**Echocardiography Basic Techniques BVOCCT-305**

**Objective and Learning Outcome**: The student will be exposed to and become familiar with the technical performance, interpretation, strengths, and limitations of 2-dimensional echocardiography and Doppler. To enable the students to correlate Echo and Doppler exam with other exam results

1. Physical principles, instrumentation, and routine examination Properties of ultrasound, the transducer, Echocardiography

2. Basic Principles of Echocardiography-equipment’s and Instrumentation

3. Indications for Echo

4. Trans Thoracic Echo cardio graphic examination

5. Standard plane position-standard imaging planes;

Parasternal long axis, parasternal short axis, apical views, Subcostal views suprasternal views

6. M mode echocardiography

7. Principles of Doppler flow images

The Doppler Effect, frequency description and analysis, Application of sampling theory to Doppler signal analysis, Limitation in the direct application of the Doppler equation to clinical velocity& Bernoulli’s equation for velocities

8. Doppler instrumentation

Doppler pulse transmission, summary of factors affecting Doppler sensitivity

9. Principles of flow:

Structure of blood and its relation to ultrasonic scattering, blood flow, hydraulic energies, pulsatile flow, vessel diameter, velocity profile

10. Principles of colour flow imaging:

The colour flow mapper, interrelationship of velocity resolution, depth of field, line density and frame rate

Colour Doppler spatial, temporal and velocity resolution

11. Trans esophageal Echo-Indications, Contraindication, Indications, Equipment and Transducers, Patient Preparation, Image Recording, Views and Interpretation