Benha university

Faculty of medicine

Rheumatology, Rehabilitation & Physical Medicine department

Program Specification

(2025)

1. Basic Information

1- **Name of the program**: Diploma of 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. Waleed Ahmed Salah El-Din

Professor of Rheumatology, Rehabilitation and Physical Medicine, Benha University

5- **Internal evaluation of program specification**: Prof. Sahar Ganeb,

Professor of Rheumatology, Rehabilitation and Physical Medicine, Benha University

6- External evaluation of program specification: Prof. 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)

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

The overall aims of the program are to:

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

1.2. ***Give*** students background covering musculoskeletal disorders as regard causes, clinical presentation, diagnosis and management.

1.3. ***Acquire*** knowledge and understanding of 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. ***Support*** analysis of professional problems and planning for their management in the area of Rheumatology, Rehabilitation and Physical medicine.

1.5. ***Use*** of modern resources for organization of specialized professional skills in problem solving and decision-making.

1.6. ***Provide*** appropriate ethical education necessary for establishment of excellent communication with patients and colleague.

1.7. ***Build-up*** lifelong learning competencies necessary for continuous professional development.

1.8. ***Allow*** role for practice and application of students' profession in community development

3. Program Structure (Curriculum)

Program structure and contents

a) Program duration: 4 semesters (2 years)

- **1st part: -** One Semester (6 months).
- **2nd part: -** 3 Semester (1.5 year).

b) Program structure

- **Total hours of program:** 40 credit hours
- **Theoretical:** 29 credit hours
- **Practical :** 11credit hour

- **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)	
Applied Anatomy	**RHUM 501**	**2.5**	**2.5**	**37.5**
Applied	**RHUM**	**2.5**	**2.5**	**37.5**

Physiology	**502**			
Internal Medicine	**RHUM 503**	**2.5**	**2.5**	**37.5**
Applied Physics	**RHUM 504**	**2.5**	**2.5**	**37.5**
Total		**10**	**10**	**150**

b- Elective courses: none.

c- Selective courses: none.

Second part (three semesters)

a- Compulsory courses:

Course Title	**Course Code**	**Credit hours**			**No. of teaching hours/week**			**Total teaching hours (3 semesters)**
		Theoretical	**Clinical/Practical**	**Total**	**Theoretical**	**Clinical/Practical**	**Total**	
Rheumatology	**RHUM 505**	**9.5**	**5.5**	**15**	**9.5**	**11**	**20.5**	**922.5**
Rehabilitation Medicine	**RHUM 506**	**9.5**	**5.5**	**15**	**9.5**	**11**	**20.5**	**922.5**
Total								**1845**

b- Elective courses: none.

c- Selective courses: none.

4. Academic Standards

5. Academic Reference Standards (ARS) of Diplom Program of Rheumatology, Rehabilitation& Physical Medicine, approved by department council, June 2013 and in faculty council September 2013. **(ملحق 1)**

Academic Reference Standards (ARS) for Diploma Degree in Rheumatology, Rehabilitation and Physical Medicine

1. Graduate Attributes:

1-1 Application of specialized knowledge gained in the professional practice.

1-2 Identifying professional problems and propose solutions for their management in the area of Rheumatology, rehabilitation and physical medicine.

1-3 Mastery of professional skills and the use of appropriate technological means in professional practice in Rheumatology, rehabilitation and physical medicine.

1-4 Communication and lead teams through systemic employment and build up lifelong learning competencies necessary for continuous professional development in the field of Rheumatology, rehabilitation and physical medicine.

1-5 Decision in the light of the available information and allow issues covering the common and important areas in the field of physical therapy and connective tissue diseases and emergencies.

1-6 Employ available resources efficiently for management of rheumatological cases and support patients with disability.

1-7 To be aware with his role in community development and provide patients with disability and communication disorders solutions to modify their life.

1-8 Disposition reflecting integrity and credibility of the profession and the rules and accept accountability.

1-9 Recognize the need for life long learning for continuous professional development in Rheumatology, rehabilitation and physical medicine

2. Academic Standards:

2.1. Knowledge and understanding:

By the end of Diploma 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 some neurological conditions

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

2.1.3 Principles and the basics of quality in professional practice in the area of Rheumatology, Rehabilitation and Physical Medicine.

2.1.4 The impact of professional practice of rheumatology, rehabilitation and physical medicine on the environment and work to preserve the environment through outline the basic issues of patients' health and safety while providing physical therapy, rehabilitation programs or management of musculoskeletal disorders.

2.2. Intellectual skills:

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

2.2.1 Identify and analyze problems in the field of Rheumatology, Rehabilitation and Physical Medicine, arranged according to their own priorities , formulating specific clinical sheets and utilizing sources of

information for the diagnosis, differential diagnosis, and problem solving in musculoskeletal and rheumatic diseases.

2.2.2 Solve specialized problems in the field in the field of Rheumatology, Rehabilitation and Physical Medicineand make an

investigational immunologic database to solve problems of atypical clinical presentations.

2.2.3 Analytical reading and research topics related to Rheumatology, Rehabilitation and Physical Medicineand interpret patient symptoms and physical findings in terms of their anatomic, physiologic, pathologic and functional diagnostic importance.

