# in school-of-science-opju www.opju.ac.in





■ @SchoolofScienceOPJU

















Vol. 2 Issue 1

# **SCHOOL OF SCIENCE**









# MESSAGE OF THE VICE CHANCELLOR



Dr. R. D. Patidar
Vice-Chancellor

Dear Students, Faculty, and Well-Wishers,

It is with immense pride and enthusiasm that I extend my warm greetings to all readers of the UNMESH, the half-yearly Newsletter of the School of Science. This platform reflects our shared achievements, aspirations, and the unwavering commitment to fostering a thriving academic community. The School of Science stands as a beacon of innovation and intellectual growth, consistently striving for excellence in teaching and learning. Our dedicated faculty and curious minds work hand in hand to build an ecosystem where knowledge is not just imparted but explored, challenged, and expanded. We believe education is a journey of inquiry, and our classrooms serve as hubs for discovery and critical thinking.

Research remains at the core of our identity. Our faculty and students are actively engaged in projects that push the boundaries of scientific knowledge, addressing real-world challenges with creativity and rigor. We take pride in cultivating a culture where innovation and collaboration flourish, preparing our students to make meaningful contributions to society.

Equally important is the holistic development of our students. Beyond academics, we emphasize character building, emotional intelligence, and advancing a sense of community and responsibility. Our extracurricular and co-curricular activities aim to empower students to grow into well-rounded individuals, ready to take on the complexities of the modern world with confidence and purpose.

As we continue on this journey of excellence, I invite all stakeholders to join hands in shaping a future that reflects our shared values and aspirations. Together, let us make the School of Science a hub of transformative education and a global leader in innovation and societal impact.

# FROM THE DESK OF THE DEAN, SOS



# Dr. Girish Chandra Mishra

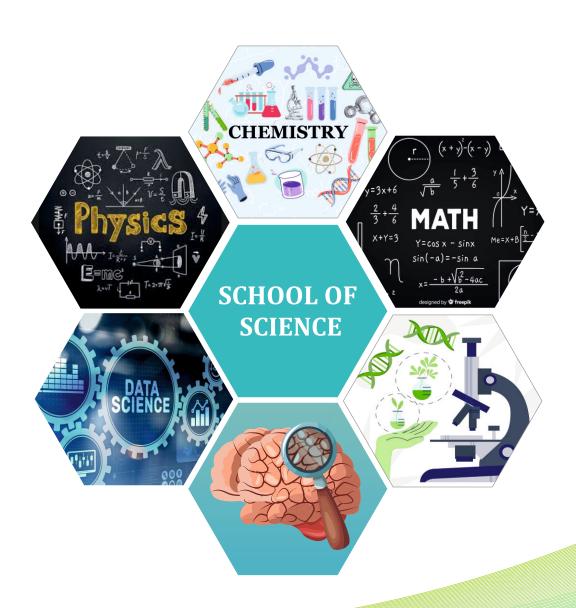
Professor-Physics & Dean School of Science

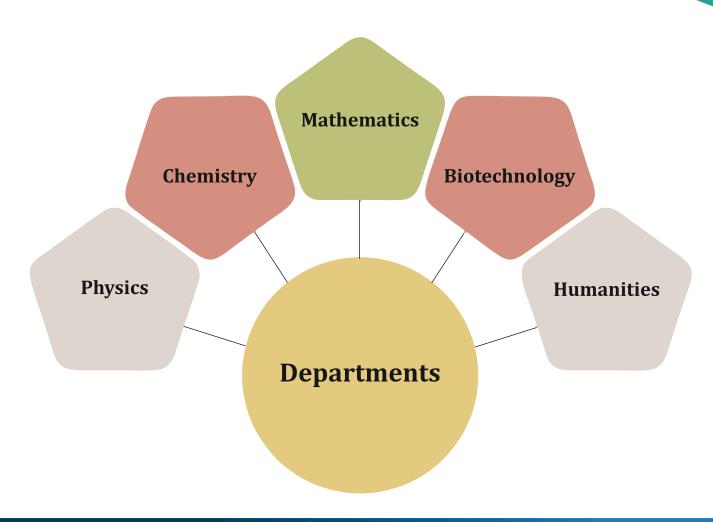
### Dear Readers,

As I reflect on the strides the School of Science has made, I feel immense pride in the collective efforts of our faculty, students, and stakeholders who have been instrumental in shaping its success. With a vision of academic excellence, innovation, and holistic development, we continue to progress towards greater heights. This year has been particularly significant as we have fully implemented NEP 2020 across our UG and PG programs, ensuring a multidisciplinary, skill-based, and flexible learning approach that aligns with global educational standards. In our pursuit of industry relevance, we have launched the M.Sc. Industrial Biotechnology program, opening new avenues for students in emerging fields. Our students have once again proven their mettle—two students secured AIR 1 in prestigious NPTEL exams in Physics and Chemistry, others won the Best Paper Awards at national and international conferences, and many excelled in hackathons, science model exhibitions, and state-level competitions. Their relentless dedication, along with the high-end lab facilities and project-based learning approach, has enhanced their practical knowledge and problem-solving abilities, preparing them for the competitive world. It is also heartening to see a good number of our students securing placements in Jindal Group companies like JSP, JPL, and others, a testament to the trust industries place in our institution. Beyond academics, we remain committed to fostering creativity, leadership, and social responsibility through co-curricular and extra-curricular activities, value-added courses, and community outreach initiatives, ensuring our students evolve into compassionate and responsible individuals. Education, to us, is not just about acquiring knowledge but about building character, instilling values, and shaping thought leaders who will contribute meaningfully to society. As we continue to innovate, inspire, and empower, I extend my deepest gratitude to all who have been part of this incredible journey. Together, we move forward with renewed enthusiasm, striving for excellence in all that we do. The road ahead is filled with opportunities, and I have no doubt that our students will continue to dream, discover, and achieve.

# Unveiling the School of Science

The School of Sciences started functioning in 2018, with the challenge of imparting good quality theoretical and practical education in disciplines of science; and plays a significant role in the development of the University. The School of Science offers undergraduate, postgraduate and Ph.D. programmes in various disciplines of basic and applied science as well as in the field of humanities. The School of Science is comprised of the Departments of Physics, Chemistry, Mathematics, Biotechnology and Humanities. Each department is engaged in ground-breaking research and the education of students from undergraduates to postgraduates and research activities. The present curriculum of the School of Science is structured to provide a common, broad-based foundation, imparting fundamental concepts and principles in science to develop students' intellect, research aptitude and ability to work collaboratively. The School of Science promises to nurture young minds by developing intellectuals and providing professional faculties with service to the cause of society and prides itself as one of the leaders in providing quality science education in Central India. Education can excel only if it is carried on with research. As per the vision and mission of the University, it is focussing on research and development initiatives. The School of Science is committed to be one of the leading centres of science education, facilitating its students to recognize their zeal and potential enabling them to achieve their academic and professional goals.





