



# महाराष्ट्र आरोग्य विज्ञान विद्यापीठ, नाशिक MAHARASHTRA UNIVERSITY OF HEALTH SCIENCES, NASHIK

दिंडोरी रोड, म्हससुळ, नाशिक - ४२२००४ Dindori Road, Mhasrul, Nashik - 422004  
Tel:(0253) 2539292/6659292/294 Student Helpline:0253-2539111/6659111/100  
Website: www.muhs.ac.in, E-mail: registrar@muhs.ac.in



डॉ. राजेंद्र शिवाजी बंगाळ

एम.बी.बी.एस, एम.डी.(न्यायवैद्यकशास्त्र), डी.एन.बी, एल.एल.बी.

कुलसचिव

Dr. Rajendra Shivaji Bangal

M.B.B.S, M.D.(Forensic Medicine), D.N.B, L.L.B.

Registrar

जा.क्र.मआवि/ वि.का., पुणे/४०२/२०२३

दिनांक : १३/०५/२०२३

प्रति,

परिपत्रक

मा. अधिष्ठाता/प्राचार्य

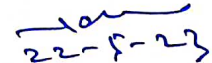
सर्व संलग्नित वैद्यकीय, आयुर्वेद, होमिओपॅथी महाविद्यालये  
मआवि नाशिक

**विषय:-** महाराष्ट्र आरोग्य विज्ञान विद्यापीठ, विभागीय केंद्र, पुणे येथील MUHS GeneHealth Lab मध्ये शैक्षणिक वर्ष २०२३-२०२४ साठी सर्टिफिकेट कोर्स इन जेनेटिक डायग्नोस्टिक्स आणि फेलोशिप कोर्स इन क्लिनिकल अॅन्ड लॅबोरेटरी जेनेटिक्स अभ्यासक्रमाच्या प्रवेशाबाबत...

उपरोक्त विषयाच्या अनुषंगाने सर्व संबंधित महाविद्यालयांना सुचित करण्यात येते की, महाराष्ट्र आरोग्य विज्ञान विद्यापीठ, विभागीय केंद्र, पुणे येथील MUHS GeneHealth Laboratory येथे राबविण्यात येणाऱ्या सर्टिफिकेट कोर्स इन जेनेटिक डायग्नोस्टिक्स आणि फेलोशिप कोर्स इन क्लिनिकल अॅन्ड लॅबोरेटरी जेनेटिक्स या अभ्यासक्रमांची शैक्षणिक वर्ष २०२३-२०२४ साठीची प्रवेशप्रक्रिया सुरु करण्यात आलेली आहे.

त्यासंबंधात अभ्यासक्रमाची माहिती, प्रवेश पात्रता इत्यादीसाठी माहितीपुस्तिका महाराष्ट्र आरोग्य विज्ञान विद्यापीठाच्या [www.muhs.ac.in](http://www.muhs.ac.in) या संकेतस्थळावर उपलब्ध आहे. सदर अभ्यासक्रमाच्या प्रवेशासाठी पात्र व इच्छुक विद्यार्थी मॉपअप राउंड अंतर्गत प्रवेश घेवू शकतात. त्याबाबतची माहिती विद्यापीठ संकेतस्थळावर प्रसिध्द करण्यात येईल. तसेच विद्यार्थी अधिक माहितीसाठी ०२०-२९९८०९३३ या दुरध्वनी क्रमांकावर संपर्क करू शकतात.

तरी सदर परिपत्रक आपल्या महाविद्यालयातील सर्व पात्र विद्यार्थ्यांच्या निर्देशनास आणावे व परिपत्रकास योग्य प्रसिध्दी देण्यात यावी ही विनंती.

