

Republic of Yemen

Ministry of Higher Education & Scientific Research

21 SEPTEMBER UNIVERSITY of MEDICALS & APPLIED SCIENCES



Faculty of Medicine

Bachelor Program of Medicine and Surgery

Course Specification of

Orthopedics

Course Code. (A21P517)

2023



T4: This Template is Developed and Approved by CAQA-Yemen, 2023

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Abduraqeeb al-Mareh	Dr. AbdulFatah AL-tam	Dr. Abduraqeeb al-Mareh	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

I. General Information:

1.	Course Title:	Orthopedics				
2.	Course Code:	A21P517				
3.	Credit Hours:	Credit Hours	Theory Contact Hours		Practical Contact Hours	
			Lecture	Tutorial/Seminar	Lab	Clinical
		3	2	--		3
4.	Level/ Semester at which this Course is offered:	5 th Level / 1 st Semester				
5.	Pre –Requisite (if any):	Musculo-skeletal system				
6.	Co –Requisite (if any):	None				
7.	Program (s) in which the Course is Offered:	Bachelor of Medicine and surgery				
8.	Language of Teaching the Course:	English				
9.	Location of Teaching the Course:	Faculty of Medicine				
10.	Prepared by:	Dr. Abdulraqueeb Al-Mareh				
11.	Date and Number of Approval by Council:	2023				

II. Course Description:

Orthopaedic considered as one of the most important branch of medicine as the general practitioner will face various orthopaedic conditions in his career especially in the emergency department. Aiming to prepare a professional medical doctor this course will provide the student with the knowledge and skills which enable him/her to identify, analyse, manage and/or refer common Orthopaedic problems and important emergencies in order to provide efficient, cost effective and humane patient care and to enable the development and application of appropriate professional

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attitudes, ethical principles and communication skills.

III. Course Intended Learning Outcomes (CILOs) : Upon successful completion of the course, students will be able to:		Referenced PILOs		
A. Knowledge and Understanding:		I, P or M/A		
a1	Describe the embryonic development and normal anatomy of musculoskeletal system long with normal physiology	M	A1	Describe the general and basic sciences related to human body structure and functions with emphasis on normal and abnormal conditions.
a2	Identify the etiology, pathogenesis, clinical manifestations, diagnosis differential diagnosis and complications of different Orthopedically disorder	A	A3	Explain the pathological and pathogenesis changes in various diseases, and their etiological triggers including genetic, developmental, infectious, metabolic, endocrinal, autoimmune, neoplastic, traumatic, degenerative and occupational factors.
B. Intellectual Skills:				
b1	Distinguish between physiological and pathological performance of body cells.	I	B1	Compare between normal and abnormal conditions and predict the appropriate treatment or intervention.
b2	Analyze data obtained from medical history, physical examination and para-clinical investigations to reach a final diagnosis and plan the management of patients with Orthopedically disorder.	M	B2	Analyze and interpret the finding from history, clinical examination and investigations to propose a diagnosis and develop a shared management plan for common acute, chronic and urgent physical and mental health presentations.
C. Professional and Practical Skills:				
c1	Perform patient-centered history taking,	P	C1	Perform complete clinical

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	physical examination and investigations for patient with common Orthopedically conditions and emergency situations.			examination and precise investigations to reach the final diagnosis.
c2	Apply common laboratory procedures, investigations, and basic interventions that are necessary in relevant Orthopedically conditions.	A	C3	Carry out routine medical procedure and demonstrate the ability of using common medical tools required for diagnosis and management with highly qualified competency.
D. Transferable Skills:				
d1	Use the information technology and internet resources efficiently for self-learning and gaining up-to-date information in the areas of interest.	I	D1	Communicate with professionals, patients, their families and the community through verbal, written and other non-verbal means.
d2	Act independently or collaboratively as a member of teamwork and communicate effectively with others.	I	D2	Work individually or in a team and develop lifelong learning using up to date technology that help in understanding the diseases and its control and prevention.
I= Introduced, P=Practiced or M/A= Mastered/Advanced				

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
a1 Describe the embryonic development and normal anatomy of musculoskeletal system along with normal physiology	<ul style="list-style-type: none"> ▪ Interactive lectures ▪ Discussion ▪ Office hours ▪ Self-learning 	<ul style="list-style-type: none"> ▪ Quizzes ▪ Final written exam
a2 Identify the etiology, pathogenesis, clinical manifestations, diagnosis differential diagnosis and complications of different Orthopedically disorder	<ul style="list-style-type: none"> ▪ Interactive lectures ▪ Discussion ▪ Case studies ▪ Office hours ▪ Self learning 	<ul style="list-style-type: none"> ▪ Quizzes ▪ Final written exam ▪ Final clinical exam

