



# Graphic Era

Deemed to be University

## Research, Innovations & Extension

Facilities to support Research	Details
Central Instrumentation Centre	<a href="#">View</a>
Industry Sponsored Research & Training Centers	<a href="#">View</a>
Green House	<a href="#">View</a>
Algal Research and Bioenergy Lab	<a href="#">View</a>
Biosafety and Molecular Diagnostic (BMD) Facility	<a href="#">View</a>
Nano materials Laboratory	<a href="#">View</a>
Museum	<a href="#">View</a>
Wind Tunnel	<a href="#">View</a>
Link to Geo-tagged photos	<a href="#">View</a>
Link to Videos ( Sample: Tata Technologies – Centre of Excellence)	<a href="#">View</a>
Curriculum, teaching and supervision undergraduate programmes and/or postgraduate programme Environment	<a href="#">View</a>



## **Algal Research and Bioenergy Lab**

Algal Research and Bioenergy Laboratory was established in 2021 under the Department of Lifesciences, Graphic Era (Deemed to be University) by Dr. Vinod Kumar, Associate Professor, with a vision to “Research on algae and bioenergy”. Algal Research and Bioenergy group performs a full range of research related to algae and other biomass. The research works extends from exploring biomass by biorefinery process to optimization of the produced biofuels and bio-products. We are focused on understanding the current cost for algal biofuels production and using that information to identify and develop cost reduction strategies. The lab is equipped with major instruments like Algae pond, Microalgae racks, Automatic fiber analyzer, Automatic nitrogen analyzer, 3D printer, Centrifuge, Rotary Vacuum Evaporator etc. facilities to carry out research work in the interdisciplinary areas of algal research. Our lab has international collaboration with different Institute/University like Peoples’ Friendship University of Russia (RUDN University), Moscow 117198, Russian Federation, Joint Institute for High Temperatures of the Russian Academy of Sciences, Moscow 117198, Russian Federation, Water-Energy Nexus Laboratory, Department of Environmental Engineering, University of Seoul, Seoul, 02504, Republic of Korea etc.

**Ongoing Project: DST funded Indo-Russian Project (2022-2025)-INT/RUS/RFBR Title:** Sustainable capturing of flue gases by an integrated phototrophic-heterotrophic microbial consortium coupled with bioelectricity and biofuel production. **With:** -Joint institute for high temperatures of Russian academy of sciences, Moscow

### **Team Leader**

Dr Vinod Kumar

### **Team members**

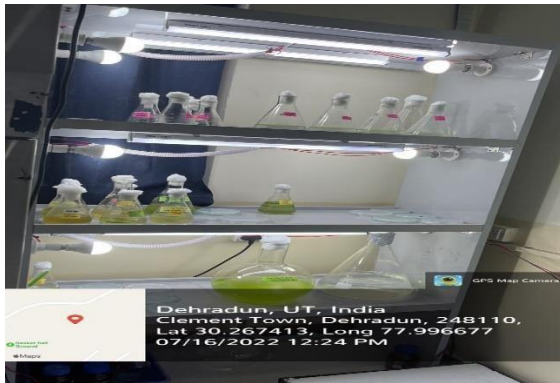
Dr. Pankaj Gautam

Er Sanjay Kumar

Er Prateek Gururani

Er Bhawna Bhist

## Lab facilities



Microalgae rack

Microalgae Pond



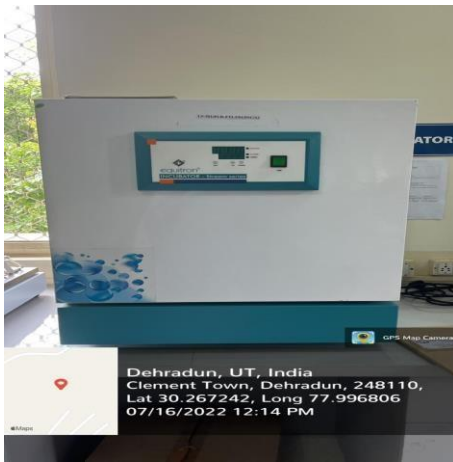
Automatic fat analyzer, Automatic fiber analyzer and Automatic nitrogen analyzer



