

Offering Department: Mathematics Department
Part – III - SEC - III Value Added Course
effective for the students admitted from 2016-2017 onwards

Semester – V			
16UMAVA02	VA-II Graphing-and-Plotting- Techniques	3hrs/week	2Credits

Objectives:-

Upon completion of the course students will be able to

1. Identify the relevant population, sample, study units (subjects) and variables.
2. Identify data that follow a normal curve and find chances and percentages using a normal curve.
3. Produce and interpret numerical summary statistics using mean, median, mode, range, standard deviation and variance.
4. Perform and interpret testing of hypothesis including chi-squared test and other ANOVA test for independence.

Unit-1 Types of data and functions (8Hrs)

- Basic plotting and charting concepts
- Functions including \log , e^x , 2^x , a^x , \sin , \cos , \tan and hyperbolic functions
- Plotting of these functions
- Plotting experimental data

Unit-2 Plotting Data with Microsoft Excel (7Hrs)

- Defining a Data Series
- Pie Chart
- Column Chart
- Line Chart
- Bar Chart
- Area Chart
- Scatter Chart
- Other Chart Types

Unit- 3 Plotting using SCILAB. (8Hrs)

- Scilab basics
- Matrices and vectors using Scilab
- Linespace command, colon operator
- Plot command and its parameters
- Polarplot command and its parameters.
- Formatting plots.

Unit-4 Plotting using GeoGebra (7Hrs)

- Basics of GeoGebra
- Plotting curves like circle, conics, lines, polygons etc using tool bar.
- Plotting using menu-bar of GeoGebra

- Formatting the figures in GeoGebra

Unit-5 Interpretation of data and its plots. (6Hrs)

- Observing the given data and plotting using any of the above methods
- Points to be observed as Interpretation of data from the given plot.
- Problems based on Interpretation.
- Identification of Relationship between variable like linear, quadratic, exponential, logarithmic and other.

TEXT BOOKS: -

1. Judith Hohenwarter and Markus Hohenwarter, Introduction to GeoGebra
2. Micha el Baudin, Introduction to Scilab
3. Vook , Microsoft Excel Charts and Graphs: The How-To Guide

REFERENCE BOOKS:-

1. Judith Hohenwarter and Markus Hohenwarter, The official manual of GeoGebra
2. Jean-Philippe Chancelier, Michel de Lara cermics, Introduction to Scilab, September 6, 2006