

Republic of Yemen

Ministry of Higher Education & Scientific Research

21 SEPTEMBER UNIVERSITY for MEDICALS & APPLIED
SCIENCES



Faculty of Medicine

Bachelor Program of Medicine and Surgery

Course Specification of

Cardiovascular System

Course Code. (A21P223)

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. Ahmed Hudna	Dr. Ahmed Al-hareeb	Dr. Ahmed Al-hareeb	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

I. General Information:

1.	Course Title:	Cardiovascular System				
2.	Course Code:	A21P223				
3.	Credit Hours:	Credit Hours	Theory Contact Hours		Practical Contact Hours	
			Lecture	Tutorial/ Seminar	Lab	Clinical
		8	6	--	4	--
4.	Level/ Semester at which this Course is offered:	2 nd Level / 2 nd Semester				
5.	Pre –Requisite (if any):	Physiology, Biochemistry, Anatomy Histology, Pathology and Pharmacology.				
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. Ahmed Hudna				
11	Date and Number of Approval by Council:	2023				

II. Course Description:

The integrated cardiovascular system course adopts a multidisciplinary approach to provide undergraduate medical students with the fundamentals of the heart and blood vessels. It combines basic and clinical subjects to provide students with the essential knowledge and understanding of the structure and function of the cardiovascular system in both healthy and diseased states, as well as the relevant practical and clinical skills. It is typically delivered through lecture presentations that incorporate interactive teaching, problem-based learning and case studies besides practical sessions to help students enhance their critical thinking.

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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 normal anatomical and histological structure of the heart and blood vessels, as well as their normal physiological function.	I	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, epidemiology, pathophysiology, symptomatology, complications, diagnosis, management, as well as prevention and control of communicable and non-communicable cardiovascular diseases.	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	Differentiate between physiological and pathological performance of body cells.	I	B1	Compare between normal and abnormal conditions and predict the appropriate treatment or intervention.
b2	Distinguish between various cardiovascular diseases using the patient's medical history, clinical manifestations and laboratory/radiologic findings.	P	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 history taking, physical/clinical examinations, and correct laboratory and	P	C1	Perform complete clinical examination and precise

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	radiologic investigation requests and interpretations to diagnose cardiovascular diseases.			investigations to reach the final diagnosis.
c2	Prescribe appropriate, safe and affordable drugs for initial treatment of patients with cardiovascular diseases.	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.	P	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.	A	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 normal anatomical and histological structure of the heart and blood vessels, as well as their normal physiological function.	<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, epidemiology, pathophysiology, symptomatology,	<ul style="list-style-type: none"> ▪ Interactive lectures ▪ Discussion ▪ Case studies ▪ Office hours 	<ul style="list-style-type: none"> ▪ Quizzes ▪ Final written exam

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	complications, diagnosis, management, as well as prevention and control of communicable and non-communicable cardiovascular diseases.	<ul style="list-style-type: none"> Self learning 	
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
b1	Differentiate between physiological and pathological performance of body cells.	<ul style="list-style-type: none"> Interactive lectures Lab experiments Seminars Discussion Case studies 	<ul style="list-style-type: none"> Final written exam Final practical exam
b2	Distinguish between various cardiovascular diseases using the patient's medical history, clinical manifestations and laboratory/radiologic findings.	<ul style="list-style-type: none"> Interactive lectures Lab experiments Seminars Discussion Case studies 	<ul style="list-style-type: none"> Final written exam Final practical 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 history taking, physical/clinical examinations, and correct laboratory and radiologic investigation requests and interpretations to diagnose cardiovascular diseases.	<ul style="list-style-type: none"> Lab experiments Case studies PBL 10% 	<ul style="list-style-type: none"> Final practical exam OSPE
c2	Prescribe appropriate, safe and affordable drugs for initial treatment of patients with cardiovascular diseases.	<ul style="list-style-type: none"> Interactive lectures Case studies PBL 10% 	<ul style="list-style-type: none"> Final practical exam OSPE
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			

