

REVISED SYLLABUS
For
(D.C.T)
DIPLOMA IN CARDIOLOGY
TECHNICIAN (AHP-59)



**LAL BAHADUR SHASTRI HEALTH SCIENCES
AND TECHNICAL COUNCIL, INDIA**

लाल बहादुर शास्त्री आरोग्य विज्ञान एवं प्राविधिक परिषद, भारत

मुख्य कार्यालय : 4वीं मंजिल, प्राइम प्लाजा, इंदरा नगर, लखनऊ

प्रशासनिक कार्यालय : द्वितीय तल, सुनील कम्पलेक्स, वेस्टर्न कचेरी रोड, मेरठ

वेबसाइट – www.lbspstc.in संपर्क सूत्र –121-4349311

Exam Type: Yearly
(To be implemented from 2026-28 session)

SYLLABUS OF DIPLOMA IN CARDIOLOGY **TECHNICIAN**

FIRST YEAR (1st)

S. No.	Subjects	TH	PR	Total
DCT-101	General Anatomy & Physiology	100	-	100
DCT-102	Basic Pathology, Pharmacology & Microbiology	100	-	100
DCT-103	Medical Physics	100	-	100
DCT-104	Cardiovascular Anatomy & Physiology	100	-	100
DCT-105	Basic Life Support (BLS) & CPR	100	-	100
DCT-106	Cardiovascular & Basic Clinical Skills – Practical	-	100	100
DCT-107	BLS & CPR – Practical	-	100	100
Total		500	100	700

SECOND YEAR (2nd)

S. No.	Subjects	TH	PR	Total
DCT-201	Advanced Cardiac Diagnostics	100	-	100
DCT-202	Cardiovascular Diseases	100	-	100
DCT-203	Cardiac Pharmacology	100	-	100
DCT-204	Equipment Engineering Physics	100	-	100
DCT-205	Cardiac Pharmacology – Practical	-	100	100
DCT-206	Equipment Engineering Physics – Practical	-	100	100
Total		400	100	600

FIRST YEAR (1st Year)-D.C.T.

DCT-101: GENERAL ANATOMY & PHYSIOLOGY

UNIT-I: INTRODUCTION TO HUMAN ANATOMY

☑ Anatomical Position and Terminology.

Introduction to anatomical position, directional terms, body planes, body regions and anatomical landmarks used in clinical healthcare practice.

☑ Levels of Organization.

Study of chemical, cellular, tissue, organ and organ-system levels of organization and their relationship in maintaining normal body function.

☑ Cell Structure and Function.

Structure of the cell, cell membrane, cytoplasm, nucleus and major organelles with their basic physiological functions.

☑ Body Tissues.

Classification, structure and functions of epithelial, connective, muscular and nervous tissues with their common locations.

☑ Body Cavities and Membranes.

Study of cranial, thoracic, abdominal and pelvic cavities and the protective membranes associated with major organs.

UNIT-II: MUSCULOSKELETAL AND NERVOUS SYSTEM

☑ Skeletal System.

Structure and functions of bones, classification of bones, major divisions of the skeleton and important bones of the human body.

☑ Joints.

Classification of joints, basic joint structure, movements and clinical importance of major joints.

☑ Muscular System.

Structure and functions of skeletal, smooth and cardiac muscles with basic principles of muscle contraction.

☑ Nervous System.

Introduction to central and peripheral nervous systems, brain, spinal cord and nerves with their major functions.

☑ Autonomic Nervous System.

Basic structure and functions of sympathetic and parasympathetic divisions and their role in regulation of cardiovascular and other body functions.

UNIT-III: RESPIRATORY, DIGESTIVE AND URINARY SYSTEMS

☑ Respiratory System.

Anatomy of nose, pharynx, larynx, trachea, bronchi and lungs with basic mechanisms of ventilation and gas exchange.

☑ Digestive System.

Structure and functions of mouth, oesophagus, stomach, small intestine, large intestine, liver, pancreas and associated digestive organs.

