COURSE SPECIFICATIONS

Faculty of Pharmacy

Second level – Semester 4

2020-2021

CONTENTS:

COURSE SPECIFICATIONS

BiochemistryI

Second level – Semester 4

2020-2021

Course specification of Biochemistry 1

University: Zagazig Faculty: Pharmacy

A- Course specifications:

Program (s) on which the course is given: Bachelor of Pharmacy (Pharm D).

Major or Minor element of programs: Major

Department offering the program: -------

Department offering the course: Biochemistry Department

Academic year Level: Second level/ semester4

Date of specification approval:

B- Basic information:

Title: Biochemistry 1 Code: PB 402

Credit Hours: ---

Lectures: 2hrs/week

Practical: 1hr/week

Tutorials: ---

Total: 3hrs/week

C- Professional information:

1-Overall aim of the course

On completion of the course, students will be able to:

- Illustrate chemistry and functions of carbohydrate, lipids, proteins, Enzymes and cellular organelles.
- Outline the principles of bioenergetics, oxidative phosphorylation, porphyrin and nucleotides metabolic pathways.
- Also, students will be able to perform laboratory tests for biological samples and to interpret of laboratory results for diagnosis of diseases.

2- Key elements of Biochemistry 1

DOMAIN 1- FUNDAMENTAL KNOWLEDGE	
1-1- COMPETENCY: Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centred care.	
1.C1.1	Explain the principles of Biochemistry including electron transport chain and oxidative phosphorylation, enzymes and their mode of action, chemistry and functions of carbohydrates, lipids, proteins and nucleic acid including DNA.
1.C1.2	Identify synthesis and degradation of hemoglobin and the associated disorders
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE	
2-3- COMPETENCY Handle and dispose biologicals and synthetic/natural pharmaceutical materials/products effectively and safely with respect to relevant laws and legislations.	
2.C3.1.	Handle basic laboratory equipment and chemicals effectively and safely, and Perform Qualitative tests to identify different types of proteins and lipids.
2.C3.2	Apply GLP guidelines for safe handling of chemicals
DOMAIN 3: PHARMACEUTICAL CARE	
3-1- COMPETENCY Apply the principles of body functions to participate in improving health care services using evidence-based data.	
3.C1.1	Select the appropriate method for differentiation between different classes of carbohydrates and fatty acids.
3.C1.2	Assess different methods used for determination of heme disorders, and Analyze and interpret quantitative data of laboratory results in a suitable form.
DOMAIN 4: PERSONAL PRACTICE	
4-1- COMPETENCY Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.	
4.C1.1	Manage time as evidenced by the ability to plan and implement efficient mode of working.

D-Contents

WeekNo.	Lecture contents (2 hrs/lec.)	Practical session (1hr/lab)
1	- Biological oxidation. - Substrate level phosphorylation -Oxidative phosphorylation.	-Laboratory Safety -Measures
2	- Electron transport chain -Uncouplers - Energy gain from glucose oxidation in cells.	-Introduction about practical biochemistry.
3	-Enzymes structure -Properties of enzymes - Enzymes: mechanism of actions and coenzymes	- Separation of serum and plasma.
4	- Factors affecting reaction velocity - Inhibition of enzyme activity - Regulation of enzyme activity	- **Activity-1** (Drugs containing carbohydrates).
5	- Correlation of enzymes with diseases	-**Activity-2**(Drugs containing proteins).
6	- Chemistry of heme -Regulation of heme metabolism and metabolic disorders.	Diabetes.
7	- **Periodical exam**	- **Periodical exam**
8	- Structure and classification of amino acids - Acidic and basic properties of amino acids - Structure of proteins - Functions of proteins - Plasma proteins	Qualitative tests for proteins

9	-Definition and function of lipids - Classification of lipids Distribution of lipids in the body - Types of fatty acids and essential fatty acids.	Qualitative tests for lipids.
10	Definition and functions of carbohydrates.	-Quantitative determination of serum glucose
11	Classification of carbohydrates (monosaccharaides, disaccharides, oligosaccharides examples with structure).	**Practical exam 1**
12	Polysaccharides: examples and classification - Physical and chemical properties of carbohydrates.	**Practical exam 2**
13	Chemistry of nucleic acid including nucleic acid.	
14	Revision and Open discussion	
15	Final exam	

E- Teaching and Learning Methods:

- Lectures
- Laboratory sessions
- Think/pair/share
- Research project(Students are asked prepare a report& presentation about Vegetarian diet &Importance of plasma protein, Creatine, Glutathione)
- Role play
- Blended learning

F- Student Assessment methods:

1- Written and periodical exams to assess: 1.C1.1, 1.C1.2, 3.C1.1, 3.C.1.2

2- Practical exams to assess: 2.C3.1,2.C3.2, 3.C1.1, 3.C.1.2

3- Activities to assess: 4.C1.1

4- Oral exam to assess: 1.C1.1, 1.C1.2, 3.C1.1, 3.C.1.2

Assessment schedule

Assessment (1): Activity	Week 4, 5
Assessment (2): Periodical exam	Week 7
Assessment (3): Practical exam	Week 11, 12
Assessment (4): Written exam	Week 15
Assessment (5): Oral exam	Week 15

Weighting of Assessment

Assessment method	Marks	Percentage
Activity	5	5%
Periodical exam	10	10%
Practical exam	25	25%
Written exam	50	50%
Oral exam	10	10%
TOTAL	100	100%

G- Facilities required for teaching and learning:

- Black (white) board, Data show, Laboratory equipment (spectrophotometer, centrifuge) and Chemicals.

H- List of References:

1- Course Notes: Student book of Biochemistry (1) approved by biochemistry department (2020).

- Practical notes of Biochemistry (1) approved by biochemistry

department (2020).

2- Essential books:

Essential books:

- Marks' basic medical biochemistry: a clinical approach(third edition); Lieberman M., MarksA.D., Smith C.M. (2008).
- Lehninger principles of biochemistry (seventh edition); NelsonD.L., CoxM.M.,FreemanW.H. (2017).
- Lippincott'sIllustrated Reviews:Biochemistry (Seventh edition); FerrierD.R. (2017)
- Marks' basic medical biochemistry: a clinical approach (fifth edition); Lieberman M., Marks A.D., Peet MD, Alisa. (2017).

