
**CURRICULUM
FOR
2 YEARS DIPLOMA PROGRAMME
IN
CARDIOLOGY
(Dip Card)**



2007

**UNIVERSITY OF HEALTH SCIENCES
LAHORE, PAKISTAN**

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FOREWORD

University of Health Sciences (UHS) Lahore was inaugurated by the President of Pakistan on the 3rd of October 2002 with the vision to explicitly address academic and research needs in the field of health sciences and allied disciplines and to uplift their existing level to bring them on a par with the international standards.

The mission of the University is to develop an intellectual nexus to provide excellence and innovation in medical education and research in order to;

- Impart knowledge and skills to health care providers to enhance their competence in providing community oriented and multi-disciplinary patient-centered care
- Train and produce researchers and specialists in basic and clinical medical sciences
- Establish and maintain continuing professional development programmes for the faculty
- Provide trained professionals and scientists/researchers for the field of Electro Medical/Bio-Medical disciplines
- Assure quality in health education and research at all levels

A university is the zenith of knowledge that imparts quality education and awards degrees for extensive educational attainments in various disciplines with attendant advancement for the development of intellectual community. Protection of traditional knowledge, making exploration about it and obtaining deep understanding of modern technology and research techniques are some of the responsibilities of any university.

UHS is running a number of courses in the field of health sciences in Punjab. The list extends from undergraduate level courses up to the doctorate level both in basic, clinical and allied health sciences.

Since its inception, certain vital tasks were taken into serious consideration by UHS, for instance, curricula development and their up-gradation were among the most important ones besides introduction of contemporary educational programmes.

UHS has revised and finalized curricula for undergraduate Medical/Dental Education, B.Sc Nursing, and Allied Health Sciences.

In keeping with its commitment for further improvement in the standard of medical education, UHS has taken an initiative to modify and improve one year postgraduate diploma courses to 2 years structured training programmes.

I do not believe in selling an old product in a new packing with a fresh label on it, just to do the job. Original products with actual outcomes for the society must be guaranteed. Being the Vice Chancellor of a public sector health university, I believe, it is my duty to remain vigilant and committed to the cause of improvement of the conventional medical and allied health sciences' curricula on regular basis. This will help produce technically sound professionals with advanced knowledge and skills.

Presently, UHS has designed and facilitated curriculum development committees for eleven clinical disciplines namely: DTCD, DPM, DMRT, DOMS, DLO, Dip. Card, DCH, DCP, DGO, DMRD and DA.

This document precisely briefs the details of updated curriculum for Diploma in Cardiology (Dip. Card) as prepared by the Experts' Committee.

I am pleased to acknowledge the efforts made by Prof. I. A. Naveed, the Department of Medical Education and the members of the committee for Dip Card consisting of Professor Muhammad Zubair, Professor Nadeem Hayat Malik and Professor Zubair Akram. The contributions made by them will go a long way in the education and training of doctors in this field.

I hope, the revised course will be able to meet the needs of latest trends in Cardiology and will certainly produce competent mid-level specialists in the field, which is the main objective of this programme.

Prof. M. H. Mubbashar

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MB, FRCP, FCPS Psych, FRC Psych, DPM
Vice Chancellor/ Chief Executive
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AIMS AND OBJECTIVES OF THE COURSE

AIM

The aim of 2 years diploma programme in Cardiology is to equip medical graduates with relevant professional knowledge, skills and ethical values to enable them to apply their acquired expertise at primary and secondary health care organizations as non-academic consultants.

OBJECTIVES

Dip. Card training should enable a student to:

1. Take a comprehensive and pertinent history of a patient presenting with cardiac ailments
2. Perform detailed physical examination in a rational sequence that is both technically correct as well as methodical
3. Elicit physical signs without discomfort to the patient
4. Evaluate patients in the setting of outpatients' department, hospital wards, CCUs and emergency.
5. Order a set of relevant investigations considering availability, diagnostic yield, cost-effectiveness, side effects and implications for management
6. Aware of and can apply national and international guidelines for treatment and assessment
7. Counsel patients and relatives in patient's preferred language in elective and emergency situations in keeping with the principles of good communication skills, empathy and empowerment of patients
8. Exhibit emotional maturity and stability, integrity, ethical values and professional approach, sense of responsibility in day-to-day professional activities
9. Take proper informed consent for physical examination and ensure confidentiality and appropriate environment for physical examination
10. Act as an independent specialist at community level/Tehsil and District Headquarter Hospital.
11. Show initiative and become life long self-directed learners tapping on resources including clinical material, faculty, internet and on-line learning programmes and library.

