



OPJU

UNIVERSITY OF STEEL TECHNOLOGY
AND MANAGEMENT



SANRACHNA

Bi-Annual Newsletter 2023
Civil Engineering
Volume -1, Issue - 1

OP Jindal University, Raigarh (C.G.)



School of Engineering OPJU



Civil Engineering Department of OPJU



www.opju.ac.in

Message by the VICE CHANCELLOR

I am delighted to address you through our department's newsletter, a symbol of our commitment to academic excellence and innovation. Civil engineering is pivotal in shaping our rapidly changing world, addressing challenges from sustainable infrastructure to resilient urban planning. I commend our dedicated faculty, researchers, and students for their unwavering commitment to pushing the boundaries of knowledge and achieving ground breaking research and projects. This year, our university achieved a prominent rank in the NIRF-Innovation, and we received the "Most Promising Corporate-Governed University" award. We're expanding with the introduction of the Department of Mining Engineering, aligning with the progressive New Education Policy (NEP) and seeking NAAC accreditation. I urge you to pursue excellence, collaborate across disciplines, and embrace emerging technologies. Together, we can tackle pressing challenges, from climate change to infrastructure resilience. I eagerly anticipate the continued growth of our civil engineering department. Let's inspire, innovate, and create a meaningful impact on the world. Thank you for your commitment to civil engineering excellence.



Dr. R.D. Patidar
Vice-Chancellor

Message by the HEAD OF THE DEPARTMENT

I am delighted to present the inaugural issue of "Sanrachana", the newsletter of the Department of Civil Engineering. It is not just a newsletter; it is a testament to the passion, dedication, and collective effort that our Civil Engineering department embodies. Through this platform, we aim to showcase the remarkable work and achievements of our departmental members, while also fostering a sense of community and collaboration within our diverse family of scholars and practitioners. Over the past year, the Civil Engineering Department has made significant strides in the field of education and research. Our faculty members have continued to excel in their teaching and research endeavors, contributing to academic excellence. Our students have also exhibited exceptional dedication and resilience in the face of challenging circumstances. With the relentless efforts of our faculty, staff, and generous support from our university, we have made substantial improvements, expansion, and enhancement of our state-of-the-art laboratory facilities. "Sanrachana" will serve as a medium to highlight these accomplishments, celebrate our successes, and inspire one another to reach greater heights in our respective fields.



Dr. M. Mahamaya
Sr. Assistant Professor
and HoD

Courses Offered

B. Tech in Civil Engineering

M.Tech in Structural Engineering

Ph.D in Civil Engineering

Major Lab Facilities of the Department

| | | |
|---------------------------------|-------------------------------------|---|
| Compression Testing Machine | Flexural strength testing machine | Unconfined Compression |
| UTM Digital | GPS (Trimble SA Juno Model) | Dumpy Level |
| Digital Total Station (Trimble) | Wind Tunnel | Cube Mould (150X150X150 mm) Cube Mould (75 x 75 x75mm) BeamMould100X100X500mm |
| Fatigue Testing Machine. | Rebound Hammer (Digital) | Standard Penetration Test |
| Cement Tensile Testing Machine | Ring and Ball Apparatus | Electrical Anology Apparatus |
| Erichsen Cupping Machine | Los Angles Abrasion Testing Machine | Vicats Apparatus |
| Air permeability Apparatus | Impact Testing Machine (Tiles) | Spring Testing Machine |
| Aggregate Impact tester | Accelerating Curing Tank | Consolidation apparatus |
| Digital Strain Indicator | Slump Test Apparatus | Autoclave Machine |

Publications

- **S Kar**, E. V. Prasad, Nikhil P. Zade, Parveen Sihag and K. C. Biswal (2023). *Estimation of shear resistance offered by EB-FRP U-jackets: An approach based on fuzzy-inference system* Computers and Concrete, 32 (1), 27-44. DOI: <https://doi.org/10.12989/cac.2023.32.1.027>
- **Mahamaya, M.**, Jain, S., Das, S. K., & Paul, R. (2023). *Engineering Properties of Cementless Alkali Activated CLSM Using Ferrochrome Slag* Journal of Materials in Civil Engineering, 35(3), 04022441. DOI: [https://doi.org/10.1061/\(ASCE\)MT.1943-5533.0004620](https://doi.org/10.1061/(ASCE)MT.1943-5533.0004620)
- Alam, S., Agrawal, S., **Mahamaya, M.**, & Das, S. K. (2023). *Effect of Biopolymer on Water Retention Property of Red Mud*, Recent Developments in Geotechnics and Structural Engineering: Select Proceedings of TRACE 2022, 338, 325. DOI: https://doi.org/10.1007/978-981-99-1886-7_27
- **Sharma A, Nagpure V.N** and Panchal S. (2023). *An Experimental Investigation of Partial Replacement of Cement with Dolomite Powder for Improving the Properties of Concrete* International Conference on Emerging Research in Science, Engineering and Management (ERSEM-2023) organized by Sai Rajeswari Institute of Technology, Proddatur, Andhra Pradesh, India.