3- Recommended books:

i- Biochemistry (seventh edition); Garrett R.H. and Grisham C.M.; Thomson learning, Inc (2017).

ii- Harper's Illustrated Biochemistry (31th edition); Murray R.K., Bender D.A., Botham K.M., Kennelly P.J., Rodwell V.W., Weil P.A.; The Mc Graw Hill companies Inc. (2018).

4- Periodicals and websites:

Egyptian J. of biochem. and molecular biology.

Egyptian J. of Pharmaceutical sciences.

Arab J. of Laboratory Medicine,

J. of Cardiovascular diseases.

www.Pubmed.Com

www.sciencedirect.com.

Course coordinators: Prof. Dr. Rawia Sarhan

Date: تم مناقشة و إعتماد توصيف المقرر من مجلس القسم بتاريخ

Matrix I of Biochemistry 1 course 2020-2021

Course Contents		Key elements of Biochemistry 1 course						
		FUNDAMENTAL KNOWLEDGE		PROFESSIONAL AND ETHICAL PRACTICE		PHARMACEUTICAL CARE		PERSONAL PRACTICE
Lectures		1.C.1.1	1.C.1.2	2.C.3.1	2.C3.2	3.C.1.1	3.C.1.2	4.C.1.1
1	- Biological oxidation. - Substrate level phosphorylation - Oxidative phosphorylation	X						
2	- Electron transport chain -Uncouplers - Energy gain from glucose oxidation in cells.	**x**						
3	Mechanism of action of enzymes- coenzymes- factors affecting reaction velocity	**X**				**x**		
4	Inhibition of enzyme activity and regulation	x						
5	Correlation of enzymes with disease- Functions and classification of carbohydrates	X						
6	Classification of polysaccharides- physical and chemical properties of carbohydrates	X				x		
7	Structure and classification of amino acids - acidic and basic properties of amino acids	X						
8	Structure of proteins							

		X				
9	Functions of proteins- plasma proteins- functions and classification of lipids	X				
10	Distribution of lipids in the body- types of fatty acids	X				
11	Chemistry of porphyrins		x			
12	Metabolism of porphyrins and related diseases.		x		x	
13	Revision- open discussion					x
Practical sessions						
14	Laboratory safety measures			x		
15	Introduction about biochemistry			x		
16	Separation of serum and plasma				x	

				X		
17	Qualitative tests for lipids			X	x	
18	Qualitative tests for proteins.			X	x	
19	Quantitative determination of serum glucose.			X	x x	
20	Activity					x

Matrix II of Biochemistry 1 course 2020-2021

National Academic Reference Standards NARS		Program key elements	Course key elements	Course contents	Sources	Teaching and learning methods			Method of assessment		
						Lecture	Practical session	Self-learning	Written exam	Practical exam	Oral exam
1-1-1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioural, administrative, and clinical sciences.	1.C.1.3	1.C.1.1	- Electron transport chain -Uncouplers - Energy gain from glucose oxidation in cells.	Student book	x			x		x
				Oxidative phosphorylation	Student book Essential books	x			x		x
				Enzyme structure-enzyme properties	Student book	x			x		x
				Mechanism of action of enzymes-coenzymes-	Student book Essential books Internet	x		x	x		x

				factors affecting reaction velocity						
				Inhibition of enzyme activity and regulation	Student book Essential books	x			x		x
				Correlation of enzymes with disease	Student book Essential books	x			x		x
				Classification of carbohydrates	Student book	x			x		x
				Classification of polysaccharides- physical and chemical properties of carbohydrates	Student book	x			x		x
				Structure and classification of amino acids - acidic and basic properties of amino acids	Student book	x			x		x
				Structure of proteins	Student book	x			x		x
				Types of fatty acids	Student book	x			x		x
				Classification of lipids	Student book	x			x		x
				Correlation of enzymes with disease	Student book Essential books	x			x		x

				Functions of proteins and plasma proteins	Student book	x			x		x
				Distribution of lipids in the body	Student book	x			x		x
			1.C.1.2	Chemistry of porphyrins	Student book	x			x		x
				Metabolism of porphyrins and related diseases.	Student book Essential books	x			x		x
				Metabolism of porphyrins and related diseases.	Student book Essential books	x			x		x
2-3-1	2-3-1 Handle, identify, and dispose biologicals, synthetic/natural materials,	2.C.3.1	2.C.3.1	Laboratory safety measures	Practical notes		x			x	
				Qualitative tests for proteins	Practical notes		x			x	

	biotechnology-based and radio-labelled products, and other materials/products used in pharmaceutical field.			Qualitative tests for lipids	Practical notes		x			x	
				Quantitative determination of blood glucose	Practical notes		x			x	
2.3.2	Recognize and adopt ethical, legal, and safety guidelines for handling and disposal of biologicals, and pharmaceutical materials/products.	2.C3.2	2.C3.2				x			x	
3-1-1	Apply the principles of body function and basis of genomics in health and	3.C.1.1	3.C.1.1	Qualitative tests for proteins	Practical notes		x			x	
3.1.3	disease states to manage different disease	3.C.1.3	3.C.1.2	Qualitative tests for lipids	Practical notes		x			x	

	Monitor and control microbial growth and carry out laboratory tests for identification of infections/ diseases.			Separation of plasma and serum Quantitative determination of blood glucose	Practical notes		x			x	
				Classification of polysaccharides- physical and chemical properties of carbohydrates	Student book	x			x		x
4-1-1	4-1-1 Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills.	4.C.1.3	4.C.1.1	Activity	Internet Recommended books		x	x		x	
				Activity	Internet Recommended books		x	x		x	
				Activity	Internet Recommended books			x		x	
				Activity	Internet Recommended books			x		x	
				Revision- Open discussion	Student book Internet Recommended books	x		x			x

				Activity	Internet Recommended books		x	x		x	

Course Coordinator: Prof. Dr. Hoda Elsayed

COURSE SPECIFICATIONS

Pathology

Second level – Semester 4

2020-2021

COURSE SPECIFICATIONS

Instrumental Analysis

Second level – Semester 4

2020-2021

Course specification of Instrumental Analysis

University: **Zagazig** **Faculty:** **Pharmacy**

A- Course specifications:

Program (s) on which the course is given: Bachelor of Pharmacy(Pharm D)

Major or Minor element of programs: Major

Department offering the program: -------

Department offering the course: Pharmaceutical Analytical chemistry

Academic year / Level: Second level/Fourth semester

Date of specification approval:

B- Basic information:

Title: Instrumental analysis Code: PA 404

Credit Hours: 3 hrs

- Lectures : 2 hr/week
- Practical: 1 hrs/week
- Tutorials: ---
- Total: 3 hrs/week