2.2.4 Risk assessment for disease or injury and determine strategies for ppropriate management.

2.2.5 Professional decision-making in the light of the available information such as prescription of orthoses and prostheses of different parts of body.

2.3. Practical/Professional skills

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

2.3.1 Application of professional skills in the field of Rheumatology, Rehabilitation and Physical Medicine,

2.3.2 Writing professional reports through physical assessment and evaluation for patients with anatomical deformities, evaluation of motor function and different disabilities

2.4. Communication and transferable skills:

By the end of Diploma 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 Lead a team in professional familiar contexts.

2.4.6 Work in a team and time management.

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

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

رئيس مجلس القسم

ا.د. منير سراج الدين

6. 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 learni

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.	
											By the end of diplom program, the candidate 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.

Program Learning Outcomes										Program Academic Standards
Intellectual skills										
2.b.10	2.b.9	2.b.8	2.b.7	2.b.6	2.b.5	2.b.4	2.b.3	2.b.2.	2.b.1.	
√	√		√				√	√	√	***By the end of*** Diplom ***program, candidate 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 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
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.***	**Professional Skills**
				√	√	√	√	√	√	***By the end of Diplom program, candidate 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.

Program Learning Outcomes						Program Academic Standards
General and transferable skill						
2.d.6	2.d.5	2.d.4	2.d.3	2.d.2.	2.d.1.	General and Transferable Skills[3]
		√				**By the end of Diplom program, candidate 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. 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 501	■										
2- Applied Physiology	RHU M 502	■							■			■
3- Internal Medicine	RHU M 503				■	■	■					
4- Applied Physics	RHU M 504					■				■		
5- Rheumatology	RHU M 505	■	■	■	■	■	■				■	■
6- Rehabilitation	RHU	■	■	■	■	■	■	■				

Medicine	**M 506**											

ILOs **Courses & Codes**		**Intellectual Skills** **2.b.**									
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1- Applied Anatomy	**RHUM 501**			■							
2- Applied Physiology	**RHUM 502**			■							
3- Internal Medicine	**RHUM 503**	■	■		■		■	■			
4- Applied Physics	**RHUM 504**				■	■			■		
5- Rheumatology	**RHUM 505**	■	■		■		■	■	■	■	■
6- Rehabilitation Medicine	**RHUM 506**	■	■	■	■	■	■	■	■	■	■

Courses & Courses	ILOs	Practical & Clinical Skills 2.c.									
	RHUM 501	1	2	3	4	5	6	7	8	9	10
1- Applied Anatomy						■					■
2- Applied Physiology	RHUM 502					■				■	
3- Internal Medicine	RHUM 503	■									
4- Applied Physics	RHUM 504										■
5- Rheumatology	RHUM 505	■	■	■	■			■		■	■
6- Rehabilitation Medicine	RHUM 506	■	■	■	■	■	■		■		■

ILOs Courses& Codes		General & transferable 2.d.					
	RHUM 501	1	2	3	4	5	6
1- Applied Anatomy		■	■				
2- Applied Physiology	RHUM 502	■	■				
3- Internal Medicine	RHUM 503	■	■				
4- Applied Physics	RHUM 504	■	■				
5- Rheumatology	RHUM 505	■	■	■	■	■	■

6- Rehabilitation Medicine	**RHUM 506**	■	■	■	■	■	■

7. Program Duration and Structure

a) Program Duration

c) Program duration: 4 semesters (2 years)

- **1st part: -** One Semester (6 months).
- **2nd part: -** 3 Semester (1.5 year).

d) Program structure

- **Total hours of program:** 40 credit hours
- **Theoretical:** 29 credit hours
- **Practical :** 11credit hour

Component	Courses	Code	Credit Hours
Part I	Applied Anatomy of the Musculoskeletal, Nervous, and Psychological Systems	RHUM 501	2.5
	Applied Physiology of the Musculoskeletal, Nervous, Cardiovascular, Respiratory, and Endocrine Systems (theoretical and practical)	RHUM 502	2.5
	Internal Medicine and its General	RHUM 503	2.5

	Specialties (theoretical and clinical)		
	Applied Physical Therapy	RHUM 504	2.5
Part II	Rheumatic Diseases and Their Pharmacological and Surgical Management (theoretical, clinical, and practical)	RHUM 505	15
	Musculoskeletal Disorders, Rehabilitation, Prosthetics, and Orthotics (theoretical, clinical, and practical)	RHUM 506	15
Total			40

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 Diploma in Rheumatology, Rehabilitation, and Physical Medicine

Course data -1		
Band/Level: Diploma Part 1	**Course Name: Applied Anatomy**	code: **RHUM 501**
Number of academic units: Theoretical **2.5 credit hours**		**Rheumatoloy, Rehabilitation and Physical Medicine**
• *Understand the anatomy and surface landmarks of major joints and soft tissue structures,* • *Apply knowledge of the appropriate system structures relevant to rheumatology and musculoskeletal medicine,* • *Succeed to make a proper diagnosis of different musculoskeletal disorders of nerves, muscles, joints and central nervous system.* • *Improve the standards of knowledge by self-education as a researcher and specialist in the field of Rheumatology, Rehabilitation and Physical Medicine*		Course objective: -2
The objective of teaching the course: *By the end of the course, the student should be able to:*		

