# Institute of Genetics & Hospital for Genetic Diseases, Osmania University, Begumpet, Hyderabad – 500016

**Website: www.instituteofgenetics.org**

## INFORMATION BROCHURE

## 2 YEAR PG IN M.Sc -MOLECULAR & HUMAN GENETICS
## Department of Biotechnology,
## Ministry of Science and Technology, Government of India

### About Osmania University

Osmania University, established in 1917, is the seventh oldest in India, the third oldest in South India and the first to be established in the erstwhile princely state of Hyderabad. The University has a vision of developing, enhancing, and improving the quality of human resources to meet the challenges of regional, national and global socio-economic changes. It's mission is to achieve excellence in teaching and research and to create opportunities for the students to contribute to the regional and national development. It is re-accredited by the National Assessment and Accreditation Council (NAAC) as 'A'+ Grade University.

### About the Institute

Institute of Genetics and Hospital for Genetic Diseases a premier institute established in 1978 by Osmania University. It has been accomplishing a pioneer role in southern part of India for the past four decades in providing basic to advanced diagnostic and genetic counseling services, research, training and outreach activities. The objective of the institute is mostly to prevent morbidity and mortality in prenatal, post natal periods and in childhood due to genetic diseases, by conducting multidisciplinary research and offering diagnostic services to the afflicted and their families at prenatal, postnatal and premarital stages by clinical, cytological, biochemical, and molecular evaluations. The specialized services provided by this institute gave a new dimension in improving the reproductive and child health services and in decreasing the burden of genetic diseases which are unsurfaced factors, hampering the socio-economic development of our country.

### About the Course

The course structure choice is based on credit system developed by Department of Genetics, Osmania University, proposed for academic year 2020 onwards. The aim of this course is to obtain and understand fundamental knowledge of Biochemical, Molecular and Cellular processes: Developmental Genetics, Epigenetics, Gene Regulation, RNA Transcription, Protein Synthesis, Protein Targeting and Trafficking, and Cell Signaling, Classical Genetics, Bio-statistics, Population Genetics, Bioinformatics, Nanobiotechnology, Biomedical, Ethical and Legal Issues. Students participate in a computer tutorial aimed at mastering basic web tools for genome and proteome analysis. The knowledge discussed in the lectures and practiced at the computer tutorial is the basis for an assignment that aims to train students in a critical evaluation of literature. Through presentation of their topic and feedback of lecturers and their peers, students become acquainted with the scientific methods used in the recent era.

## Objective

The objectives of this course are to build upon undergraduate level knowledge of biochemical molecular and cellular biology with specific emphasis on different metabolic pathways and classical experimental strategies. The course shall make the students aware of various disease pathologies within the context of each topic. This course provides a comprehensive understanding of the basic concepts of population genetics, leading up to important aspects linking to evolution. Emphasis has been given on technology which has revolutionized the way modern biological research is done and has impacted mankind with a number of biological products and processes.

## Eligibility Criteria & Selection Criteria

- The aspirants of Bachelors of Degree in Life Sciences from a recognized University are selected on a basis of an All India entrance test and all selected students are paid studentships. Those who are joined on self finance based will not receive any studentship.
- The candidates should have secured a minimum of 50% aggregate marks or equivalent in their Bachelor's.
- The marks of admission for this course depends on the guidelines given by DBT and Osmania University.
- All the students must have a GAT-B entrance results rank card.

**No. of Seats**: 10 (Reservation as per Central Government Rules) and 10 Self finance seats.

## Medium of Instruction

The medium of instruction for the course and for examinations shall be English only.

## Course Delivery

The course is delivered through class room lectures, guest lectures by industrial experts, case studies, field visits, project work, audiovisual presentations, group discussions, seminars, dissertations and on-the-job training (internship).

## Course Duration and other details

Two year full time, on-campus Masters programme. The course includes theory, practical training and project work.

## Syllabus includes

Biochemistry, Molecular Biology, Cell Biology and Cytogenetics, Epigenetics and Laboratory Techniques and Biophysical Principles, Immunology, Immunogenetics and Genetic Engineering, Biostatistics and Population Genetics, Developmental Genetics, Omics: Genomics, Transcriptomics, Proteomics, Metabolomics, Human Genetics & Human Genome Project, Clinical Genetics and Diagnostics, Bioinformatics, Intellectual Property Rights, Biosafety and Bioethics, Nanobiotechnology and Tissue Engineering.

## Career Prospect

Students can become lecturers or can gain Ph.D. positions in different countries. Students who are seeking employment can join industries/ institutions working in the areas of Medicine, Biotechnology, Pharmaceuticals and Research.

## Evaluation

Theory, Practicals, Presentations and Dissertation work.

## Address for Correspondence

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