COURSE SPECIFICATIONS

Faculty of Pharmacy

Second level – Semester 4

Bachelor of Pharmacy

(Clinical Pharmacy Pharm D)

2020-2021

CONTENTS:

COURSE SPECIFICATIONS

BiochemistryII

Second level –Semester 4
2020-2021

Course specification of Biochemistry 2

University: Zagazig Faculty: Pharmacy

A- Course specifications:

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

Major or Minor element of programs: Major

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

Department offering the course: Biochemistry Department

Academic year Level: level 2 / semester 4

Date of specification approval:

B- Basic information:

Title: Biochemistry 2 Code: PB 403

Credit Hours:

Lectures: 2hrs/week

Practical: 1hr/week

Tutorials: ---

Total: 3hrs/week

C- Professional information:

1-Overall Aims of the Course:

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

- Illustrate the different metabolic pathways of carbohydrates, lipids, proteins and integration of metabolism.
- Analyze and interpret experimental results.

2- Key elements of Biochemistry 2

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	• Outline the principles of food staff, absorption and digestion
1.C1.2	• illustrate different metabolic pathways of carbohydrates, lipids and proteins
1.C1.3	• Discuss regulatory factors affecting different metabolic pathways.
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	• Apply different biological methods used to assay different metabolites and biological samples.
3.C1.2	• Correlate between different metabolic pathways.
3.C1.3	• Perform laboratory tests for biological samples to detect different analytes with interpretation of laboratory results in suitable form.
3.C1.4	• Perform laboratory tests for biological samples to detect different types of lipids and metabolites.
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	Write and present reports effectively
4-3- COMPETENCY Express self-awareness and be a life-long learner for continuous professional improvement.	

4.C3.1	develop self-learning skills.

D-Contents

WeekNo.	Lecture contents (2 hrs/lec.)	Practical session (1hr/lab)
1	- Carbohydrates digestion and absorption - Metabolism of mono and disaccharides - Glycolysis (Reactions, steps and regulation)	- Laboratory safety measures
2	- Gluconeogenesis (Reactions and regulation) - Tricarboxylic acid cycle (Reactions, regulation and calculation of energy produced)	- Lipid profile determination (total cholesterol determination)
3	- HMP shunt (Reactions and functions) - Uronic acid pathway (Reactions)	-Triglyceride determination
4	- Glycogen metabolism - Glycogenesis regulation - Glycogenolysis regulation	- Methods of determination of HDL-c and LDL-c
5	- Digestion and absorption of lipids Plasma lipids - Oxidation of fatty acids	- Case study related to lipid metabolism abnormalities
6	- Lipogenesis - Lipolysis in adipose tissues. - Phospholipid metabolism	- Kidney function test - Determination of serum urea
7	**-self learning activities (Diabetes, glycogen storage diseases)** **-Periodical exam**	**-Periodical exam.**
8	- Ketone bodies metabolism	-Serum creatinine level
9	- Cholesterol metabolism - Lipoproteins metabolism	-Determination of serum creatinine level
10	- Protein turnover - Digestion and absorption of dietary proteins. - Nitrogen metabolism - Transamination	- Case study on kidney disorders
11	- Deamination -Trasdeamination - Metabolism of ammonia	**-Practical exam 1**

	- Urea cycle	
12	- Conversion of amino acids to specialized products - **self learning activities (Growth formula, benefits and hazards)**	**- Practical exam 2**
13	- Conversion of amino acids to specialized products (continue) - Metabolic correlation associated with some diseases	
14	-Revision	
15	- Final exam.	

E- Teaching and Learning Methods:

- Interactive lectures
- Practical sessions
- Case study
- Self-learning (activity: reports and presentations)
- Blended learning

F- Student Assessment methods:

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

2- Practical exams to assess: 3.C1.1, 3.C1.2, 3.C1.3, 3.C1.4

3- Activities to assess:4.C1.1, 4.C2.1, 4.C3.1

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

Assessment schedule

Assessment (1): Activity	Week 7, 12
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 (2) approved by biochemistry department 2020 -2021.
- Practical notes of Biochemistry (2) approved by biochemistry department 2020- 2021.

2- Essential books:

- Marks' basic medical biochemistry: a clinical approach (fifth edition); Lieberman M., Marks A.D., Peet MD, Alisa. (2017).
- Lehninger principles of biochemistry (seventh edition); NelsonD.L.; CoxM.M. (2017).
- Basic concepts in biochemistry; Gilbert H.F.; The McGraw Hill companies Inc. (2000).

- Lippincott'sIllustrated Reviews:Biochemistry (Seventh edition); FerrierD.R. (2017)

3- Recommended books:

- Biochemistry (sixth edition); Garrett R.H. and Grisham C.M.; Thomson learning, Inc (2016).
- Harper's Illustrated Biochemistry (31st edition); RodwellV.W., Bender D., BothamK.M., KennellyP.J., Weil P. A.(2018).
- Clinical Biochemistry made ridiculously simple (third edition); Stephen Goldberg. M.D.; Med Master Inc. (2010).

4- Periodicals and websites:

- Egyptian J. of biochem. and molecular biology.
- Egyptian J. of Pharmaceutical sciences.
- www.Pubmed.Com
- www.sciencedirect.com
- Arab J. of Laboratory Medicine.

Course coordinators: Prof. Dr. Rawia Sarhan

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

Matrix I of Biochemistry 2 course 2020-2021

Course Contents		Key elements of Biochemistry 2 course									
		FUNDAMENTAL KNOWLEDGE			PHARMACEUTICAL CARE				PERSONAL PRACTICE		
Lectures		1.C.1.1	1.C1.2	1.C1.3	3.C1.1	3.C1.2	3.C1.3	3.C1.4	4.C.1.1	4.C.2.1	4.C.3.1
1	- Carbohydrates digestion and absorption - Metabolism of mono and disaccharides - Glycolysis (Reactions, steps and regulation)	X	**x**	**x**		**x**					
2	- Gluconeogenesis (Reactions and regulation) - Tricarboxylic acid cycle (Reactions, regulation and calculation of energy produced)	X	**x**	**x**		X					
3	- HMP shunt (Reactions and functions) - Uronic acid pathway (Reactions)	**X**	**x**	**x**		X					
4	- Glycogen metabolism - Glycogenesis regulation - Glycogenolysis regulation	X	**x**	**x**		**x**					
5	- Digestion and absorption of lipids Plasma lipids - Oxidation of fatty acids	X	**x**	**x**		**x**					
6	- Lipogenesis - Lipolysis in adipose tissues. - Phospholipid metabolism	X	**x**	**x**		**x**					