SPECIFIC LEARNING OUTCOMES

Following competencies will be expected from a student completing 2 years course in Dip. Card, student should be able to:

1. Initially assess the patients seeking advice for symptoms related to Cardiology by:
 - Obtaining pertinent history.
 - Performing physical examination correctly.
 - Formulating a working diagnosis.
 - Deciding whether the patient requires ambulatory care or hospitalization.
 - Referral to other health professionals.
2. Manage patients requiring training by a cardiologist:
 - Plan an enquiry strategy i.e. order appropriate investigation and interpret the results.
 - Decide and implement a suitable treatment.
 - Maintain follow up of patients at required intervals
 - Maintain records of patients.

NOMENCLATURE AND DURATION

NOMENCLATURE OF THE PROPOSED COURSE:

The name of diploma course should be retained as Dip. Card. This name has been recognized and established for the last many decades worldwide. The duration of courses should be two years structured training in a recognized department under an approved supervisor.

Course Title: Dip. Card (Diploma in Cardiology)

Training Centers: Departments of Cardiology (accredited by UHS) in affiliated institutes of the University of Health Sciences Lahore.

Course Duration and Scheme of the Course:

2 years structured training (6 months in Part I and one & a half year in Part II) in a recognized department under the guidance of an approved supervisor

Part I - SIX MONTHS

Theoretical Component

- Anatomy of the thorax and the cardiovascular system.
- Physiology of the cardiovascular system.
- Pathology
 - General Pathology
 - Related Microbiology
 - Special Pathology of CVS
- Principles of Pharmacology and therapeutics
- General Cardiology
- Behavioral Sciences
- Introduction to Biostatistics and Research

Clinical Component

i. General medicine	04 Months
ii. Cardiac Surgery ICU	02 Months
iii. Pediatric Cardiology	02 Months
iv. Echo, ETT, Cath. Lab	04 Months

Part II- YEAR & a HALF

Theoretical Component

Specialty Oriented Training (both theoretical and clinical aspects)

- Adult Cardiology
- Paedriatic Cardiology
- Invasive Cardiology
- Emergency Cardiology
- Therapeutics
- Cardiac Surgery

Clinical Component

i. Cardiology Wards	04 months
ii. Chest pain Centre	02 Months
iii. Emergency	02 Months
iv. OPD	02 Months
v. CCU	02 months

ELIGIBILITY CRITERIA FOR ADMISSION

DOCUMENTS REQUIRED FOR THE ADMISSION:

1. Completed Dip. Card application form
2. Copy of MBBS degree with mark sheets of professional examinations and certificate of number of attempts in professional examinations
3. Copy of PMDC registration certificate
4. Three latest passport size photographs
5. Reference letters from two consultants, with whom the applicant has worked
6. Certificates of completion of required experience

GENERAL REQUIREMENTS:

Candidates eligible for admission should have MBBS or equivalent qualification, registered with PMDC and can fulfill one of the following criteria:

- a. One year experience in General Medicine as medical officer/house physician*
- b. Six months experience in Cardiology and six months in allied specialty*

SPECIAL REQUIREMENTS

1. Securing pass percentage in the entry test as determined by the UHS
2. Qualifying the interview successfully
3. Having up to the mark credentials as per UHS rules (no. of attempts in each professional, any gold medals or distinctions, relevant work experience, research experience in a recognized institution, any research article published in a National or International Journal)

REGISTRATION AND ENROLLMENT

- Total number of students enrolled for the course must not exceed 8 per unit
- UHS Lahore will approve supervisors for diploma courses
- Candidates selected for the courses will be registered with relevant supervisors and enrolled with UHS

RECOGNITION/EQUIVALENCE OF THE DEGREE AND INSTITUTION

After two years training course, candidate should be given status of mid-level diploma holder equivalent to any other similar qualification.

