

Faculty of Engineering and Technology
University of Lucknow
Er. Priyanka Singh
B.Tech –IV Sem
Fundamentals of Microprocessor (EC-403)

Instruction set of **8086 Microprocessor**

The 8086 instructions are categorized into the following main types.

1. Data Copy/Transfer Instructions:

- These type of instructions are used to transfer data from source operand to destination operand.
- All the store, move, load, exchange, input and output instructions belong to this category.

2. Arithmetic and Logical instructions:

- All the instructions performing arithmetic, logical, increment, decrement, compare, and scan instructions belong to this category

3. Branch Instructions:

- These instructions transfer control of execution to the specified address.
- All the call, jump, interrupt and return instructions belong to this class.

4. Loop Instructions:

- If these instructions have REP prefix with CX used as count register, they can be used to implement unconditional and conditional loops.
- The LOOP, LOOPNZ and LOOPZ instructions belong to this category.
- These are useful to implement different loop structures.

5. Machine Control Instructions:

- These instructions control the machine status.
- NOP, HLT, WAIT and LOCK instructions belong to this class.

6. Flag Manipulation Instructions:

- All the instructions which directly affect the flag register, come under this group of instructions.
- Instructions like CLD, STD, CLI, STI, etc. belong to this category of instructions.

7. Shift and Rotate Instructions:

- These instructions involve the bitwise shifting or rotation in either direction with or without a count in CX.

8. String Instructions:

- These instructions involve various string manipulation operations like load, move, scan, compare, store, etc.
- These instructions are only to be operated upon the strings.