☑ Urinary System.

Structure and functions of kidneys, ureters, urinary bladder and urethra with basic understanding of urine formation.

☑ Fluid and Electrolyte Balance.

Basic concepts of body fluids, electrolytes and their importance in maintaining normal physiological functions.

☑ Homeostasis.

Meaning of homeostasis and mechanisms through which the body maintains a stable internal environment.

UNIT-IV: ENDOCRINE AND REPRODUCTIVE SYSTEMS

☑ Endocrine System.

Structure and functions of major endocrine glands including pituitary, thyroid, parathyroid, adrenal glands and pancreas.

☑ Hormones and Their Functions.

Basic classification of hormones, their sources and roles in regulating metabolism, growth, reproduction and other body processes.

☑ Male Reproductive System.

Basic anatomy and physiological functions of male reproductive organs.

☑ Female Reproductive System.

Basic anatomy and physiological functions of female reproductive organs and menstrual cycle.

☑ General Physiological Regulation.

Relationship between nervous, endocrine and other body systems in maintaining normal physiological activity.

DCT-102: BASIC PATHOLOGY, PHARMACOLOGY & MICROBIOLOGY

UNIT-I: BASIC PATHOLOGY

☑ Introduction to Pathology.

Meaning, scope and importance of pathology in understanding disease processes and clinical conditions.

☑ Cell Injury and Adaptation.

Basic causes of cell injury, cellular adaptation, reversible and irreversible cell damage and cellular death.

☑ Inflammation.

Definition, causes, types and basic signs of acute and chronic inflammation.

☑ Healing and Repair.

Basic processes of tissue repair, regeneration, scar formation and factors affecting healing.

☑ Neoplasia.

Introduction to benign and malignant growths, basic differences and general clinical significance.

UNIT-II: BASIC MICROBIOLOGY

☑ Introduction to Microbiology.

Study of microorganisms and their importance in human health, disease and healthcare environments.

☑ Bacteria.

General structure, classification, growth and common bacterial infections of clinical importance.

☑ Viruses.

Basic structure, multiplication and common viral diseases with emphasis on prevention of transmission.

☑ Fungi and Parasites.

Basic characteristics of medically important fungi and parasites and their common routes of infection.

☑ Infection and Transmission.

Sources, modes of transmission, chain of infection and basic methods for preventing healthcare-associated infections.

UNIT-III: BASIC PHARMACOLOGY

☑ Introduction to Pharmacology.

Definition, scope and importance of pharmacology in clinical healthcare practice.

☑ Drug Forms and Routes.

Common pharmaceutical preparations and routes of administration including oral, topical, inhalational and parenteral routes.

☑ Drug Absorption and Distribution.

Basic concepts of absorption, distribution, metabolism and excretion of medicines.

☑ Drug Actions and Adverse Effects.

Basic mechanisms of drug action, therapeutic effects, side effects, adverse reactions and drug interactions.

☑ Safe Medication Practices.

Importance of correct medication identification, dosage awareness, storage, documentation and patient safety.

UNIT-IV: INFECTION CONTROL AND LABORATORY BASICS

☑ Aseptic Technique.

Basic principles of aseptic practice and prevention of contamination during clinical procedures.

☑ Disinfection and Sterilization.

Methods of cleaning, disinfection and sterilization of clinical instruments and equipment.

☑ Biomedical Waste Management.

Basic classification, segregation, handling and disposal of biomedical waste.

☑ Specimen Collection.

General principles of collection, labelling, handling, transportation and storage of clinical specimens.

☑ Standard Precautions.

Hand hygiene, personal protective equipment and other standard precautions used to protect patients and healthcare workers.

DCT-103: MEDICAL PHYSICS

UNIT-I: BASIC PHYSICS FOR HEALTHCARE

☑ Units and Measurements.

Basic physical quantities, SI units, measurement systems, accuracy, precision and common measuring instruments.

☑ Force and Motion.