# Programmes

# Bachelor of Science (B.Sc.) 4 Years

- **➤** B.Sc. (Hons.) Physics
- **▶** B.Sc. (Hons.) Chemistry
- **▶** B.Sc. (Hons.) Mathematics

- **▶** B.Sc. (Hons.) Biotechnology
- **▶** B.Sc. (Hons.) Data Science & Analytics

# **Master of Science (M.Sc.)**

- **➤** M.Sc. in Physics
- **➤** M.Sc. in Chemistry
- **➤** M.Sc. in Mathematics & Computing
- **➤** M.Sc. in Industrial Biotechnology

# Ph.D.

- **➤** Physics
- **➤** Chemistry
- **➤** Mathematics



# School of Science



To become the epicenter of science education, research and innovation by creating and disseminating knowledge across the globe, and nurturing world-class scholars and ethical citizens to build a better future for all.



- > To empower learning, unleash talent, and lead a culture of creativity to solve global problems.
- ➤ To advance science and promote excellence in teaching and research by nurturing a culture of experiential learning.
- > To groom students to be morally and socially responsible professionals who are sensitive to the larger societal good.
- ➤ **To enhance student employability** through outcome-based education that incorporates emerging technologies and project-based learning.
- ➤ To foster local and global partnerships that strengthen teaching, advance research, and support institutional growth.



# Laboratory Instruments



### **MICROTOME**

A microtome is a specialized precision cutting instrument, which accurately and repeatedly slices sections from a block of embedded tissue. It is used for making microscopic preparations for subsequent illumination.



### **HOT AIR OVEN**

Allignment air ovens are electrical devices which use dry heat to sterilize. It is used for sterilization of laboratory equipment such as glassware (flasks, pipettes, Petri-plates, and test tubes), metal items (forceps, spatula, scalpel, scissors), non-volatile compounds (zinc and starch powder, sulfonamide), and other materials that contain oils.



### **DESKTOP CENTRIFUGE**

Centrifuges are used to separate fluids, gases, or liquids based on density. Centrifugation can be used to separate a mixture of two different miscible liquids. This technique can also be used to study and analyze macromolecules and their hydrodynamic properties. Centrifugation is known to play an important role in the fractionation of many organelles.



### **AUTOCLAVE**

Autoclaves are important devices to ensure the sterilization of materials containing water as they cannot be sterilized by dry heat sterilization. They are used for the sterilization of culture media, glassware, containers, plastic tubes, and pipette tips. Also used to decontaminate specific biological waste (recommended to be inactivated by autoclaving before disposal).



### -20 DEEP FREEZER

It is used for the storage and prevention of DNA (Genomic and Plasmid), RNA, Enzymes, Proteins, Hormones and Vaccines from losing their activity.

# Laboratory Instruments

### **GEL ELECTROPHORESIS**

DNA gel electrophoresis is a lab technique used to separate and analyze DNA fragments based on size. Since DNA is negatively charged due to phosphate groups, the fragments move through a gel when an electric field is applied—smaller fragments move faster, enabling visualization and analysis.



### PAGE: POLYACRYLAMIDE GEL ELECTROPHORESIS

Polyacrylamide gel electrophoresis is a biochemical technique that separates proteins by their electrophoretic mobility. Sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) is a PAGE technique that separates proteins by mass. SDS-PAGE denatures and reduces proteins to obtain their primary structure. The proteins are then coated with SDS molecules, which impart a relative negative charge proportional to their molecular weight. This allows the proteins to be separated by size.



### CAMERA ATTACHED BINOCULAR MICROSCOPE

A camera attached binocular microscope enhances the capabilities of the microscope and enables various applications across scientific research, education, and documentation.

Cameras on binocular microscopes allow instructors to display the microscope's view on a screen, enabling students to see the same image simultaneously. This is particularly useful for large classes, as well as for remote or online teaching.



### **COOLING CENTRIFUGE**

Cooling Centrifuge is used to separate substances of different densities from complex mixtures, while also maintaining a controlled temperature environment. The cooling aspect is particularly useful for applications that require temperature-sensitive samples to be separated.



### **UV Vis SPECTROPHOTOMETER**

A UV-Vis spectrophotometer measures how much light a substance absorbs, transmits, or reflects in the ultraviolet and visible ranges. It's used to determine concentration, purity, and physical properties of samples, and is commonly applied in analyzing DNA and RNA for purity.



# Laboratory Instruments



### **LAMINAR AIR FLOW**

Laminar Air Flow is a system that provides continuous air flow that is uniform in both direction and velocity. Laminar air flow cabinets facilitate unidirectional air flow in a confined space. They create the particulate-free working area by emitting air through a filtration system and exhausting it across the work surface.



### **SHAKER INCUBATOR**

A shaker incubator is a lab device that combines shaking and incubation functions. It provides controlled temperature and orbital agitation to mix substances and enhance oxygenation for even nutrient distribution. Commonly used in biotechnology and microbiology, it supports cell culturing, protein expression, DNA amplification, solubility studies, and cell aeration.



### **FERMENTOR**

A fermentor is a closed vessel used to grow and control microorganisms or cell cultures for producing antibiotics, enzymes, beverages, and other biological products. It plays a key role in research, biopharmaceuticals, food, and chemical manufacturing.



### HIGH SENSITIVITY FLUORESCENCE SPECTROMETER

A fluorescence spectrometer is an electromagnetic device that measures light emitted by a sample after excitation. It analyzes photoluminescence in solids, thin films, powders, and liquids with excitation wavelengths from 250–800 nm and emission detection from 200–900 nm. Widely used in physics, chemistry, biology, materials science, and medical research, it supports applications like LEDs, sensors, and diagnostics.



### **ELECTROCHEMICAL ANALYZER**

The Electrochemical Analyzer is a versatile potentiostat /galvanostat for general electrochemical measurements. It supports a wide range of techniques with integrated simulation and fitting tools for impedance and cyclic voltammetry. Featuring a digital function generator, high-speed data acquisition, and precise control, it offers a reliable platform for research in corrosion, batteries, supercapacitors, sensors, life sciences, and environmental studies.