  
२२-५-२३  
कुलसचिव  
मआवि, नाशिक

माहितीपुस्तिकेसाठी लिंक - [https://www.muhs.ac.in/dept\\_links1.aspx](https://www.muhs.ac.in/dept_links1.aspx)



**Maharashtra University of Health Sciences (MUHS),  
Nashik.**

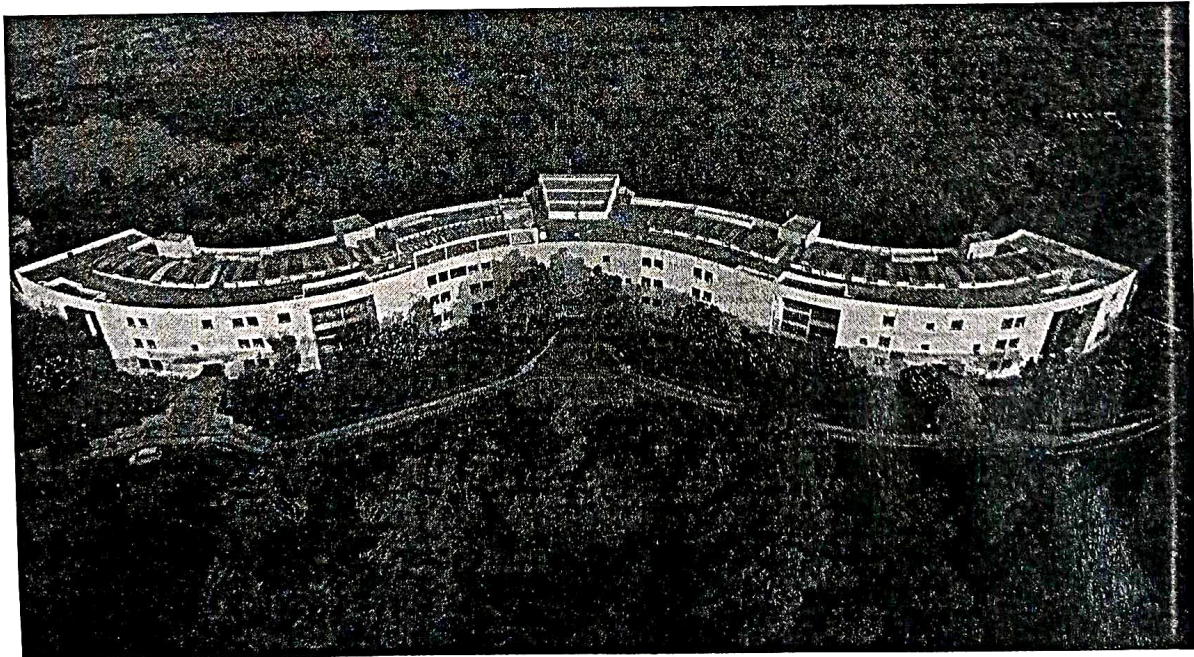
**Vani-Dindori Road, Mhasrul, Nashik - 422 004.**

**Website: <http://www.muhs.ac.in>**

## **INFORMATION BROCHURE**

### **Certificate Course in Genetic Diagnostics**

**Conducted by University at MUHS GeneHealth, Shivaji Nagar, Pune**



**The University reserves right to amend, alter or repeal any of the provision at any time by publishing it on the University website. The students/candidates are required to visit the University website regularly.**

## INFORMATION BROCHURE

The last few decades have witnessed an immense growth in knowledge about human genome, bringing genetic studies to forefront in healthcare services. Genetic Testing is an important tool for modern day clinicians. In India, genetic diagnosis is fast becoming a routine for many disorders and there is a huge demand for trained professionals who can perform genetic diagnostic tests and are aware of all the latest technologies available for testing hereditary conditions. To meet this demand, we are offering a six months Certificate Course in Genetics Diagnostics for graduates from all biological sciences.

This course follows standardized practice parameters for full time training in all genetic diagnostic techniques. Students will learn to perform various functions in the lab including sample collection, preparing and performing routine lab work, record maintenance etc. The Competency based training program is designed based on the new National Educational Policy 2020.

**Course Title:** Certificate Course in Genetic Diagnostics

### **Aims:**

To develop competent genetic support specialists trained in performance of various genetic diagnostic techniques to assist clinicians with identifying abnormalities within samples to help them determine the cause or risk of disease.

### **Objectives:**

- Perform various functions related to collecting samples, preparing and examining specimens.
- Have knowledge of Collection, transportation and storage of various types of Genetic samples.
- Preparing and performing routine lab work for genetic diagnosis
- Record results for the lead researcher or doctor to assess
- Acquire knowledge of quality control and accreditation procedures like NABL CAP etc. along with legal and ethical responsibilities and guidelines.