C- Professional information:

1-Overall Aims of the Course:

On completion of the course, students will be able to:

- Illustrate the theory and application of spectrophotometry, spectrofluorimetry, atomic absorption spectrometry and chromatography
- Describe composition and mechanism of each studied instrument
- Apply studied quantitative methods for determination of different pharmaceutical compounds

2- Key elements:

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

1-1- COMPETENCY: Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	
1.C1.1	Mention principles of instrumental analysis
1.C1.2	Explain composition and mechanism of each studied instrument
1.C1.3	Illustrate theories of spectrophotometry, spectroflourimetry, atomic absorption spectrometry and chromatography
1.C1.4	Illustrate applications of spectrophotometry, spectroflourimetry, atomic absorption spectrometry and chromatography
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE	
2-2- COMPETENCY Standardize pharmaceutical materials, formulate and manufacture pharmaceutical products, and participate in systems for dispensing, storage, and distribution of medicines.	
2.C2.1	Apply spectrophotometric and chromatographic techniques for determination of some compounds
2.C2.2	Choose the most appropriate instrumental method for analysis of different compounds.
2. C2.3	Interpret results into concentrations.
2-3- COMPETENCY Handle and dispose biologicals and synthetic/natural pharmaceutical materials/products effectively and safely with respect to relevant laws and legislations.	
2.C3.1	Handle and dispose chemicals safely.
2.C3.2	Adopt safety guidelines.
DOMAIN 4: PERSONAL PRACTICE	
4-1- COMPETENCY Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.	
4.C1.1	Demonstrate problem solving, and decision-making skills.
4.C1.2	Perform tasks within time limit.
4-2- COMPETENCY Demonstrate good information technology skills as well as presentation skills.	
4.C2.1	Implement writing and presentation skills

D- Contents:

Week No.	Lecture (2 hrs/week)	Practical session (1 hrs/week)
1	Introduction to instrumental methods of analysis	Safety guidelines
2	Spectrophotometry Electromagnetic Radiation, Light as energy, types of electronic transitions, laws of light absorption and Bouguert-lambert's law	Spectroscopic principle and instrumentation
3	Spectrophotometry ▪ Absorption spectrum, Chromophore, Auxchrome, bathochromic shift, hypsochromic shift, hypochromic effect and hyperchromic effect, Effect of pH on absorption spectra	Determination of λ_{max}
4	Spectrophotometry Colorimetry, General requirements of the coloured product, General requirement of an ideal chromogen	Determination of $KMnO_4$ spectrophotometrically
5	Instrumentation Spectrophotometer, Light source, Monochromator, Sample compartment, Light detector, Types of Transducer, Signal processor (meter or recorder)	Beer's law, regression equation
6	Application of spectrophotometry	Determination of unknown concentration by Spectrophotometry
7	**Periodical exam**	Calibration curve for $CuSO_4$ through reaction with pot. ferrocyanide spectrophotometrically
8	Spectrofluorimetry Luminescence, molecular emission, theory of fluorescence and phosphorescence, fluorescence spectra, ,	Determination of molar ratio between $CuSO_4$ and pot. ferrocyanide spectrophotometrically using continuous variation method
9	Spectrofluorimetry ▪ instrumentation Advantage of spectroflurometry factors affecting fluoresce intensity, application of spectrofluorimetry	Chromatography principle and instrumentation

10	Atomic absorption spectrometry Comparison between atomic and molecular atomic spectra, Theory of atomic absorption,	Chromatographic chromatograms
11	Atomic absorption spectrometry ▪ Instrumentation and Quantitative determination methods. Theory of flame emission, instrumentation and applications	Chromatography Chemical separation parameters
12	Chromatography ▪ Introduction, comparison between the classical and modern L.C	Activity
13	Chromatography Theoretical aspects, principles of chromatography, parameters of chromatography, techniques of chromatography	**Practical exam**
14	Chromatography ▪ Gas chromatography, principles, instrumentation, factors governing the rotation compounds, detectors for GC, application of GC, HPLC, types of HPLC , SFC	
15	**Final Exam**	

E- Teaching and Learning Methods:

- Lectures (data show, board)
- Practical sessions
- Discussion sessions
- Self-learning and presentations
- Blended

F- Student Assessment Methods:

1- Written exam to assess 1.C1.1, 1.C1.2, 1.C1.3, 1.C1.4, 2.C2.1, 2.C2.2, 2.C2.3

2- Practical exam to assess 2.C2.1, 2.C2.2, 2.C2.3, 2.C3.1, 2.C3.2, 4.C1.1, 4.C1.2

3- Oral exam to assess 1.C1.1, 1.C1.2, 1.C1.3, 1.C1.4, 2.C2.1, 2.C2.2,

2.C2.3

4- Periodical exam to assess 1.C1.1, 1.C1.2, 1.C1.3, 1.C1.4,

5- Activity to assess 4.C1.2, 4.C2.1

Assessment schedule:

Assessment (1): Written exam	Week 15
Assessment (2): Practical exams	Weeks 13
Assessment (3): Oral exam	Week 15
Assessment (4): Activity	Weeks 12
Assessment (5): Periodical exam	Weeks 7

Weighting of Assessment:

Assessment method	Marks	Percentage
Written exam	50	50%
Practical exam	25	25%
Oral exam	10	15%
Periodical exam and activity	15	10%
TOTAL	100	100%

G- Facilities Required for Teaching and Learning:

Data show, white board, Laboratory equipment and Chemicals.

H- List of References:

1- Course Notes

Lecture notes and department notes

2- Essential Books (Text Books)

G. Svehla "Vogel's Textbook of Quantitative Inorganic Analysis including Elementary Instrumental Analysis" 4th edn, Longman Inc., New York (1990).

3- Recommended Books

i- F. Rouessac, A. Rouessac "Chemical Analysis: Modern Instrumental Methods and Techniques" 4th edn, John Wiley & Sons, Ltd., New York (1998).

ii- Stuart A. Burman "Instrumentation in Analytical Chemistry" American Chemical Society, Washington vol. 28 (2010).