# **Insights of SoS**

- >> Established in 2018
- >> 20+ Distinguished faculty members from nationally and internationally acclaimed Institutions
- The Best Emerging School in Science Education (Central India) Award by Alpha Publication (a registered publishing house under the Ministry of MSE, Goyt, of India)
- » Research and Industry oriented curriculum & Interdisciplinary and Collaborative Learning Environment
- » Excellent placement after UG and PG in the Jindal Group Companies and others.
- » Enhancing Soft Skills, Personality Development and Community services among students
- > Implementing NEP 2020 from 2024-25 to foster Problem-solving, creative thinking, Value-based education

# Advanced Lab Facilities

- » High Sensitivity Fluorescence Spectrometer
- Electrochemical Analyzer
- » Luminescence Research Lab
- Gunn Diode Set up
- Reflex Klystron Set up
- Automatic Polarimeter
- >> Fume Hood
- Digital Spectrophotometer
- Microbiology Laboratory
- Plant Tissue Culture Laboratory
- Genetic Engineering Laboratory
- Bio-Instrumentation Lab
- Data Mining Lab
- Data Scientist Toolbox
- Data Visualization Techniques

### **Core Research Areas**

- » Radiation Dosimetry
- » Nanomaterials for Energy Storage
- » Synthesis of Solar Cell & Solid-State Lighting Materials
- » Laser Speckle Imaging
- » Biomedical Optics
- » Macrocyclic Chemistry
- » Asymmetric Synthesis
- Medicinal Chemistry
- » Microbial Enzymology
- Enzyme Kinetics
- LncRNA Biology
- Cancer Molecular Biology
- Environmental Biotechnology
- » Graphene Synthesis

# Research and Publications

# Research Paper/Article

- Mayank Pandey, Kalim Deshmukh, Karthik Dhandapani, and Ram Sevak Singh, "Influence of Nano-CeO2 and Graphene Nanoplatelets on the Conductivity and Dielectric Properties of Poly(vinylidene fluoride) Nanocomposite Films. ", Langmuir 2024 40 (3), 1909-1921 DOI: 10.1021/acs.langmuir.3c03360
- Reenu Mishra, P.K. Sing, M.M. Vaishnav, **Kavita Patel**, "Determination of Water Quality Parameters of Kelo River, Chelonian Conservation and Biology", Vol. 19 (1) 2024.
- Taniya Sengupta Rathore, "Exploring Phytochemical Tyrosinase Inhibitors against Melanoma Skin Cancer", Proceeding of Zoological Society of India, 23(1) 2024.
- Girish C Mishra, SP Tatte, NS Dhoble, and SJ Dhoble. "Effect of Dopant Concentration on Luminescence Properties of Na3Ca2(SO4)3F: RE (RE = Eu3+, Dy3+) Phosphor for Solid- State Lighting." Luminescence. (2024) Oct;39(10):e4932. doi:10.1002/bio.4932. PMID:39417314.
- **Dr G C Mishra**, Professor, Department of Physics published a research article entitled "Synthesis and Luminescence Properties of CaZr(PO4)6:RE (RE= Eu3+, Dy3+) orthophosphate phosphor for n-UV solid-state lighting prepared by solid state synthesis" in Journal of Optics, August 2024. https://doi.org/10.1007/s12596-024-02149-6

- Girish C Mishra, SP Tatte, NS Dhoble, and SJ Dhoble. "Synthetic process and luminescence properties of Dy3+ doping fluoride-based phosphor by combustion method". AIP, 2974, 020039 (2024) https://doi.org/10.1063/5.0184279.
- **Dr Kavita Patel**, Assistant Professor (Sr), Department of Chemistry published a research article entitled "Novel idea and approaches of sainitizer preparation from Indian Herbs and their action" in International Journal of Research Publication and Review, Volume 5, Issue 8, 2024.
- **Dr Ram Sevak Singh** Sr. Associate Professor of Physics, School of Science, published a research paper entitled "Solution-processable PEDOT: PSS/WS2 nanocomposite electrodes for high-performance supercapacitors", Journal of Energy Storage, Volume 103, Part B, 2024, 114348 (https://doi.org/10.1016/j.est.2024.114348 (Impact Factor = 8.9)
- **Dr Ram Sevak Singh**, Ram Dayal Patidar, Kalim Deshmukh, Anurag Gautam & Ashok Kumar, "Influence of CuO Layer on the Performance of Thin-Film Copper Indium Gallium Selenide Solar Cells: A Numerical Analysis". J. Electron. Mater. 54, 609–619 (2025).
- Kavita Patel & Isha Verma "The Oil Extraction from Watermelon (Citrullus Lanatus) Seeds and Study Their Nutritional Values" International Research Journal of Modernization in Engineering Technology and Science, 6, 11 (2024)
- Kumari, Sneha, Pandey, Shivam & Aeshala, Leela & Kumar, Anuj & Singh, Sushant. (2024). Examining the Synergism of Cerium Oxide Nanoparticle Andrographolide Conjugate and Studying its Potential Role Towards Antioxidative Therapeutics. Nanofabrication.
- **Debasmita Samal and Manas Ranjan Mishra**, "EOQ and EPQ Models for Profit Maximization in the Analysis of Agro-Based Product Inventory Management" International Educational Journal of Science and Engineering Vol. 7, No. 11 (2024).
- Swati Verma, Khushboo Thakur and Priya Verma "Encrypting Message Using the Knapsack Cryptosystem Based on Elgamal", International Journal of Scientific Research in Science and Technology, 11(6), 666-671 (2024).

