

# Level 2

## Semester (3)

Course Title	Course code
Pharmaceutical Organic chemistry-III	PC 304
Pharmaceutical Analytical chemistry-II	PC 306
Pharmacognosy -II	PG 303
Anatomy	MD 304
Physiology	MD 305
Medical Terminology	MD311
Psychology	HU 302

## Semester (4)

Course Title	Course code
Biochemistry -I	PB 401
Phytochemistry -I	PG 404
Instrumental Analysis	PC 407
General Microbiology and Immunology	PM 401
Parasitology	MD 406
Pharmaceutical dosage forms-I	PT 403
Pharmacy legislation	PT 404



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Second Level

Course Specification Pharmaceutical  
Organic Chemistry

**University:** Mansoura University (MU)  
**Faculty:** Pharmacy  
**Department:** Pharmaceutical Organic Chemistry  
**Course title:** Pharmaceutical Organic Chemistry -3  
**Course code:** .....PC304 ...

<b>Program on which the course is given</b>	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
<b>Academic Level</b>	Level 2, First semester, 2023-2024
<b>Date of course specification approval</b>	20/9/2023

1. **Basic Information: Course data:**

<b>Course title:</b>	Pharmaceutical Organic Chemistry -3	<b>Code:</b> PC304.....
<b>Specialization:</b>	Basic Science	
<b>Prerequisite:</b>	Pharmaceutical Organic Chemistry -1	
<b>Teaching Hours:</b>	<b>Lecture: 2</b>	<b>Practical: 1</b>
<b>Number of units: (credit hours)</b>	3	

2. **Course Aims:**

- 2.1. Enable the student to understand the basic principals of organic chemistry concerning structures, nomenclature, preparation, properties of heterocycles.
- 2.2. Help the student to understand the basic principles of Functional group transformations.
- 2.3. Teach the students to basics of stereochemistry aspects of different organic compounds
- 2.4. Enable the student to Determine the physical constants and identify the unknown organic compounds either single or in mixtures.
- 2.5. Practice the students to perform practical synthesis of organic compounds (one step synthesis).



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### 3. Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

#### Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.3	1.1.3.1	Combine and integrate knowledge from fundamental sciences to identify, design and prepare different synthetic heterocyclic pharmaceutical materials and their clinical applications.

#### Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.2.1	2.2.1.1	Synthesize, identify and design synthetic pharmaceutical materials from different origins.
2.2.3	2.2.3.1	Show the ability to use lab equipment to identify and design synthetic processes for raw materials and finished pharmaceutical products.
2.5.3	2.5.3.1	Apply scientific principles of research and systematic approaches in the search for best available chemical pathways to identify organic compounds in a mixture and prepare organic compounds in good yield.

#### Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.2.1	3.2.1.1	Integrate the spectroscopic and pharmacological properties of drugs including proper synthesis and therapeutic uses.

#### Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Apply effective time management skills for identifying different unknown organic compounds and reaction pathways.
4.1.3	4.1.3.1	Demonstrate creativity in applying entrepreneurial skills in chemical synthesis of different organic compounds and analyze their spectroscopic data.
4.3.2	4.3.2.1	Practice dependent learning to develop professional learning skills.



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#### 4. Course Contents:

Week No	Topics	Lecture credit hours
1-2	Heterocyclic Chemistry 5. Nomenclature. 6. Classification of heterocycles. 7. Reactivity of heterocycles.	4
3	Five-membered Heterocycles	2
4	Six-membered Heterocycles	2
5	Heterocycles containing more than two hetero atoms	2
6	Fused Heterocycles.	2
7-8	Seven-membered Heterocycles/Uses	4
9-10	Stereochemical Aspects	4
11	Conformational, Steric effects	2
12	Stereoelectronic Effects	2
13	Application of stereochemistry in drug synthesis	2
14	Revision/Quiz	2
15	Final written & oral exams	
Week No	Practical Topics Identification of single organic compounds belonging to the following organic classes	Practical / Tutorial credit hours
1-7	Separation of Mixtures and Synthesis and purification of organic compounds. Lab problems.	6
8	<b>Periodical Exam</b>	
9-10	Synthesis and purification of organic compounds.	2
11	UV Lab problems	1
12-13	Spectroscopic problems/Revision	2
14	Practical exam	1

#### 5. Teaching and learning Methods:

5.1	Computer aided learning: a. On line learning through My mans "Mansoura university "as recorded – video lectures b. Interactive discussion through My Mans c. Class Lectures using Data show, PowerPoint presentations and Stereochemical Chemical models and animations.
5.2	Self-learning
5.3	Formative Assignments
5.4	Tutorial



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## 6. Student Assessment:

### a- Assessment methods

<b>Periodical exam</b>	To assess understanding, intellectual and professional skills.
<b>Practical exam</b>	To assess professional and practical skills.
<b>Oral exam</b>	To assess understanding and intellectual skills and general and transferrable skills.
<b>Final Written exam</b>	To assess understanding, intellectual and professional skills.

### b- Assessment schedule

<b>Assessment 1</b>	<b>Practical (Part 1&amp;2)</b>	14 <sup>th</sup> week
<b>Assessment 2</b>	<b>Periodical</b>	8 <sup>th</sup> week
<b>Assessment 3</b>	<b>Oral</b>	Start from 15 <sup>th</sup> week
<b>Assessment 4</b>	<b>Written</b>	Start from 15 <sup>th</sup> week

### c- Weighting of assessments

<b>1.</b>	<b>Periodical examination</b>	10 %
<b>2.</b>	<b>Final-term examination</b>	50 %
<b>3.</b>	<b>Oral examination</b>	15 %
<b>4.</b>	<b>Practical examination and Semester work</b>	25 %
<b>Total</b>		100 %





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1-10	Synthesis and purification of organic compounds.	✓	✓	✓	✓	✓	✓	✓
11-13	Lab problems /Revision	✓	✓	✓	✓	✓	✓	✓







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### 8. List of References:

N0.	Reference	type
1	Theoretical course Notes prepared by staff members	Course notes
2	Organic Chemistry by William H. Brown (Harcourt Brace College Publishers)	Book
3	Practical Skill in Chemistry. By John RDean, Alan M. Jones, David Holmes, Rob Reed, Jonathan Weyers and Allan Jones. Pearson Education Limited	Book
4	Organic Chemistry, T. W. Graham Solomons, Craig B. Fryhle, Scott A. Snyder, 12th Edition (2016).	Book
5	Silverstein, R.M., Webster, F.X., Kiemle, D.j., Bryce, D.L.. Spectrometric Identification of Organic Compounds. Ed. 8th, Hoboken, NJ : John Wiley & Sons, 2014.	Book
6	Introduction to Spectroscopy, 5th Edition, Donald L. Pavia, 2015.	Book

<b>Course Coordinator:</b>	Ass.Prof. Walaa M. Elhousseiny 
<b>Head of Department:</b>	Prof. Shahenda Metwally El-Messery 

Date: 20/9/2023





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Second Level.

Course Specification: Pharmaceutical Analytical  
Chemistry II

**University:** Mansoura University (MU)  
**Faculty:** Pharmacy  
**Department:** Pharmaceutical Analytical Chemistry  
**Course title:** Pharmaceutical Analytical Chemistry II  
**Course code:** PC 306

<b>Program on which the course is given</b>	B. Pharm (Clinical Pharmacy), Modified and unified bylaw.
<b>Academic Level</b>	Level 2, First semester, 2023-2024
<b>Date of course specification approval</b>	10/9/2023

1. Basic Information: Course data:

<b>Course title:</b>	Pharmaceutical Analytical Chemistry (2)	<b>Code:</b> PC 306
<b>Specialization:</b>	Pharmaceutical sciences	
<b>Prerequisite:</b>	Registration	
<b>Teaching credit Hours:</b>	<b>Lecture: 2</b>	<b>Practical: 1</b>
<b>Total Number of units: (Credit hours)</b>	<b>3 hours</b>	

2. Course Aims:

At the end of the course the student should:	
1.	Give the principle of quantitative chemical methods of analysis, including oxidation reduction titrations and electrochemical analysis
2.	Cover the applications of these methods to pharmaceutical compounds.

3. Course k. elements:

Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
(1.1.1)	(1.1.1.1)	Clarify the theory and principles of complexometric titration reduction oxidation titration and electrochemical methods of analysis.



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(1.1.3)	(1.1.3.1)	Combine the principles of different analytical techniques for the estimation of pharmaceutical compounds and water analysis.
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## Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.2.1	2.2.1.1	Select and apply redox or electrochemical analytical methods to analyze pharmaceutical materials
2.2.3	2.2.3.1	Demonstrate the principles of various analytical instruments used for the analysis of different raw materials.
2.2.4	2.2.4.1	Explain the principles of pharmaceutical calculations and their applications to pharmaceutical analysis.
2.3.1	2.3.1.1	Select appropriate methods for handling and disposal of materials used in pharmaceutical analysis.

## Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Retrieve and analyze information to solve problems and work individually or effectively in a team.
4.3.2	4.3.2.1	Practice self-learning needed to improve professional skills

## 4. Course Contents:

Week No	Topics	Lecture credit hours	Practical / Tutorial credit hours
1.	- Introduction to redox titrations,	2	
2.	- Nernst equation and factors affecting redox potential	2	
3.	- Methods for detection of endpoint.	2	
4.	- Redox titration curves	2	
5	- Redox application in pharmaceutical analysis.	2	
6	- Conductometry principle	2	
7	- Conductometry application in pharmaceutical analysis.	2	



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8	-Electrochemistry (introduction, electrochemical cells) Potentiometry (principles, instrumentation)	2	
9	-Potentiometry (Calculations of cell potential & problems)	2	
10	-Reference and indicator electrodes	2	
11.	-Glass Membrane Electrode	2	
12.	-Polarography principle	2	
13.	-Application of polarography in pharmaceutical analysis <b>-Applications of electro-chemistry + (self-learning).</b>	2	
14	<b>Revision and quiz</b>	2	
15	<b>Written and Oral exam</b>		
<b>Week No</b>	<b>Practical Topics</b>	<b>Lecture credit hours</b>	<b>Practical credit hours</b>
1	Determination of oxalic acid.		1
2	Determination of oxalic acid/acetic acid mix.		1
3	Determination of Fe <sup>+2</sup> /Fe <sup>+3</sup>		1
4	Determination of H <sub>2</sub> O <sub>2</sub>		1
5	Determination of Lead acetate.		1
6	Determination of iodine/iodide mixture		1
7	Determination of ascorbic acid		1
8	<b>Periodical exam</b>		
9	Conductometry: Determination of strong acid		1
10	Conductometry: Determination of weak acid		1
11	Potentiometry problems: Zero order and first derivative		1
12	Potentiometry problems: Second derivative		1
13	Polarography and application in pharmaceutical analysis		1
14	<b>Practical Exam</b>		

### 5. Teaching and Learning Methods:

5.1	Computer-aided learning: a. Lectures using Data show, PowerPoint presentations b. Distance learning <b>a-</b> Online learning through my mans "Mansoura university "as recorded – video lectures
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b- Inter active discussion through My Mans	
5.2	Self-learning
5.3	Practical session using chemicals and laboratory equipment and/ or tutorials
5.4	Class Activity: Group discussion offline and online.
5.5	Problem – based learning and brainstorming
5.6	Research assignments to design Formative Assignments



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## 6. Student Assessment:

### a- Assessment methods

Periodical exam	1.1.1.1, 1.1.3.1, 2.2.1.1., 2.2.3.1
Practical exam	2.2.4.1, 2.3.1.1., 4.1.2.1
Written exam	1.1.1.1, 1.1.3.1, 2.2.1.1., 2.2.3.1
Oral exam	4.1.2.1, 4.3.2.1, 1.1.1.1, 1.1.3.1

### b. Assessment schedule

Assessment 1	Periodical exam	8 <sup>th</sup> week
Assessment 2	Practical exam	14 <sup>th</sup> week
Assessment 3	Written exam	15 <sup>th</sup> week
Assessment 4	Oral exam	15 <sup>th</sup> week

### c. Weighting of assessments

1.	Periodical exam	10 %
2.	Written exam	50 %
3.	Oral exam	15 %
4.	Practical exam	25 %
Total		100



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**7- Matrix of course content versus course key elements:**

Study Week	Course contents	Domains / Key elements Outcomes							
		Domain 1		Domain 2				Domain 4	
		1.1.1.1	1.1.3.1	2.2.1.1	2.2.3.1	2.2.4.1	2.3.1.1	4.1.2.1	4.3.2.1
	<b>A) Theoretical part</b>								
1	- Introduction to redox titrations,	<input type="checkbox"/>							
2	Nernst equation and factors affecting redox potential	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
3	- Methods for detection of endpoint.	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>			
4	Redox titration curves	<input type="checkbox"/>		<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
5	- Redox application in pharmaceutical analysis.	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>		
6	- Conductometry principle	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	- Conductometry application in pharmaceutical analysis.	<input type="checkbox"/>		<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
8	-Electrochemistry (introduction, electrochemical cells)  Potentiometry (principles, instrumentation)	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>







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6	Determination of iodine/iodide mixture	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Determination of ascorbic acid	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Conductometry: Determination of strong acid	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Conductometry: Determination of weak acid	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Potentiometry problems: Zero order and first derivative	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Potentiometry problems: Second derivative		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	Polarography and application in pharmaceutical analysis		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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### 8. List of References:

No	Reference	Type
1.	Electronic book prepared by staff members	Course notes
2.	Recorded videos prepared by staff members	Videos on platform
3.	Fundamentals of Analytical Chemistry , Douglas A.; Skoog; Donald M., West, F.James Holler, Stanely, R.Crouch Thomson, Australia 8th ed. (2004).	Book
4.	Quantitative Chemical Analysis, Daniel C. Harris, 6th ed., W.H. Freeman and Company, New York (2003).	Book
5.	Vogel,s Textbook of Quantitative Chemical Analysis, J. Mendham, M.A, MSc, C. Chem, M. RSC, 6th ed., India (2004)	Book
6.	<a href="http://www.sciencedirect.com/">http://www.sciencedirect.com/</a> / <a href="http://www.google scholar.com/">http://www.google scholar.com/</a> / <a href="http://www.pubmed.com">http://www.pubmed.com</a> <a href="https://www.ekb.eg">https://www.ekb.eg</a>	websites

<b>Course Coordinator</b>	Prof. Dr. Manal Eid <i>M. Eid</i>
<b>Head of Department</b>	Prof. Dr. Jenny Jeehan Mohamed Nasr <i>Jenny Jeehan Nasr</i>

Date: 10/9/2023



**Course specification  
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**Level-2  
Clinical Pharmacy Students  
(Credit Hour System)**

**Pharmacognosy-2 (PG 303)**

**University:** Mansoura  
**Faculty :** Pharmacy  
**Department :** Pharmacognosy  
**Course title:** Pharmacognosy-2 (PG 303)

<b>Program on which the course is given</b>	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
<b>Academic Level</b>	Level 2 – first semester 2023-2024
<b>Date of course specification approval</b>	6/9/2023

**1. Basic Information : Course data :**

<b>Course title:</b>	Pharmacognosy-2	<b>Code:</b>	PG 303
<b>Specialization:</b>	Pharmaceutical sciences		
<b>Prerequisite:</b>	Pharmacognosy-1		
<b>Teaching Hours:</b>	<b>Lecture:</b> 2	<b>Practical:</b>	1
<b>Number of units: (credit hours)</b>	3		

**2. Course Aims:**

1. The course provides the student with the skills and knowledge dealing with drugs from different organs such as seeds, fruits, herbs, subterranean organs and animal drugs.
2. The course prepares the students to the practical aspects and steps for identification of natural medicinal drugs.
3. It provides the student with the basic knowledge concerning the different chemical active constituents derived from seeds, fruits, herbs, subterranean organs and animal drugs.
4. Prepare the students to be able to participate in national and international natural drug fields and able to upgrade their knowledge.