Accreditation related issues of the Institution:

1. Faculty

Properly qualified teaching staff in accordance with the requirements of Pakistan Medical and Dental Council (PMDC)

2. Adequate Space

Including class-rooms (with audiovisual aids), computer lab and pathology lab

3. Library

Departmental library should have latest editions of recommended books on cardiology, reference books for each subspecialty and latest journals (two National and one International).

CONTENT OUTLINE

Part I Dip. Card

A. ANATOMY

- The Surface Structures Of The Heart
- Relation To Other Structure Within The Thorax
- The Thorax: The Thoracic Wall & Thoracic Cavity
- Surface Anatomy Of The Thoracic Wall And Thoracic Cavity
- Openings Of The Thorax

- **Structure Of The Thoracic Wall**
- Anterior Chest Wall
- Posterior Chest Wall
- Lines of Orientation
- Sternum
- Costal Cartilages
- Ribs
- Diaphragm
- Intercostal Spaces
- Intercostal Muscles
- Intercostal Arteries and Veins
- Intercostal Nerves
- Suprapleural Membrane
- Endothoracic Fascia
- Major Thoracic Arteries and Veins
- Muscles of the thoracic wall

- **The Thoracic Cavity**
- Basic Anatomy
- Mediastinum
- Contents of the Anterior, Posterior, Middle, Superior and Inferior Mediastinum
- Relations of the contents of the Mediastinum
- Pleurae
- Blood, Lymphatic and Nerve Supply of the Pleura

Heart

- External Anatomy
- Coronary (Atrioventricular) Sulcus
- Anterior And Posterior Interventricular Sulci
- Apex Beat of the Heart

- The general structure of arteries, veins, and microcirculation

Valves

- Atrioventricular (AV)
- General Description
- Anulus Fibrosus
- Valve Leaflets (Cusps)
- Chordae Tendineae
- Papillary Muscles
- R Av Valve (Tricuspid)
- L Av Valve (Mitral Or Bicuspid)
- Semilunar
- Auscultation Points For The Valves Of The Heart.
- **3 Cusps**
- Pulmonic
- Aortic
- Stenosis
- Insufficiency And Regurgitation
- **Wall**
- Epicardium
- Myocardium
- **Cardiac Muscle**
- Purkinje Fibers
- Endocardium
- Trabeculae Carneae
- Pectinate Muscles
- **Conducting System**
- Sinoatrial (Sa) Node (Pacemaker)
- Internodal Pathways
- Atrioventricular (Av) Node
- His Bundle

Anatomy of great vessels relevant to cardiology

- **Vessels Entering Heart**
- R Atrium
- Superior Vena Cava (Svc)
- Inferior Vena Cava (Ivc)
- Coronary Sinus
- L Atrium
- 2 R And 2 L Pulmonary Veins
- Vessels Leaving Heart
- R Ventricle
- Pulmonary Trunk
- R And L Pulmonary A.
- L Ventricle

- Aorta
- **Coronary Circulation**
- R Coronary Artery
- Acute Marginal Br
- Posterior Interventricular Br (Posterior Descending)
- L Coronary Artery
- Anterior Interventricular Br (Left Anterior Descending)
- Diagonal Branches
- Septal Branches
- Venous Return
- Great Cardiac Vein
- Coronary Sinus
- Tributaries
- **The Flow Of Blood Through The Pulmonary Circulation And To The Various Regions Of The Body Through The Systemic Circuit.**
- **Lymph Drainage and Nerve supply of the Heart**
- The lymphatic system
- Overview
- Defence
- Fluid connection
- Blood connection
- Lymphatic vessels
- **Main arteries and veins of head, neck**
- **Heart/lungs connection**

Upper respiratory tract

- Blood, Lymphatic and Nerve Supply of the Larynx, Trachea and Bronchi
- Muscles of the Larynx and Trachea

Lower respiratory tract

- Bronchopulmonary Segments
- Lungs
- Bronchioles, Alveoli
- Blood Supply, Lymph Drainage and Nerve supply of the Lungs

Salient Features Of The Embryology Of The Cardiovascular System

- The embryonic period and foetal development of the cardiovascular system
- Cardiovascular changes at birth.

