

Benha university

Faculty of medicine

Rheumatology, Rehabilitation & Physical Medicine department

# Program Specification (2025)

## 1. Basic Information

- 1- **Name of the program:** Master of Science in Rheumatology, Rehabilitation & Physical Medicine.
- 2- **Nature of the program:** single
- 3- **Departments:**
  - **Responsible Department:** Rheumatology, Rehabilitation& Physical Medicine
  - **Participating Departments:** Anatomy, Physiology and Internal medicine departments
- 4- **Coordinator:** Prof. Dr. Yasser Abdelaziz  
Professor of Rheumatology, Rehabilitation and Physical Medicine, Benha University
- 5- **Internal evaluation of program specification:** Prof. Dr. Sahar Ganeb  
Professor of Rheumatology, Rehabilitation and Physical Medicine, Benha University
- 6- **External evaluation of program specification:** Prof. Dr. Fatma Ali  
Professor of Rheumatology and Rehabilitation, Minya University
- 7- **Date of approval of program specification:**
  - Department council:1 October 2024 (council no. 330)

- Faculty council: 22 October 2024 (council no. 490)

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## 2. Program Aims (Brief description of the overall purpose the program)

*The overall aims of the program are to:*

**1.1. Provide students with the basic knowledge of normal and abnormal biomechanics of the musculoskeletal system,**

**1.2 Give students a background covering the common and important musculoskeletal disorders as regard causes, clinical presentation, diagnosis and management,**

**1.3. Allow students to analyze professional problems in the field of Rheumatology, Rehabilitation and Physical Medicine and plan for their evaluation and management,**

**1.4. Use of modern resources for establishment of specialized professional skills in problem solving and decision-making,**

**1.5. Have life-long learning competencies necessary for continuous professional development,**

**1.6. Realize research related to Rheumatology, Rehabilitation and Physical Medicine and their community expansion,**

**1.7. Build-up their basic administrative skills necessary for delivery of appropriate health service.**

### 3. Program Structure (Curriculum)

#### a) Program duration:

**4 semesters (2 years)**

✚ **1<sup>st</sup> part:** One Semester (6 months).

✚ **2<sup>nd</sup> part:** 3 Semester (1.5 year).

✚ **Thesis:**

Registration takes place after passing the 1<sup>st</sup> part, starting from the 2<sup>nd</sup> semester for a period of not less than 1 year (2 semesters). The thesis is discussed 6 months after the date of passing the 2<sup>nd</sup> part which the student has successfully completed.

#### b) Program structure

- **Total hours of program:** 46 credit hours
- **Theoretical:** 29 credit hours
- **Practical :** 11 credit hour
- **Thesis:** 6 hours

#### • Program courses according to the expected study plan

**First part (one semester)**

##### a- Compulsory courses:

Course Title	Course Code	Credit hours	No. of teaching hours/week	Total teaching hours (one semester)
			Lectures (theoretical)	

			d)	
<b>Applied Anatomy</b>	<b>RHUM 601</b>	<b>2.5</b>	<b>2.5</b>	<b>37.5</b>
<b>Applied Physiology</b>	<b>RHUM 602</b>	<b>2.5</b>	<b>2.5</b>	<b>37.5</b>
<b>Internal Medicine</b>	<b>RHUM 603</b>	<b>2.5</b>	<b>2.5</b>	<b>37.5</b>
<b>Applied Physics</b>	<b>RHUM 604</b>	<b>2.5</b>	<b>2.5</b>	<b>37.5</b>
<b>Total</b>		<b>10</b>	<b>10</b>	<b>150</b>

**b- Elective courses: none.**

**c- Selective courses: none.**

**Second part (three semesters)**

**a- Compulsory courses:**

<b>Course Title</b>	<b>Course Code</b>	<b>Credit hours</b>			<b>No. of teaching hours/week</b>			<b>Total teaching hours (3 semesters)</b>
		<b>Theoretical</b>	<b>Clinical /Practical</b>	<b>Total</b>	<b>Theoretical</b>	<b>Clinical /Practical</b>	<b>Total</b>	
<b>Rheumatology</b>	<b>RHUM 605</b>	<b>9.5</b>	<b>5.5</b>	<b>15</b>	<b>9.5</b>	<b>11</b>	<b>20.5</b>	<b>922.5</b>
<b>Rehabilitation Medicine</b>	<b>RHUM</b>	<b>9.5</b>	<b>5.5</b>	<b>15</b>	<b>9.5</b>	<b>11</b>	<b>20.5</b>	<b>922.5</b>

	606							
<b>Total</b>								<b>1845</b>

**b- Elective courses: none.**

**c- Selective courses: none.**

#### **4. Academic Standards**

**Academic Reference Standards (ARS) of Master Program of Rheumatology, Rehabilitation & Physical Medicine, approved by department council, June 2013 and in faculty council September 2013.**

<p><b>Academic Reference Standards (ARS) for Master Degree in Rheumatology, Rehabilitation and Physical Medicine</b></p>
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##### **1. Graduate Attributes:**

**1-1 Proficient in application of the basics and methodologies of scientific research and the use of various tools.**

**1-2 Application of the analytical methods and its use in the area of Rheumatology, rehabilitation and physical medicine.**

**1-3 Application of specialized knowledge in the field of Rheumatology, rehabilitation and physical medicine and combine it with other specialties like neurological diseases.**

**1-4 Show an awareness of the current problems and modern visions in the field of Rheumatology, rehabilitation and physical medicine.**

**1-5 Identifying professional problems and find solutions in the field of Rheumatology, rehabilitation and physical medicine like disability.**

**1-6 Specialized professional skills in - soft tissue injections and intraarticular injections and the use of appropriate technological means to serve the professional practice.**

**1-7 Effective communication and the ability to lead teams.**

**1-8 Decision making and allow issues covering the common and important areas in the field of physical therapy and physiotherapeutic modalities, electrodiagnostic procedures, connective tissue diseases and emergencies.**

**1-9 Employ available resources to achieve the highest benefit.**

**1-10 Be aware with his role in community development and provide patients with disability and communication disorders solutions to modify their life.**

**1-11 Disposition reflecting the commitment to integrity, credibility and commitment to the rules of the profession.**

**1-12 Improve his academic and professional experience and be able to continuous learning.**

## **2. Academic Standards:**

### **2.1. Knowledge and understanding:**

*By the end of Master program, the graduate should recognize and understand the followings:*

**2.1.1 Theories, basic and specialized knowledge in the field of rheumatology, rehabilitation and physical medicine as well as neurological conditions.**

**2.1.2 Mutual influence between professional practice and its impacts on the environment.**

**2.1.3 scientific developments in the field of Rheumatology, Rehabilitation and Physical Medicine.**

**2.1.4 Moral and legal principles of professional practice in the area of Rheumatology, Rehabilitation and Physical Medicine.**

**2.1.5 Principles and the basics of quality in professional practice in the area of rheumatology, rehabilitation and physical medicine.**

**2.1.6 Basics and ethics of scientific research.**

**2.2. Intellectual skills:**

*By the end of Master program, graduate should be able to recognize the followings:*

**2.2.1 Analyze and evaluate the information in the field of Rheumatology, Rehabilitation and Physical Medicine and analogies to solve problems.**

**2.2.2 Solve specialized problems in the field of Rheumatology, Rehabilitation and Physical Medicine with the unavailability of some data,**

**2.2.3 Linkage between the various knowledge to solve problems.**

**2.2.4 Conducting a research study or writing a systematic scientific study on a research problem.**

**2.2.5 Risk Assessment in professional practices in the field of Rheumatology, Rehabilitation and Physical Medicine such as infection control, hazards of physiotherapy equipment.**

**2.2.6 Planning to improve the performance in the field of Rheumatology, Rehabilitation and Physical Medicine with attendance of different workshops, conferences in musculoskeletal ultrasound, soft tissues injections.**

**2.2.7 Decision-making in a variety of professional contexts.**

**2.3. Practical/Professional skills**

*By the end of Master program, graduate should accept the followings skills:*

**2.3.1 Mastering the basic and modern skills in the field of Rheumatology, Rehabilitation and Physical Medicine.**

**2.3.2 Writing and evaluating professional reports such as electromyographic reports.**

**2.3.3 Assess existing methods and tools to in the field of Rheumatology, Rehabilitation and Physical Medicine.**

**2.4. Communication and transferable skills:**

**By the end of Master program, graduate should accept the following skills:**

**2-4-1 Effective communication and interpersonal relationship to and arguments with other health care professionals.**

**2.4.2 Use of information technology and communication technology to remain up- to-date with advances in knowledge and practice.**

**2.4.3 Self-assessment and identify personal educational needs for continuous learning.**

2.4.4 Use different sources to get the information and knowledge.

2.4.5 Put rules and indicators evaluating the performance of others.

2.4.6 Lead a team in professional familiar contexts.

2.4.7 Work in a team and time management.

2.4.8 Self and continuous learning for professional practice in the field of rheumatology, rehabilitation and physical medicine.

اعتماد مجلس الكلية بتاريخ 9- 2013 6 اعتماد مجلس القسم بتاريخ

2013 -

## 5. Matrix of Academic Standards (Program Outcomes POs) with Courses

Program Objectives	Academic Standard
1.6.	1.1. Proficient in application of the basics and methodologies of scientific research and the use of various tools.
1.3.	1.2. application of the analytical methods and its use in the area of Rheumatology, rehabilitation and physical medicine.
1.1.	1.3. Application of specialized knowledge in the field of Rheumatology, rehabilitation and physical medicine and combine it with other specialties like neurological diseases.
1.2.	1.4. Show an awareness of the current problems and modern visions in the field of Rheumatology, rehabilitation and physical medicine.
1.4.	1.5. Identifying professional problems and find solutions in the field of Rheumatology, rehabilitation and physical medicine like disability.
1.5.	1.6. Specialized professional skills in - soft tissue injections and intrarticular injections and the use of appropriate technological

	means to serve the professional practice.
1.7.	1.7. Effectively communicate and the ability to lead teams.
1.4.	1.8. Decision making and allow issues covering the common and important areas in the field of physical therapy and physiotherapeutic modalities, electrodiagnostic procedures, connective tissue diseases and emergencies.
1.4.	1.9. Employ available resources to achieve the highest benefit.
1.7.	1.10. Be aware with his role in community development and provide patients with disability and communication disorders solutions to modify their life.
1.7.	1.11. Disposition reflecting the commitment to integrity, credibility and commitment to the rules of the profession.
1.5.	1.12. Improve his academic and professional experience and be able to continuous learn

Program Learning Outcomes										Program Academic Standards	
Knowledge and Understanding											
2.a.11	2.a.10	2.a.9	2.a.8	2.a.7	2.a.6	2.a.5	2.a.4	2.a.3	2.a.2.		2.a.1.
√	√	√	√				√		√	√	<p><i>By the end of Master program, the candidate should recognize and understand the followings:</i></p> <p>2.1.1 Theories, basic and specialized knowledge in the field of Rheumatology, rehabilitation and physical medicine as well as neurological</p>

										conditions.
				√						2.1.2 Mutual influence between professional practice and its impacts on the environment.
					√					2.1.3 scientific developments in the field of rheumatology ,rehabilitation and physical medicine.
						√				2.1.4 Moral and legal principles of professional practice in the area of rheumatology, rehabilitation and physical medicine.
				√				√		2.1.5 Principles and the basics of quality in professional practice in the area of rheumatology, rehabilitation and physical medicine
					√					2.1.6 Basics and ethics of scientific research.