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Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Use the information technology and internet resources efficiently for self-learning and gaining up-to-date information in the areas of interest.	<ul style="list-style-type: none"> ▪ Seminars ▪ Discussion ▪ Case studies ▪ Self-learning ▪ PBL 10% 	<ul style="list-style-type: none"> ▪ Oral discussion ▪ Homework ▪ 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 ▪ PBL 10% 	<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 (CILOs)
1	Anatomy	– Pericardium and pericardial space	1 st , 2 nd , 3 rd , 4 th , 5 th	2	a1, b1, b2
		– Heart: chambers, valves, conductive system and innervations		8	
		– Great vessels		4	
		– Surface, radiological and clinical anatomy		4	
		– Development of vascular system & congenital anomalies of heart		6	

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No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
Total				24	
2	Physiology	– Introduction to the functions of CVS	1 st , 2 nd , 3 rd , 4 th , 5 th	4	a1, a2, b1, b2
		– Cardiac muscle physiology and cardiac cycle		4	
		– Normal ECG and cardiac arrhythmia		2	
		– Hemodynamics and arterial blood pressure		2	
		– Nervous & hormonal regulation of ABP		4	
– Cardiac output, venous return & its regulation					
Total				16	
3	Histology	– Histological structure of myocardium, endocardium and pericardium	1 st , 2 nd	2	a1, b1, b2
		– Histological structure of arteries, veins and blood capillaries		2	
Total				4	
4	Pathology	I. Pathology of the heart: – Ischemic heart diseases – Rheumatic fever and rheumatic heart disease – Infective and non-infective endocarditis – Myocarditis and cardiomyopathies (dilated, hypertrophic & restrictive) – Heart failure and circulatory shock (cardiogenic and	2 nd , 3 rd , 4 th , 5 th , 6 th	10	a1, a2, b1, b2
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No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
		<p>hypovolemic)</p> <ul style="list-style-type: none"> – Valvular diseases: stenosis, regurgitation, etc. – Pericardial diseases (acute pericarditis, pericardial effusion & cardiac tamponade) – Cardiac and pericardial neoplasms 			
		<p>II. Pathology of blood vessels</p> <ul style="list-style-type: none"> – Atherosclerosis – Hypertension – Aneurysms – Vasculitis – Venous & lymphatic disorders – Varicose veins and vascular tumors 		6	
Total				16	
5	Microbiology	– Etiology, pathogenesis and laboratory diagnosis of infective endocarditis and infectious myocarditis	4 th , 5 th , 6 th	2	a1, a2, b1, b2
		– Etiology, pathogenesis and laboratory diagnosis of bacteremia, septicemia and septic shock		2	
Total				4	
6	Pharmacology	– Antihypertensive drugs	4 th , 5 th , 6 th	4	a1, a2, b1, b2
		– Drugs for treatment of coronary heart diseases (angina pectoris & MI)		2	

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No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
		– Drugs for treatment of cardiac failure		2	
		– Antiarrhythmic drugs		2	
		– Antihyperlipidemic drugs			
Total				10	
7	Medicine	Clinical picture, diagnosis, complications, treatment & prognosis of:	5 th , 6 th		a1, a2, b1, b2
		– Rheumatic heart diseases		2	
		– Infective endocarditis		2	
		– Heart failure		2	
		– Coronary heart disease		2	
		– Systemic hypertension		2	
Total				10	
8	Pediatrics	Clinical picture, diagnosis, complications, treatment & prognosis of:	5 th , 6 th		a1, a2, b1, b2
		– Rheumatic fever		2	
		– Cyanotic congenital heart diseases		2	
		– Acyanotic congenital heart diseases		2	
Total				6	
9	Surgery	– Cardiac injuries	5 th , 6 th	2	a1, a2, b1, b2
		– Surgical intervention to congenital heart diseases		2	
		– Surgical intervention to acquired heart diseases		2	

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No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
Total				6	
10	Final Theoretical Exam	MCQs and essay questions	7 th	2	a1,a2,b1,b2
Number of Weeks /and Units Per Semester			7	98	