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### 3. Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

#### Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
(1.1.1)	(1.1.1.1)	Outline general Macroscopical and microscopical characters of given medicinal fruits, herbs, subterranean organs or unorganized drugs.
(1.1.2)	(1.1.2.1)	Memorize the geographical and botanical origin of the studied plants such as, fruits, and herbs, subterranean organs, unorganized drugs and animals.
(1.1.3)	(1.1.3.1)	Identify the principles of physical, chemical and microscopical characters in preparation of medicines and herbal mixtures from different plant organs as fruits, and herbs, subterranean organs, unorganized and animals drugs.
(1.1.4)	(1.1.4.1)	Recognize the main active constituents of the studied medicinal plant and animal parts as well as their medicinal uses.

#### Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
(2.2.1)	(2.2.1.1)	Analyze and evaluate the natural pharmaceutical materials from different origins as fruits, herbs, subterranean organs, unorganized and animals drugs
(2.2.2)	(2.2.2.1)	Evaluate the incompatibilities and contraindications of a given medicinal items from plant and animal origin.
(2.3.1)	(2.3.1.1)	Utilize the appropriate methods to identify the active constituents of the target plants, their purity in pharmaceutical preparations as well as their handling and disposal.

#### Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
(4.1.1)	(4.1.1.1)	Work effectively in a team and demonstrate time management ability
(4.2.1)	(4.2.1.1)	Communicate effectively in a scientific language by verbal and written means in the field of health care and medicinal plants regarding the studied topics.
(4.3.2)	(4.3.2.1)	Practice independent learning to promote continuous professional development.



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#### 4. Course Contents:-

Week No	Topics	Lecture credit Hours	Practical credit hours
1	Introduction of Medicinal fruits	2	
2	Medicinal fruits such as Umbelliferous fruits (Fennel, Caraway, Anise, Coriander, <i>Ammi visnaga</i> , <i>Ammi majus</i> )	2	
3	Medicinal fruits such as Capsicum, Colocynth, Senna, Bitter orange, Lemon peels.	2	
4	Medicinal non-official fruits; Cumin, Dill, Hemlock, Black pepper, Cubebs, Star Anise, Milk Thistle.	2	
5	Introduction of medicinal herbs, Medicinal herbs as Lobelia, Mentha, Thyme, Lavender	2	
6	Medicinal herbs such as <i>Hyoscyamus</i> , Cannabis, Ergot, Catharanthus, Ephedra	2	
7	Introduction of Medicinal subterranean organs, Medicinal subterranean organs as Male fern, Ginseng, Aconite, Althaea.	2	
8	<b>Mid-term Exam</b>		
9	Medicinal subterranean organs such as Liquorice, Ginger, Curcuma, Galangal, Calumba.	2	
10	Medicinal subterranean organs such as Rhubarb, Jalap, Squill, Rauwolfia, Krameria, Veratrum	2	
11	Medicinal subterranean organs such as Hydrastis, Senega, Sarsaparilla, Ipecacuanha, Colchicum, Gentian, Valerian	2	
12	Introduction to unorganized drugs	2	
13	Medicinal unorganized drug such as gums, extracts, Resin, and resin combinations	2	
14	Animal and Animal-derived drugs	2	
15	Final written and oral exam		
	<b>Practical topics</b>		
1	Introduction of medicinal Fruits, Umbelliferous fruits,		1
2	Medicinal Fruits such as Anise and Fennel		1
3	Umbelliferous fruits ( <i>Coriander</i> , <i>Ammi visnaga</i> , <i>Ammi majus</i> )		1
4	Medicinal Fruits such as Capsicum, Colocynth fruit.		1
5	Medicinal herbs such as <i>Hyoscyamus</i>		1
6	Medicinal herbs such as <i>Mentha</i> and <i>Thymus</i>		1
7	Introduction to Subterranean organs, examination of powdered Liquorice		1
8	<b>Mid-term Exam</b>		
9	Subterranean organs; Examination of powdered rhubarb, jalap (macro only)		1
10	Subterranean organs; ginger, curcuma, galangal		1



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11	Medicinal unorganized drug such as gums (gum tragacanth and gum Arabic)		1
12	Medicinal unorganized drug such as dried extracts (gelatin and agar-agar).		1
13	Resin and resin combinations such as colophony, myrrh, asafetida and Aloe		1
14	<b>practical exam (OSPE)</b>		

### 5. Teaching and learning Methods:

5.1.	Computer aided learning 5.1.1. Online learning through My Mans “Mansoura University as recorded video lectures. 5.1.2. Interactive Discussions through My Mans. 5.1.3. Lectures using Data show, Power point presentations.
5.2.	Self-Learning
5.3.	Student seminars and research assignments.
5.4.	Case studies

### 6. Student Assessment:

#### a- Assessment methods:

1-Written exam	To assess understanding, intellectual, professional
2-Practical exam	To assess professional and practical skills
3-Oral	To assess Knowledge, understanding, intellectual skills, general skills and confidence
4-Quizzes	To assess Knowledge, understanding and intellectual skills
5-Case study	To assess the skills of problem-solving and date presentation



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**b- Assessment schedule**

Assessment 1	Practical	14 <sup>th</sup> week
Assessment 2	Mid-term	8 <sup>th</sup> week
Assessment 3	Oral	15 <sup>th</sup> week
Assessment 4	Written	15 <sup>th</sup> week

**c- Weighting of assessments**

1	Mid-term examination	10 %
2	Final-term examination	50 %
3	Oral examination	15 %
4	Practical examination & Semester work	25 %
Total		100%





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**7. Matrix of course content versus course key elements:**

Study Week	Course contents	Domains / Key elements Outcomes										
		Domain 1				Domain 2			Domain 4			
		1.1.1.1	1.1.2.1	1.1.3.1	1.1.4.1	2.2.1.1	2.2.2.1	2.3.1.1	4.1.1.1	4.2.1.1	4.3.2.1	
	<b>1. Theoretical Part</b>											
1	Introduction of Medicinal fruits	✓										✓
2	Medicinal fruits such as Umbelliferous fruits (Fennel, Caraway, Anise, Coriander, <i>Ammi visnaga</i> , <i>Ammi majus</i> )	✓										✓
3	Medicinal fruits such as Capsicum, Colocynth, Senna, Bitter orange, Lemon peels.	✓	✓	✓	✓					✓	✓	✓
4	Medicinal non-official fruits; Cumin, Dill, Hemlock, Black pepper, Cubebs, Star Anise, Milk Thistle.	✓			✓					✓		✓
5	Introduction of medicinal herbs, Medicinal herbs as Lobelia, Mentha, Thyme, Lavender	✓	✓	✓	✓					✓		✓
6	Medicinal herbs such as <i>Hyoscyamus</i> , <i>Cannabis</i> , Ergot, <i>Catharanthus</i> , Ephedra	✓	✓	✓	✓					✓	✓	✓



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7	Introduction of Medicinal subterranean organs, Medicinal subterranean organs as Male fern, Ginseng, Aconite, Althaea.	✓	✓	✓	✓						✓	✓	✓
9	Medicinal subterranean organs such as Liquorice, Ginger, Curcuma, Galangal, Calumba.	✓	✓	✓	✓						✓	✓	✓
10	Medicinal subterranean organs such as Rhubarb, Jalap, Squill, Rauwolfia, Krameria, Veratrum	✓	✓	✓	✓						✓	✓	✓
11	Medicinal subterranean organs such as Hydrastis, Senega, Sarsaparilla, Ipecacuanha, Colchicum, Gentian, Valerian	✓	✓	✓	✓						✓	✓	✓
12	Introduction to unorganized drugs	✓	✓	✓							✓	✓	✓
13	Medicinal unorganized drug such as gums, extracts, Resin, and resin combinations	✓	✓	✓	✓						✓	✓	✓
14	Animal and Animal-derived drugs (Part I)	✓	✓	✓	✓						✓	✓	✓
15	Animal and Animal-derived drugs (Part II),		✓	✓	✓						✓	✓	✓
<b>2. Practical Part</b>													
1	Introduction of medicinal Fruits, Umbelliferous fruits,						✓	✓	✓		✓	✓	✓



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2	Medicinal Fruits such as Anise and Fennel						✓	✓	✓		✓	✓	✓
3	Umbelliferous fruits (Coriander, <i>Ammi visnaga</i> , <i>Ammi majus</i> )						✓	✓	✓		✓	✓	✓
4	Medicinal Fruits such as Capsicum, Colocynth fruit.						✓	✓	✓		✓	✓	✓
5	Medicinal herbs such as Hyoscyamus						✓	✓	✓		✓	✓	✓
6	Medicinal herbs such as Mentha and Thymus						✓	✓	✓		✓	✓	✓
7	Introduction to Subterranean organs, examination of powdered Liquorice						✓	✓	✓		✓	✓	✓
9	Subterranean organs; Examination of powdered rhubarb, jalap (macro only)						✓	✓	✓		✓	✓	✓
10	Subterranean organs; ginger, curcuma, galangal						✓	✓	✓		✓	✓	✓
11	Medicinal unorganized drug such as gums (gum tragacanth and gum Arabic)						✓	✓	✓		✓	✓	✓
12	Medicinal unorganized drug such as dried extracts (gelatin and agar-agar).						✓	✓	✓		✓	✓	✓
13	Resin and resin combinations such as colophony, myrrh.						✓	✓	✓		✓	✓	✓



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14	Resin and resin combinations such as asafetida and Aloe.						✓	✓	✓		✓	✓	✓
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## 8. List of References:

N0.	Reference	type
1	Lectures note written by Faculty members	Course notes
2	“Textbook of Pharmacognosy and Phytochemistry” Shah B., Elsevier, (2019)	Book
3	Kar k.R., Misra M.N. and Kabi T., Text Book on Fundamentals of Botany. New Delhi 2015.	Book
4	<a href="http://www.sciencedirect.com/">http://www.sciencedirect.com/</a> <a href="http://www.google scholar.com/">http://www.google scholar.com/</a> <a href="http://www.pubmed.com">http://www.pubmed.com</a> <a href="https://www.ekb.eg">https://www.ekb.eg</a>	websites

Course Coordinator :	Prof. Dr. Mona G. Zhagloul
Head of Department	Prof. Dr. Mahmoud F. Elsebai

Date: 6/9/2023



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المستوى الثاني

Course Specification: Anatomy

**University:** Mansoura University (MU)  
**Faculty:** Pharmacy  
**Department:** Pharmacology & Toxicology  
**Course title:** Anatomy  
**Course code:** MD 304

<b>Program on which the course is given</b>	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
<b>Academic Level</b>	Level 2, First semester, 2023-2024
<b>Date of course specification approval</b>	18/9/2023

## 1. Basic Information: Course data:

<b>Course title:</b>	Anatomy	<b>Code:</b> MD 304
<b>Specialization:</b>	Medical sciences	
<b>Prerequisite:</b>	Registration	
<b>Teaching credit Hours:</b>	<b>Lecture:</b> 1	<b>Practical:</b> -
<b>Total Number of units: (credit hours)</b>	1 hours	

## 2. Course Aims:

This course enables the students to be provided with competency concerning the proper functions of cells, tissues, organs, and body system as well as integrate physiological data and mechanisms with ongoing taught sciences: anatomy

## 3. Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

### Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Realize knowledge of pharmaceutical, biomedical, administrative, and clinical sciences
1.1.7	1.1.7.1	Gather new information, including evidence-based information, that may be applicable to patient care



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## Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.3.1	2.3.1.1	Use suitable methods for disposal of natural or synthetic materials, biological and biotechnology-based items used in pharmacy
2.5.3	2.5.3.1	Use scientific principles of research and utilize systematic studies in the research

## Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4-2-1	4-2-1-1	Use clear language, pace, tone, and non-verbal communication when dealing with other health team and communities.

## 4. Course Contents:

Week No	Topics	Lecture credit hours
1	Introduction to human anatomy	1
2	Anatomy of skeletal system	1
3	Anatomy of digestive system	1
4	Anatomy of respiratory system (part 1)	1
5	Anatomy of respiratory system (part 2)	1
6	Anatomy of nervous system (part 1)	1
7	Anatomy of nervous system (part 2)	1
8	Anatomy of cardiovascular system (part 1)	1
9	Anatomy of cardiovascular system (part 2)	1
10	Anatomy of articular system	1
11	Anatomy of lymphatic system	1
12	Anatomy of urogenital systems	1
13	Anatomy of endocrine system (Part 1)	1
14	Anatomy of endocrine system (self-learning)	1
15	Final written exam	





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## 5. Teaching and Learning Methods:

5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning <b>a-</b> On line learning through my mans "Mansoura university "as recorded – video lectures <b>b-</b> Inter active discussion through My Mans
5.2	Self-learning
5.3	Class Activity: Group discussion offline and online.