<b>Program Learning Outcomes</b>										<b>Program Academic Standards</b>
<b>Intellectual skills</b>										
<b>2.b.10</b>	<b>2.b.9</b>	<b>2.b.8</b>	<b>2.b.7</b>	<b>2.b.6</b>	<b>2.b.5</b>	<b>2.b.4</b>	<b>2.b.3</b>	<b>2.b.2.</b>	<b>2.b.1.</b>	

√	√		√				√	√	√	<p><b><i>By the end of Master program, candidate should be able to recognize the followings:</i></b></p> <p>2.2.1 Analyze and evaluate the information in the field of rheumatology, rehabilitation and physical medicine and analogies to solve problems.</p>
		√	√		√		√	√	√	2.2.2 Solve specialized problems in the field of rheumatology, rehabilitation and physical medicine with the unavailability of some data
			√				√			2.2.3 linkage between the various knowledge to solve problems.
						√				2.2.4 Conducting a research study or writing a systematic scientific study on a research problem.
				√	√		√			2.2.5 Risk Assessment in professional practices in the field of rheumatology, rehabilitation and physical medicine such as infection control, hazards of physiotherapy equipments.
						√				2.2.6 Planning to improve the performance in the field of rheumatology, rehabilitation and physical medicine with attendance

										of different workshops, conferences in musculoskeletal ultrasound, soft tissues injections.
	√	√			√					2.2.7 Decision-making in a variety of professional contexts.

Program Learning Outcomes										Program Academic Standards Professional Skills
Practical/Professional skills										
2.c.10	2.c.9	2.c.8	2.c.7	2.c.6	2.c.5	2.c.4	2.c.3	2.c.2.	2.c.1.	
				√	√	√	√	√	√	<p><i>By the end of Master program, candidate should accept the followings skills:</i></p> <p>2.3.1 Mastering the basic and modern skills in the field of rheumatology, rehabilitation and physical medicine.</p>
		√	√	√						2.3.2 Writing and evaluating professional reports such as electromyographic reports.
√	√						√	√		2.3.3 Assess existing methods and tools to in the field of rheumatology, rehabilitation and physical medicine.

Program Learning Outcomes						Program Academic Standards  General and Transferable Skills <sup>5</sup>
General and transferable skill						
2.d.6	2.d.5	2.d.4	2.d.3	2.d.2.	2.d.1.	
		√				<p><b>By the end of Master program, candidate should accept the following skills:</b></p> <p>2-4-1 Effective communication and interpersonal relationship to and arguments with other health care professionals.</p>
				√		2.4.2 Use of information technology and communication technology to remain up- to-date with advances in knowledge and practice.
√					√	2.4.3 Self-assessment and identify personal educational needs for continuous learning.
			√	√		2.4.4. Use different sources to get the information and knowledge.
	√	√				2.4.5. Put rules and indicators evaluating the performance of others.
	√	√				2.4.6. Work in a team and time management.
	√	√				2.4.7 . Lead a team in professional familiar contexts.
					√	2.4.8. Self and continuous learning for professional practice in the field of rheumatology, rehabilitation and physical medicine.

**(Program courses and ILOs matrix)**

ILOs		Knowledge & Understanding 2.a.										
Courses & Codes		1	2	3	4	5	6	7	8	9	10	11
1- Applied Anatomy	RHU M 601	■										
2- Applied Physiology	RHU M 602	■							■			■
3- Internal Medicine	RHU M 603				■	■	■					
4- Applied Physics	RHU M 604					■				■		
5- Rheumatology	RHU M 605	■	■	■	■	■	■				■	■
6- Rehabilitation Medicine	RHU M 606	■	■	■	■	■	■	■				

ILOs		Intellectual Skills 2.b.									
Courses & Codes		1	2	3	4	5	6	7	8	9	10
1- Applied Anatomy	RHUM 601			■							

<b>2- Applied Physiology</b>	<b>RHUM 602</b>			■							
<b>3- Internal Medicine</b>	<b>RHUM 603</b>	■	■		■		■	■			
<b>4- Applied Physics</b>	<b>RHUM 604</b>				■	■			■		
<b>5- Rheumatology</b>	<b>RHUM 605</b>	■	■		■		■	■	■	■	■
<b>6- Rehabilitation Medicine</b>	<b>RHUM 606</b>	■	■	■	■	■	■	■	■	■	■

<b>ILOs</b>		<b>Practical &amp; Clinical Skills</b>									
<b>Courses &amp; Courses</b>		<b>2.c.</b>									
	<b>RHUM 601</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>1- Applied Anatomy</b>						■					■
<b>2- Applied Physiology</b>	<b>RHUM 602</b>					■				■	
<b>3- Internal Medicine</b>	<b>RHUM 603</b>	■									
<b>4- Applied Physics</b>	<b>RHUM 604</b>										■
<b>5- Rheumatology</b>	<b>RHUM 605</b>	■	■	■	■			■		■	■
<b>6- Rehabilitation Medicine</b>	<b>RHUM 606</b>	■	■	■	■	■	■		■		■

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ILOs Courses & Codes		General & transferable 2.d.					
		1	2	3	4	5	6
1- Applied Anatomy	RHUM 601	■	■				
2- Applied Physiology	RHUM 602	■	■				
3- Internal Medicine	RHUM 603	■	■				
4- Applied Physics	RHUM 604	■	■				
5- Rheumatology	RHUM 605	■	■	■	■	■	■
6- Rehabilitation Medicine	RHUM 606	■	■	■	■	■	■

## 6. Program Duration and Structure

### a) Program Duration

Total duration: 4 semesters (2 years)

- Part I: One semester (6 months).

- Part II: Three semesters (1.5 years).

- Thesis: Registration begins after successfully completing Part I. The thesis may be defended after a minimum period of two semesters (one year from registration), provided that Part II has been successfully completed.

## b) Program Structure

Total credit hours: 46

- Theoretical courses: 29 credit hours

- Practical courses: 11 credit hours

- Thesis: 6 credit hours

Component	Courses	Code	Credit Hours
Part I	Applied Anatomy of the Musculoskeletal, Nervous, and Psychological Systems	RHUM 601	2.5
	Applied Physiology of the Musculoskeletal, Nervous, Cardiovascular, Respiratory, and Endocrine Systems (theoretical and practical)	RHUM 602	2.5
	Internal Medicine and its General Specialties (theoretical and clinical)	RHUM 603	2.5
	Applied Physical Therapy	RHUM 604	2.5
Part II	Rheumatic Diseases and Their Pharmacological and Surgical Management	RHUM 605	15

	(theoretical, clinical, and practical)		
	Musculoskeletal Disorders, Rehabilitation, Prosthetics, and Orthotics (theoretical, clinical, and practical)	RHUM 606	15
Thesis	Master's Thesis		6
Total			46

**Name & Signature  
Program Coordinator**

**Name & Signature  
Vice Dean for Education and  
Student Affairs**

**Benha University**

**Faculty of Medicine**

**Department of Human Anatomy and Embryology**

**Applied Anatomy Course Description for the Master in  
Rheumatology, Rehabilitation, and Physical Medicine**

Course data -1		
<b>Band/Level: MSC Part 1</b>	<b>Course Name: Applied Anatomy</b>	code: <b>RHUM 601</b>
<b>Number of academic units: Theoretical</b>  2.5 credit hours		<b>Rheumatology, Rehabilitation and Physical Medicine</b>
<ul style="list-style-type: none"><li>• <i>Understand the anatomy and surface landmarks of major joints and soft tissue structures,</i></li><li>• <i>Apply knowledge of the appropriate system structures relevant to rheumatology and musculoskeletal medicine,</i></li><li>• <i>Succeed to make a proper diagnosis of different musculoskeletal disorders of nerves, muscles, joints and central nervous system.</i></li><li>• <i>Improve the standards of knowledge by self-education as a researcher and specialist in the field of Rheumatology, Rehabilitation and Physical Medicine</i></li></ul>		Course -2 objective:
The objective of teaching the course:  <i>By the end of the course, the student should be able to:</i>		

<p>2.a.1. List different joint types in human body (upper limb, lower limb and vertebral column),</p> <p>2.a.2. Describe the anatomical structure and biomechanics of different joint types (stability and movements),</p> <p>2.a.3. Outline nerves and plexuses of the upper and lower limb,</p> <p>2.a.4. Define the origin and insertion of the muscles of upper, lower limbs and back,</p> <p>2.a.5. Illustrate cranial nerves,</p> <p>2.a.6. Discuss different areas of the brain and their function</p>	<p><b>A- Knowledge and understanding:</b></p>
<p>2.b.1. Correlate basic science of anatomy to different skeletal deformities</p> <p>2.b.2. Correlate basic science of anatomy to connective tissue, bone, joint, and muscle diseases,</p> <p>2.b.3. classify sites of the nerve compression,</p> <p>2.b.4. Interpret physical tests to evaluate musculoskeletal disorders,</p> <p>2.b.5. Analyze biomechanical principles of joint function in the prescription of orthoses and prostheses,</p> <p>2.b.6. Interpret sites of neurological injuries.</p>	<p><b>B- Mental skills:</b></p>
<p>Not Applicable</p>	<p><b>C- Course-specific professional skills:</b></p>
<p>2.d.1. use information and communication technology effectively in the field of anatomy</p>	<p><b>D- General skills:</b></p>
<p style="text-align: right;">Course content: -3</p>	

