



Course Syllabus - MBBCh

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|--|---------|---------------------------|
| 1. Course title: Cardiovascular module | | Course code: CVS22 |
| 2. Credit/contact hours: | 172 | |
| 3. Number of weeks | 6 weeks | |
| 4. Level/year at which this course is offered: | Y2S2 | |
| 5. Pre-requisites for this course (if any): Y2S1 | | |
| 6. Co-requisites for this course (if any): Medicine, surgery, Obs.& Gyna. | | |

Course Description

The Course is designed to be delivered to Y2 students and to offer an integrated approach to the learning of the normal Structure, Function and Development of the cardiovascular system using different strategies, and, applying the knowledge and skills acquired, in understanding the pathophysiology of various disorders of these systems. The basic principles of management of these disorders with a focus on disease prevention will be described. PBL week will address causes, epidemiology, pathogenesis and principles of management of cardiovascular diseases. The introduction of clinical skill sessions aims to provide the student with basic clinical and communication skills in preparation for clinical clerkship and to vertically integrate learning

course Learning Outcomes

| CLOs | | Aligned-PLOs |
|------|---|--------------|
| | At the end of this module students will be able to: | |
| K1 | Describe the gross and microscopic structure, development of CVS components (heart and blood vessels) | A1 |
| K2 | Describe properties of cardiac muscle, cardiac cycle, cardiac work and cardiac reserve | A1 |
| K3 | Discuss cardia output, venous return, regulation of blood pressure and principles of ECG | A1 |
| K4 | Relate the etiopathogenesis, morphological and functional alterations to the clinical manifestations of common cardiovascular disorders | A2 |
| K5 | Solve the scenario cases related to CVS diseases and suitable prescription for the current disease | A3 |

| CLOs | | Aligned-PLOs |
|------|--|--------------|
| K6 | Discuss common cardiovascular pathogens, their mode of transmission and the clinical presentation of each infection and disease | A2 |
| K7 | Compare the hosts, stages, life cycle and mode of infection for each of parasites inhabit or cause disease in cardiovascular, blood & lymph vessels. | A2 |
| K8 | Correlate the clinical manifestations to pathogenesis for each of parasites inhabit or cause disease in cardiovascular, blood & lymph vessels. | A2 |
| K9 | Explain the epidemiology of common cardiovascular disorders | A1 |
| K10 | Outline the principles of management of common cardiovascular disorders, | A2 |
| K11 | Explain the different roles of medications used in treatment of CVS diseases | A2 |
| S1 | Interpret the data obtained from history taking, clinical examination, and investigation of common cardiovascular disorders | B1 |
| S2 | Perform a focused physical examination of a patient presenting with cardiovascular symptoms, | B1 |
| S3 | Demonstrate the main characteristic microscopic features of common disorders of the cardiovascular System on microscopic slides/images. | B1 |
| S4 | Measure the blood pressure | B1 |
| A1 | Demonstrate Awareness to the importance of the psychosocial aspects related to etiology and the management of cardiovascular diseases. | C1 |
| A2 | Advocate the vaccines used to prevent CVS infection | c1 |
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Course Delivery Plan

| | Session Title | Time | Teaching Method | Name of Teaching Faculty | Week |
|---|-----------------------------|------|-----------------|--------------------------|-------------------------------------|
| 1 | Introduction to Bony Thorax | 1 | SGD | Dr Shifan | WEEK 1 [7th Feb]: Introduction & |
| 2 | Superior Mediastinum | 1 | L | Dr Shifan | |

