



OPJSU

NAAC
GRADE A
Accredited University

विकसित भारत
अभियान
ESTD. 2014

Newsletter



SANRACHANA

Biannual Newsletter 2024

Volume-II

Civil Engineering



Dr. R. D. Patidar
Vice-Chancellor

O. P. Jindal University, Raigarh

Civil engineering stands as a cornerstone in shaping the modern world, with its crucial role in designing, constructing, and sustaining the infrastructure that underpins our society. The Department of Civil Engineering has consistently demonstrated a commitment to excellence in both teaching and research, and this year has been no exception. Our esteemed faculty have continued to inspire, educate, and guide students, nurturing the next generation of civil engineers who will undoubtedly contribute to the future of this vital field.

The unwavering dedication and support of our staff have been instrumental in maintaining the department's high academic standards, ensuring seamless operations, and fostering an enriching environment for our students. Their efforts are integral to the success of our academic programs.

Additionally, it gives me great pride to acknowledge that our university has achieved an 'A' grade from NAAC in its very first accreditation cycle at testament to the credibility and quality of our institution. I am confident that the Department of Civil Engineering will continue to nurture innovation, originality, and academic excellence in its students, preparing them for successful and impactful careers.



I am very pleased to present the Civil Engineering Department's Annual Report, "SANRACHANA", for the academic year 2023-24. This report highlights our journey of growth and our efforts to shape future engineers who will make a positive impact on society through quality education, research, and innovation.

In this report, we proudly share our achievements, recognize the challenges we faced, and discuss the steps we are taking to ensure excellence in civil and structural engineering. Our mission is clear: to provide our students with the knowledge, skills, and values they need to succeed in the global engineering world.

I am also excited to announce that we are establishing a Centre of Excellence in Smart Infrastructure. This new initiative will help us push the boundaries of research and innovation, allowing us to make even greater contributions to the field.

As we look back on the past year, we are more committed than ever to preparing students for successful careers, equipping them with the expertise and integrity to thrive in their professions and contribute to society.

We look forward to another year of progress, continuing our tradition of excellence in civil engineering education and practice.



Dr. Mahasakti Mahamaya

Head of Department

Civil Engineering, OPJU





Courses Offered

- B. Tech in Civil Engineering
- M.Tech in Structural Engineering
- Ph.D in Civil Engineering

Spotlight of Department

Department Laboratories Facilities

1) Material Testing Lab

- ❖ Compression Testing Machine
- ❖ UTM Digital
- ❖ Slump Test Apparatus
- ❖ Cement Tensile Testing Machine
- ❖ Compression Testing Machine
- ❖ Air Permeability Apparatus
- ❖ Rebound Hammer (Digital)
- ❖ Flexural Strength Testing Machine
(Concrete/Tiles)
- ❖ Impact Testing Machine (Tiles)
- ❖ Cube Testing Machine
- ❖ Vicat Needle Apparatus
- ❖ Vee Bee Consistometer
- ❖ Flow Table
- ❖ Compaction Factor Apparatus
- ❖ Le Chatelier Mould
- ❖ Cube Mould (150×150×150 mm)
- Cube Mould (75×75×75 mm)
- Beam Mould (100×100×500 mm)



Los Angeles Apparatus



Unconfined Compression Tester



Direct Shear Apparatus

2) Geotechnical Lab

- ❖ Standard Penetration Test
- ❖ Density Bottle
- ❖ Plate Bearing Test Apparatus
- ❖ Pycnometer
- ❖ Direct Shear Apparatus
- ❖ Unconfined Compression
- ❖ Triaxial Cell
- ❖ Rapid Moisture meter 0.25 with pressure gauge
- ❖ Liquid Limit Set
- ❖ Shrink Limit Set
- ❖ Le Chatelier Flask
- ❖ Core Cutter

3) Transportation Lab

- ❖ Aggregate Crushing Value
- ❖ Ring Ball Apparatus
- ❖ Los Angeles Abrasion Testing Machine
- ❖ Ductility Testing Machine
- ❖ Flash & Fire Points
- ❖ Bitumen Penetration Kit
- ❖ Length Gauge
- ❖ Thickness Gauge

