॥ त्वं ज्ञानमयो विज्ञानमयोऽसि ॥

LIVE
Online

Sessions by IIT Jodhpur Faculty Members and OmicsLogic Experts with Campus Immersion

IIT Jodhpur

Advanced Certification in Next-Generation OMICS Technologies & Applications

06 Months Program | **Expert Level Certificate**

Continuing Education Program Office
Indian Institute of Technology Jodhpur

In collaboration with Industry Partners

premas life sciences

OMICSLOGIC
BIOINFORMATICS & DATA SCIENCE
INDIA (OPC) PRIVATE LIMITED

miBiome® therapeutics

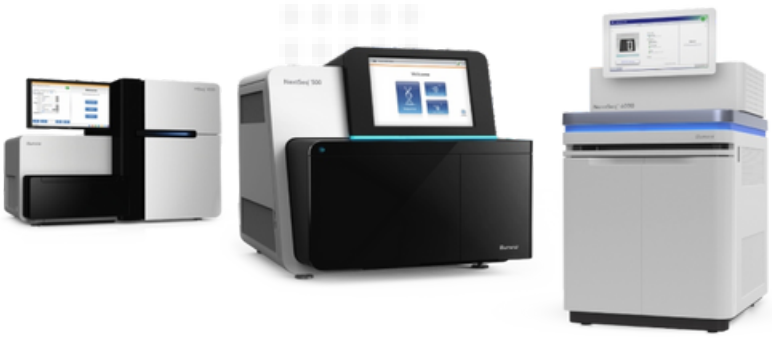
Apply Now

ABOUT THE PROGRAM

The **IIT Jodhpur Advanced Certificate Program** in **Next Generation OMICS Technologies and Applications** is a comprehensive six-month training tailored for individuals seeking in-depth knowledge and hands-on experience in the cutting-edge field of multi-omics.

Participants will delve into the complexities of next-generation sequencing (NGS) technologies, acquiring essential skills to navigate and leverage these tools. The curriculum is carefully structured to integrate the latest computational methods, enabling participants to proficiently analyze and interpret multi-omics datasets, a vital skill in the era of big data.

Unique highlights of the program include a mini-project, where participants apply their learning in a real-world setting. This project can be completed in collaboration with industry partners or under the guidance of IIT Jodhpur faculty members. Additionally, participants will have the opportunity for campus immersion, further enhancing their learning experience.



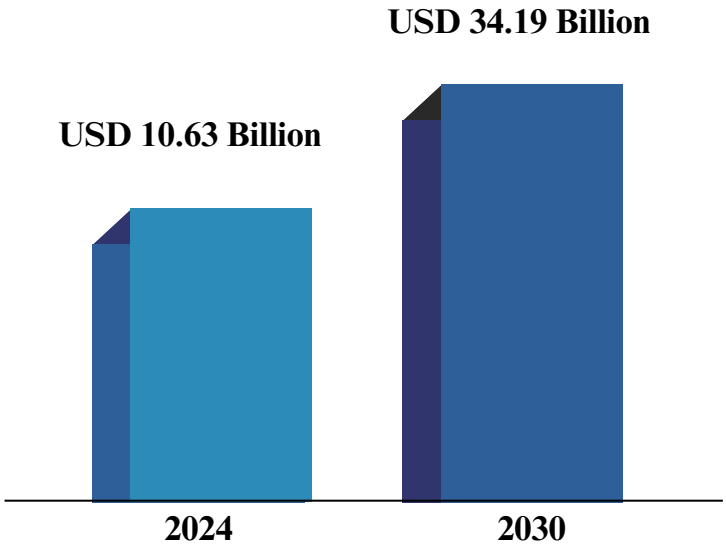
WHY NGS OMICS TECHNOLOGIES ?

GLOBAL NEXT GENERATION SEQUENCING MARKET

Next-Generation Sequencing (NGS) is revolutionizing healthcare, driving a projected 18.16% CAGR* from 2024 to 2030.

Its widespread adoption in clinical diagnostics and pivotal role in guiding personalized treatment decisions are propelling global market growth.

