

Branch Name:	Physics
Program Code:	SC105
Course Name:	Physics 604
Course Code:	2SC1050604
Pre-requisite Course:	Basic knowledge of Electronics.

Course Objectives:

- To develop an actual understanding of the Amplifier.
- To know the basic concept of Digital Electronics.
- To understand the concept of Modulation.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	--	--	3	70	30	--	--	100

Subject Contents:

Sr. No	Topic	Total Hours	Weightage (%)
1	(a) Feedback Amplifier Feedback, Principle of Feedback Amplifiers, Advantages of Negative Feedback, Reasons for Negative Feedback. (b) Transistor Oscillators (Sinusoidal): Tuned Collector Oscillators, Hartley Oscillator, Colpitt's Oscillators (Circuit operation and alternative treatment only), Phase Shift oscillator, R-C- Oscillator, Wien Bridge Oscillator, Crystal Oscillator.	15	33
2	(a) Modulation Introduction, Expression for Amplitude modulated voltage, Wave form Amplitude modulated voltage, Side band produced in Amplitude modulated wave, Modulated power output, Frequency Modulation, Frequency deviation and carrier swing, Modulation index, Expression for frequency modulated wave, Phase modulation. (b) Digital Electronics: Simplification using Karnaugh Maps, Don't Care Conditions, BCD-to-7 Segment Decoder, Digital Comparator, Multiplexer, Demultiplexer.	15	33
3	(a) Operators and Expressions Introduction, Operators: Arithmetic, Relational, Logical, Assignment, Increment and Decrement, Conditional, Bitwise, Special. Arithmetic Expressions, Evolution of Expressions, Precedence of Arithmetic Operators, Some Computational Problems, Type Conversion in Expressions, Operator Precedence and Associativity, Mathematical Functions. Applications of Digital Circuits Memories: Read Only Memory, Programmable Read Only Memory, Erasable Programmable Read Only Memory & Random Access Memory, expanding memory size. Digital to Analog and Analog to Digital Convertors: Resistive divider, Binary ladder, Digital to Analog Convertor using OPAMP, specifications, parallel comparators, counter method & approximation methods.	15	34

Reference Books:

1. Networks, Lines and Fields by J. D. Ryder. Prentice Hall.
2. Electronics and Radio Engineering by M. L. Gupta. 9th Enlarged Edition reprint 2002. Dhanpat Rai Publication.
3. Hand Book of Electronics by Gupta and Kumar. 30th revised Edition 2002.
4. Operational Amplifier by Ramakant Gaekwad

List of Open Source Software/learning website:

1. https://www.youtube.com/watch?v=c_QX170sPIg&list=PLXbLuD5WNA3KnewZl2kkleJVsfbiGdTt
2. https://www.youtube.com/watch?v=YfhYE6_v6fI
3. https://www.youtube.com/watch?v=KM_HJmygBtA

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Describe the Feedback Amplifier.	1 Remembering
CLO2	Discuss the Transistor Oscillators.	2 Understanding
CLO3	Solve the numerical based on Digital Electronics	3 Applying
CLO4	Explain the Applications of Digital Circuits.	4 Analyzing
CLO5	Justify the operators and Expressions.	5 Evaluating
CLO6	Design a various digital circuits.	6 creating

Mapping of CLOs with POs & PSOs

Course Learning Outcomes	Programme Outcomes (POs)									Programme Specific Outcome (PSOs)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2
CLO1									L		
CLO2		M									H
CLO3				H							
CLO4											H
CLO5					H			M			
CLO6			M								H

H: High, M: Medium, L: Low