

Report

on

SUMMER TRAINING PROGRAM – 2023

(A Six Week Training Workshop for Outside Participants)



02 JUNE – 14 JULY 2023

Hosted by

DEPARTMENT OF BIOTECHNOLOGY AND BIOINFORMATICS

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY

WAKNAGHAT, SOLAN, H.P. -173234

SUMMER TRAINING PROGRAM, 02 JUNE – 14 JULY 2023

Department of Biotechnology and Bioinformatics, Jaypee University of Information Technology (JUIT), Wahnaghat, Himachal Pradesh, India offered summer training for the duration of **4/6 weeks** in **June-July 2023** 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 will be accepted.
2. **Online Application form** for the summer training program with Personal Details, Photograph, and Details of Payment Made (UTR No. etc).

FORM LINK: <https://forms.gle/kazqLU3kjJzr6WLv8>

3. Confirmation of candidature along with Module allotted was mailed within Ten days of receipt of online form, after confirmation of fee from the Accounts.
4. Module for the summer training allotted on First Come First Serve (FCFS) Basis, with each module having maximum 25 Seats.

LAST DATE FOR APPLICATION:

Last date for receiving completed application forms for **SUMMER TRAINING PROGRAM – 2023** (by Online mode only) was – **15th May 2023**

SUMMER TRAINING CHARGES: Training and Accommodation Fee Details:

Training Duration	Total Fee	Details of the Fee
4 weeks (without Hostel) ^{\$}	Rs 8000	Training Fee
4 weeks (With Hostel)	Rs 24,000	Rs 16000 Hostel Fee + Rs 8000 Training Fee
6 weeks (without Hostel) ^{\$}	Rs 10000	Training Fee
6 weeks (With Hostel)	Rs 34,000	Rs 24,000 Hostel Fee + Rs 10000 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>		
^{\$} 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.		

FEE PAYMENT:

Payment of the fees can be made by ONLINE MODE ONLY (RTGS/NEFT) in favour 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.:	04270321000000010
IFSC Code:	PUNB0637100
Type of Account:	Current
MICR Code:	171024077

MODULE DESCRIPTION

Following were the training modules offered for Summer Training Program - 2023:

- **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, TA Cloning, Primers designing For PCR, PCR amplification of a given gene, Annotation of given sequences.
- **Microbial Pathogens & Medical Genomics:** Handling of BSL1 & 2 organism, Mutation, Immunodiagnostic techniques – Double Diffusion, Rocket Immuno-electrophoresis 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, Information retrieval from biological databases, biological sequence analysis through computational methods, sequence alignments (pair wise, multiple, global, and local), phylogenetic analysis, Structure prediction and validation, Docking, Introduction to functional and computational Genomics, Perl/Python, HTML, MySQL and Computational Systems Biology. RNA Seq data analysis: Basic linux commands, NGS data formats (fastq, SAM, BAM), Sequencing platforms, Quality control, de novo assembly, reference based assembly, quantification (FPKM, RPKM), differential gene expression analysis using DEseq2/edgeR, heatmap generation, genome annotation, pathway 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.
- **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.

SUMMER TRAINING PROGRAM FLYER 2023



SUMMER TRAINING PROGRAM, 2 JUNE – 14 JULY 2023
DEPARTMENT OF BIOTECHNOLOGY & BIOINFORMATICS
JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY
WAKNAGHAT, SHIMLA HILLS, H.P. -173234



ABOUT THE PROGRAM

Department of Biotechnology and Bioinformatics, Jaypee University of Information Technology (JUIT), Wagnaghat, Himachal Pradesh, India is offering Summer Training for the duration of 4/6 weeks in June-July 2023 in different areas of Biotechnology & Bioinformatics for M.Tech./B.Tech/M.Sc./B.Sc. students. Please go through the webpage <http://www.juit.ac.in/summer-training-program-june-july-2023> or scan QR Code to know more about the training program along with details of the Training Modules, Application Procedure, Fee and Other Details.