- Sharma, A., Tripathi, R. K., & Bhat, G. (2022). *Seismic Assessment of Steel-frame Buildings Mounted with Base-Isolated System* In ASPS Conference Proceedings, 1 (4), 1115-1122. DOI: <https://doi.org/10.38208/acp.v1.630>

Patents

- Dr. Anurag Sharma, Dr. Mahasakti Mahamaya, Dr. Swapnasarit Kar, Prof. VN Nagpure, Prof. Tulika Gupta & Prof. Shikha Tiwari submitted a patent for *Edge connector for adjoining adjacent concrete structural members*. Patent Application No – 385360-001
- Dr. Anurag Sharma published a patent titled *Building Cooperative Construction System Based on Artificial Intelligence Technology in Building Construction Management System Modelling*. Patent Application No – 202331004058.
- Dr. Swapnasarit Kar published a patent titled *Machine Learning Based Approach to Study the Influence of Earthquake Parameters on the Bidirectional Behaviour of Base Isolation Systems*. Patent Application No –202211072025

Research Projects

- An Eco-Friendly Approach Towards the Sustainable Development of Construction Materials Using Sponge Iron Fines and Fly Ash Waste.” In collaboration with JSP Raigarh - (Ongoing).
- Value added utilization of Fly Ash for sustainable solution in association with Metallurgy department and JPL Tamnar- (Ongoing).
- Development and characterization of cement less alkali activated Controlled Low Strength Materials (CLSM) using industrial waste-A state of art of sustainable development for industrial perspectives. (Seed Money Project, OPJU)

Events conducted by Department of Civil Engineering

Events: Faculty Development Programme (FDP)

- Department of Civil Engineering has organised Five Days Online Faculty Development Programme (FDP) on "Current research Trends in the field of Civil Engineering" during January 16-20, 2023. The Chairman of the FDP, Dr. R. D. Patidar (VC-OPJU), Convener, Dr. Mahasakti Mahamaya (Head Civil Engineering Department); Faculty Coordinators (Dr. Swapnasarit Kar & Dr. Anurag Sharma) organized 10 expert talks by speakers from various IITs, NIT's, R&D units and other reputed Institutions. The topics are aimed at the recent advancement in road construction material, performance-based design, discharge estimation in non-prismatic compound channel, sustainability and green concrete, agricultural water management, seismic response of structures, soil structure interface analysis, fiber mental laminates, fracture properties of composites and application of OpenSees. The FDP programme received an overwhelming response with more than 200+ participants.



Events: Alumni Talk

- The Technical Talks was organised by Department of Civil Engineering in association with OP Jindal University Raigarh Alumni Association (OPJURAA) on *First step to preparation for competitive exams*. **Mr. Shrikant Panda**, M Tech in Transportation Engineering from NIT Rourkela delivered a guest lecture session on topic *First step to preparation for competitive exams* during 21-22 June, 2023. Aim to aware first year students regarding importance and benefits of early preparation for competitive examinations. More than 40 participants were present for the lecture. Prof. Vinod Nagpure coordinates the whole event.