B. PHYSIOLOGY

(Physiology of blood, respiration and cardiovascular system)

- Cellular Membrane Function
- Membrane structure and function
- Membrane transport of non-electrolytes (Diffusion and osmosis)
- Membrane transport of electrolytes (membrane potentials)
- Physiologic Anatomy Of The Heart, The Atria, Ventricles, Pericardium And Myocardium
- Properties Of Cardiac Muscle
- Origin And Propagation Of Cardiac Impulse,
- The Cardiac Cycle
- Pressure Change During Cardiac Cycle.
- The Stroke Volume And Stroke Out-Put, Cardiac Out-Put
- Regulation Of Cardiac Function.
- The Special Excitatory And Conductive System Of The Heart And Their Control Abnormalities Of The Cardiac Rhythms
- Brief Description Of Normal ECG
- Brief Description Of Interpretation Of Abnormal ECG With Cardiac Muscle Problems & Arrhythmia
- Mechanical errors in ECG recording
- The Heart Sounds.
- Functional Classification Of Blood Vessels
- Peripheral circulation: pressure and resistance
- The Arterial Blood Pressure
- Hypertension
- The Arterial Pressure Pulse,
- The Physiology Of The Veins,
- The Jugular Venous Pulse,
- The Physiology Of The Capillaries,
- Lymph And Lymphatics,
- Pathophysiology And Classification Of Edema,
- The Cutaneous Circulation, Coronary Circulation, Cerebral Circulation And Pulmonary Circulation,
- Hemorrhage Or Bleeding, Circulatory Shock
- Physical principals governing respiration
- Intrathoracic pressure, respiratory movements, law of gases, gaseous exchange in lungs, vital capacity, artificial respiration, mechanisms in breathing

- Pulmonary respiration and its regulation
- Control of breathing, nervous and chemical
- Effect of exercise on respiration and other body functions
- Work of breathing – lung compliance
- Pulmonary ventilation and lung volume
- Chemistry of respiration
- Electrolyte and water balance
- Hydrogen Ion regulation
- Pulmonary function tests and their interpretation
- Pathologic physiology of abnormal respiration
- Pulmonary circulation
- Cardiopulmonary Integration
- The blood. Major Cellular And Fluid Components
- The Blood: Plasma: Clotting, Fibrinolysis
- Water, electrolytes (sodium, potassium, calcium) and their distribution
- Mechanism of edema
- Isotonic, hypertonic, and hypotonic, alterations in sodium and water balance
- Acid - base imbalances: pathophysiology of acidosis and alkalosis

C. PATHOLOGY

1. General Pathology

Cell Injury and adaptation

Cell Injury

- Reversible and Irreversible Injury
- Fatty change, Pigmentation, Pathologic calcification
- Necrosis and Gangrene

Cellular adaptation

- Atrophy, Hypertrophy,
- Hyperplasia, Metaplasia, Aplasia

Inflammation

- **Acute inflammation** --- Vascular changes, Chemotaxis, Opsonization and Phagocytosis
- Enlist the cellular components and chemical mediators of acute inflammation
- Differentiate between exudates and transudate
- **Chronic inflammation**
- Etiological factors, Granuloma

Cell repair and wound healing

- Regeneration and Repair

- Healing--- steps of wound healing by first and second intention
- Factors affecting healing
- Enlist the complications of wound healing

Haemodynamic disorders

- Define and classify the terms Edema, Haemorrhage, Thrombosis, Embolism, Infarction & Hyperaemia
- Define and classify Shock with causes of each.
- Describe the compensatory mechanisms involved in shock
- Describe the pathogenesis and possible consequences of thrombosis
- Describe the difference between arterial and venous emboli