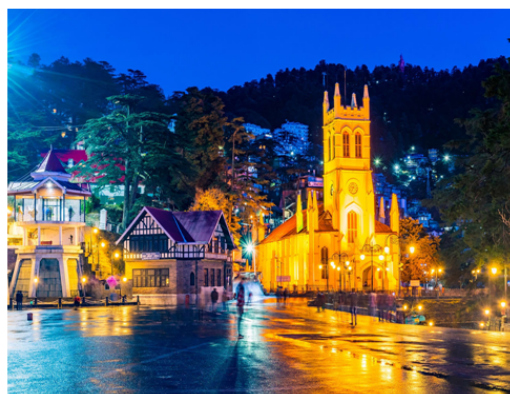
DEPARTMENT OF BIOTECHNOLOGY AND BIOINFORMATICS

The Department of Biotechnology & Bioinformatics has gained National and International distinction in Biotechnology education and research through its UG and PG programs. The Department of Biotechnology & Bioinformatics has been ranked 1st among all private universities and Institutions in India. In 2013, the Association of Biotech Lead Enterprises (ABLE) has honoured us as one of the best private biotech and bioinformatics education institutions in the country for doing outstanding research and education due to its strong R&D program, modern laboratory infrastructure, highly qualified faculty, IPR & patents, and placements of graduates. Department also ranked in top 10 private Universities/ Institutes of India by BioTecNika magazine (2019). The Department offers B.Tech. and Ph.D courses in Biotechnology and Bioinformatics, M.Tech in Biotechnology, M.Sc. in Microbiology and Biotechnology.



PLACES OF TOURIST ATTRACTION

The University is situated in the neighborhood of Shimla, 3 KM off the NH22 (Ambala-Kalka-Wagnaghat-Shimla road). It is just half an hour drive to Shimla from campus. June in Shimla is pleasing climate with temperature between 15°C to 30°C, perfect for learning as well as visiting places of tourist attraction. The nearby places of tourist attractions are Shimla (24 Km), Chail (45 Km), Kufri (45 Km), Kasauli (50 Km) and many more.



For any further queries on submission of application please contact:

Dr. Rahul Shrivastava

Summer Training Coordinator - 2023, Department of Biotechnology & Bioinformatics
Jaypee University of Information Technology, Wagnaghat, Solan -173 234, (H.P.) India
Mobile: +91-8894-135-634 | Office: 01792-239355 | Email: biotechntp@mail.juit.ac.in

PARTICIPANTS & MODULES ALLOTTED

S.N.	Full Name	Gender	Affiliation	Duration of Training	Module Allotted
1	Akashveer Singh	Male	GGSDGS Khalsa College, Patiala	Four Weeks	Industrial Biotechnology & Food Biotechnology
2	Anushika Pandit	Female	Shri Mata Vaishno Devi University, Katra, J&K	Four Weeks	Bioinformatics
3	Deevyani Kaplas	Female	Juit, Solan (Summer Semester Student)	Six Weeks	Molecular Biology and Genetic Engineering Techniques
4	Gunbir Singh Ganda	Male	GGSDGS Khalsa College, Patiala	Four Weeks	Industrial Biotechnology & Food Biotechnology
5	Lovepreet Kaur	Female	GGSDGS Khalsa College, Patiala	Four Weeks	Industrial Biotechnology & Food Biotechnology
6	Lovleen Kaur Bharaj	Female	Lovely Professional University, Phagwara	Four Weeks	Molecular Biology and Genetic Engineering Techniques
7	Mannat Dhaliwal	Female	GGSDGS Khalsa College, Patiala	Four Weeks	Industrial Biotechnology & Food Biotechnology
8	Manpreet Kaur	Female	GGSDGS Khalsa College, Patiala	Four Weeks	Industrial Biotechnology & Food Biotechnology
9	Navneet Kaur	Female	GGSDGS Khalsa College, Patiala	Four Weeks	Industrial Biotechnology & Food Biotechnology
10	Paramveer Singh	Male	GGSDGS Khalsa College, Patiala	Four Weeks	Industrial Biotechnology & Food Biotechnology
11	Sadhvi Sangra	Female	Shri Mata Vaishno Devi University, Katra, Jammu & Kashmir	Four Weeks	Bioinformatics
12	Sarabpreet Singh	Male	GGSDGS Khalsa College, Patiala	Four Weeks	Industrial Biotechnology & Food Biotechnology
13	Simran Lakhanpal	Female	Chandigarh University, Chandigarh	Four Weeks	Bioinformatics
14	Swati Sharma	Female	GGSDGS Khalsa College, Patiala	Four Weeks	Industrial Biotechnology & Food Biotechnology