B. Case Studies and Practical Aspect:

No.	Subject/Tasks	Week Due	Contact Hours	Learning Outcomes (CILOs)
1	Anatomy			
	– Heart	2 nd ,3 rd	4	c1, b2, d1,d2
	– Great vessels	4 th ,5 th	4	
	Total		8	
2	Physiology			
	– ECG	3 rd	4	c1, b1, d1,d2
	– Measurement of diastolic and systolic blood pressure	4 th	4	
	Total		8	
3	Histology			
	– Histological structure of the cardiac muscle	2 nd	2	c1, b2, d1,d2
	– Histological structure of the walls of great and small blood vessels	4 th	2	
	Total		4	
4	Pathology			
	– Pathology of the heart: gross & histological appearance of recent & old MI, morphological complications of MI, lesion of RHD and gross pathology of rheumatic valvular lesions, gross appearance of endocarditis and cardiomyopathies,	2 nd , 3 rd ,4 th , 5 th ,6 th	8	c1, c2, b2, d1,d2

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	– Pathology of blood vessels: microscopic features of arteriosclerosis, histological features of vasculitis and common types of vascular tumours		4	
	Total		12	
5	Microbiology			
	– Bacteria causing infective endocarditis	5 th	2	c1,b2, d1,d2
	Total		2	
6	Final practical exam	6 th	2	b1, b2,c1, c2
Number of Weeks /and Units Per Semester		6	36	

V. Teaching Strategies of the Course:

- Interactive lectures
- Discussion
- Case studies
- Seminars
- PBL
- Office hours
- Self-learning
- Lab experiments

VI. Assessment Methods of the Course:

- Quizzes
- Final written exam
- Final practical exam
- OSPE
- Oral discussion
- Homework
- Teamwork

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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	3 rd	10	10%	a1,a2, b1,b2
2	Oral discussion	5 th	10	10%	d1,d2
3	Final Practical Exam & OSPE	6 th	30	30%	b1,b2,c1,c2
4	Final Theoretical Exam	7 th	50	50%	a1,a2,b1,b2
Total			100	100%	

IX. Learning Resources:	
1- Required Textbook(s):	
<p>1- S Standing, 2016, Gray's Anatomy: The Anatomical Basis of Clinical Practice, 41st Edition, Elsevier.</p> <p>2- K E Barrett, S M Barman, S Boitano, H L Brooks, 2015, Ganong's Review of Medical Physiology, 25th Edition, New York, McGraw-Hill Medical Education.</p> <p>3- L Junqueira, J Carneiro, 2005, Basic Histology. Text and Atlas, 11th Edition, New York, McGraw-Hill Medical.</p> <p>4- R Goering, H Dockrell, M Zuckerman, P Chiodini, 2019, Mims' Medical Microbiology and Immunology, 6th Edition, Edinburgh, Elsevier.</p> <p>5- V Kumar, A Abas, J Aster, 2017, Robbins Basic Pathology, 10th Edition, Elsevier.</p> <p>6- M A Clark, R Finkel, J A Rey, K Whalen, 2011, Lippincott's Illustrated Reviews: Pharmacology, 5th Edition, Philadelphia, Lippincott Williams & Wilkins.</p>	
2- Essential References:	
<p>7- R S Snell, 2000, Clinical Anatomy for Medical Students, 6th Edition, Washington, Little, Brown and Company.</p> <p>8- J E Hall, 2013, Guyton and Hall Textbook of Medical Physiology, 13th Edition, Philadelphia, Saunders.</p> <p>9- V Kumar, A Abas, J Aster, 2020, Robbins & Cotran Pathologic Basis of Disease, 9th Edition, Philadelphia, Saunders.</p> <p>10- C Ray, K J Ryan, 2003, Sherris Medical Microbiology: An Introduction to Infectious</p>	

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Diseases, 4th Edition, New York, McGraw-Hill Medical Education.

