

Report

on

SUMMER TRAINING PROGRAM – 2024

(A Six Week Training Workshop for Outside Participants)



12 JUNE – 15 JULY 2024

Hosted by

DEPARTMENT OF BIOTECHNOLOGY AND BIOINFORMATICS

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY

WAKNAGHAT, SOLAN, H.P. -173234

SUMMER TRAINING PROGRAM, 12 JUNE – 15 JULY 2024

Department of Biotechnology and Bioinformatics, Jaypee University of Information Technology (JUIT), Waknaghat, Himachal Pradesh, India offered summer training for the duration of **4/6 weeks** in **June-July 2024** in different areas of Biotechnology & Bioinformatics to M.Tech./B.Tech/M.Sc./B.Sc. students.

SUMMER TRAINING APPLICATION PROCEDURE

1. Fee for the training program was to be submitted by **Online Mode (RTGS/NEFT) ONLY**. No other mode of payment to be accepted.
2. **Online Application form** for the summer training program to be filled with Personal Details, Photograph, and Details of Payment Made (UTR No. etc).
FORM LINK: <https://forms.gle/W2q5x3j2RnBV1SyF7>
3. Confirmation of candidature along with Module allotted to be mailed within Ten days of receipt of online form, after confirmation of fee from the Accounts.
4. Module for the summer training to be allotted on First Come First Serve (FCFS) Basis, with each module having maximum 20 Seats.
5. A module with less than Three (3) seats to be cancelled and students would be allotted their second preference for the summer training.

LAST DATE FOR APPLICATION:

Last date for receiving completed application forms for **SUMMER TRAINING PROGRAM – 2024** (by Online mode only) was – **31th May 2024**

SUMMER TRAINING CHARGES: Training and Accommodation Fee Details:

Training Duration	Total Fee	Details of the Fee
2 weeks (without Hostel) [§]	Rs 5000	Training Fee
2 weeks (With Hostel)	Rs 13,000	Rs 8,000 Hostel Fee + Rs 5000 Training Fee
4 weeks (without Hostel) [§]	Rs 8000	Training Fee
4 weeks (With Hostel)	Rs 24,000	Rs 16000 Hostel Fee + Rs 8000 Training Fee
<i>Hostel Fee - Includes Lodging, Food (Breakfast, Lunch, Dinner, Post Dinner Milk), Gym, Sports, Internet and Laundry Facilities</i>		
<i>Training Fee – for Kits, Media, Reagents, solvents and other consumable to be used for the summer training program of the student</i>		
<i>[§]PG / Private hostel / Sharing accommodation are available around JUIT, assistance might be provided by the organizers for students who do not wish to stay in hostel.</i>		

FEE PAYMENT:

Payment of the fees can be made by ONLINE MODE ONLY (RTGS/NEFT) in favor of “**Jaypee University of Information Technology**”, as per details below:

Name of the University	Jaypee University of Information Technology
Address:	P.O. Wagnaghat, Teh. Kandaghat, Distt. Solan-173234
Bank Name:	Punjab National Bank
Branch Address:	Wagnaghat Branch, Jaypee University of Information Technology, Wagnaghat
Account No.:	0427032100000010
IFSC Code:	PUNB0637100
Type of Account:	Current
MICR Code:	171024077

Student were advised to retain a Screen Shot of the Payment Receipt

MODULE DESCRIPTION

Following are the training modules for the upcoming Summer Training Program - 2024:

- **Microbial Biotechnology & Bio-energy:** General Microbiology Techniques – handling, isolation, preservation and staining. Screening and isolation of computer munching microbes. Bioreactor design, fabrication and working.
- **Molecular Biology and Genetic Engineering Techniques:** Plasmid isolation, Genomic DNA Isolation, DNA and RNA gel electrophoresis, DNA quantification, Demonstration of Restriction and DNA ligase enzymes, Preparation of Competent Cells and Transformation, Primers designing For PCR, PCR amplification of a given gene.
- **Microbial Pathogens & Medical Genomics:** Handling of BSL1 & 2 organism, Mutation, Immunodiagnostic techniques – Double Diffusion, Rocket Immunoelectrophoresis etc, ELISA, Agglutination and PCR based (DNA) Diagnostic Techniques, Identification of SNP through RFLP, DNA fingerprinting for forensics, cDNA synthesis, Quantitative real-time PCR.
- **Industrial Plant Tissue Culture:** Establishment of callus/cell suspension cultures/somatic embryogenesis/artificial seeds; Different micropropagation techniques & technologies for different plant species; *In vitro* production and quantification of medicinally important secondary metabolites.
- **Bioinformatics:** Fundamental concepts of bioinformatics, biological databases and biological sequence alignments and analysis, phylogenetic analysis, Structure prediction and validation, Docking, functional and computational Genomics, Web development for Bioinformatics, Computational Systems Biology and Pathway Analysis. Basics of NGS technologies and data analysis.(student may choose areas to work)
- **Industrial Biotechnology & Food Biotechnology:** Food fruit juice fermentation, Food analysis and quality control (Sugar content, pH, phenolic content, anti-oxidant content, ethanol content), Downstream processing. Monod's Growth kinetic parameters, Immobilization of whole yeast cells.
- **Enzyme Technology:** Folin-Lowry's and Bradford Method for protein concentration estimation, Michaelis Menten kinetic parameters (V_{max} , K_M , K_S , K_{cat}), Ammonium sulphate precipitation, Enzyme Dialysis, SDS-PAGE, Enzyme Immobilization.

