

HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN

B.E. THIRD YEAR

ELECTRONICS & COMMUNICATION

(In Force June 2006)

SEMESTER – V

EC 501: MICROPROCESSOR ARCHITECTURE, PROGRAMMING & INTERFACING

Teaching Scheme		Examination Scheme				
Theory Hrs.	Practical Hrs.	Theory Hrs.	Theory Marks	Pract./ Viva Marks	Term Work Marks	Total Marks
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SYLLABUS

1. **Computers, Microcomputers and Microprocessors:** Computers, An introduction of 8086, 8088 & other microprocessors, 8086 internal architecture.
2. **8086 family Assembly Language Programming:** Program Development steps, Constructing machine codes, ALP development tools, debugging, procedures, macros.
3. **8086 Instruction set & Assembler directives.**
4. **8086 system connections, timing and troubleshooting:** 8086 hardware review, Addressing memory and ports in microcomputer systems, 8086 timing parameters, troubleshooting of simple 8086 based microcomputer.
5. **Interrupts & Interrupt Service Procedures:** 8086 interrupts & interrupt responses, Hardware Interrupt applications, DOS interrupts and their services.
6. **Digital Interfacing:** Programmable parallel ports & Handshake I/O, Interfacing a microprocessor to Keyboards, to Alphanumeric displays, to LCDs, to High power devices, Optical Shaft encoders.
7. **Analog Interfacing and Industrial Control:** D/A converter operation, interfacing and applications, A/D converter types, specifications and interfacing, A Microcomputer based Scale, A Microcomputer based Industrial Process Control system, An 8086 based Process control system, Developing of prototype of a Microcomputer based Instruments.
8. **Multiple Microprocessor systems & buses:** The 8086 Maximum mode, DMA data transfer, Interfacing & Refreshing DRAMs, Processors with integrated peripherals like 80186 & 80188, A co-processor - 8087 maths coprocessor, Multiple Bus Microcomputer systems.
9. **Operating systems, the 80286 microprocessor:** Operating system concepts and terms, UNIX operating system, INTEL RMX 86TM Operating system, 80286 microprocessor.

REFERENCE BOOKS:

1. Microprocessors & Interfacing - Programming & Hardware by D.V. Hall (Tata McGraw Hill).
2. The 8086 Book by Rector Russel & George Alexy (Osborne - McGraw Hill).
3. IBM PC Assembly Language and Programming by Peter Abel (PHI).
4. 8086 by Uffenback.