11- B Katzung, 2017, Basic and Clinical Pharmacology, 14th Edition, New York, McGraw-Hill Medical 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: 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

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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 Cardiovascular System Course Code. (A21P223)

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

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II. Course Identification and General Information:

Course Title:	Cardiovascular System				
Course Code:	A21P223				
Credit Hours:	Credit Hours	Theory Contact Hours		Practical Contact Hours	
		Lecture	Tutorial/Seminar	Lab	
	8	6	--	4	-
Level/ Semester at which this Course is offered:	2nd Level / 2nd th Semester				
Pre –Requisite (if any):	Physiology, Biochemistry, Anatomy Histology, Pathology and Pharmacology.				
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. Ahmed Hudna				
11 Date and Number of Approval by Council:	2023				

III. Course Description:

The integrated cardiovascular system course adopts a multidisciplinary approach to provide undergraduate medical students with the fundamentals of the heart and blood vessels. It combines basic and clinical subjects to provide students with the essential knowledge and understanding of

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the structure and function of the cardiovascular system in both healthy and diseased states, as well as the relevant practical and clinical skills. It is typically delivered through lecture presentations that incorporate interactive teaching, problem-based learning and case studies besides practical sessions to help students enhance their critical thinking.

IV. Course Intended Learning Outcomes (CILOs) :

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

A. Knowledge and Understanding:

- a1 Describe the normal anatomical and histological structure of the heart and blood vessels, as well as their normal physiological function.
- a2 Identify the etiology, epidemiology, pathophysiology, symptomatology, complications, diagnosis, management, as well as prevention and control of communicable and non-communicable cardiovascular diseases.

B. Intellectual Skills:

- b1 Differentiate between physiological and pathological performance of body cells.
- b2 Distinguish between various cardiovascular diseases using the patient's medical history, clinical manifestations and laboratory/radiologic findings.

C. Professional and Practical Skills:

- c1 Perform history taking, physical/clinical examinations, and correct laboratory and radiologic investigation requests and interpretations to diagnose cardiovascular diseases.
- c2 Prescribe appropriate, safe and affordable drugs for initial treatment of patients with cardiovascular diseases.

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

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IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
1	Anatomy	– Pericardium and pericardial space	1 st , 2 nd , 3 rd , 4 th , 5 th	2
		– Heart: chambers, valves, conductive system and innervations		8
		– Great vessels		4
		– Surface, radiological and clinical anatomy		4
		– Development of vascular system & congenital anomalies of heart		6
Total				24
2	Physiology	– Introduction to the functions of CVS	1 st , 2 nd , 3 rd , 4 th , 5 th	4
		– Cardiac muscle physiology and cardiac cycle		4
		– Normal ECG and cardiac arrhythmia		2
		– Hemodynamics and arterial blood pressure		2
		– Nervous & hormonal regulation of ABP		4
Total				16
3	Histology	– Histological structure of myocardium, endocardium	1 st , 2 nd	2

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No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	
		and pericardium			
		– Histological structure of arteries, veins and blood capillaries		2	
Total				4	
4	Pathology	I. Pathology of the heart: <ul style="list-style-type: none"> – Ischemic heart diseases – Rheumatic fever and rheumatic heart disease – Infective and non-infective endocarditis – Myocarditis and cardiomyopathies (dilated, hypertrophic & restrictive) – Heart failure and circulatory shock (cardiogenic and hypovolemic) – Valvular diseases: stenosis, regurgitation, etc. – Pericardial diseases (acute pericarditis, pericardial effusion & cardiac tamponade) – Cardiac and pericardial neoplasms 	2 nd , 3 rd , 4 th , 5 th , 6 th	10	
		II. Pathology of blood vessels <ul style="list-style-type: none"> – Atherosclerosis – Hypertension – Aneurysms – Vasculitis – Venous & lymphatic disorders – Varicose veins and vascular 		6	
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No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
		tumors		
Total				16
5	Microbiology	– Etiology, pathogenesis and laboratory diagnosis of infective endocarditis and infectious myocarditis	4 th , 5 th , 6 th	2
		– Etiology, pathogenesis and laboratory diagnosis of bacteremia, septicemia and septic shock		2
Total				4
6	Pharmacology	– Antihypertensive drugs	4 th , 5 th , 6 th	4
		– Drugs for treatment of coronary heart diseases (angina pectoris & MI)		2
		– Drugs for treatment of cardiac failure		2
		– Antiarrhythmic drugs – Antihyperlipidemic drugs		2
Total				10
7	Medicine	Clinical picture, diagnosis, complications, treatment & prognosis of:	5 th , 6 th	
		– Rheumatic heart diseases		2
		– Infective endocarditis		2
		– Heart failure		2
		– Coronary heart disease		2
		– Systemic hypertension		2

