RAYALASEEMA UNIVERSITY, KURNOOL
ANDHRA PRADESH

B.Sc., Electronics Syllabus
w.e.f. 2020-21
(CBCS)

B.O.S OF ELECTRONICS

RAYALASEEMA UNIVERSITY, KURNOOL
SYLLABUS

I B.Sc., DEGREE – SEMESTER – I
Part – II – Electronics
Paper – I : CIRCUIT THEORY & ELECTRONIC DEVICES
(CBCS) W. E. F 2020 -21

Total Lectures: 60 Hours   04 Hours /week

UNIT –I:
Sinusoidal Alternating Wave Forms: **12 Hours**
Definition of Current and Voltage. The Sine wave – Phase relations- Average and RMS values – Difference between A.C and D.C .J- Operator. **Basic elements and Phasors:** A.C. Circuits containing Basic elements (L, C, & R).

UNIT –II:
Passive Networks and Network Theorems (D.C) :   **12 Hours**
Loop and Branch current Methods. Node voltage Analysis. Superposition Theorem – Thevenin's Theorem – Norton's Theorem – Maximum power transfer Theorem — Application to simple networks.

UNIT -III: **12 Hours**
RC and RL Circuits: Frequency response of RC and RL circuits – Low pass filter – High pass filter – Passive differentiating and integrating circuits. **Resonance**: Series resonance and Parallel resonance RLC circuits – Resonant frequency – Q factor. Comparison of Series and Parallel Resonance,

UNIT -IV:
Electronics Devices -I   **12 Hours**
Construction, working, V-I Characteristics, Equalent circuit, Symbol and Simple Applications: PN Junction Diode, Zener diode, Tunnel diode and Varicap diode.
BJT : NPN / PNP Construction, Working and Characteristics of CB, CE, CC configurations. Relation between α, β and γ. H-parameters.

UNIT –V:
Electronics Devices -II   **12 Hours**
JFET: N and P Channel - Construction and working – Drain and transfer characteristics – Advantages of FET over transistor. **MOSFET:** Enhancement and Depletion - Construction and working – Drain and transfer characteristics. Advantages of MOSFET over FET. Symbols.

RAYALASEEMA UNIVERSITY, KURNOOL
B.SC., FIRST YEAR DEGREE, SEMESTER – I

ELECTRONICS PRACTICAL – I
CIRCUIT THEORY & ELECTRONIC DEVICES LAB

LIST OF EXPERIMENTS
(CBCS)   (w.e.f 2020-21)

Work Load: 30 Hrs.   **2 Hrs/Week**

1. Thevenin's theorem – verification
2. Norton's theorem – verification.
3. Maximum power transfer theorem – verification.
4. RC circuit frequency response(low and High Pass)
5. LCR – series resonance frequency response, determination of f_0, Q and band width.
6. Junction diode V-I characteristics
7. Zener diode V-I characteristics.
8. BJT input and output characteristics in CE configuration and determination of H Parameters.
9. FET – Characteristics and determination of parameters.

Lab experiments are to be done on breadboard and simulation software and output values are to be compared and justified for variation.

Note: Minimum of 6 experiments to be done and recorded.

Scheme of valuation for Practical Examination

External Practical Examination	50 Marks
• Formula and explanation of symbols, Tabular forms with circuit diagram(wherever necessary)	10 Marks
• Observations	10 Marks
• Calculation and graph	10 Marks
• Result	05 Marks
• Viva-voce	05 Marks
• Practical Record	10 Marks