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

w.e.f. 2021-22 (revised in June 2020)

2nd YEAR

SEMESTER – III **PAPER – 3**

ANALOG CIRCUITS AND COMMUNICATION

OBJECTIVES:

- To understand the concepts, working principles and key applications of linear integrated circuits.
- To perform analysis of circuits based on linear integrated circuits.
- To design circuits and systems for particular applications using linear integrated circuits.
- To introduce students to various modulation and demodulation techniques of analog communication.
- To analyse different parameters of analog communication techniques.
- It also focuses on Transmitters and Receivers.

UNIT – I : (12hrs)

OPERATIONAL AMPLIFIERS:

Definition , Characteristics of Op-Amp, Block diagram of op-amp, inverting, noninverting, virtual ground, , summing amplifier, subtractor, voltage follower, op-amp parameters, voltage to current convertor ,integrator, differentiator, differential amplifier, Logarithmic amplifier.

UNIT- II : (12hrs)

OP-AMP CIRCUITS :

voltage regulator, comparator, zero cross detecting circuit, instrumentation amplifier, Schmitt trigger. sine wave generator, square wave generator, triangular wave generator, Active filters (Basics)-low pass, high pass, band pass filters

IC-555 –functional block diagram and mention it's applications

UNIT –III : (12Hrs)

AMPLITUDE MODULATION:

Need for modulation, amplitude modulation-frequency spectrum of AM wave, representation of AM, power relations in the AM wave . Generation of AM- Transistor modulators . Detection of AM signals – Diode detector.

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UNIT-IV : (12hrs)

FREQUENCY MODULATION :

Theory of FM , Frequency deviation and carrier swing, modulation index, deviation ratio, percent modulation . Mathematical representation of FM, frequency spectrum and bandwidth of FM waves, Generation of FM signals – Varactor diode modulator and Reactance modulator. Detection of FM waves – FM demodulation with discriminator.

UNIT-V : (12hrs)

RADIO BROADCASTING AND RECEPTION :

Spectrum of electromagnetic waves , Radio broadcasting and reception, Transmitter, AM receivers - Straight forward receiver, Super heterodyne receiver . FM receivers.

TEXT BOOKS:

1. Op Amp and Linear Integrated Circuits By Ramakant Gaykwad
2. Linear Integrated Circuits By Roy Choudary
3. Unified Electronics Vol II – J.P. Agarwal and Amit Agarwal.
4. Electronic Communications - George Kennedy
5. Antennas and Wave Propagation – G.S.N.Raju – PHI
6. Principles of communication system –Herbert Taub & D.L.Schilling

Reference Books :

1. Jacob Millan ,Micro Electronics,McGraw Hill.
2. Mithal G K, Electronic Devices and Circuits Thana Publishers.
3. Allan Motter shead ,Electronic Devices and Circuits – An Introduction- Prentice Hall
4. Electronic Communications – Roody & Colen
5. Communication Systems – Hayken --- 4th Edition
6. Modern digital and analog communication system –B.P. Lathi

OUTCOMES:

- ✓ Understand the fundamentals and areas of applications for the integrated circuits.
- ✓ Analyze important types of integrated circuits.
- ✓ Demonstrate the ability to design practical circuits that perform the desired operation.
- ✓ Select the appropriate integrated circuit modules to build a given application.
- ✓ Use of different modulation and demodulation techniques used in analog communication.
- ✓ Identify and solve basic communication problems.
- ✓ Analyze transmitters and receiver circuits.

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Electronics Lab - 3

(Analog Circuits and Communication)

LAB LIST:

1. Op-Amp as inverting and non-inverting
2. OpAmp Voltage follower and current follower.
3. Op-Amp as integrator and differentiator
4. Op-Amp as adder & subtractor
5. Op-Amp as voltage to current converter
6. Op-Amp as square wave generator
7. Amplitude modulation and demodulation.
8. AM Transimitter and Receiver.
9. FM Transmitter and Receiver.

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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