MODULES & MODULE COORDINATORS

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

Module Name	Module Coordinator	Tel/E-mail
Microbial Biotechnology & Bio-energy	Prof. (Dr.) Sudhir Kumar	Tel: 01792-239231
		sudhir.syal@juit.ac.in
Molecular Biology and Genetic Engineering Techniques	Dr. Rahul Shrivastava	Tel: 01792-239355
		rahul.shrivastava@juit.ac.in
	Dr. Jitendraa Vashistt	Tel: 01792-239284
		jitendraa.vashistt@juit.ac.in
Bioinformatics	Dr. Tiratha Raj Singh	Tel: 01792-239239344
		tiratharaj.singh@juit.ac.in
Industrial Biotechnology & Food Biotechnology	Dr. Saurabh Bansal	Tel: 01792-239222
		saurabh.bansal@juit.ac.in
	Dr. Vijay Kumar Garlapati	Tel: 01792-239288
		vijay.kumar@juit.ac.in
	Dr Ashok Nadda	Tel: 01792-239354
		ashok.nadda@juit.ac.in



Dr. Rahul Shrivastava

Summer Training Coordinator - 2023

Department of Biotechnology & Bioinformatics

Jaypee University of Information Technology

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

Mobile: +91-8894-135-634

Office: 01792-239355; Fax: 01792-245362

Email: biotechntp@mail.juit.ac.in

GLIMPSES OF SUMMER TRAINING – 2023

WELCOME TEA AND REGISTRATION



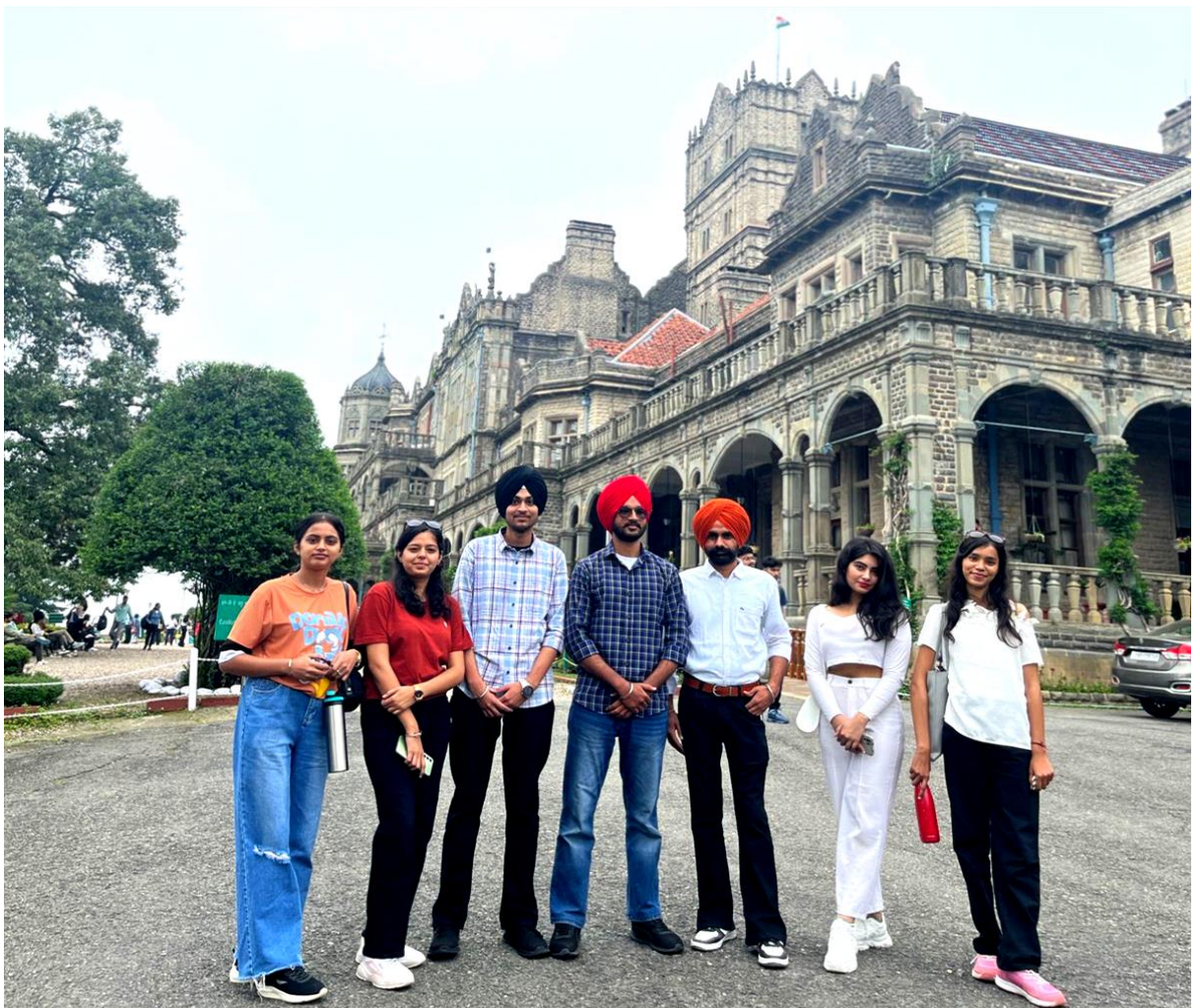
PARTICIPANTS PERFORMING LABORATORY EXPERIMENTS



