

## Skill Enhancement Courses: PH-SEC

**B.Sc. Semester-I**

**Course code: PH-SEC-1**

**Total Credits: 02 (Theory: 1, Practical; 1)**

**Total Hrs: Theory: 15, Practical: 30**

**Course Title: Electrical Circuits and Network Skills**

### PH-SEC-1

#### Electrical Circuits and Network Skills (Theory)

<b>Unit-1</b>	<b>Basic Electricity Principles:</b> Voltage, Current, Resistance, and Power. Ohm's law, Series, parallel, and series-parallel combinations. AC Electricity and DC, Electricity. Familiarization with multimeter, voltmeter and ammeter. <b>DC Power sources:</b> AC/DC generators. Inductance, capacitance, and impedance. Operation of transformers.
<b>Unit-2</b>	<b>Main electric circuit elements and their combination:</b> Rules to analyze DC sourced electrical circuits. Current and voltage drop across the DC circuit elements. Single phase and three-phase alternating current sources. Rules to analyze AC sourced electrical circuits. Real, imaginary and complex power components of AC source. Power factor. Saving energy and money, <b>Reading of circuit schematics.:</b> Tracking the connections of elements and identifying current flow and voltage drop.

#### Recommended Books:

1. A textbook in Electrical Technology - B L Theraja - S Chand & Co.
2. A textbook of Electrical Technology - A K Theraja
3. Performance and design of AC machines - M G Say ELBS Edn.

## PH-SEC-1

### Electrical Circuits and Network Skills (Practical)

Sr.No.	Experiment
1	Identify different electrical components: Resistor, Capacitor, variable resistor, Rheostat, dc voltage sources: battery, battery eliminator, power supply.
2	Use ammeter and voltmeter in a circuit and measure current and voltage
3	Use a Multimeter for measuring (a) Resistances, (b) AC and DC Voltages, (c) DC Current, and Checking electrical continuity.
4	Connect resistances in series and parallel and measure the equivalent resistance using multimeter
5	Build a dc circuit using elements like battery, resistances and switch and measure current flow and voltage drop across the components.
6	Identify the electronic components like rectifying diodes, Zener diodes, transistor, carbon resistance, capacitors, and test them with multimeter

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**Veer Narmad South Gujarat University, Surat**  
**Proposed Syllabus for Minor**  
**(NEP-2020)**  
**B. Sc. Sem. I**  
**SKILL BASED ELECTIVE COURSE**  
**PROGRAMMING IN “C” LANGUAGE**

<b>Unit 1</b>	
	Input unit - output unit - Central Processing Unit (CPU) –programming languages - algorithms - flow charts - operating system -basic principle, Basic structure of C - programs - constants - variables - data type –declaration of variables - defining symbolic constants, operators and expression - reading a character - writing a character – formatted input and output statements
<b>Unit 2</b>	
	Control statements - simple if, if – else, else - if ladder – switching statements - go to statement - break and continue looping - while-do for statements - arrays - user defined functions - string functions -strcat, strcpy, strlen, strcmp - elementary idea.

**Experiments: -**

Development of algorithm, flow chart and program for the following

1. Average of a set of numbers
2. Area of a triangle
3. Sorting a set of numbers in ascending and descending order
4. Summing the series of numbers
5. Solving the series of numbers.

**BOOKS STUDY AND REFERENCE**

1. E. Balagurusamy, Programming in ANSI C, McGraw Hill Education (2012)
2. Byron Gottfried, Jitender Chhabra, Programming with C, Schaum Series (2010)
3. Henry Mullish (Author), Herbert L. Cooper (Author), The Spirit of C (1998)
4. S. Thamarai Selvi and R. Murugesan, C for all, Pearson education (2012)