
Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications
(CS)

Musculoskeletal System

(351 MSS-7) (عضل-7)

Course Specifications

Institution: Najran University	Date of Report: 37-38 H 1 st semester
College/Department: College of Medicine	

A. Course Identification and General Information

1. Course title and code: Musculoskeletal System (351MSS-7) (7-عضل351)		
2. Credit hours 7 (5+2)		
3. Program(s) in which the course is offered: Bachelor of Medicine and Bachelor of Surgery		
4. Name of faculty member responsible for the course. - Coordinator: Dr. Aamir Magzoub - Co-coordinator: Dr. Ehab Elagab		
5. Level/year at which this course is offered: 5 th level/3 rd year.		
6. Pre-requisites for this course (if any): According to by laws.		
7. Co-requisites for this course (if any): None.		
8. Location if not on main campus: Main campus, Najran University Hospital.		
9. Mode of Instruction (mark all that apply):		
a. Traditional classroom	<input checked="" type="checkbox"/> percentage?	<input type="text" value="50%"/>
b. Blended (traditional and online)	<input type="text"/> percentage?	<input type="text"/>
c. e-learning	<input type="text"/> t percentage?	<input type="text"/>
d. Correspondence	<input type="text"/> at percentage?	<input type="text"/>
f. Other	<input checked="" type="checkbox"/> t percentage?	<input type="text" value="50%"/>
Comments:		

B Objectives

1. What is the main purpose for this course?

By the end of this course the student is expected to:

- 1) Acquire sound knowledge of musculoskeletal system structure and mechanism of action.
- 2) Describe the symptoms and signs of some common diseases, injuries and disturbances of this system and their prevention.
- 3) Develop a problem solving approach to musculoskeletal disorders.
- 4) Explain the pathogenesis of various musculoskeletal disease categories and their presentation.

2. Plans for developing and improving the course that are being implemented.

- 1) Continuous updating of the information, knowledge and skills included in the course through the continuous search for new knowledge and skills available in recent publications (books, journals and trusted medical web sites).
- 2) Continuous improvements in teaching methods to encourage the students to participate effectively in their various academic activities.
- 3) Continuous evaluation of the course content, student level and establish plans accordingly.

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

This 7 weeks course is delivered to level five, 3rd year medical students. The student acquires sound knowledge of musculoskeletal system different structures (bones, joints & muscles) as well as their functions. This course integrates basic knowledge of anatomy and physiology with the common problems and disorders of the musculoskeletal system e.g bone fractures commonly caused by road traffic accidents, osteoarthritis & myopathies. Therefore, in this block, the student can develop a problem solving approach to the relevant musculoskeletal disorders, their diagnosis, and non-pharmacological and pharmacological management. The intended objectives of the course are achieved through lectures, practicals, seminars, bedside teaching, self-directed learning and problem-based learning sessions.

1. Topics to be covered

List of Topics	No of Weeks	Contact Hours
Pectoral region	0.025	1(1+0)
Bones of the upper limb (SDL)	0.025	1 (0+1)
Bones of the upper limb (DR)	0.05	2 (0+2)
Muscles connecting upper limb to axial skeleton & scapular movements	0.025	1 (1+0)
Shoulder region& scapular movements (SDL)	0.025	1 (0+1)
Axilla boundaries and contents	0.05	2 (0+2)
Shoulder region & joint	0.025	1 (1+0)
Pectoral and shoulder regions; shoulder joint & muscles connecting upper limb to the axial skeleton (DR)	0.05	2 (0+2)
Excitability & Strength duration Curve	0.025	1 (1+0)
Resting Membrane potential	0.025	1 (1+0)

