Course Specification
Student Version

Course Title:	Cardiovascular System
Course Code:	CVS 305
Department:	Basic Medical Sciences
Program:	Bachelor of Medicine and Surgery
College:	Vision College in Riyadh
Institution:	Vision College in Riyadh
Revised:	July 2025

A. Course Identification

1. Credit hours: 6 (4+1+1)
2. Level/year at which this course is offered: Level 4/Year 2
3. Pre-requisites for this course (if any): BAN 203 GAD 203 HBO 203 MBG 203 BPC 204 HBT 204 PDO 204 PDT 204
4. Co-requisites for this course (if any): None

B. Teaching Methods

1	Lectures
2	Laboratory
3	Problem-Based Learning (PBL)

C. Course Description and Objectives

1. Course Description

This course is designed to provide learning opportunities about the mechanisms of operation of the human cardiovascular system. Emphasis is placed on the integration of the relevant principles from the anatomy, physiology, biochemistry, pathology, pharmacology, and microbiology with respect to the behavior of the normal circulation and its responses to the stress of injury and disease. Both expert-directed and student-directed methodologies will be employed in this module and a selected set of clinical cases will be used. It also introduces cardiovascular diseases in terms of their basic pathophysiologic mechanisms; to discuss chest pain and other clinical features in the context of specific diseases; to incorporate pertinent laboratory tests and ancillary studies into clinical problem solving; and to provide a solid background and understanding of the pharmacologic agents and non-pharmacologic interventions used to treat cardiovascular disorders.

2. Course Main Objective

The overall objective of this course is to provide an integrative understanding of the structure and functions of the cardiovascular system and cardiovascular diseases with an initial general idea about how to diagnose and treat these disorders.

3. Course Objectives

By the end of this course, students should be able to:

- Explain the normal structure and function of the cardiovascular system.

- Explain the biochemical, molecular, and cellular mechanisms that are essential for maintaining body homeostasis.
- Explain the pathogenesis of various diseases such as genetic, developmental, ischemic, metabolic, toxic, infectious, autoimmune, neoplastic, degenerative, and traumatic factors, and the ways in which they affect the cardiovascular system.
- Explain the principles of essential clinical investigations of patients with cardiovascular problems
- Demonstrate a basic knowledge of the pharmacological principles of drugs relevant to clinical practice.
- Describe and explain the basic aspects of common clinical presentations relevant to the cardiovascular system
- Explain the facts and concepts relevant to common clinical conditions including their epidemiology, etiology, pathophysiology, symptoms and signs, complications, investigations, management, and prognosis
- Obtain an accurate and comprehensive medical history.
- Perform a complete systematic physical examination of the cardiovascular system.
- Critically analyzed clinical data obtained through history, physical examination, and investigation of the cardiovascular system
- Recognize and stress the rationale and importance of teamwork
- Demonstrate lifelong learning skills and update knowledge.
- Demonstrate skills of receiving educational feedback on performance.

D. Course Content

No.	List of Topics	
1	Anatomy and development of the heart, blood vessels, and lymphatic vessels.	31
2	Histology of the heart, blood vessels, and lymphatic vessels.	9
3	Physiology of cardiovascular system (blood vessels homeostasis, blood PH control, C.V.S receptor types, structure, function, hormonal, neural and electrolytes affecting heart and blood vessels, cardiac cycle phases, coronary circulation, normal and abnormal heart sounds (murmur), cardiac excitability and automaticity, cardiac contractility, cardiac output physiology, normal and abnormal heart rhythm, normal and abnormal ECG, blood flow and tissue perfusion, blood pressure and its control).	18
4	Pathology of disorders affecting the cardiovascular system (pathology of hypertension, pathology of angina and cardiac infarction, rheumatic fever, degenerative heart disease, endocarditis, pathology of heart failure, atherosclerosis and aneurysms, pathophysiology of congenital heart defects).	13

5	Microbiology and virology of organisms commonly infect the cardiovascular system.	1
6	Clinical aspects related to cardiovascular system (history taking, physical examination and imaging)	35
7	Clinical pathology of cardiac enzymes and dyslipidemias.	3
8	Treatment of disorders related to cardiovascular system (molecular targets for drugs acting in C.V.S, treatment of ischemic heart diseases, heart failure, hypertension, and antiarrhythmic drugs).	8

E. Assessment Tools

#	Assessment task	Percentage of Total Assessment Score
1	PBL evaluation Using Rubrics	10%
2	Midterm Exam	20%
3	Final Practical Exam	20%
4	Final Written Exam	40%
5	Spotter Exam/OSCE	10%
	Total	**100%**

F. Learning Resources

Essential References	• Heart and Circulatory System Physiology https://journals.physiology.org/journal/ajpheart • World Journal of Cardiology https://www.wjgnet.com/1949- 8462/index.htm • World Journal of Oncology https://www.wjgnet.com/2218-4333/index.htm
Supportive References	1. Clinical Anatomy for medical students by Snell R, 9th Edition. 2. Junqueira's Basic Histology: Text and atlas, 13th Edition, 2013. 3. Textbook of Medical Physiology by Guyton & Hall, 12th Edition. 4. Lippincott's Illustrated Reviews: Biochemistry by Champ & Harvey, 4th Edition. 5. Lippincott's Illustrated Reviews: Pharmacology by Finkel & Clark, 4th Edition. 6. Basic Pathology by Kumar & Robbins, 8th Edition. 7. Macleod's Clinical Examination by Douglas, Nicol & Robertson, 12th Edition.
Electronic Materials	1. http://www.americanheart.org 2. www.cdc.gov/heart disease 3. www.usfca.edu/fac-staff/ritter/ekg 4. http://www.ecglibrary.com/ecghome.html 5. http://histology.medicine.umich.edu/ 6. https://www.biolucida.net/viewer/
Other Learning Materials	CVS course site on Moodle https://elearning.vision.edu.sa/course/view.php?id=133