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

Subject	Lectures (hrs)	Small group (hrs)	Total (hrs)	% of total	ILOs
1) GENERAL ANATOMY - Bones, - Joints (classification, structure& movements), Muscles (types, features & characters of skeletal muscles),Nerves (spinal & motor cranial),Autonomic nervous system (centers, nerves & ganglia),Ligaments & fasciae.	**6**	**1.5**	**7½**	**20%**	**2.a.1, 2.a.2,, 2.a.3,, 2.a.4,, 2.a.5, 2.b.2, 2.b.3,**
2) NECK AND TRUNK - Vertebral canal & vertebral foramina, - Posture, - Body weight transmission, - Ligaments & fasciae,Muscles,Joints, - Movements, - Intervertebral disc, - Diaphragm,Heart & pericardium, Respiratory system,Respiratory muscles movements.	**4.5**	**4.5**	**9**	**24%**	**2.a.3,2.a.6** **2.b.1. , 2.d.1,, 2.b.3**
3) UPPER AND LOWER LIMBS - Muscles,Nerves,Joints, - Ligaments & fasciae, - Stability, - Nerve plexuses, - Development, - Hand, Foot,Arches of the foot,	**5½**	**5**	**10.5**	**29%**	**2.b.1,,2.b.3,2.b.4, 2.b.5,2.b.6, 2.d.1 2.a.4,**

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

Teaching Methods Matrix with Learning Outcomes for the Applied Anatomy Course

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

6- تقويم الطـلاب :

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	**Knowledge and Understanding**
■	■	2.a.2	
■	■	2.a.3	
■	■	2.a.4	
■	■	2.a.5	
■	■	2.a.6	
■	■	2.b.1	
■		2.b.2	**Cognitive Skills**
	■	2.b.3	
	■	2.b.4	
	■	2.b.5	
■		2.b.6	
■		2.c.1	
■		2.d.1	**General Skills**

- Final exam at May or November

Timing

Examination : Marks allocated a- Written: 75 b- Oral: 50 Total :125	**C- Distribution of grades**
7- List of textbooks and references:	
• Lectures notes	notes
Gray's Anatomy42nd **Edition The Anatomical Basis of Clinical Practice** **Editor in Chief: Susan Standring** **eBook ISBN:** 9780702077104 **Hardcover ISBN:** 9780702077050 **Paperback ISBN:** 9780702077067 **Imprint:** Elsevier **Published Date:** 21st October 2020 **Page Count:** 1606 Standring, S. (Ed.). (2020). *Gray's anatomy e-book: the anatomical basis of clinical practice*. Elsevier Health Sciences.	Compulsory books
Hole's Human Anatomy & Physiology 15th Edition by David Shier (Author), Jackie Butler (Author), Ricki Lewis (Author) Hole, J. W., Shier, D., Butler, J., & Lewis, R. (2019). Hole's essentials of human anatomy & physiology. Boston.	Suggested books
https://www.coursera.org/specializations/anatomy	scientific journals or newsletters

Course Contents/ILOs Matrix

ILOs / Course Contents	2.a. Knowledge ar understanding						2.b. . Intellectual Skills						2d.Gene 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
1) General Anatomy	×	×	×	×	x			×	×				
2)Head And Neck			×			X	×		×				×
3) Upper And Lower Limbs				×			×		×	×	×	×	×
4) Neuroanatomy			X						x			X	

رئيس مجلس القسم العلمي :

ا.د أسامة فؤاد

Diplom in Rheumatology, Rehabilitation, and Physical Medicine - Updated Regulations

1. بيانات المقرر		
Band/Level: **Diplom** Part 1	Course Name: Applied Physiology	Code: RHUM 502
Number of academic units: Theoretical		Speciality: Rheumatology, Rehabilitation and Physical Medicine
• *Respond to the educational and research training needs of doctors with a special interest in Rheumatology, Rehabilitation and Physical Medicine.* • *Prepare a Rheumatology, Rehabilitation and Physical Medicine physician oriented with the physiology of muscle and nerve, CNS and endocrine.* • *Provide graduates with enough knowledge about the regulation of body temperature, body fluids, homeostasis.* • *Improve students' standards of knowledge by self-education as a researcher and specialist in the field of Rheumatology, Rehabilitation and Physical Medicine.*		6. Course objective:
The objective of teaching the course -5 *By the end of the course, the student should be able to:*		
By the end of the course, students should be able to: 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.		A. Knowledge and Understanding:
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
1) MUSCLES AND NERVES - Nerve, - Skeletal Muscle.	**4.5**	**2**	**6.5**	**18%**	**2.a.1 2.a.6,2. b.3**
2) CENTRAL NERVOUS SYSTEM - 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**
3) CIRCULATION - Arterial blood pressure & its regulation, - Capillary circulation, - Edema.	**3**	**3**	**6**	**16%**	**2.a.3, 2.a.5,**

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

Teaching and Learning Methods

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 Physiology Course

Learning methods			Course learning outcomes	
Seminars	**Tutorial**	**Modified Lectures**		
■	■	■	2.a.1	Knowledge and Understandi g
■	■	■	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	**General Skills**		

6Student evaluation.