**3D printer**



**Rotary Shaker**



**Incubator**



**Hot air Oven**



**Muffle Furnace**



**Centrifuge**



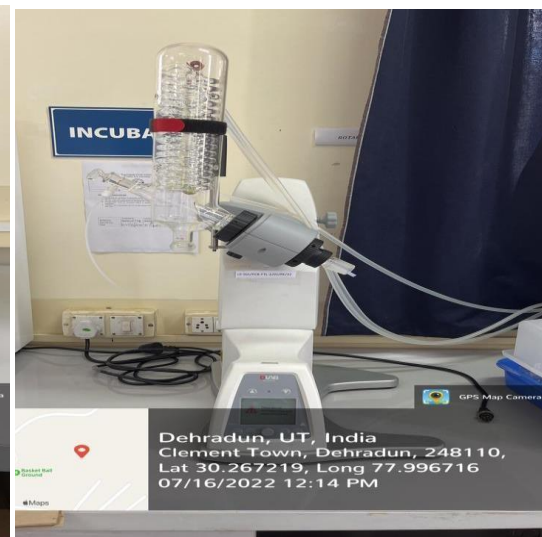
**Autoclave**



**Laminar air flow**



**Vacuum packaging machine**



**Rotary Vacuum Evaporator**

## Department of Biotechnology

### **New Research Facility**

**Name of Facility- Biosafety and Molecular Diagnostic (BMD) Facility (Area: 68.25m<sup>2</sup>)**


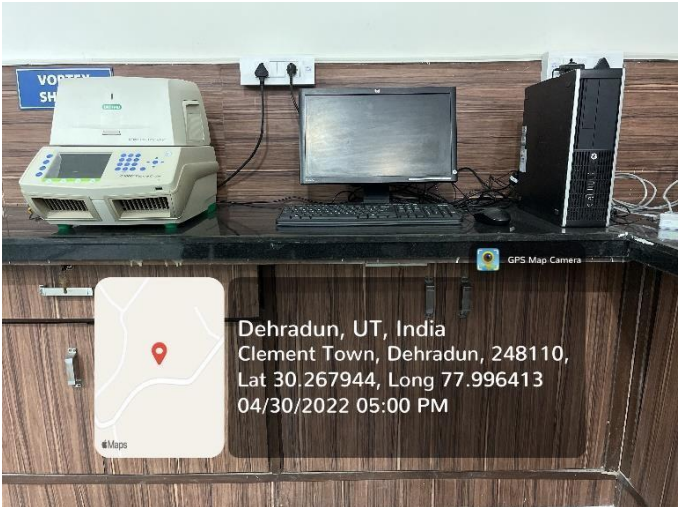
**Year of Establishment- 2022**




- BMD laboratory is equipped with advance research facilities, exclusively for research assignments of students and faculty members in the area of molecular biology and diagnostics. BMD is a Biosafety Level-2 facility equipped with Biosafety Cabinet Type-2 for research on pathogenic microbes (risk group-2). BMD lab also has an USFDA-IVD RT-PCR and other supporting instruments to facilitate research on molecular diagnostics.


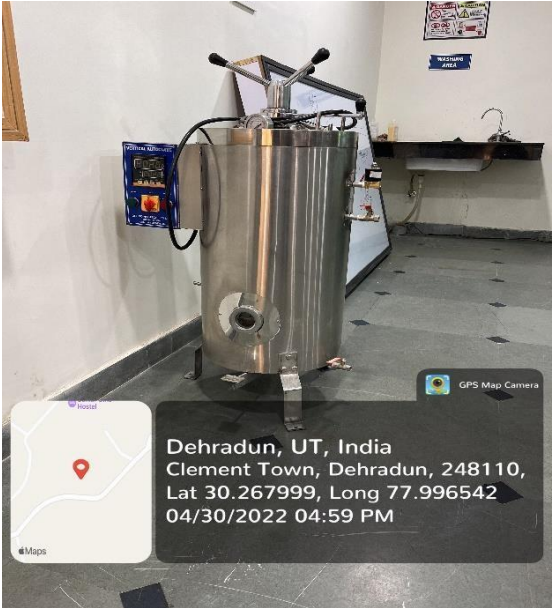
#### New Research laboratory- Biosafety and Molecular Diagnostic Laboratory






**Biosafety and Molecular Diagnostic Laboratory** is equipped with modern instruments for culturing pathogenic microbes and their identification/diagnosis by detection through nucleic acid by RT-PCR. With an aim to excel in the area of molecular diagnostics and related translational research, this laboratory is setup for the students and the faculty members. Recently, a research group of faculty members in the department has been granted an Indian Patent on PCR based detection of a pathogenic bacterium, and the researchers are in process of technology transfer. This facility will enable our students to learn RT-PCR and its application in the diagnostics which will help promote scientific research and entrepreneurship.

