Paramedical program	
Specialization	**Pharmacy**
Course number	**020805132**
Course title	**Pharmaceutics 1/ practical**
Credit hours	**2**
Theoretical hours	**0**
Practical hours	**6**

Brief Course Description:

It is a practical course includes drug prescription and its contents, calculations, pharmaceutical measurements, weighing and measuring volumes.

Course Objectives:

Upon the completion of the course, the student will be able to:
1. use and handle tools and lab instruments
2. Identify pharmacopoeias and how to use.
3. Know the components of prescriptions.
4. calculate the amount of the prescription components.
5. Identify different pharmaceuticals calculations and performed them correctly.

Detailed Course Description:

Unit number	Unit name	Unit content	Time needed
1.		▪ Identification of tools , instruments available in the lab ▪ Training on using measuring tools for (weight & volume) ▪ Laboratory Rules and Safety ▪ hazard symbols should be used as guides for the handling of chemical reagents	
2.	**Pharmacopoeia and other compendia**	▪ Pharmacopeias contents and how to use. o British pharmacopoeia (B. P.) o State pharmacopoeia (U.S.A) ▪ Martindale ▪ MIMs ▪ Jordan drug index	
3.	**Dispensing and Prescription.**	▪ summarize pharmaceutical/medical terminology, abbreviations and symbols commonly used in the prescribing, dispensing, and charting of medications in the pharmacy ▪ Analysis of prescription ▪ report error , missing part in the prescription and prescription of patient medication record . ▪ Pharmacist counseling (OTC, Cosmetics, Inhaler)	
4.	**Posology**	▪ factors affecting dose ▪ calculation of doses for infants and children.	
5.	**Pharmaceutical calculations:**	▪ Pharmaceutical measurement systems:(metric, avoirdupois, and apothecary) ▪ ratio and proportion, dosage determinations, percentage ▪ preparations, reducing and enlarging formulas ▪ dilution and concentration.(dilution from stock	

		solution, dilution from two solution without using diluents(solvents) ▪ Mole fraction , Molarity ,And Normality ▪ Molar ratio: (between week acid and it's salt, between week base and it's salt.```	
6.	**Preparation of dilute solutions using stock or concentrated solutions**	• Preparation of dilute alcohol solution using concentrated alcohol solution • Preparation of alcohol solution by using two alcohol solutions without using water	

Evaluation Strategies:

	Exams	**Percentage**	**Date**
	Mid Exam	25%	--/--/----
	Final Exam	50%	--/--/----
	Technique	10%	
	Homework and Projects Discussions and lecture Presentations	15%	--/--/----

Teaching language:

- English

Teaching Methodology:

- Laboratory

Text Books & References:

1- Pharmaceutical practice , A.J. Winfield, R.M.E. Richards, 3d. edition, 2005, Churchill Livingstone
2- Remington ,The science and practice of pharmacy 21st edition,2004, Lippincott William & Wilkens
3- British Pharmacopoeia 2008, British pharmacopoeia Commission, TSO.
4- The Science of dosage form design, Edin burgh, 2002, New Yourk, Churchill Livingston

Paramedical program	
Specialization	**Pharmacy**
Course number	**020805232**
Course title	**Pharmaceutics 2/ practical**
Credit hours	**2**
Theoretical hours	**0**
Practical hours	**6**

Brief Course Description:

It is a practical course includes preparation of liquid dosage forms (solutions, syrups, spirits, tinctures) emulsions, eye drops, ear drop and lotions.

Course Objectives:

Upon the completion of the course, the student will be able to:

3. prepare a different liquid dosage forms
4. identify these dosage forms (properties, methods of preparation)
2. Prepare emulsion by using dry method
3. prepare emulsion by using wet method
4. prepare emulsion by using forbs' method
5. Calculate the amount of acacia as an emulsifying agent
6. use additives in a right way
7. understand the aim of adding each of substance to the preparation
9. Know the indications and uses of each preparation
10. understand principles and labeling of preparations.

