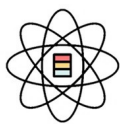




# **M.O.P. VAISHNAV COLLEGE FOR WOMEN (AUTONOMOUS)**

**(College affiliated to University of Madras & Re-accredited  
at 'A++' Grade with CGPA 3.56/4 by NAAC)  
Chennai-600034**



Department of Information Techonology  
**DATA SCIENCE**

## ABOUT THE INSTITUTION



**Dr. Lalitha Balakrishnan**  
**Principal**

Member Syndicate, University of Madras  
Member General Council, NAAC

M.O.P Vaishnav College for Women is committed to the goals of attracting and supporting top caliber women students in the areas of higher education. Since its inception in 1992, the college has recorded a phenomenal and continual growth. The college has been re-accredited by NAAC with an "A++" grade. The college has the distinction of being one of the youngest colleges in the country to have been granted autonomy by the University Grants Commission and University of Madras.



## DEPARTMENT OF DATA SCIENCE

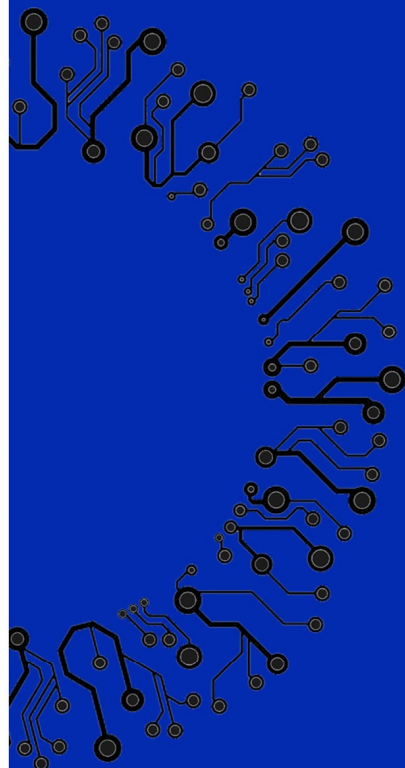
M.O.P. Vaishnav College for Women offers B.Sc. in Data Science from 2021, the first of its kind analytics programme at UG level. This bachelor's degree programme provides a technical deep-dive into the areas of Artificial Intelligence (AI), Machine Learning (ML) and Deep Learning.

The programme aims to provide students with technical skills and practical knowledge of the methods and techniques of data analysis, as well as the ability to think critically about the design and implications of analysis and models. The technology enhanced learning methodologies will prepare students to learn from a variety of fields to use data-driven methods, draw conclusions from data, and effectively communicate results.

The Programme trains students to solve some of the greatest challenges in data science, thereby moulding them to be the change-makers.

**DATA** IS THE  
NEW SCIENCE.

**BIG DATA**  
HOLDS THE ANSWER.



# WHAT IS DATA SCIENCE?

Data Science is the field of study that combines domain expertise, programming skills, knowledge of mathematics and statistics to extract meaningful insights from data. It encompasses preparing data for analysis including cleansing, aggregating and manipulating the data to perform advanced data analysis.

## WHY?

**1** **A FUEL OF 21ST CENTURY!** We live in a digital world, everything is data driven. So Data emerges as the new driving force behind the industries.

**A HIGHLY LUCRATIVE CAREER CHOICE!**

**2** The global demand for skilled data science practitioners in industry, academia and government is rapidly growing. The ongoing “data rush” makes it a high paid job.

