



B.Sc. (Electronics) SEMESTER VI

Paper II

(Microcontroller And Its Applications)

Unit I

8051 Microcontroller: Introduction, Difference between microprocessor and Microcontroller,
<https://www.youtube.com/watch?v=U02nOGYampw&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD>

Salient features of microcontroller 8051,
https://www.youtube.com/watch?v=roM2y9P_YFs&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=3

Pin description,
<https://www.youtube.com/watch?v=0E4KWXlcSIE&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=4>

Block diagram,
https://www.youtube.com/watch?v=I_qFGUTBYek&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=6

General purpose RAM, Bit addressable RAM and Register bank, Special function registers, Flags and PSW, A, B registers, Stack and Stack Pointer, Data Pointer, port registers, timer registers, serial port registers, interrupt registers, Oscillator & Clock, Program Counter, , Reset operation. I/O port structure,
<https://www.youtube.com/watch?v=n6H7D23Hu4Y&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=7>
<https://www.youtube.com/watch?v=N5R1t7hO2f0&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=8>
<https://www.youtube.com/watch?v=vgl6XuKDn-U&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=11>
<https://www.youtube.com/watch?v=8tQpSc3U16o&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=12>

Unit II

Memory organization in 8051: Internal RAM /ROM and External RAM /ROM
https://www.youtube.com/watch?v=MLMTNTzP_CI&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=10

Various addressing modes,
<https://www.youtube.com/watch?v=vLiGL9L4m-k&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=15>



Instruction Set of 8051: Data Transfer Instructions, Logical Operation, Arithmetic Operations, Boolean instructions, conditional and unconditional branching instructions,

<https://www.youtube.com/watch?v=cz5BSzcVyOY&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=16>

https://www.youtube.com/watch?v=v_HCUELN7_Y&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=17

<https://www.youtube.com/watch?v=B1kaJlqUYJg&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=19>

https://www.youtube.com/watch?v=jPi4CU1E4_M&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=20

<https://www.youtube.com/watch?v=GiJeZb4wCJc&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=21>

Unit III

Subroutine; Concept and related instructions-ACALL, LCALL RET, RETI, Delay subroutine and calculations for delay generation

<https://www.youtube.com/watch?v=eBISY3w8UUk&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=22>

<https://www.youtube.com/watch?v=SqSA2WLORqs&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=23>

Interrupts in 8051: Sources of interrupts, vector table, enabling and disabling, TCON and IE registers, interrupt priority, IP register, handling external interrupts;

<https://www.youtube.com/watch?v=x4eBYZ52Vgo&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=34>

Timmers in 8051: use of timers, programming concept of timers..

<https://www.youtube.com/watch?v=0AlggWEjTw&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=25>

https://www.youtube.com/watch?v=FyS6syb4_to&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=27

Unit IV

Interfacing with 8051:

Key bouncing, hardware and software debouncing techniques, interfacing of 4x 4 key matrix,

<https://www.youtube.com/watch?v=vxMj7IHP0gk&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=53>

ADC (0804), DAC (0808)

https://www.youtube.com/watch?v=r2fsp_jlH-M&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=55

16x2 LCD

<https://www.youtube.com/watch?v=aJYrjSLdAyg&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=45>



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serial communication using 8051 microcontroller, programming concept for receiving and transmitting data serially

<https://www.youtube.com/watch?v=fCRAActJDR9U&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=31>

Seven segment display

https://www.youtube.com/watch?v=SI9gBkVC_h8&list=PLgwJf8NK-2e49i6neo70aGtFLvKeZ3IQD&index=44