7	-self learning activities (Diabetes, glycogen storage diseases)					x			x	X	X
8	- Ketone bodies metabolism	X	**x**	**x**		x					
9	- Cholesterol metabolism - Lipoproteins metabolism	X	**x**	**x**		x					
10	- Protein turnover - Digestion and absorption of dietary proteins. - Nitrogen metabolism - Transamination	X	**x**	**x**		**x**					
11	- Deamination -Trasdeamination - Metabolism of ammonia - Urea cycle	X	**x**	**x**		**x**					
12	- Conversion of amino acids to specialized products - self learning activities (Growth formula, benefits and hazards)	X	**x**	**x**		**x**			**x**	X	X
13	- Conversion of amino acids to specialized products (continue) - Metabolic correlation associated with some diseases	X	**x**	**x**		X					
Practical sessions											

1	- Laboratory safety measures						x					
2	- Lipid profile determination (total cholesterol determination)				x		**x**	**x**				
3	-Triglyceride determination				x		**x**	**x**				
4	- Methods of determination of HDL-c and LDL-c				x		x	x	x			
5	- Case study related to lipid metabolism abnormalities					x			x			
6	- Kidney function test - Determination of serum urea				X		**x**	**x**				
7	-Activity -Periodical exam.									x	X	
8	-Serum creatinine level				x		**x**	**x**				
9	-Determination of serum creatinine level				x		**x**	**x**				
10	- Case study on kidney disorders					x			x			

Matrix II of Biochemistry 2 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 & oral exam	Practical exam	Periodical exam
1-1-1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	1.C.1.3	1.C1.1 1.C1.2 1.C1.3	- Carbohydrates digestion and absorption - Metabolism of mono and disaccharides - Glycolysis (Reactions, steps and regulation)	Student book	x			x		X
				- Digestion and absorption of lipids Plasma lipids - Fat oxidation of fatty acids	Student book Essential books	x			x		X
				- Protein turnover - Digestion and absorption of dietary proteins.	Student book	x			x		
1-1-2	Utilize the proper pharmaceutical and medical terms, abbreviations and symbols in pharmacy	1.C1.8		- Glycolysis (Reactions, steps and regulation) - Gluconeogenesis (Reactions and regulation) - Tricarboxylic	Student book	x			x		X

	practice			acid cycle (Reactions, regulation and calculation of energy produced)							
				- HMP shunt (Reactions and functions) - Uronic acid pathway (Reactions)	Student book	x			x		X
				- Glycogen metabolism (Structure and functions) - Glycogenesis regulation - Glycogenolysis regulation	Student book	x			x		X
				- Transamination - Deamination -Trasdeamination	Student book	x			x		
3-1-1	Apply the principles of body functions and basis of genomics in health and disease states to manage different	3.C.1.1	3.C1.1 3.C1.2	- Carbohydrates digestion and absorption - Metabolism of mono and disaccharides - Glycolysis (Reactions, steps and regulation)	Student book	x			x		X

3.1.4	diseases. Monitor and control microbial growth and carry out laboratory tests for identification of infections/ diseases.	3.C1.4		- Gluconeogenesis (Reactions and regulation) - Tricarboxylic acid cycle (Reactions, regulation and calculation of energy produced)	Student book	x			x		X
				- HMP shunt (Reactions and functions) - Uronic acid pathway (Reactions)	Student book	x			x		X
				- Glycogen metabolism (Structure and functions) - Glycogenesis regulation - Glycogenolysis regulation							
				- Digestion and absorption of lipids Plasma lipids - Fat oxidation of fatty acids	Student book Essential books	x			x		X

				- Lipogenesis - Lipolysis in adipose tissues. - Phospholipid metabolism	Student book Essential books	x			x		X
				- Ketone bodies metabolism - Self-learning activities - Periodical exam	Student book Internet Recommended books	x		x	x		
				- Cholesterol metabolism and lipoproteins	Student book	x			x		
				- Protein turnover - Digestion and absorption of dietary proteins. - Self-learning activities	Student book Internet Recommended books	x		x	x		
				- Nitrogen metabolism - Transamination - Deamination -Trasdeamination	Student book	x			x		
				- Metabolism of ammonia - Urea cycle - Self learning activities	Student book Internet Recommended books	x		x	x		

				- Conversion of amino acids to specialized products	Student book	x			x		
				- Conversion of amino acids to specialized products (continue)	Student book	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	-Laboratory safety measures -Lipid profile -Determination of triglycerides -Determination of cholesterol -Methods of determination of HDL-c and LDL-c - Case study related to lipid	Practical notes		x			x	

4.2.2	Use contemporary technologies and media to demonstrate effective presentation skills.	4.C2.3	4.C2.1	metabolism abnormalities -kidney function tests. -Determination of serum urea level. -Determination of serum creatinine level. - Case study related to kidney function abnormalities							
4.3.1	Perform self-assessment to enhance professional and personal competencies.	4.C3.1	4.C3.1	-self learning activities (Diabetes, glycogen storage diseases) self learning activities (Growth formula, benefits and hazards)							

Course Coordinator: **Prof. Dr. Rawia Sarhan**

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

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 (Clinical 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 403

Credit Hours: 2 hrs

- Lectures : 1 hr/week
- Practical: 1 hrs/week
- Tutorials: ---
- Total: 2 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 (1hrs/week)	Practical session (1hrs/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	Continue Application of spectrophotometry **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 learning

F- Student Assessment Methods:

1- Written exam to assess 1.C1.1, 1.C1.2, 1.C1.3, 1.1C.4, 2.C2.2, 2.C2.3, 4.C1.1

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, 1.1C.4, 2.C2.1,

2.C2.2, 2.C2.3, 4.C1.1

4- Periodical exam to assess 1.C1.1, 1.C1.2, 1.C1.3, 1.1C.4, 2.C2.1, 2.C2.2, 2.C2.3, 4.C1.1

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 and activities	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" John Wiley & Sons, Ltd., New York (2001).

ii- Stuart A. Burman "Instrumentation in Analytical Chemistry" American Chemical Society, Washington (1992).

Practical Instrumental Analysis: Methods, Quality Assurance and Laboratory Management, Sergio Petrozzi, 2013

Principles of Instrumental Analysis 6th Edition, Douglas A. Skoog , F. James Holler , Stanley R. Crouch, 2006

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
2.2.3	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.C2.7	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	
2.3.1	Handle, identify, and dispose biologicals, synthetic/natural materials, biotechnology-based and radio-labeled products, and other materials/products used in pharmaceutical field.	2.C3.1	2.C3.1 2.C3.2	Safety guidelines			x			X		
4.1.2	Retrieve and critically			spectrophotometry,	Student	x	x	X	x	X	x	

	analyze information, identify and solve problems, and work autonomously and effectively in a team.	4.C1.5	4.C1.1 4.C1.2	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	book Essential books Practical notes							
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 (Clinical 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 involves principles of formulation, development, sterilization, packaging and quality control testing of topical include (creams, ointments, gels and pastes) and transdermal drug systems (TDDS), Rectal, ocular and pulmonary dosage forms.

