

# Shiv Nadar University

Department of Electrical Engineering-( SoE )

**EED364: Graph Signal Processing**

## **Lab-1 (Eigen spectrum with respect to Adjacency matrix of a Graph)**

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### **Plotting the graph from a given Adjacency matrix:**

1. Create a MATLAB function to plot (2D) the graph for the given adjacency matrix  $A$ . Plot the graph for few of the class examples. Verify your result by using the built-in function `gplot(A, Coordinates)`.  
(Useful MATLAB keywords: `plot`, `text`, `num2str`, `cellstr`, `line` )
2. Create another MATLAB function, for plotting the 3D graph for the given adjacency matrix  $A$  .
3. **Bucky ball example:** In this example the adjacency matrix and coordinates of the graph are obtained by using the built-in function `[B, XY] = bucky`, where  $B$  is the adjacency matrix is and  $XY$  represents the coordinates. So, use the functions created in question 1 and 2 to plot the graph for this example.
4. Generate Random adjacency matrix of size  $N$  nodes. And plot the graph using above procedures?
5. Calculate the Eigen spectrum of all plotted graphs?