

DIGITAL SIGNAL PROCESSORS

Module 1

Introduction to a popular DSP from Texas Instruments TMS320C6XXX– CPU Architecture (VLIW) - CPU Data Paths and Control - Timers - Internal Data/ Program Memory - External Memory Interface ,Difference between fixed and floating point processors.

Module 2

Programming - Instruction Set and Addressing Modes - Code Composer Studio - Code Generation Tools - Code Composer Studio Debug Tools – Simulator.

Module 3

Digital Signal Processing Applications : Filter Design - FIR & IIR Digital Filter Design - filter Design programs using MATLAB, Fourier Transform: DFT, FFT programs using MATLAB - Real Time Implementation : Implementation of Real Time Digital filters using DSP - Implementation of FFT applications using DSP.

Module 4

Adaptive filters – MSE Approach and LMS Approach and its implementation.

Text Books:

1. Naim Dahnoun, Digital Signal Processing Implementation Using the TMS320C6000 DSP Platform, 1st Edition, 2000.
2. John G Proakis, Dimitris G Manolakis, “Introduction to Digital Signal Processing”, 4th Edition, 2006.
3. David J Defatta J, Lucas Joseph G & Hodkiss William S, “Digital Signal Processing: A System Design Approach”, 1st Edition; John Wiley, 2009

References:

1. Rulph Chassaing, “DSP Applications using ‘C’ and the TMS320C6X DSK”, 1st Edition, 2002.
2. Andrew Bateman, Warren Yates, Digital Signal Processing Design, 1st Edition, 1989.
3. JAMES H. McClellan, Ronald Schaffer and Mark A. Yoder, DSP FIRST - A Multimedia Approach, 1st Edition; Prentice Hall, 1997
4. Oppenheim A.V and Schafer R.W, Digital Signal Processing, 1st Edition; PH, 1975