12. Speed control of stepper motor.
13. Parallel / series inverter.

Note: Experiments to be conducted with isolation transformer and low voltage.

DSP ALGORITHMS AND ARCHITECTURE

Subject Code	: 10EC751	IA Marks	: 25
No. of Lecture Hrs/Week	: 04	Exam Hours	: 03
Total no. of Lecture Hrs.	: 52	Exam Marks	: 100

UNIT - 1

INTRODUCTION TO DIGITAL SIGNAL PROCESSING: Introduction, A Digital Signal-Processing System, The Sampling Process, Discrete Time Sequences, Discrete Fourier Transform (DFT) and Fast Fourier Transform (FFT), Linear Time-Invariant Systems, Digital Filters, Decimation and Interpolation.

UNIT - 2

ARCHITECTURES FOR PROGRAMMABLE DIGITAL SIGNAL-PROCESSORS: Introduction, Basic Architectural Features, DSP Computational Building Blocks, Bus Architecture and Memory, Data Addressing Capabilities, Address Generation Unit, Programmability and Program Execution, Features for External Interfacing.

UNIT - 3

PROGRAMMABLE DIGITAL SIGNAL PROCESSORS: Introduction, Commercial Digital Signal-processing Devices, Data Addressing Modes of TMS32OC54xx., Memory Space of TMS32OC54xx Processors, Program Control.

UNIT - 4

Detail Study of TMS320C54X & 54xx Instructions and Programming, On-Chip peripherals, Interrupts of TMS32OC54XX Processors, Pipeline Operation of TMS32OC54xx Processor.

UNIT - 5

IMPLEMENTATION OF BASIC DSP ALGORITHMS: Introduction, The Q-notation, FIR Filters, IIR Filters, Interpolation and Decimation Filters (one example in each case).

D.V.

H. O. D.
Dept. Of Electronics & Communication
Ava' : Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

UNIT - 6

IMPLEMENTATION OF FFT ALGORITHMS: Introduction, An FFT Algorithm for DFT Computation, Overflow and Scaling, Bit-Reversed Index Generation & Implementation on the TMS32OC54xx.

UNIT - 7

INTERFACING MEMORY AND PARALLEL I/O PERIPHERALS TO DSP DEVICES: Introduction, Memory Space Organization, External Bus Interfacing Signals. Memory Interface, Parallel I/O Interface, Programmed I/O, Interrupts and I / O Direct Memory Access (DMA).

UNIT - 8

INTERFACING AND APPLICATIONS OF DSP PROCESSOR: Introduction, Synchronous Serial Interface, A CODEC Interface Circuit. DSP Based Bio-telemetry Receiver, A Speech Processing System, An Image Processing System.

TEXT BOOK:

1. **"Digital Signal Processing"**, Avatar Singh and S. Srinivasan, Thomson Learning, 2004.

REFERENCE BOOKS:

1. **Digital Signal Processing: A practical approach,** Ifeachor E. C., Jervis B. W Pearson-Education, PHI/ 2002
2. **"Digital Signal Processors"**, B Venkataramani and M Bhaskar TMH, 2nd, 2010
3. **"Architectures for Digital Signal Processing"**, Peter Pirsch John Weily, 2008

MICRO AND SMART SYSTEMS TECHNOLOGY

Subject Code	:	**10MS752**	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

UNIT - 1

INTRODUCTION TO MICRO AND SMART SYSTEMS:

a) What are smart-material systems? Evolution of smart materials, structures and systems. Components of a smart system. Application areas. Commercial products.

H.O.D.
Dept. Of Electronics & Communication
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225