A- Methods used

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.

Assessment Methods Matrix with Learning Outcomes for the Applied Physiology Course

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.b.1	Cognitive Skills
■	■	2.b.2	
■	■	2.b.3	
■	■	2.b.4	
■		2.d.1	**General Skills**

ب- Timing

- Final exam at May or November

C- Grade Distribution

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

7List of textbooks and references.

Notes

- Lectures 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 -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.	B- Required books
-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
https://join.shawacademy.com/physiology-20-amp?utm_source=google&utm_medium=cpc&utm_campaign=me_search_generic_physiology_courses_bmm&gclid=EAIaIQobChMI6pD8icG07QIVjMLtCh0OfgKEEAAYAyAAEgJlQ_D_BwE	D- Scientific journals or bulletins

Course Contents/ILOs Matrix

ILOs / Course Contents	2.a. Knowledge and understanding							2.b. . Intellectual Skills				2d.Ge 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

ا.د/ عبير شومان

جامعة بنها

كلية الطب البشرى

قسم الامراض الباطنة

Internal medicine Course Description

Diploma in Rheumatology, Rehabilitation, and Physical Medicine - Updated Regulations

1. بيانات المقرر		
Band/Level: Diploma Part 1	Course Name: Internal medicine	code : RHUM 503
Number of academic units: Theoretical		Speciality: Rheumatology, Rehabilitation and Physical Medicine
• *Respond to the educational and research training needs of doctors with a special interest in Rheumatology, Rehabilitation and Physical Medicine.* • *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.* • *Provide graduates with enough knowledge about disorders of internal organs relevant to systemic rheumatic diseases.* • *Improve students' standards of awareness of self-education as researchers and specialists in the field of Rheumatology, Rehabilitation and Physical Medicine.*		6 .Course objective:
The objective of teaching the course -6 *By the end of the course, the student should be able to:*		

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

2.d.1. use information and communication technology effectively in the field of Internal Medicine to conduct researches in Rheumatology, Rehabilitation and Physical Medicine. 2.d.2. show continuous self-learning requirements following updates in the practice of Internal Medicine. 2.d.3. Communicate ideas effectively with other specialties. 2.d.4. apply scientific meetings of different sources for achieving knowledge and information. 2.d.5. Apply working in a team and time mapping, operate with other rheumatologists and be able to analyze their performance.	D. General Skills:

1. Course Content:

Topic	Lectures (hrs)	Small group (hrs)	Total (hrs)	% of total	ILOs
1) NEUROLOGY - 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 **,2.d.4**
2) CARDIOLOGY - 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
3) NEPHROLOGY. - 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
4) CHEST DISEASES - Tuberculosis**,** - Pleural diseases,					
- Bronchial asthma, - Chronic obstructive					2.a.4.

Teaching and Learning Methods

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

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	

6Student evaluation

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	**General Skills**
	■	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.

• Final exam at May or November	ب- Timing
• Examination Marks allocated • a- Written75 • b- Oral 50 Total 125	C- Grade Distribution
6- قائمة الكتب الدراسية والمراجع :	
• Lectures notes	أ- Notes
Harrison's Principles of Internal Medicine, Twentieth Edition (Vol.1 & Vol.2) 20th Edition Jameson JL, Fauci A, Kasper D , et al (2018): Harrison's Principles of Internal Medicine. (Vol.1 & Vol.2). Twentieth Edition McGraw-Hill Education.	B- Required books
Davidson's Principles and Practice of Medicine **23rd Edition** Ralston, S. H., Penman, I. D., Strachan, M. W. J., & Hobson, R. (Eds.). (2018). *Davidson's principles and practice of medicine* (23rd ed.). Elsevier Health Sciences.	C- Suggested books
https://www.coursera.org/learn	D- Scientific journals or bulletins

Course Contents/ILOs Matrix

Ilos / Course	a. Knowledge And understanding								2.b. Intellectual Skills					2d. General And Transferable skills				
	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.b.5	2. d.1	2.d.2	2.d.3	2.d.4	2.d.5
Neurology					×			×	×	×	×	×					×	
Cardiology	×								×	×	×	×						
Nephrology	×	×	×	×	×								×		×			
Chest Diseases				×					×	×	×		×					
Blood Diseases						×					×	×	×					
Endocrine Diseases			×									×	×					
Rheumatology							×		×					×		×		×
Acid-Base Balance		×										×						
Na+ & K+		×											×					