# **Book Chapter**

- **Dr R S Singh**, Sr. Associate Professor, Department of Physics, School of Science published a book chapter entitled "Carbon Nanostructure Functionalization for Electromagnetic Shielding Applications", in Springer book "Handbook of Functionalized Carbon Nanostrutures" (ISBN: 978-3-031-14955-9) https://doi.org/10.1007/978-3-031-14955-9\_56-1
- Dr R.S. Singh published the book chapter "Carbon Nanotubes Based Nanostructured Materials for Lithium-Ion Battery Applications: Recent Advances and Future Perspectives." Nanostructured Materials for Energy Storage 1 (2024): 191-223 (Wiley). https://doi.org/10.1002/9783527838851.ch6
- Dr R.S. Singh published the book chapter "Electrospun Carbon Nanofibers Based Materials for Flexible Supercapacitors: A Comprehensive Review." Nanostructured Materials for Energy Storage 3 (2024): 1189-1218 (Wiley).

https://doi.org/10.1002/9783527838851.ch32

- **Dr Swati Verma** from department of Mathematics, School of Science published a book chapter titled "Digital Forensics: Using Blockchain in Cryptocurrency Investigations" (2024), 84-96 (Bentham Science). https://benthambooks.com/book/9789815256833
- **Dr Dipti Shukla** from department of Physics, school of Science published a book chapter titled "Leading AI Applications in the Sustainable Energy Sector" in Routledge Taylor & Francis Group book "AI and Blockchain in Smart Grids Fundamentals, Methods, and Applications" (ISBN: 9781032812960)
- **Dr Dipti Shukla,** Associate Professor, Department of Physics, School of Science published a book chapter entitled "Wireless of Technologies and the Internet of Things" has been published in the Research Contemplation: A Multidisciplinary Approach Book, Morrisville North Carolina US international, Lulu Publication. (ISBN 978-1-304-23241-0)

### Book

- **Dr Taniya Sengupta Rathore**, Associate Professor Department of Biotechnology, School of Science published an edited book entitled "Biological Resources for Sustainable Research" Thanuj International Publishers, Tamilnadu, India.
- Dr Dipti Shukla, Associate Professor, Department of Physics, School of Science, OPJU published a book entitled "Physics: Basics & Advanced Concepts" CRIS Publication (ISBN-13: 978-81-979445-4-3)
- **Dr Dipti Shukla,** Associate Professor, Department of Physics, School of Science, OPJU published a book titled "Communication Electronics -II Principle and Applications", Monika Bhandari Books, January 2024 (ISBN-13:978-81-979755-0-9)
- **Dr Dipti Shukla,** Associate Professor, Department of Physics, School of Science published a book titled "Fundamental of Electronic Devices and Circuits" in Monica Bhandari publications. (ISBN-13:978-9348271150)

# Events and Activities

# **International Conference**

The School of Science, O. P. Jindal University organized the 3rd Virtual International Conference on Innovation and Research in Science & Technology (ICIRST'24) for Sustainable Development during 30-31 May 2024. A total number of four Keynote Sessions were organized on the four major tracks in which 17 eminent speakers delivered their keynote addresses. A total of 106 abstracts were accepted from PAN India out of which 95 papers were presented in 9 technical sessions organized during the two days. Among the presenters 6 Best Paper Awards were also declared.



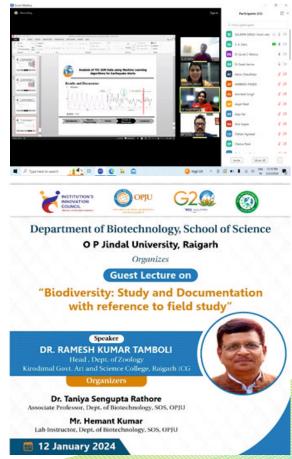
- The Conference Proceedings of 3rd Virtual International Conference on Innovation and Research in Science & Technology (ICIRST'24) was published with selected twenty-five quality research articles of the contributors from various parts of the country and the faculty members and students of School of Science by a renowned international publisher, Journal of Emerging Technologies and Innovative Research (JETIR) in November 2024.
- The School of Science in association with UHV Cell, OPJU organized a thirty-hour Value-Added Course on **Universal Human Values** from 5-28 Feb 2024. Around fifty participants from across the schools and departments registered and successfully participated in that course.



- The School of Science, OPJU organized a thirty-hour Value-Added Course on "Soft Skills and Personality Development" from 23 Sept. to 8 Oct. 2024.
- A webinar on "The Power of Positive Attitude in Professional Transformation (Journey of a Young Women from Suburban Roots to Corporate Heights)" was organized on 12th March 2024 with a focus on the implementation of various Life Skills (Jeevan Kaushal) to the graduate learners to handle their personal, interpersonal, and professional lives holistically, irrespective of discipline. The resource person was Ms. Sangita Mishra, Head of Inside Sales, Bahwan Cyber Tek, Dubai (UAE).



- An Expert Talk was organized on 23rd February 2024 by the Department of Mathematics on "Modeling Aspects in Earth Science". The talk covered different approaches, including numerical simulations, datadriven models, and machine learning applications in Earth science. Dr. Sanjeev Anand Sahu, Associate Professor, in the Department of Mathematics and Computing. IIT(ISM), Dhanbad, Jharkhand, India was the resource person.
- A Guest Lecture entitled "Biodiversity: Study and Documentation with Reference to Field Study" for B.Sc. Biotechnology (H) students was organized by the Department of Biotechnology, School of Science OPJU organized on 12th January 2024. The resource person for the session was Dr Ramesh Kumar Tamboli, Head, Department of Zoology, Kirodimal Govt. Arts & Science College, Raigarh.



■ A Guest Lecture entitled "Ethno Medicinal Plant and their Conservation" organized by Department of Biotechnology, School of Science, OPJU on 10th January 2024 for B.Sc. 2nd year Biotechnology (H) Students. The invited speaker for the session was Prof. Jyoti Bhoy, Lecturer, Department of Botany, PG Govt. College Tamnar.



A Guest Lecture entitled "The Impact of Climate Change on Plants" organized by Department of Biotechnology, School of Science, OPJU on 2nd January 2024 for B.Sc. 1st year Biotechnology (H) students. The invited speaker for the session was Dr Sushma Patel, Assistant Professor, Department of Botany, Kirodimal Govt. Arts & Science College, Raigarh.



A webinar was conducted on "X-ray Diffraction Techniques" by Department of Physics on 25th April 2024. Dr Arun Kumar Singh, Associate Professor, Department of Pure and applied Physics, GGV Bilaspur was the resource person.

■ Parents Teacher Meeting was held on 26 April 2024, faculty and staff members interacted with the parents about the progress of their wards, and students were felicitated with the trophies and certificates for their achievements in this occasion.







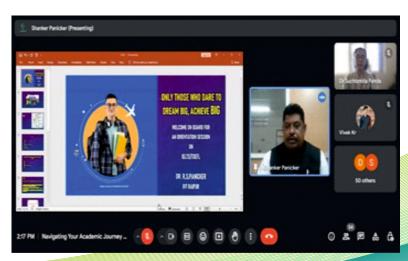
• An Expert Talk was organized by the Department of Physics, School of Science, OPJU on "Opportunities of Higher Studies in Abroad" on 13th September 2024. Dr R.S. Singh, Sr. Associate Professor, Department of Physics, SoS, OPJU delivered the session and made the UG and PG pursuing students aware of the avenues for further studies and research in overseas universities.