Bone growth and remodeling (SDL)	0.025	1 (0+1)
Energy metabolism	0.025	1 (1+0)
Contractile proteins	0.025	1 (1+0)
Axilla (DR)	0.05	2 (0+2)
Bacterial causes of septic arthritis and osteomyelitis	0.05	2 (2+0)
Antibiotics	0.10	4 (4+0)
Bacterial causes of septic arthritis and osteomyelitis (SDL)	0.025	1 (0+1)
Histology of cartilage , bone and skeletal muscles (SDL)	0.05	2 (0+2)
Imaging of upper limb (normal)	0.025	1 (1+0)
Bones fractures	0.05	2 (2+0)
Histology of cartilage , bone and skeletal muscles (LAB)	0.05	2 (0+2)
PBL-1 sessions	0.10	4 (0+4)
Myopathy (seminar)	0.05	2 (0+2)
Subcutaneous mycoses (SDL)	0.025	1 (0+1)
Anterior and posterior compartments of the arm (DR)	0.05	2 (0+2)
Dermatomes, Cutaneous innervation, & lymphatic drainage of the upper limb	0.025	1 (1+0)
Cubital fossa, Elbow, wrist and radio-ulnar joints (SDL)	0.05	2 (0+2)
Nerve injuries of the upper limb	0.025	1 (1+0)
Anterior compartment of the forearm (DR)	0.05	2 (0+2)
Clinical correlations of upper limb	0.025	1 (1+0)
Compartment of the forearm (SDL)	0.025	1 (0+1)
Anatomy of the hand (SDL)	0.025	1 (0+1)
Action potential	0.05	2 (2+0)
Posterior compartment of the forearm (DR)	0.05	2 (0+2)
Anatomy of the hand	0.025	1 (1+0)
Metabolic bone diseases	0.05	2 (2+0)
Properties of peripheral nerves (SDL)	0.025	1 (0+1)
Imaging of upper limb (Abnormal)	0.025	1 (1+0)
Elbow, wrist and radio-ulnar joints (DR)	0.05	2 (0+2)
Metabolic bone diseases (Medical aspect)	0.05	2 (2+0)
Hand (DR)	0.05	2 (0+2)
PBL-2 sessions	0.10	4 (0+4)
Complications of Bone Fractures (seminar)	0.05	2 (0+2)
Surface anatomy of upper limb	0.025	1 (1+0)
Ortho Skill lab (upper limbs)	0.05	2 (0+2)
Development of the limb buds	0.025	1 (1+0)
Development of the limb buds (SDL)	0.025	1 (0+1)

Bones of the lower limb	0.025	1 (0+1)
Neuromuscular junction and transmission	0.025	1 (1+0)
Compartments of thigh (Ant., med. & post.)	0.025	1 (1+0)
Bones of the lower limb (DR)	0.05	2 (0+2)
Anatomy of the back & vertebral column (SDL)	0.025	1 (0+1)
Muscle contraction	0.025	2 (2+0)
Gluteal region	0.025	1 (1+0)
Gluteal region (DR)	0.05	2 (0+2)
Metabolic bone diseases (SDL)	0.025	1 (0+1)
Joint diseases	0.025	1 (1+0)
Pathology of Bone tumours (SDL)	0.025	1 (0+1)
Anatomy of the back & vertebral column (DR)	0.05	2 (0+2)
Pathology of Bone tumours	0.025	1 (1+0)
Subcutaneous mycoses	0.025	1 (1+0)
Metabolism of purine	0.025	1 (1+0)
Joint diseases (SDL)	0.025	1 (0+1)
PBL-3 sessions	0.10	4 (0+4)
Autoimmune and non-autoimmune arthropathy (seminar)	0.05	2 (0+2)
Drugs affecting neuromuscular transmission	0.05	2 (2+0)
Superficial veins and lymphatics of lower limb (SDL)	0.025	1 (1+0)
Non steroidal Anti-inflammatory Drugs (NSAID)	0.025	1 (1+0)
Compartments of the thigh (SDL)	0.025	1 (0+1)
Anterior and medial compartments of the thigh (DR)	0.05	2 (0+2)
Hip & knee joints and popliteal fossa	0.025	1 (1+0)
Compartments of the leg (SDL)	0.025	1 (0+1)
Parasites affecting musculoskeletal system	0.05	2 (2+0)
Skeletal Muscle Relaxant	0.05	2 (2+0)
Muscle disease	0.05	2 (2+0)
Agents affecting Bone & Ca ⁺⁺ Homeostasis	0.025	1 (1+0)
Metabolism of purine (SDL)	0.025	1 (0+1)
Posterior compartments of the thigh and popliteal fossa (DR)	0.05	2 (0+2)
Joint diseases (Medical aspect)	0.025	1 (1+0)
Myositis	0.025	1 (1+0)
PBL-4 sessions	0.10	4 (0+4)
Effect of regular exercise on musculoskeletal system (seminar)	0.05	2 (0+2)
Neurogenic muscular diseases (SDL)	0.025	1 (0+1)
Electromyography (LAB)	0.05	2 (0+2)
Dermatomes, Cutaneous innervations & nerve injuries of lower limb	0.025	1 (1+0)
Soft tissues pathology	0.05	2 (2+0)