رئيس مجلس القسم العلمي : ا.د- محمد العسال

جامعة بنها

كلية الطب البشرى

قسم الروماتيزم والتأهيل والطب الطبيعى

Applied physics programe specification

1-بيانات المقرر		
Band/Level: Diploma Part 1	Applies physics	RHUM code 504
Number of academic units: Theoretical		Speciality: Rheumatology, Rehabilitation and Physical Medicine
• ***Respond*** to the educational training needs of doctors with a special interest i Rheumatology, Rehabilitation and Physical Medicine. • ***Make*** candidates qualified in perception and integration of progress in Rehabilitatio and Physical Medicine. • ***Maintain*** students' standards of knowledge as specialists in the field of Rheumatology Rehabilitation and Physical Medicine by self-education and continuous learning. • ***Improve*** students' standards of knowledge.		Course .6 objective:
The objective of teaching the course -7 *By the end of the course, the student should be able to:*		
By the end of the course, students should be able to: 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..		A. Knowledge and Understanding:
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							2.b. . Intelle			2d.General an		
	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				×			×	×			×	×	×
2) Electrotherapy	×						×		×	×			
3) Deep Heating Modalities					×	×				×			
4) Superficial Heating Modalities					×	×				×			
5) Cold Therapy			×							×			
6) Light Therapy (Laser)					×			×		×			
7) Magnetic Field Therapy		×		×				×					

أستاذ المادة : **رئيس مجلس القسم العلمي :**

ا.د.ياسر عبدالعزيز **ا.د. وليد أحمد صلاح الدين**

Faculty of Medicine

Department of Rheumatology, Rehabilitation, and Physical Medicine

Course Description in Rheumatic Diseases, Pharmacological and Surgical Treatment

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

Course data		
Class/Level: Diploma, Part II.	Course Name: Rheumatic Diseases, Drug and Surgical Treatment.	**code**: RHUM 505
credit hours 15 : **Number of academic units** **practical** 5.5 و**theoretical** 9.5		Specialization: Rheumatology, Rehabilitation, and Physical Medicine.

1. Overall Aims of Course ***The overall goals of the course are to:*** • ***Give*** students an appropriate background covering rheumatic diseases as regard causes, pathogenesis, diagnosis and management. • ***Build-up*** the students' ability to formulate differential diagnoses of rheumatic diseases. • ***Provide*** students with the skill to organize treatment plans for rheumatic diseases. • ***Allow*** students to practice problem solving and decision-making in atypical clinical situations. • ***Support*** the students' trend for evidence-based medicine practice to support up profession in Rheumatology, Rehabilitation and Physical Medicine. • ***Provide*** students with lifelong learning talent necessary for continuous professional development and research establishment. • ***Provide*** students with the professional ethical values essential to demonstrate appropriate attitude towards patients and colleagues. • ***Allow*** students to have the skills necessary for proper patients' interrogation and evaluation. • ***Provide*** students with appropriate professional education necessary to manage and organize health problems within the community	**Course objective**
The objective of teaching the course -2	
2.a.1. List the common causes of arthritis and musculoskeletal disorders (acute and chronic) as well as symptoms and signs of different rheumatic diseases. ***2.a.2. Discuss*** current and emerging data on the pathogenesis and management of different rheumatic diseases and musculoskeletal disorders, ***2.a.3. list*** common physical and rheumatic emergencies. ***2.a.4. Discuss*** essential investigational plans of the immune system, rheumatic and musculoskeletal disorders as integrated with values of proper medical ethics ***2.a.5. Discuss*** basic data on the mechanisms of action in the immune system	A- Information and concepts:

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

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

Course content

Subject	Lectures (hrs)	Clinical & Practical (hrs)	Total (hrs)	% of total	ILOs
1) **Approach to the Patient with Rheumatic Disease** ▪ Structure and Function of Bone, Joints, and Connective Tissue ▪ Physical Examination of the Musculoskeletal System ▪ Approach to regional musculoskeletal pain ▪ Differential diagnosis of diffuse musculoskeletal pain ▪ Evaluation of Monoarticular and Polyarticular Arthritis ▪ Pregnancy and Rheumatic Diseases ▪ The Eye and Rheumatic Diseases ▪ Skin and Rheumatic Diseases ▪ Evaluation and Management of Early Undifferentiated Arthritis ▪ Nutrition and Rheumatic Diseases	**45**	**47**	**92**	**10%**	**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.**

2) Molecular and Cellular Basis of Immunology and Effector Mechanisms in Autoimmunity and Inflammation Introduction to immune system Innate & adaptive immunity HLA antigen Autoimmunity Immunotolerance APCs and antigen presentation	**28**	**19**	**47**	**5%**	**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.**
3) <u>Rheumatoid Arthritis</u>.	**20**	**35**	**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.**
4) <u>Spondyloarthropathies</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.**
5) <u>Systemic Lupus Erythematosus</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.
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.**
<u>7) 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.**
<u>8) Crystal-Induced Arthritis</u> ▪ Gout. ▪ Calcium Pyrophosphate Deposition Disease	**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> ▪ Familial Autoinflammatory Syndromes ▪ Sjögren's Syndrome ▪ Adult-Onset Still Disease ▪ Anti-phospholipid Syndrome ▪ Mixed connective tissue diseases	**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.
10) Osteoarthritis	**21**	**25**	**46**	**5%**	**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.**
11) Cartilage, Bone, And Heritable Connective Tissue Disorders ▪ Metabolic Bone Diseases ▪ Proliferative bone diseases ▪ Osteonecrosis ▪ Relapsing Polychondritis ▪ Heritable Diseases of Connective Tissue	**21**	**25**	**46**	**5%**	**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.**
12) Infectious Arthritis ▪ Bacterial Arthritis ▪ Lyme Disease ▪ Mycobacterial Infections of Bones and Joints ▪ Fungal Infections of Bones and Joints ▪ Rheumatic Manifestations of HIV Infection ▪ Viral Arthritis ▪ Rheumatic Fever and Post-streptococcal Arthritis ▪ Rheumatological manifestation of COVID infection	**21**	**25**	**46**	**5%**	**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.**
13) Systemic Diseases Associated with Arthritis ▪ Rheumatic manifestation of blood disease ▪ Arthritis Accompanying Endocrine and Metabolic Disorders ▪ Amyloidosis	**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,**