4- Periodicals, Web Sites, etc

Analytical Letters Journal

Analyst Journal

Course Coordinators: **Prof. Dr. Wafaa Hassan**

Head of department:

Matrix I of Instrumental Analysis													
Course Contents		Key elements of Instrumental Analysis											
		1-1- COMPETENCY				2-2- COMPETENCY			2-3- COMPETENCY		4-1- COMPETENCY		4-2- COMPETENCY
Parts		1.C1.1	1.C1.2	1.C1.3	1.C1.4	2.C2.1	2.C2.2	2.C2.3	2.C3.1	2.C3.2	4.C1.1	4.C1.2	4.C2.1
1	Introduction to instrumental methods of analysis	X											
2	Spectrophotometry		X	X				X			X		
3	Application of spectrophotometry		X		X	X	X						
4	Spectrofluorimetry		X	X	X	X							
5	Atomic absorption spectrometry		X	X	X	X							
6	Chromatography, HPLC(theory and principles), UPLC, GC		X	X	X		X	X			X		
Practical sessions													
1	Safety guidelines								X	X			
2	Spectrophotometry (determination of λ_{max}, Determination of $KMnO_4$ spectrophotometrically, Beer's law,regression equation, determination of unknown, calibration curve of $CuSO_4$ with pot. Ferrocyanide, and molar ratio determination using continuous variation method					X	X	X		X	X	X	
3	Chromatography (Instrument, chromatographic chromatograms and chemical separation parameters)					X	X	X			X	X	
4	Activities (reports)											X	X

Matrix II of Instrumental analysis course

National academic reference standards NARS		Program Key elements	Course Key elements	Course contents	Sources	Teaching and learning methods			Weighting of assessment			
						Lecture	Practical session	Self-learning	Written exam	Practical exam	Oral exam	Periodical exam
1.1.1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	1.C1.2	1.C1.1 1.C1.2 1.C1.3 1.C1.4	-Introduction to instrumental methods of analysis - spectrophotometry, spectroflourimetry and Chromatography instruments	Student book Essential books	x			x		x	x
2.2.1	Isolate, design, identify, synthesize, purify, analyze, and standardize synthetic/ natural pharmaceutical materials.	2.C2.1	2.C2.1 2.C2.2 2.C2.3	spectrophotometry, spectroflourimetry and Chromatography basic theories	Student book Essential books Practical notes	x			x	x	x	
2.2.3	Recognize the principles of various tools and instruments and select the proper techniques for synthesis and analysis of different materials and production of pharmaceuticals.	2.C2.4				x			x	X	x	
2.3.1	Handle, identify, and dispose biologicals, synthetic/natural	2.C3.1	2.3.1 2.3.2	Safety guidelines			x			X		

	materials, biotechnology-based and radio-labeled products, and other materials/products used in pharmaceutical field.											
4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	4.C1.5	4.C1.1 4.C1.2	spectrophotometry, spectroflourimetry and Chromatography basic theories -Spectrophotometry (determination of λmax, Determination of KMnO4 spectrophotometrically, Beer's law,regression equation, determination of unknown, calibration curve of CuSO4 with pot. Ferrocyanide, and molar ratio determination using continuous variation method -Activity	Student book Essential books Practical notes	x	x	X	x	X	x	
4.2.2	Use contemporary technologies and media to demonstrate effective	4.C2.2	4.C2.1	Activity	Internet and presentation			x				

COURSE SPECIFICATIONS

Pharmaceutics II

Second level – Semester 4

2020-2021

Course specification of Pharmaceutics II

University: Zagazig **Faculty: Pharmacy**

A- Course specifications:

Program (s) on which the course is given: Bachelor of Pharmacy (Pharm D)

Major or Minor element of programs: Major

Department offering the program: -------

Department offering the course: Pharmaceutics Department

Academic year Level: Second level/ semester4

Date of specification approval: September 2020

B- Basic information:

Title: Pharmaceutics II Code: **PT 404**

Credit Hours: ---

Lectures: 2hr/week

Practical: 1hr/week

Tutorials: ---

Total: 3 hrs/week

C- Professional information:

1-Overall aim of the course

This course covers the structure and function of the skin, target area of treatment after topical application to skin, basic principles of diffusion through membranes and factors affecting percutaneous absorption, enhancement of skin penetration, transdermal drug delivery systems (TDDS). It also describes the principles and techniques involved in the formulation and manufacturing of traditional dermatological semisolid dosage forms (creams, ointments, gels and pastes).

DOMAIN 1- FUNDAMENTAL KNOWLEDGE	
1-1- COMPETENCY: Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	
1.C1.1.	Describe structure and function of skin as well as basic principles of diffusion through membranes and factors affecting percutaneous absorption
1.C1.2.	Enumerate the properties of different dosage forms including; Creams, Ointments, Gels, Pastes and Transdermal drug delivery systems (TDDS) and the ingredients used in their preparation
1.C1.3.	Outline enhancement methods of skin penetration, ideal properties of different dosage forms as Creams, Ointments, Gels, Pastes and Transdermal therapeutic systems (TTS) as well as quality control tests.
1.C1.4.	Describe different methods for preparation of semisolid preparations and Transdermal therapeutic systems
1.C1.5	Differentiate between different Transdermal therapeutic patches as well as different semisolid preparations
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE	
2-2 COMPETENCY: Standardize pharmaceutical materials, formulate and manufacture pharmaceutical products, and participate in systems for dispensing, storage, and distribution of medicines.	
2.C2.1.	Formulate different dosage forms including ointments, creams, gels and pastes
2.C2.2.	Perform different calculations required for the preparation of ointments, creams, pastes and gels
2.C2.3	Select the proper ingredients for the preparation of semisolid preparations and TDDS.
2-3- COMPETENCYL: Handle and dispose biologicals and synthetic/natural pharmaceutical materials /products effectively and safely with respect to relevant laws and legislations.	
2.C3.1.	Handle pharmaceutical ingredients and preparations safely
2.C3.2	Apply GLP guidelines for safe handling of chemicals
DOMAIN 4: PERSONAL PRACTICE	
4-1- COMPETENCY Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.	
4.C1.1.	Work effectively as a team member

2- Key elements of Pharmaceutics II

D- Contents:

Week No.	Lecture contents (2hr/week)	Practical session (1hr/week)
1	**Transdermal drug delivery:** - structure and function of the skin, - mechanism of drug transport through the skin	Lab regulations
2	-Factors affecting percutaneous absorption (biological and physicochemical factors)	Preparation of sulfur ointment
3	- methods of maximizing the bioavailability of drugs applied to the skin -Penetration enhancers	Preparation of white field ointment
4	Transdermal therapeutic patches(TTS) -Advantages and disadvantages - Types and examples	Preparation of cold cream
5	**Dermatological semisolid dosage forms** - Ideal Properties Of Semisolid Dosage Forms - Types Of Conventional Semisolid Dosage Forms	Preparation of vanishing cream
6	**Ointments** -Advantages and disadvantages -Types of ointment bases.	Preparation of Shaving cream
7	Midterm exam	
8	**Ointments** -Characters of ideal bases -Methods Of Ointment Preparation -Stability and storage	Preparation of Acne cream
9	**Creams** -Advantages and disadvantages -Different Types.	Preparation of sunscreen cream
10	**Creams** - Emulsifying agents -Methods of preparation -Stability and storage	Preparation of Tooth paste

11	Gels -Advantages and disadvantages -Types e.g. hydrogel, organogel. -Methods of Preparation, applications	Preparation of Unna's paste
12	Pastes -Different Types -Methods of preparation, examples	Preparation of Ichthammol Poultice
13	**Miscellaneous topical preparations** e.g. Poultices, Plasters.	**Practical exam**
14	**Quality control tests for semisolids**	
15	**Final written exam**	

E- Teaching and Learning Methods:

- Lectures
- Practical sessions
- Think/pair/share
- Blended learning

F- Student Assessment methods:

1- Written exams to assess: 1.C1.1, 1.C1.2, 1.C1.3, 1.C1.4, 1.C1.5, 2.C2.3

2- Practical exams to assess: 2.C2.1, 2.C2.2, 2.C3.1, 2.C3.2

3- Activity within labs: 4.C1.1

4- Oral exam to assess: 1.C1.1, 1.C1.2, 1.C1.3, 1.C1.4, 1.C1.5

Assessment schedule

Assessment (1): Periodical exams	Week 7
Assessment (2): Final written exams	Week 15
Assessment (3): Activity within labs	weekly
Assessment (4): Practical exams	Week 13
Assessment (5): Oral exams	Week 15

Weighting of Assessment

Assessment method	Marks	Percentage
Periodical exam	10	10%
Final Written exam	50	50%

Activities	5	5%
Practical exams	25	25%
Oral exam	10	10%
TOTAL	100	100%

G- Facilities required for teaching and learning:

For lectures: Black (white) boards, data show

For labs: Chemicals, glass ware, digital balance, water bathes

H- List of References:

1- Course Notes: Student book of pharmaceutics II approved by pharmaceutics department 2020-2021

2- Essential Books:

- The science of dosage form design, Aulton, M. E., 2nd edition, Churchill Livingstone, London. (2002).
- Pharmaceutical Dosage Forms: Rational design and formulation with excipients, Larry L. Augsburger, Stephen W. Hoag, Informa Healthcare USA, (2008)
- Pharmaceutical Calculations, 12th edition, Howard C. Ansel and Mitchell J. Stoklosa.(2005)
- Aulton, Michael E. Pharmaceutics: The Science of Dosage Form Design. 2 nded.Churchill, 2002

3- Recommended Books:

- Remington's Pharmaceutical Science. Alfonso, Gennaro, R., 17 th edn, Mack Publishing Company, USA. (1985).
- Handbook of Pharmaceutical Manufacturing Formulations: Liquid products, Sarfaraz Niazi, Sarfaraz K. Niazi, CRC Press, (2004).
- Pharmacy Calculations for Technicians, 3rd edition, EMCParadigm puplishing. Don A. Ballington and Tova Wiegand Green. (2007)

4- Periodicals and websites:

www.emedicine.com

www.sciencedirect.com

www.pubmed.com

Course Coordinator: Dr. Azza Ali Hasan Soliman

Head of Department: Dr. Nagia Ahmed El-megrab

Date: **تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ / /2020 م**

Matrix I of Pharmaceutics II course

Course Contents		Key elements of Pharmaceutics II course										
		1-1- COMPETENCY					2-2- COMPETENCY			2-3- COMPETENCY		4-1- COMPETENCY
Lectures		1.C1.1	1.C1.2	1.C1.3	1.C1.4	2.C1.5	2.C2.1	2.C2.2	2.C2.3	2.C3.1	2.C3.2	4.C1.1
1	**Transdermal drug delivery:** - structure and function of the skin and mechanism of drug transport through the skin	x		x								
2	Factors affecting percutaneous absorption (biological and physicochemical factors)	x		x								
3	methods of maximizing the bioavailability of drugs applied to the skin and Penetration enhancers		x	x								
4	Transdermal therapeutic patches(TTS) Advantages and disadvantages, Types and examples	x	x	x		x						
5	**Dermatological semisolid dosage forms** Ideal Properties Of Semisolid	x	x	x		x						

	Dosage Forms and Types Of Conventional Semisolid Dosage Forms											
6	**Ointments** Advantages and disadvantages Types of ointment bases.	x				x						
7	**Ointments** Characters of ideal bases and Methods Of Ointment Preparation Stability and storage	X	x	x	x	x						
8	**Creams** Advantages and disadvantages Different Types.	X	x	x								
9	**Creams** Emulsifying agents and Methods of preparation Stability and storage	X	x	x	x							
10	Gels Advantages and disadvantages Types e.g. hydrogel, organogel and Methods of Preparation, applications	x	x		x							
11	Pastes Different Types and Methods of preparation, examples	X	x	x	x	x						
12	**Miscellaneous topical preparations** e.g. Poultices, Plasters.	x	x	x		x						
13	**Quality control tests for semisolids**			x								

Practical session												
1	Preparation of sulfur ointment						x	x	x	x	x	
2	Preparation of white field ointment						x	x	x	x	x	
3	Preparation of cold cream						x	x	x	x	x	
4	Preparation of vanishing cream						x	x	x	x	x	
5	Preparation of Shaving cream						x	x	x	x	x	
6	Preparation of Acne cream						x	x	x	x	x	
7	Preparation of sunscreen cream						x	x	x	x	x	
8	Preparation of Tooth paste						x	x	x	x	x	
9	Preparation of Unna’s paste						x	x	x	x	x	
10	Preparation of Ichthammol Poultice						x	x	x	x	x	

Matrix II of Pharmaceutics II course

National Academic Reference Standards NARS		Program key elements	Course key elements	Course contents	Sources	Teaching and learning methods			Weighting of assessment			
						lecture	practical session	case study/ think-pair-share self learning	written exam	practical exam& activity	oral exam	Midterm exam
1.1.1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	1.C1.2	1.C1.1	Transdermal drug delivery: - structure and function of the skin and mechanism of drug transport through the skin Factors affecting percutaneous absorption (biological and physicochemical	Student book Essential books	x			x		x	x
			1.C1.2		Student book Essential books	x			x		x	x
			1.C1.3		Student book Essential books	x			x		x	x
			1.C1.4		Student book Essential books	x			x		x	x