2- Key elements of Pharmaceutics II

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 properties of different dosage forms including; Suppositories, Creams, Ointments, Gels, Pastes, Pulmonary, ophthalmic preparations and Transdermal drug delivery systems (TDDS).
1.C1.2.	Enumerate the ingredients used in the preparation of Suppositories, Creams, Ointments, Gels, Pastes, Pulmonary, ophthalmic preparations and Transdermal therapeutic patches
1.C1.3.	Describe different methods for preparation and quality control tests of semisolid preparations, suppositories, pulmonary, ophthalmic preparations and Transdermal therapeutic systems
1.C1.4	Select the proper ingredients for the preparation of semisolid preparations, suppositories, pulmonary, ophthalmic preparations and TDDS.
1.C1.5	Differentiate between different suppository bases as well as 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, pastes and suppositories
2.C2.2.	Perform different calculations required for the preparation of ointments, creams, pastes and suppositories
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 preparations safely
2.C3.2	Apply GLP guidelines in handling chemicals
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.C1.2	demonstrate critical thinking and decision making skills

D- Contents:

Week No.	Lecture contents (2hr/week)	Practical session (1hr/week)
1	**Rectal drug delivery systems**; Suppositories -Definition -Characters of ideal bases -Advantages and disadvantages of suppositories	Suppositories -calculation of displacement value for zinc oxide & calamine
2	-Bases of suppositories -Preparation of Suppositories	Preparation of Blank G.G. suppositories
3	- Other rectal dosage forms e.g. gel, cream, ointment and solution.	Preparation of Iodine suppositories
4	**Transdermal drug delivery:** structure and function of the skin, mechanism of drug transport through the skin	Preparation of zinc oxide suppositories
5	-Factors affecting percutaneous absorption (biological and physicochemical factors)	Preparation of Boric acid suppositories
6	- methods of maximizing the bioavailability of drugs applied to the skin -Transdermal therapeutic patches(TTS)	Preparation of glycerin soap suppositories
7	**Mid-term exam**	
8	**Topical dosage forms** Ointments Advantages and disadvantages Characters of ideal bases	Preparation of cold cream
9	Cream -Advantages and disadvantages -Types and preparation,	Preparation of vanishing cream
10	Gels & pastes -Advantages and disadvantages -Characters of ideal bases	Preparation of sulfur ointment
11	**Ocular drug delivery systems** eye structure, major types of drugs used ophthalmically factors affecting bioavailability, classification of ocular drug delivery systems, sterilization,	-Solving Isotonicity problems -Preparation of white field ointment

	preservation	
12	Isotoniciy, Methods of preparing isosmotic solution , buffering, viscosity, ophthalmic suspension, packaging, ophthalmic ointments and solid dosage forms	-Solving Isotonicity problems -Preparation of Unna's paste
13	**Pulmonary drug delivery systems** - Anatomy of the lungs - Advantages and factors influencing the pulmonary drug delivery	**Practical exam**
14	- Aerosols, Nebulizer, pressurized Metered Dose Inhalers, Dry powder inhalers - Applications of pulmonary drug delivery	
15	**Final written exam**	

E- Teaching and Learning Methods:

- Lectures
- Practical sessions
- Think/pair/share

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

3- Activity within labs: 4.C1.1, 4.C1.2

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., 22 th edn, Mack Publishing Company, USA. (2005).
- 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		4-2- COMPETENCY		
Lectures		1.C1.1	1.C1.2	1.C1.3	1.C1.4	1.C1.5	2.C2.1	2.C2.2	2.C3.1	2.C3.2	4.C1.1	4.C1.2	
1	**Rectal drug delivery systems**; Suppositories	x	x	x	x	x							
2	-Bases and preparation of suppositories	x	x	x	x	x							
3	- Other rectal dosage forms e.g. gel, cream, ointment and solution.	x	x	x	x	x							
4	**Transdermal drug delivery:** structure and function of the skin, mechanism of drug transport	x	x	x	x	x							
5	-Factors affecting percutaneous absorption		x	x									
6	- methods of maximizing the bioavailability of drugs applied to the skin -Transdermal therapeutic patches(TTS)	x			x								
7	**Topical dosage forms** Ointments	x	x	x	x	x							

8	Cream	x	x	x	x	x						
9	Gels & pastes	x	x	x	x	x						
10	**Ocular drug delivery systems** eye structure, classification of ocular drug delivery systems, sterilization, preservation	x	x	x	x	x						
11	Isotoniciy, buffering, viscosity, ophthalmic suspension, packaging, ophthalmic ointments and solid dosage forms	x	x	x	x	x						
12	**Pulmonary drug delivery systems** - Anatomy of the lungs - Advantages and factors influencing the pulmonary drug delivery	x	x	x	x	x						
13	- Aerosols, Nebulizer, pressurized Metered Dose Inhalers, Dry powder inhalers - Applications of pulmonary drug delivery	x	x	x	x	x						
Practical session												
1	Suppositories -calculation of displacement value for zinc oxide & calamine							x	x	x	x	
2	Preparation of Blank G.G. suppositories						x	x	x	x	x	
3	Preparation of Iodine suppositories						x	x	x	x	x	
4	Preparation of zinc oxide suppositories						x	x	x	x	x	
5	Preparation of Boric acid suppositories						x	x	x	x	x	

6	Preparation of glycerin soap suppositories						x	x	x	x	x	
7	Preparation of cold cream						x	x	x	x	x	
8	Preparation of vanishing cream						x	x	x	x	x	
9	Preparation of sulfur ointment						x	x	x	x	x	
10	-Solving Isotonicity problems -Preparation of white field ointment						x	x	x	x	x	
11	-Solving Isotonicity problems -Preparation of Unna's paste						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	Rectal drug delivery systems; Suppositories -Bases and preparation of suppositories - Other rectal dosage forms e.g. gel, cream, ointment and solution. Transdermal drug delivery:	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	structure and function of the skin, mechanism of drug transport -Factors affecting percutaneous absorption - methods of maximizing the bioavailability of drugs applied to the skin -Transdermal therapeutic patches(TTS) Topical dosage forms Ointments Cream Gels & pastes Ocular drug delivery systems eye structure, classification of ocular drug							

				delivery systems, sterilization, preservation Isotoniciy, buffering, viscosity, ophthalmic suspension, packaging, ophthalmic ointments and solid dosage forms Pulmonary drug delivery systems - Anatomy of the lungs - Advantages and factors influencing the pulmonary drug delivery - Aerosols, Nebulizer, pressurized Metered Dose Inhalers, Dry							

				powder inhalers - Applications of pulmonary drug delivery								
2-2-2	Apply the basic requirements of quality management system in developing, manufacturing, analyzing, storing, and distributing pharmaceutical materials/ products considering various incompatibilities.	2.C2.2	2.C2.1	Suppositories -calculation of displacement value for zinc oxide & calamine Preparation of Blank G.G. suppositories Preparation of Iodine suppositories Preparation of zinc oxide suppositories Preparation of Boric acid suppositories Preparation of	Practical notes		x	x		x		
					Practical notes		x	x		x		
			2.C2.2		Practical notes		x	x		x		
2-3-1	Handle, identify, and dispose biologicals, synthetic/natural materials, biotechnology-based and radio-labeled products, and other materials/products	. 2.C3.1 2.C3.2	2.C3.1 2.C3.2		Practical notes		x	x		x		