## 6. Student Assessment:

### a- Assessment methods

<b>Mid Term exam</b>	1.1.1.1, 1.1.7.1, 2.3.1.1,2.5.3.1, 4.2.1.1
<b>Practical exam</b>	-----
<b>Final Written exam</b>	1.1.1.1, 1.1.7.1, 2.3.1.1,2.5.3.1, 4.2.1.1
<b>Oral exam</b>	-----

### b. Assessment schedule

Assessment 1	Mid-term	8 <sup>th</sup> week
Assessment 2	Practical	-----
Assessment 3	Written	15 <sup>th</sup> week
Assessment 3	Oral	-----

### c. Weighting of assessments

1.	Mid-term examination	25%
2.	Final-term examination	75 %
3.	Oral examination	0 %
4.	Practical examination and Semester work	0 %
Total		100 %



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## 7. Matrix of course content versus course key elements:

Study Week	Course contents	Domains / Key elements Outcomes					
		Domain 1		Domain 2		Domain 3	
		1.1.1.1	1.1.7.1	2.3.1.1	2.5.3.1	4.2.1.1	
1	Introduction to human anatomy	√	√	√	√		
2	Anatomy of skeletal system	√	√	√	√		
3	Anatomy of digestive system	√	√	√	√		
4	Anatomy of respiratory system (part 1)	√	√	√	√		
5	Anatomy of respiratory system (part 2)	√	√	√	√		
6	Anatomy of nervous system (part 1)	√	√	√	√	√	
7	Anatomy of nervous system (part 2)	√	√	√	√	√	
8	Anatomy of cardiovascular system (part 1)	√	√	√	√	√	
9	Anatomy of cardiovascular system (part 2)	√	√	√	√	√	
10	Anatomy of articular system	√	√	√	√	√	
11	Anatomy of lymphatic system	√	√	√	√	√	
12	Anatomy of urogenital systems	√	√	√	√	√	
13	Anatomy of endocrine system (Part 1)	√	√	√	√	√	
14	Anatomy of endocrine system (self-learning)	√	√	√	√	√	

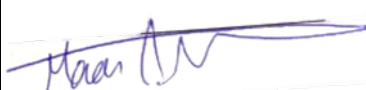


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## 8. List of References

No	Reference	Type
1.	Electronic book prepared by staff members.	Course notes
2.	Richard L. Drake, A. Wayne Vogl, Adam W. M. Mitchell. Gray's Anatomy for Students 4th Edition (2019)	Book
3.	<a href="https://WWW.ekb.eg/">https://WWW.ekb.eg/</a> <a href="https://WWW.google scholer.com/">https://WWW.google scholer.com/</a> <a href="https://WWW.pubmed.com/">https://WWW.pubmed.com/</a> <a href="https://WWW.sciencedirect.com/">https://WWW.sciencedirect.com/</a>	websites

<b>Course Coordinator</b>	<b>Prof. Dr. Ghalia Mahfouz</b>
<b>Head of Department</b>	<b>Prof. Dr. Manar A Nader</b> 

Date: 18/9/2023



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**Level two**

**Course Specification: Physiology**

**University:** Mansoura University (MU)  
**Faculty:** Pharmacy  
**Department:** Pharmacology and toxicology  
**Course title:** Physiology  
**Course code:** MD 305

<b>Program on which the course is given</b>	<b>B. Pharm (Clinical Pharmacy-Modified and unified bylaw)</b>
<b>Academic Level</b>	<b>Level 2, First semester, 2023/2024</b>
<b>Date of course specification approval</b>	<b>18/9/2023</b>

**1. Basic Information: Course data:**

<b>Course title:</b>	<b>Physiology</b>	<b>Code: MD 305</b>
<b>Specialization:</b>	<b>Medical</b>	
<b>Prerequisite:</b>	<b>Registration</b>	
<b>Teaching Hours:</b>	<b>Lecture: 2</b>	<b>Practical: 1</b>
<b>Number of units: (credit hours)</b>	<b>3</b>	

**2. Course Aims:**

1. Provide knowledge and understanding of the basic functions of the body systems.
2. Introduce concepts of cellular, tissue and system hemostasis.
3. Provide comprehensive coverage on the integration of the different body systems to maintain body functions

**3. Course k. elements:**

Upon completing the course, the student will be able to dominate the following key elements



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## Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1-1-1	1.1.1.1	Define information of biomedical, administrative and clinical sciences

## Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2-1-3	2.1.3.1	Establish and maintain appropriate professional boundaries and accept responsibility and accountability within healthcare team.

## Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3-1-1	3-1-1	Adjust a dosage routine for a patient based on the physiological, genetic, and immunological changes brought about by disease or concomitant drug therapy.

## Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4-2-1	4.2.1.1	Usage of clear language, pace, tone and non-verbal communication and writing skills when dealing with patients, other health team and communities.
4-2-2	4.2.2.1	Use artificial technology whenever possible to present relevant information.

## 4. Contents:



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Week No	Topics	Lecture credit hours
1	Introduction	2
2	Blood system	2
3	Physiology of central nervous system	2
4	Physiology of peripheral nervous system	2
5	Physiology of cardiovascular system(Part 1)	2
6	Physiology of cardiovascular system(Part 2)	2
7	Physiology of endocrine system (part 1)	2
8	Physiology of endocrine system (part 2)	2
9	Physiology of renal system (part 1)	2
10	Physiology of renal system (part 2)	2
11	Physiology of gastrointestinal tract (part 1)	2
12	Physiology of gastrointestinal tract (part 2)	2
13	physiology of respiratory system (Self learning)	2
14	<b>Revision/quiz</b>	2
15	<b>Final written exam</b>	
Week No	Practical topics	Practical credit hours
1	Physiology of cell membrane	1
2	Nutrient Assessment, BMR, and Body Composition	1
3	Autonomic Innervation of skeletal Muscle (Physiology of skeletal muscle)	1
4	Autonomic Innervation of smooth muscles (Physiology of smooth muscle)	1
5	Autonomic Innervation of the eye	1
6	Human electro-cardiography (ECG)	1
7	Analysis of human blood pressure	1
8	<b>Periodical (Mid-term exam)</b>	--
9	Blood and Blood groups	1
10	Erythrocyte Sedimentation Rate (ESR) and Osmotic Properties of Red cells	1
11	Blood Hemolysis	1
12	Measurement of Clinical Diagnostic Tool	1



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13	<b>Gas exchange in blood</b>	1
14	<b>Practical exam</b>	1

### 5. Teaching and learning Methods:

Teaching and learning method	
5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning <ul style="list-style-type: none"> <li>• On line learning through my mans "Mansoura university "as recorded – video lectures</li> <li>• Inter active discussion through My Mans</li> </ul>
5.2	Self-learning
5.3	Practical session using chemicals and laboratory equipment and tutorials
5.4	Class Activity: Group discussion offline and online.
5.5	Research assignments

### 6. Student Assessment:

#### a- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1-1-1-1, 2-1-3-1, 3-1-1-1, 4-2-1-1, 4-2-2-1
2-Practical exam	1-1-1-1, 2-1-3-1, 3-1-1-1, 4-2-1-1, 4-2-2-1
3- Mid-term exam)	1-1-1-1, 2-1-3-1, 3-1-1-1, 4-2-1-1, 4-2-2-1

#### b- Assessment schedule:

Assessment	Method	Week
Assessment 1	Mid-term exam	8 <sup>th</sup> week
Assessment 2	Practical	14 <sup>th</sup> week
Assessment 3	Written	15 <sup>th</sup> week

#### c- Weighting of assessments:

1.	Periodical (Mid-term exam)	10 %
2.	<b>Final-term examination</b>	65 %
3.	<b>Oral examination</b>	0
4.	<b>Practical examination</b>	25 %
<b>Total</b>		100 %

### 7. Matrix of course content versus course key elements:

Week	Course contents	Outcomes
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No.		Domains / Key elements				
		Domain 1	Domain 2	Domain 3	Domain 4	
		1.1.1.1	2.1.3.1	3.1.1.1	4.2.1.1	4.2.2.1
1	Introduction	✓	✓	✓	✓	✓
2	Blood system	✓	✓	✓	✓	✓
3	Physiology of central nervous system	✓	✓	✓	✓	✓
4	Physiology of peripheral nervous system	✓	✓	✓	✓	✓
5	Physiology of cardiovascular system(Part 1)	✓	✓	✓	✓	✓
6	Physiology of cardiovascular system(Part 2)	✓	✓	✓	✓	✓
7	Physiology of endocrine system (part 1)	✓	✓	✓	✓	✓
8	Physiology of endocrine system (part 2)	✓	✓	✓	✓	✓
9	Physiology of renal system (part 1)	✓	✓	✓	✓	✓
10	Physiology of renal system (part 2)	✓	✓	✓	✓	✓
11	Physiology of gastrointestinal tract (part 1)	✓	✓	✓	✓	✓
12	Physiology of gastrointestinal tract (part 2)	✓	✓	✓	✓	✓
13	physiology of respiratory system (Self learning)	✓	✓	✓	✓	✓
14	<b>Revision/quiz</b>	✓	✓	✓	✓	✓
	<b>Practical topics</b>					
1	Physiology of cell membrane	✓	✓	✓	✓	✓
2	Nutrient Assessment, BMR, and Body Composition	✓	✓	✓	✓	✓
3	Autonomic Innervation of skeletal Muscle (Physiology of skeletal muscle)	✓	✓	✓	✓	✓
4	Autonomic Innervation of smooth muscles (Physiology of smooth muscle)	✓	✓	✓	✓	✓




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5	Autonomic Innervation of the eye	✓		✓		✓	✓	✓
6	Human electro-cardiography (ECG)	✓		✓		✓	✓	✓
7	Analysis of human blood pressure	✓		✓		✓	✓	✓
9	Blood and Blood groups	✓		✓		✓	✓	✓
10	Erythrocyte Sedimentation Rate (ESR) and Osmotic Properties of Red cells	✓		✓		✓	✓	✓
11	Blood Hemolysis	✓		✓		✓	✓	✓
12	Measurement of Clinical Diagnostic Tool	✓		✓		✓	✓	✓
13	Gas exchange in blood	✓		✓		✓	✓	✓

### 8. List of References

N0.	Reference	Type
1	Course Notes prepared by staff members	Course notes
2	Physiology; Elsevier Saunders, Linda S. Costanzo, 7th edition, 2021	Book
3	<a href="http://www.sciencedirect.com/">http://www.sciencedirect.com/</a> / <a href="http://www.google.com/scholar">http://www.google scholar.com</a> / <a href="http://www.pubmed.com">http://www.pubmed.com</a> <a href="https://www.ekb.eg">https://www.ekb.eg</a>	Websites
4	<a href="https://www.ncbi.nlm.nih.gov/books/NBK545177/">https://www.ncbi.nlm.nih.gov/books/NBK545177/</a>	Website

<b>Course Coordinator</b>	<b>Prof. Dr. Manar Ahmed Nader</b>
<b>Head of Department</b>	<b>Prof. Dr. Manar Ahmed Nader</b> 

Date: 18/9/2023



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**Level two**

**Course Specification: Medical terminology**

**University:** Mansoura University (MU)  
**Faculty:** Pharmacy  
**Department:** Pharmacology and toxicology  
**Course title:** Medical terminology  
**Course code:** MD 311

<b>Program on which the course is given</b>	<b>B. Pharm (Clinical Pharmacy-Modified and unified bylaw)</b>
<b>Academic Level</b>	Level 2, First semester, 2023/2024
<b>Date of course specification approval</b>	18/9/2023

**1. Basic Information: Course data:**

<b>Course title:</b>	<b>Medical Terminology</b>	<b>Code: MD 311</b>
<b>Specialization:</b>	<b>Pharmaceutical</b>	
<b>Prerequisite:</b>	<b>Registration</b>	
<b>Teaching Hours:</b>	<b>Lecture: 2</b>	<b>Practical: -</b>
<b>Number of units: (credit hours)</b>	<b>2</b>	

**2. Course Aims:**

1. Define the proper pharmaceutical and medical terminology, abbreviations and symbols in health reports and pharmacy practice.
2. Utilize the proper pharmaceutical and medical terminology, to communicate with other health care professionals.
3. Present information clearly in written, electronic and oral forms.

**3. Course Learning Outcomes**

Upon completing the course, the student will be able to dominate the following key elements

**Domain 1- Fundamental Knowledge**



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Program K. element no.	Course K. element no.	Course K. element
1.1.2	1.1.2.1	Define the proper pharmaceutical and medical terminology, abbreviations and symbols in health reports and pharmacy practice.

**Domain 2: Professional and Ethical Practice**

Program K. element no.	Course K. element no.	Course K. element
2.5.2	2.1.5.1	Evaluate evidence-based information needed in pharmacy practice decisions.

**Domain 4: Personal Practice**

Program K. element no.	Course K. element no.	Course K. element
4.2.1	4.1.2.1	Use clear language, pace, tone and non-verbal communication and writing skills when dealing with patients, other health team and communities.
4.3.2	4.3.2.1	Practice self-learning to improve professional skills

**4. Course Contents**

Week No.	Topics	Lecture credit Hours



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1	<b>Introduction:</b> Word roots, combining forms, suffixes and prefixes and basic guidelines in defining medical words	2
2	<b>Nervous system and behavioral disorders:</b> Anatomy and physiology of nervous system, cranial nerves, roots for brain and spinal cord, roots and suffixes for nervous system	2
3	<b>Nervous system and behavioral disorders:</b> clinical aspects of nervous system	2
4	<b>Blood and immunity:</b> Basic blood components, cells of the immune system, roots for blood and immunity, suffixes for the blood, clinical aspects of blood and immunity	2
5	<b>Endocrine system:</b> Endocrine glands and secreted hormones, roots pertaining to endocrine system, clinical aspects of endocrine system	2
6	<b>Digestive system:</b> Anatomy and physiology of digestive system, the commonly used prefixes, suffixes, and roots of digestive system, the commonly used medical abbreviations in digestive system as well as the commonly used medical terms related to diseases, diagnostic Aids, therapeutic procedures	2
7	<b>Digestive system:</b> Anatomy and physiology of digestive system, the commonly used prefixes, suffixes, and roots of digestive system, the commonly used medical abbreviations in digestive system as well as the commonly used medical terms related to diseases, diagnostic Aids, therapeutic procedures	2
8	<b>Respiratory system:</b> Anatomy and physiology of Respiratory system, the commonly used prefixes, suffixes, and roots of Respiratory system, the commonly used medical abbreviations in Respiratory system as well as the commonly used medical terms related to diseases, diagnostic Aids, therapeutic procedures	2
9	<b>Cardiovascular system:</b> Anatomy and physiology of cardiovascular system, the commonly used prefixes, suffixes, and roots of cardiovascular system, the commonly used medical abbreviations in cardiovascular system as well as the commonly used medical terms related to structure and function of cardiovascular system	2
10	<b>Cardiovascular system:</b> Commonly used medical terms related to blood flow, conduction system, diseases, diagnostic and therapeutic procedures.	2
11	<b>Urinary system:</b> the commonly used medical abbreviations in urinary system	2
12	<b>Urinary system:</b> commonly used medical terms related to diseases, diagnostic Aids, therapeutic procedures	2
13	<b>Immune system (self learning)</b>	2
14	<b>Quiz</b>	2
15	<b>Final written exam</b>	



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## 5. Teaching and learning Methods:

<b>5.1</b>	<b>Computer aided learning:</b> a. On line learning through My mans "Mansoura university "as recorded – video lectures b. Inter active discussion through My Mans c. Lectures using Data show, PowerPoint presentations d. Lectures showing animations and videos to illustrate first aid techniques.
<b>5.2</b>	<b>Self-learning</b>
<b>5.3</b>	<b>Formative Assignments</b>

## 6. Student Assessment:

### a- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.2.1, 2.5.2.1, 4.2.1.1, 4.3.2.1
2- Mid-term exam	1.1.2.1, 2.5.2.1

### b- Assessment schedule

Assessment 1	Mid-term exam	8 <sup>th</sup> week
Assessment 2	Written exam	15 <sup>th</sup> week

### c- Weighing of assessments

1	Mid-term exam	25%
2	Final-term examination	75%
Total		100%

## 7. Facilities required for teaching and learning

-Class room	Data show- Computers, Internet.
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## 8. List of References

No	Reference	Type
1.	Electronic book prepared by staff members	<b>Course notes</b>





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3.	Barbara A Gylys, Mary Ellen Wedding. Medical Terminology Systems: A Body Systems Approach 6th Edition (April 26, 2017), F A Davis, 744 pages	<b>Book</b>
4.	<a href="#">Barbara J Cohen</a> ; <a href="#">Shirley A Jones</a> . Medical Terminology: An illustrated Guide 9th edition 9th edition (February 18, 2020), Burlington, MA : Jones & Bartlett Learning	<b>Book</b>
5.	<a href="http://www.sciencedirect.com/">http://www.sciencedirect.com /</a> <a href="http://www.google scholar.com/">http://www.google scholar.com /</a> <a href="http://www.pubmed.com">http://www.pubmed.com</a> <a href="https://www.ekb.eg">https://www.ekb.eg</a> <a href="https://www.epainassist.com/brain/astrocytoma">https://www.epainassist.com/brain/astrocytoma</a> <a href="https://www.britannica.com/science/blood-biochemistry">https://www.britannica.com/science/blood-biochemistry</a> <a href="https://www.hhmi.org/biointeractive/cells-immune-system">https://www.hhmi.org/biointeractive/cells-immune-system</a> <a href="http://leukemia-research.org/leukemia-what-we-know-so-far/">http://leukemia-research.org/leukemia-what-we-know-so-far/</a> <a href="http://www.newhealthadvisor.com/Pollen-Allergy-Medicine.html">http://www.newhealthadvisor.com/Pollen-Allergy-Medicine.html</a>	<b>websites</b>

## 9. Matrix of Course contents and course key elements

Week No.	Course contents / K. elements	Domain 1	Domain 2	Domain 4	
		1.1.2.1	2.1.5.1	4.1.2.1	4.3.2.1
1	<b>Introduction:</b> Word roots, combining forms, suffixes and prefixes and basic guidelines in defining medical words	✓	✓		
2	<b>Nervous system and behavioral disorders:</b> Anatomy and physiology of nervous system, cranial nerves, roots for brain and spinal cord, roots and suffixes for nervous system	✓	✓		
3	<b>Nervous system and behavioral disorders:</b> clinical aspects of nervous system	✓	✓		
4	<b>Blood and immunity:</b> Basic blood components, cells of the immune system, roots for blood and immunity, suffixes for the blood, clinical aspects of blood and immunity	✓	✓	✓	✓
5	<b>Endocrine system:</b> Endocrine glands and secreted hormones, roots pertaining to endocrine system, clinical aspects of endocrine system	✓	✓	✓	✓
6	<b>Digestive system:</b> Anatomy and physiology of digestive system, the commonly used prefixes, suffixes, and roots of digestive system, the commonly used medical abbreviations in digestive system as well as the commonly used medical terms related to diseases, diagnostic Aids, therapeutic procedures	✓	✓	✓	✓





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7	<b>Digestive system:</b> Anatomy and physiology of digestive system, the commonly used prefixes, suffixes, and roots of digestive system, the commonly used medical abbreviations in digestive system as well as the commonly used medical terms related to diseases, diagnostic Aids, therapeutic procedures	✓	✓	✓	✓
8	<b>Respiratory system:</b> Anatomy and physiology of Respiratory system, the commonly used prefixes, suffixes, and roots of Respiratory system, the commonly used medical abbreviations in Respiratory system as well as the commonly used medical terms related to diseases, diagnostic Aids, therapeutic procedures	✓	✓	✓	✓
9	<b>Cardiovascular system:</b> Anatomy and physiology of cardiovascular system, the commonly used prefixes, suffixes, and roots of cardiovascular system, the commonly used medical abbreviations in cardiovascular system as well as the commonly used medical terms related to structure and function of cardiovascular system	✓	✓	✓	✓
10	<b>Cardiovascular system:</b> Commonly used medical terms related to blood flow, conduction system, diseases, diagnostic and therapeutic procedures.	✓	✓	✓	✓
11	<b>Urinary system:</b> the commonly used medical abbreviations in urinary system	✓	✓	✓	✓
12	<b>Urinary system:</b> commonly used medical terms related to diseases, diagnostic Aids, therapeutic procedures	✓	✓	✓	✓
13	<b>Immune system self learning</b>	✓	✓	✓	✓
14	<b>Quiz</b>	✓	✓	✓	✓

<b>Course Coordinator</b>	<b>Dr. Manar Gamal Abdel Hameed Helal</b>
<b>Head of Department</b>	<b>Prof. Dr. Manar Ahmed Nader</b> 

**Date: 18/9/2023**



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Course specification  
2023- 2024

Second Level

Course Specification Biochemistry-I

University:	Mansoura University (MU)
Faculty:	Pharmacy
Department:	Biochemistry
Course title:	Biochemistry-I
Course code	PB 401

Program on which the course is given	B. Pharm (Clinical Pharmacy), Modified and unified bylaw
Academic Level	Level 2, First semester, 2023-2024
Date of course specification approval	16/9/2023

### 1. Basic Information: Course data:

Course title:	Biochemistry I	Code: PB 401
Specialization:	Clinical Pharmacy	
Prerequisite:	Registration	
Teaching Hours:	Lecture: 2	Practical: 1
Number of units: (credit hours)	3 hours	



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## 2. Course Aims:

- 2.1.** Understand the chemical structure of different classes of biochemical compounds including Carbohydrates, proteins, lipids, and nucleic acids.
- 2.2.** Learn the function of essential micro- and macromolecules, such as enzymes and co-enzymes in the human body.
- 2.3.** Utilize the provided knowledge in biochemical field and apply it in advanced courses of biochemistry.

## 3. Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

### DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
(1.1.1)	(1.1.1.1)	Recall in-depth and breadth knowledge of biochemical and clinical sciences.
(1.1.2)	(1.1.2.1)	Recognize appropriate pharmaceutical and medical terminology, abbreviations, and symbols in pharmacy practice.
(1.1.3)	(1.1.3.1)	Illustrate the principles of fundamental sciences to handle and identify synthetic/natural pharmaceutical raw materials.
(1.1.5)	(1.1.5.1)	Identify and apply the principles, practice, and critical understanding of fundamental sciences to solve problems related to human health and health systems.



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(1.1.6)	(1.1.6.1)	Describe relevant scientific literature and other scientific resources to make evidence-informed professional decisions.
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**DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE**

Program K. element no.	Course K. element no.	Course K. element
(2.2.1)	(2.2.1.1)	Identify biological macromolecules and, pharmaceutical materials from different origins.
(2.3.1)	(2.3.1.1)	Select, and apply appropriate methods and procedures and resources for handling and disposal of synthetic/natural materials and biological items used in pharmacy.
(2.3.2)	(2.3.2.1)	Conduct best practices and adhere to high ethical, legal and safety standards for management of biological and pharmaceutical materials/products.

**DOMAIN 3: PHARMACEUTICAL CARE**

Program K. element no.	Course K. element no.	Course K. element
(3.1.1)	(3.1.1.1)	Identify different cell types and cell components and physiological, genetic, biochemical, metabolic, and immunological changes brought about by disease or concomitant drug therapy.
(3.1.4)	(3.1.4.1)	Illustrate the characters, epidemiology, pathogenesis, and clinical features of infections/diseases and cancers and their treatment, prevention, and nutritional care.

**DOMAIN 4: PERSONAL PRACTICE**



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Program K. element no.	Course K. element no.	Course K. element
(4.1.1)	(4.1.1.1)	Share decision-making activities with other with other pharmacy team members and non-pharmacy team members and apply effective time management skills.
(4.1.2)	(4.1.2.1)	Collect information and analyze data, identify problems, and present solutions, participate independently and collaboratively with other team members in the healthcare system.
(4.2.1)	(4.2.1.1)	Use clear language, pace, tone, and non-verbal communication and writing skills when dealing with patients, other health team and communities.
(4.2.2)	(4.2.2.1)	Utilize advanced technologies and channels whenever possible to present relevant information.
(4.3.1)	(4.3.1.1)	Conduct self-evaluation strategies to manage and improve professional of pharmacy.
(4.3.2)	(4.3.2.1)	Promote continuous professional development by practicing self and independent learning.

#### 4. Course Contents:

Week No	Topics	Lecture credit hours
1	Introduction of Biochemistry	2
2	protein chemistry and functions	2
3	Function of amino acids, Biologically active peptides, and Protein structure	2



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4	Protein turnover, Hemoglobin, and myoglobin, Hemoglobinopathies	2
5	Enzyme action – enzyme kinetics Inhibition and regulation of enzyme activity	2
6	Clinical correlations of enzymes Oxidative stress	2
7	Body defense mechanisms	2
8	Lipid chemistry	
9	Physiologically important Lipids	2
10	Lipoprotein metabolism	2
11	Fat-soluble vitamins	2
12	Carbohydrate chemistry	2
13	Water-soluble vitamins (Vit C, B1, B2)	2
14	Water-soluble vitamins (Other vit B) + self-learning (connective tissue)	2
15	Final written and oral exam	
<b>Practical topics</b>		
<b>Week No</b>	<b>Topics</b>	<b>Lecture credit hours</b>
1	Lab safety and instruction, how to use glassware	1
2	Monosaccharide	1
3	Disaccharide	1
4	Polysaccharide	1
5	Carbohydrate revision	1
6	Protein (Heat co-aggulable protein)	1
7	Neutral protein	1
8	<b>Mid-term Exam</b>	
9	Alkaline protein	1
10	Protein revision	1
11	Non-protein nitrogenous compounds	1



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12-13	Revision	1
14	Practical Exam	

**5. Teaching and learning Methods:**

5.1	Computer aided learning: a. Online learning through My mans "Mansoura university "as recorded – video lectures b. Inter active discussion through My Mans c. Lectures using Data show, PowerPoint presentations
5.2	Self-learning
5.3	Practical sessions using Laboratory equipment, white board and Data show
5.4	Computer aided learning: Group discussion
5.5	Problem solving- based learning and Brain storming
5.6	Class Activity Discussion

**6. Student Assessment:**

**a. Assessment methods**

1. Periodical exam	1.1.1.1,1.1.2.1, 1.1.3.1, 2.2.1.1, 3.1.1.1
2. Practical exam	1.1.2.1, 1.1.3.1, 2.2.1.1, 2.3.1.1, 2.3.2.1, 3.1.1.1, 3.1.4.1
3. Final Written exam	1.1.1.1, 1.1.2.1, 1.1.3.1, 1.1.5.1, 2.3.1.1, 3.1.1.1, 3.1.4.1
4. Oral exam	1.1.1.1, 1.1.2.1, 1.1.3.1, 1.1.5.1, 4.1.2.1, 4.2.1.1, 4.2.2.1, 4.3.1.1, 4.3.2.1

**b. Assessment schedule**

Assessment 1	Practical	14 <sup>th</sup> week
Assessment 2	Periodical	8 <sup>th</sup> week
Assessment 3	Oral	15 <sup>th</sup> week
Assessment 4	Written	15 <sup>th</sup> week





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c. Weighting of assessments

1.	Periodical examination	10 %
2.	Final-term examination	50 %
3.	Oral examination	15 %
4.	Practical examination and Semester work	25 %
<b>Total</b>		<b>100.</b>

7. Matrix of course content versus course key elements:

St ud y W ee k	Course contents	Domains / Key elements Outcomes															
		Domain 1					Domain 2			Domain 3		Domain 4					
		1.1 .1. 1	1.1 .2. 1	1.1.3. 1	1. 1. 5. 1	1.1 .6. 1	2.2 .1. 1	2.3 .1. 1	2.3 .2. 1	3.1 .1. 1	3.1 .4. 1	4.1 .1. 1	4.1 .2. 1	4.2 .1. 1	4.2 .2. 1	4.3 .1. 1	4.3 .2. 1
	<b>A) Theoretical part</b>																
1	Introducti on of Biochemis try	✓	✓		✓		✓			✓							
2	protein chemistry and functions	✓	✓				✓			✓							
3	Function of amino acids, Biologicall y active peptides, and Protein	✓		✓			✓			✓							



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	structure																	
4	Protein turnover, Hemoglobin, and myoglobin, Hemoglobinopathies	✓	✓				✓			✓				✓	✓	✓	✓	
5	Enzyme action – enzyme kinetics Inhibition and regulation of enzyme activity		✓			✓	✓			✓				✓		✓	✓	
6	Clinical correlations of enzymes Oxidative stress				✓	✓	✓			✓			✓			✓		✓
7	Body defense mechanisms		✓		✓		✓			✓			✓	✓		✓		
8	Lipid chemistry			✓	✓		✓			✓			✓		✓			✓
9	Physiologically important Lipids	✓			✓		✓			✓	✓			✓				✓



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10	Lipoprotein metabolism	✓			✓		✓			✓	✓			✓			✓
11	Fat-soluble vitamins	✓			✓		✓			✓	✓		✓	✓	✓	✓	
12	Carbohydrate chemistry		✓			✓	✓	✓		✓	✓		✓	✓	✓	✓	
13	Water-soluble vitamins (Vit C, B1, B2)		✓			✓	✓			✓	✓			✓	✓		
14	Water-soluble vitamins (Other vit B) + self-learning (connective tissue)		✓	✓		✓		✓	✓		✓		✓		✓		
<b>B) Practical part</b>																	
1	Lab safety and instruction, how to use glassware		✓			✓			✓		✓						
2	Monosaccharide		✓	✓			✓	✓		✓							
3	Disaccharide			✓	✓		✓	✓		✓			✓	✓			
4	Polysaccharide			✓			✓	✓		✓			✓	✓		✓	✓