			1.C1.5	factors) methods of maximizing the bioavailability of drugs applied to the skin and Penetration enhancers Transdermal therapeutic patches(TTS) Advantages and disadvantages, Types and examples Dermatological semisolid dosage forms Ideal Properties Of Semisolid Dosage Forms and Types Of Conventional Semisolid Dosage	Student book Essential books	x			x		x	x

				Forms Ointments Advantages and disadvantages Types of ointment bases. Ointments Characters of ideal bases and Methods Of Ointment Preparation Stability and storage Creams Advantages and disadvantages Different Types. Creams Emulsifying agents and Methods of preparation Stability and storage Gels Advantages and								

				disadvantages Types e.g. hydrogel, organogel and Methods of Preparation, applications Pastes Different Types and Methods of preparation, examples Miscellaneous topical preparations e.g. Poultices, Plasters. Quality control tests for semisolids								
2-2-2	Apply the basic requirements of quality management system in developing, manufacturing, analyzing, storing, and distributing pharmaceutical	2.C2.2	2.C2.1	Preparation of sulfur ointment Preparation of white field ointment Preparation of cold	Practical notes		x			x		
			2.C2.2		Practical notes		x			x		

	materials/ products considering various incompatibilities.		2..C2.3	cream Preparation of vanishing cream	Practical notes		x			x		
2-3-1 **2.3.2**	Handle, identify, and dispose biologicals, synthetic/natural materials, biotechnology-based and radio-labeled products, and other materials/products used in pharmaceutical field. Recognize and adopt ethical, legal, and safety guidelines for handling and disposal of biologicals, and pharmaceutical materials/products.	. 2.C3.1 2.C3.2	2.C3.1 2.C3.2	Preparation of Shaving cream Preparation of Acne cream Preparation of sunscreen cream Preparation of Tooth paste Preparation of Unna's paste Preparation of Ichthammol Poultice	Practical notes		x			x		

4.1.1	Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills.	4.C1.1	4.C1.1				x			x			

Course Coordinator: Dr. Azza Ali Hasan Soliman

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Date:تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ / /2020 م

COURSE SPECIFICATIONS

Pharmacology I

Second level – Semester 4

2020-2021

COURSE SPECIFICATIONS

Raw materials

Second level – Semester 4

2020-2021

COURSE SPECIFICATIONS

Scientific Writing and Communication skills

Second level – Semester 4

2020-2021

Course Specification of Scientific Writing and Communication skills

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University: **Zagazig** **Faculty:** **Pharmacy**

A- Course specifications:

Program(s) on which the course is given: Bachelor of Pharmacy (PharmD)

Major or Minor element of programs: Major

Department offering the program: -------

Department offering the course: pharmacy practice

Academic year/ Level: Second level /Semester 4

Date of specification approval: Jan 2021

B- Basic information:

Title: Scientific Writing and Communication skills Code: NP 403

Credit Hours: ---

Lectures : 1hr/week

Practical: 1 hr/week

Tutorials: ---

Total: 2 hrs/week

C- Professional information:

1-Overall Aims of the Course:

The aim of the course is to help students develop necessary written and oral communication and presentation skills to improve inter- and intra-professional collaboration and communication with patients and other health care providers. Moreover, skills of scientific writing will be developed.

2- Key elements of Scientific Writing and Communication skills:

DOMAIN 1- FUNDAMENTAL KNOWLEDGE	
1-1- COMPETENCY Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	
1.C1.1	Describe the scientific writing process and its key stages

1.C1.2	Explain appropriate keys for good communication with patients
1.C1.3	Identify different barriers that hinder effective patient – pharmacist communication
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE	
2-1- COMPETENCY Work collaboratively as a member of an inter-professional health care team to improve the quality of life of individuals and communities, and respect patients' rights.	
2.C1.1	Evaluate pharmacist behavior in different communication scenarios
2-5- COMPETENCY Contribute in pharmaceutical research studies and clinical trials needed to authorize medicinal products.	
2.C5.1	Organize and compose a scientific paper in accordance with the IMRAD (Introduction, Methods, Results and Discussion) model
2.C5.2	Analyze and review scientific papers in terms of key message, consistency and justification
2.C5.3	Reflect on the ethics in scientific writing
DOMAIN 4: PERSONAL PRACTICE	
4-1- COMPETENCY Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.	
4.C1.1	Work effectively as a member of a team
4-2- COMPETENCY Effectively communicate verbally, non-verbally and in writing with individuals and communities.	
4.C2.1	Interact effectively with patients, the public and health care professional orally and written
4.C2.2	Use information technology to collect and present data

D- Contents:

Week No.	Lecture (1 hr/week)	Practical session (1 hr/week)
1	Patient-Centered Communication in Pharmacy Practice	Course orientation
2	Principles and Elements of Interpersonal Communication	Case study & role play
3	Nonverbal Communication	Case study & role play
4	Barriers to Communication Communication Skills and Interprofessional Collaboration	Case study & role play
5	Strategies to Meet Specific Needs Patient counselling	Case study & role play
6	Electronic Communication in Health Care Ethical Behavior when Communicating with Patients	Case study & role play
7	**Midterm exam**	
8	The Canonical Structure of the Scientific Paper	Finding relevant journals and selecting the right one Team-work in scientific writing
9	Front Matter and Abstract	Building title & abstract
10	The Introduction Section	Building introduction section
11	The Methods Section	Building methods section
12	The Results Section	Building results section
13	The Discussion Section Conclusion Citations	Building discussion Section Conclusion Citations
14	Plagiarism	**Practical exam**
15	**Final exam**	

E- Teaching and Learning Methods:

- Lectures
- Role play
- The development of hypothetical scripts describing a drug therapy problem and illustrating the types of interactions between physicians

and pharmacists while discussing the problem allowed pharmacy students to explore different communication techniques and improve their communication skills.