Basic concepts of force, work, energy, power and pressure with applications in healthcare equipment.

☑ Heat and Temperature.

Temperature scales, heat transfer and basic applications of thermal principles in medical practice.

☑ Pressure and Fluid Mechanics.

Basic principles of pressure, fluid flow and their relevance to blood circulation and medical devices.

☑ Gas Laws.

Basic gas laws and their applications in oxygen therapy, respiratory equipment and clinical environments.

UNIT-II: ELECTRICITY AND ELECTRONICS

☑ Basic Electricity.

Electric charge, current, voltage, resistance, power and basic electrical circuits.

☑ Ohm's Law.

Relationship between voltage, current and resistance and its practical applications in medical equipment.

☑ AC and DC Current.

Basic characteristics and clinical applications of alternating and direct current.

☑ Electrical Safety.

Electrical hazards, grounding, insulation, shock prevention and safe use of medical electrical equipment.

☑ Basic Electronic Components.

Introduction to resistors, capacitors, diodes, transistors and other components used in electronic medical devices.

UNIT-III: WAVES, SOUND AND OPTICS

☑ Wave Motion.

Basic properties of waves including frequency, wavelength, amplitude and velocity.

☑ Sound and Ultrasound.

Characteristics of sound, frequency ranges and basic principles of ultrasound used in diagnostic applications.

☑ Light and Optics.

Reflection, refraction, lenses and basic optical principles used in medical instruments.

☑ Electromagnetic Radiation.

Introduction to electromagnetic waves and their applications in healthcare technology.

☑ Radiation Safety.

Basic radiation hazards, protection principles and safe practices in medical environments.

UNIT-IV: MEDICAL INSTRUMENTATION BASICS

☑ Measurement in Medicine.

Basic principles of measuring physiological parameters such as temperature, pressure, pulse and electrical signals.

☑ Sensors and Transducers.

Introduction to sensors and transducers used for converting physiological signals into measurable electrical signals.

☑ Biomedical Signals.

Basic understanding of physiological signals and their representation in medical instruments.

☑ Medical Electrical Equipment.

General principles of operation, safe handling and basic maintenance of medical electrical devices.

☑ Equipment Safety and Maintenance.

Routine inspection, electrical safety checks, cleaning and basic preventive maintenance procedures.

DCT-104: CARDIOVASCULAR ANATOMY & PHYSIOLOGY

UNIT-I: CARDIOVASCULAR ANATOMY

☑ Location and Structure of the Heart.

Detailed study of the location, external features and basic anatomical organization of the heart.

☑ Chambers of the Heart.

Structure and functions of right atrium, right ventricle, left atrium and left ventricle.

☑ Heart Valves.

Anatomy and functions of tricuspid, pulmonary, mitral and aortic valves in maintaining unidirectional blood flow.

☑ Great Vessels.

Structure and functions of aorta, pulmonary arteries, pulmonary veins, superior vena cava and inferior vena cava.

☑ Coronary Circulation.

Basic anatomy and importance of coronary arteries and veins supplying the heart muscle.

UNIT-II: CARDIAC CONDUCTION SYSTEM

☑ Cardiac Muscle.

Structure and physiological properties of cardiac muscle including excitability, conductivity and contractility.

☑ SA Node.

Location and function of the sinoatrial node as the primary pacemaker of the heart.

☑ AV Node and Bundle System.

Role of atrioventricular node, Bundle of His, bundle branches and Purkinje fibres in cardiac conduction.

☑ Cardiac Cycle.

Study of atrial systole, ventricular systole and diastole with their relationship to cardiac function.

☑ Heart Sounds.

Origin and clinical significance of normal heart sounds.

UNIT-III: CIRCULATION AND CARDIAC FUNCTION

☑ Systemic and Pulmonary Circulation.

Pathway of blood through pulmonary and systemic circulation and their physiological importance.

☑ Blood Pressure.

Definition, systolic and diastolic pressure, factors affecting blood pressure and basic methods of measurement.