4) Fluid Mechanics Lab

- ❖ Wind Tunnel
- ❖ Reynold's Apparatus
- ❖ Venturimeter
- ❖ Bernaulies Theorem Apparatus
- ❖ Metacentric Height Apparatus
- ❖ Notch Apparatus
- ❖ Turbine Flow (0.5" size)
- ❖ Orificemeter
- ❖ Flow Measurement by Pitot tube


Ductility Testing Machine

Jar Test Apparatus

Wind Tunnel

5) Environmental Lab

- ❖ B.O.D. incubator
- ❖ Jar Test Apparatus
- ❖ Turbidity Meter
- ❖ PH meter (Digital)
- ❖ Conical Flask
- ❖ Volumetric Flask
- ❖ Measuring Cylinder
- ❖ Funnel
- ❖ Spirit Lamp
- ❖ Pipette
- ❖ Burettek

6) Surveying Lab

- ❖ Digital Total Station (Trimble)
- ❖ Dumpy Level
- ❖ Transit Theodolite/Digital
- ❖ Metric Chain
- ❖ Tripod Stand
- ❖ Leveling Staff
- ❖ Steel Tape
- ❖ Arrows
- ❖ Cross Staff
- ❖ Optical Squares
- ❖ Plumb Bumb
- ❖ Ranging Rods
- ❖ Prismatic Compass

7) Structural Lab

- ❖ Digital Strain Indicator
- ❖ Elastic properties of beam apparatus
- ❖ Dial gauges for measuring deflections
- ❖ Weights and hangers to apply loads
- ❖ Clerk's Maxwell's law of reciprocal Theorem apparatus
- ❖ Curved members apparatus
- ❖ Portal frame apparatus
- ❖ Pinned Joint (Model)
- ❖ Stiff Joint (Model)
- ❖ Two pinned Arch Rib Model
- ❖ Linear Arch Model

Publications

- ♦ Saini DS, Singh P, Matharu S.P.S, **Sharma A**, Alkahtani M.Q, Khan M.A and Islam S., "Tribological Performance Evaluation of Greases on Four Ball Tester with Nanoparticles Graphene Oxide", ACS Omega, 2023. DOI - <https://doi.org/10.1021/acsomega.3c02704>
- ♦ P Deepak, **Sharma A**, Thenmozhi S, Ramteke P, Dhanalakshmi A and Sivakumar S., "Influence of glass powder silica fume and scrapped ceramic waste on the mechanical properties of concrete", Materials Today: Proceedings, Elsevier 2023. DOI - <https://doi.org/10.1016/j.matpr.2023.08.213>
- ♦ Shirgire A, Deepak M, Thenmozhi S, **Sharma A**, Pawar S, Jose JPA., "Experimental study on brick performance using quartz material and woods ash", Materials Today: Proceedings, Elsevier 2023. DOI - <https://doi.org/10.1016/j.matpr.2023.11.054>
- ♦ Kale V, Shelar A, Javanjal V, Gadhave S, Munde K and **Sharma A**., "Experimental study on fiber reinforced concrete using PVA fiber and glass powder", Materials Today: Proceedings, Elsevier, 2023. DOI - <https://doi.org/10.1016/j.matpr.2023.10.155>

International/National Conference Papers

- ♦ Zabeen S, Harne V, and **Sharma A**., "Seismic Assessment of Vertically Irregular RC Buildings Designed using DDBD and FBD Approaches", International Conference on 13th Structural Engineering Convention – An International Event (SEC-2023) organized by Visvesvaraya National Institute of Technology Nagpur, India on 07th–09th December 2023.
- ♦ Agrawal P and **Sharma A**., "Force-Based Design Approach for Seismic Analysis of RC Infilled Structures", 2nd Student National Conference on "Socio economic Perspective on Sustainable Management of Water (SPSMW 2024) jointly organized by NIT Raipur and OP Jindal University, India on March 22, 2024.
- ♦ Panchal S, **Sharma A** and Rathore TS, "Expert-Based Techniques for Sustainable Solutions for Landslide Hazards", 2nd Student National Conference on "Socio economic Perspective on Sustainable Management of Water (SPSMW 2024) jointly organized by NIT Raipur and OP Jindal University, India on March 22, 2024.