<b>Subject</b>	<b>Lectures (hrs)</b>	<b>Small group (hrs)</b>	<b>Total (hrs)</b>	<b>% of total</b>	<b>ILOs</b>
<p><b><u>1) GENERAL ANATOMY</u></b></p> <ul style="list-style-type: none"> <li>- Bones,</li> <li>- Joints (classification, structure &amp; movements), Muscles (types, features &amp; characters of skeletal muscles), Nerves (spinal &amp; motor cranial), Autonomic nervous system (centers, nerves &amp; ganglia), Ligaments &amp; fasciae.</li> </ul>	<b>6</b>	<b>1.5</b>	<b>7½</b>	<b>20%</b>	<b>2.a.1, 2.a.2,, 2.a.3,, 2.a.4,, 2.a.5, 2.b.2, 2.b.3,</b>
<p><b><u>2) NECK AND TRUNK</u></b></p> <ul style="list-style-type: none"> <li>- Vertebral canal &amp; vertebral foramina,</li> <li>- Posture,</li> <li>- Body weight transmission,</li> <li>- Ligaments &amp; fasciae, Muscles, Joints,</li> <li>- Movements,</li> <li>- Intervertebral disc,</li> <li>- Diaphragm, Heart &amp; pericardium, Respiratory system, Respiratory muscles movements.</li> </ul>	<b>4.5</b>	<b>4.5</b>	<b>9</b>	<b>24%</b>	<b>2.a.3, 2.a.6 2.b.1, , 2.d.1,, 2.b.3</b>
<p><b><u>3) UPPER AND LOWER LIMBS</u></b></p> <ul style="list-style-type: none"> <li>- Muscles, Nerves, Joints,</li> <li>- Ligaments &amp; fasciae,</li> <li>- Stability,</li> <li>- Nerve plexuses,</li> <li>- Development,</li> <li>- Hand, Foot, Arches of the foot,</li> </ul>	<b>5½</b>	<b>5</b>	<b>10.5</b>	<b>29%</b>	<b>2.b.1,, 2.b.3, 2.b.4, 2.b.5, 2.b.6, 2.d.1 2.a.4,</b>

1. Modified Lectures
2. Tutorials
3. Seminars
4. On line lectures : BU-LMS benha university learning management system

**Teaching Methods Matrix with Learning Outcomes for the Applied  
Anatomy Course**

Teaching methods			Course learning outcomes	
Seminars	Tutorial	Modified Lectures		
■		■	2.a.1	<b>Knowledge and Understanding</b>
■		■	2.a.2	
■		■	2.a.3	
■	■	■	2.a.4	
■		■	2.a.5	
■		■	2.a.6	
■		■	2.b.1	<b>Professional Skills</b>
■	■	■	2.b.2	
■		■	2.b.3	
■		■	2.b.4	
■		■	2.b.5	
■	■	■	2.b.6	
		■	2.d.1	<b>General Skills</b>

6- تقويم الطلاب :

1. **Written exams:** Assess knowledge & understanding and intellectual skills.
2. **Structured oral exams:** to assess knowledge and understanding, intellectual, professional and general and transferable skills.

**A- Methods used**

**Assessment Methods Matrix with Learning Outcomes for the Applied Anatomy Course**

Learning methods		Course learning outcomes	
Structured Oral Exam	Written exam		
■	■	2.a.1	<b>Knowledge and Understanding</b>
■	■	2.a.2	
■	■	2.a.3	
■	■	2.a.4	
■	■	2.a.5	
■	■	2.a.6	
■	■	2.b.1	<b>Cognitive Skills</b>
■		2.b.2	
	■	2.b.3	
	■	2.b.4	
	■	2.b.5	
■		2.b.6	
■		2.c.1	<b>General Skills</b>
■		2.d.1	

- Final exam at May or November

Timing

<p>Examination :    Marks allocated</p> <p>    a- Written: 75</p> <p>    b- Oral: 50</p> <p>Total        :125</p>	<p><b>C- Distribution of grades</b></p>
<p>7- List of textbooks and references:</p>	
<ul style="list-style-type: none"> <li>• Lectures notes</li> </ul>	<p>notes</p>
<p>Gray's Anatomy 42nd Edition <b>The Anatomical Basis of Clinical Practice</b></p> <p><b>Editor in Chief: Susan Standring</b></p> <p><b>eBook ISBN: 9780702077104</b></p> <p><b>Hardcover ISBN: 9780702077050</b></p> <p><b>Paperback ISBN: 9780702077067</b></p> <p><b>Imprint: Elsevier</b></p> <p><b>Published Date: 21st October 2020</b></p> <p><b>Page Count: 1606</b></p> <p>Standring, S. (Ed.). (2020). <i>Gray's anatomy e-book: the anatomical basis of clinical practice</i>. Elsevier Health Sciences.</p>	<p>Compulsory books</p>
<p>Hole's Human Anatomy &amp; Physiology 15th Edition by David Shier (Author), Jackie Butler (Author), Ricki Lewis (Author)</p> <p>Hole, J. W., Shier, D., Butler, J., &amp; Lewis, R. (2019). <i>Hole's essentials of human anatomy &amp; physiology</i>. Boston.</p>	<p>Suggested books</p>
<p><a href="https://www.coursera.org/specializations/anatomy">https://www.coursera.org/specializations/anatomy</a></p>	<p>scientific journals or newsletters</p>

## Course Contents/ILOs Matrix

ILOs  Course Contents	2.a. Knowledge and understanding						2.b. Intellectual Skills						2d. General and
	2.a.1	2.a.2	2.a.3	2.a.4	2.a.5	2.a.6	2.b.1	2.b.2	2.b.3	2.b.4	2.b.5	2.b.6	2.d.1
	<b>1) General Anatomy</b>	×	×	×	×	×			×	×			
<b>2) Head And Neck</b>			×			<b>X</b>	×		×				×
<b>3) Upper And Lower Limbs</b>				×			×		×	×	×	×	×
<b>4) Neuroanatomy</b>			×						×			<b>X</b>	

رئيس مجلس القسم العلمي :

إد أسامة فؤاد

## Master in Rheumatology, Rehabilitation, and Physical Medicine - Updated Regulations

1. بيانات المقرر		
Band/Level: Msc Part 1	Course Name: Applied Physiology	Code: RHUM 602
Number of academic units: Theoretical		Speciality: Rheumatology, Rehabilitation and Physical Medicine
<ul style="list-style-type: none"> <li>• Respond to the educational and research training needs of doctors with a special interest in Rheumatology, Rehabilitation and Physical Medicine.</li> <li>• Prepare a Rheumatology, Rehabilitation and Physical Medicine physician oriented with the physiology of muscle and nerve, CNS and endocrine.</li> <li>• Provide graduates with enough knowledge about the regulation of body temperature, body fluids, homeostasis.</li> <li>• Improve students' standards of knowledge by self-education as a researcher and specialist in the field of Rheumatology, Rehabilitation and Physical Medicine.</li> </ul>		Course .6 :objective
The objective of teaching the course -5		
<i>By the end of the course, the student should be able to:</i>		
By the end of the course, students should be able to:		A. Knowledge and Understanding:
2.a.1. Illustrate the physiology of the muscle contraction and relaxation. 2.a.2. Write the normal physiological changes in exercise. 2.a.3. Identify action potentials and motor end plate. 2.a.4. Mention the different types of receptors. 2.a.5. Describe the nature of pain and pain control systems. 2.a.6. Name types of nerve and muscle fibers. 2.a.6. List central control of movement and sensations. 2.a.7. discuss electrodiagnostic tests of nerves and muscles.		
2.b.1. Assess the balance of body fluids and electrolyte homeostasis. 2.b.2. interpret types and nature of pain perceived by the patient. 2.b.3. assess the patient response of exercise. 2.b.4. Define methods of chronic pain control in different musculoskeletal disorders.		B. Cognitive Skills:
Not applicable		D. General

					Skills:
2.d.1. use information and communication technology effectively in the field of Physiology to conduct researches in Rheumatology, Rehabilitation and Physical Medicine.					
1. Course Content:					
Topic	Lectures (hrs)	Small group (hrs)	Total (hrs)	% of total	ILOs
<b><u>1) MUSCLES AND NERVES</u></b> - Nerve, - Skeletal Muscle.	4.5	2	6.5	18%	2.a.1 2.a.6,2. b.3
<b><u>2) CENTRAL NERVOUS SYSTEM</u></b> - Neurotransmitters, - Receptors, - Synapses, - Somatic sensations, - Sensory areas of cerebral cortex, - Pain & pain control system, - Spinal cord lesions, - Motor areas of cerebral cortex, - Descending pyramidal & extra-pyramidal tracts., - Stretch reflex & muscle tone, - Basal ganglia, - Cerebellum.	6.5	4	10.5	29%	2.a.2,2. a.3, 2.a.42. b.1, 2.b.22. b.4 2.d.1
<b><u>3) CIRCULATION</u></b> - Arterial blood pressure & its regulation, - Capillary circulation, - Edema.	3	3	6	16%	<u>2.a.3,</u> <u>2.a.5,</u>

<b>4) RESPIRATION</b> - Hypoxia.	1½	½	2.5	7%	2.a.3, 2.a.5,, 2.d.1
<b>5) BLOOD</b> - Anemia.	1½	½	2.5	7%	2.a.5,2. b.3
<b>5) METABOLISM</b> - Obesity, - Sports physiology.	2½	1½	3.5	9%	2.a.2,
<b>6) ENDOCRINE</b> - Thyroid hormones, - Parathyroid hormones, - Calcium homeostasis.	2½	1½	3.5	9%	2.a.4,2. a.7,2.b. 3
<b>7) KIDNEY</b> - Water & electrolytes balance.	1½	½	2.5	7%	2.b.1
<b>Total</b>	<b>23</b>	<b>14.5</b>	<b>37.5</b>	<b>100%</b>	

1. Modified Lectures
2. Tutorials
3. Seminars
4. On line lectures : BU-LMS benha university learning management system

Teaching and Learning Methods

**Teaching Methods Matrix with Learning Outcomes for the Applied Physiology Course**

Learning methods			Course learning outcomes	
Seminars	Tutorial	Modified Lectures		
■	■	■	2.a.1	Knowledge and Understanding
■	■	■	2.a.2	
■	■	■	2.a.3	
■	■	■	2.a.4	
■	■	■	2.a.5	
■	■	■	2.a.6	
■	■	■	2.a.7	
■	■		2.b.1	Cognitive

■	■		2.b.2	Skills	
■	■		2.b.3		
■	■		2.b.4		
■	■	■	2.d.1	<b>General Skills</b>	

6Student evaluation.

3. **Written exams:** Assess knowledge & understanding and intellectual skills.
4. **Structured oral exams:** to assess knowledge and understanding, intellectual , professional and general and transferable skills.

A-  
Methods  
used

### Assessment Methods Matrix with Learning Outcomes for the Applied Physiology Course

Evaluation methods		Course learning outcomes
Structured Oral Exam	Written exam	
■	■	2.a.1
■	■	2.a.2
■	■	2.a.3
■	■	2.a.4
■	■	2.a.5
■	■	2.a.6
■	■	2.a.7
■	■	2.b.1
■	■	2.b.2
■	■	2.b.3
■	■	2.b.4
■	■	2.d.1

Knowledge  
and  
Understan  
ding

Cognitive  
Skills

**General Skills**

- Final exam at May or November

Timing ->

Examination : Marks allocated  
 a- Written: 75  
 b- Oral: 50  
 Total :125

C- Grade  
Distribution

7List of textbooks and references.