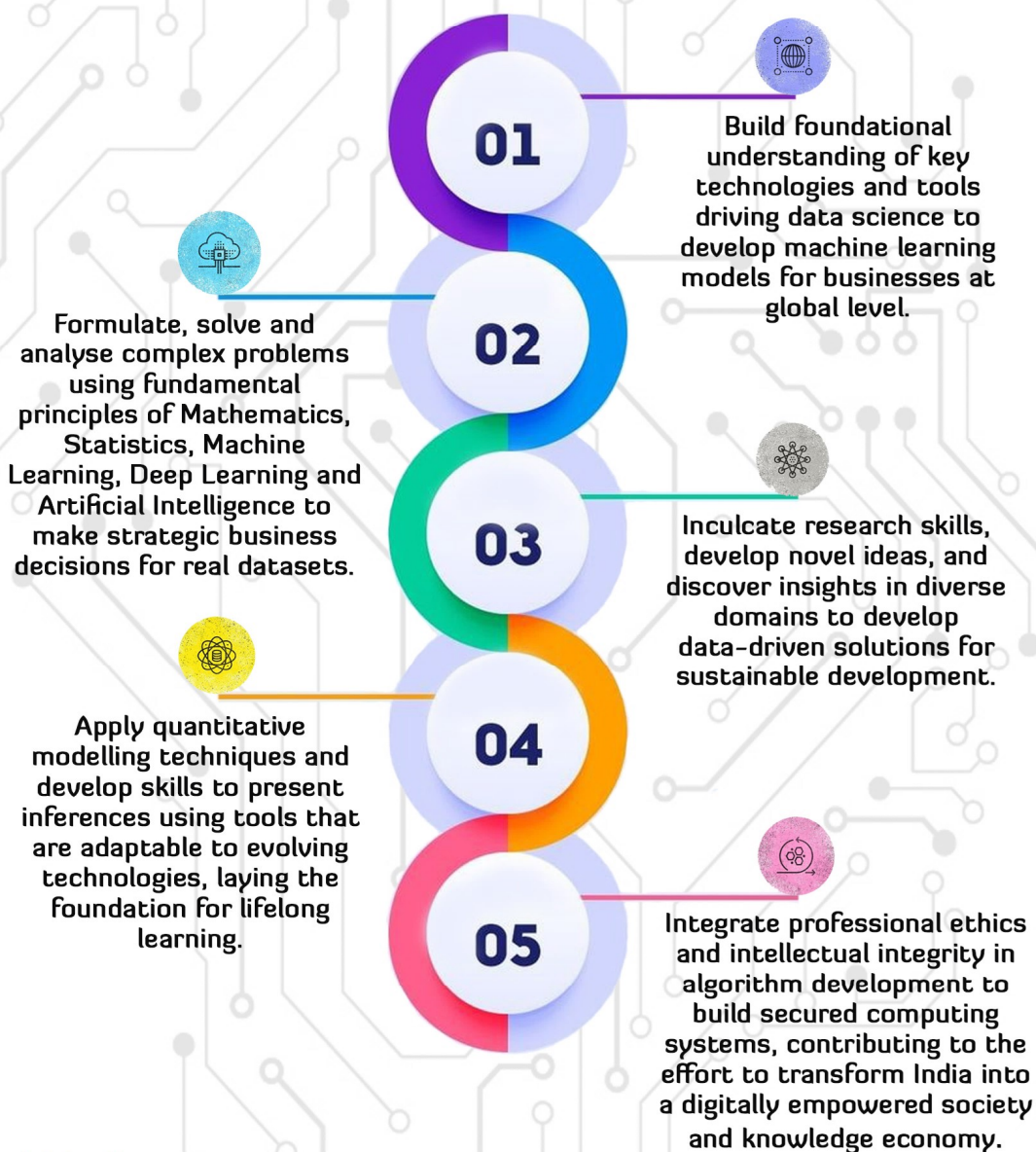
**3** **MAKES THE WORLD A BETTER PLACE!** Big Data and Data Science is beyond being a tool of Business Intelligence. Various social organisations are using data to create products for social good.



## ELIGIBILITY

- Candidates passing qualifying examinations (i.e. XII in State Board/CBSE/ICSE or any equivalent Board) with Mathematics/ Business Mathematics subject are eligible to apply.
- B.Sc. Data Science is a unique programme that is market driven and relevant to the emerging technology. It cannot be considered equivalent to B.Sc. Computer Science or B.Sc. Statistics.