Source: Research And Markets

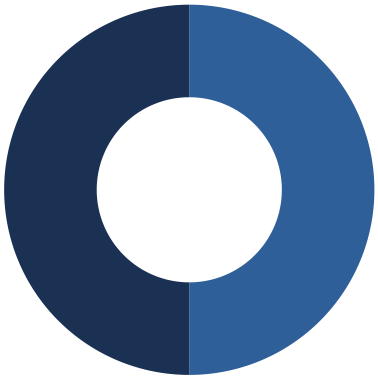


Global Next Generation Sequencing Market is anticipated to experience a CAGR of 18.16% from 2024 to 2030.

PREVALENCE OF GLOBAL BIOINFORMATICS MARKET BY REGION & APPLICATION

Regional Outlook

- North America
- Europe
- Asia Pacific
- Latin America
- Middle East & Africa



Application Outlook

- Genomics
- Molecular Phylogenetics
- Metabolomics
- Proteomics
- Transcriptomics
- Other

Source: Grand View Research

$ 34.19 Billion MV

Global Next Generation Sequencing MV- Market Value By 2030

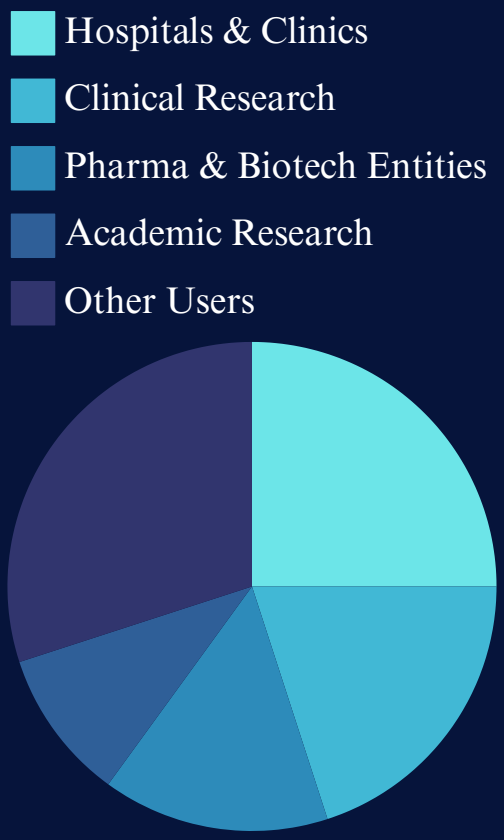
18.16% Growth Rate*

Expected Global Next Generation Sequencing Market Growth

**CAGR - Compound annual growth rate*

INDIAN NGS MARKET

INDIAN ONCOLOGY NGS MARKET



In 2022, **hospitals and clinics accounted for about 35% of the market share**, driven by the rising incidence of cancer and the need for improved diagnostic strategies.

The introduction of NGS-based cancer tests and panels in Asia has significantly enhanced initial cancer testing in Indian hospitals and clinics.

17.4$ Indian Market CAGR, 2023 - 2030

Source: Grand View Research

Key Players In Indian NGS Market

illumina®
premas life sciences
TECAN.
xcelris™ WE MAKE DNA SPEAK
eurofins
4baseCare Together, We Beat Cancer
MEDGENOME
SAYRE THERAPEUTICS
Redcliffe labs
Partek™ an Illumina company
BIO-RAD
Myriad genetics
HOLOGIC®
VELA DIAGNOSTICS
Genotypic genomics simplified

Source: Grand View Research

WHO IS THE PROGRAM FOR ?

Eligibility

- Preference for working professionals from biotech, pharma, sports, nutrition, health, wellness and diagnostic industries
- The candidates who are applying only for the Certificate II program must have completed similar courses as in Certificate I through prior formal academic training.
- Minimum 60% marks in UG/PG or a Minimum CGPA of 6.0 on a scale of 10 or proportional on other scales.

- University students, PhD, post-doctoral students & fellows looking to deepen their research expertise in multi-omics data analysis and applications.
- Academic and industry researchers looking to stay abreast of the latest omics technologies and computational methods.
- Healthcare professionals seeking to integrate omics data into healthcare practices.
- Diagnostic industry professionals keen on leveraging omics technologies for improved diagnostic solutions.
- Professionals looking to expand their OMICS service offerings with the latest technologies and methods.