- Lectures notes

Notes

-Guyton & Hall Physiology Review 13th Edition Hall, J. E., & Hall, M. E. (2016). Guyton and Hall textbook of medical physiology e-Book. 13th Edition. Elsevier Health Sciences	B- Required books
-Ganong's Review of Medical Physiology, Twenty sixth Edition 26th Edition Barrett K., BarmanS , Yuan J,et al (2019): Ganong's Review of Medical Physiology, Twenty sixth Edition 26th Edition, McGraw-Hill education.	
-Vander's Human Physiology (2019) ;The mechanisms of body functions, 15th Edition Strang, and Arthur J. Vander.(2019): Vander's Human Physiology: The Mechanisms of Body Function. 15th Edition. New York: McGraw-Hill.	C- Suggested books
<a href="https://join.shawacademy.com/physiology-20-amp?utm_source=google&amp;utm_medium=cpc&amp;utm_campaign=me_search_generi_c_physiology_courses_bmm&amp;gclid=EAIaIQobChMI6pD8icG07QIVjMLtCh0OfgKEEAAYAAEgJlQ_D_BwE">https://join.shawacademy.com/physiology-20-amp?utm_source=google&amp;utm_medium=cpc&amp;utm_campaign=me_search_generi_c_physiology_courses_bmm&amp;gclid=EAIaIQobChMI6pD8icG07QIVjMLtCh0OfgKEEAAYAAEgJlQ_D_BwE</a>	D- Scientific journals or bulletins

### Course Contents/ILOs Matrix

ILOs Course Contents	2.a. Knowledge and understanding							2.b. . Intellectual Skills				2d. Get and
	2.a.1	2.a.2	2.a.3	2.a.4	2.a.5	2.a.6	2.a.7	2.b.1	2.b.2	2.b.3	2.b.4	2.d.1
1-Muscles And Nerves										X		
2-Central Nervous System			X					X				X
3-Circulation			X		X							
4-Respiration			X		X					X		X
5-Blood					X					X		
6-Metabolism			X									
7-Endocrine					X							
8-Kidney	X											

رئيس مجلس القسم العلمي

د. / عبير شومان

## Internal medicine Course Description

### Master in Rheumatology, Rehabilitation, and Physical Medicine - Updated Regulations

1. بيانات المقرر		
Band/Level: Msc Part 1	Course Name: Internal medicine	code : RHUM 603
Number of academic units: Theoretical		Speciality: Rheumatology, Rehabilitation and Physical Medicine
<ul style="list-style-type: none"> <li>Respond to the educational and research training needs of doctors with a special interest in Rheumatology, Rehabilitation and Physical Medicine.</li> <li>Prepare a Rheumatology, Rehabilitation and Physical Medicine physician capable of making a proper diagnosis of different rheumatic diseases on the basis of adequate history, physical examination and interpretation of supportive investigation.</li> <li>Provide graduates with enough knowledge about disorders of internal organs relevant to systemic rheumatic diseases.</li> <li>Improve students' standards of awareness of self-education as researchers and specialists in the field of Rheumatology, Rehabilitation and Physical Medicine.</li> </ul>		6 .Course objective:
The objective of teaching the course -6 By the end of the course, the student should be able to:		

<p>By the end of the course, students should be able to:</p> <p>2.a.1. Discuss cardiovascular system: heart rate, rheumatic fever, coronary heart disease, hypertension, infective endocarditis, pulmonary embolism, pulmonary hypertension and blood disease (anemia and Bleeding diathesis).</p> <p>2.a.2. Define gastrointestinal hemorrhage, dyspepsia, chronic diarrhea, hepatitis (acute and chronic), Jaundice, inflammatory bowel diseases, renal failure, glomerulonephritis, nephritic, nephritic syndrome,</p> <p>2.a.3. Discuss endocrinal disorders of the pituitary, thyroid, suprarenal and parathyroid glands</p> <p>2.a.4. mention causes and presentations of asthma, pneumonia, obstructive pulmonary disease, pleural effusion, infection in the immune compromised host.</p> <p>2.a.5. Define ethical and medico-legal basics of internal medicine related to Rheumatology, Rehabilitation and Physical Medicine.</p> <p>2.a.6. describe professional knowledge, and theories in the field of internal medicine relevant to Rheumatology, Rehabilitation and Physical Medicine.</p> <p>2.a.7. list basics of quality and professional performance.</p> <p>2.a.8. Describe effect of professional performance on community health and environment protection.</p>	<p>A. Knowledge and Understanding:</p>
<p>2.b.1. classify the scientific basis of patients' evaluation in the differential diagnosis of rheumatic diseases.</p> <p>2.b.2. List indications and laboratory tests and imaging procedures used in diagnosis and management of rheumatic diseases.</p> <p>2.b.3. list risk factors, problems, in chronological manner.</p> <p>2.b.4. assess specific problems in atypical situations.</p> <p>2.b.5. assess practical decisions according to available knowledge.</p>	<p>B. Cognitive Skills:</p>
<p>Not applicabe</p>	<p>C. Course-Specific Professional Skills:</p>

<p>2.d.1. use information and communication technology effectively in the field of Internal Medicine to conduct researches in Rheumatology, Rehabilitation and Physical Medicine.</p> <p>2.d.2. show continuous self-learning requirements following updates in the practice of Internal Medicine.</p> <p>2.d.3. Communicate ideas effectively with other specialties.</p> <p>2.d.4. apply scientific meetings of different sources for achieving knowledge and information.</p> <p>2.d.5. Apply working in a team and time mapping, operate with other rheumatologists and be able to analyze their performance.</p>	<p>D. General Skills:</p>
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Topic	Lectures (hrs)	Small group (hrs)	Total (hrs)	% of total	ILOs	1. Course Content:
<b><u>1) NEUROLOGY</u></b> - Hemiplegia, - Paraplegia, - Peripheral neuropathy, - Myopathy, - Cranial nerves, - Parkinsonism.	4.5	3	7.5	20%	2.a.5,2.a.8, 2.b.1, 2.b.2, 2.b.3, 2.b.4 <b>,2.d.4</b>	
<b><u>2) CARDIOLOGY</u></b> - Hypertension, - Heart failure, - Pericardial effusion, - Ischemic heart disease.	4	3.5	7.5	18%	2.a.1, 2.b.1, 2.b.2, 2.b.3, 2.b.4, 2.b.5	
<b><u>3) NEPHROLOGY.</u></b> - Glomerulonephritis, - Nephrotic syndrome, - Renal failure, - Heamaturia.	1.5	1	2.5	7%	2.a.1, 2.a.2, 2.a.3, 2.a.4, 2.a.5, 2.b.5, 2.d.2	
<b><u>4) CHEST DISEASES</u></b> - Tuberculosis, - Pleural diseases, - Bronchial asthma, - Chronic obstructive					2.a.4.	

- Modified Lectures
- Tutorial
- Seminars
- On line lectures : BU-LMS benha university learning management system

Teaching and Learning Methods

**Teaching Methods Matrix with Learning Outcomes for  
Internal Medicine**

Learning methods			Course learning outcomes	
Seminars	Tutorial	Modified Lectures		
■		■	2.a.1	Knowledge and Understanding
	■	■	2.a.2	
■		■	2.a.3	
	■		2.a.4	
		■	2.a.5	
■		■	2.a.6	
	■		2.a.7	
	■		2.a.8	
		■	2.b.1	Cognitive Skills
	■		2.b.2	
■		■	2.b.3	
		■	2.b.4	
		■	2.b.5	
	■	■	2.d.1	Professional Skills
■			2.d.2	
		■	2.d.3	
■	■	■	2.d.4	
		■	2.d.5	



**Assessment Methods Matrix with Learning Outcomes for  
the Internal medicine Course**

A- Methods  
used

Evaluation methods		Course learning outcomes	
Structured Oral Exam	Written exam		
■	■	2.a.1	Knowledge and Understanding
■	■	2.a.2	
■	■	2.a.3	
■	■	2.a.4	
■	■	2.a.5	
■	■	2.a.6	
■	■	2.a.7	
■	■	2.a.8	
■	■	2.b.1	Cognitive Skills
■	■	2.b.2	
■	■	2.b.3	
■	■	2.b.4	
■	■	2.b.5	
	■	2.d.1	
	■	2.d.2	<b>General Skills</b>
	■	2.d.3	
■		2.d.4	
■	■	2.d.5	

**5. Written exams:** Assess knowledge & understanding and intellectual skills.

**6. Structured oral exams:** to assess knowledge and understanding, intellectual, professional and general and transferable skills.

<ul style="list-style-type: none"> <li>Final exam at May or November</li> </ul>	-Timing
<ul style="list-style-type: none"> <li>Examination Marks allocated</li> <li>a- Written 75</li> <li>b- Oral 50</li> <li>Total 125</li> </ul>	C- Grade Distribution
6- قائمة الكتب الدراسية والمراجع :	
<ul style="list-style-type: none"> <li>Lectures notes</li> </ul>	-Notes
<p><b>Harrison's Principles of Internal Medicine, Twentieth Edition (Vol.1 &amp; Vol.2) 20th Edition</b></p> <p>Jameson JL, Fauci A, Kasper D , et al (2018): Harrison's Principles of Internal Medicine. (Vol.1 &amp; Vol.2). Twentieth Edition McGraw-Hill Education.</p>	B- Required books
<p><b>Davidson's Principles and Practice of Medicine 23rd Edition</b></p> <p>Ralston, S. H., Penman, I. D., Strachan, M. W. J., &amp; Hobson, R. (Eds.). (2018). <i>Davidson's principles and practice of medicine</i> (23rd ed.). Elsevier Health Sciences.</p>	C- Suggested books
<p><a href="https://www.coursera.org/learn">https://www.coursera.org/learn</a></p>	D- Scientific journals or bulletins

Course Contents/ILOs Matrix

Ilos Course	a. Knowledge And								2.b. Intellectual					2d. General And				
	2.a.1	2.a.2	2.a.3	2.a.4	2.a.5	2.a.6	2.a.7	2.a.8	2.b.1	2.b.2	2.b.3	2.b.4	2.c.1	2.d.1	2.d.2	2.d.3	2.d.4	2.d.5
Neurology					x			x	x	x	x	x					x	
Cardiology	x								x	x	x	x						
Nephrology	x	x	x	x	x								x	x				
Chest Diseases				x					x	x	x	x						
Blood Diseases						x					x	x	x					
Endocrine Diseases			x									x	x					
Rheumatology							x		x					x		x		x
Acid-Base Balance		x										x						
Na+ & K+		x											x					

