



Edition- 1.0

**SANDIP FOUNDATION'S,**  
**SHRI RAM POLYTECHNIC**

**BEYOND BOUNDARIES 2022**

**CIVIL**

**DEPARTMENT**

**DEPARTMENTAL MAGAZINE**

Neelam Vidya Vihar, Village - Sijoul, Post – Mailam, District – Madhubani, BIHAR – 847235  
Approved by AICTE, New Delhi and Affiliated to SBTE, Patna, Bihar.



**SANDIP**  
FOUNDATION

# **SANDIP FOUNDATION'S SHRI RAM POLYTECHNIC**

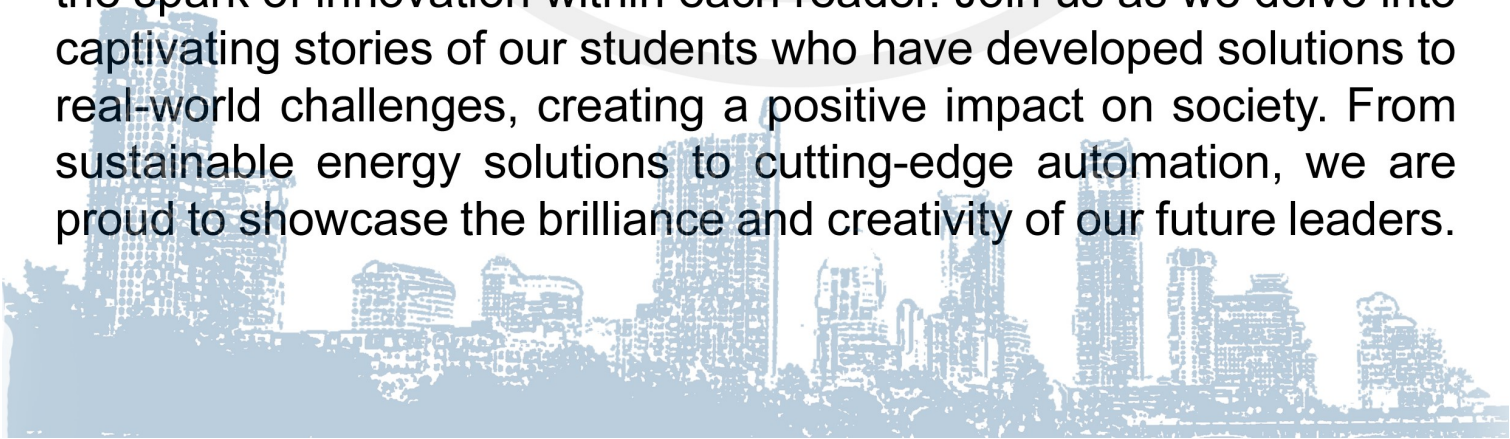
**BEYOND BOUNDARIES**  
**Yearly Magazine 2022**

**Empowering Minds, Igniting Ideas!**

Welcome to the second edition of Beyond Boundaries, the yearly magazine of Sandip Foundation's Shri Ram Polytechnic, nestled in Sandip Foundation's lush green Campus of Neelam Vidya Vihar at Sijoul, Madhubani in Bihar!

As we embark on a journey of celebrating innovation, we invite you to explore the remarkable achievements and transformative ideas that have shaped our institution. Within these pages, you will witness the unwavering commitment of our students and faculty towards excellence, as they continually push boundaries in the world of technology and engineering. From groundbreaking research to innovative projects, our polytechnic community embraces the spirit of curiosity and discovery.

Through Beyond Boundaries we aim to inspire, inform, and ignite the spark of innovation within each reader. Join us as we delve into captivating stories of our students who have developed solutions to real-world challenges, creating a positive impact on society. From sustainable energy solutions to cutting-edge automation, we are proud to showcase the brilliance and creativity of our future leaders.



# Chairman's Message



## **Dr. Sandip Kumar Jha**

Sandip Foundation was established in 2005 with a vision of creating an education system from which the leaders of tomorrow emerge. Since our inception, we have been aware of our strengths, motives and goals which we have set out to achieve. When we embarked on the journey, all we had was a dream and the tools of foresight and strategy. We combined these forces to pave a path of growth towards excellence and merit. Today it is our endeavour to be the most competitive institution in the country with emphasis on efficiency in every day operations, reliability for students and trust on discovery and development of new technologies.

We are an organization that combines the latest developments in the field of education with our scientific and operational skills to create an environment which nurtures and encourages the aspirations of students. It is our aim that the combination of these factors along with the state of the art infrastructure and dedicated teaching staff will provide an impetus to the Indian educational system as a whole.

Our first campus is set up at Nasik, Maharashtra where the college building is spread across a 200 acre area. Keeping pace with the times, the campus is Wi-Fi enabled. To ensure the complete educational experience, laboratories with the latest tools and machinery are provided along with a comprehensive library with RFID technology, a computer centre with complete Internet connectivity, a wholesome cafeteria, all set up in a green environment to give out students the most healthy and pleasant experience as they embark and pursue their professional goals.