Neoplasia

- Dysplasia and Neoplasia
- Differences between benign and malignant neoplasms
- Enlist the common etiological factors for neoplasia
- Define and discuss the different modes of metastasis
- TNM staging system and tumor grade

Immunity and Hypersensitivity

2. Related Microbiology

- Role of Microbes In Various Cardiovascular Diseases
- Infection source
- Main Organisms That Cause Cardiovascular And Pulmonary Diseases
- Nosocomial Infections
- Bacterial Growth and Death
- Pathogenic Bacteria
- Vegetative Organisms
- Spores
- Important Viruses
- Important Parasites
- Sterilization and disinfection
- Infection Prevention
- Immunization
- Personnel Protection From Communicable Diseases
- Use Of Investigation And Procedures In Laboratory

4. Special Pathology

- Vascular phenomenon in pathology e.g. Ischemia, infarction, thrombosis,
- Shock etc.
- Rheumatic heart diseases
- Ischemic heart diseases
- Hypertensive heart diseases
- Cardiac failure
- Cardiac tumour
- Cardiomyopathies
- Pericardial diseases
- Endocardial diseases
- Miscellaneous

D. PRINCIPLES OF PHARMACOLOGY & THERAPEUTICS

- Basic Pharmacological Concepts
- Drug-receptor interactions
- Pharmacokinetics And Pharmacodynamics Of Common Drugs Related To Cardiovascular System
- **Clinical Pharmacology**
- Cardiac Glycosides
- Inotropic Agents
- Antiarrhythmic Drugs
- Antianginal Agents
- Drugs effecting skeletal muscle
- Anaesthetics
- Analgesics
- Diuretic therapy In Cardiovascular Diseases
- Narcotic And Sedative Therapy
- Anti-Hypertensive Therapies
- Anticoagulant, Fibrinolytic And Thrombolytic Therapy And The Cardiac Perfusion
- Steroid Therapy And The Cardiac Perfusion
- Bronchodilator Therapy
- Diabetic Therapies And The Cardiac Perfusion
- Cardiac Preserving/Energy Supplying Agents
- New Cardiopulmonary And Renal Agents
- Medications Regimens Related To Transplantation Of Organs
- Various Antimicrobial Agents/Antibiotics Commonly Used In Cardiovascular Diseases
- Solutions
- Composition and Therapy

- Volume and tonicity
- Specific electrolytes
- Blood substitutes

E. GENERAL CARDIOLOGY

- Cardiac Radiology
- Noninvasive diagnostic studies like ECG, ETT, Phono,
- Echocardiography, Holter Electrophysiology.

F. BEHAVIOURAL SCIENCES

1. Bio-Psycho-Social (BPS) Model of Health Care
2. Use of Non-medicinal Interventions in Clinical Practice
 - Communication Skills
 - Counselling
 - Informational Skills
3. Crisis Intervention/Disaster Management
4. Conflict Resolution
5. Breaking Bad News
6. Medical Ethics, Professionalism and Doctor-Patient Relationship
 - Hippocratic Oath
 - Four Pillars of Medical Ethics (Autonomy, Beneficence, Non-maleficence and justice)
 - Informed Consent and Confidentiality
 - Ethical Dilemmas in a Doctor's Life
7. Delivery of Culturally Relevant care and Cultural Sensitivity
8. Psychological aspects of Health and Disease
 - Psychological Aspect of Health
 - Psychological Aspect of Disease
 - Stress and its management
 - Psychological aspect of Pain
 - Psychological Aspect of Aging

G. INTRODUCTION TO BIOSTATISTICS & RESEARCH

1. Introduction to Bio-Statistics

2. Introduction to Bio- Medical Research
3. Why research is important?
4. What research to do?
 - Selecting a Field for Research
 - Drivers for Health Research
 - Participation in National and International Research
 - Participation in Pharmaceutical Company Research
 - Where do research ideas come from
 - Criteria for a good research topic
5. Ethics in Health Research
6. Writing a Scientific Paper
7. Making a Scientific Presentation
8. Searching the Literature