▪ Sarcoidosis ▪ Hemochromatosis ▪ Igg4-Related Disease ▪ Tumors and Tumor-like Lesions of Joints and Related Structures ▪ Rheumatic manifestation of malignancy ▪ Autoimmune Complications of Immune Checkpoint Inhibitors for Cancer					**2.d.3, 2.d.4, 2.d.5, 2.d.6.**
14) Pediatric Rheumatology ▪ Juvenile Idiopathic Arthritis ▪ Pediatric Systemic Lupus Erythematosus ▪ Juvenile Dermatomyositis, Scleroderma, ▪ And Vasculitis ▪ Rheumatological manifestation of COVID infection	**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.**
15) Diagnostic Tests And Procedures In Rheumatic Diseases ▪ Acute Phase Reactants and the Concept of Inflammation ▪ Complement testing ▪ Anti-nuclear Antibodies ▪ Extractable Nuclear Antigens. ▪ Characteristic autoantibodies associated with SLE ▪ Antiphospholipid antibodies ▪ Autoantibodies in Rheumatoid Arthritis ▪ Autoantibodies in systemic sclerosis ▪ Autoantibodies in myositis & necrotizing myopathy ▪ ANCA ▪ HLA Typing ▪ Synovial Fluid Analyses, Synovial	**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 ▪ Arthrocentesis and Injection of Joints and Soft Tissue					
16) Imaging in Rheumatological Diseases. ▪ Conventional radiography ▪ Computed tomography ▪ Magnetic resonance imaging ▪ Ultrasonography ▪ Other imaging modalities	**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.**
17) Pharmacology of Anti-rheumatic Drugs ▪ Non steroidal anti-inflammatory drugs. ▪ Corticosteroids. ▪ Urate-Lowering Therapy ▪ Immunosuppressive Drugs ▪ Bisphosphonates ▪ Conventional Disease modifying antirheumatic drugs, ▪ Biological therapies.	**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.**
Total	**427.5**	**495**	**922.5**	**100%**	

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	

- Modified Lectures - Tutorials - 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	1- **Teaching and learning methods**
نظام الساعات المكتبية	**2- Teaching and learning methods for students with limited abilities**
	Student evaluation
• Written examination: to assess knowledge & intellectual skills. • Oral examination: to assess knowledge, intellectual skills& general& transferable skills. • Clinical exam: assess knowledge, intellectual skills & practical and professional & general& transferable skills. • Practical**,** plain x-rays to write a report and discuss	**Evaluation methods**
Final exam in May or November	ب- Timing

Written Exam 375 **Oral Exam 100** **Clinical Exam 175** **Practical 100** **Total: 750**	C- Grade distribution
List of textbooks and references:	
Lectures notes.	Notes -أ
.1- Essential Books (Text Books): – Petros Ephthimiou (2020): absolute rheumatology review. First edition. Springer Science & Business Media – Gary Firestein, Ralph Budd, Sherine E Gabriel et al (2021): Kelley and Firestein's Textbook of Rheumatology, 2-Volume Set. 11th Edition. Elsevier – John A. Stone (2021): Current Diagnosis & Treatment in Rheumatology, Fourth Edition. McGraw-Hill Education – Hochberg MC, Gravallese EM, Smolen JS, van der Heijde D, Weinblatt ME, Weisman MH (2022): Rheumatology, 2-Volume Set, 8th Edition. Elsevier Health Sciences. **6.2- Recommended Books:** – (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 & Co. – Hani Almoallim, Mohamed Cheikh (2021): Skills in Rheumatology. Springer Nature Singapore. – Gustav K. von Schulthess, Juerg Hodler, Rahel A. Kubik-Huch (2021): Musculoskeletal Diseases 2021-2024 Diagnostic Imaging. Springer International Publishing.	B- Required books
• **Periodicals**: - Annals of Rheumatic Diseases. - Arthritis and Rheumatism. - British Journal of Rheumatology. -	C- Suggested books

• **Web Sites:** - www.medscape.com, - www.emedicine.com, - www.gigapedia.com.	**D - Scientific periodicals or bulletins**

Course Contents/ILOs Matrix

ILOs **Course Contents**	**, Knowledge and understanding**					**2.b. Intellectual Sk**						**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.b4**	**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**
2) Molecular and Cellular Basis of Immunology and Effector Mechanisms in Autoimmunity and Inflammation					**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**
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**

hies																						
5) Systemic Lupus Erythematosus	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
6) Scleroderma, Inflammatory Myopathies, And Overlap Syndromes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
7) Vasculitides	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
8) Crystal-Induced Arthritis	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
9) Miscellaneous Rheumatic disorders	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
10) Osteoarthritis	x	x		x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x
11) Cartilage, Bone, And Heritable Connective Tissue Disorders	x	x		x	x	x	x	x	x	x	x		x		x	x	x	x	x	x	x	x
12) Infectious Arthritis	x	x	x	x		x	x	x	x		x		x	x	x	x	x	x	x	x	x	x
13) Systemic Diseases Associated with Arthritis	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

