B. Sc ELECTRONICS SYLLABUS UNDER CBCS

(Common Syllabus for all Universities in Andhra Pradesh State)

w.e.f. 2020-21 (revised in June 2020)

YEAR	SEMESTER	Paper	Tittle of the Paper	IA	EA	Total
I Year	I	I	CIRCUIT THEORY AND ELECTRONIC DEVICES	25	75	100
			PRACTICALS		50	50
	II	II	DIGITAL ELECTRONICS	25	75	100
			PRACTICALS		50	50
II Year	III	III	ANALOG CIRCUITS AND COMMUNICATION	25	75	100
			PRACTICALS		50	50
	IV	IV	MICROPROCESSOR SYSTEMS	25	75	100
			PRACTICALS		50	50
		V	MICRO CONTROLLER AND INTERFACING	25	75	100
			PRACTICALS		50	50

Note :

In each semester the Practical examinations shall be conduct deffinately done Externally by an **EXTERNAL PRACTICAL EXAMINER APPOINTED BY THE UNIVERSITY** w.e.f 2020-2021 which will enhance the quality of evaluation & improved Practical Education . Do not Conduct the Practical Examinations internally in any semester by Concerned College under any circumstances , the method is Purely unfaithful .

Syllabus approved

M. Basaveswara 19/10/20

Chairperson

(From: Balayesu Degree College: Hindupur)

Board of Studies in Electronics in B.Sc

S.K.University :: Anantapuramu

B.Sc. Electronics Syllabus under CBCS
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SEMESTER-1 **PAPER – I**

CIRCUIT THEORY AND ELECTRONIC DEVICES

Objectives:

- To explain the basic concepts and laws of DC and AC electrical networks and solve them using mesh and nodal analysis techniques.
- To analyze circuits in time and frequency domain.
- To synthesize the networks using passive elements.
- To understand the construction, working and VI characteristics of electronic devices.
- To understand the concept of power supply.

UNIT- I : (12Hrs)

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, star to delta & delta to star conversions. 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)

BJT, FET and UJT:

BJT: Construction, working, and characteristics of CE Configurations. Hybrid parameters and hybrid equivalent circuit of CE Transistor,

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

Advantages of FET over BJT.

UJT: Construction , working and characteristics of UJT. UJT as a Relaxation oscillator.

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UNIT-V : (12hrs)

POWER SUPPLIES & PHOTO ELECTRIC DEVICES :

Rectifiers: Half wave, full wave rectifiers - Efficiency- ripple factor- Filters- L-section & π-section filters. Three terminal fixed voltage I.C. regulators (78XX and &79XX). Light Emitting Diode – Photo diode and LDR .

TEXT BOOKS:

1. Introductory circuit Analysis (UBS Publications) ---- **Robert L. Boylestad.**
2. Electronic Devices and Circuit Theory --- **Robert L. Boylestad & Louisashelsky.**
3. Circuit Analysis by **P.Gnanasivam- Pearson Education**
4. Electronic Devices and Circuit Theory --- **Robert L. Boylestad & Louis Nashelsky.**
5. Electronic Devices and Circuits I – **T.L.Floyd- PHI Fifth Edition**

REFERENCE BOOKS:

1. Engineering Circuit Analysis **By: Hayt & Kemmerly - MG.**
2. Networks and Systems – **D.Roy Chowdary.**
3. Unified Electronics (Circuit Analysis and Electronic Devices) **by Agarwal- Arora**
4. Electric Circuit Analysis- **S.R. Paranjothi-** New Age International.
5. Integrated Electronics – **Millmam & Halkias.**
6. Electronic Devices & Circuits – **Bogart.**
7. Sedha R.S., A Text Book Of Applied Electronics, S.Chand & Company Ltd

Outcomes:-

- ✓ Apply concepts of electric network topology, nodes, branches, loops to solve circuit problems including the use of computer simulation.
- ✓ Apply time and frequency concepts of analysis.
- ✓ Synthesize the network using passive elements.
- ✓ Know about amplifier circuits, switching circuits and oscillator circuits their design and use in electronics.
- ✓ Design and construction of a power supply.

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ELECTRONICS LAB-I

(Circuit Theory and Electronic Devices)

LAB LIST:

1. Thevenin's Theorem-verification
2. Norton's Theorem-verification
3. Maximum Power Transfer Theorem-verification
4. LCR series resonance circuit.
5. BJT input and output characteristics
6. FET Output and transfer characteristics
7. UJT VI characteristics
8. LDR characteristics
9. IC regulated power supply(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.

Note :

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IMPORTANT INSTRUCTIONS TO DEAN / DIRECTOR OF EXAMINATION'S & EVALUATION 'S OF ALL UNIVERSITIES ON THEORY AND PRACTICALS OF EXAMINATIONS :

1. The duration of the examination for each theory examinations is 3 hrs.

   The duration of each practical examination is 2 hrs with 50 marks

2. Each course in theory is of 100 marks and practical course is of 50 marks.
   - Semester End University Examination in Theory

     Course: 75 marks [External evaluation]

   - Semester End University Examination in Practical

     50 marks [External evaluation]

3. In each semester the Practical examinations shall be conduct deffinately done by an EXTERNAL PRACTICAL EXAMINER APPOINTED BY THE UNIVERSITY w.e.f 2020-2021 which will enhance the quality of evaluation & Practical Education. Do not Conduct the Practical Examinations internally in any semester by Concerned College under any circumstances , the method is Purely unfaithful.

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B.Sc. ELECTRONICS

w.e.f. 2020-21 (Revised in June 2020)

MODEL QUESTION PAPER COMMON FOR ALL FIVE THEORY PAPERS

Time : 3 hrs Max marks : 75

SECTION-A

Essay Type Questions *Marks* : 5x10M = 50M

Answer All questions with internal choice from each Unit

1. a) Essay type question from Unit-1

   Or

   b) Essay type question from Unit-1

2. a) Essay type question from Unit-2

   Or

   b) Essay type question from Unit-2

3. a) Essay type question from Unit-3

   Or

   b) Essay type question from Unit-3

4. a) Essay type question from Unit-4

   Or

   b) Essay type question from Unit-4

5. a) Essay type question from Unit-5

   Or

   b) Essay type question from Unit-5

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SECTION-B

Short Answer Type Questions *Marks* : 5x5M = 25M

Answer any Five out of the following Ten questions

6. Short answer type question from Unit-1
7. Short answer type question from Unit-1
8. Short answer type question from Unit-2
9. Short answer type question from Unit-2
10. Short answer type question from Unit-3
11. Short answer type question from Unit-3
12. Short answer type question from Unit-4
13. Short answer type question from Unit-4
14. Short answer type question from Unit-5
15. Short answer type question from Unit-5

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