## PROGRAMME SPECIFIC OUTCOMES



## PROGRAMME HIGHLIGHTS

- ✦ Cutting-edge Curriculum is designed in guidance with industry and academia experts.
- ✦ Learn from Eminent Faculty.
- ✦ Gain knowledge on real time examples from the Industry Experts.
- ✦ Internships and Industrial Visits.
- ✦ Career specific skills.
- ✦ Personal Mentoring & Consultation from Faculty.
- ✦ Hands-on experience with tools like Tableau, R, Python, Matlab etc.
- ✦ Exposure to work on various real-time business problems and solutions in Finance, Marketing, Healthcare, HR and Tourism industries.
- ✦ Capstone Project.
- ✦ Exclusive Campus hiring drives.



- **Basics of Data science**

To Analyse the fundamental concepts of data science, distinguish between various data science methods, algorithms and models used in business applications.

- **Python**

Analysing the basic and core parts of the interpreted high-level general-purpose programming language.

- **Artificial Intelligence**

Analysing the simulation of human intelligence processes by machines, especially computer systems.

- **Machine Learning**

Analyses the study of computer algorithms that can improve automatically through experience and by the use of data.

- **Deep Learning**

A detailed study of the part of a broader family of machine learning methods based on artificial neural networks with representation learning.

- **Natural Language Processing**

Complete exposure to the subfield of linguistics, computer science, and artificial intelligence concerned with the interactions between computers and human language.

- **Big Data Analytics**

Understanding the ways to analyze, systematically extract information from, or otherwise deal with data sets that are too large or complex to be dealt with by traditional data-processing application software.

- **Mysql**

Analysing the basic and core concepts of the open-source relational database management system.

- **Time Series Analysis**

Analysing the most specific way of analyzing a sequence of data points collected over an interval of time.

- **Probability and Statistics**

Measures the degree of relationship between variables using correlation and employ regression analysis to predict the effect of environmental changes for sustainable development.

- **Analytics in various industries**

To Analyse the complexity of algorithms using asymptotic notation and recommend the ordered list suitable for real-time applications.

- **Cloud Technologies**

Understanding and analysing the on-demand availability of computer system resources, especially data storage and computing power, without direct active management by the user.

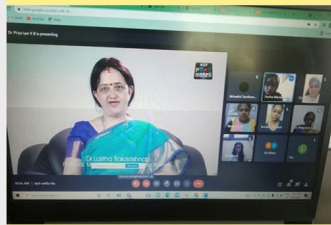
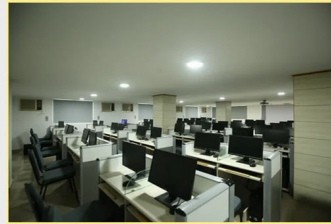
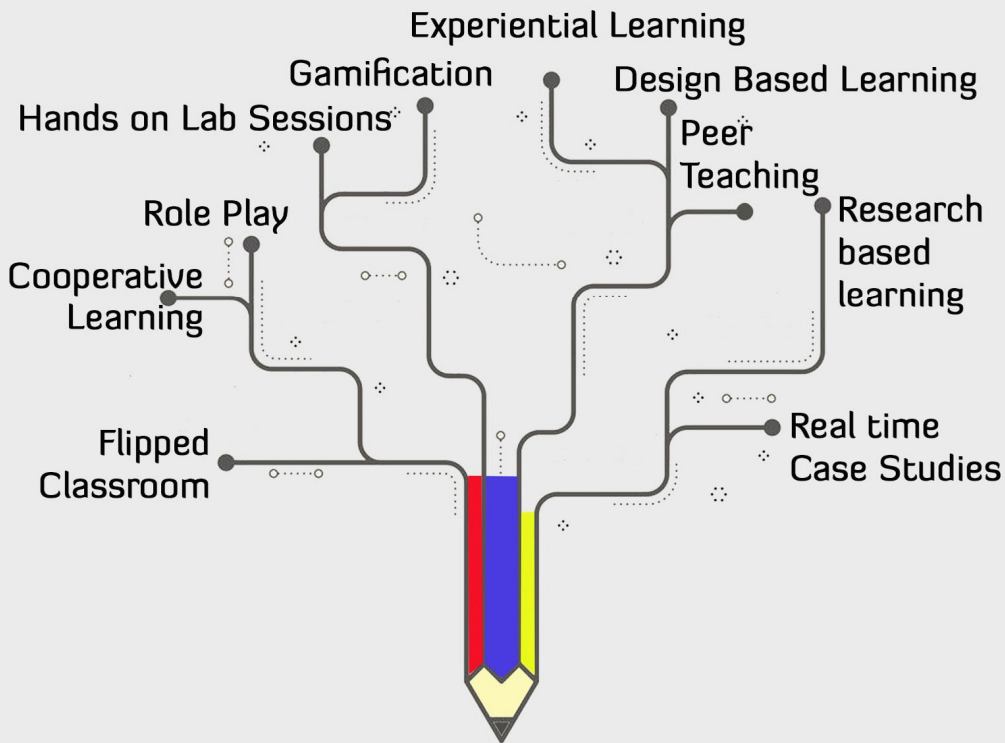
- **IoT**