PROGRAM FEATURES

- **~200 hrs of online teaching** from **IIT Jodhpur faculty & industry experts** from leading sequencing & data science companies.
- **Interactive live mentor-guided weekend classes** with flexible access to recorded lectures for convenient learning.
- Opportunity to undertake a **mini project co-supervised by IIT Jodhpur faculty and industry partners.**
- **Onsite Campus immersion at IIT Jodhpur** providing participants with access to state-of-the-art NGS equipment and technologies.
- **Comprehensive online learning platform** comprising of 30+ courses & case studies on omics data analysis & research.
- Utilize **open-source scientific tools and algorithms** effectively for their research applications.
- Earn **15 credits** setting you up for **IIT Jodhpur PG Diploma Program.**
- Prestigious **certification upon completion** and join the **esteemed network of IIT alumni.**

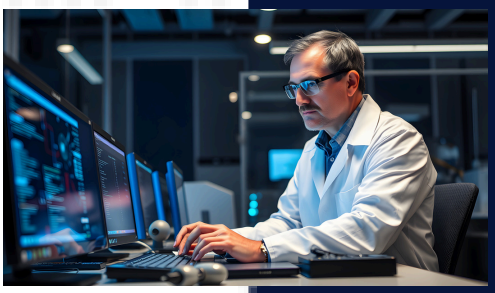
"Gain hands-on experience in both wet lab and dry lab settings with our NGS diploma program."

COMPULSORY MODULES

Sample QC and Processing Techniques for NGS

- Introduction to Biological Sample Collection
- Sample processing & Quality Control
- Designing a Sample Collection and Processing Workflow

Advanced OMICS Data Analysis



- Machine Learning for OMICS Data Analysis
- Single-OMICS Data Analysis
- OMICS Data Integration

Multi-OMICS Research Applications

- Functional Genomics
- Hereditary Diseases
- Diagnostics & Prenatal Testing
- Plant Genomics
- Population genomics
- Gene x Environment Interaction
- Nutrigenomics
- Pharmacogenomics

Click on the Course Booklet for complete list of topics

"From Clinical Interpretation to Precision Medicine, AI-Driven Drug Discovery, and Applications - Discover the Potential of Omics Data"

ELECTIVE MODULES

- **Protocols for Clinical Next Generation Sequencing Applications**
- **OMICS-Based Precision Medicine**

- **Computational Personal Genomics**
- **Artificial Intelligence (AI) in Healthcare**
- **AI/ML based Rational Drug Discovery**

- **Computational Structural Bioinformatics**
- **Applications of OMICS in Plant Science**

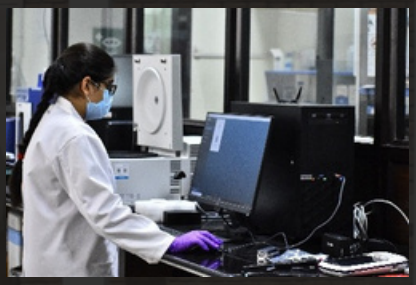
Click on the Course Booklet for complete list of topics

PROGRAM DETAILS

Campus immersion at IIT Jodhpur will be an essential component of the PG Diploma program and Certificate II.

Learners will get hands-on lab experience, with the opportunity to meet and learn in person from the Faculty and Mentors at IIT Jodhpur and engage in mini project.

Participants will complete a mini project co-supervised by IIT Jodhpur Faculty and partners.



MODULE	ADVANCED CERTIFICATE
Duration	6-Months
Credits	15
Mode	Online (Live) + Immersion
Registration Fee	₹300
Remaining Fees	₹1.5 Lakhs

**Immersion Fees exclude Accommodation and boarding: ₹10000/- only. Campus Immersion is compulsory for Certificate II and PG Diploma. Dates for the campus immersion will be formally announced in due course.*

PROGRAM OUTCOMES

Master Biological Sample Handling & Ethics: Understand sample collection, preservation, and documentation following ethical and biosafety standards (ISO/NABL).

Design NGS Sample Processing Pipelines: Create and evaluate pipelines for NGS sample collection, processing, and quality control to ensure high-quality data.

Apply Machine Learning in OMICS Data Analysis: Use machine learning algorithms and statistical methods to analyze mutation, CNV, GWAS, and microbiome data.

