SARDAR PATEL UNIVERSITY
B.Sc. (3rd Semester)
Electronics
US03CELE21
Electronic Devices
(Four Credit Course – 4 Hours per week)
Effective from June: 2019

Unit I	ELECTRONICS COMPONENT:- Passive components, Resistors:- fixed resistor, variable resistor Capacitor:- Mica capacitor, ceramic capacitor, paper capacitor, electrolytic capacitor, variable capacitor, Inductors:-Air core, iron core, ferrite core, Active components and its lead identification.
Unit II	ELECTRONICS COMPONENETS & PN JUNCTION DIODE:- Step response of RL circuit, Step response of RC circuit, Introduction to PN junction diode, p-type semiconductor, n-type semiconductor, the PN junction reverse bias, pn junction forward bias, temperature effects.
Unit III	DIODES AND ITS APPLICATION:- Peak rectifier, voltage doubler, diode clamper, diode limiter, half wave rectifier, full wave rectifier, capacitor filtering using full wave rectifier, Amplitude modulation:- definition and derivation, amplitude modulation methods, square law diode modulator, amplitude demodulation using diode.
Unit IV	SPECIAL TYPES OF DIODES:- Voltage variable capacitor diodes, thermistor, tunnel diodes, tunnel diode reverse bias, tunnel diode forward bias and its characteristics ,The charge couple device(CCD) ,storage of charge, transfer of charge, input and output arrangement.

Text Books:

1. Electric Engineering Fundamentals By Vincent Deltore 2nd Edition.

2. Electronic Device and circuit By David bell.

3. Digital integrated Electronic By Herbert taub and Donald Schilling.
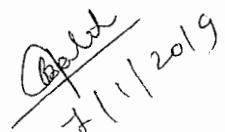
4. Basic Electronics By Bhargava.

7/1/2019

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SARDAR PATEL UNIVERSITY
B.Sc (3rd Semester)
Electronics
US03CELE 22
Instrumentation and Digital Electronics.
(Four Credit course:- 4 Hours per week)
Effective from June: 2019

Unit I	ERRORS AND OSCILLOSCOPE:- Definition:- Accuracy and Precision, Types of errors:- Gross errors, Systematic errors, Random errors, Statistical analysis, Probability of errors, Limiting errors, Oscilloscope block diagram, Electrostatic focusing, Electrostatic deflection.
Unit II	NUMBER SYSTEM:- Various number system- Decimal, Binary, Octal and Hexadecimal, Their interconversion and Arithmetic, Binary arithmetic in computer, Negative number representation, 1's complement and 2's complement method.
Unit III	BCD CODES:- Types of BCD codes, BCD addition, Weighted binary codes, Non-weighted binary codes, Excess 3 codes, Excess 3 addition, Excess 3 subtraction, Gray codes, binary to gray and gray to binary conversion.
Unit IV	BOOLEAN ALGEBRA:- Introduction to Boolean algebra, Logic operation and Logic gates:- AND, OR, NOT, Positive and negative logic system, Universal building blocks NAND and NOR, Boolean laws, Demorgan's theorem, Reduction of Boolean expressions using Boolean laws, Karnaugh map minimization upto 4 variables, SOP methods, Pos methods, NAND and NOR minimization.

Text Books:

1. Modern Electronics and Instrumentation techniques By A. D. helfrick and W. D. Cooper.

2. Digital Electronics By William Gothman.

SARDAR PATEL UNIVERSITY
B.Sc (3rd Semester)
Electronics
US03CELE23
Practical.

(Two credit course — 2 Hours per week)
(Effective from June: 2019)

1. Use of CRO.

2. Phase angle Using CRO.

3. Step response of RC Circuit.

4. Tunnel Diode.

5. Thermistor Characteristics.

6. To Study of Transformer.

7. UJT Characteristics.

8. UJT Oscillator.

Practical.

(Two credit course — 2 Hours per week)
(Effective from June: 2019)

1. Logic Gates Using discrete Component.

2. Logic Gates Using ICs.

3. Reduction of Boolean expression.

4. 7489 RAM.

5. ALU.

6. Universal Gates.

7. Voltage Multiplier.