

**Bhavan's College  
(Autonomous)  
Andheri (W)  
Mumbai 400058**



# **B.Sc. (Voc) in Applied Virology & Molecular Diagnostics**

**Understanding Viruses  
Advancing Diagnostics  
Protecting Public Health**

# About The Course

A future-ready undergraduate program designed to train the next generation of scientists in virology, molecular diagnostics, and pathogen surveillance. Inspired by the lessons of global health challenges such as COVID-19, this program prepares students with the knowledge and laboratory skills required to detect, study, and monitor viral diseases.

## About Bhavan's College

### **Bhavans College Andheri,**

Is one of the reputed colleges in Mumbai that provides quality higher education in the fields of Arts, Science, and Commerce. Over the years, it has built a strong reputation for academic excellence, cultural activities, and holistic student development. The college aims to combine traditional Indian values with modern education, helping students develop knowledge, skills, and ethical values.

### **Bhavan's Research Center (BRC)**

Microbiology, is an entrepreneurial knowledge center instituted to enable fruitful academia-industry collaboration. The Center has originated from Department of Microbiology, Bhavan's College which has an illustrious track record in the subject. BRC is ISO/IEC 17025 accredited, under which, it complies with good laboratory practices offering microbiological services to industry by way of analysis, contract research, training and consultancy, in the areas of Hygiene (personal & home), Water & Food and services in Molecular Biology.



# Why Study Applied Virology?

Viruses, the most abundant entities on Earth play a critical role in global health, biotechnology, and environmental science.

Rapid advancements in molecular diagnostics, vaccine development, and pathogen surveillance have created a strong demand for professionals trained in applied virology. It is a dynamic field combining molecular biology and medicine to combat the most abundant, rapidly evolving, and impactful pathogens on Earth.

Designed in alignment with the National Education Policy 2020, this program emphasizes skill-based learning, multidisciplinary education, and real-world application of scientific knowledge to combat the constant emergence of new evolving viruses.

## What Makes This Program Unique?

### • Industry-Linked Learning

Students gain exposure to professional laboratory environments, understanding real diagnostic workflows and laboratory practices.

### • Hands-On Molecular Diagnostics Training

Learn modern techniques used in diagnostic and research laboratories, like:

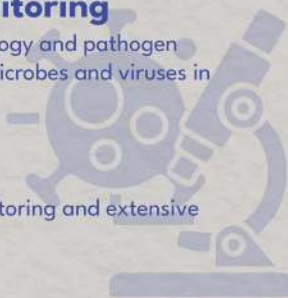
- PCR and RT-PCR
- ELISA testing
- Serological techniques

### • Environmental Pathogen Monitoring

Students are introduced to environmental microbiology and pathogen surveillance & prediction, including monitoring of microbes and viruses in wastewaters and surfaces.

### • Small Batch Size

With a limited intake, students receive focused mentoring and extensive laboratory exposure.



# What You Will Study?

The program provides a strong foundation in Virology, Molecular biology, and Infectious disease science.

## Core Areas of Study

1. Fundamentals of Microbiology
2. Introduction to Virology
3. Fundamentals of Cell Biology
4. Viral Structure, Replication, and Pathogenesis
5. Immunology and Infectious Diseases
6. Epidemiology of Viral Diseases
7. Environmental Virology
8. Molecular Biology and Genetics
9. Molecular Diagnostics (PCR, RT-PCR, ELISA)
10. Vaccine Science and Biotechnology

## Laboratory Training

Students receive extensive hands-on experience in:

1. Basic microbiological techniques
2. Good Laboratory practices aligned with ISO/IEC 17025
3. Laboratory biosafety and Biosecurity
4. Cell lines and viral cultivation
5. Molecular biology methods
6. Viral detection and diagnostic workflows
7. Immunological assays
8. Environmental monitoring methods

# Internships & Research Projects

The program encourages exposure to industry, hospitals and research laboratories, enabling students to be interns in diagnostic laboratories & hospitals, research institutes and biotechnology settings.

In the final year, students undertake research projects, developing problem-solving and analytical skills.

## Career Pathways

Graduates of this program will be well prepared for careers in diagnostics, biotechnology, and research laboratories. Students may pursue roles such as:

- Molecular diagnostics technologist
- Virology laboratory technologist
- Research assistant in biotechnology laboratories
- Public health laboratory assistant
- Environmental pathogen monitoring analyst

## Higher Study Opportunities

The program also provides a strong foundation for postgraduate studies in:

- Virology
- Microbiology
- Biotechnology
- Public Health
- Biomedical Sciences

# Program Structure

Flexible  
Learning  
Pathways

Following the multidisciplinary framework of the National Education Policy 2020, this three year program involving 6 Semesters offers flexible learning with multiple exit/entry options.

## Duration

- 1 Year- Certificate in Virology Laboratory Techniques
- 2 Years- Diploma in Applied Virology
- 3 Years- B.Sc. (Vocational) Degree in Applied Virology and Molecular Diagnostics

## Admissions

Eligibility:

- 12th Standard (Science) with Biology from a recognized board.

• Intake:

Limited intake of 30 students to ensure intensive laboratory training and personalized mentoring.

- Annual Fees:

Approximate annual fees:  
₹78,000/-

## Contact Information

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