### **Syllabus**

- **Basics of Molecular Biology and Cell Biology** - Molecular Biology, Cell Biology and Cytogenetics; Biochemical Basis of life
- **Genetic Basis of Inheritance** - Patterns of Inheritance; Single Gene Inheritance; Chromosomal Disorders; Complex Inheritance and Common Disorders; Developmental Genetics
- **Genetics in Medicine** - Single Gene Disorders; Hemoglobinopathies; Population Genetics; Biochemical Genetics; Pharmacogenetics; Cancer Genetics; Immunogenetics; Congenital Abnormalities
- **Genetics in Medical Practice** - Genetic Counselling; Screening for genetic disease; Prenatal Testing; Risk Calculations; Treatment of Genetic disease; Clinical skills
- **Bioinformatics** – Research methodology; biostatics

- **Legal and Ethical Aspects of Genetic Practice** – PCPNDT act; ART etc.
- **Laboratory Techniques** – Hands-on training in molecular biology, biochemistry and cytogenetic technique. Demonstration of latest testing technology like NGS, Microarray, etc.
- **Project** – For duration of three months to demonstrate the ability to come up with a research idea and design and execute research plan involving sample collection, testing methods, analysis and interpretation of results.

### **Eligibility**

Eligible candidates will have any of the following qualifications:

- MSc. (life sciences)
- MBBS
- B. tech (life sciences)
- B. pharm
- BAMS
- BHMS
- BDS
- BUMS
- BSc. PMT

**Course Duration:** Six Months

**Language of Course:** English

**Total No. of Seats (Intake Capacity):** 20 Students

**Nature of Course:** Full time / Hybrid Mode

### **Proposed Teaching and Learning Methods**

- **Didactic lectures:** To be delivered either by a faculty member or by a specialist in the field of genetics or allied disciplines. 4 months' full time course work and hands on training will be provided.
- Internal and Practical Exams will be conducted at end of 3 months and 6 months of training.
- Candidates are required to present 1 journal club every month.
- Each student is expected to maintain a journal and record 10 cases.
- Each student is expected to maintain a laboratory logbook.
- **Project work:** Each candidate will be required to undertake a project on a topic decided after consultation with the guide. This topic is required to be approved by the institutional ethics committee. The project work will be submitted in the form of a thesis at the end of 6 months of the course. Award of the certificate is subject to successful completion of the project, approval of the thesis by experts.



**Maharashtra University of Health Sciences  
(MUHS), Nashik.**

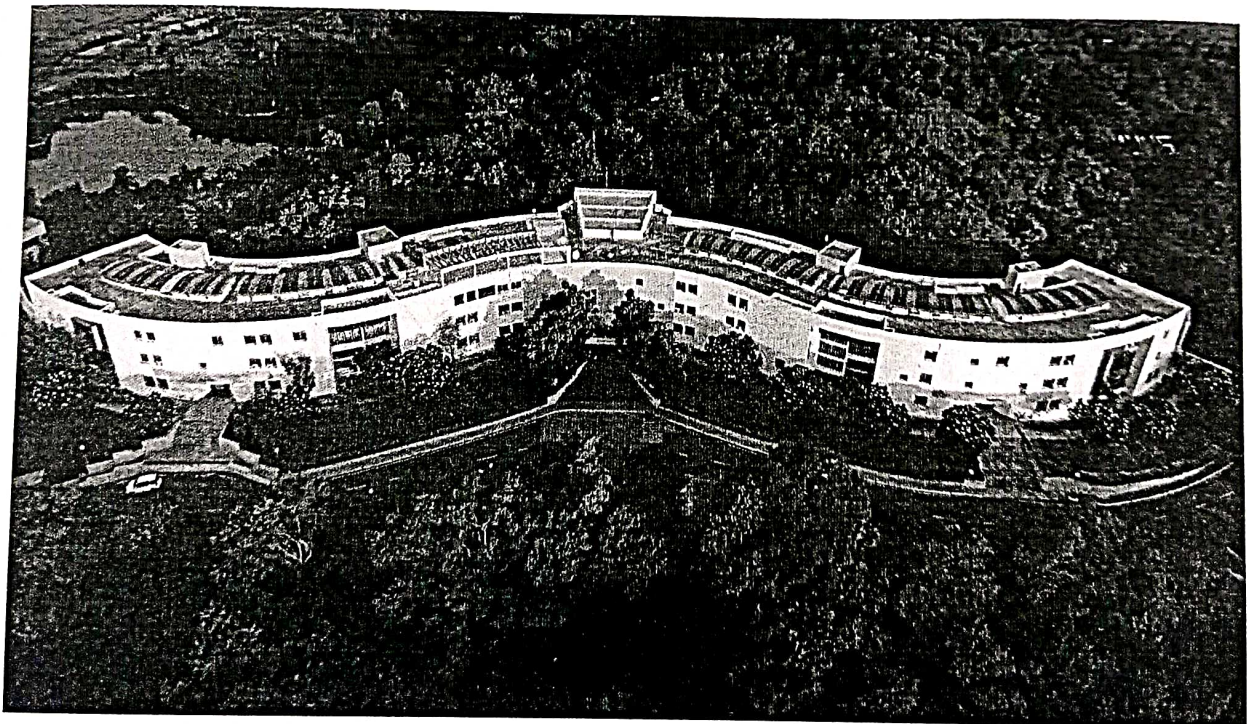
**Vani-Dindori Road, Mhasrul, Nashik - 422 004.**