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No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
Total				10
8	Pediatrics	Clinical picture, diagnosis, complications, treatment & prognosis of:	5 th , 6 th	
		– Rheumatic fever		2
		– Cyanotic congenital heart diseases		2
		– Acyanotic congenital heart diseases		2
Total				6
9	Surgery	– Cardiac injuries	5 th , 6 th	2
		– Surgical intervention to congenital heart diseases		2
		– Surgical intervention to acquired heart diseases		2
Total				6
10	Final Theoretical Exam	MCQs and essay questions	7th	2
Number of Weeks /and Units Per Semester			7	98

B. Case Studies and Practical Aspect:

No.	Subject/Tasks	Week Due	Contact Hours
1	– Heart	2 nd , 3 rd	4
	– Great vessels	4 th , 5 th	4
	Total		8
2			

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No.	Subject/Tasks	Week Due	Contact Hours
	– ECG	3 rd	4
	– Measurement of diastolic and systolic blood pressure	4 th	4
	Total		8
3	– Histological structure of the cardiac muscle	2 nd	2
	– Histological structure of the walls of great and small blood vessels	4 th	2
	Total		4
4	– Pathology of the heart: gross & histological appearance of recent & old MI, morphological complications of MI, lesion of RHD and gross pathology of rheumatic valvular lesions, gross appearance of endocarditis and cardiomyopathies,	2 nd , 3 rd , 4 th , 5 th , 6 th	8
	– Pathology of blood vessels: microscopic features of arteriosclerosis, histological features of vasculitis and common types of vascular tumours		4
	Total		12
5	– Bacteria causing infective endocarditis	5 th	2
	Total		2
6	Final practical exam	6 th	2
Number of Weeks /and Units Per Semester		6	36

V. Teaching Strategies of the Course:

- Interactive lectures
- Discussion
- Case studies
- Seminars

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- PBL
- Office hours
- Self-learning
- Lab experiments

VI. Assessment Methods of the Course:

- Quizzes
- Final written exam
- Final practical exam
- OSPE
- Oral discussion
- Homework
- Teamwork

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

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Quizzes	3 rd	10	10%
2	Oral desiccation	5 th	10	10%
3	Final Practical Exam & OSPE	6 th	30	30%
4	Final Theoretical Exam	7 th	50	50%
Total			100	100%

IX. Learning Resources:

1- Required Textbook(s):

- 12- S Standing, 2016, Gray's Anatomy: The Anatomical Basis of Clinical Practice, 41st Edition, Elsevier.
- 13- K E Barrett, S M Barman, S Boitano, H L Brooks, 2015, Ganong's Review of Medical Physiology, 25th Edition, New York, McGraw-Hill Medical Education.
- 14- L Junqueira, J Carneiro, 2005, Basic Histology. Text and Atlas, 11th Edition, New York, McGraw-Hill Medical.

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- 15- R Goering, H Dockrell, M Zuckerman, P Chiodini, 2019, Mims' Medical Microbiology and Immunology, 6th Edition, Edinburgh, Elsevier.
- 16- V Kumar, A Abas, J Aster, 2017, Robbins Basic Pathology, 10th Edition, Elsevier.
- 17- M A Clark, R Finkel, J A Rey, K Whalen, 2011, Lippincott's Illustrated Reviews: Pharmacology, 5th Edition, Philadelphia, Lippincott Williams & Wilkins.

2- Essential References:

- 18- R S Snell, 2000, Clinical Anatomy for Medical Students, 6th Edition, Washington, Little, Brown and Company.
- 19- J E Hall, 2013, Guyton and Hall Textbook of Medical Physiology, 13th Edition, Philadelphia, Saunders.
- 20- V Kumar, A Abas, J Aster, 2020, Robbins & Cotran Pathologic Basis of Disease, 9th Edition, Philadelphia, Saunders.
- 21- C Ray, K J Ryan, 2003, Sherris Medical Microbiology: An Introduction to Infectious Diseases, 4th Edition, New York, McGraw-Hill Medical Education.
- 22- B Katzung, 2017, Basic and Clinical Pharmacology, 14th Edition, New York, McGraw-Hill Medical 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>

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.

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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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