Part II Dip Card

A. ADULT CARDIOLOGY

- History taking and examination
- Cardiac failure
- Arrhythmias and conduction defects
- Rheumatic Heart disease
- Endocarditis
- Myocarditis and cardiomypathies
- Pericardial diseases
- Hypertension
- Cardiac tumor
- Cardiac manifestation of systemic disease. k. Traumatic cardiac injuries
- Atherosclerosis & Arteriosclerosis
- Cor pulmonale
- Pulmonary hypertension
- Disease of Aorta
- Vascular disease of extremities

B. PAEDIATRIC CARDIOLOGY

- History taking and clinical examination
- Heart Failure

- Cyanotic Congenital Heart Disease {Tetrology Of Fallot (TOF)}
- Acyanotic Congenital Heart Diseases {Ventricular Septal Defect (VSD), Patent Ductus Arteriosus (PDA), Atrioseptal Defects (ASD)}
- Rheumatic Fever
- Hypertension
- Viral Myocarditis
- Common Rhythm Disorders {Paroxysmal Atrial Tachycardia (PAT)}
- Cyanotic congenital heart disease
- Acyanotic congenital heart disease
- Principles of management in children

C. INVASIVE CARDIOLOGY

- Cardiac Catheterization
- General principles of cardiac catheterization
- Right heart catheterization
- Left heart catheterization
- Coronary angiographies
- Intervention cardiology
- Permanent pacemaker implantation

D. EMERGENCY CARDIOLOGY

- CPR
- Implantation of temporary pacemaker
- Minor surgical procedures like CVP, Arterial line, swan genz monitoring.

E. CARDIAC SURGERY

- Prosthetic valves
- Valvular surgery
- Congenital heart surgery
- Pericardial surgery
- Coronary artery bypass surgery

METHODS OF INSTRUCTION/COURSE CONDUCTION

As a policy, active participation of students at all levels will be encouraged.

Following teaching modalities will be employed:

1. Lectures
2. Seminar Presentation and Journal Club Presentations
3. Group Discussions
4. Grand Rounds
5. Clinico-pathological conferences
6. SEQ as assignments on the content areas
7. Skill teaching in CCU, emergency and ward settings
8. Self study, assignments and use of internet
9. Bedside teaching rounds in ward
10. OPD & Follow up clinics
11. Long and short case presentations

In addition to the conventional teaching methodologies following interactive strategies will also be introduced to improve both communication and clinical skills in the upcoming consultants:

1.1. Monthly Student Meetings

Each affiliated medical college approved to conduct training for DCH will provide a room for student meetings/discussions such as:

- a. Journal Club Meeting
- b. Core Curriculum Meetings
- c. Skill Development

a. Journal Club Meeting

Two hours per month should be allocated to the presentation and discussion of a recent journal article related to Paediatrics. The article should be critically evaluated and its applicable results should be highlighted, which can be incorporated in clinical practice. Record of all such articles should be maintained in the relevant department of each medical college. Students of different medical colleges may be given an opportunity to share all such interesting articles with each other.

b. Core Curriculum Meetings

All the core topics of DCH should be thoroughly discussed during these sessions. The duration of each session should be at least two hours once a month. It should be chaired by the chief student (elected by the students of the relevant diploma). Each student should be given an opportunity to brainstorm all topics included in the course and to generate new ideas regarding the improvement of the course structure

c. Skill Development

Two hours twice a month should be assigned for learning and practicing clinical skills.

List of skills to be learnt during these sessions is as follows:

1. Communication skills
2. Physical Examination related to Paediatrics
3. Practical Skills i.e, use of relevant clinical instruments
4. Presentation Skills: Power-point, lectures, small group discussions, article presentation etc.
5. Research and Scientific Writing
6. Management of Paediatric Emergencies in Primary Care
7. For acquisition of procedural skills like Venous Cannulation, Lumbar Puncture, Pleural Tap, Peritoneal Tap, Endotracheal Intubation, Cardiopulmonary Resuscitation, Exchange Transfusions, Emergency Pneumothorax Drainage (Needle Aspiration), opportunities during ward postings should be availed

1.2 Annual Grand Meeting

Once a year all students enrolled for DCH should be invited to the annual meeting at UHS Lahore.