☑ Cardiac Output.

Definition of cardiac output, stroke volume, heart rate and factors affecting cardiac performance.

☑ Peripheral Circulation.

Basic structure and functions of arteries, veins and capillaries.

☑ Regulation of Cardiovascular Function.

Role of nervous and hormonal mechanisms in regulating heart rate, blood pressure and circulation.

UNIT-IV: CARDIAC ELECTROPHYSIOLOGY

☑ Electrical Activity of the Heart.

Basic principles of electrical activity generated by cardiac muscle and its relationship with cardiac contraction.

☑ Depolarization and Repolarization.

Basic concepts of depolarization, repolarization and their relationship to cardiac electrical signals.

☑ Electrocardiographic Principles.

Introduction to recording electrical activity of the heart and basic ECG terminology.

☑ Normal ECG Components.

Basic understanding of P wave, QRS complex, T wave, intervals and segments.

☑ Clinical Importance of ECG.

Role of ECG in assessment of cardiac rhythm and identification of common abnormalities.

DCT-105: BASIC LIFE SUPPORT (BLS) & CPR

UNIT-I: BASIC LIFE SUPPORT PRINCIPLES

☑ Introduction to BLS.

Purpose, importance and basic sequence of life-support measures for emergency situations.

☑ Recognition of Cardiac Arrest.

Recognition of unresponsiveness, abnormal breathing and other indications requiring immediate emergency response.

☑ Emergency Response System.

Activation of emergency medical services and coordination of immediate assistance.

☑ Scene Safety.

Assessment of the environment and protection of the rescuer, patient and surrounding persons.

☑ Chain of Survival.

Basic understanding of early recognition, emergency response, CPR, defibrillation and advanced care.

UNIT-II: CARDIOPULMONARY RESUSCITATION

☑ Adult CPR.

Basic sequence of chest compressions and rescue breaths for an adult cardiac-arrest victim.

☑ Chest Compressions.

Correct hand position, compression technique, depth, rate and allowing adequate chest recoil.

☑ Rescue Breathing.

Basic techniques of providing rescue breaths and maintaining an open airway.

☑ Compression-to-Ventilation Ratio.

Understanding the standard CPR sequence and coordination between compressions and ventilation.

☑ CPR Quality and Safety.

Importance of effective compressions, minimizing interruptions and maintaining rescuer safety.

UNIT-III: AIRWAY AND AED

☑ Airway Management.

Basic techniques for opening and maintaining a patient's airway.

☑ Recovery Position.

Safe positioning of an unconscious but normally breathing patient.

☑ Automated External Defibrillator.

Basic principles, indications and safe use of an AED during cardiac arrest.

☑ AED Safety.

Precautions while analysing rhythm and delivering a shock.

☑ Foreign Body Airway Obstruction.

Recognition and basic management of choking in conscious and unconscious individuals.

UNIT-IV: SPECIAL BLS SITUATIONS

☑ Paediatric BLS.

Basic principles of CPR and emergency response for children.

☑ Infant BLS.

Basic techniques and precautions for infant resuscitation.

☑ Two-Rescuer CPR.

Coordination, role assignment and effective performance of CPR by two rescuers.

☑ Post-Resuscitation Care.

Basic monitoring and supportive measures after return of spontaneous circulation until advanced medical care is available.

☑ BLS Documentation and Communication.

Importance of recording emergency events and communicating relevant information to the healthcare team.

DCT-106: CARDIOVASCULAR & BASIC CLINICAL SKILLS – PRACTICAL

☑ Patient Identification and Communication.

Demonstration of correct patient identification, introduction, consent awareness, privacy and professional communication.

☑ Vital Signs.

Measurement and recording of pulse, blood pressure, respiratory rate, temperature and oxygen saturation.

☑ Pulse Examination.

Assessment of pulse rate, rhythm, volume and character at common peripheral sites.

☑ Blood Pressure Measurement.

Demonstration of manual and electronic blood-pressure measurement with appropriate patient positioning.

