# SNS COLLEGE OF TECHNOLOGY

**An Autonomous Institution**

**Coimbatore-35**

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

## DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

## MICROPROCESSORS AND MICROCONTROLLERS

II YEAR/ IV SEMESTER

## UNIT 1 – 8085 AND 8086 ARCHITECTURE

TOPIC – Instruction set of 8085

# Instruction set of 8085

- An instruction is a binary pattern designed inside a microprocessor to perform a specific function.
- The entire group of instructions that a microprocessor supports is called ***Instruction Set***.
- 8085 has **246** instructions.
- Each instruction is represented by an 8-bit binary value.
- These 8-bits of binary value is called ***Op-Code*** or ***Instruction Byte***.

# Instruction set of 8085

## Classification of Instruction Set

- Data Transfer Instruction
- Arithmetic Instructions
- Logical Instructions
- Branching Instructions
- Control Instructions

# Instruction set of 8085

## Data Transfer Instructions

- These instructions move data between registers, or between memory and registers.
- These instructions copy data from source to destination.
- While copying, the contents of source are not modified.

# Instruction set of 8085

## Data Transfer Instructions

| Opcode | Operand | Description |
|---|---|---|
| MOV | Rd, Rs<br>M, Rs<br>Rd, M | Copy from source to destination. |

- This instruction copies the contents of the source register into the destination register.
- The contents of the source register are not altered.
- If one of the operands is a memory location, its location is specified by the contents of the HL registers.
- **Example:** MOV B, C or MOV B, M

# Instruction set of 8085

## Data Transfer Instructions

| Opcode | Operand | Description |
|---|---|---|
| MVI | Rd, Data<br>M, Data | Move immediate 8-bit |

- The 8-bit data is stored in the destination register or memory.
- If the operand is a memory location, its location is specified by the contents of the H-L registers.
- **Example:** MVI B, 57H or MVI M, 57H

# Instruction set of 8085

## Data Transfer Instructions

| Opcode | Operand | Description |
|---|---|---|
| LDA | 16-bit address | Load Accumulator |

- The contents of a memory location, specified by a 16-bit address in the operand, are copied to the accumulator.
- The contents of the source are not altered.
- **Example:** LDA 2034H

# Instruction set of 8085

## Data Transfer Instructions

| Opcode | Operand | Description |
|---|---|---|
| XCHG | None | Exchange H-L with D-E |

- The contents of register H are exchanged with the contents of register D.
- The contents of register L are exchanged with the contents of register E.
- **Example:** XCHG

# Instruction set of 8085

## Data Transfer Instructions

| Opcode | Operand | Description |
|---|---|---|
| OUT | 8-bit port address | Copy data from accumulator to a port with 8-bit address |

- The contents of accumulator are copied into the I/O port.
- **Example:** OUT 78 H

## Data Transfer Instructions

| Opcode | Operand | Description |
|---|---|---|
| IN | 8-bit port address | Copy data to accumulator from a port with 8-bit address |

- The contents of I/O port are copied into accumulator.
- **Example:** IN 8C H

# THANK YOU