One full day will be allocated to this event. All the chief students from affiliated institutes will present their annual reports. Issues and concerns related to their relevant diploma courses will be discussed. Feedback should be collected and suggestions should be sought in order to involve students in decision making.

The research work done by students and their literary work may be displayed.

In the evening an informal gathering and dinner can be arranged. This will help in creating a sense of belonging and ownership among students and the faculty.

LOG BOOK

The trainees must maintain a log book and get it signed regularly by the supervisor. A complete and duly certified log book should be part of the requirement to sit for Dip Card examination. Log book should include adequate number of diagnostic and therapeutic procedures, routine and emergency management of patients, case presentations in CPCs, journal club meetings and literature review.

Proposed Format of Log Book is as follows:

Candidate's Name: _____

Roll No. _____

PROCEDURES:

1. Echocardiography:

- Supervised (100)
- Reporting (50)
- Independent (50)

2. ETT:

- Supervised (30)
- Reporting (20)
- Independent (25)

3. Catheterization Laboratory:

(Observe and Assist)

- Diagnostic Coronary Angiography (50)
- Right Heart Cath (20)
- Left Heart Cath (20)

(Observe Only)

- Angioplasty and Stenting (10)
- Valvoplasty like Percutaneous Transvenous Mitral Commissurotomy (10)

4. Temporary Pace maker Insertion (20)

- Supervised (10)
- Independent (20)

Sr.#	Date	Name of Patient, Age, Sex & Admission No.	Diagnosis	Procedure Performed	Supervisor's Signature
1					
2					

Emergencies Handled

Sr.#	Date	Name of Patient, Age, Sex & Admission No.	Diagnosis	Procedure/Management	Supervisor's Signature
1					
2					

Case Presented

Sr.#	Date	Name of Patient, Age, Sex & Admission No.	Case Presented	Supervisor's Signature
1				
2				

Seminar/Journal Club Presentation

Sr.#	Date	Topic	Supervisor's signature
1			
2			

Evaluation Record

(Excellent, Good, Adequate, Inadequate, Poor)

Sr.#	Date	Method of Evaluation (Oral, Practical, Theory)	Rating	Supervisor's Signature
1				
2				

LITERATURE REVIEW

Students will be assigned a clinical problem most commonly encountered in the relevant specialty and will be specifically trained to review literature in the relevant field and write a '**Review of an Article**' comprising of:

- Topic
- Introduction
- Discussion of the reviewed literature
- Conclusion
- References

EXAMINATIONS

Assessment

It will consist of action and professional growth oriented ***student-centered integrated assessment*** with an additional component of ***informal internal assessment, formative assessment*** and measurement-based ***summative assessment***.

Student-Centered Integrated Assessment

It views students as decision-makers in need of information about their own performance. Integrated Assessment is meant to give students responsibility for deciding what to evaluate, as well as how to evaluate it, encourages students to '**own**' the evaluation and to use it as a basis for self-improvement. Therefore, it tends to be growth-oriented, student-controlled, collaborative, dynamic, contextualized, informal, flexible and action-oriented.

In the proposed curriculum, it will be based on:

- Self Assessment by the student
- Peer Assessment
- Informal Internal Assessment by the Faculty

Self Assessment by the Student

Each student will be provided with a pre-designed self-assessment form to evaluate his/her level of comfort and competency in dealing with different relevant clinical situations. It will be the responsibility of the student to correctly identify his/her areas of weakness and to take appropriate measures to address those weaknesses.

Peer Assessment

The students will also be expected to evaluate their peers after the monthly small group meeting. These should be followed by a constructive feedback according to the prescribed guidelines and should be non-judgmental in nature. This will enable students to become good mentors in future.

Informal Internal Assessment by the Faculty

There will be no formal allocation of marks for the component of Internal Assessment so that students are willing to confront their weaknesses rather than hiding them from their instructors.