A webinar was organized by the School of Science on "Navigating your Academic Journey Abroad: TOEFL/ IELTS Insights for Undergrads" on 8th October 2024. The resource person for the webinar was Dr Ravi Shankar Panicker, Principle, BIT Raipur College of Commerce Arts and Management.





An Expert Talk was organized by the School of Science on "Understanding the Need for and Importance of Learning Indian Knowledge System" on 9th October 2024. The resource person for the webinar was Dr Jayshree Aanand Gajjam, Assistant Professor, IIT Kharagpur.



- A Special Lecture session on "Scholarship and Internship Opportunities for Undergraduate Science Students" was organized for the students of 3rd and 5th semester students of SoS on 14th Nov. 2024. Dr Taniya Sengupta Rathore delivered the session, and it was coordinated by Dr Arindam Patra.
- A Value-Added Course was organised by the Department of Mathematics, School of Science on "Quantitative Aptitude" from 6th 22nd November 2024. Around hundred students from the various departments of School of Science actively participated in this thirty-hour course. There were total ten sessions held on various relevant topics for the benefit of the participants.



■ A Guest Lecture was organised by the School of Science in association with the School of Management on "Principle of Disaster Resilient Infrastructure Design and Construction" on 25th November 2024. Er. Awdhesh Kumar, Head of Department of Civil Engineering, Invertis University was the Resource person.



A Guest Lecture was organized by the Department of Biotechnology, School of Science on "Environmental Issues & Solutions" on 16th December 2024. The speaker was Dr Renu Kujur, Assistant Professor, Department of Zoology, Govt. College Gharghoda, Raigarh (CG).





- A Guest Lecture was organised by Department of Mathematics, School of Science on "Career Prospects in Mathematics" on 16th December 2024. The speaker was Prof. Madan Kumar Patel, Assistant Professor, Department of Mathematics, K.G. Arts and Science College, Raigarh (CG).
- A Guest Lecture was organized by the Department of Chemistry, School of Science on "Key Components of a Seminar Report and Presentation" on 20th December 2024. The speaker was Dr Saroj Kumar, Assistant Professor, Department of Chemistry, Govt. College, Pussore, Raigarh (CG).
- A Guest Lecture was organized by the Department of Biotechnology, School of Science on "Career Path of the Bioentrepreneur" on 24th December 2024. Mr. Bhagwat Puri, Supervisor R&D Biotech, VNR Seeds Pvt. Ltd. Raipur, (CG) was the resource person.



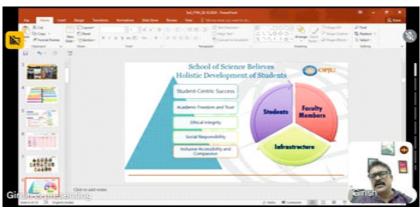
- A Guest Lecture was organized by the Department of Biotechnology, School of Science on "Herbal Plants & Human Health" on 27th December 2024. The speaker was Dr Sushma Patel, Assistant Professor, Department of Botany, K.G. Arts and Science College, Raigarh (CG).
- A Student Exposure Visit was organized by School of Science for 10+2 students of Jawahar Navodaya School Bhupdeopur on 21st November 2024.





■ The School of Science organized a virtual Parent-Teacher Meeting (PTM) on 28th October 2024 in three sessions for 1st, 2nd, and 3rd-year students.





■ Two Mock Personal Interview and Interactive Sessions were organized for the students of B.Sc. (Hons.) Physics, Chemistry, Mathematics, Biotechnology and DSA 3rd semester to foster experiential learning as a part of the curriculum for the subject 'Personality Development', with the help and assistance of the Team CDC on 21 & 22 Nov. 2024.





# Glorious Moments

- Upendra Kumar Verma was awarded Ph.D. in Physics on "Synthesis and luminescence characterization of mixed borate phosphors" on 23 July 2024 under the supervision of Dr Girish Chandra Mishra, Professor and Dean, School of Science.
- Heartiest congratulations to the medalists and Graduates of the School of Science on the successful award of Bachelors of Science (Honours) in Physics, Chemistry & Mathematics and Masters of Science in Physics & Chemistry degrees in the 4th convocation of O.P. Jindal University held on 5th August 2024.







■ Ms. Suchismita Panda, Assistant Professor, Department of Humanities, School of Science, OPJU successfully defended vivavoce of her Ph.D. thesis entitled "Burden of Urban Calcutta in Select Works of Mani Sankar Mukherji" under the supervision of Dr Indrani Singh Rai, Dean, Faculty of Arts and Professor (English), Amity University Chhattisgarh, Raipur on 30th August 2024.



Ms. Sanjana Dewangan, Assistant Professor, Department of Chemistry, School of Science, OPJU successfully defended vivavoce of her Ph.D. thesis entitled "Bioremediation of Rice Mill Effluent using Pichia pastoris" under supervision of Dr Prashant Mundeja on 26th December 2024 at MATS University, Raipur.



# Faculty and Staff Achievements and Recognitions

- Manas Ranjan Mishra presented a paper entitled "The impact of higher order chemical reaction on a moving plate in a porous medium and MHD forced convection of Jeffrey Nanofluid" on Three-Day "International Conference on Complex Analysis and Computational Fluid Dynamics 2024" during 16-18 February, 2024, at KIIT Deemed to be University, Bhubaneswar
- Dr S K Singh delivered an Online Invited Lecture on "Listening Skill for Success" by, organised by Govt. College, Kayatha, Ujjain (MP), 31st January 2024.
- **Dr Girish Chandra Mishra**, Dr Dipti Shukla, Dr Swati Verma and Dr Deepak Patel of School of Science delivered invited lectures in a Faculty Development Programme organized by Govt. K.G. Arts & Science College, Raigarh from 22-29 February 2024.
- Dr Taniya Sengupta Rathore attended two-week Faculty Development Program on "Advancement in Biotechnology and Chemical Engineering" held from 02/01/2024 to 12/01/2024 organized by Vel Tech Hi Tech Dr Rangarajan Dr Shakunthala Engineering College, Chennai Tamil Nadu.
- Dr Taniya Sengupta Rathore selected as Reviewer in Advances in Science, Technology and Engineering System Journal (ASTESJ).





■ Dr Dipti Shukla of School of Science, delivered a Career Guidance session on 25 May 2024, organized by District Administration, Raigarh.