What does an International quality Education system consist of? That is the question we asked ourselves when we set out to build this Foundation.

Our faculty and staff have come up with innovative methods in teaching to construct new knowledge in the classroom. Our motto is to always give our students the best of what is happening in and around so that they are always at the cutting edge of academics the world over.

The cultural aspect has always been a strong-point of our College as it has an acknowledged role in moulding the personality, teaching soft-skills, developing leadership and management abilities and strengthening the EQ. Extra-curricular activities, participation in sports and other cultural activities has now become universal, contributing to all-round development which is much needed in the world today.

Finally we look to create an Alumnus for inspiration and support so that our students have wonderful role models to emulate. Our faculty and students remain focused on a quality of education that is not just a college degree but a way of life.

**Dr. Sandip Kumar Jha,**  
**Chairman, Sandip Foundation**

# OSD'S MESSAGE



Greetings to all the esteemed readers of the Innovation Chronicles!

As an OSD of Sandip Foundation's Shri Ram Polytechnic, nestled in the picturesque landscape of Sijoul, Madhubani, in the heart of Mithilanchal, Bihar, I am delighted to share our journey of innovation and excellence with you.

Over the years, our institution has evolved into a beacon of inspiration, fostering a culture of relentless pursuit of knowledge and cutting-edge advancements. Our dedicated faculty, passionate students, and state-of-the-art facilities have been the pillars of our success..

Through this yearly magazine, we aim to showcase the remarkable achievements, groundbreaking research, and exceptional talents that reside within our institution's vibrant community. We encourage you to immerse yourselves in the stories of innovation and transformation that have unfolded within our walls.

Let us celebrate the indomitable spirit of Sandip Foundation's Shri Ram Polytechnic, as we continue to empower young minds, shape futures, and leave an indelible mark on the ever-evolving landscape of technical education. Together, let us embrace the power of innovation and inspire the world!

**With Warm Regards,  
Vivek R Nikam**



# Principal's Message



Dear Readers,

Welcome to the yearly magazine of Sandip Foundation's Shri Ram Polytechnic, the institute of National repute & one of the best private institutions in Bihar region. Since our inception in 2013, nestled in the lush green campus of Sandip Foundation at Sijoul, Madhubani in Mithilanchal, Bihar, we have embarked on a remarkable journey. With dedicated faculty, state-of-the-art infrastructure, and innovative teaching methods, we have nurtured aspiring engineers. Our students excel in academics, co-curricular activities, and placements. We emphasize holistic development, encouraging participation in extra-curricular events. Our growth is owed to the support of our management, staff, alumni, and well-wishers.

In today's world, education is the most important investment for a successful future. In my opinion education is the vehicle of knowledge, values and success. It gives us the facility to distinguish between right or wrong, a belief in morality and the importance of hard work.

The mission of SRP is to excel in the field of technology where young minds emerge as successful professionals. We look forward to enhancing education quality, industry-academia collaborations, and preparing students future-ready. Together, let us continue to strive for excellence and create a positive impact in the world.

Thank you for being part of our success.

Wishing you all a successful and fulfilling year ahead!

**With Best Wishes,  
Prof. Sanjay Kumar Jha,  
Principal**



# From Editor's Pen



Dear Readers,

Welcome to our latest edition of the magazine! We are thrilled to present you with a diverse collection of articles, features, and stories that we hope will captivate and inspire you.

Our team of talented writers, photographers, and contributors has worked tirelessly to bring you engaging content that covers a wide range of topics. From thought-provoking interviews with industry experts to in-depth explorations of current trends and innovations, we aim to provide you with valuable insights and an enjoyable reading experience.

In this issue, we delve into the fascinating world of technology and its impact on various aspects of our lives. You'll find articles on the latest advancements in artificial intelligence, the evolution of smart homes, and the growing influence of blockchain technology.

We would like to express our gratitude to our dedicated readers for your continued support. Your feedback and enthusiasm drive us to deliver high-quality content that informs, entertains, and sparks meaningful conversations.

As always, we encourage you to share your thoughts, suggestions, and ideas with us. Your feedback is invaluable in shaping the future direction of our magazine and ensuring that we meet your expectations.

Thank you for being a part of our magazine community. We hope you enjoy this issue and look forward to bringing you more exciting content in the future.

**Happy reading!**  
**The Magazine Editorial Team**

**Prof. AJAY KUMAR**





# STUDENT EDITORS

Warm regards, it is with great excitement that we present to you the inaugural edition of our publication. As the editor, I am immensely proud of the hard work, dedication, and creativity that went into bringing this edition to life.

**Shivam Raj**  
**CIVIL ENGINEERING**

I would like to express my heartfelt gratitude to the entire team who contributed their time, skills, and passion to make this first edition a reality. Their dedication and commitment have been truly inspiring, and I am honored to have worked with such talented individuals.