Patents

- ♦ **Dr. Anurag Sharma, Dr. Mahasakti Mahamaya, Dr. Swapnasarit Kar, Prof. VN Nagpure, Prof. Tulika Gupta and Prof. Shikha Tiwari** submitted a patent for “Edge connector for adjoining adjacent concrete structural members”. Patent Application No – 385360-001
- ♦ **Prof. Tulika Gupta** was granted a patent for “Concrete Test Hammer”. Patent Application No – 415134-001



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 with JPL Tamnar- (Ongoing).
- ♦ Development and characterization of cement less alkali activated Controlled Low Strength Material (CLSM) using industrial waste-A state of art of sustainable development for industrial perspectives. (Seed money project, OPJU)

Departmental Activities

Conference Organised

The Department of Civil Engineering, in collaboration with the IWRS Student Chapter and the Department of Civil Engineering at NIT Raipur, successfully organized the 2nd Student National Conference on "Socio-economic Perspectives on Sustainable Management of Water" (SPSMW 2024) on March 22, 2024. This prestigious event provided a platform for young researchers and students to share their insights and innovations in the realm of sustainable water management. A total of 42 technical papers were presented, showcasing a wide array of research on the socio-economic aspects of water sustainability. Notably, five of these papers were presented by students affiliated with OP Jindal University (OPJU), further highlighting their contributions to this critical field.



Faculty Development Programme

The Civil Engineering Department, of School of Engineering (SoE) in association with the Centre for Industry Academia Collaboration (CIAC) organized a 5-days online Faculty FDP on Sustainable Advances in Civil Engineering: Exploring Innovative and Contemporary Research Areas during 1-5 April 2024. The event was coordinated by Dr. Anurag Sharma and Dr. Swapnasarit Kar.



Workshop Conducted

The Department of Civil Engineering, in association with UltraTech Cement, which is the largest manufacturer of cement in India and the Centre for Industry-Academia Collaboration (CIAC) of O P Jindal University, Raigarh, organized a two-day workshop on "Professional Practices in the Cement and Construction Industry" from 21 to 22 September 2023. The speaker for the event, Mr. Suraj Kumar, Territory Manager, UltraTech Cements Ltd., Raigarh (CG).



Department of Civil Engineering
in association with
UltraTech Cement, Raigarh (CG)
Presents
A Two-day workshop on
Professional Practices in the Cement and Construction Industry

Speaker: Mr. Suraj Kumar, Territory Manager, UltraTech Cements Ltd., Raigarh (CG)

Patron: Mr. Dr. M. Prasad, Dean, Department of Civil Engineering

Coordinator: Ms. Mahasakti Mahamaya, Asst. Prof., Department of Civil Engineering

Date: 21 & 22 September 2023
Venue: EE seminar hall
Time: 11.00 am onwards

Dr. Santosh Kumar
Dr. Praveen Kumar

Mr. Gopal Anand Gade



Ph.D Progress Seminar

Miss. Tulika Gupta presented her progress presentation on the topic "Design and Characterization of Controlled Low Strength Material (CLSM) Using Industrial Waste- A Sustainable Solution for Infrastructure Development" under the guidance of Dr. Mahasakti Mahamaya in the presence of external expert Dr. Laxmikant Yadu, Professor NIT Raipur.



Objective of the project

- ✓ To develop Controlled Low Strength material using industrial wastes and alkali activated cement less-CLSM.
- ✓ To characterize developed material.
- ✓ Conservation of natural resources and utilization of industrial wastes.
- ✓ Utilization of sustainable cement with low energy and low CO₂ emissions as an alternative of traditional cement.

Gap Analysis:

1. The research on alkali activated CLSM is very limited.
2. Utilization of coal reject in the development of CLSM is not previously investigated.
3. The work regarding CLSM in India is very limited.

