



Course Weekly Outline

Title	Digital Signal Processing and Filtering
Course Objective	1 - Learn to use important tools of DSP such as FFT. 2- Learn how to design Digital Filters.
Course Description	This course focuses on important topics in the subject like the design of analog and Digital Filters.
Textbook	1- Introduction to Digital Signal processing and filter Design By B. A. SHENOI Wiley-Interscience 2006
References	1-Digital Signal processing, A Computer-Based Approach. 2 nd Edition, By Sanjit K. MITRA. McGraw-Hill
General Notes	Theoretical 3 hours, 2 hours laboratory

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Week	Topics Covered	Notes
1.	Discrete Fourier Transform Properties	
2.	Inverse Discrete Fourier Transform (IDFT)	
3.	Fast Fourier Transform (FFT)	
4.	Analog Filter Design	
5.	Butterworth Filter Design	
6.	Chebyshev Filter Design I	
7.	Chebyshev Filter Design II	
8.	Elliptic Filters	
9.	Review & Exam 1	
10.	Digital Filter Design	
11.	Infinite Impulse Response (IIR) filter	
12.	IIR Filter Design Methods	
13.	Finite Impulse Response (FIR) filter	
14.	Design FIR filters using Windows	
15.	Review & Exam	