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5	Carbohydrate revision			✓	✓		✓	✓		✓		✓		✓		✓
6	Protein (Heat coagulable protein)		✓	✓	✓		✓	✓		✓		✓		✓		✓
7	Neutral protein			✓			✓	✓	✓	✓		✓		✓	✓	✓
9	Alkaline protein			✓	✓		✓	✓	✓	✓		✓		✓		✓
10	Protein revision			✓	✓		✓	✓	✓	✓		✓		✓		✓
11	Non-protein nitrogenous compounds		✓	✓			✓	✓	✓	✓		✓	✓	✓	✓	✓
12 - 13	Revision			✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓

### 8. List of References:

No	Reference	Type
1.	Electronic book prepared by staff members	Course notes
2.	Recorded videos prepared by staff members	Videos on platform
3.	Ferrier, D. R., & Harvey, R. A. Lippincott Illustrated Reviews Series: Biochemistry. Philadelphia: Wolters Kluwer Health. Sixth, North American Edition edition-2021	Essential Book



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4.	Geetha Damodaran K. Practical Biochemistry. 2 <sup>nd</sup> edition-2016.	<b>Essential Book</b>
5.	<a href="https://www.futurelearn.com/courses/biochemistry">https://www.futurelearn.com/courses/biochemistry</a>	<b>websites</b>

<b>Course Coordinator:</b>	
<b>Acting Head of Department:</b>	

**Date:** 16/9/2023



Mansoura University  
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Quality Assurance Unit  
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**Faculty :** Faculty of Pharmacy  
**Department :**

**1- Course data :-**

Code:	HU 302	Course name:	Psychology		
Specialization:	• pharmaceutical sciences	Level:	One		
Teaching Hours:					
	Lecture:	1	Tutorial:	Practical:	
Number of units:	14				

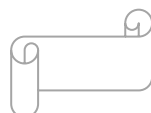
**2- Course aims :-**

1. Provide knowledge and understanding of the basic principles of psychology
2. Introduce concepts of communication skills and its various applications.
3. Provide fundamental knowledge of Doctor Patient Relationship.
4. Introduce the students to the principles of Learning, Intelligence and stress.
5. Provide basic understanding of Smoking Cessation Programs
6. Provide comprehensive coverage of Psychiatric disorders including classification, Diagnosis and Management Plans.
7. Provide insights into myths about Psychiatry.
8. Introduce the students to selected practical cases and how to diagnose and manage

**Course k. elements:**

Upon completing the course, the student will be able to dominate the following key elements

**Domain 1- Fundamental Knowledge**





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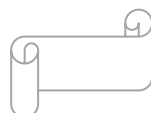
Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Recognize in-depth and breadth knowledge of pharmaceutical, biomedical, nutritional, social, behavioral, administrative, and clinical sciences.
1.1.6	1.1.6.1	Access, retrieve, critically analyze and apply relevant scientific literature and other scientific resources including s to make evidence-informed professional decisions.

**Domain 4: Personal Practice:**

Program K. element no.	Course K. element no.	Course K. element
4.3.2	4.3.2.1	Promote continuous professional development by practicing self and independent learning.

**4- Course contents :-**

Topics	Week
Stress	1
Communication skills	2
Thinking	3
Intelligence, learning	4
Smoking Cessation Programs, Doctor Patient Relationship.	5
Psychiatry ,Psychotherapy ,Psychology Classification of Psychiatric Disorders Psychoses	6
Anxiety Disorders	7
Mood disorders	8
Somatoform disorders and Substance use disorders	9
Clinical Cases	10
How to reach diagnosis	11
How to draw a management planes Various psychotherapeutic approaches	12-13
Revision/ quiz	14







### 5- Teaching and learning methods :-

S	Method
1	Lectures

### 6- Teaching and learning methods of disables :-

1. there are specialized ramps for students using wheel chairs or suffer from movement difficulties due to injuries or accidents

### 7- Activities and sources of teaching and learning :-

S	Activities and resources
1	Staff lectures notes

### 8- Student assessment :-

#### a- Student assessment methods

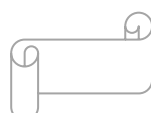
No	Method
1	Mid_term examination
2	Final_term examination

#### b- Assessment schedule

No	Method	Week
1	Mid_term examination	8
2	Final exam	15

#### c- Weighting of assessments

No	Method	Weight
1	Mid_term examination	10
2	Final_term examination	90
3	Oral examination	0
4	Practical examination	0
5	Semester work	0





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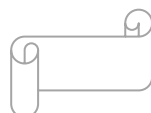
6	Other types of assessment	0
Total		100%

**9- List of references**

S	Item	Type
1	-Course notes	Book

**10- Matrix of knowledge and skills of the course**

Course contents	Study Week	Course Key Elements				
		Domain: 1				Domain: 4
		1.1.1.1	1.1.6.1	1.1.8.1	1.1.9.1	4.3.2.1
Stress	1.	√	√	√	√	
Communication skills	2.	√	√	√		√
Thinking	3.	√	√	√	√	
Intelligence, learning	4.	√	√	√		√
Smoking Cessation Programs, Doctor Patient Relationship.	5.	√	√	√	√	
Psychiatry ,Psychotherapy ,Psychology Classification of Psychiatric Disorders Psychoses	6.	√	√	√		√
Anxiety Disorders	8	√	√	√		√
Mood disorders	9	√	√	√		√
Somatoform disorders and Substance use disorders	10	√	√	√		√
Clinical Cases	11	√	√	√	√	√
How to reach diagnosis	12	√	√	√	√	√





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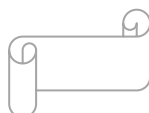


How to draw a management planes Various psychotherapeutic approaches	13-14	√	√	√	√	√
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Course Coordinator(s): -

Head of department: -

Vice dean of education and students affairs





**Course specification  
2023/2024  
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**Level-2  
Clinical Pharmacy Students  
(Credit Hour System)**

**Phytochemistry-1**

**University:** Mansoura  
**Faculty :** Pharmacy  
**Department :** Pharmacognosy  
**Course title:** Phytochemistry-1  
**Course code:** PG 404

<b>Program on which the course is given</b>	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
<b>Academic Level</b>	Level 2, Second semester, 2022-2023
<b>Date of course specification approval</b>	6/9/2023

**1. Basic Information : Course data :**

<b>Course title:</b>	Phytochemistry-1	<b>Code:</b>	PG 404
<b>Specialization:</b>	Pharmaceutical science		
<b>Prerequisite:</b>	registration		
<b>Teaching Hours:</b>	<b>Lecture:</b> 2	<b>Practical:</b>	1
<b>Number of units: (credit hours)</b>	3		

**2. Course Aims:**

1.	Gain valuable knowledge about the chemistry of carbohydrates, volatile oils, tannins, bitter principals, resins and resin combinations
2.	Master the different methods of isolation and characterization of naturally occurring compounds as carbohydrates, tannins, bitter principles and volatile oils as well as their pharmacological potential.
3.	Gain understanding of qualitative and quantitative estimation methods of carbohydrates and volatile oils.



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### 3. Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

#### Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	List the different classes of volatile oils, resins and resin combinations, carbohydrates, glycosides, and bitters principles with emphasis on those having pharmaceutical applications.
1.1.3	1.1.3.1	Identify the main sources for volatile oils, resins and resin combinations, carbohydrates, glycosides, and bitters principles having pharmaceutical importance and their physical, chemical.
1.1.4	1.1.4.1	Recognize pharmacological effects of volatile oils, resins and resin combinations, carbohydrates, glycosides, and bitters principles as well as their clinical applications correlated with various clinical analyses.

#### Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.2.1	2.2.1.1	Manipulate the suitable methods for volatile oils, resins and resin combinations, carbohydrates, glycosides, and bitters principles extraction, isolation, purification, qualitative and quantitative determination from their respective sources adapting the suitable laboratory rules
2.2.2	2.2.2.1	Analyze volatile oils, carbohydrates, glycosides, and bitters principles in their natural sources or in the pharmaceutical preparation for quality management
2.3.1	2.3.1.1	Recognize the appropriate methods for preparation, analysis and handling of plant active constituents for production of pharmaceuticals

#### Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Retrieve and evaluate information, solve problems, and work effectively in a team.
4.2.1	4.2.1.1	Communicate effectively in a scientific language by verbal and written means in the field of health care and natural pharmaceutical preparations regarding the studied topics.
4.3.2	4.3.2.1	Practice independent learning to promote continuous professional development.



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#### 4. Course Contents:-

Week No	Topics	No. of hours	Lecture (hr.)	Practical
1	<b>Introduction to carbohydrates</b>	2	2	
2	Classification, separation , purification, qualitative and quantitative evaluation and medicinal uses of: <b>monosaccharides</b>	2	2	
3	Classification, separation , purification, qualitative and quantitative evaluation and medicinal uses of: <b>disaccharides</b>	2	2	
4	Separation , purification, qualitative identification and medicinal uses of homo-polysaccharides, hetero polysaccharides and	2	2	
5	<b>polysaccharide</b> containing amino-sugar units -Antibiotic containing sugars	2	2	
6	<b>Bitter principles:</b> classification, identification and/or determination and biological activities	2	2	
7	<b>Tannins:</b> Introduction, classification	2	2	
8	<b>Mid-term Exam</b>	-		
9	<b>Tannins:</b> study of different classes and biological activities	2	2	
10	Resins and resin combination	2	2	
11	Introduction& Preparation of volatile oils	2	2	
12	Terpene hydrocarbons of volatile oils	2	2	
13	Oxygenated hydrocarbons of volatile oils	2	2	
14	Sulfur and nitrogenous compounds	2	2	
15	Revision/quiz	2	2	
16	<b>Final written &amp; oral exams</b>			
<b>Practical topics</b>				
1	Qualitative identification of carbohydrates (Monosaccharide, Disaccharides)	2		1
2	Qualitative identification of carbohydrates (Polysaccharides)	2		1
3	General scheme for carbohydrate, and unknowns	2		1
4	Carbohydrate Assay; Quantitative estimation of Sugars Assay of glucose (Copper reduction and enzymatic methods)	2		1
5	Carbohydrate Assay; Quantitative estimation of Sugars Assay of glucose and fructose	2		1



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	mixture (Copper reduction and iodimetric method)			
6	Quantitative estimation of glucose and sucrose mixture	2		1
7	Quantitative estimation of glucose and maltose mixture	2		1
8	<b>Mid-Term Exam</b>			-
9	Preparation of V.O (distillation method)	2		1
10	Quantitative estimation of Aldehydes and Ketones in V.O (Cinnamaldehyde in Cinnamon oil)	2		1
11	Quantitative estimation of Phenols and Oxides in V.O (Eugenol in Clove oil)	2		1
12	Determination of oxides (e.g. cineol in Eucalyptus oil).	2		1
13	Determination of peroxides in chenopodium oil	2		1
14	Quantitative estimation of nitrogenous and sulfur volatile constituents (e.g. allyl isothiocyanate in mustard oil)	2		1
15	<b>Practical exam</b>			

## 5. Teaching and learning Methods:

5.1	Lectures using white boards and data shows
5.2	Practical classes provided with experimental animals for handling and demonstration of toxicities with data shows and white boards for data presentation
5.3	Student seminars and research assignments.
5.4	Case studies

## 6. Student Assessment:

### a- Assessment methods:

7.	Mid Term exam	To assess understanding, intellectual and professional skills.
8.	Practical exam	To assess professional and practical skills.
9.	Oral	To assess Knowledge, understanding, intellectual skills, general skills and confidence
10.	Case study	To assess the skills of problem-solving and date presentation
11.	Final Written exam	To assess understanding, intellectual and professional skills.





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**b- Assessment schedule**

<b>Assessment 1</b>	Practical	15 <sup>th</sup> week
<b>Assessment 2</b>	Mid-term	8 <sup>th</sup> week
<b>Assessment 3</b>	Oral	16 <sup>th</sup> week
<b>Assessment 4</b>	Written	16 <sup>th</sup> week

**c- Weighting of assessments**

<b>1</b>	<b>Mid-term examination</b>	10 %
<b>2</b>	<b>Final-term examination</b>	50 %
<b>3</b>	<b>Oral examination</b>	15 %
<b>4</b>	<b>Practical examination &amp; Semester work</b>	25 %
<b>Total</b>		100%



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**7. Matrix of course content versus course key elements:**

Study Week	Course contents	Domains / Key elements Outcomes									
		Domain 1			Domain 2			Domain 4			
		1.1.1.1	1.1.3.1	1.1.4.1	2.2.1.1	2.2.2.1	2.3.1.1	4.1.2.1	4.2.1.1	4.3.2.1	
	<b>1. Theoretical Part</b>										
1	<b>Introduction to carbohydrates</b>	✓								✓	
2	Classification, separation , purification, qualitative and quantitative evaluation and medicinal uses of: <b>monosaccharides</b>	✓								✓	
3	Classification, separation , purification, qualitative and quantitative evaluation and medicinal uses of: <b>disaccharides</b>	✓								✓	
4	Separation , purification, qualitative identification and medicinal uses of homo-polysaccharides, hetero polysaccharides and	✓	✓	✓					✓	✓	✓
5	<b>polysaccharide</b> containing amino-sugar units -Antibiotic containing sugars	✓	✓	✓					✓	✓	✓



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6	<b>Bitter principles:</b> classification, identification and/or determination and biological activities											
7	<b>Tannins:</b> Introduction, classification	✓	✓	✓					✓	✓	✓	
9	<b>Tannins:</b> study of different classes and biological activities	✓	✓	✓					✓	✓	✓	
10	Resins and resin combination	✓	✓	✓					✓	✓	✓	
11	Introduction & Preparation of volatile oils	✓	✓	✓					✓	✓	✓	
12	Terpene hydrocarbons of volatile oils	✓	✓	✓					✓	✓	✓	
13	Oxygenated hydrocarbons of volatile oils	✓	✓	✓					✓	✓	✓	
14	Sulfur and nitrogenous compounds	✓	✓	✓					✓	✓	✓	
15	Revision/quiz	✓	✓	✓					✓	✓	✓	
<b>2. Practical Part</b>												
1	Qualitative identification of carbohydrates (Monosaccharide, Disaccharides)					✓	✓	✓		✓	✓	✓
2	Qualitative identification of carbohydrates (Polysaccharides)					✓	✓	✓		✓	✓	✓
3	General scheme for carbohydrate, and unknowns					✓	✓	✓		✓	✓	✓