Integrate Multi-OMICS Data: Employ techniques like matrix factorization and CCA to integrate and analyze multi-OMICS datasets for deeper biological insights.

Gain Hands-On Experience with Bioinformatics Tools: Retrieve, preprocess, and analyze OMICS data using tools like Trimmomatic, QIIME2, and mixOmics.

Apply NGS in Diverse Research Areas: Use NGS for functional genomics, diagnostics, population genomics, drug discovery, and emerging fields like nutrigenomics.

Overview of Tools & Technologies Covered

CAMPUS IMMERSION

The campus immersion is designed to bridge the gap between theoretical knowledge and practical application, equipping participants with the skills and confidence needed to excel in the field of NGS Omics. It provides participants with the opportunity to:

- Engage in **wet and dry lab practicals**, allowing them to apply their theoretical knowledge to real-world scenarios.
- Access the **latest NGS equipment and technologies**, enabling them to develop practical skills.
- Work alongside **faculty members and industry professionals**, gaining valuable insights and mentorship.

Highlights of Hands-On NGS Training:
Moments from IIT Jodhpur's Campus Immersion 2023-24

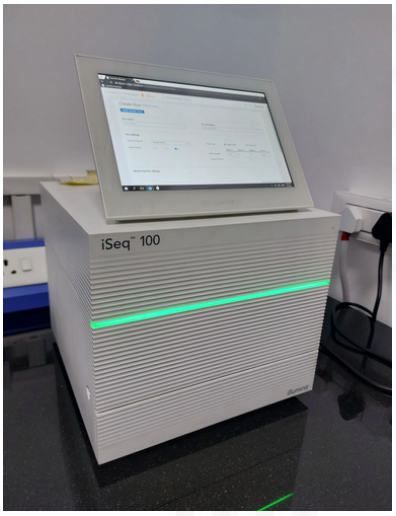
The campus immersion featured an **onsite lecture series** led by **esteemed academic and industry experts** enriching the learning experience with their insights and expertise.

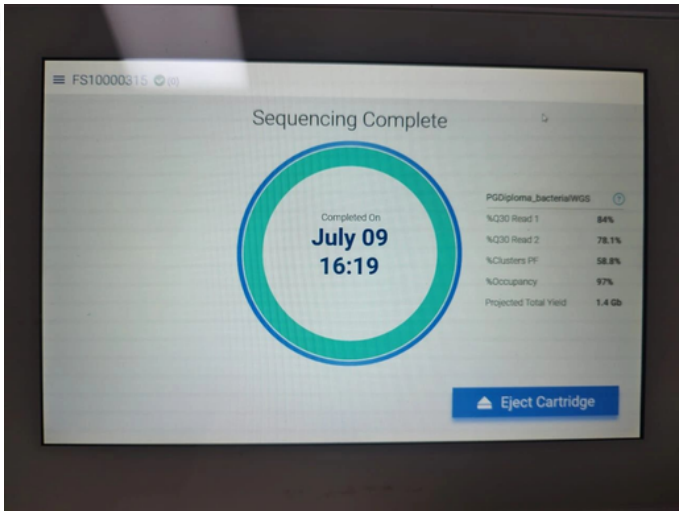
CAMPUS IMMERSION

Students also engaged in hands-on training for **bacterial whole genome sequencing**, gaining practical experience with **IIT Jodhpur's cutting-edge infrastructure.**


They worked through the entire sequencing workflow, including **sample preparation, quality checks, NGS library preparation, and setting up the NGS run.**





The immersive protocol allowed students to understand key steps and calculations involved in **transforming raw samples into sequencing data**, bringing theoretical concepts to life through direct experience.

MINI PROJECT

The mini project is a compulsory practical component for Certificate II and PG Diploma students. Under the guidance of faculty and industry mentors, participants work on real-world research problems related to next-generation sequencing (NGS) technologies and data analysis. This hands-on experience allows them to apply their theoretical knowledge, develop essential skills such as data analysis, interpretation, and communication, and collaborate with experts in the field.

