

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA IN COMPUTER ENGINEERING
SEMESTER: V

Subject Name: **Microprocessor & Peripheral Chips**

Sr. No.	Course Content
1.	16 bit Processor: 8086 1.1 Register Organization of 8086 1.1.1 General Data Registers 1.1.2 Segment Registers 1.1.3 Pointer and Index Registers 1.1.4 Flag Register 1.2 Internal Organization of 8086 1.2.1 Bus Interface Unit (BIU) 1.2.2 Execution Unit (EU) 1.2.3 Memory Segmentation 1.2.4 Flag register and description of all flag bits 1.3 Signal description of 8086 1.3.1 Physical memory organization 1.3.2 General Bus operation 1.3.3 I/O Addressing capability 1.3.4 Special processor activities 1.3.5 Minimum mode and Maximum mode of 8086
2.	8086 Assembler Directives: 2.2. Introduction 2.3. Symbols, Variables and Constants 2.4. Data Definition and storage allocation directives 2.5. Program organization directives 2.6. Alignment directives 2.7. Value-retrieving attribute directives 2.8. Procedure definition directives 2.9. Macro definition directives 2.10. Data control directives 2.11. Branch displacement directives 2.12. Header file inclusion directives
3.	8086 Instruction set: 3.1. Machine language instruction formats 3.2. Addressing modes of 8086 3.2.1. Immediate addressing mode 3.2.2. Implicit addressing mode 3.2.3. Direct addressing mode 3.2.4. Indirect addressing mode

	<ul style="list-style-type: none"> 3.2.5. Register Addressing Mode 3.2.6. Register Indirect 3.2.7. Based Indexed 3.2.8. Register Relative 3.2.9. Relative Based Indexed 3.3. Assembler instruction format 3.4. Data transfer instructions 3.5. Arithmetic and Logical Instructions 3.6. Shift and Rotate instructions 3.7. Branch instructions 3.8. Processor control instructions 3.9. String operation instructions
4.	8086 Assembly Language Programming: <ul style="list-style-type: none"> 4.1 Introduction 4.2 Program Segment 4.3 Procedures 4.4 Program Structure 4.5 Programming with macros 4.6 Input-output structure and programming 4.7 Program development tools 4.8 Program development process 4.9 ASCII and Integer conversion
5.	Advance Processor: <ul style="list-style-type: none"> 5.1 Intel Pentium Processor <ul style="list-style-type: none"> 5.1.1 Block Diagram 5.1.2 Organization 5.1.3 Integer Pipelined
6.	Peripheral Chips: <ul style="list-style-type: none"> 6.1 8255 Programmable Input-Output Port <ul style="list-style-type: none"> 6.1.1 Functional block diagram 6.1.2 Operational modes <ul style="list-style-type: none"> 6.1.2.1 Input/Output Mode <ul style="list-style-type: none"> 6.1.2.1.1 Mode 0 : Simple I/O 6.1.2.1.2 Mode 1 : Strobed I/O 6.1.2.1.3 Mode 2 : Strobed bidirectional I/O 6.1.2.2 Bit Set/Reset Mode 6.1.3 Control Word Format <ul style="list-style-type: none"> 6.1.3.1 Input/Output mode format 6.1.3.2 BSR mode Forma 6.2 8259 Programmable Interrupt Controller <ul style="list-style-type: none"> 6.2.1 Interfacing, Basic Operation, Operating Modes 6.2.2 Programming ICWs and OCWs 6.2.3 Cascading

Laboratory Experiences:

8086 Programs based on following area:

1. Arithmetic operations
2. Data conversion, series conversion, computation
3. Searching & Sorting
4. Matrix Operations
5. Recursion
6. String Operations.

Reference Books:

1. Advance Microprocessor and Peripherals, A.K.Ray, K.M.Bhurchandani TMH.
2. Microprocessor X86 Programming, K.R.Venugopal, Rajkamal. BPB.
3. The 8086 microprocessor Architecture, Programming and interfacing, Das Person.
4. 8085 Microprocessor, R S Gaokar.
5. The 8085 microprocessor Architecture, Programming and interfacing, K.Udaykumar Pearson.
6. The 8088 & 8086 Microprocessors, Walter A. Triebel, Avatar Singh Person.
7. The Intel Microprocessors 8th ed., Barry B. Brey.