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4	Carbohydrate Assay; Quantitative estimation of Sugars Assay of glucose (Copper reduction and enzymatic methods)					✓	✓	✓		✓	✓	✓
5	Carbohydrate Assay; Quantitative estimation of Sugars Assay of glucose and fructose mixture (Copper reduction and iodimetric method)					✓	✓	✓		✓	✓	✓
6	Quantitative estimation of glucose and sucrose mixture					✓	✓	✓		✓	✓	✓
7	Quantitative estimation of glucose and maltose mixture					✓	✓	✓		✓	✓	✓
9	Preparation of V.O (distillation method)					✓	✓	✓		✓	✓	✓
10	Quantitative estimation of Aldehydes and Ketones in V.O (Cinnamaldehyde in Cinnamon oil)					✓	✓	✓		✓	✓	✓
11	Quantitative estimation of Phenols and Oxides in V.O (Eugenol in Clove oil)					✓	✓	✓		✓	✓	✓
12	Determination of oxides (e.g. cineol in Eucalyptus oil).					✓	✓	✓		✓	✓	✓



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13	Determination of peroxides in chenopodium oil					✓	✓	✓		✓	✓	✓
14	Quantitative estimation of nitrogenous and sulfur volatile constituents (e.g. allyl isothiocyanate in mustard oil)					✓	✓	✓		✓	✓	✓



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## 8. List of References:

N0.	Reference	Type
1	Electronic book prepared by staff members	Course notes
2	"Textbook of Pharmacognosy and Phytochemistry" Shah B., Elsevier,(2019)	Book
3	"Medicinal Natural Products, a Biosynthetic Approach" Dewick P. M. John Wiley and Sons Ltd (2019)	Book
4	Lectures notes prepared by staff members	Course notes

Course Coordinator :	Dr. Weaam Nabil EL Sayed Ebrahim
Head of department	Prof. Dr. Mahmoud F. Elsebai

Date: 6/9/2023



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**Second Level**

**Course Specification: Instrumental Analysis.**

**University:** Mansoura University (MU)  
**Faculty:** Pharmacy  
**Department:** Pharmaceutical analytical chemistry  
**Course title:** Instrumental Analysis  
**Course code:** PC 407

<b>Program on which the course is given</b>	B. Pharm (Clinical Pharmacy), Modified and unified bylaw.
<b>Academic Level</b>	Level 2, second semester, 2023-2024
<b>Date of course specification approval</b>	10/9/2023

**1. Basic Information : Course data :**

<b>Course title:</b>	<b>Instrumental Analysis</b>	<b>Code:</b> PC 407
<b>Specialization:</b>	Pharmaceutical sciences	
<b>Prerequisite:</b>	<b>Analytical chemistry II</b>	
<b>Teaching credit Hours:</b>	<b>Lecture: 1</b>	<b>Practical: 1</b>
<b>Total Number of units: (credit hours)</b>	<b>2 hours</b>	

**2. Course Aims:**

At the end of the course the student should:	
1.	Recall the basic principles of instrumental analysis methods such as spectrometric and chromatographic methods.
2.	Cover the applications of these methods to pharmaceutical compounds and pharmaceutical formulations.
3.	Understand the requirements for pharmaceutical industry, such as quality control and quality assurance of pharmaceutical products.





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### 3. Course Key Elements:

Upon completing the course, the student will be able to dominate the following key elements

#### DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Learn detailed knowledge of instrumental analysis techniques including spectrophotometry, spectrofluorimetry, and chromatography.
1.1.3	1.1.3.1	Apply the principles of instrumental analysis to control the quality of synthetic/natural pharmaceutical raw materials and finished products.

#### DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.2.1	2.2.1.1	Identify and quantify the different pharmaceutical products.
2.2.3	2.2.3.1	Indicate the ability to use the analytical instruments such as spectrophotometer, spectrofluorometer, and chromatograph along with their operating software.
2.2.4	2.2.4.1	Apply the different methodologies of statistical analysis in the development and validation of spectrophotometric, spectrofluorimetric, and chromatographic methods.
2.3.1	2.3.1.1	Comprehend the standard procedures to handle and prepare the different samples for spectrophotometric, spectrofluorimetric, and chromatographic methods
2.3.2	2.3.2.1	Identify best practices and adhere to high ethical, legal and safety standards for the analysis of biological and pharmaceutical materials/products via spectrophotometry, spectrofluorimetry, and chromatography.

#### DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Conclude new knowledge and practices in the field of instrumental analysis independently and collaboratively.



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4.2.2	4.2.2.1	Apply advanced technology whenever possible to present relevant information in the field of instrumental analysis of pharmaceuticals.
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#### 4. Course Contents:

Week No	Theoretical Topics	Lecture credit hours	Practical / Tutorial credit hours
1	Introduction of Spectrophotometry	1	
2	Beer-Lambert's law	1	
3	Application of spectrophotometry	1	
4	Introduction and principle of Photoluminescence	1	
5	Introduction to fluorescence	1	
6	Pharmaceutical applications of fluorescence	1	
7	Introduction to Phosphorescence	1	
8	Phosphorescence and pharmaceutical applications	1	
9	Introduction to chromatography	1	
10	Thin layer chromatography (TLC)	1	
11	Paper chromatography	1	
12	Column chromatography, HPLC	1	
13	Gas chromatography (GC)	1	
14	Applications of column chromatography + self-learning	1	
15	Revision and quiz	1	
16	<b>Final written and oral exam</b>	-	
Week No	Practical Topics	Lecture credit hours	Practical credit hours
1	Applications of Beer-Lambert's law		1
2	Spectrophotometric determination of $KMnO_4$		1
3	Spectrophotometric determination of $K_2Cr_2O_7$		1
4	Spectrophotometric determination of $Cu^{2+}$		1
5	Spectrophotometric determination of $Fe^{3+}$		1
6	Spectrofluorometer (demonstration )		1
7	Spectrofluorometer (applications )		1



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<b>8</b>	<b>Periodical Exam</b>		
<b>9</b>	Paper chromatography: separation of dyes mixture		<b>1</b>
<b>10</b>	Thin layer chromatography		<b>1</b>
<b>11</b>	Column Chromatography		<b>1</b>
<b>12</b>	HPLC Demonstration		<b>1</b>
<b>13</b>	Application on HPLC		<b>1</b>
<b>14</b>	Interpretation of the chromatograms		<b>1</b>
<b>15</b>	<b>Practical Exam</b>		

## 5. Teaching and Learning Methods:

5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning <b>a-</b> Online learning through my mans "Mansoura university "as recorded – video lectures <b>b-</b> Inter active discussion through My Mans
5.2	Self-learning
5.3	Practical session using chemicals and laboratory equipment and/ or tutorials
5.4	Class Activity: Group discussion offline and online.
5.5	Formative Assignments

## 6. Student Assessment:

### a- Assessment Methods:

Periodical exam	1.1.1.1, 1.1.3.1, 2.2.1.1
Practical exam	2.2.1.1, 2.2.3.1, 2.2.4.1, 2.3.1.1, 2.3.2.1, 4.1.2.1, 4.2.2.1
Final Written exam	1.1.1.1, 1.1.3.1, 2.2.1.1
Oral exam	1.1.1.1, 1.1.3.1, 4.2.2.1

### b- Assessment schedule

<b>Assessment 1</b>	<b>Periodical exam</b>	<b>8<sup>th</sup> week</b>
<b>Assessment 2</b>	<b>Practical exam</b>	<b>15<sup>th</sup> week</b>



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Assessment 3	Oral exam	16 <sup>th</sup> week
Assessment 4	Written exam	16 <sup>th</sup> week

### c- Weighing of assessments

1	Periodical examination	10%
2	Practical examination	25%
3	Final-term examination	50%
4	Oral examination	15%
Total		100%

### 7. Facilities required for teaching and learning

Classroom	Data show- Computers, Internet, Platform
Laboratory facilities	Water baths, glassware, chemicals, electronic balance
Library	Books and Pharmacopoeia



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**8. Matrix of course content versus course key elements:**

Study Week	Course contents	Domains / Key elements Outcomes									
		Domain 1		Domain 2					Domain 4		
		1.1.1.1	1.1.3.1	2.2.1.1	2.2.3.1	2.2.4.1	2.3.1.1	2.3.2.1	4.1.2.1	4.2.2.1	
	<b>A) Theoretical part</b>										
1	Introduction of Spectrophotometry	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	Beer-Lambert's law	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3	Application of spectrophotometry	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	Introduction and principle of Photoluminescence	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5	Introduction to fluorescence	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6	Pharmaceutical applications of fluorescence	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7	Introduction to Phosphorescence	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8	Phosphorescence and pharmaceutical applications	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9	Introduction to chromatography	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	
10	Thin layer chromatography (TLC)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



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11	Paper chromatography	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Column chromatography, HPLC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	Gas chromatography (GC)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	Applications of column chromatography + self-learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	Revision and quiz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<b>B) Practical part</b>									
1	Applications of Beer-Lambert's law	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Spectrophotometric determination of $KMnO_4$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Spectrophotometric determination of $K_2Cr_2O_7$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Spectrophotometric determination of $Cu^{2+}$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Spectrophotometric determination of $Fe^{3+}$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Spectrofluorometer (demonstration)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Spectrofluorometer (applications)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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<b>9</b>	Paper chromatography: separation of dyes mixture	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<b>10</b>	Thin layer chromatography	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<b>11</b>	Column Chromatography	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<b>12</b>	HPLC Demonstration	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<b>13</b>	Application on HPLC	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<b>14</b>	Interpretation of the chromatograms	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>



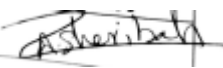



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## 9. List of References

No.	Reference	type
1.	Lectures notes, prepared by Staff Members of the Department	Course notes
2.	Practical notes, prepared by Staff Members of the Department	Course notes
3	Fundamentals of Analytical Chemistry , Douglas A.; Skoog; Donald M.; West, F.James Holler; Stanely, R.Crouch, Belmont, CA, USA 9th ed. (2014).	Book
4	Quantitative Chemical Analysis, Daniel C. Harris, 6th ed., W.H. Freeman and Company, New York (2003).	Book
5	Instrumental Methods of Chemical Analysis, Galan W. Ewing, 5th Ed. McGraw-hill book company, New York (1995).	Book
6	Practical Pharmaceutical Chemistry, Beckett, A. H. and Stenlake, J. B. 4th ed., Cambridge, England (1988).	Book
7.	<a href="http://www.sciencedirect.com/">http://www.sciencedirect.com/</a> <a href="http://www.google scholar.com/">http://www.google scholar.com/</a> <a href="http://www.pubmed.com">http://www.pubmed.com</a> <a href="https://www.ekb.eg">https://www.ekb.eg</a>	websites

<b>Course Coordinator</b>	<b>Associate Prof. Zeinab A. Sheribah</b> 
<b>Head of Department</b>	<b>Prof. Dr. Jenny Jeehan Mohamed Nasr</b> 

**Date:** 10/9/2023



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**Second Level**

**Course Specification General Microbiology & Immunology**

**University:** Mansoura University (MU)  
**Faculty:** Pharmacy  
**Department:** Microbiology and Immunology  
**Course title:** General Microbiology and Immunology

**Course code:** PM 401

<b>Program on which the course is given</b>	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
<b>Academic Level</b>	Second Level, Second Semester, 2023-2024
<b>Date of course specification approval</b>	10 <sup>th</sup> September , 2023

**1. Basic Information: Course data:**

<b>Course title:</b>	<b>General Microbiology &amp; Immunology</b>	<b>Code: PM 401</b>
<b>Specialization:</b>	<b>Clinical</b>	
<b>Prerequisite:</b>	<b>Registration</b>	
<b>Teaching Hours:</b>	<b>Lecture:2</b>	<b>Practical: 1</b>
<b>Number of units: (Credit hours)</b>	<b>3</b>	

**2. Course Aims:**

By the end of the course the students should be able to:

1.	Differentiate between different microorganisms.
2.	Identify the structure of bacteria their growth requirements and associated genetics.
3.	Appreciate the basic principles of immunology and the function of the immune system including its role in disease control

**3. Course k. elements:**

Upon completing the course, the student will be able to dominate the following key elements

**Domain 1- Fundamental Knowledge**

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Identify different classes of microorganism, their structure, genetic material and growth requirements in addition to components of immune system.
1.1.2	1.1.2.1	Define different abbreviations and scientific expressions related to structure & growth of microorganisms, genetics, and immune system.
1.1.5	1.1.5.1	Illustrate the defect in genetic material and its causes



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### Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.5.2	2.5.2.1	Deduce the data of genetic analysis and proper immune system under normal and abnormal conditions.
2.5.3	2.5.3.1	Apply principles of genetics in studying new molecular techniques.

### Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.1.3	3.1.3.1	Regulate microbial growth and conduct laboratory tests for the identification of different microorganisms
3.2.6	3.2.6.1	Manage the use of immunization therapy according to the health status.

### Domain 4: Personal practice

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Develop decision-making activities with other team members and apply effective time management skills.
4.3.2	4.3.2.1	Commit self-development and self-learning

## 4. Course Contents:

Week No	Theoretical Topics	Lecture Credit hours	Practical Credit hours
1	-Introduction and classification of microorganisms. -Introduction to Bacteriology, Nomenclature, Morphology	2	
2	Bacterial cell structure	2	
3	1.Endospore formation 2.Transport across cytoplasmic membrane	2	



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4	Direct and indirect methods for Identification of microorganisms	2	
5	- Microbial growth requirements & Growth curve	2	
6	-Structure of DNA, RNA DNA replication	2	
7	Transcription and Protein synthesis	2	
8	- Transferable genetic elements - Mechanism of mutations	2	
9	-Introduction to immunity and innate immunity - Innate immunity (cells)	2	
10	- Innate immunity (mechanisms, complement system)	2	
11	- Adaptive immunity (overview, cells)	2	
12	- Adaptive immunity (antibodies)	2	
13	Kinetics of immune response and antigen elimination - cytokines	2	
14	Fever as a primary immune response	2	
15	Revision and quiz	2	
16	<b>Final written &amp; oral exam</b>	-	
<b>Practical topics</b>			
1	Microscope, shape & arrangement of bacteria		1
2	Simple stain		1
3	Differential stains (Characters and types)		1
4	Gram stain (identification of unknown mixtures)		1
5	Acid fast stain		1
6	Spore stain		1
7	Streaking for isolation		1
8	<b>Mid-term exam</b>		
9	Media for growth of microorganisms		1
10	Biochemical activity		1



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11	Enzyme Linked Immunosorbent Assay (ELISA) & Cartridge test		1
12	Hemagglutination tests: Blood grouping (ABO blood group)		1
13	Capsule stain		1
14	Revision		1
15	Practical exam		-

## 5. Teaching and learning Methods:

### 5.1 Computer aided learning:

- a. Lectures using Data show, power Point presentations
- b. Distance learning
  1. Online learning through my mans "Mansoura university "as recorded – video lectures
  2. Inter active discussion through My Mans

