

FACULTY OF SCIENCES
SYLLABUS
FOR
VALUE ADDED COURSES
(FOR B.Sc. STUDENTS)

Examinations: 2021-2022



Department of Physics

Khalsa College, Amritsar

(An Autonomous College)

Note: (a) Copy rights are reserved. Nobody is allowed to print it in any form.
(b) Subject to change in the syllabi at any time.
(c) Please visit the College website time to time.

FUNDAMENTALS OF CRO (CATHODE RAY OSCILLOSCOPE)

VAFC-1

Total Hours: 30

Maximum Marks: 50

Pass Marks: 35 %

Instructions: Question paper will consist of 25 Multiple Choice Questions (MCQs) of 2 marks each covering the whole syllabus. The candidate will have to attempt all the questions.

Course Objective: The aim of this course is to make the students aware about the basics of CRO & Its uses. The students will learn about the specifications and panel controls of CRO, working of CRO and its applications in measuring voltage, frequency and Lissajous patterns.

Course Content:

Unit-I

-Introduction of Cathode Ray Oscilloscope (CRO), Constitution of CRO, Construction and working of Cathode Ray Tube (CRT), Electron Gun, Focusing, Deflection System, Deflection Sensitivity, Fluorescent Screen.

-CRT Phosphor Materials and Characteristics, Block diagram description of a basic CRO, Time Base Generators or Sweep voltage.

-Applications of CRO: Measurement of Voltage, Current & Frequency, Lissajous patterns.

Unit-II

-Front Panel Controls of CRO, Specifications of CRO and their explanation using working Model.

-Waveform Monitoring using CRO.

-Measurement of Amplitude, Voltage, Frequency and Period of an AC Supply, Voltage of DC supply.

-Measurement of Deflection Sensitivity (X & Y).

-Comparison of the frequencies of oscillations produced by two audio oscillators using the Lissajous figures on CRO.

Books Prescribed:

1. Basics Electronics and Linear Circuits by NN Bhargava, DC Kulshreshtha and SC Gupta. Technical Teachers Training Institute Chandigarh. Tata McGraw-Hill Publications.
2. Practical Physics by CL Arora. S. Chand Publications.
3. Electrical and Electronic measurements and Instrumentation by A.K.Sawhney. Dhanpat Rai & Sons Publications.
4. Electrical Circuits and Basic semiconductor electronics by JP Agarwal and Amit Agarwal. Pragati Publications.

Course Outcomes:

Sr. No.	On completing the course, the students will be able to:
CO1	Learn about the different specifications of CRO.
CO2	Monitor the waveform using CRO.
CO3	Measure voltage, frequency and phase on a variety of displayed waveforms.
CO4	Learn about CRT Phosphor Materials and Characteristics.

DATA ANALYSIS USING EXCEL SPREADSHEET

VADA-2

Total Hours: 30

Maximum Marks: 50

Pass Marks: 35%

Instructions: Question paper will consist of 25 Multiple Choice Questions (MCQs) of 2 marks each covering the whole syllabus. The candidate will have to attempt all the questions.

Course Objectives:

The main objective of this course is to make students familiar with the Microsoft excel and its applications in different areas. It further aims to make them able to plot different types of graphs or charts with the help of excel.

Course Content:

UNIT-I

Introduction to Microsoft Excel- Worksheet overview, History of excel, versions, importance, features and organization of worksheet. Application areas of spreadsheet, row, column and cell. Adding, resizing, copying and pasting of cells. Active cell, cell pointer and address, drag and drop, freeze panes, basic shortcut keys, undo and redo.

UNIT-II

Data analysis- Entering data, formulas, statistical functions, mathematical functions, converting formulas to values, create a chart or graph, different types of chart, Display a 3-D column chart, Chart toolbar, printing the graph, Enhancing the charts, gridlines, formatting text and numbers, color and patterns, modifying and deleting.

Books Prescribed:

1. Windows based computer courses: G. Singh and R. Singh - Kalyani publishers.
2. Introduction to computers: Peter Norton- Tata Mcgraw Hill.
3. Computer Fundamentals: P.K. Sinha and Priti Sinha- BPB publications.

Course Outcomes

Sr. No.	On completing the course, the students will be able to:
CO1	Know about the history and importance Microsoft excel.
CO2	Understand about the basics involved in spreadsheet.
CO3	Solve mathematical and statistical problems with excel.
CO4	Plot graphs and charts with the help of Microsoft excel.
CO5	Enhance the charts with toolbar and shortcut keys.