2.3.2	used in pharmaceutical field. Recognize and adopt ethical, legal, and safety guidelines for handling and disposal of biologicals, and pharmaceutical materials/products.			glycerin soap suppositories Preparation of cold cream Preparation of vanishing cream Preparation of sulfur ointment -Solving Isotonicity problems -Preparation of white field ointment -Solving Isotonicity problems -Preparation of Unna's paste								
4.1.1	Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills.	4.C1.1 4.C1.5	4.C1.1 4.C1.2				x	x		x		

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

COURSE SPECIFICATIONS

Pharmacology I

Second level –Semester 4
2020-2021

COURSE SPECIFICATIONS

Pharmaceutical Microbiology

Second level –Semester 4

2020-2021

Course specification of Pharmaceutical Microbiology

A- Course specifications:

- Programme (s) on which the course is given: Bachelor of pharmacy (Clinical Pharmacy Pharm D program)
- Major or Minor element of programs: Major
- Department offering the program: ------
- Department offering the course: Microbiology and Immunology
- Academic year: 2nd level (4th semester)
- Date of specification approval: 2020/2021

B- Basic information:

- Title: Pharmaceutical Microbiology
- Course code: **PM 402**
- Lectures: 2 hrs/week
- Practical: 1 hr/week
- Tutorials: ----
- Total: 3hrs/week

C- Professional information:

1. Overall Aims of the Course:

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

- Illustrate the different types of antimicrobial agents as well as the sources and control of microbial contamination of the pharmaceutical products.
- Outline the concepts of sterilization, its different methods, applications and sterility testing.
- Perform tests for standardization of different antimicrobial agents. Select the suitable antimicrobial agent for each infection and the

appropriate preservative for formulation of pharmaceutical preparations.

- Develop the critical thinking skills and communicate efficiently with patients and health care professionals. In addition to group working.

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	Outline different types of antimicrobial agents and preservatives as well as their mechanism of action
1.C1.2.	Describe the basic concepts of sterilization, its different methods and its applications
1.C1.3.	Outline the principles of sterility testing and sterility assurance
1.C1.4.	Illustrate the concepts of microbiological quality control of pharmaceutical products and evaluation of preservatives
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 biohazards and chemicals effectively and safely.
2.C3.2	Apply GMP guidelines in preparation of pharmaceutical products
2-4- COMPETENCY Actively share professional decisions and proper actions to save patient's life in emergency situations including poisoning with various xenobiotics, and effectively work in forensic fields.	
2.C4.1.	Advise health care professionals and patients for rational use of drugs and problems of misuse of antimicrobial agents
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 preservative for effective formulation of pharmaceutical preparations
3.C1.2.	Select the most suitable antimicrobial agent for each infection
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	Develop critical thinking and decision-making for interpretation of

Weeks	Lecture contents (2hrs/lec.)	Practical session (2hr/lab)
First week	• Introduction • Definitions and terminology	• Laboratory safety measures

	experimental results
4-2- COMPETENCY Effectively communicate verbally, non-verbally and in writing with individuals and communities	
4.C2.1	Communicate efficiently with patient, public, and health care professional.
4.C2.2	Acquire online search skills through writing reports and researches

	• Antibiotic and chemotherapeutic agents Mechanisms of action of antimicrobial agents	• Bacterial counts: total count, viable count
Second week	• Classification of antimicrobial agents: - Drugs acting on cell wall - Drugs acting on cell membrane	• Sterility testing • Antibiotic susceptibility testing: Kirby-Bauer method
Third week	• Classification of antimicrobial agents: - Drugs inhibiting protein synthesis - Drugs inhibiting nucleic acid synthesis - Antimetabolites	• Demonstration of spectrum of action by strip-plate method • Demonstration of interaction between two antimicrobial agents
Fourth week	• Antituberculous drugs • Antileprosy agents • Antifungal drugs • Antiprotozoal drugs • Antiviral drugs • Microbial resistance to antimicrobial agents Microbial assay of Antibiotics and vitamins	• Determination of Minimum inhibitory concentration (M.I.C.) by broth dilution
Fifth week	• Disinfection and antisepsis: chemical agents used as disinfectant and antiseptic	• Determination of Minimum inhibitory concentration (M.I.C.) by Agar diffusion method • **Activity (Report)**
Sixth week	• Factors affecting the activity of disinfectant and antiseptic • Evaluation of disinfectant and antiseptic	• Antibiotic assay
Seventh week	• Sources of microbial contamination and spoilage of pharmaceutical products and factors affecting them • **Midterm exam**	• Periodical **exam**
Eighth week	• Control of microbial spoilage	Determination of temperature

	• Good Manufacture Practice	exponent
Ninth week	• Preservation of pharmaceutical products and preservatives commonly used • Factors affecting preservative activity Evaluation of preservative's efficacy	• Determination of concentration exponent
Tenth week	• Control of microorganisms by sterilization and survival curve	• Preparation of heat killed vaccine
Eleventh week	• sterilization parameters and sterility assurance	• Determination of phenol-coefficient: Rideal-Walker method • **Activity (Report)**
Twelfth week	• Methods of sterilization and sterilizers • Applications of sterilization	• Determination of phenol-coefficient: Chick-Martin method
Thirteenth week	• Sterilization of pharmaceutical products	Practical exam
Fourteenth week	• Sterilization control and sterility testing	
Fifteenth week	• **Final written exam**	•

3. Course Content of Pharmaceutical Microbiology:

Teaching and Learning Methods:

- Lectures
- Practical sessions
- Self learning (internet search & report writing)
- Blended learning

Student Assessment methods:

Periodical exam **to assess:** 1.C1.1, 1.C1.2, 1.C1.3, 1.C1.4
Final Written exams **to assess:** 1.C1.1, 1.C1.2, 1.C1.3, 1.C1.4, 3.C1.1, 3.C1.2
Practical exams **to assess:** 2.C3.1, 2.C3.2
Oral exam **to assess 1.C1.1, 1.C1.2, 1.C1.3, 1.C1.4, 3.C1.1, 3.C1.2, 4.C2.1**
Activities **to assess**: 2.C4.1,4.C1.1, 4.C2.1, 4.C2.2

Assessment schedule:

Assessment (1): final Written exams	Week 15
Assessment (2): periodical exams	Week 7
Assessment (3): Practical exam	Week 13
Assessment (4): Oral exams	Week 15
Assessment (5): Activity	Week 5,11

Weighting of Assessment:

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

Facilities required for teaching and learning:

1. **For lectures:** Black (white) boards and data show.