Events: Student Chapter Activities

- The Technical Talks was organised by Department of Civil Engineering Student's Chapter of IC-ACI on *Green Concrete and Modern Construction Chemical for Energy Efficient Buildings*. **Er. Sunny Surlakar**, President India Chapter of American Concrete Institute delivered a guest lecture session on topic "Green Concrete and Modern Construction Chemical for Energy Efficient Buildings" during 19th June, 2023. The students were made aware about the use of green concrete has led to significant reductions in both energy and greenhouse gases emissions. These reductions result from increased efficiency in both residential and industrial sectors. The event was of great success putting a print to every participant's mind about the importance of green concrete and modern construction for energy efficient buildings. Prof. Tulika Gupta coordinates the whole event.
- IC-ACI Students Chapter of O.P JINDAL UNIVERSITY organized a program on 8th and 9th December 2022. The event was held in the presence of Dr. Mahasakti Mahamaya (HoD, Civil Department) and Prof. Tulika Gupta (Faculty Advisor IC-ACI OPJU Students Chapter). Guest Speaker were **Er. Sunny Sularker**, President IC-ACI and **Dr. G. S. Rampradheep**, Director, IC-ACI. Er. Sunny Sulaker, Prsident IC-ACI, deliver the talk on the *Repair and protection of RCC structures by using the international codes*. He delivers his experience and knowledge regarding the repairing and it protection. The international codes which is suitable for the same and the provisions are clearly acknowledge by the speaker. Dr. G.S. Rampradheep, deliver his talk on the Special concretes made by the industrial waste, agricultural waste, bacterial and so on. He spread his valuable knowledge on making of special concrete to testing the special concrete along with the Indian and ACI codes.



Events: Technical Talks

- Department of Civil Engineering Conducted an Expert talk on *Sustainability & Environment* on 18th May 2023. Dr. Monika Vyas (HoD Civil Dept. IES University Bhopal) is the expert for the same. Prof. Shikha Tiwari Coordinates the whole session.
- Dr. Govardhan Bhat**, Assistant Professor in Civil Engineering Deptt. of NIT Raipur delivered a guest lecture on 21st March, 2023 on *Modeling, Analysis and Design of Structures: Basics to Advance*.



- The Department of Civil Engineering at OP Jindal University in Raigarh organized a One Day Capacity Development Programme on "Advanced Prototyping in Fab Lab" on 31st May 2023. The primary objective of this program was to focus on building real capabilities among students, moving beyond academic degrees and qualifications, and fostering a practical skill set that would enhance productivity in the workplace. The event aimed to provide students with hands-on experience and knowledge in advanced prototyping techniques within a Fab Lab setting. Fab Labs, short for fabrication laboratories, are equipped with various tools and machinery for digital fabrication, enabling individuals to turn their ideas into tangible prototypes or products.



Events: Workshop

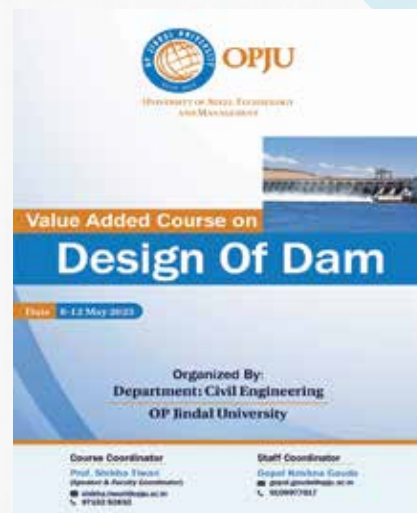
- The Department of Civil Engineering of OPJU Raigarh has organized one-week workshop on *Introduction to Revit Architecture* from 22nd-29th, May 2023. A total 09 no.s of students registered from outside of the university from Odisha, Chhattisgarh, Jharkhand, and Bihar from various colleges have participated, out of 9 students 4 students from MoU institute in which MoU signed and get benefitted from this rare opportunity of advanced learning. Mr. Gopal Krushna Gouda, Expert and Trainer, Civil Department of O P JINDAL University, Raigarh delivered the training module as resource person. The workshop was very interactive and all the participants were acquainted with the extraordinary skills and confidence of working on Revit Architecture Software. The Certificate of Participation that participants earn brings significant value to their portfolios for campus placement during the final year of graduation.



Events: Value Added Course

- The Department of Civil Engineering OPJU, Raigarh has organized a 5-days value-added course on *Design of Dam* from 8th to 12th May 2023 for Civil Engineering students. 18 students of the Civil department have attained the course. Dam is a barrier constructed to hold back water & raise its level, forming a reservoir and also used to generate electricity; for water supply and Irrigation purposes this stored water is used.

Prof. Shikha Tiwari was the expert and speaker of the value-added course “Design of Dam”; Mr. Gopal Krushna Gouda was the staff coordinator. The course was very interactive and all students learned about dams and various hydraulic structures.