☑ Cardiovascular Examination Basics.

Basic inspection, palpation, pulse assessment and recognition of normal cardiovascular observations under supervision.

☑ ECG Equipment Identification.

Identification of ECG machine controls, cables, leads, electrodes and accessories.

☑ Patient Preparation for ECG.

Preparation of the patient, skin preparation, electrode placement and maintenance of privacy.

☑ 12-Lead ECG Recording.

Demonstration of standard 12-lead ECG recording under supervision.

☑ ECG Components.

Identification of P wave, QRS complex, T wave, intervals and segments in normal ECG recordings.

☑ Clinical Documentation.

Recording observations, procedure details and relevant patient information accurately.

☑ Infection Control.

Demonstration of hand hygiene, PPE, cleaning and safe handling of reusable equipment.

☑ Emergency Recognition.

Recognition of important changes in vital signs and immediate reporting to the responsible healthcare professional.

DCT-107: BLS & CPR – PRACTICAL

☑ Scene Safety Assessment.

Assessment of environmental safety before approaching an emergency patient.

☑ Responsiveness and Breathing Assessment.

Demonstration of checking responsiveness and normal breathing.

☑ Emergency Activation.

Demonstration of activating emergency medical assistance and coordinating help.

☑ Adult CPR.

Performance of adult CPR on a training manikin using the standard sequence.

☑ Chest Compression Technique.

Correct hand position, compression technique, rate, depth and chest recoil.

☑ Rescue Breathing.

Demonstration of safe rescue breathing using appropriate training equipment.

☑ AED Demonstration.

Safe operation of an AED training device and correct response to prompts.

☑ Choking Management.

Demonstration of basic management of foreign-body airway obstruction.

☑ Child CPR.

Demonstration of basic CPR procedures for children using a training manikin.

☑ Infant CPR.

Demonstration of basic infant resuscitation techniques using a training manikin.

☑ Two-Rescuer CPR.

Coordination and role-sharing during two-rescuer CPR.

☑ Recovery Position.

Demonstration of safe positioning of an unconscious but normally breathing patient.

☑ Emergency Handover.

Communication of patient condition and actions performed to the receiving healthcare team.

SECOND YEAR (2nd Year)-D.C.T.

DCT-201: ADVANCED CARDIAC DIAGNOSTICS

UNIT-I: ADVANCED ELECTROCARDIOGRAPHY

☑ 12-Lead ECG.

Detailed study of standard 12-lead ECG recording, lead placement, calibration, patient preparation and recording procedures.

☑ ECG Waveforms.

Detailed understanding of P wave, QRS complex, T wave, intervals and segments.

☑ Heart Rate and Rhythm Assessment.

Basic methods of calculating heart rate and evaluating regularity and rhythm from ECG recordings.

☑ ECG Artifacts.

Recognition of common artifacts caused by patient movement, poor electrode contact, electrical interference and incorrect lead placement.

☑ ECG Documentation.

Correct recording, labelling, storage and communication of ECG findings to the supervising healthcare professional.

UNIT-II: ECHOCARDIOGRAPHY AND CARDIAC IMAGING

☑ Introduction to Echocardiography.

Basic principles and clinical applications of ultrasound imaging of the heart.

☑ Two-Dimensional Echocardiography.

Basic principles of two-dimensional imaging and visualization of cardiac structures.

☑ M-Mode Echocardiography.

Basic principles and applications of M-mode in assessment of cardiac structures and movement.

☑ Doppler Echocardiography.

Basic principles of Doppler assessment of blood flow through cardiac chambers and valves.

☑ Cardiac Imaging Safety.

Patient preparation, infection control, equipment handling and safety considerations during cardiac imaging procedures.

UNIT-III: CARDIAC MONITORING

☑ Holter Monitoring.

Purpose, patient preparation, electrode placement and basic operation of ambulatory ECG monitoring.

☑ Telemetry Monitoring.