- Prof. Suchismita Panda participated in a Five Day STTP on "Writing Quality Research Paper and Proposal" organized by the Dept. of HSS, SVNIT Surat during 11-15 June 2024.
- Dr Arindam Patra and Prof. Suchismita Panda successfully completed 6-day Online **UHV-II** FDP organized by All India Council for Technical Education (AICTE) from 25th 30th March 2024.



■ Dr Arindam Patra and Prof. Suchismita Panda successfully completed a Seven-Day Faculty Development programme on "Indian Knowledge System: Integral Epistemology and Integrative Approaches" organized by Amity University Chhattisgarh during 18-24 June 2024.



■ Dr Arindam Patra successfully attended a Five-day FDP on "Research Methods for English Studies" held during 10th- 14th June 2024 organized by the Dept. of Languages-English, Presidency University, Bangalore.

■ Dr Taniya Sengupta Rathore was awarded the Congress of Zoology Medal for outstanding contribution in Environmental Biotechnology in 35th All India Congress of Zoology and International Conference on "Impact of Climate Change with Special Reference to Challenges and Approaches in Applied Zoology, Biodiversity Conservation, Food, and Health Security" held at Guru Ghasidas University, Bilaspur (C.G) during 5-7 June 2024.





■ Dr Dipti Shukla is recognized as an Academic Editor in the Asian Journal of Research and Review in Physics.



■ Dr Shubhashri Kumari Assistant Professor, Physics, School of Science have been awarded with certificate of excellence in reviewing by Journal of Experimental Agriculture International (ISSN - 2457-0591), BP International & International Journal of Biochemistry Research & Review.



Mr. Hemant Kumar, Lab Instructor, Department of Biotechnology received the Dharti Mitra Award & consolation prize in Innovative Research Award category in a Two-Day International Conference on "Recent Innovations in Scientific And Commercial Approaches Towards Land Restoration and Environmental Sustainability" (ISCLRES) organized by Swami Shri Swaroopanand Saraswati Mahavidyalaya, Hudco, Bhilai, (C.G.) during on 5-6 June 2024





- Mr. Hemanth Kumar, Lab Instructor, Department of Biotechnology, School of Science won the National level online quiz competition on "Vector Vibes: Mosquitoes and their diseases" organized by Department of Microbiology, PES's Ravi S. Naik College of Arts and Science, Ponda, Goa in association with Microbiologist Society, India held on 23rd August 2024.
- Dr Arindam Patra, Assistant Professor and Dr Suchismita Panda, Assistant Professor, Department of Humanities, School of Science participated in the International Faculty Development Programme on "Navigating the Future: Innovations and Strategies in Teaching and Research", organized by the Department of English, Kristu Jayanti College, Autonomous, Bengaluru, Karnataka, India from 26th September to 5th October, 2024.



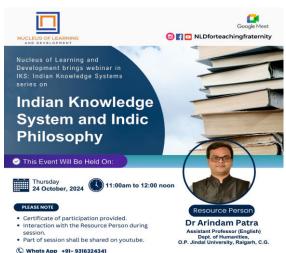


■ Dr Arindam Patra from the Department of Humanities, School of Science presented a Paper entitled "Exploring the Truth of Divinity with (in) out in Select Poems of Swami Vivekananda" Two-Day National Conference on the theme "Indian Ethos in English Writings" organized by the Department of English, School of Languages, Central University of Kashmir on 24th and 25th October 2024.





- Dr Suchismita Panda from the Department of Humanities, School of Science presented a Paper entitled "An Exploration of Feminism in Manisankar Mukherjee's Thackery Mansion" Two-Day National Conference on the theme "Indian Ethos in English Writings" organized by the Department of English, School of Languages, Central University of Kashmir on 24th and 25th October 2024.
- Dr Shubhashri Kumari, Assistant Professor, Department of Physics, School of Science presented a paper titled "A review on the role of image processing Algorithms in dynamic speckle imaging analysis and their applications" in 2nd International Conference on Recent Trends in Applied Physics & Material Science organized by Bikaner Technical University, Bikaner during 15- 16 November 2024.



■ Dr Arindam Patra from the Department of Humanities, School of Science delivered a Webinar Session as a Resource Person on "Indian Knowledge System and Indic Philosophy" organized by Nucleus of Learning and Development (NLD) on 24th October 2024.

Dr Ankur Rastogi, Sr. Associate Professor and Dr Deepak Patel, Sr. Assistant Professor, Department of Chemistry, School of Science delivered guest lectures on topics "Spectroscopy" and "Coordination Chemistry" at Govt. College Gharghoda, Raigarh C.G. on 30th November 2024



# Students Achievements and Recognitions

■ UG students of Biotechnology department, School of Science, OPJU participated in the national conference "Microbial Bioprospecting: Exploration and Conservation" on 5-6 February 2024, organized by Department of Biotechnology Govt V.Y.T Autonomous College, Durg Chhattisgarh in Association with the Microbiologist Society of India.

Mahak Acharya, Shruti Kumari, Satish Gupta and Khushi Mishra secures 3rd place in PPT presentation and Kasish Naaz, M Akanksha, Shally Prajapat and Khushi Singh secured 3rd place in poster presentation.



■ Ms. Shobha Yadav, Student M.Sc. 4th Chemistry, appointed as Chemist in DB Power Ltd., Raigarh.



Ms. Shruti Kumari, B.Sc. (H) Biotechnology pitched her prototype (BHALAX) at Pitch Expo 2024 organized by Capital Wings, Raipur on 7 April 2024.





■ Ms. Kasish Naj, and Ms. Shaily Prajapati, Ms. Anjali Chouhan and Ms. Manisha Sahu, of B.Sc. (H) Biotechnology received Dharti Mitra Award for their research activities towards the environment.



■ Ms. Vijaylaxmi Kaiwartya, Ms. Srishti Gupta, Ms. Pratibha Sharma, Ms. Kumkum Rani, Ms. Isha Verma and Ms. Anjali Gupta of B.Sc. and M.Sc. Chemistry were selected at Jindal Power Ltd. Tamnar.



■ Ms. Vanshika Thakur, Student of B.Sc. (H) Mathematics 6th semester successfully completed internship at "The Orby House" Raipur during August 2023- February 2024. She received INR 15000 as a stipend.



