

Branch Name:	Physics
Program Code:	SC105
Course Name:	Physics 504
Course Code:	2SC1050504
Pre-requisite Course:	Basic knowledge of Electronics.

Course Objectives:

1. To Develop an actual understanding of the Network Theorems and Photo electric Devices.
2. To know the basic concept of Amplifier.
3. To Understand the concept of Digital Circuits.

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) Network Transformations: Principle of duality, Reduction of Complicated network, Conversions between T and π sections, The bridged-T network, The Lattice Network, The Reciprocity theorem, The compensation theorem, Driving point impedance, transfer impedance, The parallel-T network. (b) Photo Electric Devices and Thyristors: Classification of Photoelectric devices, Photoconductive cells, Photovoltaic cells, SCR, Triac and Diac.	15	33
2	(a) Basic Transistor Amplifiers: Current and Voltage amplifiers, Common Emitter Amplifiers with Emitter Resistor, Simplified Common Emitter Hybrid Model, Effect of An Emitter Bypass Capacitor in low frequency Response. (b) Multistage Amplifiers: Multistage Transistor Amplifiers, R-C- coupled Amplifiers, Transformer Coupled Amplifiers and Direct coupled Amplifiers, Effect of cascading on Band width.	15	33
3	(a) BCD Codes and Digital Circuits: Review of Binary Coded Decimal codes, Boolean functions, Min-terms and Max-terms. Karnaugh Mapping, Tri-state logic, positive and negative logic, signed binary numbers. (b) Arithmetic logic circuits: Adders- Half adder and Full adder, Subtractor, comparators, Combinational and Sequential Circuits- Decoders, De-multiplexers, Encoders, Multiplexers, Registers and Counters.	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. Programming in ANSI C by E. Balaguruswami (THM) (3rd Edition)

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 Photo Electric Devices and Thyristors.	1 Remembering
CLO2	Discuss the Network Transformations.	2 Understanding
CLO3	Solve the numerical based on Transistor Amplifiers	3 Applying
CLO4	Explain BCD Codes and Digital Circuits.	4 Analyzing
CLO5	Justify the concept of Arithmetic logic circuits.	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		M
CLO4	H										L
CLO5				M			L				H
CLO6											

H: High, M: Medium, L: Low