SANT HIRDARAM GIRLS COLLEGE, BHOPAL

DEPARTMENT OF MATHEMATICS

CERTIFICATE COURSES

Certificate Course in Vedic Mathematics

Course Objectives:

1. To make learners strong in Numerical Mathematics.
2. To enable learners to recognize and understand simple techniques of Arithmetic Calculations.
3. To train learners to use the ideas of Vedic Mathematics in daily calculations and make those calculations with accuracy and speed.
4. Eradicates fear of Math completely. So if you have Math – Phobia High Speed Vedic Math is a Fun – Filled way to do Math and arise interest.

Course Outcome:

By successful completing this course, the learners will be able to:

1. You will be learning how to speed up Addition, Subtraction, Multiplication, Division, Squares and square roots in less than 5 seconds. Sharpen your skills of Algebraic Equations and do it mentally.
2. By the end of each topic you will have a better understanding of the Mental Math Method being explained.
3. You will be able to calculate 10-15 times faster than before.
4. Develop your left and the right side of the brain by increasing the visualization and concentration abilities.
5. Face Numerical Aptitude part of any Competitive Examination confidently.

Course Content
Course Duration: 7 Days
Fees: 500/-

S.No.	Content	Duration
1	Introduction	1 Day
2	Ekadhikena Purvena	1 Day
3	Nikhilam Navashcaramam Dashatah	1 Day
4	Urdhva- Triyagbhyam	1 Day
5	Paraavartya Yojayet	1 Day
6	Shunyam Saamyasamuccaye	1 Day
7	Anurupyena - Sunyamanyat	1 Day

Certificate Course on MATLAB

Course Objectives:

1. To impact the knowledge to the students with MATLAB software.
2. To provide a working introduction to the MATLAB technical computing environment.
3. To introduce students the use of a high level programming language MATLAB.
4. MATLAB enhances programming knowledge jn research and development.

Course Outcome:

The course will give the fundamental knowledge and practices abilities in MATLAB required to effectively utilize this tool in technical numerical computations and visualization in other courses. After the course you will be

6. Able to use MATLAB for interactive computations.
7. Familiar with memory and file management in MATLAB.

Course Module
Course Duration: - 10 Days
Fees: - Rs. 1000/-

Introduction	Matrix & array design	Introduction Of GUI
- Basic of MATLAB - Types of Window - Types of File - Basic Operation	- Matrix(Array Design) - Matrix Operation - Array Design - Array Operation - Multidimensional Array	- GUI Function Property - GUI Component Design - GUI Container - Writing the code of GUI Callback - Dialog Box - Menu Designing
Graphics	**Symbolic calculation**	
- Plotting - Multiple Plot 2-D Plot 3-d Plot - Subplot - Handle Graphics - Animation - Example(like a project)	- Symbols - Design Formula - Differentiation - Integration - Solve Equation - Example(like a project)	
Publishing Report	**OPERATORS**	
- Publishing Report - Design Html File, Pdf, Word, PPT - Import Export - Example(like a project)	- Arithmetic Operator - Logical - Relational	
Branch and Loop	**Script and Function**	
- If statement - If-else statement - Else-if statement - Pause, Break, Continue - Example(like a project)	- Script Design - Function Design - Types Of Function - Example(like a project)	

Certificate Course on LaTeX

Course Objectives:

The main motive is to impart the knowledge and understanding about LaTeX system, explain the procedure of LaTeX typesetting and familiarize the participants with various document formats of LaTeX and enable them to prepare research articles, thesis, books, and presentations with confidence. The broad objectives of the course are:

- To understand LaTeX, a document preparation system for high - quality typesetting.
- To understand features of LaTeX.
- To have hands on experience to become a user of LaTeX.

Course Outcome:

Students will be able to learn:

- Typesetting of complex mathematical formulae using LaTeX.
- Use tabular and array environments within LaTeX.
- Use various methods to either create or import graphics into a LaTeX document.
- Typesetting of journal articles, technical reports, thesis, books, and slide presentations.
- Automatic generation of table of contents, bibliographies and indexes.

Course Content
Course Duration: - 20 Days
Fees: - Rs. 1000/-

Module	Content	Duration
Introduction	What is LaTeX?	2 days
	Installing LaTeX Software	
Document Structure	Creating a Title	2 days
	Sections	
	Labelling	
	Table of Contents	
Typesetting Text	Font Effects	3 days
	Coloured Text	
	Font Sizes	
	Lists	
	Comments & Spacing	
	Special Characters	
Tables	Practical	2 days
Figures	Practical	2 days
Equations	Inserting Equations	2 days
	Mathematical Symbols	
	Practical	
Inserting References	Introduction	3 days
	Inserting the Bibliography	
	Styles	
	Practical	
Technical Report	Writing Thesis	2 days
	Writing Book	
Presentation	Book Chapter Preparation	2 days
	Journal Paper Preparation	