



**Syllabus for 4-Years UG Honours in B.Sc (Electronics) as Major in
consonance**

with curriculum frame work (W.E.F. AY-2026-27)

COURSE STRUCTURE (for Semester III)

II	III	5	Analog Circuits and Communication	3	3
			Analog Circuits and Communication Practical Course	2	1
		6	Microprocessor System	3	3
			Microprocessor System Practical Course	2	1
		7	Electrical and Electronics Instrumentation	3	3
			Electrical and Electronics Instrumentation Practical Course	2	1

SEMISTER - III

COURSE-5: ANALOG CIRCUITS AND COMMUNICATION

Theory

Credits: 3

3 hrs /week

Unit - I: OPERATIONAL AMPLIFIERS (9 hrs)

Summing amplifier, subtractor, voltage follower, voltage to current convertor, integrator, differentiator, differential amplifier, Logarithmic amplifier, Specialized op- amps, Instrumentation op- amps, Programmable op- amps, High speed amplifiers,

Unit - II: OP-AMP CIRCUITS (9 hrs)

Voltage regulator, comparator, zero cross detecting circuit, instrumentation amplifier, sine wave generator, square wave generator (Astable multi vibrator), 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: AMPLITUDE MODULATION (9 Hrs)

Need for modulation, amplitude modulation-analysis of an amplitude modulated wave, side bands and bandwidth, power relations in the AM wave. Generation of AM- Transistor modulators. Detection of AM signals - Diode detector.

Unit - IV: FREQUENCY MODULATION (9 hrs)

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 Basic Reactance modulator. Detection of FM waves - FM demodulation with discriminator. Advantages of FM over AM.

Unit - V: RADIO BROADCASTING AND RECEPTION (9 hrs)

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

TEXT BOOKS:

1. Op Amp and Linear Integrated Circuits By Ramakant Gaykwad
2. Linear Integrated Circuits By Roy Choudhary
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

SEMESTER - III

COURSE 5: ANALOG CIRCUITS AND COMMUNICATION

Practical

Credits: 1

2 hrs/week

Lab Experiments:

1. Op-Amp as inverting and non-inverting
2. Op-Amp 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. Frequency modulation and demodulation.
9. AM Transmitter and Receiver.
10. FM Transmitter and Receiver.



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4- Year UG Honours, Major
Syllabus
(2026-27)
Semester-III

Model Question Paper

Time : 3hrs

Marks:75

Part-A

Answer any Five Questions. Each Question carries 3 Marks.

5x3=15

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

Answer the following questions. Each question carries 12 Marks

5x12=60

11. a) Unit-I
(Or)
b) Unit-I

12. a) Unit-II
(Or)
b) Unit-II

13. a) Unit-III
(Or)
b) Unit-III

14. a) Unit-IV
(Or)
b) Unit-IV

15. a) Unit-V
(Or)
b) Unit-V