Hip and knee joints (DR)	0.05	2 (0+2)
BST (Medicine)	0.075	3 (0+3)
Muscle tumours (SDL)	0.025	1 (1+0)
Normal imaging of lower limb	0.025	1 (1+0)
Drug treatment of Gout	0.025	1 (1+0)
Opioids	0.025	1 (1+0)
Micro (LAB)	0.05	2 (0+2)
Bone & joint infection (SDL)	0.025	1 (0+1)
Sport medicine	0.025	1 (1+0)
Anterior, lateral & post. compartments of leg	0.025	1 (1+0)
PBL-5 sessions	0.10	4 (0+4)
Drugs used in musculoskeletal disorders (seminar)	0.05	2 (0+2)
Anterior and lateral compartments of the leg (DR)	0.05	2 (0+2)
Non-opioids (SDL)	0.025	1 (0+1)
Sedatives (SDL)	0.025	1 (0+1)
Bone and joint infection	0.025	1 (1+0)
Abnormal imaging of the lower limb	0.025	1 (1+0)
Posterior compartment of the leg (DR)	0.05	2 (0+2)
Anatomy of the ankle & foot	0.05	2 (2+0)
Bone and joint infection	0.025	1 (1+0)
Osteomyelitis (SDL)	0.025	1 (1+0)
Pathology (LAB)	0.05	2 (0+2)
Surface anatomy of lower limb	0.025	1 (1+0)
Bedside teaching (PEDS)	0.075	3 (0+3)
Ankle & foot (DR)	0.05	2 (0+2)
Clinical correlations of lower limb	0.025	1 (1+0)
Osteoporosis (SDL)	0.025	1 (1+0)
Ortho Skill lab (Lower limbs)	0.05	2 (0+2)

2. Course components (total contact and credit hours per semester):

	Lectures	PBL sessions	Seminar	Laboratory	SDL	Skill lab	BST	Total
Contact Hours	69	24	10	42	33	4	6	188
Credit	3.833	0.66	0.55	1.166	0.611	0.07	0.11	7

3. Additional private study/learning hours expected for students per week: 25-35

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The **National Qualification Framework** provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge: By the end of this course, the student should be able to:		
1.1	Recognize normal structure, function, development and metabolic activity of the musculoskeletal system and its relevant disorders.	1. Lectures. 2. Seminars. 3. PBL sessions. 4. Self directed learning. 5. Practical classes	1. Continuous assessment. (Quizzes, Seminars & BPL Checklists) 2. End of course exam. (MCQs, OSPE/OSCE)
1.2	Describe the pharmacological role in the management of the musculoskeletal system disorders.		
2.0	Cognitive Skills: By the end of this course, the student should be able to:		

2.1	Interpret the patient history, examination, radiological and lab results in an organized and informative manner integrating them with the basic anatomy and pathophysiology of the musculoskeletal system.	1. Interactive lectures. 2. Seminars. 3. PBL sessions 4. Self directed learning. 5. Practical classes that include brain storming problem solving questions. 6. Bedside teaching	1. Continuous assessment. (Quizzes(MCQs), Seminars & BPL checklists) 2. End of course exam. (MCQs, OSPE/ OSCE)
2.2	Discuss the management of common bone fractures and musculoskeletal disorders		
3.0	Interpersonal Skills & Responsibility: By the end of the course the student should be able to:		
3.1	Show a positive interaction between each other during seminars & PBL sessions.	1. Seminars. 2. PBL sessions	Continuous assessment. (seminars , PBL & assessment checklists)
4.0	Communication, Information Technology, Numerical: By the end of the course the student should be able to:		
4.1	Demonstrate efficiently the capacity to use the different available knowledge resources.	1. Group seminars. 2. PBL sessions.	Continuous assessment. (seminars , PBL & assessment checklists)
5.0	Psychomotor: By the end of the course the student should be able to:		
5.1	Perform basic clinical assessment of the musculoskeletal system.	1. Bedside teaching. 2. Practical classes. 3. Skills lab.	End of course exam (OSPE/ OSCE).
5.2	Perform the practical part of the basic medical sciences in musculoskeletal system.		

NQF Learning Domains	Suggested Verbs
Knowledge	list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write
Cognitive Skills	estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict, justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise
Interpersonal Skills &	demonstrate, judge, choose, illustrate, modify, show, use, appraise,

Responsibility	evaluate, justify, analyze, question, and write
Communication, Information Technology, Numerical	demonstrate, calculate, illustrate, interpret, research, question, operate, appraise, evaluate, assess, and criticize
Psychomotor	demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct

Suggested **verbs not to use** when writing measurable and assessable learning outcomes are as follows:

Consider	Maximize	Continue	Review	Ensure	Enlarge	Understand
Maintain	Reflect	Examine	Strengthen	Explore	Encourage	Deepen

Some of these verbs can be used if tied to specific actions or quantification.