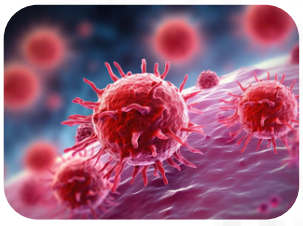
Academic Achievements:
A Glimpse into Student Research Projects 2023-24

1) Meta-Analysis of Differential Gene Expression in Psoriasis: Uncovering Consistent Molecular Signatures and Pathways

Faculty In-Charge: Omicslogic | **Students:** Anamta, Sonal

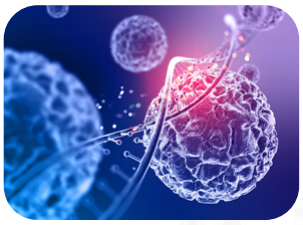
2) Bacteria Whole Genome Sequencing

Faculty In-Charge: PLS IITJ | **Students:** Arvind, Sakaram



3) Predictive Modeling and Feature Extraction in Breast Cancer Subtypes

Faculty In-Charge: OmicsLogic | **Students:** Manisha



4) Developing R package for the Extraction, Audit and Visualize Genomic Metadata from NCBI

Faculty In-Charge: Dr. Rintu Kutum | **Students:** Mrinal

5) Transcriptomic Profiling of Long COVID: Identifying Differentially Expressed Genes and Pathways in Diverse Patient Groups

Faculty In-Charge: IITJ OmicsLogic | **Students:** Seetha, Rajesh

STUDENT FEEDBACK

3.9 / 5 Overall coursework rating

87.5% of participants would recommend the program

Batch 2023 - 2024

Mrinal Bamhotra
M.Sc Bioinformatics,
GGSD College, Chandigarh

*"I've acquired skills in **experiment planning** and **biological data analysis** using **Excel and R programming.** These skills would be helpful for me in both experiment preparation and data analysis."*

Harshita Kaur
M.Sc Biochemistry,
Thapar University, Patiala

*"The program **instructors** do more than just explaining the theoretical concepts; they also assign **practical assignments** that are crucial for us in becoming a **well-informed scientific researcher.**"*

WET LAB OPPORTUNITIES

ACADEMIA

PRINCIPAL INVESTIGATOR (PI)

Salary Range:

- USD: $79T - $1L
- INR: ₹9L - ₹20L

POSTDOCTORAL RESEARCHER

Salary Range:

- USD: $69T - $1L
- INR: ₹3.7L - ₹7.4L

RESEARCH ASSISTANT

Salary Range:

- USD: $38T - $66T
- INR: ₹2.4L - ₹4.4L

LABORATORY TECHNICIAN

Salary Range:

- USD: $41T - $64T
- INR: ₹1.8L - ₹3L

INDUSTRY

APPLICATIONS SCIENTIST

Salary Range:

- USD: $88T - $1L
- INR: ₹5L - ₹10L

QUALITY CONTROL SPECIALIST

Salary Range:

- USD: $46T - $72T
- INR: ₹5L - ₹13L

RESEARCH SCIENTIST

Salary Range:

- USD: $99T - $2L
- INR: ₹6L - ₹12L

CLINICAL LAB SCIENTIST

Salary Range:

- USD: $75T - $1L
- INR: ₹2.5L - ₹9.6L

INTERNSHIPS

RESEARCH INTERN

Stipend Range:

- USD: $43T - $78T
- INR: ₹1.2 - ₹2.4L

BIOTECH INTERN

Stipend Range:

- USD: $39T - $73T
- INR: ₹1.2L - ₹1.8L

MOLECULAR BIOLOGY INTERN

Stipend Range:

- USD: $42T - $77T
- INR: ₹3L - ₹3.24L

CLINICAL RESEARCH INTERN

Stipend Range:

- USD: $40T - $73T
- INR: ₹1.2 - ₹2.4L

**Sources: Glassdoor for India & US. Salary and stipends are subject to change and may vary depending on various factors*