- **Nanobiotechnology:** Introduction, Nanomaterial synthesis: Synthesis of silver, zinc and copper nanoparticles, Nanomaterial characterization using various analytical technique such as UV-vis spectroscopy, Functionalization of nanoparticles using various biocompatible ligand, Nanomaterial-ligand interaction, Applications: antimicrobial activity and MIC calculation. Surface-wetting characterization using contact-angle measurements, Viscosity and Ultrasonic studies of different samples.
- **Proteomics Technologies:** Protein extraction from different biological samples, quantitative estimation of protein, spectroscopic analysis of proteins, in-gel and in-solution protein digestion, protein profiling methods using One dimensional gel electrophoresis, comparative proteome analysis using two dimensional gel electrophoresis and quantification software.

PARTICIPANTS & MODULES ALLOTTED

S.N.	Name of Applicant	Gender	Educational Qualification	Affiliation (Name of University/ College)	Training Duration	Module Allotted
1	AARTI NAGTA	Female	M.Sc	HPU, Shimla	Four Weeks	Molecular Biology and Genetic Engineering Techniques
2	ANANYA RAGHAV	Female	B.Sc	CGC, Mohali	Four Weeks	Molecular Biology and Genetic Engineering Techniques
3	ANURADH A	Female	B.Sc	Khalsa College, Patiala	Four Weeks	Industrial Plant Tissue Culture
4	AYUSHI THAKUR	Female	M.Sc	GNDU, Amritsar	Four Weeks	Molecular Biology and Genetic Engineering Techniques
5	DIVYA SHARMA	Female	M.Sc	Chandigarh University	Four Weeks	Molecular Biology and Genetic Engineering Techniques
6	HARSH SINGH	Male	B.Tech	Deenbandhu Choturam, Sonipat	Four Weeks	Bioinformatics
7	KARINA	Female	B.Sc	Khalsa College, Patiala	Four Weeks	Industrial Plant Tissue Culture
8	LOKENDR A SINGH RATHOR	Male	Ph.D Pursuing	Pt.RSU, Raipur	Two Weeks	Bioinformatics
9	NAVDEEP SINGH	Male	B.Sc	Khalsa College, Patiala	Two Weeks	Molecular Biology and Genetic

						Engineering Techniques
10	PRAJWAL CHAUHAN	Female	M.Sc	HPU, Shimla	Four Weeks	Molecular Biology and Genetic Engineering Techniques
11	RIPUL KUMAR	Male	B.Sc	CGC, Mohali	Four Weeks	Molecular Biology and Genetic Engineering Techniques
12	ROJI KUMARI	Female	B.Sc	CGC, Mohali	Four Weeks	Molecular Biology and Genetic Engineering Techniques
13	RONAK CHELARI	Male	B.Sc	Mumbai University	Two Weeks	Molecular Biology and Genetic Engineering Techniques
14	SANA TARANNU M	Female	M.Tech	IIIT, Prayagraj	Four Weeks	Bioinformatics
15	SATISH RAJPUROH IT	Male	B.Sc	Mumbai University	Two Weeks	Industrial Plant Tissue Culture
16	SHWETA	Female	M.Sc	HPU, Shimla	Four Weeks	Industrial Plant Tissue Culture
17	SUSHAMJOT KAUR	Female	B.Sc	Khalsa College, Patiala	Four Weeks	Molecular Biology and Genetic Engineering Techniques
18	VIVEK KISHOR GHODKE	Male	B.Sc	Mumbai University	Two Weeks	Bioinformatics

MODULES & MODULE COORDINATORS

Following Modules were offered to the participants as per their request and selection:

Module Allotted	Faculty Coordinator	Technical Resource Person	PhD Scholar
Bioinformatics	Dr. Tiratha Raj Singh & Dr. Raj Kumar	Ms. Somlata Sharma	Ms. PRIYANKA RATTAN 236501
Industrial Plant Tissue Culture	Dr. Hemant Sood	Ms. Mamta Mishra	Ms. KRITIKA SINGH 236553
Molecular Biology and Genetic Engineering Techniques	Dr. Rahul Shrivastava & Dr. Jitendraa Vashistt	Mr. Baleshwar Prasad & Mr. Ismail Siddiqui	Ms. SANDHYA TEGTA 206556; Ms. SAKSHI SHARMA 235112001; Ms. PRIYA GAUTAM 236551



Dr. Rahul Shrivastava

Summer Training Coordinator - 2024

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Email: biotechntp@mail.juit.ac.in

GLIMPSES OF SUMMER TRAINING – 2024

GROUP PICTURE WITH ALL PARTICIPANTS

&

**MEMBERS OF THE DEPARTMENT OF BIOTECHNOLOGY AND
BIOINFORMATICS, JUIT**



PARTICIPANTS PERFORMING LABORATORY EXPERIMENTS







BIOINFORMATICS AND THEORY SESSIONS



A HERITAGE TRIP TO SHIMLA



GET TOGETHER TEA PARTY WITH THE PARTICIPANTS





Souvenir Distribution to Participants









Report prepared by:



Dr. Rahul Shrivastava

Summer Training Coordinator - 2024

Department of Biotechnology & Bioinformatics

Jaypee University of Information Technology

Waknaghat, Solan -173 234, (H.P.) India