A detailed analysis on The Internet of Things which describes physical objects that are embedded with sensors, processing ability, software, and other technologies, and that connect and exchange data with other devices and systems over the Internet or other communications networks.

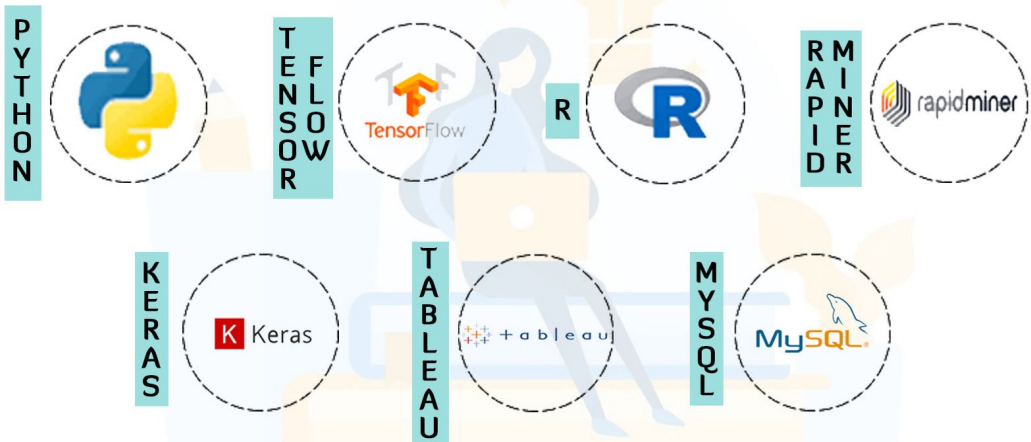
- **Capstone Project**

Exposure to the most unique opportunity to carry out independent group research in order to devise an innovative solution for a real-world problem.

## TEACHING METHODOLOGY



## PROGRAMMING LANGUAGE TOOLS





## DEPARTMENT ACTIVITIES

### • Intra & Inter-Collegiate Tech events

o OLAP - An intercollegiate event brings together computer science students from various colleges in and around the city to express and explore skills and talents in the field of IT and Analytics.

o LINK - The computer science students come together to organise this interdepartmental event with numerous competitions relating to computer science.

### • Conferences & Seminars

Conference, Seminars and workshops are organised on latest evolving technologies. The Conferences provide a platform for academia, research scholars, and professionals from industry as well as students to discuss, share and disseminate innovative and pioneering views on recent trends in Information Technologies.

Eminent speakers across the globe address the technological advances and research ideas. The conference invites research and poster papers focusing on the theory, design and implementation of emerging technologies. Internships are proffered for the students to put their learning into action, in a real-world environment.

### • Computer Fair

o Computer Fair is organised annually where the students are given opportunities to showcase their practical knowledge through real time projects. Project Expositions and fairs enable the students to transform theory into practice.

### • Symposiums

o The college inculcates research practices amongst the faculty and students as the speakers address the technological advances and booming ideas in the line.