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(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
b1 Distinguish between physiological and pathological performance of body cells.	<ul style="list-style-type: none"> ▪ Interactive lectures ▪ Seminars ▪ Discussion ▪ Case studies 	<ul style="list-style-type: none"> ▪ written exam ▪ clinical exam
b2 Analyze data obtained from medical history, physical examination and para-clinical investigations to reach a final diagnosis and plan the management of patients with Orthopedically disorder.	<ul style="list-style-type: none"> ▪ Interactive lectures ▪ Seminars ▪ Discussion ▪ Case studies 	<ul style="list-style-type: none"> ▪ written exam ▪ clinical exam

(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
c1 Perform patient-centered history taking, physical examination and investigations for patient with common Orthopedically conditions and emergency situations.	<ul style="list-style-type: none"> ▪ Training ▪ Case studies 	<ul style="list-style-type: none"> ▪ clinical exam ▪ OSCE
c2 Apply common laboratory procedures, investigations, and basic interventions that are necessary in relevant Orthopedically conditions.	<ul style="list-style-type: none"> ▪ Training ▪ Case studies 	<ul style="list-style-type: none"> ▪ clinical exam ▪ OSCE

(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
d1 Use the information technology and internet resources efficiently for self-	<ul style="list-style-type: none"> ▪ Seminars ▪ Discussion 	<ul style="list-style-type: none"> ▪ Oral discussion ▪ Homework

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	learning and gaining up-to-date information in the areas of interest.	<ul style="list-style-type: none"> ▪ Case studies ▪ Self-learning 	<ul style="list-style-type: none"> ▪ Teamwork
d2	Act independently or collaboratively as a member of teamwork and communicate effectively with others.	<ul style="list-style-type: none"> ▪ Seminars ▪ Discussion ▪ Case studies ▪ Self-learning 	<ul style="list-style-type: none"> ▪ Oral discussion ▪ Homework ▪ Teamwork

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CIOs)
1	Embryology and anatomy of musculoskeletal system	–	1 st W	2hrs	a1,a2,b1,b2
2	principles of fractures and dislocation and their management	–		2hrs	a1,a2,b1,b2
3	Complications of fractures	– General – Specific		2hrs	a1,a2,b1,b2
4	Fractures and dislocation of upper limb	– Clavicle – Shoulder – Humerous – Elbow – Forearm – Wrist and hand		4hrs	a1,a2,b1,b2
5	Fractures and dislocation of lower limb	– Hip – Femur – Knee		4hrs	a1,a2,b1,b2

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No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CIOs)
		<ul style="list-style-type: none"> - Leg - Ankle - Foot 			
6	Fractures and dislocation of spine	<ul style="list-style-type: none"> - Cervical - Thoracic - Lumber 		2hrs	a1,a2,b1,b2
7	Pelvic and thoracic cage fractures	<ul style="list-style-type: none"> - Pelvic - Thoracic cage 		2hrs	a1,a2,b1,b2
8	Pediatric orthopedics	<ul style="list-style-type: none"> - Birth injuries - Developmental disease 		2hrs	a1,a2,b1,b2
9	Bone infection	-		2hrs	a1,a2,b1,b2
10	Nutritional and metabolic disorder of bone	-	2 nd W	2hrs	a1,a2,b1,b2
11	Bone tumor	<ul style="list-style-type: none"> - Benign tumours - Malignant tumours 		2hrs	a1,a2,b1,b2
12	Osteoarthritis and joint disease	-		2hrs	a1,a2,b1,b2
13	Sports medicine	<ul style="list-style-type: none"> - Shoulder - Knee 		2hrs	a1,a2,b1,b2
14	Final written exam			2hrs	a1,a2,b1,b2
Number of Weeks /and Units Per Semester			2W	32hr	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Week Due	Contact Hours	Learning Outcomes (CIOs)
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No.	Tasks/ Experiments	Week Due	Contact Hours	Learning Outcomes (CILOs)
1	History for orthopedic disorders.	1 st W	3hrs	a2,b1,c1,d2
2	- Examination skills for orthopedic disorders.		3hrs	a2,b1,c1,d2
3	- Instruments that used in orthopedic		3hrs	c1
4	- Examination skills for musculoskeletal examination of upper limb - Evaluation skills for fractures and dislocations of upper limb and plan for management		6hrs	c1,c2,d1,d2
5	- Examination skills for musculoskeletal examination of lower limb - Evaluation skills for fractures and dislocations of lower limb and plan for management		6hrs	c1,c2,d1,d2
6	- Examination skills for musculoskeletal examination of spine - Evaluation skills for fractures of spine and plan for management	2 nd W	3hrs	b2,c1,c2,d1,d2
7	- Evaluation skills for fractures of pelvis and plan for management - Evaluation skills for fractures of thoracic cage and plan for management		3hrs	b2,c1,c2,d1,d2
8	- Evaluation skills for pediatric orthopedic conditions and plan for management		3hrs	b2,c1,c2,d1,d2
9	- Evaluation skills for patient with bone tumor and plan for management		3hrs	b2,c1,c2,d1,d2
10	- Evaluation skills for nutritional and metabolic bone disorder and plan for management - Evaluation skills for patient with bone infection and plan for management		3hrs	b2,c1,c2,d1,d2
11	- Evaluation skills for patient with Osteoarthritis and joint disease and plan for management		3hrs	b2,c1,c2,d1,d2
12	- Observation of common orthopedic operations		3hrs	a2,c1,d1
13	- Final Clinical Exam		3hrs	a2, b1,b2,c1,c2