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|----|---|---|----------|------------|-----------------|
| 3 | Anterior & Middle Mediastinum | 1 | L | Dr Shifan | Rheumatic heart |
| 4 | Pericardium | 1 | SBIL | Dr Shifan | |
| 5 | Bony thorax | 2 | P | Dr Shifan | |
| 6 | Surface Anatomy of the Heart: External Features | 1 | Tutorial | Dr Shifan | |
| 7 | Early development of the heart | 1 | L | Dr Shifan | |
| 8 | Cardiac Muscles and Valves | 1 | L | Prof Nadia | |
| 9 | Conducting System of the Heart | 1 | SGD | Prof Nadia | |
| 10 | Practical | 1 | P, PBL | Prof Nadia | |
| 11 | Introduction | 1 | L | Dr Rasha | |
| 12 | Properties of cardiac muscle -I | 1 | SBIL | Dr Rasha | |
| 13 | Properties of Cardiac muscle -II | 1 | L | Dr Rasha | |
| 14 | Properties of cardiac muscle -III | 1 | SBIL | Dr Rasha | |
| 15 | Properties of cardiac muscle -IV | 1 | SDL | Dr Rasha | |
| 16 | The Principles of ECG-I | 1 | L | Dr Rasha | |
| 17 | The Principles of ECG - II | 1 | SDL, PBL | Dr Rasha | |
| 18 | The Principles of ECG - III | 1 | L | Dr Rasha | |
| 19 | Diseases of the Pericardium | 1 | L | Dr.Mariam | |
| 20 | Rheumatic Heart Disease I | 1 | L | Dr.Mariam | |
| 21 | Rheumatic Heart Disease II | 1 | CBL,PBL | Dr.Mariam | |
| 22 | Valvular Heart Diseases I | 1 | SBIL | Dr.Mariam | |
| 23 | Valvular Heart Diseases II | 1 | SGD | Dr.Mariam | |
| 24 | Practical - Rheumatic Heart Disease | 1 | P | Dr.Mariam | |

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|----|--|---|-------------|--|--|
| 25 | Viral, Bacterial & Fungal Pericarditis | 1 | L | Prof Magda | |
| 54 | History taking | 1 | | Dr Samia | |
| 26 | Streptococci (ARF, acute and subacute endocarditis) | 1 | SDL | Prof Magda | |
| 27 | Epidemiology of Rheumatic Heart Disease | 1 | CBL | Dr Sahar | WEEK 2 <u>14Feb</u> : Ischemic heart |
| 28 | Superior & Posterior Mediastinum | 2 | P | Dr Shifan | |
| | Interior of the Heart I | 1 | L | | |
| 29 | Interior of the Heart II | 1 | SDL | Dr Shifan | |
| | Blood supply of the heart | 1 | PBL | | |
| 32 | Great vessels: Asc. aorta, Pulmonart artery, Sup. vena cava, phrenic nerve | 1 | SDL | Dr Shifan | |
| 56 | Posterior mediastinum I | 1 | SBIL | Dr Shifan | |
| 57 | Posterior mediastinum II | 1 | SGD,P BL | Dr Shifan | |
| 58 | Development of primitive heart | 1 | L | Dr Shifan | |
| 33 | The Principles of ECG - IV | 1 | SBIL | Dr Rasha | |
| 34 | Practical - Recording of ECG | 1 | P | I hr pract ECG transferred to Wk 3 PBL | |
| 35 | Practical - Determination of electrical axis of the heart | 1 | P | Dr Abeer | |
| 36 | The Cardiac cycle-I | 1 | L | Dr Rasha | |
| 37 | The cardiac cycle - II | 1 | SDL | Dr Rasha | |
| 38 | Cardiac output -I | 1 | L | Dr Rasha | |
| 39 | Cardiac output-II | 1 | SBIL | Dr Rasha | |
| 40 | Cardiac output -III | 1 | SBIL | Dr Rasha | |
| 41 | Cardiac output-IV | 1 | L | Dr Rasha | |
| 42 | Myocarditis, Degenerative Diseases & Tumors of the Heart | 1 | SDL | Prof Ghazala | |

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| 43 | Cardiomyopathy | 1 | L | Prof Ghazala | | |
| 44 | Ischemic Heart Disease I | 1 | L | Prof Ghazala | | |
| 45 | Ischemic Heart Disease II | 1 | SBIL | Prof Ghazala | | |
| 46 | Practical - Diseases of the Myocardium | 1 | P | Dr.Mariam | | |
| 49 | Infective endocarditis (Bacterial) | 1 | SP | Prof Magda | | |
| 75 | Myocarditis (Viral, Bacterial & Fungal) | 1 | SBIL | Prof Magda | | |
| 50 | Antianginal Drugs I | 1 | SBIL | Dr Rania | | |
| 51 | Antianginal Drugs II | 1 | CBL | Dr Rania | | |
| 52 | Antianginal Drugs III | 1 | L,PBL | Dr Rania | | |
| 83 | Applied history taking/ CVS examination | 1 | | Dr Samia | | |
| 53 | Epidemiology of Coronary Heart Disease | 1 | CBL | Dr Sahar | | |
| 55 | Internal & external features of the heart (Heart Features) | 2 | P | Dr Shifan | | Week 3 [21 Feb]: Congestive heart |
| 59 | Septation of the heart I - atrial | 1 | L | Dr Shifan | | |
| 60 | Blood Vessels I | 1 | L | Prof Nadia | | |
| 61 | Blood Vessels II | 1 | CBL | Prof Nadia | | |
| 63 | Practical - The arterial pulse curve | 2 | P,PBL | Dr Abeer | | |
| 64 | Venous Return-I | 1 | L | Dr Rasha | | |
| 65 | Venous return - II | 1 | SBIL | Dr Rasha | | |
| 66 | Practical - The Jugular Venous Pulse | 1 | P | Dr Abeer | | |
| 67 | Cardiac reserve | 1 | SDL | Dr Rasha | | |
| 68 | Cardiac work | 1 | SDL,P BL | Dr Rasha | | |
| 71 | Diseases of myocardial dysfunction I | 1 | SBIL | Dr.Mariam | | |