It will include:

- a. Punctuality
- b. Ward work
- c. Monthly assessment (written tests to indicate particular areas of weaknesses)
- d. Participation in interactive sessions

Formative Assessment

Will help to improve the existing instructional methods and the curriculum in use

Feedback to the faculty by the students:

After every three months students will be providing a written feedback regarding their course components and teaching methods. This will help to identify strengths and weaknesses of the relevant course, faculty members and to ascertain areas for further improvement.

Summative Assessment

It will be carried out at the end of the programme to empirically evaluate **cognitive, psychomotor** and **affective domains** in order to award diplomas for successful completion of courses.

Eligibility to Appear in Final Examination

- Only those candidates will be eligible to take final examination, who have passed Part 1 examination (after 6 months of education) and have completed two years of structured/supervised training programme.
- Students who have completed their log books and hold certificates of 75% attendance should be allowed to sit for the exam

- Application for the final examination can be made with recommendation of the supervisor
- Only those candidates who qualify in theory will be called for clinical examination

Dip Card Examination

Part I Dip Card

Topics included in paper 1

- | | |
|--------------------------------------------------------|-----------|
| 1. Anatomy of the thorax and the cardiovascular system | (15 MCQs) |
| 2. Physiology of the cardiovascular system | (15 MCQs) |
| 3. Pathology | |
| a. General Pathology | (10 MCQs) |
| b. Related Microbiology | (05 MCQs) |
| c. Special Pathology of CVS | (10 MCQs) |
| 4. Principles of Pharmacology and Therapeutics | (10 MCQs) |
| 5. General Cardiology | (20 MCQs) |
| 6. Behavioral Sciences | (10 MCQs) |
| 7. Biostatistics and Research | (05 MCQs) |

Components of the Part-1 examination

MCQ Paper	100 One Best Type
Total Marks	100 Marks

Part II Dip Card

Topics included in paper 1

1. Adult Cardiology
2. Paedriatic Cardiology

Topics included in paper 2

1. Invasive Cardiology

2. Emergency Cardiology
3. Cardiac Surgery

Part-2 Examination

Theory

<u>Paper I</u>	<u>100 Marks</u>	3 Hours
10 SEQs (No Choice)	50 Marks	
50 MCQs	50 Marks	
<u>Paper II</u>	<u>100 Marks</u>	3 Hours
10 SEQs (No Choice)	50 Marks	
50 MCQs	50 Marks	

The candidates who pass in theory papers, will be eligible to appear in the clinical & viva voce.

OSCE **90 Marks**

10 stations each carrying 9 marks of 10 minutes duration; each evaluating performance based assessment with five of them interactive

Clinical **90 Marks**

Four short cases each carrying 15 marks and one long case of 30 marks.

Components of the Part 2 examination

Theory paper 1	100 marks
Theory paper 2	100 marks
Clinical/Oral	180 marks
Log Book	20 marks
Total Marks	400

A panel of four examiners from Paediatrics (Two internal and two external) will be appointed for practical examination.

Each component of practical examination will be assessed by two examiners, awarding marks simultaneously and independently. The final score awarded will be an average score, as agreed by both examiners.

Pass Percentage and Other Regulations Regarding Examination

- Criterion referenced assessment principles will be used
- 20 marks for the log book will be included in the OSCE component
- 60 % marks will be a pass score in each component. Each candidate must pass in every component separately
- Candidate failing in any one component will have to re-sit the entire examination
- A maximum of 5 attempts to sit for the examination will be allowed, to be availed within 3 calendar years of the first attempt
- Re-admission in Dip Card course is not permissible under any circumstances
- The results will be announced according to the rules and regulations set by the Examination Branch of UHS Lahore

RECOMMENDED BOOKS

1. Rana M. H., Ali S. Mustafa M. ***A Handnook of Behavioural Sciences for Medical and Dental Students***. Lahore: University of Health Science; 2007.
2. Fathalla M. F. and Fathalla M. M. F. ***A Practical Guide for Health Researcher***. Cairo: World Health Organization; 2004.

Reference Books