### 5.2 Self-learning

### 5.3 Practical session using chemicals and laboratory equipment and/ or tutorials

### 5.4 Class Activity: Group discussion offline and online.

### 5.5 Problem – based learning and brainstorming

### 5.6 Research assignments to design Formative Assignments

## 6. Student Assessment:

### a- Assessment methods

Assessment Methods	K elements to be assessed
1- Periodical (Mid-term exam)	1.1.1.1,1.1.2.1, 1.1.5.1, 2.5.2.1, 2.5.3.1,
Practical exam applying OSPE	3.1.3.1, 3.2.6.1
3-Written exam	1.1.1.1,1.1.2.1, 1.1.5.1, 2.5.2.1, 2.5.3.1, 3.1.3.1, 3.2.6.1
4-Oral	1.1.1.1,1.1.2.1, 1.1.5.1, 2.5.2.1, 2.5.3.1, 3.1.3.1, 3.2.6.1, 4.1.1.1, 4.3.2.1

### b- Assessment schedule



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Assessment 1	Mid-term	8 <sup>th</sup> week
Assessment 2	Practical	15 <sup>th</sup> week
Assessment 3	Written	16 <sup>th</sup> week
Assessment 4	Oral	16 <sup>th</sup> week

**c- Weighting of assessments**

1.	Mid-term examination	10 %
2.	Practical examination and semester work	25 %
3.	Oral examination	15 %
4.	Final-written examination	50 %
Total		100 %





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**7. Matrix of course content versus course key elements:**

Study Week	Course contents	Outcomes Domains / Key elements							
		Domain 1			Domain 2		Domain 3		
		1.1.1.1	1.1.2.1	1.1.5.1	2.5.2.1	2.5.3.1	3.1.3.1	3.2.6.1	
	<b>A) Theoretical part</b>								
1	-Introduction and classification of microorganisms. -Introduction to Bacteriology, Nomenclature, Morphology	✓	✓					✓	
2	Bacterial cell structure	✓						✓	
3	Endospore formation Transport across cytoplasmic membrane		✓						
4	Direct and indirect methods for Identification of microorganisms		✓		✓	✓			
5	- Microbial growth requirements & Growth curve	✓	✓				✓		
6	-Structure of DNA, RNA DNA replication			✓			✓		
7	Transcription and Protein synthesis	✓	✓		✓				✓



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8	- Transferable genetic elements - Mechanism of mutations	✓	✓		✓			✓
9	-Introduction to immunity and innate immunity - Innate immunity (cells)	✓	✓		✓			✓
10	- Innate immunity (mechanisms, complement system)	✓	✓		✓			✓
11	- Adaptive immunity (overview, cells)			✓	✓		✓	✓
12	- Adaptive immunity (antibodies)	✓	✓		✓			✓
13	Kinetics of immune response and antigen elimination - cytokines	✓	✓		✓			✓
14	Fever as a primary immune response	✓	✓		✓			✓
15	Revision and quiz	✓	✓	✓	✓	✓	✓	✓
<b>B) Practical part</b>								
1	Microscope, shape & arrangement of bacteria	✓					✓	



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2	Simple stain	✓					✓	
3	Differential stains (Characters and types)	✓					✓	
4	Gram stain (identification of unknown mixtures)	✓					✓	
5	Acid fast stain	✓					✓	
6	Spore stain	✓					✓	
7	Streaking for isolation	✓	✓				✓	
9	Media for growth of microorganisms	✓	✓			✓	✓	✓
10	Biochemical activity	✓	✓			✓	✓	✓
11	Enzyme Linked Immunosorbent Assay (ELISA) & Cartridge test	✓	✓	✓		✓	✓	✓
12	Hemagglutination tests: Blood grouping (ABO blood group)	✓	✓	✓		✓	✓	✓
13	Capsule stain	✓					✓	
14	Revision	✓	✓	✓	✓	✓	✓	✓

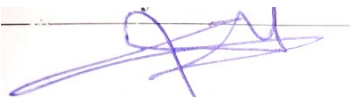



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## 8. List of References:

No	Reference	Type
1.	Course notes prepared by the department staff members	Course notes
2.	Cappuccino, James G., and Chad T. Welsh. Microbiology: A laboratory manual. Pearson Education, 2017.	Book
3.	Kathleen, Talaro, and Barry Chess. Foundations in microbiology. 2018	Book
4.	Leboffe, Michael J., and Burton E. Pierce. Microbiology: Laboratory Theory and Application, Essentials. Morton Publishing Company, 2019	Book
5.	Abbas, Abul K., Andrew H. Lichtman, and Shiv Pillai. Basic Immunology E-Book: Functions and Disorders of the Immune System. Elsevier Health Sciences, 2019	Book
6.	<a href="https://www.ekb.eg">https://www.ekb.eg</a>	website

Course Coordinator:	Prof. Dr. El Sayed E. Habib 
Head of Department:	Prof. Dr. El Sayed E. Habib 

Date: 10/9/2023



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**Second Level**

**Course Specification Parasitology**

**University:** Mansoura University (MU)  
**Faculty:** Pharmacy  
**Department:** Microbiology and Immunology  
**Course title:** Parasitology  
**Course code:** MD 406

<b>Program on which the course is given</b>	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
<b>Academic Level</b>	Second Level, Second semester, 2023-2024
<b>Date of course specification approval</b>	10/9/2023

**1- Basic Information: Course data:**

<b>Course title:</b>	<b>Parasitology</b>	<b>Code: MD 406</b>
<b>Specialization:</b>	<b>Medical</b>	
<b>Prerequisite:</b>	<b>Registration</b>	
<b>Teaching Hours:</b>	<b>Lecture: 1</b>	<b>Practical: 1</b>
<b>Number of units: (credit hours)</b>	<b>2</b>	

**2- Course Aims:**

- |                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>2.1.</b> Equip students with adequate knowledge about endemic parasites, national parasitic problems and common parasites worldwide.</p> <p><b>2.2.</b> Provide students with knowledge concerning biological, epidemiological, and ecological aspect of parasites causing diseases to human.</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**3- Course k. elements:**

Upon completing the course, the student will be able to dominate the following key elements

**Domain 1- Fundamental Knowledge**

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Classify parasites and viruses of medical importance in its broad scientific taxonomic positions.
1.1.2	1.1.2.1	Define terms related to medical parasitology and virology.



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<b>1.1.5</b>	<b>1.1.5.1</b>	Describe and discuss the common parasitic diseases caused by helminths and protozoa as regards infective stage, mode infection and life cycle of parasites of medical importance.
<b>1.1.6</b>	<b>1.1.6.1</b>	Outline principle of treatment and prevention and control of common parasitic and viral diseases
<b>1.1.7</b>	<b>1.1.7.1</b>	Recognize the scientific basis of the conventional and up-to-date diagnostic procedures needed to carry out accurate diagnosis of common parasitic and viral diseases with emphasis on their prioritization in management plans.

**Domain 3: Pharmaceutical care**

Program K. element no.	Course K. element no.	Course K. element
<b>3.1.4</b>	<b>3.1.4.1</b>	Record the common diseases caused by parasites and viruses of medical interest as regards etiology, pathogenesis, clinical features, and methods of combat.
	<b>3.1.4.2</b>	Retrieve and analyze serological tests used for detection of viral antigens in clinical samples and analyze the results.
	<b>3.1.4.3</b>	Identify the diagnostic elements of different parasitic infections

**DOMAIN 4: PERSONAL PRACTICE**

Program K. element no.	Course K. element no.	Course K. element
<b>4.1.1</b>	<b>4.1.1.1</b>	Share decision-making activities with other team members and apply effective time management skills.
<b>4.2.1</b>	<b>4.2.1.1</b>	Use clear language and communication when dealing with patients and other health team and communities
<b>4.3.2</b>	<b>4.3.2.1</b>	Practice self-learning to improve professional skills

**4- Course Contents:**

Week No	Theoretical Topics	Lecture Credit hours	Practical Credit hours
<b>1</b>	Introduction and classification of parasites.	1	
<b>2</b>	<ul style="list-style-type: none"> <li>- Trematoda</li> <li>- Fasciolae</li> <li>- <i>Heterophyes heterophyes</i>.</li> </ul>	1	



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3	Trematoda Human schistosomiasis	1	
4	Cestoda <i>Taeniae solium</i> <i>Taeniae saginata</i>	1	
5	Cestoda - <i>Hymenolepis nana</i> - <i>Echinococcus granulosus</i> - <i>Echinococcus multilocularis</i>	1	
6	- Nematoda - <i>Trichuris trichiura</i> - <i>Wuchereria bancrofti</i>	1	
7	- Nematoda - <i>Strongyloides stercoralis</i> - <i>Ascaris lumbricoides</i>	1	
8	- Nematoda - <i>Enterobius vermicularis</i> - <i>Trichinella spiralis</i> - <i>Ancylostoma duodenale</i>	1	
9	Intestinal protozoae - <i>Entameba histolytica</i> - <i>Giardia lamblia</i>	1	
10	Intestinal protozoae - <i>Balantidium coli</i> - <i>Trichomonas vaginalis</i>	1	
11	Blood protozoae - <i>Trypanosoma</i> - <i>Leishmania</i>	1	
12	Blood protozoae - <i>Plasmodium</i> - <i>Toxoplasma</i>	1	
13	- Arthropoda - Class: Insecta	1	
14	- Arthropoda - Class: Arachnida	1	
15	- Revision and quiz	1	
16	<b>Final written &amp; oral exam</b>	-	
<b>Practical topics</b>			
1	Laboratory diagnostic techniques		1
2	Slide examination and case study of Fasciolae		1
3	Slide examination and case study of:		1





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	<ul style="list-style-type: none"> <li>• <i>Heterophyes heterophyes.</i></li> </ul>		
4	Slide examination and case study of: <i>Human schistosomiasis</i>		1
5	Slide examination and case study of: <ul style="list-style-type: none"> <li>• <i>Ascaris lumbricoides</i></li> <li>• <i>Enterobius vermicularis</i></li> </ul>		1
6	Slide examination and case study of: <ul style="list-style-type: none"> <li>• <i>Trichinella spiralis</i></li> <li>• <i>Ancylostoma duodenale</i></li> </ul>		1
7	Slide examination and case study of: Trichuris trichiura Wuchereria bancrofti Strongyloides stercoralis		1
8	Mid-term exam		
9	Slide examination and case study of: <ol style="list-style-type: none"> <li>1. <i>Taenia</i></li> <li>2. <i>Echinococcus granulosus</i></li> </ol>		1
10	Slide examination and case study of: <i>Entamoeba coli</i> <i>Balantidium coli</i>		1
11	Slide examination and case study of: <i>Plasmodium malariae</i> <i>Trypanosomes gambiense</i>		1
12	Slide examination and case study of: <i>Toxoplasma gondii</i>		1
13	<i>Arthropods</i> <i>Sarcoptes scabiei</i>		1
14	Revision		1
15.	Practical exam		-

### 5- Teaching and learning Methods:

- 5.1 Computer aided learning:
  - a. Lectures using Data show, power Point presentations
  - b. Distance learning
    - Online learning through my mans "Mansoura university "as recorded – video lectures
    - Inter active discussion through My Mans
- 5.2 Self-learning
- 5.3 Practical session using chemicals and laboratory equipment and/ or tutorials



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- 5.4 Class Activity: Group discussion offline and online.
- 5.5 Problem – based learning and brainstorming
- 5.6 Research assignments to design Formative Assignments

**6- Student Assessment:**

**a- Assessment methods**

Mid Term exam	(1.1.1.1), (1.1.2.1), (1.1.5.1), (1.1.5.2), (1.1.6.1), (1.1.7.1), (2.4.5.1), (2.4.5.2), (3.1.4.1), (3.1.4.2).
Practical exam	(1.1.5.1), (1.1.5.2), (1.1.6.1), (1.1.7.1), (2.5.2.1), (2.4.5.1), (2.4.5.2), (3.1.4.1), (3.1.4.2), (3.1.4.3), (4.1.2.1), (4.2.1.1)
Final Written exam	(1.1.1.1), (1.1.2.1), (1.1.5.1), (1.1.5.2), (1.1.6.1), (1.1.7.1), (2.4.5.1), (2.4.5.2), (3.1.4.1), (3.1.4.2)
Oral exam	(1.1.1.1), (1.1.2.1), (1.1.5.1), (1.1.5.2), (1.1.6.1), (1.1.7.1), (2.4.5.1), (2.4.5.2), (3.1.4.1), (3.1.4.2), (4.3.2.1)

**b- Assessment schedule**

Assessment 1	Mid-term	8 <sup>th</sup> week
Assessment 2	Practical	15 <sup>th</sup> week
Assessment 3	Written	16 <sup>th</sup> week
Assessment 4	Oral	16 <sup>th</sup> week

**c- Weighting of assessments**

1.	Mid-term examination	10 %
2.	Practical examination and semester work	25 %
3.	Oral examination	15 %
4.	Final-written examination	50 %
Total		100%



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**d- Matrix of course content versus course key elements:**

Study Week	Course contents	Domains / Key elements Outcomes												
		Domain 1					Domain 3			Domain 4				
		1.1.1.1	1.1.2.1	1.1.5.1	1.1.6.1	1.1.7.1	3.1.4.1	3.1.4.2	3.1.4.3	4.1.1.1	4.2.1.1	4.3.2.1		
	<b>A) Theoretical part</b>													
1	Introduction and classification of parasites.	✓	✓									✓	✓	
2	- Trematoda - Fasciolae - <i>Heterophyes heterophyes</i> .			✓	✓	✓	✓	✓	✓				✓	✓
3	Trematoda Human schistosomiasis			✓	✓	✓	✓	✓	✓			✓		
4	Cestoda <i>Taeniae solium</i> <i>Taeniae saginata</i>			✓	✓	✓	✓	✓	✓			✓	✓	
5	Cestoda - <i>Hymenolepis nana</i> - <i>Echinococcus granulosus</i> - <i>Echinococcus multilocularis</i>			✓	✓	✓	✓	✓	✓					✓
6	- Nematoda - <i>Trichuris trichiura</i>			✓	✓	✓	✓	✓	✓					✓







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	<ul style="list-style-type: none"> <li><i>Ancylostoma duodenale</i></li> </ul>										
7	Slide examination and case study of: Trichuris trichiura Wuchereria bancrofti Strongyloides stercoralis		✓	✓	✓		✓	✓	✓	✓	✓
9	Slide examination and case study of: <i>Taenia</i> <i>Echinococcus granulosus</i>		✓	✓	✓		✓	✓	✓	✓	✓
10	Slide examination and case study of: <i>Entamoeba coli</i> <i>Balantidium coli</i>			✓	✓	✓	✓	✓	✓	✓	✓
11	Slide examination and case study of: <i>Plasmodium malariae</i> <i>Trypanosomes gambiense</i>		✓	✓	✓		✓	✓	✓	✓	✓
12	Slide examination and case study of: <i>Toxoplasma gondii</i>		✓	✓	✓		✓	✓	✓	✓	✓