- The Department of Civil Engineering OPJU, Raigarh has organized a 5-days value-added course on *Basics of Microsoft Word, Excel and PowerPoint* from 18th to 25th May 2023 for Civil Engineering students. 18 students of the Civil department have attained the course. Prof. Tulika Gupta was the expert and speaker of the value-added course. Mr. Bhakta Kumar Sethi was the staff coordinator. The course was very interactive and all students learned about the Basics of Microsoft Word, Excel and PowerPoint.



Events: Industrial Visit

- The students of Department of Civil Engineering went for *industrial visit* with Prof. Shikha Tiwari and Mr. Pranab Behera in Cement plant and Brick plant of JSPL Raigarh on date 28/04/2023. During the visit students have seen the manufacturing of cement and brick also they observed the control room of Cement plant under Guidance of Mr. S. K. Dutta (JSPL) with collaboration of Mr. Agrawal (Plant head of cement plant JSPL), also they performed Compressive strength test of cement on the cement testing laboratory of JSPL.



Events: Parents Summit

- The *Parents Summit* 2023 were organised in the Department of Civil Engineering at OPJU Campus. The head of the department and other faculty members interacted with the parents. The core objective of the meeting is to evaluate the academic and non-academic performance of the students.



Events: Social Activities

- The students of the department have conducted social outreach activities under *National Service Scheme*, OPJU Raigarh. The students of department of Civil Engineering went to the old age home (Asha Niketan) located near Pahar Mandir, Raigarh, on 28th April 2023. During this visit 26 numbers of students were present from Civil department, they did the awareness program about health and hygiene, awareness about safe drinking water.

This type of activity plays a vital role in the value education system of any course and also enhance the interest of students for social work.



- Students of Civil Department, OPJU visited to Primary school, Samaruma and Punjipathra Raigarh, on 12 th April, 2023. This visit aims to help the students and introduce the awareness regarding the “Rain water Harvesting” and “Swachh Bharat- Clean First” campaign. Students of OPJU extends their knowledge regarding Swachh Bharat mission initiated by PM Modi. OPJU Students educate the next generation students regarding the cleaning of school, village, and their house. Also students exhibited thier knowledge regarding the water cycle and harvesting. It provides social exposure to OPJU students and develop helping nature among them. During visit total 13 students were presents from Civil engineering department.

Placements

- We are glad to announce that our B.Tech (2019-2023) student Bharti Patel got placed in ArcelorMittal Nippon Steel India. *AM/NS India* is a joint venture between the world's leading steel companies, ArcelorMittal and Nippon Steel. Established in December 2019, post-acquisition of Essar Steel, they are an integrated flat steel manufacturer - from iron ore to ready-to-market products.



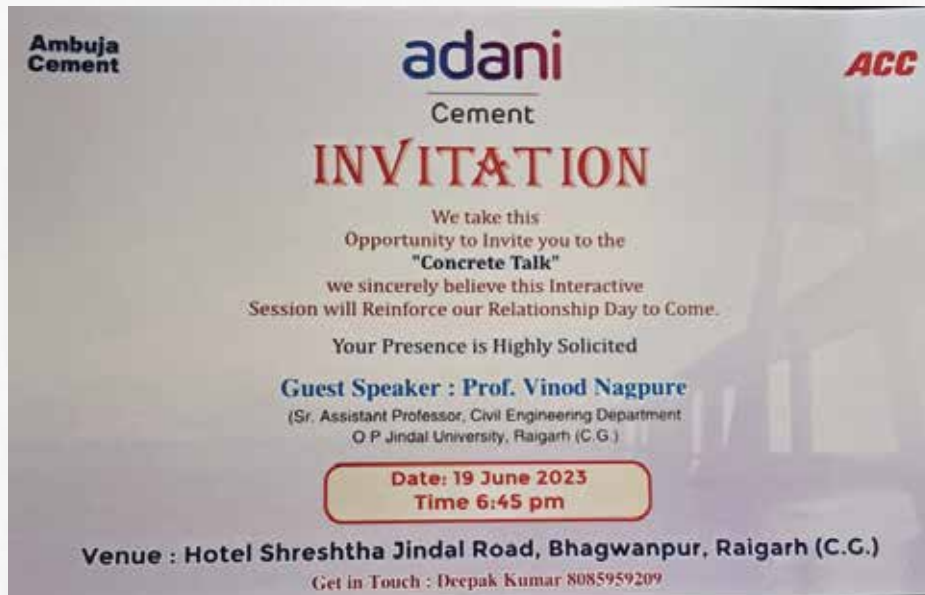
- We are delighted to announce that our B.Tech (2019-2023) students Rahul Shrivastava and Bharti Patel got placed in *Zenus Group*. Zenus Group is a Telecom Company which was established in the year 2012. They are providing solutions to help the telecom service providers, network operators, vendors and equipment manufacturers to maximize the value of technology investments and deliver the highest service levels to their customers.
- We are glad to announce that our B.Tech (2019-2023) student Abhinav Sharma got placed in *Aekansh Group*. Aekansh Services is a leading executive search firm which provide services to Consulting, Consumer Goods, E commerce, Financial Services & Technology / IT.