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|----|---|---|------|--------------|--|---|
| 72 | Diseases of myocardial dysfunction II | 1 | CBL | Dr.Mariam | | |
| 73 | Atherosclerosis I | 1 | L | Dr.Mariam | | |
| 93 | Atherosclerosis II | 1 | SBIL | Dr.Mariam | | |
| 74 | Practical - Diseases of the Blood Vessels I | 1 | P | Dr.Mariam | | |
| 47 | Anemia I | 1 | SBIL | Prof Ghazala | | |
| 48 | Anemia II | 1 | L | Prof Ghazala | | |
| 69 | Anemia III | 1 | SBIL | Prof Ghazala | | |
| 70 | Practical - anemia | 1 | P | Dr.Mariam | | |
| 76 | Chagas Disease | 1 | L | Dr. Dina | | |
| 77 | Trichinosis | 1 | SBIL | Dr. Dina | | |
| 78 | Cardiac Glycosides | 1 | L | Dr Rania | | |
| 79 | Other inotropics, | 1 | SBIL | Dr Rania | | |
| 80 | Drugs in the treatment of Congestive Heart Failure III | 1 | PBL | Dr Rania | | |
| 81 | Drugs in the treatment of Congestive Heart Failure IV | 1 | ICM | Dr Rania | | |
| 49 | Treatment of iron deficiency & megaloblastic anemia | 1 | SP | Dr Rania | | |
| 82 | Practical | 1 | P | Dr Rania | | |
| 62 | Practical | 1 | P | Prof Nadia | | |
| 85 | Septation of the heart II - ventricular and conotrunkal | 1 | L | Dr Shifan | | Week 4, Disorders of rhythm and vessels |
| 86 | Development of pericardium and blood vessels | 1 | L | Dr Shifan | | |
| | Blood supply of the heart & Chest radiology: X-ray and CT | 1 | P | Dr Shifan | | |
| 87 | Recording of E. C. G | 1 | p | Dr Abeer | | |
| 88 | Practical - The Heart Sounds | 2 | P | Dr Abeer | | |

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| 89 | Heart Rate-I | 1 | L | Dr Rasha | |
| 90 | Heart rate -II | 1 | SBIL | Dr Rasha | |
| 91 | Blood flow | 1 | L | Dr Rasha | |
| 92 | Regualtion of blood flow - I | 1 | SBIL | Dr Rasha | |
| 11 2 | Regualtion of blood flow - II | 1 | SDL | Dr Rasha | |
| 94 | Aneurysms | 1 | CBL | Dr.Mariam | |
| 95 | Vasculitis I | 1 | L | Prof Ghazala | |
| 96 | Vasculitis II | 1 | CBL | Prof Ghazala | |
| 97 | Diseases of Veins & Lymphatics | 1 | SBIL | Prof Ghazala | |
| 98 | Tumors of Blood Vessels | 1 | PBL | Prof Ghazala | |
| 99 | Practical - Diseases of the Blood Vessels II | 1 | P | Dr.Mariam | |
| 10 0 | Laboratory diagnosis of cases of CVS infection | 1 | SBIL | Prof Magda | |
| 10 1 | Vasculitis, Haemorrhagic fevers & FUO | 1 | SP | Prof Magda | |
| 10 2 | Hydatid disease & VLM | 1 | SDL | Dr. Dina | |
| 15 2 | Filariasis | 1 | SBIL | Dr. Dina | |
| 10 4 | Hypolipidemics I | 1 | CBL | Dr Rania | |
| 10 5 | Hypolipidemics II | 1 | L | Dr Rania | |
| 10 6 | Antiarrhythmic Drugs I | 1 | L | Dr Rania | |
| 10 7 | Antiarrhythmic Drugs II | 1 | SBIL | Dr Rania | |
| 15 8 | Practical | 1 | P | Dr Rania | |
| 10 9 | Applied clinical skills | 1 | | Dr Samia | Week 5,circulator y disorders & |
| | Blood supply of the heart & Chest radiology: X-ray and CT | 1 | P | Dr Shifan | |

