Title of the Course: Digital Signal Analysis

Detailed Syllabus:

Unit 1: Basics of Fourier series and transform, sampling and quantisation, different types of signals and systems.

Unit 2: Z-transform, FIR and IIR systems. Introduction to digital filter design.

Unit 3: Application of concepts using speech signals.

Reference Books:

1. Digital signal processing by John G. Proakis and Dimitris K Manolakis.
2. Digital signal processing by Alan V. Oppenheim and Ronald W. Schafer.
3. Introduction to Digital Speech Processing by Lawrence R. Rabiner and Ronald W. Schafer, now Publishers Inc. Hanover, USA, 2007

Assessment methods and weightages in brief (4 to 5 sentences):

Assignments -- 20%

Quiz -- 30%

End exam -- 50%

Course plan:

1. Fourier series and transform. (3 classes)

2. Sampling and quantisation. (1 class)

3. Different types of discrete signals and systems (LTI systems, linear and circular convolution) (3 classes)

4. Z Transform (2 classes)

5. Introduction to Digital Filter Design (2 classes)

6. Applications. (2 classes)