- We are delighted to announce that our B.Tech (2019-2023) students Anand Patel and Priya Singh got placed in *Atmastco Limited*. Atmastco Limited is one of the fastest emerging Steel conglomerate of Central India with its presence in Steel, Power & Infrastructure, offering complete Structural Steel Solutions with exceptional service.

Guest Lecture: Delivered

- Prof. Vinod Nagpure, Sr. Assistant Professor in Civil Engineering Deptt. of OPJU Raigarh delivered a guest lecture on 19th June, 2023 on *Advances in Concrete Technology*. Audience comprises civil engineering professional, consultants and architectures. More than 70 participants were present for the lecture.



Achievements



Prof. Vinod Nagpure (Sr. Assistant Professor) received Best Paper Presentation Award on the title *An Experimental Investigation of Partial Replacement of Cement with Dolomite Powder for Improving the Properties of Concrete* in the Stream of Civil Engg. in the International Conference on Emerging Research in Science, Engineering and Management, held during 19 & 20 May, 2023, at SRIT, Proddatur, Andhra Pradesh.

Department of Civil Engineering congratulates Bharti Patel, Simon Xess and Harsh Pandey (B.Tech Students) for receiving the *scholarship of 15,000/- from Indian Chapter of America Concrete Institute (IC-ACI)*.



Faculties and Staffs



Dr Mahasakti Mahamaya (Sr. Assistant Professor & HOD)

Dr. Mahamaya has completed her Ph.D. and M.Tech degree from the National Institute of Technology, Rourkela, Odisha. She has completed her B.Tech from Biju Patnaik University of Technology, Odisha. Dr Mahamaya has more than 10 years of teaching and research experience and published 20 research articles in renowned journals and conferences. Her current research interests include Sustainable Geomaterials and Sustainable Construction, Mining, Industrial waste utilization, and Application Biopolymer in Civil Engineering.



Prof. Vinod Nagpure (Sr. Assistant Professor)

Prof. Nagpure has completed Masters degree in structural dynamics and earthquake engineering from Vishveswaraya National Institute of Technology Nagpur, India, and bachelor degree in Civil Engineering from RTMN University, Nagpur, India. He has more than 12 years of experience in both teaching and research and published more than 5 research articles in renowned journals and conferences. His current research interests include advance concrete materials, steel and RCC Structure design and modern construction materials.



Prof. Tulika Gupta (Sr. Assistant Professor)

Prof. Tulika Gupta works as an assistant professor in the Civil Engineering Department at OP Jindal University (OPJU) in Raigarh, Chhattisgarh, India. She earned a full-time M. Tech in 2012 from Visveswaraya National Institute of Technology, Nagpur. She obtained her Bachelor of Engineering (B.E) in Civil Engineering at Sant Gadge Baba Amravati University, Amravati, Maharashtra in 2010 and is pursuing a PhD. She has 11 years of teaching experience and 5 years of research experience, published 3 research articles in renowned journals, and working on 3 industrial projects.



Dr. Deepayan Priyadarshi (Sr. Assistant Professor)

Dr. Priyadarshi has completed a PhD degree in Civil Engineering from National Institute of Technology, Rourkela, India, bachelor degree in Civil Engineering from S O A university, Bhubaneswar, Odisha, India. He has more than 4 years of experience in teaching and 8 years in research and published 7 research articles in renowned journals and conferences. His current research interests include renewable energy, waste management, agrotech, environmental pollution management. He is currently working as the Director of OPJU Innovation Center, an incubation facility of OPJU. He has incubated 10 start ups, 15 prototypes and more than 100 ideas during the tenure.