Basic principles of continuous cardiac monitoring and recognition of important rhythm changes.

☑ Exercise Stress Testing.

Basic principles, patient preparation, monitoring requirements and safety during cardiac stress testing.

☑ Vital Sign Monitoring.

Continuous monitoring of heart rate, blood pressure, respiratory rate and oxygen saturation during cardiac investigations.

☑ Emergency Rhythm Recognition.

Basic recognition of clinically significant rhythm changes requiring immediate communication to qualified medical personnel.

UNIT-IV: CARDIAC CATHETERIZATION AND OTHER DIAGNOSTICS

☑ Cardiac Catheterization.

Introduction to cardiac catheterization, indications, preparation and basic procedural principles.

☑ Coronary Angiography.

Basic principles of coronary angiography and visualization of coronary vessels.

☑ Patient Preparation.

Pre-procedure assessment, consent verification, positioning, monitoring and preparation of equipment.

☑ Post-Procedure Monitoring.

Observation of vital signs, puncture site, circulation and general patient condition following invasive cardiac procedures.

☑ Complication Awareness.

Recognition of common procedural complications and prompt reporting to the responsible healthcare professional.

DCT-202: CARDIOVASCULAR DISEASES

UNIT-I: CORONARY AND ISCHEMIC HEART DISEASES

☑ Coronary Artery Disease.

Causes, risk factors, basic pathophysiology, symptoms and diagnostic evaluation of coronary artery disease.

☑ Angina Pectoris.

Types of angina, common symptoms, precipitating factors and basic diagnostic considerations.

☑ Myocardial Infarction.

Basic pathophysiology, symptoms, ECG changes, complications and emergency management principles.

☑ Acute Coronary Syndrome.

Overview of unstable angina and myocardial infarction and their clinical significance.

☑ Cardiovascular Risk Factors.

Modifiable and non-modifiable cardiovascular risk factors and their role in disease prevention.

UNIT-II: HYPERTENSION AND HEART FAILURE

☑ Hypertension.

Definition, classification, risk factors, clinical features, complications and basic diagnostic evaluation.

☑ Hypertensive Emergencies.

Basic recognition and importance of urgent medical management of severe blood pressure elevation.

☑ Heart Failure.

Basic pathophysiology, types, signs, symptoms and common causes of heart failure.

☑ Left and Right Heart Failure.

Basic clinical differences and effects of left-sided and right-sided cardiac dysfunction.

☑ Patient Monitoring.

Importance of monitoring vital signs, fluid status, oxygen saturation and clinical symptoms in cardiac patients.

UNIT-III: VALVULAR AND STRUCTURAL HEART DISEASES

☑ Valvular Heart Disease.

Overview of common diseases affecting cardiac valves and their effects on blood flow.

☑ Mitral Valve Disorders.

Basic features of mitral stenosis and mitral regurgitation.

☑ Aortic Valve Disorders.

Basic features of aortic stenosis and aortic regurgitation.

☑ Congenital Heart Disease.

Introduction to common congenital cardiac abnormalities and their general clinical presentation.

☑ Rheumatic Heart Disease.

Basic relationship between rheumatic fever and chronic valvular heart disease.

UNIT-IV: ARRHYTHMIAS AND OTHER CARDIAC CONDITIONS

☑ Cardiac Arrhythmias.

Definition, classification and basic clinical significance of abnormal cardiac rhythms.

☑ Atrial Fibrillation.

Basic characteristics, clinical significance and complications of atrial fibrillation.

☑ Ventricular Arrhythmias.

Overview of important ventricular rhythm abnormalities and their emergency significance.

☑ Pericardial Diseases.

Basic features of pericarditis and pericardial effusion.

☑ Cardiomyopathies.

Introduction to major types of cardiomyopathy and their effects on cardiac function.

DCT-203: CARDIAC PHARMACOLOGY

UNIT-I: CARDIOVASCULAR DRUG PRINCIPLES

☑ Introduction to Cardiac Pharmacology.

