Basic Cardiac Care Technology BVOCCT-304

**Unit I**

**Applied Anatomy and Physiology -**

1. Applied Anatomy

a) Structure of the heart and gross anatomy, normal position situs solitus, situs inverses with dextrocardia, situs solitus with dextrocardia, situs inversus with levocardia.

b) Systemic and pulmonary circulation, coronary structure, coronary sinus structure and circulation.

c) Chest topography - identification of imaginary lines, topographical landmarks over thorax, topography of heart and lungs.

d) Surface marking of heart, aorta, pulmonary artery, precordium, heart valves, subclavian.

2. Applied Physiology

a) Control of heart rate.

b) Concepts of congenital heart (ASD, VSD, PDA, TOF and transpositions).

c) Blood circulation, cardiac output, pulmonary circulation, pulmonary oedema

d) Concepts of myocardial functions.

e) Control of circulation

f) Conduction system of the heart

**Unit II**

**Noninvasive ECG and TMT –** ECG

a) Technique of ECG recording

b) ECG Leads system

c) ECG waves - PQRSTU, Osborn wave, delta wave, epsilon wave.

d) ECG rates, rhythm, axis calculation, lead positioning.

e) Intervals and segments - PR interval, PR segment, ST segment, QT interval, J point and QRS complex.

f) ECG anatomy - Chambers enlargement.

g) Technical artefacts

h) ECG reportingExercise Testing to Diagnose Obstructive Coronary Artery Disease - Rationale and Guidelines, Pretest Probability (true positive, false positive, true negative and false negative ST-Segment Interpretation, Confounders of Stress ECG Interpretation.

a) Result Reporting

**Unit III**

**Noninvasive Echocardiography -**

a) Introduction and purposes, demonstration of machine parts,

b) Basic windows c) Echocardiographic views

d) Imaging modes - two-dimensional (2D) imaging, M-mode imaging, and Doppler imaging, color - flow mapping.

**Unit IV**

**Invasive technologies –**

a) Orientation to the Cath - Lab and biomedical equipments, Introduction and purposes of the Cath - Lab.

b) Radiation safety and protocols.

c) Vascular access - arterial in femoral, radial and ulnar, venous in femoral.

d) Catheterization left heart and right heart, Angiography - Chambers.

e) Transducers balancing, measurement of pressures, Calculations of gradients

f) Blood flows, cardiac output and Calculations of cardio shunts, resistances.

g) Management of patient in the Cath - Lab, coronary angiogram views.

h) Prerequisites of cat lab procedures: CBC, RFT, Serology, ECG, Echo, and customised list for all types of procedures.

i) Maintaining sterility, PPE - Personnel protective equipments.

**Unit V**

**Gas Administration Devices -**

3. Gas administration devices (reducing valves, flow meters and regulators).

a) Simple oxygen administration devices.

b) Methods of controlling gas flow.

c) Reducing valve, Flow meters, restrictors and regulators

d) Selection of device

**Practical:**

1. History taking

2. Clinical Examination: General Physical Examination and assessment of vital signs

3. Clinical Examination: Basic Systemic Examination

4. Conversion between different units