COMPUTATIONAL OPPORTUNITIES

ACADEMIA

BIOINFORMATICS SCIENTIST

Salary Range:
- USD: $92T - $1L
- INR: ₹2L - ₹10L

DATA SCIENTIST

Salary Range:
- USD: $92T - $2L
- INR: ₹7L - ₹18L

BIOSTATISTICIAN

Salary Range:
- USD: $86T - $1L
- INR: ₹4L - ₹8L

COMPUTATIONAL BIOLOGIST

Salary Range:
- USD: $69T - $1L
- INR: ₹6L - ₹19L

INDUSTRY

BIOINFORMATICS ENGINEER

Salary Range:
- USD: $96T - $2L
- INR: ₹4L - ₹9L

BIOINFORMATICS PROGRAMMER

Salary Range:
- USD: $83T - $1L
- INR: ₹2L - ₹4L

HEALTHCARE DATA ANALYST

Salary Range:
- USD: $74T - $1L
- INR: ₹5L - ₹8L

PRODUCT MANAGER

Salary Range:
- USD: $92T - $2L
- INR: ₹9L - ₹25L

INTERNSHIPS

DATA SCIENCE INTERN

Stipend Range:
- USD: $58T - $99T
- INR: ₹1.2 - ₹3L

BIOINFORMATICS INTERN

Stipend Range:
- USD: $47T - $86T
- INR: ₹1.3L - ₹1.6L

PROGRAMMING INTERN

Stipend Range:
- USD: $50T - $84T
- INR: ₹0.9L - ₹3.1

SOFTWARE DEV. INTERN

Stipend Range:
- USD: $53T - $95T
- INR: ₹2.8L - ₹6L

**Sources: Glassdoor for India & US. Salary and stipends are subject to change and may vary depending on various factors*

CAREER OPPORTUNITIES

POTENTIAL RECRUITERS

Pharmaceutical and Biotechnology Companies:

Sun Pharmaceutical Industries Ltd.
Dr. Reddy's Laboratories Ltd.
Serum Institute of India Pvt. Ltd.
Glenmark Pharmaceuticals Ltd.
Jubilant Life Sciences Ltd. Cipla Ltd.
Bharat Biotech International Ltd.
Biocon Ltd.
Piramal Enterprises Ltd.
Torrent Pharmaceuticals Ltd.
Cadila Healthcare Ltd.
Cipla Ltd.
Lupin Limited

Research Institutions and Laboratories:

Council of Scientific and Industrial Research Laboratories
Department of Biotechnology Laboratories
Indian Institutes of Technology
National Institutes of Technology
Indian Institutes of Science Education and Research

Healthcare Organizations and Hospitals:

Apollo Hospitals
Max Healthcare
Narayana Health
AIIMS
PGIMER
Fortis Healthcare
Manipal Hospitals
Medanta - The Medicity
Tata Memorial Hospital
Rajiv Gandhi Cancer Institute

Data Analytics and Bioinformatics Companies:

Illumina
Seven Bridges
TCS Bioinformatics Centre
BioAxis DNA Research Centre
Genotypic Technology
Thermo Fisher Scientific
Persistent Systems
Wipro Bioinformatics
Strand Life Sciences
Ocimum Biosolutions

Genomic Diagnostic Laboratories:

MedGenome Labs
Mapmygenome
DNA Labs India
SciGenom Labs
Xcode Life Sciences
CORE Diagnostics
Positive Bioscience
Neuberg Diagnostics

PROGRAM ADVISORS, DIRECTORS & MENTORS

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(BSBE), IIT Jodhpur

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CEO
OmicsLogic India & US

Praveen Gupta
Managing Director
Premas Life Sciences

Dr. Gautam Das
Co-founder
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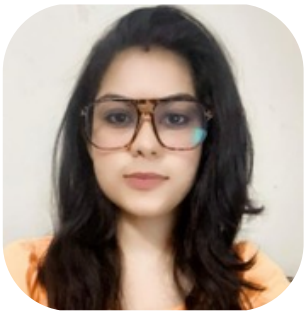
BSBE, IIT Jodhpur

Dr. Rintu Kutum
Asst. Prof. Dept of CS,
Ashoka University

Dr. Rahul Ramekar
NGS Training Specialist,
Premas LifeSciences



Sonalika Ray
Research Scientist,
OmicsLogic US & India

REGISTRATION PROCESS

1

COMPLETE YOUR REGISTRATION

Each application undergoes review by the admission team to ensure fair participant selection. Fill out form to register: Click Here. Last date to register: **Dec 15, 2024.**

2

SCREENING PHASE

During this phase, applicants are required to submit a fee of Rs. 300/-, followed by which an eligibility form will be shared with you for uploading documents for verification.

