BSELE - SN101

[w.e.f. 2020-21 Admitted Batch]

Dr. B.RAMBEDKAR UNIVERSITY, SRIKAKULAM

B.Sc ELECTRONICS SYLLABUS

STRUCTURE UNDER CHOICE BASED CREDITS SYSTEM

REVIEWED SYLLABUS w.e.f. 2020-2021

I B.Sc Semester- I

BASIC CIRCUIT THEORY AND ELECTRONIC DEVICES & CIRCUITS

Work Load: 60 Hours Per Semester 4 Hrs/Week

UNIT -I:(12 Hrs)SINUSOIDAL ALTERNATING WAVEFORMS:

Definition of current and voltage. The sine wave, general format of sine wave for voltage or current, phase relations, average value, effective (R.M.S) values. Differences between A.C and D.C. Phase relation of R, L and C

UNIT-II: (12hrs)PASSIVE NETWORKS AND NETWORKS THEOREMS (D.C):

Branch current method, Nodal Analysis, Superposition Theorem, Thevenin's Theorem, Norton's Theorem, Maximum Power, Milliman and Reciprocity theorems.

UNIT-III: (12hrs)RC, RL AND RLC CIRCUITS:

Frequency response of RC and RL circuits, their action as low pass and high pass filters. Passive differentiating and integrating circuits. Series resonance and parallel resonance circuits,Q – Factor.

UNIT-IV: (12hrs)DIODES BJT, FET and UJT:

DIODES:Construction, working of PN, Zenor Diodes

BJT : Construction, working, and characteristics of CE Configurations.

FET: Construction, working and characteristics of JFET. Advantages of FET

UJT: Construction, working and characteristics of UJT.Relaxation Oscillator.

UNIT-V: (12hrs)POWER SUPPLIES & PHOTO ELECTRICDEVICES

Rectifiers : Half wave, full wave rectifier, Bridge rectifier -Efficiency-ripple factor- **Filters** : L- section & π-section filters.

I.C. regulators :Three Terminal Voltage Regulators (78XX &79XX).

Photo Electric Devices: Light Emitting Diode and Photodiode.

TEXT BOOKS:

1. Introductory circuit Analysis(UBSPublications) - Robert L.Boylestad.
2. Electronic Devices andCircuitTheory - Robert L. Boylestad&Louisashelsky.
3. Circuit Analysis by P.Gnanasivam- PearsonEducation
4. Electronic Devices and Circuit Theory—RobertBoylestad& LouisNashelsky.
5. Electronic Devices and Circuits I – T.L.Floyd- PHI FifthEdition

REFERENCE BOOKS:

1. Engineering Circuit Analysis By: Hayt&Kemmerly -MG.
2. Networks and Systems – D.RoyChowdary.

3. Unified Electronics (Circuit Analysis and Electronic Devices) by Agarwal-Arora
4. Electric Circuit Analysis- S.R. Paranjothi- New AgeInternational.
5. Integrated Electronics – Millmam&Halkias.

4. Details of Lab/Practical/Experiments/Tutorials syllabus:

Electronics lab-1

(Basic Circuit theory and Electronic devices & circuits)

Demonstration of C.R.O : Demonstration using CRO kit – Block diagram concepts etc., in lab session (Using slides)

(Assignments are to be given – Marks shall be allotted to this work as internal part.)

1. Thevenin's Theorem-verification
2. Norton'sTheorem-verification
3. Maximum Power TransferTheorem-verification
4. LCR series resonancecircuit.
5. LCR parallel resonancecircuit
6. VI Characteristics of PN Junction Diode
7. VI Characteristics of Zenor Diode
8. BJT input and outputcharacteristics
9. FET Output and transfercharacteristics
10. IC regulated powersupply(IC-7805)

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

Recommended Text books:

Recommended Reference books:

5. Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and grouplearning)

A. Measurable:
   1. Assignmentson:
   2. Student seminars (Individual presentation of papers) on topics relatingto:
   3. Quiz Programmes on:
   4. Individual FieldStudies/projects:
   5. Group discussionon:
   6. Group/Team Projectson:

B. General
   1. Collection of news reports and maintaining a record of paper-cuttings relating to topics covered insyllabus
   2. Group Discussionson:
   3. Watching TV discussions and preparing summary points recordingpersonal observations etc., under guidance from theLecturers
   4. Any similar activities with imaginative thinking.