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|-----|---|---|-------------|--------------|--------------|
| 110 | Fetal circulation and CVS anomalies | 1 | L | Dr Shifan | Hypertension |
| 111 | Practical - Revision | 1 | P | Dr Shifan | |
| 113 | Biophysics of CVS parameters-I | 1 | L | Dr Rasha | |
| 114 | Biophysics of CVS parameters-II | 1 | SDL,P BL | Dr Rasha | |
| 115 | The physiology of ABP and its regulation - I | 1 | L | Dr Rasha | |
| 116 | The physiology of ABP and its regulation - II | 1 | SBIL | Dr Rasha | |
| 117 | The physiology of ABP and its regulation - III | 1 | L | Dr Rasha | |
| 118 | The physiology of ABP and its regulation - IV | 1 | I | Dr Rasha | |
| 139 | Practical - Measurement of ABP | 2 | P | Dr Abeer | |
| 140 | Effect of Exercise on CVS | 1 | SDL | Dr Rasha | |
| 144 | Practical - Effect of exercise & posture on CVS | 2 | P | Dr Abeer | |
| 120 | Hypertension I | 1 | L | Prof Ghazala | |
| 121 | Hypertension II | 1 | SBIL | Prof Ghazala | |
| 122 | Hypertension III | 1 | PBL | Prof Ghazala | |
| 123 | Oedema & Shock | 1 | CBL | Dr.Mariam | |
| 119 | Gangrene & Haemorrhage | 1 | SBIL | Dr.Mariam | |
| 124 | Congenital Heart Diseases I | 1 | PB, ICM | Dr.Mariam | |
| 125 | Congenital Heart Diseases II | 1 | L | Dr.Mariam | |
| 126 | Transfusion of Blood & its Components | 1 | L | Prof Ghazala | |
| 127 | Practical - Bacteria, Viruses & Fungi causing CVS infection | 1 | P | Prof Magda | |
| 128 | ACE Inhibitors | 1 | SBIL | Prof Tasneem | |
| 129 | Ca channel blockers | 1 | SDL | Prof Tasneem | |

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|-----|--|---|------|--------------|--------------------------------------|
| 130 | Vasodilators | 1 | L | Prof Tasneem | |
| 133 | Drugs in Treatment of Shock I | 1 | L | Prof Tasneem | |
| 134 | Drugs in Treatment of Shock II | 1 | SBIL | Prof Tasneem | |
| 135 | Practical | 1 | P | Prof Tasneem | |
| 136 | Epidemiology of Hypertension | 1 | SP | Dr Sahar | |
| 138 | Applied clinical skills | 1 | | Dr Samia | Week 6:Hematological disorders |
| 141 | Circulation through special region I | 1 | SP | Dr Rasha | |
| 142 | Circulation through special region II | 1 | SP | Dr Rasha | |
| 143 | Circulation through special region III | 1 | SP | Dr Rasha | |
| 145 | Disorders of Platelets & Spleen | 1 | SDL | Prof Ghazala | |
| 146 | Disorders of WBCs & Lymph nodes | 1 | L | Dr.Mariam | |
| 147 | Neoplastic Proliferation of WBCs I | 1 | SBIL | Dr.Mariam | |
| 148 | Neoplastic Proliferation of WBCs II | 1 | SBIL | Dr.Mariam | |
| 149 | Neoplastic Proliferation of WBCs III | 1 | CBL | Dr.Mariam | |
| 150 | Practical | 1 | P | Dr.Mariam | |
| 151 | Practical REVISION | 1 | P | Dr.Mariam | |
| 154 | Anticoagulants I | 1 | L | Prof Tasneem | |
| 155 | Anticoagulants II | 1 | PBL | Prof Tasneem | |
| 156 | Antiplatelet drugs | 1 | CBL | Prof Tasneem | |
| 157 | Thrombolytics | 1 | SBIL | Prof Tasneem | |
| 131 | Treatment of Malaria I | 1 | L | Prof Tasneem | |
| 132 | Treatment of Malaria II | 1 | SDL | Prof Tasneem | |