14) Pediatric rheumatology	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**
15) Diagnostic Tests And Procedures In Rheumatic Diseases	**x**	**x**		**x**			**x**		**x**	**x**	**x**	**x**	**x**		**x**	**x**		**x**	**x**	**x**	**x**	**x**
16) Imaging in Rheumatological Diseases.				**x**			**x**		**x**	**x**	**x**		**x**		**x**	**x**		**x**	**x**	**x**	**x**	**x**
17) Pharmacology of Anti-rheumatic Drugs	**x**	**x**	**x**	**x**	**x**			**x**		**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**

أستاذ المقرر: **رئيس مجلس القسم العلمي:**

ا.د.ياسر عبدالعزيز **ا.د. وليد أحمد صلاح الدين**

Benha University

Faculty of medicine

Department of Rheumatology, Rehabilitation, and Physical Medicine

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

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

Course Information		
Year/Level: Diploma, Part II	**Course Title: Diseases of the Locomotor System, Rehabilitation, Prosthetics, and Orthotics**	**code**: RHUM 506
Number of academic units: 20 credit hours, 11 theoretical and 9 practical	Specialization: PhD in Rheumatology, Rehabilitation and Physical Medicine	

-1Objective of the course

1. ***Raise*** the students' skill to design rehabilitation programs for different musculoskeletal disorders (acute and chronic),
2. ***Support*** the students' expertise for problem solving and decision-making in atypical clinical situations,
3. ***Provide*** the students with the trend for evidence-based medicine practice to support up profession in Rheumatology, Rehabilitation and Physical Medicine,
4. ***Support*** the students' lifelong learning talent necessary for continuous professional development,
5. ***Give*** the students the professional ethical values essential to demonstrate appropriate attitude towards patients and colleagues,
6. ***Allow*** the students to communicate the skills necessary for proper patients' interrogation and evaluation,

- ***Provide*** the students with the appropriate professional education necessary to manage and organize health problems within the community**.**

The objective of teaching the course-2 -3

By the end of the course, students should be able to:	
2.a. Knowledge and Understanding:	Knowledge and Understanding

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

2.d. General and Transferable Skills: ***By the end of the course, students should be able to:*** ***2.d.1. Communicate*** effectively with other health care professionals to discuss and exchange ideas and arguments, ***2.d.2. Use*** sources of biomedical information and communication technology to remain up- to-date with advances in knowledge and practice, ***2.d.3. Retrieve*** scientific information clearly to others in written, electronic and oral forms, ***2.d.4. Determine*** personal learning needs required for continuous professional development, ***2.d.5. Use*** sources of biomedical information and communication technology to teach others and evaluate their clinical practice, ***2.d.6. Work*** effectively with an interdisciplinary team within time-planned shared programs.	General Skills

3-course content *-4*

Subject	Lectures (hrs)	Clinical & Practical (hrs)	Total (hrs)	% of total	ILOs
1) Patient Evaluation & Diagnosis ▪ Neurological history and examination ▪ Diagnosis of disability ▪ Rehabilitation program design ▪ Functional Evaluation and Management of Activities of Daily Living	**20**	**26**	**46**	**5%**	**2.a.1, 2.d.3**
2) Diagnostic Procedures ▪ Laboratory tests and Imaging studies ▪ Musculoskeletal and work-related tests ▪ Cardiopulmonary assessment /Stress test. ▪ Functional assessment instruments ▪ Neuropsychological evaluations	**18**	**10**	**28**	**3%**	**2.b.2, 2.d.2, 2.d.5**
3) Therapeutic tools ▪ Therapeutic Exercise ▪ Manipulation, massage and Traction	**17**	**20**	**37**	**4%**	**2.a.1, 2.a.5, 2.b.4, 2.c.2**

▪ Therapeutic Physical Agents ▪ Behavioral/ Psychological Modalities (relaxation therapy, Biofeed back)					
4) Electrodiagnosis ▪ General Electrodiagnosis. ▪ Nerve conduction studies. ▪ Late responses ▪ Electromyography. ▪ Applied electrodiagnosis.	**62**	**76.5**	**138.5**	**15%**	**2.a.1, 2.b.4, 2.c.3, 2.d.2, 2.d.6**
5) Orthotics and Prosthetics ▪ Gait analysis. ▪ Assistive devices ▪ Amputation Rehabilitation ▪ Upper limb orthoses. ▪ Upper limb prostheses. ▪ Lower limb orthoses. ▪ Lower limb prostheses. ▪ Spinal orthoses. ▪ Wheelchairs and Seating Systems	**62**	**76.5**	**138.5**	**15%**	**2.a.1, 2.b.3, 2.c.4, 2.c.5, 2.d.2, 2.d.6**
6) Management of chronic pain.	**12**	**6**	**18**	**2%**	**2.a.3, 2.a.4, 2.b.4, 2.c.5, 2.d.2, 2.d.3**
7) Pharmacologic intervention ▪ Analgesics. ▪ Anti-seizure. ▪ Skeletal muscle relaxants.	**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**
8) Procedural/ Interventional ▪ Nerve Blocks. ▪ Anesthetic Injections. ▪ Other Procedural/Interventional.	**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**
9) Neuro-rehabilitation ▪ Stroke ▪ Spinal cord injury ▪ Traumatic brain Injury ▪ Neuropathies o Mononeuropathies. o Polyneuropathies. o Entrapment Neuropathies. ▪ Neurologic disorders o Multiple sclerosis. o Parkinson's disease. o Ataxias o Motor neuron disease.	**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**

