndrome, evaluation of the tranquilizer effect of chlorpromazine*

*-* ***Evaluating painkillers***

* ***Inflammatory******Type:*** *analgesic action of metamizol sodiumin mice*
* ***Opioid******Type:*** *morphine analgesic activity in mice*

• **Rational prescribing of drugs** – the practice of rational choice of drugs and regimens in clinical conditions

• **Rational prescribing of drugs in the field of nervous system:**  sedative-hypnotic medication; anxiolytic medication; psychomotor stimulant medication; antipsychotic medication; antidepressant medication; Parkinsonian medication; muscle relaxant medication; anti-epileptics.

• **Rational prescribing of painkillers:** opioids; non-opioid analgesics: NSAIDs.

• **Rational prescribing of glucocorticoids**

• **Rational prescribing of medicine acting on different body systems:**

- ***Cardiovascular drugs:***

- inotropic medication;

- antiarrhythmic medication;

- antianginal medication: organic nitrates, beta-blockers and calcium channel blockers used as antianginal;

- antihypertensive medication: classes of antihypertensives, diuretics used as antihypertensives. - ***Digestive drugs***: antacids, secretion inhibitors clorhidropeptics, antispasmodics, anti-diarrhoeal drugs, antivomitives.

- ***Respiratory drugs***: antiasthmatics, expectorants, antitussives.

-***Blood drugs***: antianemics, antiplatelets, anticoagulants, fibrinolytics, antihaemorrhagics.

-***Ocitocic, tocolytic and contraception drugs***: oxytocic action, tocolytic action, action principles of oral contraceptives, adverse reactions in clinical conditions.

• **Rational prescribing of antibacterial chemoterapics**: beta-lactam penicillins, cephalosporins, carbapenems; aminoglycosides; tetracyclines; macrolides; chloramphenicol; chinolones.