Basic principles of medicines used in prevention and treatment of cardiovascular conditions.

☑ Drug Administration and Safety.

Common routes of administration, medication safety, documentation and prevention of medication errors.

☑ Drug Dosage and Calculations.

Basic concepts of dosage, concentration, units and safe calculation principles under supervision.

☑ Adverse Drug Reactions.

Recognition, documentation and reporting of common adverse reactions.

☑ Drug Interactions.

Basic understanding of drug-drug and drug-disease interactions relevant to cardiac patients.

UNIT-II: DRUGS USED IN ISCHEMIC HEART DISEASE

☑ Nitrates.

Basic mechanism, clinical uses, precautions and common adverse effects of nitrate medicines.

☑ Antiplatelet Drugs.

Role of antiplatelet medicines in prevention and treatment of thrombotic cardiovascular conditions.

☑ Anticoagulants.

Basic principles and clinical uses of commonly used anticoagulant medicines.

☑ Lipid-Lowering Drugs.

Introduction to statins and other medicines used to control abnormal lipid levels.

☑ Thrombolytic Therapy.

Basic principles, indications and major safety considerations of thrombolytic treatment.

UNIT-III: ANTIHYPERTENSIVE AND ANTIARRHYTHMIC DRUGS

☑ Antihypertensive Drugs.

Major groups of medicines used for blood-pressure control and their basic mechanisms.

☑ Beta Blockers.

Mechanism, cardiovascular uses, precautions and common adverse effects.

☑ Calcium Channel Blockers.

Basic classification, mechanism and cardiovascular applications.

☑ ACE Inhibitors and Related Drugs.

Basic mechanism, therapeutic applications, precautions and adverse effects.

☑ Antiarrhythmic Drugs.

Introduction to major groups of antiarrhythmic medicines and their clinical applications.

UNIT-IV: EMERGENCY CARDIAC MEDICATIONS

☑ Emergency Cardiac Drugs.

Introduction to medicines commonly used during acute cardiovascular emergencies.

☑ Adrenaline and Resuscitation Medicines.

Basic indications, precautions and safety principles in emergency settings.

☑ Drugs for Acute Heart Failure.

Overview of medicines used in management of acute cardiac dysfunction under medical supervision.

☑ Medication During Cardiac Procedures.

Basic awareness of medicines used before, during and after cardiac diagnostic procedures.

☑ Medication Documentation.

Recording, checking and communicating medication-related information according to institutional protocols.

DCT-204: EQUIPMENT ENGINEERING PHYSICS

UNIT-I: MEDICAL ELECTRICAL EQUIPMENT

☑ Medical Equipment Fundamentals.

Basic principles of medical equipment, electrical systems, components and safe operation.

☑ Electrical Circuits.

Basic circuits, current, voltage, resistance, capacitance and their applications in medical equipment.

☑ Power Supply Systems.

Basic AC/DC power supplies and their importance in reliable medical equipment operation.

☑ Electrical Protection.

Fuses, circuit breakers, grounding, insulation and other protective systems.

☑ Equipment Safety.

Electrical safety precautions and prevention of hazards during equipment operation.

UNIT-II: CARDIAC MONITORING EQUIPMENT

☑ ECG Machine.

Construction, basic working principles, controls, lead systems, calibration and routine maintenance of ECG equipment.

☑ Patient Monitoring System.

Basic principles of multiparameter monitoring systems used for cardiac patients.

☑ Pulse Oximeter.

Working principle, sensors, measurement limitations and routine care of pulse oximeters.

☑ Blood Pressure Monitoring Equipment.

Basic principles and operation of manual and automated blood pressure monitoring systems.

☑ Defibrillator.

Basic working principle, components, safety precautions and routine inspection of defibrillator equipment.

UNIT-III: DIAGNOSTIC EQUIPMENT

☑ Echocardiography Equipment.

Basic components, transducers, controls and operating principles of echocardiography systems.

☑ Ultrasound Transducers.