رئيس مجلس القسم العلمي : اد- محمد العسال

## Applied physics programe specification

1-بيانات المقرر		
Band/Level: Msc Part 1	Applies physics	RHUM code 604
Number of academic units: Theoretical		Speciality: Rheumatology, Rehabilitation and Physical Medicine
<ul style="list-style-type: none"> <li>● <b>Respond</b> to the educational training needs of doctors with a special interest in Rheumatology, Rehabilitation and Physical Medicine.</li> <li>● <b>Make</b> candidates qualified in perception and integration of progress in Rehabilitation and Physical Medicine.</li> <li>● <b>Maintain</b> students' standards of knowledge as specialists in the field of Rheumatology Rehabilitation and Physical Medicine by self-education and continuous learning.</li> <li>● <b>Improve</b> students' standards of knowledge.</li> </ul>		Course .6 :objective
The objective of teaching the course -7		
<i>By the end of the course, the student should be able to:</i>		
By the end of the course, students should be able to:		A. Knowledge and Understanding:
2.a.1. list different therapeutic electrical currents (Faradic, Galvanic, Didynamic, Interferential and Transcutaneous Electrical Stimulation). 2.a.2.mention the electromagnetic spectrum. 2.a.3. list types and therapeutic applications of cryotherapy. 2.a.4. Discuss resistance, capacitance, inductance, impedance and magnetism. 2.a.5. Outline ultrasonic, short and micro- waves 2.a.6. Illustrate different therapeutic heating modalities (superficial and deep). 2.a.7. enumerate electrodiagnostic tests of nerves and muscles..		
2.b.1. List different physical modalities in rehabilitation medicine. 2.b.2. list indications of electrotherapy in patients with musculoskeletal, neurological and other medical disorders. . 2.b.3. assess outcome of physical modalities (heat, cold, light and electricity) in rehabilitation medicine.		B. Cognitive Skills:

Not applicable	C. Course-Specific Professional Skills:
2.d.1. use information and communication technology effectively in the field of Applied Physics to conduct researches relevant to Rehabilitation and Physical Medicine. 2.d.2. Communicate ideas effectively. 2.d.3. Work effectively within a team.	D. General Skills:

### Course Contents/ILOs Matrix

ILOs	2.a. Knowledge and Understanding							2.b. Intellectual Skills			2d.General and Professional Skills	
	2.a.1	2.a.2	2.a.3	2.a.4	2.a.5	2.a.6	2.a.7	2.b.1	2.b.2	2.b.3	2.d.2	2.d.3
1) Scientific Basis				x			x	x			x	x
2) Electrotherapy	x						x		x	x		
3) Deep Heating Modalities					x	x				x		
4) Superficial Heating Modalities					x	x				x		
5) Cold Therapy			x							x		
6) Light Therapy (Laser)					x			x		x		
7) Magnetic Field Therapy		x		x				x				

رئيس مجلس القسم العلمي :

ا.د. وليد أحمد صلاح الدين

أستاذ المادة :

ا.د. ياسر عبدالعزيز

Faculty of Medicine

Department of Rheumatology, Rehabilitation, and Physical Medicine

## Course Description in Rheumatic Diseases, Pharmacological and Surgical Treatment

For Msc Students in the Department of Rheumatology, Rehabilitation and Physical Medicine. Updated Regulations

Course data		
Class/Level: Msc, Part II.	Course Name: Rheumatic Diseases, Drug and Surgical Treatment.	<b>code:</b> RHUM 60
<b>credit hours 15 : Number of academic units</b> <b>practical 5.5 ,theoretical 9.5</b>		Specialization: Rheumatology, Rehabilitation, and Physical Medicine.

<p><b><u>1. Overall Aims of Course</u></b></p> <p><i>The overall goals of the course are to:</i></p> <ul style="list-style-type: none"> <li>• <i>Give</i> students an appropriate background covering rheumatic diseases as regard causes, pathogenesis, diagnosis and management.</li> <li>• <i>Build-up</i> the students' ability to formulate differential diagnoses of rheumatic diseases.</li> <li>• <i>Provide</i> students with the skill to organize treatment plans for rheumatic diseases.</li> <li>• <i>Allow</i> students to practice problem solving and decision-making in atypical clinical situations.</li> <li>• <i>Support</i> the students' trend for evidence-based medicine practice to support up profession in Rheumatology, Rehabilitation and Physical Medicine.</li> <li>• <i>Provide</i> students with lifelong learning talent necessary for continuous professional development and research establishment.</li> <li>• <i>Provide</i> students with the professional ethical values essential to demonstrate appropriate attitude towards patients and colleagues.</li> <li>• <i>Allow</i> students to have the skills necessary for proper patients' interrogation and evaluation.</li> <li>• <i>Provide</i> students with appropriate professional education necessary to manage and organize health problems within the community</li> </ul>	<p><b>Course objective</b></p>
<p><b>The objective of teaching the course -2</b></p>	
<p><i>2.a.1. List</i> the common causes of arthritis and musculoskeletal disorders (acute and chronic) as well as symptoms and signs of different rheumatic diseases.</p> <p><i>2.a.2. Discuss</i> current and emerging data on the pathogenesis and management of different rheumatic diseases and musculoskeletal disorders,</p> <p><i>2.a.3. list</i> common physical and rheumatic emergencies.</p> <p><i>2.a.4. Discuss</i> essential investigational plans of the immune system, rheumatic and musculoskeletal disorders as integrated with values of proper medical ethics</p> <p><i>2.a.5. Discuss</i> basic data on the mechanisms of action in the immune system</p>	<p>A- Information and concepts:</p>

<p><b>2.b.1. Analyze</b> symptoms and signs of patients and construct differential diagnoses for the different rheumatic diseases.</p> <p><b>2.b.2. interpret</b> an investigational plan for patients regarding disease presentations and interpret the results of used diagnostic procedures to solve professional problems.</p> <p><b>2.b.3. Evaluate</b> diagnosis and treatment of different rheumatic diseases.</p> <p><b>2.b.4. Write</b> scientific subjects of recent information related to Rheumatology, Rehabilitation and Physical Medicine.</p> <p><b>2.b.5. Identify</b> the indications and rationale of referring patients to other related specialties according to risks and severity.</p> <p><b>2.b.6. Evaluate</b> advance in rehabilitation approaches and management of rheumatic diseases based on recent data, evidence-based medicine and professional vision for future developmental plans.</p>	<p>B- Mental skills:</p>
<p><b>2.c.1. use</b> skills to perform intra-articular, soft tissue and botulinum injections.</p> <p><b>2.c.2. perform</b> and practice up-and-coming challenges in Rheumatology, Rehabilitation and Physical medicine.</p> <p><b>2.c.3. perform</b> better awareness of current practice and technological means for management of rheumatological emergencies.</p> <p><b>2.c.4. manage</b> prospects for future developments within Rheumatology, Rehabilitation and Physical Medicine.</p> <p><b>2.c.5. use</b> specific knowledge and skills of Rheumatology, Rehabilitation and Physical Medicine to other specialties to improve joint communication</p>	<p>C- Course-specific professional skills:</p>

<p><b>2.d.1. Communicate</b> effectively with other health care professionals to discuss and exchange ideas and arguments.</p> <p><b>2.d.2. Use</b> sources of biomedical information and communication technology to remain up- to-date with advances in knowledge and practice.</p> <p><b>2.d.3. use</b> scientific information clearly to others in written, electronic and oral forms to improve performance.</p> <p><b>2.d.4. show</b> personal learning needs required for continuous professional development.</p> <p><b>2.d.5. Use</b> the sources of biomedical information and communication technology to teach others and evaluate their clinical practice.</p> <p><b>2.d.6. communicate</b> effectively with an interdisciplinary team within time-planned shared programs.</p>	D- General skills:
<b>Course content</b>	

Subject	Lectures (hrs)	Clinical & Practical (hrs)	Total (hrs)	% of total	ILOs
<p>1) <b><u>Approach to the Patient with Rheumatic Disease</u></b></p> <ul style="list-style-type: none"> <li>▪ Structure and Function of Bone, Joints, and Connective Tissue</li> <li>▪ Physical Examination of the Musculoskeletal System</li> <li>▪ Approach to regional musculoskeletal pain</li> <li>▪ Differential diagnosis of diffuse musculoskeletal pain</li> <li>▪ Evaluation of Monoarticular and Polyarticular Arthritis</li> <li>▪ Pregnancy and Rheumatic Diseases</li> <li>▪ The Eye and Rheumatic Diseases</li> <li>▪ Skin and Rheumatic Diseases</li> <li>▪ Evaluation and Management of Early Undifferentiated Arthritis</li> <li>▪ Nutrition and Rheumatic Diseases</li> </ul>	45	47	92	10%	<p>2.a.1, 2.a.2, 2.a.4, 2.b.1, 2.b.2, 2.b.3, 2.b.4, 2.b.5, 2.b.6, 2.c.1, 2.c.2, 2.c.3, 2.c.4, 2.c.5, 2.d.1, 2.d.2, 2.d.3, 2.d.4, 2.d.5, 2.d.6.</p>

<b>2) Molecular and Cellular Basis of Immunology and Effector Mechanisms in Autoimmunity and Inflammation</b> Introduction to immune system Innate & adaptive immunity HLA antigen Autoimmunity Immunotolerance APCs and antigen presentation	<b>28</b>	<b>19</b>	<b>47</b>	<b>5%</b>	2.a.5, 2.b.6, 2.c.2, 2.c.4, 2.c.5, 2.d.2, 2.d.3, 2.d.4, 2.d.5, 2.d.6.
<b>3) <u>Rheumatoid Arthritis.</u></b>	<b>20</b>	<b>35</b>	<b>55</b>	<b>6%</b>	2.a.1, 2.a.2, 2.a.3, 2.a.4, 2.a.5, 2.b.1, 2.b.2, 2.b.3, 2.b.4, 2.b.5, 2.b.6, 2.c.1, 2.c.2, 2.c.3, 2.c.4, 2.c.5, 2.d.1, 2.d.2, 2.d.3, 2.d.4, 2.d.5, 2.d.6.
<b>4) <u>Spondyloarthropathies</u></b>	<b>25</b>	<b>30</b>	<b>55</b>	<b>6%</b>	2.a.1, 2.a.2, 2.a.3, 2.a.4, 2.a.5, 2.b.1, 2.b.2, 2.b.3, 2.b.4, 2.b.5, 2.b.6, 2.c.1, 2.c.2, 2.c.3, 2.c.4, 2.c.5, 2.d.1, 2.d.2, 2.d.3, 2.d.4, 2.d.5, 2.d.6.
<b>5) <u>Systemic Lupus Erythematosus</u></b>	<b>25</b>	<b>30</b>	<b>55</b>	<b>6%</b>	2.a.1, 2.a.2, 2.a.3, 2.a.4, 2.a.5, 2.b.1, 2.b.2, 2.b.3, 2.b.4, 2.b.5, 2.b.6, 2.c.1, 2.c.2, 2.c.3, 2.c.4, 2.c.5, 2.d.1, 2.d.2, 2.d.3, 2.d.4, 2.d.5,

