HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN

M.C.A. Semester – IV
MCA-43 : Embedded System

Teaching Scheme (per week)		Examination Scheme					
		INT		EXT		TOTAL	
Th. (hours)	Pr. (hours)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)
4	3	30	20	70	30	100	50

Unit : I   (25%)
Introduction and Hardware Environment Overview of embedded system, categories of embedded system, processor technology, design technology, **applications :** consumer electronics, control & industrial automation, network information appliances, wireless communications **Hardware architecture :** processor, memory, latches, buffers, ports, timers, counters, watchdog timers, UART, pulse width modulators, LCD controllers, keypad controllers, stepper motor controllers, analog-to-digital converters, real time clocks.

Unit : II   (25%)
Communication Principles : Parallel, serial, wireless and layering, **Protocols :** 12C, CAN, FireWire, USB, PCI bus, ARM bus, IrDa, Bluetooth, IEEE 802.11, operating system, kernel architecture, embadded operating system, context switch, task synchronization, real time and mobile operating system, programming languages, development tools for host & target machines, embedded system development system, interrupt basics, interrupt handling.

Unit : III   (25%)
VC++ Programming Introduction to MFC & windows, MFC fundamentals, processing messages, message boxes, menus, dialog boxes, common controls (Radio buttons, check boxes, scroll bars, buttons, cursor, icons, managing texts), properties sheet.

Unit : IV   (25%)
Project Studies Simple LED blinking program, device driver programming, serial communication programming for PC-to-PC communication, development of navigation system, protocol converter.

Books :
1. Programming for embedded system by Dr. Prasas, Vikas Gupta, Das & Verma, Pub, WILEY Dreamtech india Pvt.
2. Embadded System Design. by Frank Vashid & Tony Givergis, Pub, WILEY.
3. MFC Programming. by Herbert Schildt, Pub. TataMcGraw Hill.

Ref. Books :
1. An Embedded software primer by David E. Simon, Pub. Low Price Edition.
        Programming Embedded Systems by Michael Barr, Pub. O'REILLY