○ Poliomyelitis. ○ Cerebral palsy. ○ Muscular dystrophies. ▪ Therapeutic Electrical Stimulation in Neurorehabilitation/Functional Neuromuscular Electrical Stimulation					
10) Musculoskeletal Diseases ▪ Rehabilitation of rheumatological diseases ▪ Regional Upper Extremities disorders ▪ Regional lower Extremities disorders ▪ Spinal disorders ▪ Cumulative Trauma Disorders ▪ Rehabilitation of osteoporosis ▪ Acute trauma and post-care of fracture.	**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**
11) Rehabilitation Problems ▪ Spasticity. ▪ Deconditioning ▪ Pressure Ulcer. ▪ Posture/Balance Disorders. ▪ Scoliosis. ▪ Burns ▪ Geriatric rehab ▪ Rehabilitation of Patients with Communication Disorders (Aphasia/ Cognitive Communication Disorders/ Motor Speech Disorders (Dysarthria/apraxia) ▪ Rehabilitation of Patients with Swallowing Disorders ▪ Obesity ▪ Voiding Dysfunction ▪ Neurogenic bladder. ▪ Bowel dysfunction	**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**
12) Organ-System rehabilitation ▪ Cardiovascular rehabilitation ▪ Peripheral vascular Diseases, ▪ Lymphedema, ▪ Pulmonary Rehabilitation. ▪ rehabilitation of Post COVID infection	**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,**

▪ ICU. ▪ Cancer rehabilitation ▪ Auditory, vestibular, and visual impairments					**2.d.4, 2.d.5, 2.d.6**
Total	**427.5**	**495**	**922.5**	**100%**	

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		
■		■	2.c.6		
■	■		2.c.7		
■		■	2.d.1	**General skills**	
■		■	2.d.2		
■		■	2.d.3		
■		■	2.d.4		
■		■	2.d.5		
■	■		2.d.6		

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

7- تقويم الطـلاب

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-

• Written examination: to assess knowledge & intellectual skills. • Oral examination: to assess knowledge, intellectual skills& general& transferable skills. • Clinical exam: assess knowledge, intellectual skills&practical and professional & general& transferable skills. • Practical, plain x-rays to write a report and discuss	A- Methods used
Final exam in May or November	B- Timing
Written Exam 375 Oral Exam 100 Clinical Exam 175 Practical 100 Total: 750	C- Grade distribution
List of textbooks and references:7 -9	
Lectures notes.	A- Notes

– Frontera, W. R., Silver, J. K., & Rizzo, T. D. (2015). Essentials of physical medicine and rehabilitation: Musculoskeletal disorders, pain, and rehabilitation.3rd edition. Philadelphia, PA: Saunders/Elsevier. – J. C. Tan (2006): Practical manual of physical medicine and rehabilitation. Elsevier Health Sciences. – Frank H. Krusen, Frederic J. Kottke, Justus F. Lehmann (2010):Krusen's textbook of Physical medicine& Rehabilitation. Saunders – Ian B. Maitin, Ernesto Cruz (2015): Current Diagnosis & Treatment: Physical medicine & rehabilitation. McGraw-Hill Education – Secrets of Rehabilitation and Physical medicine fourth edition (2023) – Braddon Physical medicine and rehabilitation six th Edition (2020)	B- Required books
- Frontera, W. R., & DeLisa, J. A. (2019). DeLisa's Physical medicine & rehabilitation: Principles and practice. Sixth edition. Philadelphia: Lippincott Williams & Wilkins Health.	C- Suggested books
- www.medscape.com, - www.emedicine.com, - www.gigapedia.com.	**D - Scientific periodicals or bulletins**

Course Contents/ILOs Matrix

ILOs / Course Conte	2.a. Knowledge & understandin					2.b. Intellectu 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	[illegible]	2.d.2	2.d.3	2.d.4	2.d.5	2.d.6
1- Patient Evaluation	×																		×			
2- Diagnosti							×											×			×	
3- Therapeuti	x				x				x		x											
4- Electro-diagnosis	x								x			×						×				x
5-Orthotics and Prosthetics	x							×					x	x				x				x
6-Management of chronic pain			×	x					x					x				x	x			
7-Pharmacologic intervention	x		x						×					x	x			x	x			
8) Procedural/		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	x

أستاذ المادة **رئيس مجلس القسم**

ا.د. ياسر عبد العزيز **ا.د. وليد أحمد صلاح الدين**