					2.d.6.
6) <u>Scleroderma, Inflammatory Myopathies, And Overlap Syndromes</u>	25	30	55	6%	2.a.1, 2.a.2, 2.a.3, 2.a.4, 2.a.5, 2.b.1, 2.b.2, 2.b.3, 2.b.4, 2.b.5, 2.b.6, 2.c.1, 2.c.2, 2.c.3, 2.c.4, 2.c.5, 2.d.1, 2.d.2, 2.d.3, 2.d.4, 2.d.5, 2.d.6.
7) <u>Vasculitides</u>	25	30	55	6%	2.a.1, 2.a.2, 2.a.3, 2.a.4, 2.a.5, 2.b.1, 2.b.2, 2.b.3, 2.b.4, 2.b.5, 2.b.6, 2.c.2, 2.c.3, 2.c.4, 2.c.5, 2.d.1, 2.d.2, 2.d.3, 2.d.4, 2.d.5, 2.d.6.
8) <u>Crystal-Induced Arthritis</u> <ul style="list-style-type: none"> <li>▪ Gout.</li> <li>▪ Calcium Pyrophosphate Deposition Disease</li> </ul>	21	25	46	5%	2.a.1, 2.a.2, 2.a.3, 2.a.4, 2.a.5, 2.b.1, 2.b.2, 2.b.3, 2.b.4, 2.b.5, 2.b.6, 2.c.1, 2.c.2, 2.c.3, 2.c.4, 2.c.5, 2.d.1, 2.d.2, 2.d.3, 2.d.4, 2.d.5, 2.d.6.
9) <u>Miscellaneous Rheumatic disorders</u> <ul style="list-style-type: none"> <li>▪ Familial Autoinflammatory Syndromes</li> <li>▪ Sjögren’s Syndrome</li> <li>▪ Adult-Onset Still Disease</li> <li>▪ Anti-phospholipid Syndrome</li> <li>▪ Mixed connective tissue diseases</li> </ul>	21	25	46	5%	2.a.1, 2.a.2, 2.a.3, 2.a.4, 2.a.5, 2.b.1, 2.b.2, 2.b.3, 2.b.4, 2.b.5, 2.b.6, 2.c.1, 2.c.2, 2.c.4, 2.c.5, 2.d.1, 2.d.2, 2.d.3,

					2.d.4, 2.d.5, 2.d.6.
<b><u>10) Osteoarthritis</u></b>	<b>21</b>	<b>25</b>	<b>46</b>	<b>5%</b>	2.a.1, 2.a.2, 2.a.4, 2.a.5, 2.b.1, 2.b.2, 2.b.3, 2.b.4, 2.b.5, 2.b.6, 2.c.1, 2.c.2, 2.c.4, 2.c.5, 2.d.1, 2.d.2, 2.d.3, 2.d.4, 2.d.5, 2.d.6.
<b><u>11) Cartilage, Bone, And Heritable Connective Tissue Disorders</u></b> <ul style="list-style-type: none"> <li>▪ Metabolic Bone Diseases</li> <li>▪ Proliferative bone diseases</li> <li>▪ Osteonecrosis</li> <li>▪ Relapsing Polychondritis</li> <li>▪ Heritable Diseases of Connective Tissue</li> </ul>	<b>21</b>	<b>25</b>	<b>46</b>	<b>5%</b>	2.a.1, 2.a.2, 2.a.4, 2.a.5, 2.b.1, 2.b.2, 2.b.3, 2.b.4, 2.b.5, 2.b.6, 2.c.2, 2.c.4, 2.c.5, 2.d.1, 2.d.2, 2.d.3, 2.d.4, 2.d.5, 2.d.6.
<b><u>12) Infectious Arthritis</u></b> <ul style="list-style-type: none"> <li>▪ Bacterial Arthritis</li> <li>▪ Lyme Disease</li> <li>▪ Mycobacterial Infections of Bones and Joints</li> <li>▪ Fungal Infections of Bones and Joints</li> <li>▪ Rheumatic Manifestations of HIV Infection</li> <li>▪ Viral Arthritis</li> <li>▪ Rheumatic Fever and Post-streptococcal Arthritis</li> <li>▪ Rheumatological manifestation of COVID infection</li> </ul>	<b>21</b>	<b>25</b>	<b>46</b>	<b>5%</b>	2.a.1, 2.a.2, 2.a.3, 2.a.4, 2.b.1, 2.b.2, 2.b.3, 2.b.4, 2.b.5, 2.b.6, 2.c.2, 2.c.3, 2.c.4, 2.d.1, 2.d.2, 2.d.3, 2.d.4, 2.d.5, 2.d.6.
<b><u>13) Systemic Diseases Associated with Arthritis</u></b> <ul style="list-style-type: none"> <li>▪ Rheumatic manifestation of blood disease</li> <li>▪ Arthritis Accompanying Endocrine and Metabolic Disorders</li> <li>▪ Amyloidosis</li> </ul>	<b>25</b>	<b>30</b>	<b>55</b>	<b>6%</b>	2.a.1, 2.a.2, 2.a.3, 2.a.4, 2.a.5, 2.b.1, 2.b.2, 2.b.3, 2.b.4, 2.b.5, 2.b.6, 2.c.1, 2.c.2, 2.c.3, 2.c.4, 2.c.5, 2.d.1, 2.d.2,

<ul style="list-style-type: none"> <li>▪ Sarcoidosis</li> <li>▪ Hemochromatosis</li> <li>▪ Igg4-Related Disease</li> <li>▪ Tumors and Tumor-like Lesions of Joints and Related Structures</li> <li>▪ Rheumatic manifestation of malignancy</li> <li>▪ Autoimmune Complications of Immune Checkpoint Inhibitors for Cancer</li> </ul>					2.d.3, 2.d.4, 2.d.5, 2.d.6.
<p><b><u>14) Pediatric Rheumatology</u></b></p> <ul style="list-style-type: none"> <li>▪ Juvenile Idiopathic Arthritis</li> <li>▪ Pediatric Systemic Lupus Erythematosus</li> <li>▪ Juvenile Dermatomyositis, Scleroderma, And Vasculitis</li> <li>▪ Rheumatological manifestation of COVID infection</li> </ul>	25	30	55	6%	2.a.1, 2.a.2, 2.a.3, 2.a.4, 2.a.5, 2.b.1, 2.b.2, 2.b.3, 2.b.4, 2.b.5, 2.b.6, 2.c.1, 2.c.2, 2.c.3, 2.c.4, 2.c.5, 2.d.1, 2.d.2, 2.d.3, 2.d.4, 2.d.5, 2.d.6.
<p><b><u>15) Diagnostic Tests And Procedures In Rheumatic Diseases</u></b></p> <ul style="list-style-type: none"> <li>▪ Acute Phase Reactants and the Concept of Inflammation</li> <li>▪ Complement testing</li> <li>▪ Anti-nuclear Antibodies</li> <li>▪ Extractable Nuclear Antigens.</li> <li>▪ Characteristic autoantibodies associated with SLE</li> <li>▪ Antiphospholipid antibodies</li> <li>▪ Autoantibodies in Rheumatoid Arthritis</li> <li>▪ Autoantibodies in systemic sclerosis</li> <li>▪ Autoantibodies in myositis &amp; necrotizing myopathy</li> <li>▪ ANCA</li> <li>▪ HLA Typing</li> <li>▪ Synovial Fluid Analyses, Synovial</li> </ul>	22	25	47	5%	2.a.1, 2.a.2, 2.a.4, 2.b.2, 2.b.4, 2.b.5, 2.b.6, 2.c.1, 2.c.2, 2.c.4, 2.c.5, 2.d.2, 2.d.3, 2.d.4, 2.d.5, 2.d.6.

Biopsy, and Synovial Pathology <ul style="list-style-type: none"> <li>▪ Arthrocentesis and Injection of Joints and Soft Tissue</li> </ul>					
<b><u>16) Imaging in Rheumatological Diseases.</u></b> <ul style="list-style-type: none"> <li>▪ Conventional radiography</li> <li>▪ Computed tomography</li> <li>▪ Magnetic resonance imaging</li> <li>▪ Ultrasonography</li> <li>▪ Other imaging modalities</li> </ul>	22	25	47	5%	2.a.4, 2.b.2, 2.b.4, 2.b.5, 2.b.6, 2.c.2, 2.c.4, 2.c.5, 2.d.2, 2.d.3, 2.d.4, 2.d.5, 2.d.6.
<b><u>17) Pharmacology of Anti-rheumatic Drugs</u></b> <ul style="list-style-type: none"> <li>▪ Non steroidal anti-inflammatory drugs.</li> <li>▪ Corticosteroids.</li> <li>▪ Urate-Lowering Therapy</li> <li>▪ Immunosuppressive Drugs</li> <li>▪ Bisphosphonates</li> <li>▪ Conventional Disease modifying antirheumatic drugs,</li> <li>▪ Biological therapies.</li> </ul>	35.5	39	74.5	8%	2.a.1, 2.a.2, 2.a.3, 2.a.4, 2.a.5, 2.b.3, 2.b.5, 2.b.6, 2.c.1, 2.c.2, 2.c.3, 2.c.4, 2.c.5, 2.d.1, 2.d.2, 2.d.3, 2.d.4, 2.d.5, 2.d.6.
<b>Total</b>	<b>427.5</b>	<b>495</b>	<b>922.5</b>	<b>100%</b>	

**Teaching Methods Matrix with Learning Outcomes for the Rheumatic Diseases, Pharmacological and Surgical Treatment Course**

Learning methods			Course Learning Outcomes	
Practical	Tutorial and seminars	Modified Lectures		
■		■	2.a.1	Knowledge and Understanding
	■	■	2.a.2	
■		■	2.a.3	
	■		2.a.4	
		■	2.a.5	
		■	2.b.1	Cognitive Skill
	■		2.b.2	
■		■	2.b.3	

		■	2.b.4	
		■	2.b.5	
		■	2.b.6	
■	■	■	2.c.1	Professional Skills
■		■	2.c.2	
■	■		2.c.3	
■		■	2.c.4	
■		■	2.c.5	
■	■	■	2.d.1	General Skills
■			2.d.2	
■		■	2.d.3	
■	■	■	2.d.4	
■		■	2.d.5	
■		■	2.d.6	

<ul style="list-style-type: none"> <li>- Modified Lectures</li> <li>- Tutorials</li> <li>- SEminars</li> <li>- Practical classes</li> <li>- On line lectures : BU-LMS benha university learning management system</li> <li>- interactiveZoom meeting, online lectures on Whatsapp group and telegram app</li> <li>- Youtube channel containing recorded lectures</li> </ul>	<b>1- Teaching and learning methods</b>
نظام الساعات المكتبية	<b>2- Teaching and learning methods for students with limited abilities</b>
<b>Student evaluation</b>	
<ul style="list-style-type: none"> <li>• Written examination: to assess knowledge &amp; intellectual skills.</li> <li>• Oral examination: to assess knowledge, intellectual skills&amp; general&amp; transferable skills.</li> <li>• Clinical exam: assess knowledge, intellectual skills &amp; practical and professional &amp; general&amp; transferable skills.</li> <li>• Practical, plain x-rays to write a report and discuss</li> </ul>	<b>Evaluation methods</b>
Final exam in May or November	Timing -ب-