PARTICIPANTS PERFORMING LABORATORY EXPERIMENTS



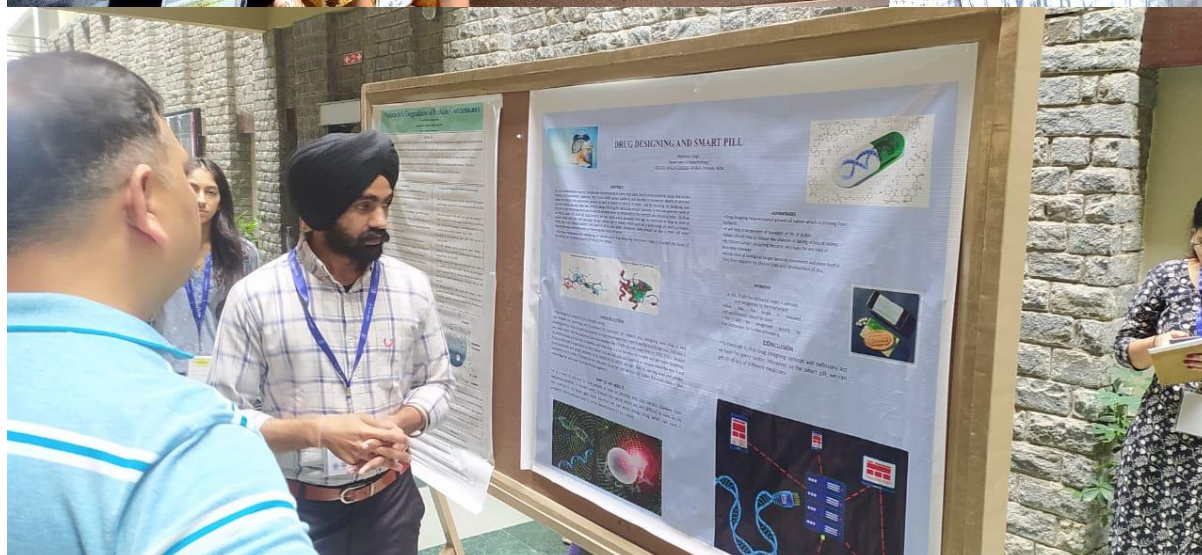
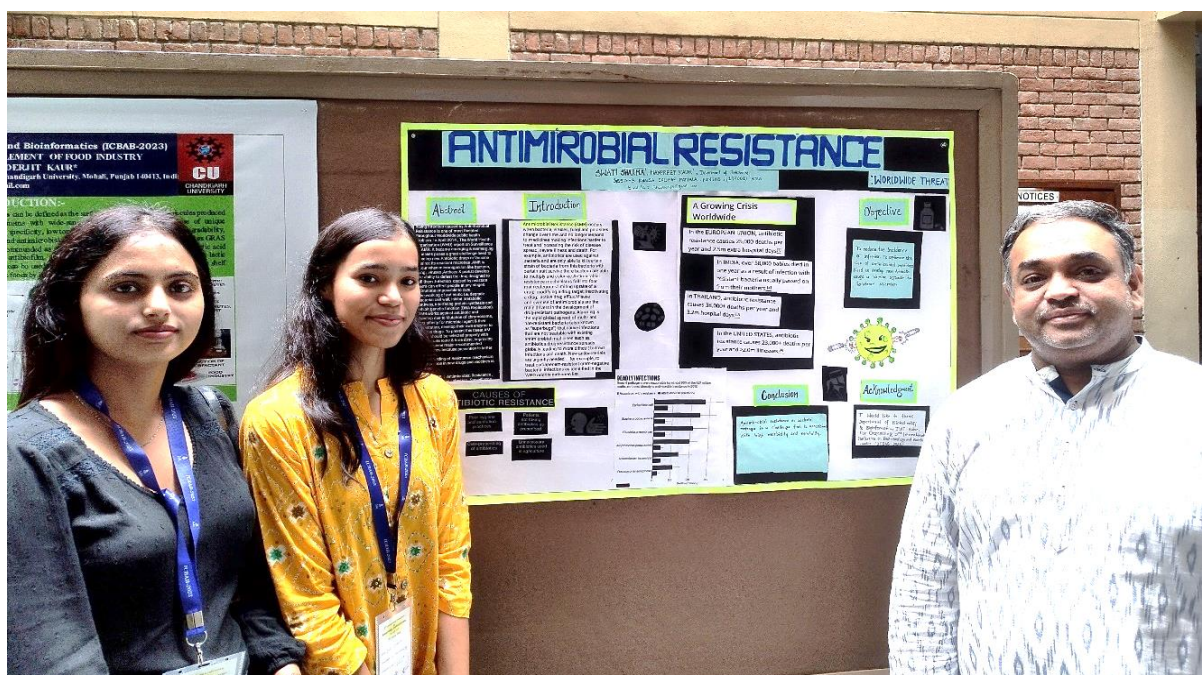
A HERITAGE TRIP TO SHIMLA



Souvenir to All Participants and Resource Person



POSTER PRESENTSTION AT INTERNATIONAL CONFERENCE “ICBAB 2023”



INDUSTRIAL VISIT



Tea Party and Interaction with Hon'bl Vice Chancellor & Dean of Students



Goodbye Pictures



***“Dudh
Party”***...students from
Khalsa College, Patiala
posted a picture with
milk party in the cup
Souvenirs provided to
all participants.

Dr. Rahul Shrivastava

Summer Training Coordinator – 2023, Department of Biotechnology and Bioinformatics, JUIT.