Types, basic construction and applications of transducers used in diagnostic imaging.

☑ Holter Monitoring System.

Basic operation, patient connection, data recording and transfer procedures.

☑ Stress Test Equipment.

Basic components and operation of equipment used for exercise-based cardiac testing.

☑ Cath Lab Equipment.

Introduction to major equipment used in cardiac catheterization laboratories and their functions.

UNIT-IV: MAINTENANCE AND TROUBLESHOOTING

☑ Preventive Maintenance.

Routine inspection, cleaning, testing and maintenance procedures for medical equipment.

☑ Equipment Calibration.

Basic concept of calibration and importance of maintaining measurement accuracy.

☑ Common Equipment Faults.

Recognition of common electrical, mechanical and operational problems in medical equipment.

☑ Basic Troubleshooting.

Systematic identification of simple equipment problems while following manufacturer and institutional safety procedures.

☑ Equipment Documentation.

Maintenance records, service reports, equipment logs and reporting of faults to authorized technical personnel.

DCT-205 : CARDIAC PHARMACOLOGY – PRACTICAL

☑ Identification of Cardiovascular Medicines.

Identification of commonly used cardiovascular medicines and their therapeutic categories.

☑ Medication Forms.

Identification of tablets, capsules, injections, infusions and other common pharmaceutical preparations.

☑ Medication Labels.

Reading medicine labels, strength, dosage form, expiry information and storage requirements under supervision.

☑ Dosage Calculations.

Basic dosage, concentration and unit calculations used in clinical medication practice.

☑ Safe Medication Storage.

Demonstration of appropriate storage, segregation and handling of medicines.

☑ Adverse Drug Reactions.

Recognition and documentation of common adverse drug reactions and prompt reporting.

☑ Antiplatelet and Anticoagulant Safety.

Basic precautions and monitoring considerations associated with antiplatelet and anticoagulant medicines.

☑ Emergency Cardiac Medicines.

Identification and basic safety awareness of medicines used during cardiovascular emergencies.

☑ Medication Documentation.

Recording medicine-related information accurately in clinical documentation.

☑ Communication and Reporting.

Communication of medication observations and suspected adverse reactions to the responsible healthcare professional.

DCT-206: EQUIPMENT ENGINEERING PHYSICS – PRACTICAL

☑ Electrical Component Identification.

Identification of basic electrical and electronic components used in medical equipment.

☑ Electrical Safety.

Demonstration of grounding, insulation, safe connections and electrical hazard prevention.

☑ ECG Equipment.

Identification of ECG machine controls, cables, leads and electrodes.

☑ ECG Recording Equipment Check.

Basic pre-use inspection, calibration awareness and operational checks of ECG equipment.

☑ Pulse Oximeter.

Demonstration of pulse-oximeter operation, sensor placement and basic limitations.

☑ Blood Pressure Equipment.

Identification and use of manual and automated blood-pressure monitoring equipment.

☑ Patient Monitor.

Identification of basic controls and parameters on a multiparameter cardiac monitor.

☑ Defibrillator Safety.

Identification of defibrillator controls and demonstration of safety procedures using training equipment.

☑ Echocardiography Equipment.

Identification of major components, controls and transducers used in echocardiography.

☑ Holter Monitor.

Basic setup, patient connection and recording procedures for ambulatory ECG monitoring.

☑ Stress Test Equipment.

Identification of basic components and safety checks of exercise stress-testing equipment.

☑ Preventive Maintenance.

Routine cleaning, inspection and preventive maintenance procedures for cardiac equipment.

☑ Basic Troubleshooting.

Identification of simple operational faults and appropriate reporting to authorized technical personnel.

☑ Maintenance Documentation.

Preparation of equipment logs, service records and fault reports.

परीक्षा नियंत्रक / Controller of Examination
लाल बहादुर शास्त्री आरोग्य विज्ञान एवं
प्रविधिक परिषद
Lal Bahadur Shastri Health
Science And Technical Council