<p><b>Written Exam 375</b></p> <p><b>Oral Exam 100</b></p> <p><b>Clinical Exam 175</b></p> <p><b>Practical 100</b></p> <p><b>Total: 750</b></p>	<p>C- Grade distribution</p>
<p><b>List of textbooks and references:</b></p>	
<p>Lectures notes.</p>	<p>Notes -f</p>
<p><b>.1- Essential Books (Text Books):</b></p> <ul style="list-style-type: none"> <li>- Petros Ephthimiou (2020): absolute rheumatology review. First edition. Springer Science &amp; Business Media</li> <li>- Gary Firestein, Ralph Budd, Sherine E Gabriel et al (2021): Kelley and Firestein's Textbook of Rheumatology, 2-Volume Set. 11th Edition. Elsevier</li> <li>- John A. Stone (2021): Current Diagnosis &amp; Treatment in Rheumatology, Fourth Edition. McGraw-Hill Education</li> <li>- Hochberg MC, Gravallese EM, Smolen JS, van der Heijde D, Weinblatt ME, Weisman MH (2022): Rheumatology, 2-Volume Set, 8th Edition. Elsevier Health Sciences.</li> </ul> <p><b>6.2- Recommended Books:</b></p> <ul style="list-style-type: none"> <li>- (2020): Wshington manual of rheumatology third edition . Stephen A. P., Allan G., John F. B. (2010): Manual of rheumatic disease and outpatient orthopedic disorders. 4th edition Little Brown &amp; Co.</li> <li>- Hani Almoallim, Mohamed Cheikh (2021): Skills in Rheumatology. Springer Nature Singapore.</li> <li>- Gustav K. von Schulthess, Juerg Hodler, Rahel A. Kubik-Huch (2021): Musculoskeletal Diseases 2021-2024 Diagnostic Imaging. Springer International Publishing.</li> </ul>	<p>B- Required books</p>
<p><b>• Periodicals:</b></p> <ul style="list-style-type: none"> <li>- Annals of Rheumatic Diseases.</li> <li>- Arthritis and Rheumatism.</li> <li>- British Journal of Rheumatology.</li> </ul> <p>-</p>	<p>C- Suggested books</p>

<ul style="list-style-type: none"> <li>• <b>Web Sites:</b> <ul style="list-style-type: none"> <li>- www.medscape.com,</li> <li>- www.emedicine.com,</li> <li>- www.gigapedia.com.</li> </ul> </li> </ul>	<b>D - Scientific periodicals or bulletins</b>
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**Course Contents/ILOs Matrix**

ILOs  Course Contents	Knowledge and understanding					2.b. Intellectual Skills						2.c. Practical & Clinical skills					2.d. General and Transferable Skills:						
	2.a.1	2.a.2	2.a.3	2.a.4	2.a.5	2.b.1	2.b.2	2.b.3	2.b.4	2.b.5	2.b.6	2.c.1	2.c.2	2.c.3	2.c.4	2.c.5	2.d.1	2.d.2	2.d.3	2.d.4	2.d.5	2.d.6	
1) Approach to the Patient with Rheumatic Disease	x	x		x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
2) Molecular and Cellular Basis of Immunology and Effector Mechanisms in Autoimmunity and Inflammation					x						x		x		x	x		x	x	x	x	x	x
3) <u>Rheumatoid Arthritis.</u>	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4) <u>Spondyloarthropat</u>	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x





**Course Description: Musculoskeletal Diseases, Rehabilitation, Prosthetics, and Orthotics**

**For a Msc in Rheumatology, Rehabilitation, and Physical Medicine (Updated List)**

<b>Course Information</b>		
<b>Year/Level: Msc, Part II</b>	<b>Course Title: Diseases of the Locomotor System, Rehabilitation, Prosthetics, and Orthotics</b>	<b>code: RHUM 606</b>
<b>Number of academic units: 20 credit hours, 11 theoretical and 9 practical</b>	Specialization: PhD in Rheumatology, Rehabilitation and Physical Medicine	
<b>-1Objective of the course</b>		
<ol style="list-style-type: none"> <li>1. <b>Raise</b> the students' skill to design rehabilitation programs for different musculoskeletal disorders (acute and chronic),</li> <li>2. <b>Support</b> the students' expertise for problem solving and decision-making in atypical clinical situations,</li> <li>3. <b>Provide</b> the students with the trend for evidence-based medicine practice to support up profession in Rheumatology, Rehabilitation and Physical Medicine,</li> <li>4. <b>Support</b> the students' lifelong learning talent necessary for continuous professional development,</li> <li>5. <b>Give</b> the students the professional ethical values essential to demonstrate appropriate attitude towards patients and colleagues,</li> <li>6. <b>Allow</b> the students to communicate the skills necessary for proper patients' interrogation and evaluation, <ul style="list-style-type: none"> <li>• <b>Provide</b> the students with the appropriate professional education necessary to manage and organize health problems within the community.</li> </ul> </li> </ol>		
<b>The objective of teaching the course-2 -3</b>		
<b>By the end of the course, students should be able to:</b>		
<b>2.a. Knowledge and Understanding:</b>	Knowledge and Understanding	

<p><b>By the end of the course, students should be able to:</b></p> <p><b>2.a.1. List</b> current and emerging data on the management of different musculoskeletal disorders,</p> <p><b>2.a.2. Describe</b> effective modern physiotherapeutic approaches to recover disability,</p> <p><b>2.a.3. Enumerate</b> most recent modalities used in pain control.</p> <p><b>2.a.4. List</b> the clinical outcome in the intensive care unit,</p> <p><b>2.a.5. Discuss</b> rehabilitation program and the value of an enhanced patients' health` outcome through the development and maintenance of a humanized rehabilitation service in the community.</p>	
<p><b>2.b. Intellectual Skills:</b></p> <p><b>By the end of the course, students should be able to:</b></p> <p><b>By the end of the course, students should be able to:</b></p> <p><b>2.b.1. Analyze</b> symptoms and signs of patients and construct rehabilitation plans for the different musculoskeletal disorders,</p> <p><b>2.b.2. Identify</b> the indications and rationale of referring patients to other related specialties according to risks and severity,</p> <p><b>2.b.3. write</b> indications, prescriptions and evaluation of different orthoses and prostheses and estimate their cost benefits in rehabilitation programs,</p> <p><b>2.b.4. Evaluate</b> advances in the rehabilitation approaches and management of musculoskeletal disorders based on recent data evidence-based medicine and professional vision for future developmental plans.</p>	Cognitive Skills
<p><b>By the end of the course, students should be able to:</b></p> <p><b>2.c.1. Demonstrate</b> skills to perform intra-articular, soft tissue and botulinum injections,</p> <p><b>2.c.2. Prescribe</b> manipulation techniques and therapeutic exercises within the rehabilitation program,</p> <p><b>2.c.3. write</b> reports of kinesiologic and electromyographic studies,</p> <p><b>2.c.4. write</b> coming challenges in Rheumatology, Rehabilitation and Physical medicine,</p> <p><b>2.c.5. Demonstrate</b> better awareness of current practice and technological means for rehabilitation in emergency cases and critical situations of stroke, acute pain, brain injury, joint infections, spinal injury and sports injury,</p> <p><b>2.c.6. Identify</b> prospects for future developments within Rheumatology, Rehabilitation and Physical Medicine,</p> <p><b>2.c.7. Apply</b> specific knowledge and skills of Rheumatology, Rehabilitation and Physical Medicine to other specialties to improve joint communication.</p>	Professional Skills

<p><b>2.d. General and Transferable Skills:</b>  <b>By the end of the course, students should be able to:</b>  <b>2.d.1. Communicate</b> effectively with other health care professionals to discuss and exchange ideas and arguments,  <b>2.d.2. Use</b> sources of biomedical information and communication technology to remain up- to-date with advances in knowledge and practice,  <b>2.d.3. Retrieve</b> scientific information clearly to others in written, electronic and oral forms,  <b>2.d.4. Determine</b> personal learning needs required for continuous professional development,  <b>2.d.5. Use</b> sources of biomedical information and communication technology to teach others and evaluate their clinical practice,  <b>2.d.6. Work</b> effectively with an interdisciplinary team within time-planned shared programs.</p>	<p>General Skills</p>
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<b>3-course content -4</b>					
<b>Subject</b>	<b>Lectures (hrs)</b>	<b>Clinical &amp; Practical (hrs)</b>	<b>Total (hrs)</b>	<b>% of total</b>	<b>ILOs</b>
<p><b>1) Patient Evaluation &amp; Diagnosis</b></p> <ul style="list-style-type: none"> <li>▪ Neurological history and examination</li> <li>▪ Diagnosis of disability</li> <li>▪ Rehabilitation program design</li> <li>▪ Functional Evaluation and Management of Activities of Daily Living</li> </ul>	<b>20</b>	<b>26</b>	<b>46</b>	<b>5%</b>	<b>2.a.1, 2.d.3</b>
<p><b>2) Diagnostic Procedures</b></p> <ul style="list-style-type: none"> <li>▪ Laboratory tests and Imaging studies</li> <li>▪ Musculoskeletal and work-related tests</li> <li>▪ Cardiopulmonary assessment /Stress test.</li> <li>▪ Functional assessment instruments</li> <li>▪ Neuropsychological evaluations</li> </ul>	<b>18</b>	<b>10</b>	<b>28</b>	<b>3%</b>	<b>2.b.2, 2.d.2, 2.d.5</b>
<p><b>3) Therapeutic tools</b></p> <ul style="list-style-type: none"> <li>▪ Therapeutic Exercise</li> <li>▪ Manipulation, massage and Traction</li> </ul>	<b>17</b>	<b>20</b>	<b>37</b>	<b>4%</b>	<b>2.a.1, 2.a.5, 2.b.4, 2.c.2</b>