2. **For Labs.:** Chemicals, Autoclaves, Incubators, Ovens, Water bathes, staining dyes, microscopes, refrigerators and microbiological culture media

List of references:-

1- Course Notes: "Notes on Pharmaceutical Microbiology"

2- Essential Books (Text Books)

I - Hugo WB and Russell AD "Pharmaceutical Microbiology" 6th edn, Blackwell Scientific Editions; London (1998).

3- Recommended Books

"Sterilization, Disinfection and Preservation" 4th edn, Ed Block SS, Lippincott Williams & Wilkins, London (2001).

"Antibiotics in Laboratory Medicine", 4th edition, Ed Lorian V, Williams and Wilkins, Baltimore (1996).

"Molecular Biotechnology", Pasternak G, ASM press, Washington DC (1994).

Molecular Biotechnology, Ashok K. Chauhan, Ajit Varma,2009

Antibiotics in Laboratory Medicine, 6th Edition Edited by Daniel Amsterdam. Philadelphia, PA: Wolters Kluwer Health, 2014.

- **Course Coordinator: Prof. Dr/ Fathy Mohamed El Sayed Serry**
- **Head of Department: Prof. Dr/ Nehal El-sayed Youssef.**

Date: 2019/ 9 / 30 تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ

Matrix I of Pharmaceutical Microbiology Course

Course Contents 1. Lectures		Key elements of Pharmaceutical Microbiology course											
		DOMAIN 1- fundamental Knowledge				DOMAIN 2- Professional & ethical practice			DOMAIN 3: Pharmaceutical care		DOMAIN 4: Personal practice		
		1.C1.1	1.C1.2	1.C1.3	1.C1.4	2.C3.1	2.C3.2	2.C4.1	3.C1.1	3.C1.2	4.C1.1	4.C2.1	4.C2.2
1	Introduction Definition and terminology Antibiotic and chemotherapeutic agents Mechanisms of action of antimicrobial agents	X											
2	Classification of antimicrobial agents: Drugs acting on cell wall Drugs acting on cell membrane	X								X			
3	Drugs inhibiting protein synthesis Drugs inhibiting nucleic acid synthesis Antimetabolites	X								X			
4	Antituberculous drugs, Antileprosy agents Antifungal drugs Antiprotozoal drugs Antiviral drugs Microbial resistance to antimicrobial agents Microbial assay of Antibiotics and vitamins	X								X			
5	• Disinfection and antisepsis: chemical agents used as disinfectant and antiseptic	X								X			
6	• Factors affecting the activity of disinfectant and antiseptic • Evaluation of disinfectant and antiseptic	X											
7	• Sources of microbial contamination and spoilage of pharmaceutical products and factors affecting them	X											

8	Control of microbial spoilage Good Manufacture Practice Preservation of pharmaceutical products and preservatives commonly used Factors affecting preservative activity Evaluation of preservative's efficacy	**X**			**X**	**x**			**x**	**X**			
9	Control of microorganisms by sterilization and survival curve		**X**										
10	sterilization parameters & sterility assurance		**X**		**X**								
11	Methods of sterilization and sterilizers		**X**										
12	Applications of sterilization		**X**										
13	Sterilization of pharmaceutical products		**X**		**X**								
14	Sterilization control and sterility testing		**X**	**X**	**X**								
Practical sessions													
1	Laboratory safety measures Bacterial counts & Sterility testing					**x**						**x**	
2	Antibiotic susceptibility testing: Kirby-Bauer method					**x**	**x**	**x**				**x**	
3	Demonstration of spectrum of action by strip-plate method & Demonstration of interaction between two antimicrobials **x**					**x**	**x**	**x**				**x**	
4	Determination of Minimum inhibitory concentration (MIC) by broth dilution					**x**	**x**	**x**				**x**	
5	Determination of MIC.by Agar diffusion method **Activity**					**x**	**x**	**x**			**X**	**x**	**x**
6	Antibiotic assay					**x**	**x**	**x**				**x**	
8	Determination of temperature coefficient					**x**	**x**					**x**	
9	Determination of concentration exponent					**x**	**x**					**x**	
10	Preparation of heat killed vaccine					**x**	**x**					**x**	
11	Determination of phenol-coefficient: Rideal-Walker method **Activity**					**x**	**x**	**x**			**X**	**x**	**x**
12	Determination of phenol-coefficient: Chick-Martin method					**x**	**x**	**x**				**x**	

Matrix II of Pharmaceutical Microbiology Course						
National Academic	Program key	Course key	Course contents	Sources	Teaching and learning methods	Method of assessment

Reference Standards (NARS)		elements	elements			lecture	practical session	Activity	written exam	practical exam	oral exam	Midterm exam
1-1-1	Principles of basic, pharmaceutical, medical, social, behavioral, management, health and environmental sciences as well as pharmacy practice	1.C1.2	1.C1.1	Introduction Definition and terminology Antibiotic and chemotherapeutic agents Mechanisms of action of antimicrobial agents Classification of antimicrobial agents: Drugs acting on cell wall Drugs acting on cell membrane Drugs inhibiting protein synthesis Drugs inhibiting nucleic acid synthesis Antimetabolites Antituberculous drugs, Antileprosy agents Antifungal drugs Antiprotozoal drugs Antiviral drugs Microbial resistance to antimicrobial agents	Student book Essential books	x			x		x	x

				Microbial assay of Antibiotics and vitamins • Disinfection and antisepsis: chemical agents used as disinfectant and antiseptic • Factors affecting the activity of disinfectant and antiseptic • Evaluation of disinfectant and antiseptic • Sources of microbial contamination and spoilage of pharmaceutical products and factors affecting them Control of microbial spoilage Good Manufacture Practice Preservation of pharmaceutical products and preservatives commonly used Factors affecting preservative activity Evaluation of preservative's efficacy								

			1.C1.2	Control of microorganisms by sterilization and survival curve sterilization parameters & sterility assurance Methods of sterilization and sterilizers Applications of sterilization Sterilization of pharmaceutical products Sterilization control and sterility testing	Student book Essential books	x			x		x	x
			1.C1.3	Sterilization control and sterility testing	Student book Essential books	x			x		x	x
			1.C1.4	sterilization parameters & sterility assurance Methods of sterilization and sterilizers Applications of sterilization Sterilization of pharmaceutical products Sterilization control and sterility testing	Student book Essential books	x			x		x	x