Detailed Course Description:

Unit number	Unit name	Unit content	Time needed
1.	**Preparation of solutions**	▪ Simple solution (potassium permanganate solution) ▪ Using co-solvents : (Gentian violet solution) ▪ Solutions prepared by complex formation (weak iodine ,strong iodine solution)	
2.	**Preparation of Intravenous solutions**	▪ Normal saline solution ▪ Glucose water solution.	
3.	**Tinctures**	▪ Iodine tincture	
4.	**Aromatic waters and Spirits**	▪ Chloroform water /or peppermint water ▪ Peppermint spirit	
5.	**syrups**	▪ Simple syrup	
6.	**Drops**	▪ Salicylic acid ear drop ▪ zinc sulfate eye drops	
7.	**Suspension**	-preparation of calamine lotion - preparation of oily calamine lotion - dispense and prepare anti biotic suspension	
8.	**Emulsion**	-Castor oil emulsion -Paraffin oil emulsion -Peppermint oil emulsion	

Evaluation Strategies:

	Exams	Percentage	Date
	Mid Exam	25%	--/--/----
	Final Exam	50%	--/--/----
	Technique	10%	
	Homework and Projects Discussions and lecture Presentations	15%	--/--/----

Teaching language:

- English

Teaching Methodology:

- Laboratory

Text Books & References:

1- Pharmaceutical practice , A.J. Winfield, R.M.E. Richards, 3d. edition, 2005, Churchill Livingstone
2- Remington ,The science and practice of pharmacy 21st edition,2004, Lippincott William & Wilkens
3- British Pharmacopoeia 2008, British pharmacopoeia Commission, TSO.
4- The Science of dosage form design, Edin burgh, 2002, New Yourk, Churchill Livingston

Paramedical program	
Specialization	**Pharmacy**
Course number	**020805234**
Course title	**Pharmaceutics 3/ practical**
Credit hours	**2**
Theoretical hours	**0**
Practical hours	**6**

Brief Course Description:

It is a practical course includes preparing semi solid dosage forms such as liniments , pasts, ointments , creams, suppositories, and solid dosage forms such as dusting powders, effervescent powder, granules, and lozenges.

Course Objectives:

Upon the completion of the course, the student will be able to:
1. Identify semi-solid pharmaceutical dosage forms (types, properties, method of preparation)
2. prepare these dosage form in different known method
3. know the purpose of each additive (content) of the formula
4. know the uses of the formula
5. know the type of bases used in suppositories, ointments and creams
6. package and label the dosage form in a suitable container and use a suitable label

Detailed Course Description:

Unit number	Unit name	Unit content	Time needed
1.	**Suppositories**	▪ Glycerin suppositories	
2.	**Pastes**	▪ zinc oxide paste	
3.	**Ointments**	▪ Zinc oxide ointment(Trituration using mortar and pestle) ▪ Whitfield ointment (trituration using slid and spatula) ▪ Simple ointment (fusion method)	
4.	**Creams**	• Cream preparation (cold cream) • Creams (vanishing cream)	
5.	**Powder and Granules**	▪ Preparation of dusting powder ▪ Preparation of effervescent powders (electrolyte mixture) ▪ Preparation granules of (Acetyl salicylic acid)	
6.	**Lozenges**	▪ Preparation of gelatin lozenges	

Evaluation Strategies:

	Exams	Percentage	Date
	Mid Exam	25%	--/--/----
	Final Exam	50%	--/--/----
	Technique	10%	
	Homework and Projects Discussions and lecture Presentations	15%	--/--/----

Teaching language:

- English

Teaching Methodology:

- Laboratory

Text Books & References:

1- Pharmaceutical practice , A.J. Winfield, R.M.E. Richards, 3d. edition, 2005, Churchill Livingstone
2- Remington ,The science and practice of pharmacy 21st edition,2004, Lippincott William & Wilkens
3- British Pharmacopoeia 2008, British pharmacopoeia Commission, TSO.
4- The Science of dosage form design, Edin burgh, 2002, New Yourk, Churchill Livingston