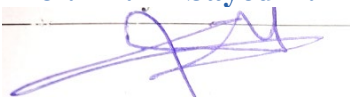
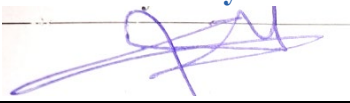


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Mansoura University



### 8. List of References:

No	Reference	Type
1.	Course notes prepared by the department staff members	Course notes
2.	Nagoba, B. S., & Pichare, A. (2020). Medical Microbiology and Parasitology PMFU 4th Edition-E-book. Elsevier Health Sciences.	e-book
3.	Textbook of Medical Parasitology: Protozoology and Helminthology, 4 th edition by S. C. Parija 2013	Book
4.	Medical Microbiology by Patrick R Murray, Ken S Rosenthal, Michael a Pfaller, MD 7 th edition, 2012	Book
5.	<a href="https://learning.uonbi.ac.ke/courses/SZL310/scormPackages/path_2/lecture_5_categories_of_parasites_and_hosts.html">https://learning.uonbi.ac.ke/courses/SZL310/scormPackages/path_2/lecture_5_categories_of_parasites_and_hosts.html</a>	Internet source
6.	<a href="https://www.ekb.eg">https://www.ekb.eg</a>	website

Course Coordinator:	Prof. Dr. El-Sayed E. Habib 
Head of Department:	Prof. Dr. El-Sayed E. Habib 

Date: 10/9/2023



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## Second Level

## Pharmaceutical dosage forms 1 Course Specifications

**University:** Mansoura  
**Faculty:** Pharmacy  
**Department:** Pharmaceutics  
**Course title:** Pharmaceutical dosage forms 1

<b>Program on which the course is given</b>	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
<b>Academic Level</b>	Level two, second term, 2023-2024
<b>Date of course specification approval</b>	20/9/2023

### 1. Basic Information: Course data:

<b>Course title:</b>	Pharmaceutical dosage forms 1	<b>Code:</b>	PT 403
<b>Specialization:</b>	Pharmaceutical sciences		
<b>Prerequisite:</b>	Physical Pharmacy		
<b>Teaching Hours:</b>	<b>Lecture:</b> 2	<b>Practical:</b>	1
<b>Number of units: (Credit hours)</b>	3		

### 2. Course Aims:

1- Covering the principles of the pharmaceutical calculations, formulation, compounding, preservation, and storage of different dosage forms.
2- Mastering the method of the preparation of the drugs in different dosage forms as solutions, suspensions, emulsions, tablets, capsules, and microcapsules.
3- Knowing the different types of solutions and their route of administration.
4- Be aware of different properties and classification of powders.

### 3. Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

#### Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
------------------------	-----------------------	-------------------



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1.1.1	1.1.1.1	List the basic principles of liquid formulations as drug delivery systems.
1.1.3	1.1.3.1	Recognize the pharmaceutical principles to design, and prepare dosage forms as; solutions, colloids, suspensions, and emulsions.

### Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.2.4	2.2.4.1	Specify basic principles for calculations and assessment procedures of all the processes of liquid dosage forms formulations.

### Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Share decision-making activities with other team members and apply effective time management skills.
4.3.2	4.3.2.1	Practice self-learning to improve professional skills

## 4. Course Contents:

Week No	Topics	Lecture credit hours	Practical / Tutorial credit hours
1	Introduction to the course	2	
2	Pharmaceutical calculations	2	
3	Pharmaceutical calculations	2	
4	Formulations of liquid dosage forms	2	
5	Pharmaceutical solutions	2	
6	Granules (effervescent and non-effervescent granules)	2	
7	Emulsions	2	
8	Suspensions (Mid-term)	2	
9	Powders	2	
10	Tablets & Self-learning topic	2	
11	Capsules	2	



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12	Microencapsulation	2	
13	Discussion of Self-learning topic	2	
14	Revision	2	
16	<b>Final written and oral exam</b>		
<b>Week No</b>	<b>Practical Topics</b>	<b>Lecture credit hours</b>	<b>Practical credit hours</b>
1	Simple mixtures		1
2	Mouthwash and gargle		1
3	Elixir		1
4	Nasal drops		1
5	Mixture containing insoluble diffusible solids		1
6	Mixture containing insoluble diffusible & indiffusible solids		1
7	Calamine lotion		1
8	<b>Mid-term Exam</b>		-
9	Emulsion (liquid paraffin)		1
10	Emulsion (castor oil)		1
11	Powders		1
12	Effervescent granules and non-effervescent granules		1
13	Tablet triturates		1
14	Revision		1
15	<b>Practical Exam</b>		-

## 5. Teaching and Learning Methods:

5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning <b>a-</b> Online learning through my mans "Mansoura university "as recorded – video lectures <b>b-</b> Inter active discussion through My Mans
5.2	Self-learning
5.3	Practical session using chemicals and laboratory equipment and/ or tutorials
5.5	Problem – based learning and brainstorming



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**Student Assessment:**

**a- Assessment methods**

Mid Term exam	1.1.1.1, 2.2.4.1
Practical exam	2.2.4.1, 4.1.2.1, 4.3.2.1
Final Written exam	1.1.1.1, 1.1.3.1, 2.2.4.1
Oral exam	1.1.1.1, 1.1.3.1, 2.2.4.1, 4.1.2.1, 4.3.2.1

**b. Assessment schedule**

Assessment 1	Mid-term	8 <sup>th</sup> week
Assessment 2	Practical	15 <sup>th</sup> week
Assessment 3	Written	16 <sup>th</sup> week
Assessment 3	Oral	16 <sup>th</sup> week

**c. Weighting of assessments**

1.	Mid-term examination	10 %
2.	Final-term examination	50 %
3.	Oral examination	15 %
4.	Practical examination and Semester work	25 %
Total		100 %

**7. Matrix of course content versus course key elements:**

Study Week	Course contents	Domains / Key elements Outcomes					
		Domain 1		Domain 2	Domain 4		
		1.1.1.1	1.1.3.1	2.2.4.1	4.1.2.1	4.3.2.1	
	<b>A) Theoretical part</b>						
1	Introduction to the course			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	Pharmaceutical calculations		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3	Pharmaceutical calculations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	Formulations of liquid dosage forms	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5	Pharmaceutical solutions		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6	Granules (effervescent and non-effervescent granules)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



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7	Emulsions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Suspensions (Mid-term)		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
9	Powders		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
10	Tablets & Self-learning topic		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
11	Capsules		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
12	Microencapsulation		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
13	Discussion of Self-learning topic		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
14	Revision		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<b>B) Practical part</b>						
1	Simple mixtures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Mouthwash and gargle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Elixir	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Nasal drops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Mixture containing insoluble diffusible solids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Mixture containing insoluble diffusible & indiffusible solids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Calamine lotion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Emulsion (liquid paraffin)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Emulsion (castor oil)		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
11	Powders		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
12	Effervescent granules and non-effervescent granules		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
13	Tablet triturates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	Revision	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 8. List of References

No	Reference	Type
1.	Electronic book prepared by staff members	Course notes



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2.	Recorded videos prepared by staff members	Videos on platform
3.	"Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems" 10th Ed., Wolters Kluwer, Loyd Allen, Howard C. Ansel, Lippincott Williams and Wilkins, Philadelphia, (2013).	Book
4.	"Remington's: The science and practice of pharmacy" 22nd Ed., Pharmaceutical Press, Lippincott Williams and Wilkins, Philadelphia, (2012).	Book
5.	"Aulton's Pharmaceutics: The design and manufacture of medicines" 4th Ed., Michael E.Aulton, Kevin M.G. Taylor, (2013).	Book
6.	<a href="http://www.sciencedirect.com/">http://www.sciencedirect.com/</a> <a href="http://www.google scholar.com/">http://www.google scholar.com/</a> <a href="http://www.pubmed.com">http://www.pubmed.com</a> <a href="https://www.ekb.eg">https://www.ekb.eg</a>	websites

<b>Course Coordinator</b>	<b>Prof Dr/ Thanaa Mohamed ELsaid Abdelkader Borg</b>
<b>Head of Department</b>	<b>Prof. Dr. Irhan Ibrahim Abu Hashim</b>

**Date: 20/9/2023**





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## Second Level

## Pharmacy Legislations Course Specifications

**University:** Mansoura  
**Faculty:** Pharmacy  
**Department:** Pharmaceutics  
**Course title:** Pharmacy Legislations

<b>Program on which the course is given</b>	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
<b>Academic Level</b>	Level two, second term, 2023-2024
<b>Date of course specification approval</b>	20/9/2023

### 1- Basic Information: Course data:

<b>Course title:</b>	Pharmacy Legislations	<b>Code:</b>	PT404
<b>Specialization:</b>	Pharmaceutical sciences		
<b>Prerequisite:</b>	Registration		
<b>Teaching Hours:</b>	<b>Lecture:</b> 1	<b>Practical:</b>	0
<b>Number of units: (Credit hours)</b>	1		

### 2- Course Aims:

For students taking this course, the aims are:

1. Orienting students to different aspects of pharmacy profession and the expressions commonly used in pharmacy practice.
2. Having an overview about the pharmacy, practice, and pharmaceutical care.
3. Stating the pharmacist duties and responsibilities.

### 3- Course Learning Outcomes

Upon completing the course, the student will be able to dominate the following key elements

#### DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
------------------------	-----------------------	-------------------



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1.1.1	1.1.1.1	Outline the different types of pharmaceutical products.
1.1.2	1.1.2.1	Recognize the law that governs the practice of pharmacy.
	1.1.2.2	Define the role of the pharmacist in patients care.

#### DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.1.1	2.1.1.1	Discriminate the legislations concerning pharmacy practice.
2.3.2	2.3.2.1	Classify different types of narcotic drugs as well as their dispensing and storage.
	2.3.2.2	Predict the different types of pharmaceutical products and medicinal plants.

#### DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Share decision-making activities with other team members and apply effective time management skills.
4.3.2	4.3.2.1	Practice self-learning to improve professional skills

### 4- Course Contents:

Week No	Topics	No. of hours	Lecture credit hours	Practical credit hours
1	مقدمة عن المقرر	1	1	--
2	قانون مزاولة مهنة الصيدلة والتسجيل بنقابة الصيدلة	1	1	--
3	التعريف بجداول المواد المخدرة وقواعد صرفها	1	1	--
4	قواعد فتح المؤسسات الصيدلانية (صيدليات عامة وخاصة، مخازن الأدوية)	1	1	--
5	قواعد فتح المؤسسات الصيدلانية (مصانع الأدوية والمكاتب العلمية)	1	1	--
6	جميع أنواع المستحضرات الصيدلانية	1	1	--
7	استيراد الأدوية والمستحضرات الصيدلانية والنباتات الطبية	1	1	--
8	إحكام عامه وعقوبات (Mid-term)	1	1	--
9	أخلاقيات مهنة الصيدلة وعلاقة الصيدلي بالمرضى-الجزء الأول	1	1	--
10	أخلاقيات مهنة الصيدلة وعلاقة الصيدلي بالمرضى-الجزء الثاني	1	1	--
11	مكافحة المخدرات واستعمالها والاتجار فيها	1	1	--



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12	تنظيم تداول بعض المواد والمستحضرات الصيدلانية المؤثرة على الحالة النفسية	1	1	--
13	مناقشة موضوع التعلم الذاتي	1	1	--
14	مراجعة			
16	إمتحان نهاية الترم			

### 5- Teaching and learning Methods:

5.1	Computer aided learning: a. Online learning through My mans "Mansoura university "as recorded – video lectures b. Inter active discussion through My Mans c. Power point (PPT) presentations
5.2	Self-learning
5.3	Class Activity Discussion / Brainstorming / problem solving

### 6- Student Assessment:

#### a- Assessment methods:

1- Mid-term exam	1.1.1.1, 1.1.2.2, 2.1.1.1, 2.3.2.1
2-Written exam	1.1.1.1, 1.1.2.1, 1.1.2.2, 2.1.1.1, 2.3.2.1, 2.3.2.2

#### b- Assessment schedule

Assessment 1	Mid-term	8 <sup>th</sup> week
Assessment 2	Written	16 <sup>th</sup> week

#### c- Weighting of assessments

1	Mid-term examination	25 %
2	Final-term examination	75 %
3	Oral examination	0 %
4	Practical examination & Semester work	0 %
Total		100%



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## 7- Matrix of course content versus course key elements:

Study Week	Course contents	Domains / Key elements Outcomes							
		Domain 1			Domain 2			Domain 4	
		1.1.1.1	1.1.2.1	1.1.2.2	2.1.1.1	2.3.2.1	2.3.2.2	4.1.2.1	4.3.2.1
1	مقدمة عن المقرر		<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
2	قانون مزاولة مهنة الصيدلة والتسجيل. بنقابة الصيدلة	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
3	التعريف بجداول المواد المخدرة وقواعد صرفها		<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
4	قواعد فتح المؤسسات الصيدلانية ((صيدليات عامة وخاصة، مخازن الأدوية		<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
5	قواعد فتح المؤسسات الصيدلانية (مصانع الأدوية والمكاتب العلمية	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	.جميع أنواع المستحضرات الصيدلانية	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
7	استيراد الأدوية والمستحضرات الصيدلانية والنباتات الطبية								
8	إحكام عامه وعقوبات		<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
9	أخلاقيات مهنة الصيدلة وعلاقة الصيدلي بالمريض-الجزء الأول			<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
10	أخلاقيات مهنة الصيدلة وعلاقة الصيدلي بالمريض-الجزء الثاني		<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
11	مكافحة المخدرات واستعمالها والاتجار فيها	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	تنظيم تداول بعض المواد والمستحضرات الصيدلانية المؤثرة على الحالة النفسية	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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13	مناقشة موضوع التعلم الذاتي	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	مراجعة	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





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## 8- List of References

NO.	Reference	type
1	Notes of Pharmacy Legislation	Course notes
2	Egyptian Pharmaceutical legislations.	Essential Books (Textbooks)
3	"Remington's: The science and practice of pharmacy" 21st Ed., Gennaro, A. R., ed., Mack publishing C., Lippincott Williams and Wilkins, Philadelphia, (2006).	Recommended Books (Textbooks)
4	<a href="http://www.sciencedirect.com">http://www.sciencedirect.com</a> , <a href="http://www.ekb.eg">http://www.ekb.eg</a> , <a href="http://www.google.com">http://www.google.com</a>	Internet sources

<b>Course Coordinator:</b>	Prof. Dr. Osama Abd El-Azeem Soliman
	
<b>Head of department:</b>	Prof. Dr. Irhan Ibrahim Abu Hashim
	

Date: 20/9/2023