- Structured group work
- Group and individual reflection
- Self-study and writing

F- Student Assessment Methods:

1- Written exams to assess 1.C1.1, 1.C1.2, 1.C1.3

2- Students showing up to assess 4.C1.1, 4.C2.1, 4.C2.2

3- Practical exam to assess 2.C1.1, 2.C5.1, 2.C5.2, 2.C5.3

Assessment schedule:

Assessment (1): Final Written exam	Week 15
Assessment (2): Students showing up & assignments	Weekly
Assessment (3): Practical exam	Week 14
Assessment (4): midterm exam	Week 7

Weighting of Assessment:

Assessment method	Marks	Percentage
Final Written exam	60	60%
Midterm exam	10	10%
assignments	5	5%
Practical exam	25	25%
TOTAL	100	100%

G- Facilities Required for Teaching and Learning:

- Black (white) board, Data show

H- List of References:

1- Course Notes: Student book of Scientific Writing and Communication skills approved by pharmacy practice department, 2021

2- Essential Books:

STEPHEN B. HEARD, THE SCIENTIST'S GUIDE TO WRITING, Copyright © 2016 by Princeton University Press.

Robert S. Beardsley, Carole L. Kimberlin, William N. Tindall. Communication Skills in Pharmacy Practice: A Practical Guide for Students and Practitioners. Fifth edition, Copyright © 2008 Lippincott Williams & Wilkins.

3- Recommended journals

Sanah Hasan, A Tool to Teach Communication Skills to Pharmacy Students. American journal of pharmaceutical education · July 2008.

Course Coordinator: Assis. Prof. Gehan Balata

Matrix I of Scientific Writing and Communication skills course

Course Contents		Key elements of Scientific Writing and Commun						
		DOMAIN 1- FUNDAMENTAL KNOWLEDGE			DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE			
Lectures		1.C1.1	1.C1.2	1.C1.3	2.C1.1	2.C5.1	2.C5.2	2.C5.3
1	Patient-Centered Communication in Pharmacy Practice		X					
2	Principles and Elements of Interpersonal Communication		X		X			
3	Nonverbal Communication		X		X			
4	Barriers to Communication Communication Skills and Interprofessional Collaboration			x	X			
5	Strategies to Meet Specific Needs		x	x	X			
6	Electronic Communication in Health Care Ethical Behavior when Communicating with Patients		x	x	x			
7	The Canonical Structure of the Scientific Paper	X						
8	Front Matter and Abstract	X						
9	The Introduction Section	X						
10	The Methods Section	X						
11	The Results Section	X						
12	The Discussion Section Conclusion Citations	x						
13	Plagiarism	x						x
Practical sessions								
1	Case study & role play				x			
2	Finding relevant journals and selecting the right one Team-work in scientific writing					x	x	
3	Building title & abstract					x	x	x
4	Building introduction section					x	x	x
5	Building methods section					x	x	x
6	Building results section					x	x	x

7	Building discussion Section Conclusion Citations					x	x	x

Matrix II of Scientific Writing and Communication skills course

onal lemic rence dards RS)	Program key elements	Course key elements	Course contents	Sources	Teaching and learning methods			Method of asse		
					lecture	practical session	Course assignments	written exam	practical exam	
onstrate rstanding of vledge of naceutical, edical, l, behavioral, nistrative, linical ces.	1.C1.4	1.C1.1	The Canonical Structure of the Scientific Paper Front Matter and Abstract The Introduction Section The Methods Section The Results Section The Discussion Section Conclusion Citations plagiarism	student book	x			x		
		1.C1.2	Patient-Centered Communication in Pharmacy Practice Principles and Elements of Interpersonal Communication Nonverbal Communication Communication Skills and Interprofessional Collaboration Strategies to Meet Specific Needs Electronic	student book	x			x		
				student book	x			x		

			Communication in Health Care Ethical Behavior when Communicating with Patients							
		1.C1.3	Barriers to Communication Communication Skills and Interprofessional Collaboration Strategies to Meet Specific Needs Electronic Communication in Health Care Ethical Behavior when Communicating with Patients	student book, essential books	x			x		
ot ethics of h care and nacy ssion cting nts' rights valuing le diversity.	2.C1.4 2.C1.6	2.C1.1	Principles and Elements of Interpersonal Communication Nonverbal Communication Barriers to Communication Communication Skills and Interprofessional Collaboration Strategies to Meet Specific Needs Electronic Communication in Health Care Ethical Behavior when Communicating with Patients Case study & role play	Practical book		x			x	
ribute in ning and ucting rch studies appropriate odologies	2.C5.5	2.C5.1 2.C5.2 2.C5.3	Finding relevant journals and selecting the right one Team-work in scientific writing Building title & abstract Building introduction section Building methods section Building results section Building discussion Section	Practical book		x			x	

			Conclusion Citations							
onstrate nsibility for performance eer ation of team bers, and ss time gement	4.C1.1	4.C1.1	All practical sessions	Practical notes			x			
onstrate tive nunication verbally, verbally, and iting professional h care team, nts, and nunities.	4.C2.1	4.C2.1		Practical notes			x			
contemporary ologies and a to onstrate tive ntation .	4.C2.2	4.C2.2		Practical notes			x			

Course Coordinator: Assis. Prof. Gehan balata

COURSE SPECIFICATIONS

Pharmaceutical Legislations and Professional ethics

Second level – Semester 4

2020-2021

Course specification of Pharmaceutical Legislation and professional ethics

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University: **Zagazig** **Faculty:** **Pharmacy**

A- Course specifications:

Program (s) on which the course is given: Bachelor of pharmacy (Pharm D)

Major or Minor element of programs: Major

Department offering the program: -------

Department offering the course: Pharmaceutics department

Academic year / Level: Second level/Fourth semester

Date of specification approval:

B- Basic information:

Title: Pharmaceutical Legislation and professional ethics

Code: NP 404

Credit Hours:

- Lectures : 1 hr/week
- Practical: ---
- Tutorials: ---
- Total: 1 hrs/week

C- Professional information:

1-Overall Aims of the Course:

On completion of the course, students will be able to describe the basics of pharmacy legislation including laws governing establishment of pharmacy profession, legislation principles for non controlled and controlled prescriptions, over the counter drug requirements, opening new pharmacies, opening medical stores, opening factories, opening scientific offices, medicine stores management. Pharmacist duties and responsibilities, pharmacist-patient relationship, patient's rights and ethical principles and

moral values.

