GUJARAT TECHNOLOGICAL UNIVERSITY
Diploma in Instrumentation & Control Engineering
Semester: V

Subject Name: **Microprocessor Interfacing & Applications**

Sr. No.	Course Content
1.	**Interfacing I/O Devices:** 1. Basic Interfacing Concepts 2. Interfacing Output Displays 3. Interfacing Input Devices 4. Memory-mapped I/O Interfacing
2.	**Interfacing Devices:** **2.1 Programmable Peripheral Interface : 8255** Features, Functional Description, Operational Modes, Functional Organisation, Block Diagram, 8255 Programming and operation in Mode 0, Mode 1 ,Mode 2 and BSR Mode, Interfacing of 8255. **2.2 Programmable Interrupt Controller : 8259** Features, Functional Block Description, Summary of Interrupt Operation, 8259 Programming – ICWs and OCWs, 8259 Interrupt Modes. **2.3 Programmable Interval Timer : 8254** Features, Functional Block Description, Six Modes of Operation, Internal Organisation and Interfacing , Programming the 8254 **2.4 Programmable DMA Controller : 8257** Features, Functional Block Description, Organisation and Interfacing **2.5 Programmable Keyboard/ Display Interface : 8279** Features, Hardware and Functional Block Description,Keyboard Scan, Display Modes , Interfacing **2.6 USART : 8251** Features, Functional Block Description, Interfacing an RS-232 Terminal Using 8251
3.	**Interfacing with Data Converters:** 3.1 Interfacing of Analog to Digital Converter with Microprocessor 3.2 Interfacing of Digital to Analog Converter with Microprocessor
4.	**Microprocessor Applications:** 4.1 Microprocessor based Data Acquisition System 4.2 Microprocessor based Temperature Monitoring System 4.3 Microprocessor based Level Monitoring System 4.4 Microprocessor Controlled Stepper Motor 4.5 Microprocessor based D.C. Motor Control 4.6 Microprocessor Interfacing with Scanned Multiplexed Displays and Liquid Crystal Displays. 4.7 Microprocessor Interfacing with a Matrix Keyboard.

Reference Books:

1. Microprocessor Architecture, Programming and Applications with the 8085 by R S Gaonkar
2. 0000 to 8085 Introduction to Microprocessors for Engineers and Scientists by P K Ghosh and P R Sridhar
3. Fundamentals of Microprocessor and Microcomputers by B Ram