### • Computer almanac - Journal

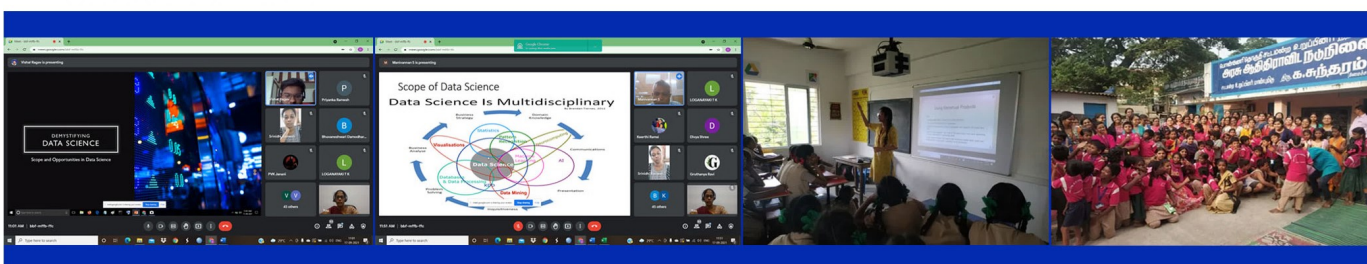
o The department inculcates the art of article writing skills amongst students by means of publishing the thematic department journal 'Computer Almanac'. The journal serves as catalyst for sparking creativity towards publishing research articles in international journals

### • Guest Lectures

o The college organizes guest lectures to help students improve their learning in a more interactive, topic specific way.

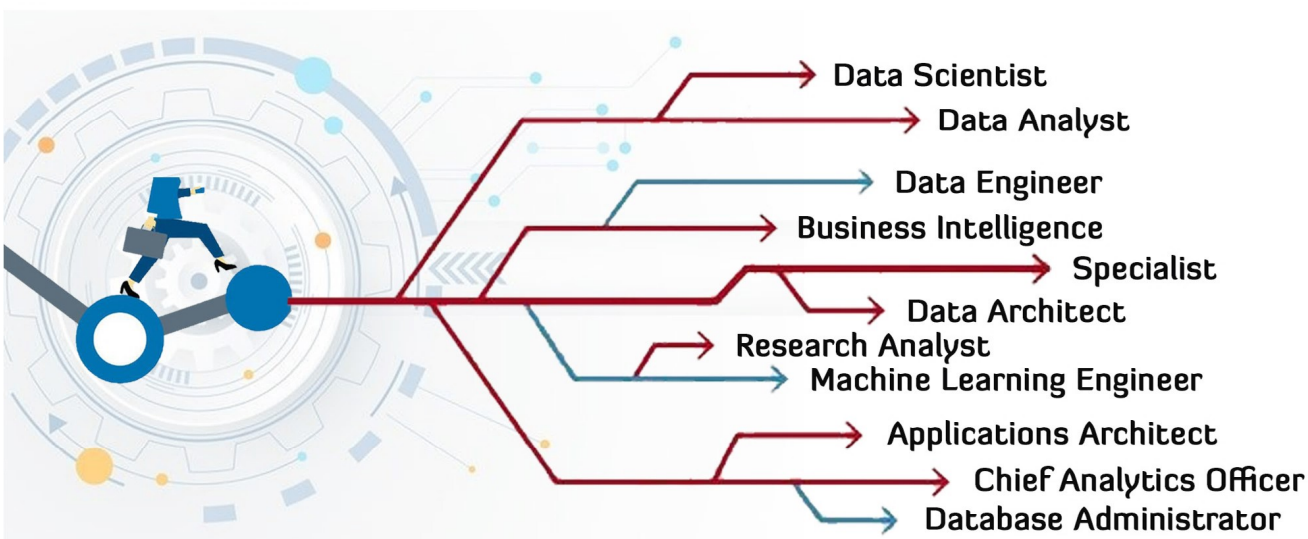
### • Social Initiative

'THOZHIL SEIYALLAM THOZHIL', a social initiative of the college. Under this banner, 15 villages were identified in the state of Tamil Nadu and various livelihood skills were imparted and awareness campaign were conducted for women and Government school students.



## SCOPE AND OPPORTUNITIES

The programme will help students enhance their proficiency in data science, gain wide spectrum of skills and robust knowledge of machine learning algorithms to confidently join Data Science Teams. This programme will produce Data Science graduates with a highly relevant skillset needed for creating & deploying ML models to support automated decision making. After completion of the course, graduates can become



## PLACEMENT CELL