2.3.1	Handle, identify, and dispose biologicals, synthetic/natural materials, biotechnology-based and radio-labeled products, and other materials/products used in pharmaceutical field.	2.C3.1 2.C3.2	2.C3.1 2.C3.2	Laboratory safety measures Bacterial counts & Sterility testing Antibiotic susceptibility testing: Kirby-Bauer method Demonstration of spectrum of action by strip-plate method & Demonstration of interaction between two antimicrobials x Determination of Minimum inhibitory concentration (MIC) by broth dilution Determination of MIC.by Agar diffusion method Antibiotic assay Determination of temperature coefficient Determination of concentration exponent Preparation of heat killed vaccine Determination of phenol-coefficient:	Student book Essential books Practical notes practical notes	x	x x x	x x x	x	x x	x	x

				Rideal-Walker method Determination of phenol-coefficient: Chick-Martin method								
2.4.1	Ensure safe handling/ use of poisons to avoid their harm to individuals and communities.	2.C4.1	2.C4.1	Antibiotic susceptibility testing: Kirby-Bauer method Demonstration of spectrum of action by strip-plate method & Demonstration of interaction between two antimicrobials x Determination of Minimum inhibitory concentration (MIC) by broth dilution Determination of MIC.by Agar diffusion method Activity Antibiotic assay Determination of phenol-coefficient:	Student book practical notes			x			x	x

				Rideal-Walker method Activity Determination of phenol-coefficient: Chick-Martin method								
3.1.3	Monitor and control microbial growth and carry out laboratory tests for identification of infections/ diseases.	3.C1.3	3.C1.1	Control of microbial spoilage Good Manufacture Practice Preservation of pharmaceutical products and preservatives commonly used	Student book			x				x
3.1.4	Relate etiology, epidemiology, pathophysiology, laboratory diagnosis, and clinical features of infections/diseases and their pharmacotherapeutic approaches.	3.C1.7	3.C1.2	Classification of antimicrobial agents: Drugs acting on cell wall Drugs acting on cell membrane Drugs inhibiting protein synthesis Drugs inhibiting nucleic acid synthesis Antimetabolites Antituberculous drugs, Antileprosy agents Antifungal drugs Antiprotozoal drugs Antiviral drugs					x		x	x

				Microbial resistance to antimicrobial agents Microbial assay of Antibiotics and vitamins • Disinfection and antisepsis: chemical agents used as disinfectant and antiseptic								
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	Determination of MIC.by Agar diffusion method Activity Determination of phenol-coefficient: Rideal-Walker method Activity	Internet search			x				
4.2.1	Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care team, patients, and communities.	4.C2.1	4.C2.1	Laboratory safety measures Bacterial counts & Sterility testing Antibiotic susceptibility testing: Kirby-Bauer method Demonstration of spectrum of action by strip-plate method & Demonstration of interaction between two antimicrobials	Practical notes						x	

				x Determination of Minimum inhibitory concentration (MIC) by broth dilution Determination of MIC.by Agar diffusion method Activity Antibiotic assay Determination of temperature coefficient Determination of concentration exponent Preparation of heat killed vaccine Determination of phenol-coefficient: Rideal-Walker method Activity Determination of phenol-coefficient: Chick-Martin method								
4.2.2	Use contemporary technologies and media to demonstrate effective presentation skills.	4.C2.3	4.C2.2	Determination of MIC.by Agar diffusion method Activity Determination of phenol-coefficient:	Internet search			x				

				Rideal-Walker method Activity								

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 (clinical 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.

2- Key elements of Scientific Writing and Communication skills:

DOMAIN 1- FUNDAMENTAL KNOWLEDGE	
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.C1.1	Evaluate pharmacist behavior in different communication scenarios
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.C1.1	Work effectively as a member of a team
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 Communication skills									
		DOMAIN 1- FUNDAMENTAL KNOWLEDGE			DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE				DOMAIN 4: PERSONAL PRACTICE		
Lectures		1.C1.1	1.C1.2	1.C1.3	2.C1.1	2.C5.1	2.C5.2	2.C5.3	4.C1.1	4.C2.1	4.C2.2
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				x	x	x
2	Finding relevant journals and selecting the right one Team-work in scientific writing					x	x		x	x	x
3	Building title & abstract					x	x	x	x	x	x
4	Building introduction section					x	x	x	x	x	x
5	Building methods section					x	x	x	x	x	x
6	Building results section					x	x	x	x	x	x
7	Building discussion Section Conclusion Citations					x	x	x	x	x	x

Matrix II of Scientific Writing and Communication skills course

National Academic Reference Standards (NARS)	Program key elements	Course key elements	Course contents	Sources	Teaching and learning methods			Method of assessment		
					lecture	practical session	Course assignments	written exam	practical exam	Students showing up

1.1.1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	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 Communication in Health Care	student book	x			x		
					student book	x			x		

				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		
2.1.2	Adopt ethics of health care and pharmacy profession respecting patients' rights and valuing people 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	Practical book		x			x	

				in Health Care Ethical Behavior when Communicating with Patients Case study & role play							
2.5.3	Contribute in planning and conducting research studies using appropriate methodologies	2.C5.6	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 Conclusion Citations	Practical book		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	All practical sessions	Practical notes			x			x
4.2.1	Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care team, patients, and communities.	4.C2.1	4.C2.1		Practical notes			x			x
4.2.2	Use contemporary technologies and media to demonstrate effective presentation skills.	4.C2.3	4.C2.2		Practical notes			x			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 (Clinical 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-Key elements 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

Dale and Applebe's Pharmacy Law and Ethics. 9th ed. Applebe G, wingfield J.London: Pharmaceutical Press; 2009.

3- Recommended books:

مجموع القوانين التي تحكم مزاولة المهن الطبية

FASTtrack: Law and Ethics in Pharmacy Practice Rodgers, Ruth; Dewsbury, Catherine; Lea, Andrew, First edition

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 course					
		1-1- COMPETENCY				2-1- COMPETENCY	2-5- COMPETENCY
Lectures		1.C1.1	1.C1.2	1.C1.3	1.C1.4	2.C1.1	2.C5.1
1	قانون مزاولة مهنة الصيدلة	x	x				
2	المؤسسات الصيدلية الصيدليات العامة	x					
3	المؤسسات الصيدلية الصيدليات الخاصة مخازن الادوية	x					
4	المؤسسات الصيدلية مجال الاتجار في النباتات الطبية نشاط	x	x				
5	المؤسسات الصيدلية المستحضرات الصيدلية الخاصة و الدستورية	x	x				
6	مسئوليات وواجبات الصيدلي تجاه المريض و الطرق السليمة التي يتبعها الصيدلي مع المريض			x		x	
7	**Periodical exam**		x				
8	اخلاقيات مزاولة المهنة			x		x	
9	لقواعد العامة التي تحكم اخلاقيات المهن الطبية			x		x	
10	علاقة الصيدلي بالمجتمع			x		x	