GPS Map Camera

Tumidih, Chhattisgarh, India
Research Progress Presentation, OP Jindal University, O P Jindal Industrial Park,
Tumidih, Chhattisgarh 496107, India
Lat 22.062429°
Long 83.34982°
04/09/23 03:16 PM GMT +05:30

Google

Value Added Course

The Department of Civil Engineering OPJU, Raigarh has organized a 30 hours value-added course on “Innovation and Entrepreneurship” from 28th November to 8th December 2023 for Civil Engineering students. 32 students of the Civil department have attained the course. The speakers of this course were Dr Seshadev Nayak (Professor School of Management & Director OPJU CDC), Dr. Deepayan Priyadarshi (Assistant Professor Sr. grade Department of Civil Engineering CEO OPJU Innovation Centre), Dr. Himanshu Vaishnav (Assistant Professor Sr. grade, Head PG Program, CMO OPJU Innovation Centre). This course also consists of a software session in freelancing in Civil Engineering which was taken by Er. Gopal Krishna Gouda (Lab In-Charge, Department of Civil Engineering OPJU). The whole course was coordinated by Prof. Shikha Tiwari (Assistant Professor, Department of Civil Engineering OPJU).



Knowledge Conveyed

- **Prof. Vinod Nagpure**, Sr. Assistant Professor in Civil Engineering Department of OPJU Raigarh delivered a guest lecture in online mode on 8th September, 2023 on topic “Personality Development” for Government Polytechnic Sonapur (Odisha).



- **Prof. Vinod Nagpure**, Sr. Assistant Professor in Civil Engineering Department of OPJU Raigarh delivered series of guest lectures during 11-13 August 2023 on “Training of Trainer (ToT): Civil and construction” at OPJCC Punjipathra, Raigarh.



- **Prof. Vinod Nagpure**, Sr. Assistant Professor in Civil Engineering Department of OPJU Raigarh delivered series of guest lectures during 25-28th July 2023 on “Training of Trainer (ToT): Civil and construction” at OPJCC Punjipathra, Raigarh.



- **Prof. Tulika Gupta**, Sr. Assistant Professor in Civil Engineering Department of OPJU Raigarh “Delivered a Guest lecture in Training of Trainer (ToT) Civil and construction at OPJCC” on Date- 27th July, 2023.



- **Prof. Vinod Nagpure**, Sr. Assistant Professor, delivered a session in Faculty Development Program on “Recent Advancement in Civil Engineering” organized by J D College of Engineering and Management Nagpur during 30th November 2023.
- **Dr. Swapnasarit Kar**, Assistant Professor, delivered a session in the Faculty Development Program on “Recent Advancement in Civil Engineering” organized by J D College of Engineering and Management Nagpur during 29th November, 2023.



- **Dr. Anurag Sharma** delivered an expert talk titled “Engineering solutions for effective Disaster Mitigation and Management” organised by SSIPMT, Raipur on 31st May 2024.
- **Dr. Anurag Sharma** delivered an expert talk in FDP on Innovative Inventions in Civil Engineering (IICE 2024) titled “An Engineering Perspective on Disaster Mitigation and Management” organised by Sandip Institute of Technology and Research Centre, Nashik on 14th May 2024.
- **Dr. Anurag Sharma** delivered an expert talk titled “Introduction to Time History Analysis and Response Spectra” organised by Shri Ramdeobaba College of Engineering and Management, Nagpur on 10th April 2024.



Webinar & FDP Attended by Faculty Members

- **Prof Vinod Nagpure** Sr. Assistant Professor, attended a session on “Sustainability and Practices – A timeline Requirement of the Construction Industry” organized by Jointly organized by Indian Concrete Institute Kochi Centre and QCRETE Readymix India Pvt. Ltd. on 7th September 2023.
- **Prof Vinod Nagpure**, Sr. Assistant Professor, attended a session on “Making concrete making concrete sustainable and moving towards net zero” organized by Jointly organized by Indian Concrete Institute Kochi Centre and QCRETE Readymix India Pvt. Ltd. on 27th September 2023.