- Ms. Yogita Sahu and Ms. Garima Chandra of B.Sc. (H) Biotechnology, School of Science secured 2nd position in poster competition in International Conference on 'Biological Alterations and Applications for Next Generation Living World' during 1-2 March 2024 organized by department of Biotechnology, Govt, VYT PG Autonomous College, Durg.
- Ms. Khushi Mishra of B.Sc. (H) Biotechnology 2nd semester, School of Science received best paper award in 2nd Student National Conference on Social Economic Perspective on Sustainable Management of Water organized by NIT Raipur on 22nd March 2024.
- Ms. Anjali Chouhan and Ms. Manisha Sahu of B.Sc. (H) Biotechnology 4th and 2nd semester secured 3rd position in poster presentation in International Conference on "Recent Innovations in Scientific and Commercial Approaches Towards Land Restoration and Environmental Sustainability" (ISCLRES) organized by Swami Shri Swaroopanand Saraswati Mahavidyalaya, Hudco, Bhilai, (C.G.) during on 5-6 June 2024.
- Ms. Antara Mukherjee, B.Sc. (H) Biotechnology secured 1st position in National level poster competition on "Stewardship of Clean Healthy Rivers" organized by Microbiologists Society, India on 15 June, 2024.



- Ms. Kshama Dewangan, Ms. Antara Mukherjee and Ms. M Akanksha, B.Sc. (H) Biotechnology were the winners of the Drawing Competition "Biotechnology for Human welfare" organized by Microbiologists Society of India (MBSI) Student Chapter, Department of Biotechnology on 8th May 2024.
- Student innovators from B.Sc. (H) Biotechnology and Chemistry, School of Science participated in the prestigious AICTE IDE Bootcamp held at IIM Sambalpur and MGM University, Aurangabad from September 23-27, 2024.





Ms. Mahak Acharya and Ms. Shruti Kumari, B.Sc. (Hons) Biotechnology students participated in a 3-days boot-camp organized by AIC, IIT Delhi Sonipat Innovation Foundation, Haryana on 24th August 2024. They were selected for Sonipat Startup Summit 3.0.





Ms. Vijaylaxmi Kaiwartiya, student of M. Sc. Chemistry secured 1st position in poster presentation on "Solid State Synthesis of Nickel Ferrite and their Characterization" at International Conference on Multifaceted Application of Biotechnology and Applied Sciences (e-COMBAS 1.) held during 26-28 July 2024 organized by EduLeviate Pvt. Ltd. – A MS. ME Udyam and Startup India registered company.



■ Ms. Chetna Patel, B.Sc. (H) Mathematics and Ms. Kiran Rathore, B.Sc. (H) Chemistry, selected in Vedanta at Jharsuguda and Lanjigarh locations, respectively.



# Students selected in Higher Education Institution



Mr. Amit Chatterjee and Ms. Kiran Rathore students of M.Sc. Chemistry participated in Oral Presentation on "Mg complex of 8-hydroxyquinoline Organic phosphor for OLEDs: Synthesis, Characterization, Photoluminescence Studies & Thermodynamic stability" in 2nd International Multidisciplinary Conference organized by Shri Shankaracharya Professional University, Bhilai CG on 28-29 November 2024.

# NPTEL Achievements

- 6 students of B.Sc. (H) Chemistry 6th semester and 8 students of MS. c Chemistry 4th semester successfully qualified NPTEL course "Biochemistry", out of which 5 students of B.Sc. (H) secured Elite category and 2 students of M.Sc. secured Elite + Silver category.
- 6 students of M.Sc. physics 2nd semester qualified the NPTEL course "Electronic Theory of Solids", 2 out of them secured Elite category.
- 15 students of B.Sc. (H) 2nd semester successfully qualified NPTEL course "Elementary thermodynamics for all", 5 out of them secured Elite category.
- 2 students of M.Sc. Chemistry 2nd semester qualified the NPTEL Course "Symmetry & Group Theory" in Elite category. Ms. Preeti Nirmalkar secured the All India Rank 1 in this course.
- 3 students of B.Sc. (H) Mathematics 4th semester successfully qualified the NPTEL Course "Linear Algebra"
- 18 students of M.Sc. 3rd Semester Chemistry successfully qualified NPTEL course "Quantum Chemistry of Atoms and Molecules" out of which 16 cleared with elite marks and Ms. Preeti Nirmalkar was all India Topper.
- 2 students of M.Sc. 3rd semester Physics successfully qualified NPTEL course "Advanced Quantum Mechanics".
- 3 students of B.Sc. (H) Physics successfully qualified NPTEL course "Solid State Physics", out of which 1 qualified with Elite marks and 1 remain all India topper.
- 3 students of M.Sc.Mathematics successfully qualified NPTEL course "Mathematical Methods and its Applications".
- 4 students of B.Sc. (H) Mathematics successfully qualified NPTEL course "A Basic Course in Number Theory".



# Industrial Visits

- Department of Chemistry, School of Science organized an Educational Exposure visit for final year students of B.Sc (H) Mathematics and Biology, Govt. College Gharghoda on 15th January 2024.
- Students of B.Sc. (H) Biotechnology 3rd semester visited sanitary napkin making organization Shivangi Pariyojna JSP on 12th September 2024, to explore the process of manufacturing sanitary napkins.
- The students of B.Sc. (H) Biotechnology 1st semester visited Rabo Dairy Processing and Horticulture Department on 24th September 2024.



# Outreach Activities

School of Science, O. P. Jindal University Raigarh organized various career awareness and guidance sessions in Raigarh and nearby locations Gharghoda, Dharamjaigarh, Kharsia, Sariya and Raigarh East zone from 6th and 30th June for 12th July 2024 standard and graduate students. In these sessions 200+ students were benefited.





■ The School of Science organized Career Counselling Sessions at Block Office Gharghoda; Block Office Dhramjaigarh; Swami Atmanand Hr. Sec. English Medium School, Kharsia; Govt. Girls Hr. Sec. School, Sariya; and Govt. HeM sundar Gupta Utkrisht Hr. Sec. School, Mahapalli.





■ "The School of Science organized an online career guidance session for science graduates organized 28th June 2024, followed by the **Graduate Genius Quest – a quiz competition.**"



A career counselling session was organized on 2nd May 2024 for the UG students of Govt. KG Arts and Science College, Raigarh. 250+ students participated in that session.





Dr S. K. Singh, Professor, Department of Humanities, School of Science, OPJU conducted a career counselling session on "Personality Development and Success Through Active Listening and Positive Attitude" for the students and a Teachers' Training Programme for the teachers of MSP Public School, Jamgaon, Raigarh on 31st August 2024.



Session on **Innovation as Innovation Ambassador MIC AICTE** for 11th and 12th students of O.P. Jindal School, Taraimal was conducted by Dr Taniya Sengupta Rathore on 21st July 2024.



