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Programming in C — Complete Syllabus

BTEUP Diploma in Electronics Engineering • 4th Semester • Session 2026-27

Subject 4.4 (Practicum) • Total 100 Marks • 3 Credits • L 1 - P 4

Note: The PDF prints Unit 1 as “(0 4 Periods)” (garbled); 4 periods is used here. No marks-distribution table is given for this subject, so unit weightages are not shown. Book 4 in the PDF’s list (“Electronic Instruments&Measurement”) appears to be a copy-paste error in the original — it is reproduced exactly as printed.

Examination Scheme

Code	Paper	Type	L - P	Credits	Internal	External	Total
4.4	Programming in C	Practicum	1 - 4	3	Practical 60	Practical 40 (3 hrs)	100
Programming in C Total				3	60	40	100

What This Subject Aims To Do

To enable students to use computers for problem-solving through the C programming language, reinforced with hands-on exercises and programming labs; the course also introduces Python programming (language fundamentals, IDE/IDLE usage, control flow, strings, input/output, collections, classes, modules and regular expressions).

Unit-Wise Complete Topic List

Note: no marks-distribution table is given for this subject in the official syllabus, so unit weightages are not shown.

Unit 1 — Introduction (4 Periods)

Topics: Brief idea of low level and high level programming languages, steps in development of a Program, Flow charts, Algorithm development, Programme Debugging, Introduction to Python, Basis of C programming, I/O statements, Assign statements, Constants, variables and data types, Operators and Expressions, Standards and Formatted IOS, Data Type Casting

In simple words: First steps: low-level vs high-level languages, flowcharts and algorithms, and the C basics — variables, data types, operators and input/output — plus a first look at Python.

Unit 2 — Control Structures (2 Periods)

Topics: Decision making with IF - statement, IF - Else and Nested IF, While and do-while, FOR loop Break. Continue go to and switch statements

In simple words: Making decisions and repeating work: if-else, loops, break, continue and switch.

Unit 3 — Functions (4 Periods)

Topics: Introduction to functions, Global and Local Variables, Function Declaration, Standard functions Parameters and Parameter Passing, Call - by value/reference, Recursion

In simple words: Splitting programs into reusable functions, passing values by value or by reference, and recursion.

Unit 4 — Arrays (2 Periods)

Topics: Introduction to Arrays, Array Declaration, Length of array, Single and Multidimensional Array, Arrays of characters, Passing an array to function, Pointers to an array

In simple words: Storing many values together: single and multi-dimensional arrays, character arrays, and pointers to arrays.

Unit 5 — Pointers (2 Periods)

Topics: Introduction to Pointers, Address operator and pointers, Declaring and Initializing pointers Single pointer, Introduction to Colab, Programming in Python.

In simple words: Pointers — variables that hold addresses — plus an introduction to Google Colab and Python programming.

Practical Work

- Programming exercises on executing and editing a C program.
- Programming exercises on defining variables and assigning values to variables.
- Programming exercises on arithmetic and relational operators.
- Programming exercises on arithmetic expressions and their evaluation.
- Programming exercises on formatting input/output using printf and scanf and their return type values.
- Programming exercises using if statement.
- Programming exercises using if – Else.
- Programming exercises on switch statement.
- Programming exercises on do – while, statement.
- Programming exercises on for – statement.
- Programs on one-dimensional array.
- Programs on two-dimensional array.
- (i) Programs for putting two strings together. (ii) Programs for comparing two strings.
- Simple programs using structures.
- Simple programs using pointers.
- Simple programs using union.
- Practice basic coding syntax in Python language.

Reference Books (as listed in the syllabus)

- Let Us C, Yashavant Kanetkar
- Problem Solving and Programming in C, R.S. Salaria, Khanna Publishing House
- C Programming Absolute Beginner's Guide, Dean Miller and Greg Perry
- Rahul Wadhwa, Electronic Instruments&Measurement, Asian Publishers, Muzaffarnagar. ISBN: 978-93-5502-137-3
- Learning Python by Mark Lutz; Pratham Books, Bangalore
- Foundations of Python Network Programming by John Goerzen and Brandeu Rhodes; A press-e Book distributed by Springer Science and Business Media, New York

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Source: BTEUP 2nd Year curriculum (folder2627), approved in C.D.C. meeting held on 16.07.2026. Topic lists follow the official syllabus; short explanations are the author's own plain-English summaries, not syllabus text.

Please confirm with your own polytechnic for any local changes.