2-Keyelements of Pharmacy Legislation:

DOMAIN 1- FUNDAMENTAL KNOWLEDGE	
1-1- COMPETENCY Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.	
1.C1.1	Outline different principles of pharmacy legislation including laws governing establishment of private pharmacies and drug stores, factories and scientific offices
1.C1.2	State the principles of pharmacy profession including handling of different classes of narcotics and antipsychotic drugs
1.C1.3	State patients rights and ethical principles
1.C1.4	Describe legal principles for non controlled and controlled prescription
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE	
2-1- COMPETENCY Work collaboratively as a member of an inter-professional health care team to improve the quality of life of individuals and communities, and respect patients' rights.	
2.C1.1	Evaluate different cases demonstrating pharmacist interprofessional relationship, misconduct as well as pharmacist-patient relationship
2-5- COMPETENCY Contribute in pharmaceutical research studies and clinical trials needed to authorize medicinal products.	
2.C5.1	Outline steps for product authorization

D- Contents:

Week No.	Lecture (1hr/week)
1	قانون مزاولة مهنة الصيدلة
2	المؤسسات الصيدلية الصيدليات العامة
3	المؤسسات الصيدلية الصيدليات الخاصة المصانع مخازن الادوية
4	المؤسسات الصيدلية مجال الاتجار في النباتات الطبية نشاط

5	المؤسسات الصيدلية المستحضرات الصيدلية الخاصة و الدستورية
6	مسئوليات وواجبات الصيدلي تجاه المريض و الطرق السليمة التي يتبعها الصيدلي مع المريض
7	**Periodical exam**
8	اخلاقيات مزاولة المهنة
9	القواعد العامة التي تحكم اخلاقيات المهن الطبية
10	علاقة الصيدلي بالمجتمع
11	قانون مكافحة المخدرات و تنظيم استعمالها و الاتجار فيها
12	جداول قانون مكافحة المخدرات
13	مراحل اعداد ملف الدواء لتسجيله من وزارة الصحة
14	**Revision and open discussion**
15	**Final exam**

E- Teaching and Learning Methods:

- Lectures

F- Student Assessment Methods:

- Periodical exam **to assess:** 1.C1.1, 1.C1.2, 1.C1.3, 1.C1.4, 2.C1.1, 2.C5.1
- Written exams **to assess:** 1.C1.1, 1.C1.2, 1.C1.3, 1.C1.4, 2.C1.1, 2.C5.1

Assessment schedule:

Assessment (1): Written exam	Week 15
Assessment (2): Periodical exam	Weeks 7

Section 1.01 Weighting of Assessment:

Assessment method	Marks	Percentage
Written exam	75	75%
Periodical exam	25	25%
Total	100	100%

G- Facilities Required for Teaching and Learning:

- For lectures : Black (white) boards, data show

H- List of References:

1- Course Notes: Departmental notes

2- Essential books:

مجموع القوانين والقرارات التي تحكم مزاولة مهنة الصيدلة

3- Recommended books:

مجموع القوانين التي تحكم مزاولة المهن الطبية

4- Periodicals and websites:

مجلة الصيدلة والدواء

متابعة موقع النقابة العامة للصيادلة وكذلك مواقع وزارة الصحة علي الانترنت

Course Coordinators: **Prof. Dr. Hanaa Atia El-Ghamry**

Head of department: **Prof. Dr. Nagia Ahmed Almegrab**

Date: / / تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ

Matrix I of Pharmacy Legislation course

Course Contents	Key elements of Legislation cours					
	1-1- COMPETENCY				2-1- COMPETENCY	2-5- COMPE
Lectures	1.C1.1	1.C1.2	1.C1.3	1.C1.4	2.C1.1	2.
قانون مزاولة مهنة	x	x				
المؤسسات الصيدلي	x					
المؤسسات الصيدليا مخاز	x					
المؤسسات مجال الاتجار في النبات	x	x				
المؤسسات المستحضرات الصيدلية الخاصة و	x	x				
مسئوليات وواجبات الصيدلي تجاه المريض و الطرق السليم الصيدلي			x		x	
Periodical exam		x				
اخلاقيات مز			x		x	
لقواعد العامة التي تحكم اخلاقيات			x		x	
علاقة الصيدا			x		x	
قانون مكافحة المخدرات و تنظيم استعمالها و الا	x	x				
جداول قانون مكافحة		x		x		
مراحل اعداد ملف الدواء لتسجيله من وز						

Matrix II of Pharmacy Legislation course

National Academic Reference Standards NARS		Program key elements	Course key elements	Course contents	Sources	Teaching and learning methods			
						Lecture	Practical session	Self learning	Writ exa
1.1.1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	1.C1.5	1.C1.1	قانون مزاولة مهنة الصيدلة المؤسسات الصيدلية الصيدليات العامة المؤسسات الصيدلية الصيدليات الخاصة مخازن الادوية المؤسسات الصيدلية مجال الاتجار في النباتات الطبية المؤسسات الصيدلية المستحضرات الصيدلية الخاصة و الدستورية	Student book Essential books	x			x
			1.C1.2	قانون مزاولة مهنة الصيدلة المؤسسات الصيدلية مجال الاتجار في النباتات الطبية نشاط المؤسسات الصيدلية المستحضرات الصيدلية الخاصة و الدستورية قانون مكافحة المخدرات و تنظيم استعمالها و الاتجار فيها					

2.1.1	Perform responsibilities and authorities in compliance with the legal and professional structure and role of all members of the health care professional team.	2.C1.1 2.C1.2 2.C1.3		جداول قانون مكافحة المخدرات	Student book Essential books	x			x
			1.C1.3	مسئوليات وواجبات الصيدلي تجاه المريض و الطرق السليمة التي يتبعها الصيدلي مع المريض اخلاقيات مزاولة المهنة لقواعد العامة التي تحكم اخلاقيات المهن الطبية علاقة الصيدلي بالمجتمع				
			1.C1.4	جداول قانون مكافحة المخدرات					
			2.C1.1	مسئوليات وواجبات الصيدلي تجاه المريض و الطرق السليمة التي يتبعها الصيدلي مع المريض اخلاقيات مزاولة المهنة لقواعد العامة التي تحكم اخلاقيات المهن الطبية علاقة الصيدلي بالمجتمع					

2.1.2	Adopt ethics of health care and pharmacy profession respecting patients' rights and valuing people diversity.	2.C1.5			Student book Essential books, internet	x			x
2.5.1	Fulfill the requirements of the regulatory framework to authorize a medicinal product including quality, safety, and efficacy requirements.	2.C5.1	2.C5.1	مراحل اعداد ملف الدواء لتسجيله من وزارة الصحة	Student book Essential books, internet	x			x