**Website: <http://www.muhs.ac.in>**

## **INFORMATION BROCHURE**

**Fellowship in Clinical and Laboratory Genetics**

**Conducted by University at MUHS GeneHealth, Shivaji Nagar,  
Pune**



**The University reserves right to amend, alter or repeal any of the provision  
at any time by publishing it on the University website. The  
students/candidates are required to visit the University website regularly.**

## INFORMATION BROCHURE

The last few decades have witnessed massive advancements in our understanding of human genome, putting genetic studies at a prominent position in healthcare. Genetic Testing has become an important tool to understand disease mechanism as well as help predict the likelihood of developing a particular disorder before symptoms even appear. In India, issues like consanguineous marriages, lack of education, ethical concept, and high birth rate are factors contributing to increase in the occurrence of hereditary disorders and congenital defects. There is burgeoning demand for clinicians and genetic services to deal with such diseases. This is first programs where clinicians from all background will receive training in patient care, diagnosis, expert consultation, counselling along with a working knowledge of all laboratory genetic techniques. The competency based training program is designed with multiple exit options keeping in mind the new National Educational Policy.

**Course Title:** Fellowship in Clinical and Laboratory Genetics

**Aim:** To develop competency in a clinician in clinical diagnosis, laboratory testing, counselling and management of genetic disorders.

### **Objectives:**

- To elicit medical history pertaining to complaints and symptoms, developmental and reproductive history and family history related to hereditary disorders.
- To examine a patient with suspected genetic / genetic disorder to consider differential diagnosis for common and rare genetic conditions.
- To suggest and recommend routine and specialty genetic investigations.
- To correlate investigation with patient condition and arrive at final diagnosis which will involve interpretation and explanation the results of genetic tests
- Management of common and rare conditions
- To identify problems which will require management by other specialists
- Planning consultations with relevant specialties and investigations, and pre-test counselling.
- Genetic counselling of patient/ families
- Develop good skills knowledge and expertise in laboratory genetics
- Working knowledge of use of human genetic databases
- To undertake research in genetics.
- Provide psychosocial support to patients and families
- Acquire knowledge of legal and ethical aspects of clinical and laboratory genetic

practices

- To acquire knowledge of bioinformatics, research methodology, biostatistics as related to clinical and laboratory genetics