3

RECEIVE OFFER LETTER

Once reviewed and deemed eligible, you'll get an offer letter with program details such as start date, program schedule, and other instructions.

4

COMPLETE FEE PAYMENT

The next step is completing the program fee payment. Payment methods and deadlines will be provided to you. You can reach out to our team for Installment & Loan options to support the program fees.

5

PROGRAM COMMENCEMENT

Following the orientation session to acquaint you with the program structure, faculty, and resources available, regular classes will commence from **Jan 03, 2025.**

ABOUT IIT JODHPUR

The **Indian Institute of Technology Jodhpur**, a technological Institute of National importance was founded in **2008.** Today, the Institute has undergone transformational changes since its humble origins.

The Institute has **over 240 Faculty Members** spread across various academic units including departments, centres, and schools with expertise in diverse thrust areas.

> *At the Department of Biological sciences and Bioengineering (BSBE), IIT Jodhpur, we aspire to provide state-of-the-art domain knowledge and training to understand biological systems, provide innovative Bio-Tech solutions for applications in medical and environmental engineering domains that include biofuels, diagnostics, therapeutics, smart healthcare devices.*
>
> ***- Dr. Mitali Mukerji***

Dr. Mitali Mukerji,
Head, Dept. of BSBE
IIT Jodhpur, Rajasthan

Apart from imparting world-class education through its unique undergraduate and postgraduate programs, the Faculty Members are also pursuing cutting-edge research across disciplines.

Fully Equipped Basic & Advanced Laboratory Facility for Advanced Level Certification / PG Diploma

ABOUT OMICSLOGIC

OmicsLogic (Formerly known as Pine Biotech) is a US-based company leading innovator in NGS bioinformatics, specializing in the training programs developed for analyzing high-throughput omics data.

Founded with the mission to make advanced computational biology methods accessible to researchers and students, OmicsLogic has developed a range of solutions that simplify complex data analysis tasks and get everyone started, especially those who have no background and exposure to modern biology.

Expertise spans multiple bioinformatics domains including all **NGS Genomics, Bulk & Single Cell Transcriptomics, Metagenomics, and other Omics analysis** expertise in biological research utilizing data-driven technologies **(Statistics, Machine learning, Generative AI, Cheminformatics & structural Biology)** to address scientific questions.

> *We have developed a range of solutions that simplify complex data analysis tasks and get everyone started, especially those who have no background and exposure to modern biology.*
>
> *With a focus on educational initiatives, we aim to equip the next generation of students and scientists with the skills they need to excel in the rapidly evolving landscape of big data bioinformatics.*
>
> ***- Dr. Mohit Mazumder***

Dr. Mohit Mazumder
CEO & Co-founder
OmicsLogic India & US

NGS Multi-Omics & Biomedical Data Science

Bioinformatics Cloud Infrastructure

Industry Relevant Training Curriculum

ABOUT PREMAS

premas life sciences

We are
Great Place To Work® Certified™
Recognized by Great Place To Work® India

Great Place To Work. Certified JAN 2023 – JAN 2024 INDIA

Premas Life Sciences (PLS) is a young, dynamic, and focused organization introducing game-changing niche technologies in Genomics, Cell Biology, and Biopharma to boost innovative research and diagnostics in India. We are also the knowledge partners to several reputed research institutes and hospitals, enabling them to set up core genomics facilities with complete support at all fronts.

The biggest motivation behind the inception of PLS was to set up an organization that could contribute significantly to the life science research landscape in India and has the convergence of a committed and highly skilled workforce to catalyze this process.

> *We are really hoping to create a space where technology can be used to answer important problems in science and how it influences people's lives. We believe in fostering the spirit of science among students and young adults through our scientific outreaches and we would definitely like PLS, in its own unique capacity, to contribute to the India story.*
>
> ***- Praveen Gupta***

Praveen Gupta,
Managing Director,
Premas Life Sciences

Genomics & Cell Biology

illumina · 10X GENOMICS · STANDARD BIOTOOLS · Covaris · CareDx · GENOLUTION

Agilent Technologies · JN MEDSYS · TWIST BIOSCIENCE · CODEX DNA · ASKION

IIT Jodhpur

Advanced Certification in

Next Generation Omics Technologies and Applications

Enquire Now

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Scan QR Code To Register

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