Dr. Anurag Sharma, successfully attended Faculty Development Programme on “Advancements in FRP Composites for Structural Applications” organized by Sasi Institute of Technology and Engineering Tadepalligudem, AP in association with Indian Geotechnical Society Guntur chapter from **22nd November 2023 to 14th December 2023**.

Dr. Anurag Sharma, successfully attended five days Faculty Development Programme on “Intelligent Transport system” organized by Dr. DY Patil Institute of Engineering Management and Research in association With the Indian Society for Technical Education (ISTE) from **18th December 2023 to 22nd December 2023**.



➤ **Dr. Anurag Sharma** participated in One Week National Level Faculty Development Programme on “Applications of Advanced Techniques for Repair and Rehabilitation of RCC and Steel Structures” organized by the Department of Civil Engineering, Chaitanya Bharathi Institute of Technology, Hyderabad, Telangana, India, from **22nd to 26th April 2024**.



➤ **Prof. Tulika Gupta**, successfully attended five days Faculty Development Programme on “Recent trends in retrofitting and rehabilitation” organized by National Institute of Technology Warangal from 30th September 2023 to 03rd November 2023.

Placements

The Department of Civil Engineering is thrilled to announce that Simran Patel, a distinguished member of the B.Tech - Civil Engineering 2024 Batch, has secured a remarkable placement with Intellipa at an impressive package of 10 LPA



Faculty Details



Dr. Mahasakti Mahamaya
Sr. Asst. Professor & HoD
Department of Civil Engineering
O. P. Jindal University, Raigarh



Prof. Vinod Nagpure
Sr. Asst. Professor
Department of Civil Engineering, OPJU



Prof. Tulika Gupta
Sr. Asst. Professor
Department of Civil Engineering, OPJU



Dr. Deepayan Priyadarshi
Sr. Asst. Professor
Department of Civil Engineering, OPJU



Dr. Swapnasarit Kar
Sr. Asst. Professor
Department of Civil Engineering, OPJU



Dr. Anurag Sharma
Assistant Professor
Department of Civil Engineering, OPJU



Prof. Shikha Tiwari
Assistant Professor
Department of Civil Engineering, OPJU



Er. Pranab Behara
Assistant Manager
Department of Civil Engineering, OPJU



Mr. Gopal Krushna Gouda
Lab Incharge
Department of Civil Engineering, OPJU



Mr. Bhakta Kumar Sethi
Lab Instructor
Department of Civil Engineering, OPJU

OPJU-Statistics

Schools

School of Engineering

Diploma | B.Tech. | M.Tech. | Ph.D.

School of Management

B.Com.(Hons.) | BA (Hons.) Economics |
BBA | MBA | Executive MBA | Ph.D.

School of Science

B.Sc.(Hons.) | M.Sc. | Ph.D.
B.Sc.(Hons.) in Fashion Designing*

Centres of Excellence

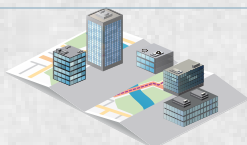
Centre for Sustainable Technology & Product Development

CoE in Steel Technology
CoE in Industry 4.0
CoE in Material Science & Nano Technology
CoE in Manufacturing & Automation
CoE in Logistics & Supply Chain Management
CoE in Environment & Waste Management
CoE in Power Technology

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 Mbps
(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
National
Journals

Library



30,000
Books



5000
Titles



15,000
E-journals



2,50,000
E-books

Collaboration & MoUs



45
National



10
International

Students



2200
Students



60%
Boys



40%
Girls



80% UG



20% PG



Student from
20 Different states



3500
Alumni



1 : 15
Faculty-Student
Ratio



35 Average age
of the Faculty
Members

Faculty and Staff



110 Faculty



80% PhD



20% PG



70% Male



30% female



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



20%
Faculty
with global
experience



100 Non-teaching
Staff

Placement Statistics

Year 2023-24



75 Campus
Drives



76% Students
Placed



6.5 Lacs
Average Package

O. P. JINDAL UNIVERSITY
OP Jindal Knowledge Park, Punjipathra
Raigarh [C.G.] - 496109

Toll Free : 1800 12000 8090

Website : www.opju.ac.in