### **Syllabus**

- **Basics of Molecular Biology and Cell Biology** - Molecular Biology, Cell Biology and Cytogenetics; Biochemical Basis of life
- **Genetic Basis of Inheritance** - Patterns of Inheritance; Single Gene Inheritance; Chromosomal Disorders; Complex Inheritance and Common Disorders; Developmental Genetics
- **Genetics in Medicine** - Single Gene Disorders; Hemoglobinopathies; Population Genetics; Biochemical Genetics; Pharmacogenetics; Cancer Genetics; Immunogenetics; Congenital Abnormalities
- **Genetics in Medical Practice** - Genetic Counselling; Screening for genetic disease; Prenatal Testing; Risk Calculations; Treatment of Genetic disease; Clinical skills
- **Bioinformatics** – Research methodology; biostatistics
- **Legal and Ethical Aspects of Genetic Practice** – PCPNDT act; ART etc.
- **Advanced Genetics** – Neurogenetics; Cardio Genetics; General Clinical Genetics; Renal Disorders; Respiratory Disorders; Dermatologic Disorders; Connective Tissue Disorders; Craniofacial and Ophthalmologic Genetics; Immunologic Disorders; Reproductive Genetics; Cancer Genetics, Acquired and familial Cancers; Hereditary Cancer-Related Syndromes; Tumour Microenvironment and Therapeutic Resistance; Paediatric Genetics, Metabolic Disorders
- **OPD Observations** – Syndrome identification, OPD Rotations with renowned geneticists

### **Laboratory Techniques**

- **Molecular Biology**: DNA RNA extraction; PCR (Polymerase Chain Reaction), Gel Electrophoresis; Application of DNA Sequence Polymorphisms; Use of molecular techniques for detection of point mutations, deletion, microsatellite repeats, Restriction fragment length polymorphism; western blot; General knowledge of positional cloning for mapping, linkage analysis, genome wide search & Sequencing-Based Methods; Next Gen Sequencing; Forensic Genetics
- **Biochemistry** – ELISA; HPLC; Screening tests for Inborn Errors of Metabolism (IEM); Confirmatory tests for IEM including enzyme assays; Tests for diagnosis of thalassemia & hemoglobinopathies

- **Cytogenetics** - Nucleic Acid Hybridization Techniques; FISH; Karyotyping, Harvesting & slide preparation, G, Q, C banding techniques
- **Sample Handling and Lab management** - Sample Collection techniques; Sample transportation procedure; Biomedical waste management; Records management following NABL and other guidelines

### Eligibility

Candidates who have passed following programs with minimum 40% marks will be eligible for the course.

- Medical MD/MS
- MBBS with Diploma in Pathology, Obstetrics/ Gynaecology, Paediatrics, Microbiology, Clinical Pathology
- DNB
- MD/MS Ayurved Clinical Speciality
- MD Homoeopathy Clinical Speciality
- MD Unani Clinical Speciality

**Number of seats: 5**

### Proposed Teaching and Learning Methods

#### Course design:

- **Course with various exit options:** As per the new National Educational Policy (NEP), this course is thus designed as a 1-year fellowship course with exit options at six months (credit option) and one year (Fellowship).
- **Didactic lectures:** To be delivered either by a faculty member or by a specialist in the field of genetics or allied disciplines. 4 months full time course work and hands on training will be provided.
- **Rotations:** 2 months Rotations in each specialty, Exit with credit optional, Record log book.
- **Specialty based OPD observation:** 6 months
- Internal and Practical Exams will be conducted at end of 3 months and 6 months of training.
- Candidates are required to present 1 seminar and 1 journal club every month.
- Candidates are required to attend one national level conference and paper/poster presentation.
- Case Presentation: This will be held every month during six months of specialty training. Experts from other specialties may be called for these discussions.
- Each student is expected to maintain a journal and record 10 cases.



- Each student is expected to maintain a laboratory logbook.
- **Project work:** Each fellowship candidate will be required to undertake a project on a topic decided after consultation with the guide. This topic is required to be approved by the institutional ethics committee. The project work will be submitted in the form of a thesis at the end of 10 months of the fellowship. It will undergo evaluation by 3 independent experts from within the institution, who will then grade it. Award of the certificate of fellowship is subject to successful completion of the project, approval of the thesis by experts.
- The candidate will attend any one of the following Annual conferences: Indian Academy of Pediatrics or Indian Society of Human Genetics (ISHG) or Indian Society for Prenatal Diagnosis and Therapy (ISPAT) or any other conference in Genetics. Presentation of a paper (oral)/poster on the work carried out during the fellowship tenure is encouraged.