■ Prof. Suchismita Panda, Assistant Professor, Department of Humanities, School of Science invited as a Trainer in **Teacher's Training Camp** on 17th July 2024 held at Shri Ramakrishna Mission Ashram Vidyapeeth (Higher Secondary School), Egra, Kharagpur,W.B. in which around 150 Principals and Teachers participated.



■ Dr Arindam Patra, Assistant Professor, Department of Humanities, School of Science, OPJU conducted a career Guidance and Counselling session at BNR Academy of Excellence (South Eastern Railway) School, Kharagpur, W.B for the students of 12th standard Science, Arts and Commerce Streams on 15th July 2024.





# Club/Friday Activities & Special Day Celebrations

On March 1st, 2024, the TechX (Technical Club), School of Science OPJU organized **Just 3 Minutes:** A PPT Competition as part of its ongoing efforts to foster technical skills and creativity among students. Throughout the event, participants demonstrated a high level of enthusiasm and dedication, investing time and effort into crafting compelling PPTs.





■ National Science Day was celebrated on 28th February 2024. During this inauguration of Microbiologist Society of India Student Chapter for Biotechnology Department, an oath taking ceremony for the elected candidates of Society of Science Studies and Poster Presentation Competition on "Science Behind Sustainable Research" were organized.



■ Innovation and Entrepreneurship Club (Swadhaya), SoS in association with Institution's Innovation Council (IIC) and OPJU Innovation Center organized an Ideathon Contest "Ignite with Innovation" on 16th February 2024. Students from across the departments divided into eight teams and participated in the event with their outstanding problem-solving ideas towards observed real-life problems in the surroundings, with great zeal and enthusiasm.



The event "Moovie Scoop" was planned on 9th February 2024 by the Cine Club of the School of Science, OPJU to create opportunities for social and educational development through participation and observation by watching an inspirational movie and analysing various social aspects and general studies based on the storyline and plot of the particular movie. All the participants enjoyed the show, which was followed by an interactive and critical discussion.





Adventure Club (Parakram) organized an activity, "Dare and Fun" to enhance students' individual ability and allow them to take greater challenges socially and academically on 5 April 2024.



School of Science organized an in-campus cleanliness drive as an activity of "Sahrudaya" (Social Empowerment Club) to foster a sense of cleanliness-related civic sense among the students on 24 April 2024.





Department of Biotechnology, School of Science, OPJU in association with Microbiologist Society of India (MSBI) Student Chapter organized National Rangoli Competition 2024-25 on the theme "Morphology of Microorganism" on 6th September 2024.



- National Service Scheme (NSS) OPJU in association with Centre of Social Empowerment, OPJU organized an, essay writing competition on the theme "Drug Addiction Among the Youth: Prevention & Control" on 11th September 2024 and Poster making Competition on the theme "Say No to Drugs" on 13th September 2024.
- An Essay writing competition on "Advancements in Industrial Biotechnology" was organized under the Microbiology Society of India (MBSI) student chapter by Department of Biotechnology, School of science on 30th August 2024.
- Photography Club -VIBGYOR, SoS organized an exhibition on 27th November 2024 of the photographs received for the contest.
- The Innovation and Entrepreneurship Club, School of Science, O. P. Jindal University organized Profit Quest on 21st-22nd November 2024.





- NSS in association with Centre for Social Empowerment, OPJU organized a poster and video making competition on the theme "Say No to Ragging" on 12th & 13th August 2024, respectively.
- Department of Mathematics in association with Technical Club (Tech X) organized a 5 lecture series on Vedic Mathematics from 9-12 September 2024. Ms. Udita Singh Thakur, M.Sc. 1st Year Mathematics student conducted the sessions.



Literary Club (Upashana), School of Science organized a story telling competition to promote and inculcate the ability of creative thinking, communication and presentation skills, and self-confidence among the students on 13th September 2024.





■ Social Empowerment Club, School of Science of O.P. JindalUniversity, Raigarh in association with ICC organized an Invited talk on "Right of Private Defence under Bhartiya Nyaya Sanhita 2023" on 2nd August, 2024. The resource person of the session was Mr. Santosh Kumar Naik, Assistant Professor (Law), Government Paluram Dhanania Commerce and Arts College, Raigarh.



Adventure Club (Parakram) organized an activity "Nature Quest" on 25th July 2024 with the newly joined students of the School of Science, O.P. Jindal University as a part of the Freshmen Batch Induction Programme 2024.



■ MBSI Student Chapter, Department of Biotechnology, School of Science, O.P. Jindal University in association with OPJU Eco Club, on 2nd December 2024 organized online Quiz Competition on "Pollution awareness for Sustainable Future".



- •The School of Science in association with Technical Club (Tech X) organized a Quiz competition on "Ancient Mathematics" on 16th October 2024.
- The School of Science in association with Adventure Club (Prakram), organized a club activity "TheWacky BrainWar" based on the theme of Knowledge game with fun activities, to promote and inculcate the ability of creative thinking, communication and presentation skills on 24th October 2024
- The Internal Complaints Committee (ICC) in association with the Social Empowerment Club organized a special lecture session on "Women's Safety" on 12th November 2024. Dr Deepti Sharma, Associate Professor, School of Management was the Resource person.
- Cultural Club Utsah, SoS organized an activity "Vividha" on 26th November 2024 (Theme– Folk Dancing and Folk Singing)



# **OPJU-Statistics**

### **Infrastructure**



**50** Acre Land Area



**5,00,000** Sqft. Build up Area



1000 Capacity Hall of Residence 1 & 2



350 Capacity Hall of Residence 3



1000<sub>Mbps</sub> (1:1) Connectivity Fully Wi-fi Campus



1000+ Networked Computer Systems



45 Well Equipped Laboratories



Central Library

### **Research & Publication**



90 Referred International Journals



38 Referred Journals

# Library



30,000+ Books



5000 Titles



15.000 E-journals



2,50,000 E-books

### **Students**







40%

60% Boys



**80%** UG



**20%** PG



Student from 20+ states



3500+ Alumni



1:15 Faculty-Student Ratio



Average age of the Faculty Members

### **Faculty and Staff**



110 Faculty





**70%** Male



30% Female



80% Faculty Qualification from IIT, IIIT, NIT & IIM



20% Faculty with global experience

100+ Non-teaching Staff



### **Placement Statistics**

### Year 2023-24



100+ Campus Drives



84% Students Placed



6.7 Lacs Average Package

### **Collaboration & MoUs**







10 International

