

## **RO8012 DIGITAL SIGNAL PROCESSORS AND ITS APPLICATIONS**

### DETAILED SYLLABUS

#### **OBJECTIVES:**

- To understand the concept of information, types of channels
- To understand the capabilities of various source coding theorems and the fundamental limit of transmission over the channel.
- To understand the various concepts of signal processing with its applications.
- To understand the capabilities of various channel coding theorems.
- To develop the knowledge on pass band communication and spread spectrum.

#### **UNIT I ARCHITECTURE OF TMS320C5X**

Introduction -Bus structure -Central Arithmetic Logic unit (CALU)-Auxiliary Register ALU(AAU)-Index register (INDX)-Auxiliary register compare register-Block move address register- Block repeat registers-parallel logic unit-memory mapped registers-program controllers-on chip features.

#### **UNIT II TMS320C5X PROGRAMMING**

Assembly language syntax-Addressing modes, Load/store instructions-Addition/subtraction instructions-Move instructions -Multiplication instruction-NORM instruction-Program control instructions-Peripheral instructions -Instruction Pipelining in C5x-Pipeline structure, Pipeline operation -Normal pipeline Operation.

#### **UNIT III APPLICATIONS**

C50 based starter kit-Programs for familiarization of the addressing modes-Program for familiarization of Arithmetic Instructions-Programs in C5x for Processing Real time signals.

#### **UNIT IV ARCHITECTURE OF TMS320C54X**

Introduction-Architecture-Buses-Memory Organization-CPU-ALU-Barrel shifter - Multiplier/Adder unit -Compare, Select and store unit-Exponent Encoder-C54X pipeline-On chip Peripherals-Data Address Generation logic -Program address generation logic.

#### **UNIT V TMS320C54X PROGRAMMING**

Data Addressing-Arithmetic instructions -Move instructions -Load/Store instructions -Logical instructions -Control instructions -Conditional store instructions -Repeat instructions-I/O instructions -Bit manipulation instructions-parallel instructions-special instructions-Application programs.

#### **TEXT BOOK:**

1. Venkataramani B., Bhaskar M. "Digital Signal Processors: Architecture, Programming and Applications" Tata McGraw Hill, 2008

Diploma, Anna Univ UG & PG Courses

*Notes*  
*Syllabus*  
*Question Papers*  
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**REFERENCES:**

1. Sem. M. Kuo Woon -Seng. s. Gan "Digital Signal Processors: Architectures, Implementations, and Applications "Pearson Education,2005.
2. Steven W smith "Scientist and Engineer's Guide to Digital signal processing", 200