SARDAR PATEL UNIVERSITY

B.Sc (4th Semester)

Electronics

US04CELE21

Electronics Devices & Application

(Four Credit Course: 4 Hours per week)

Effective from December: 2019

Unit I	**Field Effect transistor & FET Biasing Circuits :-** Decibel and frequency response, N & P channel JEFT, Characteristics of JEFT, Parameters of JEFT, DC Load line & bias point, fixed voltage bias circuit
Unit II	**MOSFET & FET:-** Self bias, Potential divider bias circuits, JFET Voltage amplifier, FET Amplification, enhancement MOSFET, Depletion - enhancement -MOSFET, biasing MOSFETS.
Unit III	**FET Circuits :-** Common source circuit and its as equivalent circuit, complete ac equivalent circuit, Common drain circuit and its as equivalent circuit, complete ac equivalent circuit, Common gate circuit and its ac equivalent circuit,complete ac equivalent circuit.
Unit IV	**Opto-electronics Devices 1 :-** Light units, Photo multiplier tube, Photo conductive cell, Light emitting diode, Photo diode, solar cell, Photo-transistors, photo Darlington, Liquid crystal display, Opto electronics couplers, seven segment display.

Text Books :-

1. Electric engineering fundamentals, Vincent Deltore (2nd Edition)
2. Electronics devices and circuit, David Bell
3. Digital integrated electronics, Herbert Taub, Donald Schelling
4. Basic Electronics by Bhargava

BS Patel
7/1/2019

SARDAR PATEL UNIVERSITY

B.Sc (4th Semester)

Electronics

US04CELE22

Instrumentation & Digital Electronics

(Four Credit Course: 4 Hours per week)

Effective from December: 2019-20

Unit I	**Logic Families and XOR-XNOR Gates** Logic Specifications, TTL Logic Family, XOR-XNOR Gates and their applications, Pairity Checker, Code Convertor, Controlled Inverter,Comparator, Half anf Full Adder, Half and Full Subtractor.
Unit II	**Flip Flops, Multivibrators and their applications** R S Flip Flop, Clocked R S Flip Flop, D Flip Flop, Edge Triggered D Flip Flop, J K Flip Flop, JK Master/Slave Flip Flop, Inroduction to Multivibrator, Schmitt Trigger, Astablemultivibrator and Monostable multivibrator.
Unit III	**Counters** Binary Ripple Counter, Asynchronous Counter 3 Bit, Mod -5,6 and 7, Synchronous Counter Mod6,7and 8,Combinational Counter Mod 5 Advantages and Disadvantages of various Counters
Unit IV	**Applications of Counters** Binary Decade Counter, Decoding Gates, Decoding Waveforms, BCD Counter, Up/Down Counter, Shift Counter, Three stage shift counter.

Text Books :-

1. Modern Electronics Instrumentation & Measurement Techniques(Unit-I) By A. D. Helfrick & W. D.Cooper
2. Digital Electronics By William Gothmann(Unit-II)
3. Digital Principles & Applications(Unit-III & IV) by A. P. Malvino& D. P. Leach
4. Digital fundamental By Thomas L. Floyd
5. Digital and Micro processor Electronics By Byron W. Putman
6. Digital Electronics By C. E. Strangio
7. Digital Computer Electronics(Unit-IV) (An Introduction to Microcomputer) By A. P. Malvino

7/11/2019

SARDAR PATEL UNIVERSITY

B.Sc (4th Semester)

Electronics

US04CELE23

Practical.

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

1) JFET Characteristics
2) FET voltage amplifier
3) Fixed voltage biasing using FET
4) Self biasing using FET
5) Potential divider biasing using FET
6) Schmitt trigger using transistor
7) Astable multivibrater using transistor

SARDAR PATEL UNIVERSITY

B.Sc (4th Semester)

Electronics

Practical.

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

1. XOR And XNOR Gates and their application.
2. Half and Full Adder
3. Half and Full Subtractor.
4. Flip- Flops (RS, Clocked RS, D, JK flip-flops).
5. BCD Counter.
6. Up-Down Counter.
7. Synchronous Counter.
8. Asynchronous Counter.