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|-----|--|---|------|--------------|
| 108 | Practical | 1 | P | Prof Tasneem |
| 159 | Malaria I | 1 | L | Dr. Dina |
| 160 | Malaria II | 1 | SBIL | Dr. Dina |
| 103 | Practical | 2 | P | Dr. Dina |
| 153 | Practical | 1 | PBL | Dr. Dina |
| | Epidemiology of Blood Borne Diseases I (Hepatitis) | | CBL | Dr Sahar |
| 161 | Epidemiology of Blood-Borne Diseases II (Malaria) | 1 | L | Dr Sahar |

Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

| Code | Course Learning Outcomes | Teaching Strategies | Assessment Methods |
|------|---|----------------------|--------------------|
| | the end of this module students will be able to: | | |
| K1 | Describe the gross and microscopic structures and development of CVS (heart and blood vessels) | Lect, SBIL | Quiz, Assignments |
| K2 | Describe properties of cardiac muscle, cardiac cycle, cardiac work and cardiac reserve | Lect, SBIL , | Quiz, Assignments |
| K3 | Discuss cardia output, venous return, regulation of blood pressure and principles of ECG | Lect, SBIL , | Quiz, Assignments |
| K4 | solve the scenario cases related to CVS diseases and a suitable prescription for the current disease | Lect, CBL, TBL, SBIL | Quiz, Assignments |
| K5 | Demonstrate the main characteristic microscopic features of common disorders of the cardiovascular System on microscopic slides/images. | Lect, practical | Quiz, Assignments |
| K6 | Describe the common cardiovascular pathogens, their mode of transmission | Lect, CBL, TBL, SBIL | Quiz, Assignments |

| Code | Course Learning Outcomes | Teaching Strategies | Assessment Methods |
|------|--|--------------------------------------|---|
| | and clinical presentation of each pathogen. | | |
| K7 | Compare the hosts, stages, life cycle and mode of infection for each of parasites inhabit or cause disease in cardiovascular, blood & lymph vessels. | Lect., SDL., SP, and Practical | Formative assessments, Comprehensive MCQs |
| K8 | Correlate the clinical manifestations to pathogenesis for each of parasites inhabit or cause disease in cardiovascular, blood & lymph vessels. | Lect., SDL, SP, and Practical | Formative assessments, Comprehensive MCQs |
| K9 | Explain the epidemiology of common cardiovascular disorders | Lect, CBL, SBIL | Quiz, Assignments |
| K10 | Outline the principles of management of common cardiovascular disorders, | Lect, CBL, TBL, SGD, SP SBIL | Quiz, Assignments |
| K11 | Explain the different roles of medications used in treatment of CVS diseases | Lect, CBL, TBL, SBIL | Quiz, Assignments |
| S1 | Interpret the data obtained from history taking, clinical examination, and investigation of common cardiovascular disorders | Lect, CBL, SGD, SBIL | Quiz, Assignments |
| S2 | Perform a focused physical examination of a patient presenting with cardiovascular symptoms, | Lect, CBL, TBL, SSBIL | Quiz, Assignments |
| S3 | Relate the etiopathogenesis, morphological and functional alterations to the clinical manifestations of common cardiovascular disorders | Lect, CBL, TBL, SGD, SBIL, practical | Quiz, Assignments |
| S4 | Measure the blood pressure | practical | Quiz |
| A1 | Demonstrate Awareness to the importance of the psychosocial aspects related to etiology and the management of cardiovascular diseases. | Lect, | Quiz, Assignments |
| A2 | Advocate the vaccines used to prevent CVS infection | Lect, | Quiz, Assignments |

2. Assessment Tasks for Students

| Name of Assessment | Assessment Method | % From Total | Time of Assessment | Date |
|--------------------------|--|--------------|-----------------------------------|----------------------------|
| Continous year assesment | Class sharing, student activity, PBL, EP, CS, Mid term | 30% | Midterm during the CVS 6 weeks S2 | Mid term is on 13 Jan 2023 |
| Final exam | MCQs | 70% | final exam S2 | June 2023 |
| | OSPE, spotter | | | |
| | Oral | | | |
| | Practical | | | |

