Syllabus

BTCS03CC31 Microprocessors & Microcontrollers

Sr. No	Module/Units	Detailed Topic wise Syllabus (In bullet points)	Total Hours (L +T+P+ S)
1	**Microprocessor Architecture**	• Microprocessors, Microcontrollers • Application of microprocessor and Microcontroller • Overview of 8085 microprocessor. • Pins and architecture of 8085 microprocessor. • Addressing modes and Instruction sets	Lecture/Theory Duration (hh.mm): 09.00 Practical Duration (hh.mm):06:00 Skill Duration (hh.mm): 06.00
2	**Programming and interfacing**	• Assembly Language Programming: • Assembler directives, • simple examples; Subroutines. • Interfacing: Interfacing of memory chips, • address allocation technique and decoding; • Interfacing of I/O devices, • LEDs and toggle-switches as examples, • memory mapped and isolated I/O structure.	Lecture/Theory Duration (hh.mm): 14.00 Practical Duration (hh.mm):06:00 Skill Duration (hh.mm): 06.00
3	**PIC Microcontroller**	• Harvard Vs Von-Neumann Architecture; • RISC Vs CISC. • CPU architecture, • Registers and Memory • Addressing modes • instruction sets • programming examples	Lecture/Theory Duration (hh.mm): 09.00 Practical Duration (hh.mm):06:00 Skill Duration (hh.mm): 06.00
4	**Interfacing with PIC**	• Timer/counter, • interrupt programming, • Interfacing and programming of: ADC & DAC • Interfacing with sensors, • Interfacing with keyboard, • Relays, LED, • Seven segment display • LCD interfacing.	Lecture/Theory Duration (hh.mm): 09.00 Practical Duration (hh.mm):06:00 Skill Duration (hh.mm): 06.00
5	**ARM Cortex M-3 Microcontroller**	• Introduction of cortex M3 and its applications • Architecture of cortex-M3,	Lecture/Theory Duration (hh.mm): 04.00

		• Registers, special purpose registers • Memory map, • Instruction sets, • Interfacing and Programming examples	Practical Duration (hh.mm):06:00 Skill Duration (hh.mm): 06.00

Learning Resources

Sr. No	Module / Unit	Text Books	Reference Book / Paper / Article / Online Resource (link) / Other
1	**Microprocessor Architecture**	Microprocessor Architecture, Programming, and Applications with the 8085 by R Gaonker 4 th Edition, Wiley,2012	http://nptel.ac.in/courses/108107029/
2	**Programming and interfacing**	Microprocessor Architecture, Programming, and Applications with the 8085 by R Gaonker 4 th Edition, Wiley,2012	http://nptel.ac.in/courses/108107029/
3	**PIC Microcontroller**	The PIC Microcontroller and Embedded Systems using Assembly and C by Mazidi, Mazidi & McKinlay 2 nd Edition PHI	http://nptel.ac.in/courses/Webcourse-contents/IIT-KANPUR/microcontrollers/pic.pdf
4	**Interfacing with PIC**	The PIC Microcontroller and Embedded Systems using Assembly and C by Mazidi, Mazidi & McKinlay 2 nd Edition PHI	http://nptel.ac.in/courses/Webcourse-contents/IIT-KANPUR/microcontrollers/micro/ui/Course_home3_16.htm
5	**ARM Cortex M-3 Microcontroller**	The definitive guide to ARM Cortex M-3 by Joseph Yiu 2nd Edition, Elsevier	https://www.arm.com/ja/files/pdf/IntroToCortex-M3.pdf