



B.Sc. (Electronics) SEMESTER I

Paper II

(Fundamentals Of Digital Electronics)

Unit I

Number Systems: Decimal, Binary, Octal and Hexadecimal number systems, inter conversions.

<https://www.youtube.com/watch?v=FFDMzbrEXaE>

Representation of signed and unsigned numbers:

https://www.youtube.com/watch?v=q-f_r_bvO5Y

Binary, octal and hexadecimal arithmetic; addition, subtraction by 1's and 2's complement method.

<https://www.youtube.com/watch?v=XHTUGBn-dSg>

Binary Codes: BCD, Grey, XS3, parity and Alphanumeric codes.

<https://www.youtube.com/watch?v=B-irf7FZNHA>

Unit II

Logic Gates: Study of OR, AND, NOT, NOR, NAND, XOR, XNOR, Universal Gates:

<https://www.youtube.com/watch?v=JQBRzsPhw2w>

Boolean algebra: Boolean laws, simplification of equation, De'Morgan's Theorems, logic structures.

<https://www.youtube.com/watch?v=W7YTfLaPWRy>

Unit III

Logic functions: Standard logic functions, SOP and POS forms, minterms and maxterms, Minimization Techniques; Karnaugh's map minimization up to 4 variables for SOP only.

<https://www.youtube.com/watch?v=PSg5MJLOPRU>

<https://www.youtube.com/watch?v=36LjWW-BSyU>

Combinational circuit: Adder, Subtractor, 4-bit Adder/ Subtractor:

<https://www.youtube.com/watch?v=J7gPUP0aRug>

Decoder, Encoder:

<https://www.youtube.com/watch?v=DqCDQH44y9w>

Multiplexers De-multiplexer (Basic circuits)

<https://www.youtube.com/watch?v=HleQhZ9Gq5s>

Unit IV

Sequential Circuits:

<https://www.youtube.com/watch?v=v0pxOfTg18Y>

Bi-stable multivibrator:



<https://www.youtube.com/watch?v=zVjxEly33Fs>

SR, CKSR:

<https://www.youtube.com/watch?v=PWB3dn0azg8>

JK Flip-Flop;

<https://www.youtube.com/watch?v=qU7x1XLjhn4>

Race-around condition, Construction using Universal gates, Properties of FFS, Preset and Clear operations, Clocked FFS (Level and Edge Triggered):

<https://www.youtube.com/watch?v=SK0bSphgBgl>

JK Master-Slave Flip-Flop:

<https://www.youtube.com/watch?v=IrbF3ew0Qxs>

D Flip-Flops :

<https://www.youtube.com/watch?v=dnfXXpW7tlw>

and T Flip-Flop:

https://www.youtube.com/watch?v=wcfnEla_Y78