11	قانون مكافحة المخدرات و تنظيم استعمالها و الاتجار فيها	x	x				
12	جداول قانون مكافحة المخدرات		x		x		
13	مراحل اعداد ملف الدواء لتسجيله من وزارة الصحة						x

Matrix II of Pharmacy Legislation course

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	Periodical exam
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	Student book Essential books	x			x			x

			المستحضرات الصيدلية الخاصة و الدستورية									
			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 جداول قانون مكافحة المخدرات	1.C1.2								
			مسئوليات وواجبات الصيدلي تجاه المريض و الطرق السليمة التي يتبعها	1.C1.3								

2.1.1	Perform responsibilities and authorities in compliance with the legal and professional structure and role of all member	2.C1.1 2.C1.2 2.C1.3		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	Student book Essential books	x			x			x

	s of the health care professional team.												
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			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			x	

COURSE SPECIFICATIONS

Principles of Quality Assurance

Second level –Semester 4

2020-2021

Course Specification of Principles of Quality Assurance

University: Zagazig Faculty: Pharmacy

A- Course specifications:

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

Major or Minor element of programs: Minor

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

Department offering the course: Prof. Asem ElShazly & Assis. Prof. Gehan Balata

Academic year/ Level: Second level /Semester 4

Date of specification approval: Jan. 2020

B- Basic information:

Title: Principles of Quality Assurance Code: UR 405

Credit Hours: ---

Lectures : 1hr/week

Practical: 0

Tutorials: ---

Total: 1 hr/week

C- Professional information:

1-Overall Aims of the Course:

On completion of the course, students will be able to recognize quality definitions, origin, importance and types. Definition of accreditation, importance and types. Basic concepts of quality in education: program, course, intended learning outcomes and competency. Additionally, quality in healthcare including Team skills, quality tools and continuous improvement strategies.

2- Key elements of Principles of Quality Assurance:

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	Define different terminologies related to quality in education including accreditation, accreditation standards, vision, mission, academic guidance, survey, feedback, program and course specification, ILOs and others
1.C1.2	Outline accreditation standards, responsibilities of quality assurance unit as well as elements of strategic plan
1.C1.3	Illustrate the importance of implementation of quality assurance in education, steps of accreditation process as well as different tools of quality including process flow chart, fishbone diagram and different graph types
1.C1.4	Explain the importance of healthcare quality, quality perspectives , quality aspects and healthcare quality pillars
1.C1.5	Describe different models of quality improvement, leadership types, steps of team formation and determination of customer needs
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE	
2-6- COMPETENCY **Perform pharmacoeconomic analysis and develop promotion, sales, marketing, and business administration skills.**	
2.C6.1	Illustrate the elements of healthcare quality system and performance indicators related to each element
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	Deliver different assignments within due time
4.C1.2	Demonstrate good critical thinking and problem solving skills

D- Contents:

Week No.	Lecture (1 hr/week)
1	المفاهيم الأساسية والمصطلحات: ضمان جودة التعليم الاعتماد & معايير الاعتماد الزيارات الميدانية رؤية و رسالة الكلية الارشاد الاكاديمي الاستبيان التغذية الراجعة
2	المفاهيم الأساسية والمصطلحات: توصيف المقرر & البرنامج مخرجات التعلم المستهدفة المجالس الحاكمة المجتمع المحلي
3	الخطة الاستراتيجية الهيئة القومية لضمان جودة التعليم و الاعتماد
4	سؤال وجواب فى جودة التعليم
5	معايير الإعتماد - القدرة المؤسسية • التخطيط الاستراتيجي للمؤسسة . • القيادة والحوكمة. • الجهاز الإداري. • الموارد المالية والمادية • المشاركة المجتمعية • إدارة الجودة
6	معايير الإعتماد - الفاعلية التعليمية • الطلاب والخريجون. • المعايير الأكاديمية. & البرامج التعليمية / المقررات الدراسية. • التعليم والتعلم والتسهيلات المادية للتعلم. • أعضاء هيئة التدريس. • البحث العلمي. • الدراسات العليا.
7. Midterm exam	
8	مبادئ الجودة فى المؤسسات الصحية • تعريف الجودة • أهمية تطبيق الجودة فى المؤسسات الصحية • مكونات النظام فى المؤسسات الصحية

	• منظور الجودة • أشكال الجودة • الركائز الستة للجودة
9	إدارة الجودة الشاملة (TQM)) فى المؤسسات الصحية • ثلاثية جوران • الركائز الستة للجودة • الحيود الستة (Six sigma)
10	متطلبات تطبيق إدارة الجودة الشاملة فى المؤسسات الصحية أولا: القيادة ثانيا: تكوين فريق عمل لتحسين الجودة ثالثا: التركيز على العميل
11	أدوات إدارة الجودة الشاملة فى المؤسسات الصحية اولا: خريطة التدفق Flow chart
12	أدوات إدارة الجودة الشاملة فى المؤسسات الصحية ثانيا: مخطط السبب والأثر (Fishbone Diagram /Ishikawa's cause and effect diagram) ثالثا: العصف الذهني Brainstorming رابعا: بطاقة الأداء المتوازن La Balanced Score Card BSC
13	أدوات إدارة الجودة الشاملة فى المؤسسات الصحية خامسا: أدوات الرقابة الاحصائية
14	-Revision
15	**Final exam**

E- Teaching and Learning Methods:

- Lectures
- Solving different assignments

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.C6.1

2- Assignments to assess 4.C1.1, 4.C1.2

Assessment schedule:

Assessment (1): Final Written exam	Week 15
Assessment (2): assignments	Each Week
Assessment (4): midterm exam	Week 7

Weighting of Assessment:

Assessment method	Marks	Percentage

Final Written exam	75	75%
Midterm exam & assignments	25	25%
TOTAL	100	100%

G- Facilities Required for Teaching and Learning:

- Black (white) board, Data show

H- List of References:

- دليل الإعتماد لمؤسسات التعليم العالى - الإصدار الثانى - الهيئة القومية لضمان جودة التعليم والإعتماد - أغسطس 2009.
- دليل الطالب - سؤال وجواب فى جودة التعليم - الإصدار الأول - الهيئة القومية لضمان جودة التعليم والإعتماد - أبريل 2009
- لائحة بكالريوس الصيدلة - فارم دى - كلية الصيدلة جامعة الزقازيق 2019.

