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

DEPARTMENT OF PHYSICS & ELECTRONICS

SEMESTER – I

SYLLABUS
OF
BSc ELECTRONICS (HONOURS)

BASED ON UNDERGRADUATE CURRICULUM FRAMEWORK
(NEP – 2020)

(Effective from Academic Year 2023)

Curriculum Framework for Semester – I

Course	Title	Content		Credit
DSC-1	ELMC111C Fundamental of Electronics-I	U1	Number Systems and Codes	4
		U2	Boolean Algebra	
		U3	Diodes and their Applications	
		U4	General Amplifier Characteristics	
DSC-2	ELMC112L Electronics and Experiential Lab-I	14 Experiments		4
		Experiential Lab: Hands on experiment.		
Minor	ELMN1101 Basic Electronics-I	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	ELSE111C Electronics Design using C Programming	U1	C Language Programming	2
		U2	Electronics Designing Using C Programming	
AEC	Ability Enhancement Course		(To be offered by the concerned subject Department)	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–I to be implemented from the Academic Year **2025-26.**

DEPARTMENT OF PHYSICS & ELECTRONICS

Skill Enhanced Course: Electronics Designing Using C Programming

Course Code & Title	Credit Distribution of The Course				Eligibility Criteria	Prerequisite(s) of the Course (if any)
	Cr	Lecture hrs	Lab hrs	Activity/Case study analysis		
ELSE11C Electronics Designing Using C Programming	2	1Cr	1Cr	Project on: Problems solving related with Electronics	10+2 recognized board Science Stream Math and Biology-Group	Basic Mathematical Logic

Learning Objectives:

LO1	In this course student learn knowledge of C variable and C structure to explain the operational statements.
LO2	The concept of loop, Calling Libraries and executing slightly lengthier programs on Computer shall be undertaken.
LO3	In this course student apply the knowledge of C decision making loops, control statements and arrays for physics related scientific problems. it can be used to design useful software advances.

Course Outcomes:

CO1	The students shall be familiarized with basic syntax of C programming. They shall be able to write small programs using various C language statements.
CO2	This course develops skills in students and also trained the students to get jobs in the software company.
CO3	Apply the use of C arrays in micro-processors and physics problem solving, and can be program for integrated circuits and useful in many devices

Unit 1: C Language Programming

Credit of Course: 1 Cr   **Lecture 15 Hrs**

(A)   Introduction to C, History about C, Flowcharts, Basic structure of a C program, executing a C program, Keywords and identifiers, Variables, C operators, reading a character, writing a character, Formatted input, Formatted output, Decision making with if statements, Simple if statement, if-else statement, nesting of if-else statements, else if ladder, switch statements

(B)   Conditional operator, go to statement, while statement, do statement, do while, for statement, jumps in loops – continue and break statements Arrays, one dimensional arrays, declaration and initialization of arrays, two dimensional and multi-dimensional arrays, Declaring and initializing string variables, reading and writing strings, arithmetic operations on characters, concatenation, comparing, copying and finding length of strings.

Unit 2: Electronics Designing Using C Programming

Credit of Course: 1 Cr   **Lecture 30 Hrs**

1	Write a C program to simulate Ohm's Law Calculator
2	Write a C program to solve problems related to Capacitor Charging (Time Constant $\tau = RC$)
3	C-Program to convert Binary to Decimal
4	C-Program to convert Binary to Hexadecimal
5	C-Program to convert Fahrenheit to Celsius
6	C-Program to LED ON/OFF Simulation
7	C-Program to Simple Logic Gate Simulator (AND, OR, NOT)
8	C-Program to Find mean, variance and standard deviation
9	Write a C program for prime number, natural number, even or odd number.
10	Write a C program for Fibonacci number.
11	Write a C program for RC Charging and Discharging Simulation (with step time).
12	Write a C program for Diode characteristics Simulation
13	Write a C program for solar cell efficiency

Textbook:
Programming in ANSI-C   **Balagurusamy E**
Article: 1.1 to 1.6, 2.1 to 2.10, 3.2 to 3.10, 4.2 to 4.5, 5.2 to 5.9, 6.2 to 6.5, 7.1 to 7.4, 8.1 to 8.6
Publication: TMHpub

Reference Books:
1   **P.Day and M.Ghosh. Programming in C, Oxford University Press,2007**
2   **Gottfried B.S. Programming with C 8. Kenetker Y. Let us C, BPB pub**
3   **Kernighan B.W and Ritchie D.K C programming language, PH pub**