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

Learning Resources and Facilities

1.Learning Resources

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|---------------------------|---|
| Required Textbooks | <ul style="list-style-type: none"> Anatomy: Richard Drake PhD (Author), A. Wayne Vogl (Author), Adam W. M. Mitchell (2019).Gray's Anatomy for Students (4th edition).Arcturus Publishing. Community Medicine: Kenneth Fuller Maxcy, Milton Joseph Rosenau, John M. Last, Robert B (2019). Maxcy-Rosenau-Last public health & preventive medicine (10ed). Elsevier |
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|---------------------------------------|--|
| | <ul style="list-style-type: none"> • Histology: Anthony L. Mescher Junqueira (2018). Basic histology text and atlas (15th ed) • Microbiology: Jawetz, Melnick & Adelberg's medical microbiology. (1991). Norwalk, Conn. : Appleton & Lange, • Parasitology: John, D. T., & Petri, W. A. (2013). Markell and Voge's medical parasitology-e-book. Elsevier Health Sciences. • Agur, Anne M.R, Dalley II, Arthur F. (2009). Grant's: Atlas of anatomy (Twelfth edition). Philadelphia: Wolter Kluwer. • Pathology: Kumar, V., Abbas, A. K., & Aster, J. C. (2017). Robbins Basic Pathology (10th ed.). Elsevier - Health Sciences Division. • Goodman, L., Gilman, A. and Brunton, L., 2008. Goodman & Gilman's manual of pharmacology and therapeutics. New York: McGraw-Hill Medical. • Physiology: Hall, J. E. (2021). Guyton and hall textbook of medical physiology (14th ed.). W B Saunders. |
| Essential References Materials | <ul style="list-style-type: none"> • Lecture notes by instructor. |
| Electronic Materials | <ul style="list-style-type: none"> • AMBOSS • Access Medicine • UptoDate |
| Other Learning Materials | |

2. Facilities Required

| Item | Resources |
|--|---|
| Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) | Laboratory, Classrooms, Demonstration rooms |
| Technology Resources (AV, data show, Smart Board, software, etc.) | Data show, Smart board, Wi-Fi |
| Other Resources | |

| Item | Resources |
|--|-----------|
| (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list) | |

Blueprint of CVS module:

| Topic | MC Qs | SAQs | ADL | OSPE | Spotter | Mini CEX | Logbook | Portfolio |
|--|-------|------|-----|------|---------|----------|---------|-----------|
| * * Gross structure of Pericardium and mediastinum | ✓ | | | | ✓ | | | |
| Gross structure of heart | ✓ | | | | ✓ | | | |
| development of heart | ✓ | | | | ✓ | | | |
| Microscopic structure of heart | ✓ | | | | ✓ | | | |
| Microscopic structure of blood vessels | ✓ | | | | ✓ | | | |
| Properties of cardiac muscles | ✓ | | | | ✓ | | | |
| Principles of ECG | ✓ | | | | ✓ | | | |
| Cardiac cycle | ✓ | | | | ✓ | | | |
| Cardiac output | ✓ | | | | ✓ | | | |
| Venous return | ✓ | | | | ✓ | | | |
| Regulation of ABP | ✓ | | | | ✓ | | | |
| Valvular and | ✓ | | | ✓ | ✓ | | | |

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|---|---|--|--|---|---|--|--|--|
| rheumatic heart diseases | | | | | | | | |
| Ischemic heart diseases | ✓ | | | ✓ | ✓ | | | |
| Myocardial diseases | ✓ | | | ✓ | ✓ | | | |
| Vascular diseases | ✓ | | | ✓ | ✓ | | | |
| Blood diseases | ✓ | | | ✓ | ✓ | | | |
| Microbial infections of CVS | ✓ | | | ✓ | ✓ | | | |
| Parasitic infections of CVS | ✓ | | | ✓ | ✓ | | | |
| Epidemiology of preventable CVS diseases | ✓ | | | | | | | |
| Management of ischemic heart diseases | ✓ | | | | ✓ | | | |
| Management of Congestive heart failure and hypertension | ✓ | | | | ✓ | | | |
| Management of arrhythmia | ✓ | | | | ✓ | | | |
| Management of blood diseases and hyperlipidemia | ✓ | | | | ✓ | | | |
| Clinical Skills | | | | | ✓ | | | |

Course Coordinator: Dr. Rania: <dr.rania@dmcg.edu>

Instructors:

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