<ul style="list-style-type: none"> <li>▪ Therapeutic Physical Agents</li> <li>▪ Behavioral/ Psychological Modalities (relaxation therapy, Biofeed back)</li> </ul>					
<b>4) Electrodiagnosis</b> <ul style="list-style-type: none"> <li>▪ General Electrodiagnosis.</li> <li>▪ Nerve conduction studies.</li> <li>▪ Late responses</li> <li>▪ Electromyography.</li> <li>▪ Applied electrodiagnosis.</li> </ul>	62	76.5	138.5	15%	2.a.1, 2.b.4, 2.c.3, 2.d.2, 2.d.6
<b>5) Orthotics and Prosthetics</b> <ul style="list-style-type: none"> <li>▪ Gait analysis.</li> <li>▪ Assistive devices</li> <li>▪ Amputation Rehabilitation</li> <li>▪ Upper limb orthoses.</li> <li>▪ Upper limb prostheses.</li> <li>▪ Lower limb orthoses.</li> <li>▪ Lower limb prostheses.</li> <li>▪ Spinal orthoses.</li> <li>▪ Wheelchairs and Seating Systems</li> </ul>	62	76.5	138.5	15%	2.a.1, 2.b.3, 2.c.4, 2.c.5, 2.d.2, 2.d.6
<b>6) Management of chronic pain.</b>	12	6	18	2%	2.a.3, 2.a.4, 2.b.4, 2.c.5, 2.d.2, 2.d.3
<b>7) Pharmacologic intervention</b> <ul style="list-style-type: none"> <li>▪ Analgesics.</li> <li>▪ Anti-seizure.</li> <li>▪ Skeletal muscle relaxants.</li> </ul>	13	15	28	3%	2.a.1, 2.a.3, 2.a.5, 2.b.4, 2.c.5, 2.c.6, 2.d.2, 2.d.3
<b>8) Procedural/ Interventional</b> <ul style="list-style-type: none"> <li>▪ Nerve Blocks.</li> <li>▪ Anesthetic Injections.</li> <li>▪ Other Procedural/Interventional.</li> </ul>	10	18	28	3%	2.a.2, 2.a.3, 2.a.5, 2.b.1, 2.b.4, 2.c.1, 2.c.5, 2.c.6, 2.d.2, 2.d.3
<b>9) Neuro-rehabilitation</b> <ul style="list-style-type: none"> <li>▪ Stroke</li> <li>▪ Spinal cord injury</li> <li>▪ Traumatic brain Injury</li> <li>▪ Neuropathies <ul style="list-style-type: none"> <li>○ Mononeuropathies.</li> <li>○ Polyneuropathies.</li> <li>○ Entrapment Neuropathies.</li> </ul> </li> <li>▪ Neurologic disorders <ul style="list-style-type: none"> <li>○ Multiple sclerosis.</li> <li>○ Parkinson's disease.</li> <li>○ Ataxias</li> <li>○ Motor neuron disease.</li> </ul> </li> </ul>	63.5	75	138.5	15%	2.a.2, 2.a.5, 2.b.2, 2.b.4, 2.c.4, 2.c.5, 2.c.6, 2.d.1, 2.d.2, 2.d.3, 2.d.6

<ul style="list-style-type: none"> <li>○ Poliomyelitis.</li> <li>○ Cerebral palsy.</li> <li>○ Muscular dystrophies.</li> <li>▪ Therapeutic Electrical Stimulation in Neurorehabilitation/Functional Neuromuscular Electrical Stimulation</li> </ul>					
<p><b>10) Musculoskeletal Diseases</b></p> <ul style="list-style-type: none"> <li>▪ Rehabilitation of rheumatological diseases</li> <li>▪ Regional Upper Extremities disorders</li> <li>▪ Regional lower Extremities disorders</li> <li>▪ Spinal disorders</li> <li>▪ Cumulative Trauma Disorders</li> <li>▪ Rehabilitation of osteoporosis</li> <li>▪ Acute trauma and post-care of fracture.</li> </ul>	42	50	92	10%	2.a.1, 2.a.2, 2.a.5, 2.b.1, 2.b.2, 2.b.4, 2.c.1, 2.c.4, 2.c.5, 2.c.6, 2.c.7, 2.d.1, 2.d.2, 2.d.3, 2.d.6
<p><b>11) Rehabilitation Problems</b></p> <ul style="list-style-type: none"> <li>▪ Spasticity.</li> <li>▪ Deconditioning</li> <li>▪ Pressure Ulcer.</li> <li>▪ Posture/Balance Disorders.</li> <li>▪ Scoliosis.</li> <li>▪ Burns</li> <li>▪ Geriatric rehab</li> <li>▪ Rehabilitation of Patients with Communication Disorders (Aphasia/ Cognitive Communication Disorders/ Motor Speech Disorders (Dysarthria/apraxia)</li> <li>▪ Rehabilitation of Patients with Swallowing Disorders</li> <li>▪ Obesity</li> <li>▪ Voiding Dysfunction</li> <li>▪ Neurogenic bladder.</li> <li>▪ Bowel dysfunction</li> </ul>	63	75	138	15%	2.a.1, 2.a.2, 2.a.5, 2.b.2, 2.b.4, 2.c.1, 2.c.2, 2.c.4, 2.c.5, 2.c.6, 2.d.1, 2.d.2, 2.d.3, 2.d.4, 2.d.5, 2.d.6
<p><b>12) Organ-System rehabilitation</b></p> <ul style="list-style-type: none"> <li>▪ Cardiovascular rehabilitation</li> <li>▪ Peripheral vascular Diseases,</li> <li>▪ Lymphedema,</li> <li>▪ Pulmonary Rehabilitation.</li> <li>▪ rehabilitation of Post COVID infection</li> </ul>	45	47	92	10%	2.a.1, 2.a.2, 2.a.4, 2.a.5, 2.b.2, 2.b.4, 2.c.1, 2.c.2, 2.c.4, 2.c.5, 2.c.6, 2.d.1, 2.d.2, 2.d.3,

<ul style="list-style-type: none"> <li>▪ ICU. <ul style="list-style-type: none"> <li>▪ Cancer rehabilitation</li> <li>▪ Auditory, vestibular, and visual impairments</li> </ul> </li> </ul>					2.d.4, 2.d.5, 2.d.6
<b>Total</b>	<b>427.5</b>	<b>495</b>	<b>922.5</b>	<b>100%</b>	

#### Teaching and learning methods -4 -5

- Modified Lectures
- Tutorials and seminars
- Practical classes
- On line lectures : BU-LMS benha university learning management system
- interactiveZoom meeting, online lectures on Whatsapp group and telegram app
- Youtube channel containing recorded lectures

طرق التدريس				
Practical classes	Tutorial and seminars	Modified Lectures		
■		■	2.a.1	
	■	■	2.a.2	
■		■	2.a.3	
	■		2.a.4	
	■	■	2.a.5	
■	■	■	2.b.1	
	■		2.b.2	
■	■	■	2.b.3	
		■	2.b.4	
■	■	■	2.c.1	
■	■	■	2.c.2	
■	■	■	2.c.3	
■	■	■	2.c.4	

■		■	2.c.5	<b>General skills</b>
■		■	2.c.6	
■	■		2.c.7	
■		■	2.d.1	
■		■	2.d.2	
■		■	2.d.3	
■		■	2.d.4	
■		■	2.d.5	
■	■		2.d.6	

Office hours system

**Teaching and learning methods for 5 -6 students with limited abilities**

7- تقويم الطلاب

**Assessment methods matrix with learning outcomes for the course on musculoskeletal disorders, rehabilitation, prosthetics and orthotics**

Evaluation methods			Course Learning	
Clinical examination	Structured Oral Exam	Written exam		
■	■	■	2.a.1	Knowledge
■	■	■	2.a.2	
■	■	■	2.a.3	
■	■	■	2.a.4	
■	■	■	2.a.5	
■	■	■	2.b.1	Cognitive
■	■	■	2.b.2	
■	■	■	2.b.3	
■	■	■	2.b.4	
■			2.c.1	Professional
■			2.c.2	

■			2.c.3	Skills
■			2.c.4	
■			2.c.5	
■			2.c.6	
■			2.c.7	
■	■		2.d.1	
■	■		2.d.2	
■	■		2.d.3	
■	■		2.d.4	
■	■		2.d.5	
■	■		2.d.6	
■	■			

8-

<ul style="list-style-type: none"> <li>• Written examination: to assess knowledge &amp; intellectual skills.</li> <li>• Oral examination: to assess knowledge, intellectual skills&amp; general&amp; transferable skills.</li> <li>• Clinical exam: assess knowledge, intellectual skills&amp;practical and professional &amp; general&amp; transferable skills.</li> <li>• Practical, plain x-rays to write a report and discuss</li> </ul>	A- Methods used
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Final exam in May or November	B- Timing
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Written Exam 375      Oral Exam 100 Clinical Exam 175 Practical 100 Total: 750	C- Grade distribution
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**List of textbooks and references:7 -9**

Lectures notes.	A- Notes
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<ul style="list-style-type: none"> <li>- Frontera, W. R., Silver, J. K., &amp; Rizzo, T. D. (2015). Essentials of physical medicine and rehabilitation: Musculoskeletal disorders, pain, and rehabilitation. 3<sup>rd</sup> edition. Philadelphia, PA: Saunders/Elsevier.</li> <li>- J. C. Tan (2006): Practical manual of physical medicine and rehabilitation. Elsevier Health Sciences.</li> <li>- Frank H. Krusen, Frederic J. Kottke, Justus F. Lehmann (2010): Krusen's textbook of Physical medicine &amp; Rehabilitation. Saunders</li> <li>- Ian B. Maitin, Ernesto Cruz (2015): Current Diagnosis &amp; Treatment: Physical medicine &amp; rehabilitation. McGraw-Hill Education</li> <li>- Secrets of Rehabilitation and Physical medicine fourth edition (2023)</li> <li>- Braddon Physical medicine and rehabilitation six th Edition (2020)</li> </ul>	B- Required books
<p>- Frontera, W. R., &amp; DeLisa, J. A. (2019). DeLisa's Physical medicine &amp; rehabilitation: Principles and practice. Sixth edition. Philadelphia: Lippincott Williams &amp; Wilkins Health.</p>	C- Suggested books
<ul style="list-style-type: none"> <li>- www.medscape.com,</li> <li>- www.emedicine.com,</li> <li>- www.gigapedia.com.</li> </ul>	<b>D - Scientific periodicals or bulletins</b>

**Course Contents/ILOs Matrix**

ILOs Course Conte	2.a. Knowledge understanding					2.b. Intellectual skills				2.c.. Practical & Clinical skills						2d.General and transferable Skills							
	2.a.1	2.a.2	2.a.3	2.a.4	2.a.5	2.b.1	2.b.2	2.b.3	2.b.4	2.c.1	2.c.2	2.c.3	2.c.4	2.c.5	2.c.6	2.c.7	2.d.1	2.d.2	2.d.3	2.d.4	2.d.5	2.d.6	
	1- Patient Evaluation	x																		x			
2- Diagnostic							x											x				x	
3- Therapeutic	x				x				x	x													
4- Electro-diagnosis	x								x		x							x					x
5-Orthotics and Prosthetics	x							x				x	x					x					x
6-Management of chronic pain			x	x					x					x				x	x				
7-Pharmacologic intervention	x		x						x					x	x			x	x				
8) Procedural/		x	x		x	x			x	x				x	x			x	x				
9) Neuro-		x			x		x		x					x	x		x	x	x				x
10) Musculoskeletal	x	x			x	x	x		x	x			x	x	x	x	x	x	x				x
11) Rehabilitation	x	x			x		x		x	x	x			x	x	x		x	x	x	x	x	x
12) Organ-System	x	x			x		x		x	x	x			x	x	x		x	x	x	x	x	x

رئيس مجلس القسم

ا.د. وليد أحمد صلاح الدين

أستاذ المادة

ا.د. ياسر عبد العزيز