**Co4. CoI 1: Multirate Signal Processing**

**CoI 2: Artificial Neural Networks**

**Expt12: Denoise an ECG signal using wavelet denoiser. (Tool box)**

A. 1- D wavelet analysis, 1-D wavelet Packet analysis

B. Analysis of Approximate (LP) and detailed (HP) coefficients

C. Compare the original and de-noised signal

D. Estimate the mean, median, Std. deviation of the residues.

**Expt 13. Implementation of the Haar wavelet function**

A. Haar Transform of a non- stationary (mathematical) signal

B. Haar Transform of a non- stationary Signal (ECG)

1. with in-built function

2. without in-built function and comparing the outputs.

C. Image Analysis

1. with in-built function

2. without in-built function and comparing the outputs.

**Expt 14. Signal and Image Feature Extraction using "Db3" Wavelets**

1. Generation of a Feature Vector for a single ECG signal.

2. Reading multiple Images of different classes; Generation of a Feature Matrix for supervised learning and classification. (prepare\_Image.m)

**Expt 15.** **ANN based classification (train7.m and test.m)**

A. Shuffling the feature matrix in random order, splitting the training and testing data.

B. Training the ANN with training data, saving the model weights.

C. Testing the data with the trained model.