**Dr Swapnasarit Kar (Assistant Professor)**

Dr. Kar is an Assistant Professor in the Department of Civil Engineering at OP Jindal University, Raigarh, where he has been since September 2021. Prior to joining OP Jindal University, he has worked as an assistant professor at DRIEMS, Cuttack, Odisha from February to September 2021. He received his B. Tech from Indira Gandhi Institute of Technology (IGIT), Sarang and Ph.D. in Civil Engineering (Specialization: Structural Engineering) from the National Institute of Technology Rourkela in 2021. After B. Tech, he has worked as GTE at Gannon Dunkerley & Co. Ltd., India for a span of 1.5 years. His research interests span both numerical simulations as well as experimental study. His core research field includes application of FRP composites in construction, rehabilitation of RC members and soft computing tools. Dr Kar is the author of seven SCI/SCIE Indexed journals, two conferences papers and one Scopus indexed article on the topics of his interest. Besides, he also acts as reviewer for some of the highly reputed journals such as Artificial Intelligence Review, Measurement, Advances in Concrete Construction and Structures etc.

**Dr Anurag Sharma (Assistant Professor)**

Dr. Sharma is currently working as an Assistant Professor in the Department of Civil Engineering at OP Jindal University. He completed his PhD in Civil Engineering from NIT Raipur, M.Tech in Structural Engineering from Vellore Institute of Technology and B.E in Civil Engineering from Sathyabama University. He has published more than 16 research articles in various reputed International/ National journals and conferences. Currently, he is a member of 6 professional bodies. His research interests are Performance Based Design, Direct Displacement Based Design, Base Isolation Systems and Seismic Design of RC Frame Buildings.

**Prof. Shikha Tiwari (Assistant Professor)**

Prof Tiwari working as Assistant Professor in OP Jindal University from August 2022 to till date. She completed her Master degree i.e. Master in Technology from Rajiv Gandhi Technical University in 2017 and Bachelor degree i.e. Bachelor in Engineering from Govt. Engineering College Bilaspur in 2013. She has two-year teaching experience in Govt. Engineering College Bilaspur. Her area of interest is to improve the strength parameter of soil by using green technologies, and to make concrete eco-friendlier and cost effective. She has published two research paper in a scientific journal.

**Mr. Pranab Behara (Assistant Manager)**

Mr. Behra has done his B.Tech in Civil Engineering from BPUT, Rourkela. He is working as Assistant Manager at OPJU from last 14 years.



Mr. Gopal Krushna Gouda (Lab Incharge)

Mr. Gopal has done his B.Tech in Civil Engineering from BPUT, Rourkela. He is working as lab Incharge at OPJU from last 09 years.



Mr. Bhakta Kumar Sethi (Lab lab instructor)

Mr. Bhakta has done his B.Tech in Civil Engineering from BPUT, Rourkela. He is working as lab Instructor at OPJU from last 05 years.



Mr. Bijay Kumar Baret (Office Boy)

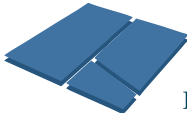








































Mr. Bijay is working in department of civil engineering, as a office boy at OPJU from last 07 years.



Photo Gallery





| Infrastructure | | | Students | | |
|---|--|---|---|---|--|
|  50 Acres Land area |  5,00,000 Sqft. Built up area | 2000+  |  40%  60% | | |
|  1000+ Capacity |  350+ Capacity |  80% UNDERGRADUATE |  20% POSTGRADUATE | | |
|  500 Mbps (1:1) Connectivity Fully Wi-Fi Campus |  500+ Networked Computer Systems | | | | |
|  50+ Well equipped laboratories | | | | | |
| Research Publications | | | | | |
|  1000+ Referred International Journals |  100+ Referred National Journals |  35% Students from other state |  20 Other state representation of students | | |
| Centres for Excellence | | | | | |
|  Innovation & Entrepreneurship |  Research |  Corporate Education & Training |  1:16 Faculty-Student ratio |  35 Average age of faculty members |  3000+ Alumni |
|  Industry - Academia Collaboration |  Social Empowerment |  CSTPD | | | |
| Library | | | Placements Statistics | | |
|  42000 + Books |  5000 + Titles |  10000 + E-journals | Year 2020-21 | | |
| | | |  46 Campus Drives |  71.8% Students Placed |  5.50 Lakh Average Package |
| | | | Year 2021-22 | | |
| | | |  70+ Campus Drives |  88% Students Placed |  6.50 Lakh Average Package |
| | | | Year 2022-23 | | |
| | | |  90+ Campus Drives |  93% Students Placed |  6.70 Lakh Average Package |
|  20% Faculty with global experience |  100+ Non-teaching staff |  28%  72% | | | |

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