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No.	Tasks/ Experiments	Week Due	Contact Hours	Learning Outcomes (CILOs)
Number of Weeks /and Units Per Semester		2 W	45hr	

V. Teaching Strategies of the Course:

Interactive Lectures
Training
Seminars
Case studies
PBL
Office hours
Self-learning
Discussion

VI. Assessment Methods of the Course:

Quizzes
Oral discussion
Final Clinical Exam
Final Writing Exam
OSCE
Homework
Teamwork

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Quizzes	1 st	10	10%	a1,a2
2	Oral discussion	2 nd	10	10%	d1,d2
3	Final Clinical Exam	15 th	30	30%	a2,b1,b2,c1, c2
4	Final Theoretical Exam or OSCE	16 th	50	50%	a1,a2, b1,b2,c1,c2

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No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
Total			100	100%	

IX. Learning Resources:

1- Required Textbook(s):

- 1- Normans S.Williams ,P.Ronan O`Connell, Andrew McCaskie 2018 , Bailey and love`s short practice of surgery , 27th Edition , UK, CRC Press .
- 2- Kevin G. Burnand , 2021 , Bailey and love`s short practice of surgery , 6th Edition , UK , CRC Press .

2- Essential References:

- 3- F.Charles Brunicardi et. al , 2019 , Schwartz`s principles of surgery , 11th Edition , USA , McGraw-Hill Education.

3- Electronic Materials and Web Sites etc.:

Websites:

- 1- The Visible Body Learn Site
<https://www.visiblebody.com/learn/nervous>
- 2- Medical news today
<https://www.medicalnewstoday.com/articles/307076>

X. Course Policies: (Based on the Uniform Students' By law (2007)

1	Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	Tardiness: A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	Assignments & Projects:

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
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	Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	Other policies: The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration.

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Faculty of Medicine

Bachelor Program of Medicine and Surgery

Course Plan (Syllabus) of Orthopedics

Course Code. (A21P517)

I. Information about Faculty Member Responsible for the Course:							
Name of Faculty Member:		Office Hours					
Location & Telephone No.:	----						
E-mail:	--@--.	SAT	SUN	MON	TUE	WED	THU

2023

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II. Course Identification and General Information:

Course Title:	Orthopedics				
Course Code:	A21P517				
Credit Hours:	Credit Hours	Theory Contact Hours		Practical Contact Hours	Clinical
		Lecture	Tutorial/Seminar	Lab	
	3	2	--		
Level/ Semester at which this Course is offered:	5th Level / 1st Semester				
Pre –Requisite (if any):	Musculo-skeletal system				
Co –Requisite (if any):	None				
Program (s) in which the Course is Offered:	Bachelor of Medicine and surgery				
Language of Teaching the Course:	English				
Location of Teaching the Course:	Faculty of Medicine				
Prepared by:	Dr. Abdulraqueeb Al-Mareh				
11 Date and Number of Approval by Council:	2023				

III. Course Description:

Orthopaedic considered as one of the most important branch of medicine as the general practitioner will face various orthopaedic conditions in his career especially in the emergency department. Aiming to prepare a professional medical doctor this course will provide the student with the knowledge and skills which enable him/her to identify, analyse, manage and/or refer common Orthopaedic problems and important emergencies in order to provide efficient, cost effective and humane patient care and to enable the development and application of appropriate professional attitudes, ethical principles and communication skills.