Equipment	Specifications	Details
<p><b>1. Biosafety Cabin –A2</b> Instrument ID: Bio301/GEU-01/RL-01/BSC/79</p> 	<p>Biosafety cabinets (BSCs) are a type of bio-containment equipment used in biological laboratories to provide personnel, environmental, and product protection during culture of pathogenic microbes (Risk Group-2). It's exhaust is fitted with HEPA filter to ensure environmental safety.</p>	<p>Date of Purchase – 1/11/2021 Name of Vendor- H.V. Technologies Quantity Available- 01 Name of Manufacturer- CLT</p>
<p><b>2. RT-PCR (Real-Time Polymerase Chain Reaction) System (IVD-CFX-96, USFDA approved)</b> Instrument ID: Bio301/RLBT-01/01/RT-PCR/26</p> 	<p>It is used for real-time quantification or detection of specific DNA or RNA by generating multiple copies tagged with a fluorescent tag which helps real-time visualization of DNA amplification by inbuilt fluorescence reader.</p>	<p>Date of Purchase - 14/12/2021 Name of Vendor- Exome Innovation Pvt. Ltd. Quantity Available- 01 Name of Manufacturer- Bio-Rad</p>

<p><b>3. Refrigerated Incubator Shaker</b></p> <p>Instrument ID: Bio301/ RLBT-01/03/SKOR/02</p> 	<p>Incubator shaker provides optimum environment for growth of microbial cultures and cell cultures by providing particular temperature (4-65° C), and agitation.</p>	<p>Date of Purchase - 21/11/2021</p> <p>Name of Vendor- BR Biochem</p> <p>Quantity Available- 01</p> <p>Name of Manufacturer</p>
<p><b>4. Table Top Centrifuge</b></p> <p>Instrument ID: Bio301/RLBT-01/03/CNF/11</p> 	<p>It is used to centrifuge or separate different biological components at room temperature or at low temperatures.</p>	<p>Date of Purchase - 27/11/2021</p> <p>Name of Vendor- BR Biochem</p> <p>Quantity Available- 01</p> <p>Name of Manufacturer-</p>
<p><b>5. Water Bath</b></p> <p>Instrument ID: Bio-301/RLBT-01/03/WB/22</p> 	<p>It is used to incubate samples in tubes at a particular temperature for a definite duration.</p>	<p>Date of Purchase - 08/11/2021</p> <p>Name of Vendor- H. V. Technologies</p> <p>Quantity Available- 01</p> <p>Name of Manufacturer- Equitron</p>

<p><b>6. Laminar Air Flow (Horizontal)</b> Instrument ID: Bio301/PCB/01/06/LAF/36</p> 	<p>Reduce the risk of contamination and provides an aseptic environment to culture microorganisms along with ensuring the safety of the operator.</p>	<p>Date of Purchase – 21/11/2021</p> <p>Name of Vendor- DD bioinfotech</p> <p>Quantity Available- 01</p> <p>Name of Manufacturer- Carelab</p>
<p><b>7. Autoclave</b> Instrument ID: BIO-301/GEU-01/06/ACV/88</p> 	<p>It is used for sterilization of media, glassware, reagents and decontaminate certain biological waste at high temperature and pressure.</p>	<p>Date of Purchase - 21/11/2021</p> <p>Name of Vendor- DD Bioinfotech</p> <p>Quantity Available- 01</p> <p>Name of Manufacturer- DD Bioinfotech</p>
<p><b>8. Micropipette Set</b> Instrument ID: BIO-301/RLBT-01/34/MP/90 BIO-301/RLBT-01/36/MP/90 BIO-301/RLBT-01/39/MP/90</p>	<p>It is used to accurately transfer volumes of liquid samples in the microliter volume ranges.</p>	<p>Date of Purchase - 27/12/2021</p> <p>Name of Vendor- Next Era Technologies</p> <p>Quantity Available- 03</p> <p>Name of Manufacturer-</p>

