

**ST. XAVIER'S COLLEGE (AUTONOMOUS), AHMEDABAD-9
FACULTY OF SCIENCE**



DEPARTMENT OF PHYSICS & ELECTRONICS

SEMESTER – II

**SYLLABUS
OF
BSc ELECTRONICS (HONOURS)**

**BASED ON UNDERGRADUATE CURRICULUM FRAMEWORK
(NEP – 2020)**

(Effective from Academic Year 2023)

Curriculum Framework for Semester – II

Course	Title	Content		Credit
DSC-1	ELMC221C Fundamental of Electronics-II	U1	Network Theorem and Resonance Circuit	4
		U2	Impedance Transformation and Coupled Circuits	
		U3	Bipolar junction Transistor	
		U4	Mid Band Analysis of small signal Amplifier	
DSC-2	ELMC222L Electronics and Experiential Lab-II	14 Experiments		4
		Experiential Laboratory		
Minor	ELMN221C Basic Electronics-II	U1	Number Systems and Codes	4
		U2	Diodes and their Applications	
		U3	14 Experiments	
		U4		
MDC	MDC 260C How Things Works	U1	Basics of Electricity and Household Electric Systems	4
		U2	Common Electronic Gadgets and How They Work	
		U3	Mechanical Appliances and Simple Machines	
		U4	Laboratory	
SEC	ELSE221C Electronics Circuits and Testing	U1		2
		U2	Laboratory Component	
AEC	Ability Enhancement Course	* (To be offered by the concerned subject Department) Ability Enhancement Course		2
VAC	Value Added Course	(To be chosen from a basket of courses)		2
Total Credits				22

* DSC: Discipline Specific Core

St. Xavier's College (Autonomous), Ahmedabad

Syllabus of Semester–II to be implemented from the Academic Year 2025-26.

DEPARTMENT OF PHYSICS & ELECTRONICS

SEC Course: Electronics Circuits and Testing on Analysis Using C

Course Code & Title	Credit Distribution of The Course			Eligibility Criteria	Prerequisite(s) of the Course (if any)
	Cr	Lecture hrs	Laboratory hrs		
ELSE221C: Electronics Circuits and Testing	2	15x1	15x2		10 + 2 from a recognized board Science Stream Math-Group

Learning Objectives:

LO1	Demonstrate the ability to build, test, and troubleshoot electronic circuits using appropriate components and instruments.
LO2	Fabricate a functional electronic product by assembling tested circuits with variable controls, connectors, and protective components like fuses.

Course Outcomes:

CO1	Identify and understand the function of basic electronic components such as resistors, capacitors, inductors, diodes, transistors, and transformers.
CO2	Operate and utilize electronic measuring instruments like ammeters, voltmeters, multimeters, CROs, and signal generators in circuit analysis and testing.

Unit 1: Course work**Credit of Course: 1 Cr****Lecture 12 Hrs****Tutorial 3Hrs****[A] Components:** Resistors, Capacitors, Inductors, Transformer, PN Junction diode, Zener diode, Transistor**[B] Instruments:** Ammeter (AC/DC), Voltmeter (AC/DC), Multimeter, Audio frequency oscillator(AFO), Function generator, Cathode Ray Tube (CRO).**Unit 2: Laboratory Component****Credit of Course: 1 Cr****Laboratory 30Hrs**

1	Identification and testing of various active and passive components
2	CRO: Frequency, Periodic time and phase
3	Use of Function generator, AFO, Multimeter and power supply
4	To design and construct Half wave rectifier circuit using PN junction diode
5	To design and construct Full wave rectifier circuit using PN junction diode
6	To design and construct RL Low pass filter
7	To design and construct RC High pass filter
8	Transistor I/P and O/P characteristics