- يسري السيد يوسف جوده " . مبادئ إدارة الجودة الشاملة، مدخل لتحسين جودة اداء الخدمات الصحية" . مجلة البحوث الإدارية . المجلد الرابع والعشرون . جامعة الزقازيق . العدد الأول يناير2002.
- عبد الله ساعاتي . " مبادئ إدارة المستشفيات" . دار الفكر العربي . القاهرة . 1998.
- عبد العزيز مخيمر، محمد الطمامنة، **الاتجاهات الحديثة في إدارة المستشفيات" المفاهيم والتطبيقات"**، المنظمة العربية للتنمية الإدارية بحوث ود راسات 2003.
- محمد عدمان مريزق، **مداخل في الإدارة الصحية**، دار ا لراية، عمان، 2012.

Course Coordinator: Prof. Asem ElShazly

Matrix I of principles of quality assurance course

Course Contents		Key elements of principles of quality assurance							
		DOMAIN 1- FUNDAMENTAL KNOWLEDGE					DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE	DOMAIN 4: PERSONAL PRACTICE	
Lectures		1.C1.1	1.C1.2	1.C1.3	1.C1.4	1.C1.5	2.C6.1	4.C1.1	4.C1.2
1	المفاهيم الأساسية والمصطلحات: ضمان جودة التعليم الاعتماد & معايير الاعتماد الزيارات الميدانية رؤية و رسالة الكلية الارشاد الاكاديمي الاستبيان التغذية الراجعة	x		x				x	
2	المفاهيم الأساسية والمصطلحات: توصيف المقرر & البرنامج مخرجات التعلم المستهدفة المجالس الحاكمة المجتمع المحلي	x						X	
3	الخطة الاستراتيجية الهيئة القومية لضمان جودة التعليم و الاعتماد	x	x					X	
4	سؤال وجواب فى جودة التعليم	x	x	x				X	x

5	معايير الإعتماد - القدرة المؤسسية • التخطيط الاستراتيجي للمؤسسة . • القيادة والحوكمة. • الجهاز الإداري. • الموارد المالية والمادية • المشاركة المجتمعية •x إدارة الجودة		x	x				X	
6	معايير الإعتماد - الفاعلية التعليمية • الطلاب والخريجون. • المعايير الأكاديمية. & البرامج التعليمية / المقررات الدراسية. • التعليم والتعلم والتسهيلات المادية للتعلم. • أعضاء هيئة التدريس. • البحث العلمي. • الدراسات العليا.		x					X	
7	مبادئ الجودة فى المؤسسات الصحية • تعريف الجودة • أهمية تطبيق الجودة فى المؤسسات الصحية • مكونات النظام فى المؤسسات الصحية • منظور الجودة • أشكال الجودة • الركائز الستة للجودة	x			x		x	X	
8	إدارة الجودة الشاملة ((TQM فى المؤسسات الصحية • ثلاثية جوران • الركائز الستة للجودة • الحيود الستة(Six sigma)					x		X	

9	متطلبات تطبيق إدارة الجودة الشاملة فى المؤسسات الصحية أولا: القيادة ثانيا: تكوين فريق عمل لتحسين الجودة ثالثا: التركيز على العميل					x		X	
10	أدوات إدارة الجودة الشاملة فى المؤسسات الصحية اولا: خريطة التدفقFlow chart			x				x	x
11	أدوات إدارة الجودة الشاملة فى المؤسسات الصحية ثانيا: مخطط السبب والأثر (Fishbone Diagram /Ishikawa's cause and effect diagram) ثالثا: العصف الذهنيBrainstorming رابعا: بطاقة الأداء المتوازن La Balanced Score Card BSC			x				x	x
12	أدوات إدارة الجودة الشاملة فى المؤسسات الصحية خامسا: أدوات الرقابة الاحصائية			x				x	

Matrix II of principles of quality assurance course

National Academic Reference Standards (NARS)		Program key elements	Course key elements	Course contents	Sources	Teaching and learning methods			Method of assessment		
						lecture	practical session	Course assignments	written exam	practical exam	Course assignments
1.1.1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	1.C1.5	1.C1.1	ضمان جودة التعليم الاعتماد & معايير الاعتماد الزيارات الميدانية رؤية و رسالة الكلية الارشاد الاكاديمي الاستبيان التغذية الراجعة توصيف المقرر & البرنامج مخرجات التعلم المستهدفة المجالس الحاكمة المجتمع المحلي الخطة الاستراتيجية الهيئة القومية لضمان جودة التعليم و الاعتماد	student book	x			x		
			1.C1.2	الخطة الاستراتيجية الهيئة القومية لضمان جودة التعليم و الاعتماد	student book	x			x		
				معايير الإعتماد - القدرة المؤسسية • التخطيط	student book	x			x		

				الاستراتيجي للمؤسسة . • القيادة والحوكمة. • الجهاز الإداري. • الموارد المالية والمادية • المشاركة المجتمعية •x إدارة الجودة معايير الإعتماد - الفاعلية التعليمية • الطلاب والخريجون. • المعايير الأكاديمية. & البرامج التعليمية / المقررات الدراسية. • التعليم والتعلم والتسهيلات المادية للتعلم. • أعضاء هيئة التدريس. • البحث العلمي. • الدراسات العليا.						
			1.C1.3	المفاهيم الأساسية والمصطلحات: ضمان جودة التعليم الاعتماد & معايير الاعتماد الزيارات الميدانية رؤية و رسالة الكلية الارشاد الاكاديمي	student book, essential books	x			x		

				الاستبيان التغذية الراجعة أدوات إدارة الجودة الشاملة فى المؤسسات الصحية							
			1.C1.4	مبادئ الجودة فى المؤسسات الصحية • تعريف الجودة • أهمية تطبيق الجودة فى المؤسسات الصحية • مكونات النظام فى المؤسسات الصحية • منظور الجودة • أشكال الجودة • الركائز الستة للجودة	student book	x			x		
			1.C1.5	إدارة الجودة الشاملة (TQM)) فى المؤسسات الصحية • ثلاثية جوران • الركائز الستة للجودة • الحيود الستة (Six sigma) متطلبات تطبيق إدارة الجودة الشاملة فى المؤسسات الصحية أولا: القيادة ثانيا: تكوين فريق عمل	student book	x			x		

				لتحسين الجودة ثالثا: التركيز على العميل							
2.C6.1	Apply the principles of business administration and management to ensure rational use of financial and human resources.	2.C6.1	2.C6.1	مبادئ الجودة فى المؤسسات الصحية • تعريف الجودة • أهمية تطبيق الجودة فى المؤسسات الصحية • مكونات النظام فى المؤسسات الصحية • منظور الجودة • أشكال الجودة • الركائز الستة للجودة	Student book	x		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	All topics	Student book			x			x

4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	4.C1.5	4.C1.2	أدوات إدارة الجودة الشاملة فى المؤسسات الصحية اولا: خريطة التدفق Flow chart ثانيا: مخطط السبب والأثر (Fishbone Diagram /Ishikawa's cause and effect diagram)	Student book			x			x

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Course Coordinator: **Prof. Asem ElShazly**