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IV. Course Intended Learning Outcomes (CILOs) :

Upon successful completion of the Course, student will be able to:

A. Knowledge and Understanding:	
a1	Describe the embryonic development and normal anatomy of musculoskeletal system long with normal physiology
a2	Identify the etiology, pathogenesis, clinical manifestations, diagnosis differential diagnosis and complications of different Orthopedically disorder
B. Intellectual Skills:	
b1	Distinguish between physiological and pathological performance of body cells.
b2	Analyze data obtained from medical history, physical examination and para-clinical investigations to reach a final diagnosis and plan the management of patients with Orthopedically disorder.
C. Professional and Practical Skills:	
c1	Perform patient-centered history taking, physical examination and investigations for patient with common Orthopedically conditions and emergency situations.
c2	Apply common laboratory procedures, investigations, and basic interventions that are necessary in relevant Orthopedically conditions.
D. Transferable Skills:	
d1	Use the information technology and internet resources efficiently for self-learning and gaining up-to-date information in the areas of interest.
d2	Act independently or collaboratively as a member of teamwork and communicate effectively with others.
I= Introduced, P=Practiced or M/A= Mastered/Advanced	

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
1	Embryology	–	1 st W	2hrs

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No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
	and anatomy of musculoskeletal system			
2	principles of fractures and dislocation and their management	–		2hrs
3	Complications of fractures	– General – Specific		2hrs
4	Fractures and dislocation of upper limb	– Clavicle – Shoulder – Humerous – Elbow – Forearm – Wrist and hand		4hrs
5	Fractures and dislocation of lower limb	– Hip – Femur – Knee – Leg – Ankle – Foot		4hrs
6	Fractures and dislocation of spine	– Cervical – Thoracic – Lumber		2hrs
7	Pelvic and thoracic cage fractures	– Pelvic – Thoracic cage		2hrs
8	Pediatric orthopedics	– Birth injuries – Developmental disease	2 nd W	2hrs
9	Bone infection	–		2hrs

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No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
10	Nutritional and metabolic disorder of bone	–		2hrs
11	Bone tumor	– Benign tumours – Malignant tumours		2hrs
12	Osteoarthritis and joint disease	–		2hrs
13	Sports medicine	– Shoulder – Knee		2hrs
14	Final written exam			2hrs
Number of Weeks /and Units Per Semester			2 W	32hr

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Week Due	Contact Hours
1	History for orthopedic disorders.	1 st W	3hrs
2	- Examination skills for orthopedic disorders.		3hrs
3	- Instruments that used in orthopedic		3hrs
4	- Examination skills for musculoskeletal examination of upper limb - Evaluation skills for fractures and dislocations of upper limb and plan for management		6hrs
5	- Examination skills for musculoskeletal examination of lower limb - Evaluation skills for fractures and dislocations of lower limb and plan for management		6hrs
6	- Examination skills for musculoskeletal examination of spine - Evaluation skills for fractures of spine and plan for management	2 nd W	3hrs

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No.	Tasks/ Experiments	Week Due	Contact Hours
7	- Evaluation skills for fractures of pelvis and plan for management - Evaluation skills for fractures of thoracic cage and plan for management		3hrs
8	- Evaluation skills for pediatric orthopedic conditions and plan for management		3hrs
9	- Evaluation skills for patient with bone tumor and plan for management		3hrs
10	- Evaluation skills for nutritional and metabolic bone disorder and plan for management - Evaluation skills for patient with bone infection and plan for management		3hrs
11	- Evaluation skills for patient with Osteoarthritis and joint disease and plan for management		3hrs
12	- Observation of common orthopedic operations		3hrs
	- Final Clinical exam		3hr
Number of Weeks /and Units Per Semester		2W	45hr

V. Teaching Strategies of the Course:

Interactive Lectures
Training
Seminars
Case studies
PBL
Office hours
Self-learning
Discussion

VI. Assessment Methods of the Course:

Quizzes
Oral discussion
Clinical Exam

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Writing Exam
OSCE
Homework
Teamwork

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Quizzes	1 st	10	10%
2	Oral discussion	2 nd	10	10%
3	Final Clinical Exam	15 th	30	30%
5	Final Theoretical Exam & OSCE	16 th	50	50%
Total			100	100%

IX. Learning Resources:

1- Required Textbook(s):

- 4- Normans S.Williams ,P.Ronan O`Connell, Andrew McCaskie 2018 , Bailey and love`s short practice of surgery , 27th Edition , UK, CRC Press .
- 5- Kevin G. Burnand , 2021 , Bailey and love`s short practice of surgery , 6th Edition , UK , CRC Press .

2- Essential References:

- 6- F.Charles Brunnicardi et. al , 2019 , Schwartz`s principles of surgery , 11th Edition , USA , McGraw-Hill Education.

3- Electronic Materials and Web Sites etc.:

Websites:

- 3- The Visible Body Learn Site
<https://www.visiblebody.com/learn/nervous>
- 4- Medical news today
<https://www.medicalnewstoday.com/articles/307076>

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XI. Course Policies: (Based on the Uniform Students' Bylaw (2007))

1	Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	Tardiness: A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	Other policies: The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration.

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