**Fee structure:**

1	Tuition Fee, Laboratory Fees and Library Fees	1,00,000/-
2	Exam Fees, Eligibility Fees	As determined by the university

**Note: Fees to be paid in full at the time of admission.**

**Refund of the Fees:** The candidate who has confirmed his / her admission may cancel admission by submitting an application and may request for the refund of fees. The refund of fees to candidates admitted for the course shall be made as per the rules of the University.

**Application Form & Information Brochure:**

- 1) Information Brochure along with application form is available on the University website (<http://www.muhs.ac.in>). The candidates are requested to print and fill the application form.
- 2) Candidates have to submit one set of self-attested photocopies of Certificates / Documents along with print copy of application form by post / by hand to

**The Head of Department,**

**Maharashtra University of Health Sciences Regional Center Pune,**

**Aundh Civil Hospital, 3<sup>rd</sup> Floor,**

**Aundh Camp, Pune 411027**

- 3) An incomplete application form will be rejected.
- 4) **All the original documents should be brought for verification (if selected) at the time of Admission.**

5) Following documents are required to be submitted along with application form.

Sr. No	List of Documents
1.	Degree Certificate of qualifying examination
2.	Experience Certificate
3.	Details of online transaction of application fees
4.	S.S.C. Certificate
5.	H.S.C. Mark sheet
6.	First to final year mark sheet of qualifying degree
7.	For In-service candidate NOC (No Objection Certificate) from the concerned authority (If applicable)

**Selection Process:** At the time of admission, the candidate should bring all original documents in support of claims made in application.

**Attendance:** 80% attendance is compulsory failing which students will not be allowed to appear for the examinations. Medical certificate is necessary if absence is due to illness.

**Stipend:** No stipend will be provided for this course.

**Accommodation:** Students have to make their own residential arrangements.

#### **CONDUCT AND DISCIPLINE:**

- a) Failure of the candidate in making full and correct statements in the application form and/or suppression of any information would lead to disqualification of the candidate, even at later date. Such a candidate will be debarred from the entire selection process.
- b) It is responsibility of every candidate to submit proper documents. Any attempt to submit documents which are not genuine will lead to cancellation of the admission of the candidate, forfeiture of the fees, deposits and expulsion of the candidate from the college by the Competent Authority or by his authorized official. The name of such candidate/s shall be deleted from the Merit List and he/she will not be eligible for further rounds of the selection process and will be debarred from the selection process. If deemed fit even criminal proceeding may be initiated by the Competent Authority against such candidates / their parents.
- c) If any candidate / authorized representative or person accompanying is found obstructing the counseling and / or admission process or trying to influence in unlawful manner/ creating nuisance, the candidate shall be liable for disqualification from the process of selection and appropriate legal action will be taken. The decision taken by the Competent Authority in this respect shall be final and binding.

- d) The registration once granted is valid only if the teacher and the H.O.D are satisfied about regularity, diligent pursuance of studies by the student as well as good conduct.
- e) All candidates selected for admission shall be subject to the disciplinary rules of the, MUHS, Nashik, respective councils and Government.
- f) Maharashtra University of Health Sciences, Nashik shall take the decision regarding eligibility, enrolment, registration and granting of the term of selected candidates.
- g) In case of dispute in the matter of allotment of seat/course/institution or any other matter pertaining to the provisional selection or cancellation of admission, the decision of the Competent Authority shall be final and binding.
- h) Legal Jurisdiction: All disputes pertaining to the conduct of examination and selection process shall fall within the jurisdiction of Court at Mumbai only.
- i) Any issue not dealt here-in above will be dealt with, when arising, fully and finally by the Competent Authority. Any amendments made by MUHS/Government of Maharashtra from time to time will be implemented.

**Disqualification for Admission:**

- A candidate who has failed to submit above mentioned documents will not be eligible for admission.
- Failure of the candidate in making full and correct statements in the application form and / or suppression of any information would lead to disqualification of the candidate. Such a candidate will be debarred from the entire selection process.
- The dispute arising out of the selection procedure and admission shall be subject to the jurisdiction of Hon'ble Mumbai High Court.