Republic of Iraq Ministry of Higher Education & Scientific Research AL-Mustansiriayah University Faculty of Engineering



 $\begin{array}{lll} \textbf{Dept.:} \textbf{Computer\& Software Engineering} \\ \textbf{Stage } 3^{nd} & / & \textbf{Course} & 2^{st} \\ \textbf{Lect. name Digital Signal Processing and Filtering} \\ \textbf{Lecture code:} 50605\text{--}3202 \\ \end{array}$ 

Hours/Units: 3/2

## Course Weekly Outline

Title	Digital Signal Processing and Filtering
Course Objective	1 - Learn to use important tools of DSP such as FFT.
, and the second	2- Learnhow to design Digital Filters.
CourseDescription	This course focuses on important topics in the subject
*	likethedesign of analog and Digital Filters.
Textbook	1-Introduction to Digital Signal processing and filter
	Design By B. A. SHENOI Wiley-Interscience2006
References	1-Digital Signal processing, A Computer-Based
	Approach.
	2 <sup>nd</sup> Edition, By Sanjit K. MITRA. McGraw-Hill
General Notes	Theoretical 3 hours, 2 hours laboratory

Course Weekly Outline

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 DesignII	
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	