Suggested assessment methods and teaching strategies are:

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

Suggested Guidelines for Learning Outcome Verb, Assessment, and Teaching

5. Schedule of Assessment Tasks for Students During the Semester			
Assessment	Assessment task	Week due	Proportion of Final Assessment
1	First quiz (MCQs)	2 nd	20 %
2	Second quiz (MCQs)	3 rd	
3	Third quiz (MCQs)	4 th	
4	Fourth quiz (MCQs)	5 th	
5	Fifth quiz (MCQs)	6 th	
6	Seminar evaluation	Weeks 2-6	5%
7	PBL sessions evaluation	Weeks 1-6	5 %
8	End of course theory exam : - MCQs (50%)	7 th	70%

	- OSPE/ OSCE (20%)		
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D. Student Academic Counseling and Support:

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
 - a. Allocation of office hours by the departments (announced on the website or labelled on staff offices)
 - b. Academic supervision (each staff member has small group students for academic supervision)

E. Learning Resources

1. List Required Textbooks

A. Anatomy, Embryology And Histology:

- Grant's Atlas of anatomy. Anne M.R Angur , Arthur F dalley, 13th edition 2016
- Langman's Medical embryology. T.W. Sadler 12th edition, 2012.
- Jangueira's Basic Histology: text and atlas .Anthony L. Mescher, 13th edition, 2013.

B. Physiology:

- Guyton Textbook of Medical Physiology, John E. Hall, 13th edition, 2016.

C. Biochemistry:

- Harpers Illustrated Biochemistry. Robert K. Murray et al, 29th edition, 2012.

D. Pharmacology:

- Goodman and Gillman. The Pharmacological basis of Therapeutics. New York: McGraw-Hill, 12th edition. 2011.

E. Pathology:

- Robbins and Cotran Pathologic Basis of disease. Kumar etl al. 9th edition, 2015

F. Microbiology:

- Jawetz, Melnick & Adelberg's Medical Microbiology, Karen C. Carroll et al, 27th edition. 2016.

G. Medicine:

- Davidson's essentials of medicine , J.Alastair Innes. 2nd edition. 2016

H. Surgery:

Bailey & love's: Short Practice of Surgery. Norman S Williams et al. 26th edition. 2013

2. List Essential References Materials (Journals, Reports, etc.)

- Journal of musculoskeletal research (<http://www.worldscientific.com/worldscinet/jmr>)
- Musculoskeletal care ([http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1557-0681](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1557-0681))

3. List of Recommended Textbooks and Reference Material (Journals, Reports, etc)

- Ganong's Review of Medical Physiology, Kim E. Barrett et al, 25th edition, 2016.
- Grant's Atlas of Anatomy, Anne M.R. Agur, Arthur F. Dalley, 13th edition 2013

- Merckell and Voge's Medical Parasitology, David T. John et al, 9th edition.2006.

4. Electronic Materials, Websites etc:

- Saudi Digital Library (<https://sdl.edu.sa>)
- <http://www.adameducation.com/interactive-physiology>

F. Facilities Required

1. Accommodation:

1. Lecture room suitable for accommodation of the registered number students.
2. Dissection room (DR), Laboratories: physiology, biochemistry, microbiology, pathology, pharmacology and skill lab, all suitable for the registered number of students.
3. Teaching hospital for bedside teaching.

2. Computing resources:

Computers, multimedia in lecture room, PBL rooms and laboratories

3. Other resources:

Library supplied with reference, textbooks, and electronic resources.

G Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching:

1. Continuously throughout the block by direct interviewing of the students.
2. End of block feedback questionnaire

2. Other Strategies for Evaluation of Teaching :

1. Feedback from colleagues.
2. Class observation by supervisors.

3. Processes for Improvement of Teaching:

1. Continuous updating of course contents.
2. Regular meetings where problems are discussed and recommendations made.
3. Workshops on teaching methods.
4. Review of recommended teaching strategies.

4. Processes for Verifying Standards of Student Achievement:

1. Arrange with another institution to have common test items included in an exam and compare marks given.
2. Invitation of an external examiner on regular basis.

5. Action planning for improvement:

There will be an evaluation at the end of the block to assess the course execution, outcome and feedback

from different sources to arrive at an appropriate modifications needed if any.

Faculty or Teaching Staff: Dr. Aamir Magzoub – Course coordinator

Signature: _____ **Date Report completed:** _____

Received by: _____ **Dean/Department Head**

Signature: _____ **Date:** _____