			
<p><b>9. Double Distillation Unit</b> Instrument ID: BIO-301/PCB-01/02/DDU/70</p> 	<p>It is used for preparation of distilled water for laboratory and research work.</p>	<p>Date of Purchase - 27/10/2021</p> <p>Name of Vendor- H.V. Technologies Quantity Available- 01</p> <p>Name of Manufacturer- Jain Scientific Glass works</p>	
<p><b>10. Vortex</b> Instrument ID: BIO-301/GEU-01/RL/05/VS/43</p> 	<p>It is used for mixing samples in test tubes and microfuge tubes etc.</p>	<p>Date of Purchase - 12/02/2022</p> <p>Name of Vendor- H.V. Technologies Quantity Available- 01</p> <p>Name of Manufacturer- REMI</p>	
<p><b>11. Refrigerator</b> Instrument ID: BIO-301/GEU-01/06/FRG/46</p>	<p>To store reagents, samples, specimens, stock solution &amp; bacteria, yeast glycerol stock at low temperatures.</p>	<p>Date of Purchase - 13/04/2022</p> <p>Name of Vendor- Direct for LG dealer Quantity Available- 01</p> <p>Name of Manufacturer- LG</p>	



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GPS Map Camera

## Nano Materials Laboratory



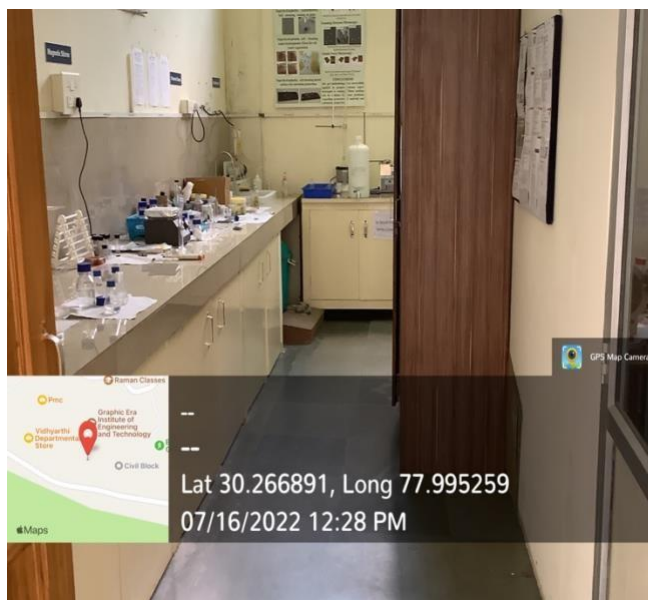
**Dr. Abhilasha Mishra**

Associate Professor  
Dept. of Chemistry  
(Principal Investigator)

**Specialization:** Nano materials, Nanostructured coatings, Biomaterials

**Year of establishment:** 2019

**Devices and Facilities:**





**Dr. Abhilasha Mishra (Principal Investigator)**  
Associate Professor  
Department of Allied Sciences (Chemistry)

**1. DST- CERI funded research project (Completed)**  
Title of project:- " Fabrication of superhydrophobic antireflective coating on the solar panels to enhance its efficiency."  
Letter number:- DST/TMD/CERI/ C28 dated 13/07/2017  
Cost of the Project -- Rs. 38,95,658.00 /- (INR)  
Duration -- 3 year

**2. DST- SERD (Ongoing)**  
Title of project:- " Development of nano-silica based antireflective dust repellent coating for solar panel top glass and its performance evaluation on roof top installation."  
Letter number:- DST/TMD/CERI/ RES/2020/31, dated 10/08/2021  
Cost of the Project -- Rs. 71.58 Lakh/- (INR)  
Duration -- 2 year

**Major Instruments Available in Lab**

 Spin Coater SPIN RXG- P2, Apex 2,19,480/-	 Spray Coater ALPHA SPRAY, Alpha Scientific Instruments Cost- 3,77,930/-
 Microscope	 GPS Map Camera

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