**NITISH KUMAR**  
**CIVIL ENGINEERING**

Welcome to the debut edition of Innovation Chronicles! We proudly present a collection of inspiring stories, groundbreaking ideas, and remarkable achievements. Explore the boundless creativity of our students and faculty as we celebrate innovation in all its forms. Enjoy the read!

**Ankit Kumar Thakur**  
**CIVIL ENGINEERING**

One of the most rewarding aspects of editing has been the opportunity to help others improve their writing. Offering constructive feedback and witnessing the growth of writers has been incredibly fulfilling. Seeing the transformation of a draft into a polished piece, with the writer's voice shining through, is a truly gratifying experience.

**Deepak Kumar**  
**CIVIL ENGINEERING**



# DEPARTMENT OF CIVIL ENGINEERING

Civil Engineering is a professional engineering discipline that deals with the design, construction and maintenance of the physical and naturally built environment, including works such as bridges, roads, canals, dams and buildings. Civil Engineering is the oldest Engineering Discipline after Military Engineering. It is traditionally broken into different disciplines including Environmental Engineering, Structural Engineering, Transportation Engineering, Water Resource Engineering, Geotechnical Engineering, Material Engineering, Survey Engineering and Construction Engineering.





# HOD'S MESSAGE, Civil



My vision is to develop constructive thinking and analytical capabilities of every student of Civil Engineering Department.

Our department is committed to provide students with a strong, broad based fundamental engineering education and prepare the students for a career in the industry, teaching and national laboratories.

We also plan to develop entrepreneurial skills in students through summer internships so that they would drive the spirit of growth of our economy and would be able to generate employment opportunities for other qualified and skilled people.

I personally look forward to integrate my experience of over 18 years in teaching and research into the learning systems and the collective efforts of the faculty of the department and build a comprehensive methodology that encompasses whatever that matters for nurturing the minds of our students.

I look forward for preparing my students to face the challenges; the technology and engineering sector would offer in the future and succeed in offering technological solutions for the betterment of the society and our nation.

Wishing all our students brilliant and bright future.

**With Best Wishes,  
Prof. Ravi Kumar  
HOD, Civil Department**

**Prof. RAVI KUMAR**



# MISSION

## M1

To provide with state-of-the-art infrastructure, qualified and competent teaching faculty.

## M2

To provide with exposure to industry through suitable Institution-Industry-Interaction programs to enhance employability.

## M3

To provide with platform for development of personality traits like professional attitude, communication skills etc. to produce competent technocrats.

## Vision

To nurture technocrats with competent skills in various technologies for serving the society and empower them to meet and exceed challenges as active participants in shaping the future.

## Vision of Civil Engineering

To establish an outstanding centre of regional and national reputation for providing a quality engineering education to the Civil Engineering students.

## Mission of Civil Engineering

### M1

To serve students by providing a broad and high quality education for a successful professional career.

### M2

To conduct strong basic and applied research for national needs.

### M3

To serve the construction industry; civil engineering profession and rural community through dissemination of knowledge and technical services.

# WHY CIVIL ENGINEERING!

Civil engineering is a diverse and challenging field that offers numerous opportunities for individuals who are interested in designing, constructing, and maintaining infrastructure and the built environment. Here are some reasons why civil engineering is a popular and rewarding career choice:

**Impactful projects:** Civil engineers have the opportunity to work on projects that directly impact people's lives and society as a whole. They contribute to the design and construction of buildings, bridges, roads, dams, airports, water supply systems, and other essential infrastructure. These projects enhance the quality of life, improve transportation, promote economic development, and ensure public safety.

**Variety of work:** Civil engineering offers a wide range of specialties and career paths. You can choose to focus on structural engineering, transportation engineering, geotechnical engineering, environmental engineering, water resources engineering, or construction management, among others. This diversity allows you to explore different aspects of engineering and find an area that aligns with your interests and strengths.

**Continuous demand:** Infrastructure is constantly being built, upgraded, and maintained. As a result, there is a consistent demand for civil engineers. Governments, private sector organizations, and consulting firms require civil engineers to plan and execute infrastructure projects, ensuring a steady stream of job opportunities.

**Professional growth and development:** Civil engineering is a field that encourages continuous learning and growth. As technology advances and new engineering techniques emerge, civil engineers need to stay updated and adapt to new practices. This field offers opportunities for professional development through certifications, specialized training programs, and advanced degrees.

**Collaboration and teamwork:** Civil engineering projects often involve collaboration with professionals from various disciplines, such as architects, urban planners, environmental scientists, and construction workers. Working as part of a team allows civil engineers to learn from others, exchange ideas, and tackle complex problems collectively.

**Global opportunities:** Civil engineering skills are in demand worldwide. If you have a passion for travel and working in different environments, civil engineering can provide opportunities to work on projects internationally. This global exposure can broaden your horizons, expose you to different cultures and practices, and enhance your professional network.

**Long-lasting impact:** One of the most rewarding aspects of civil engineering is the long-lasting impact your work can have on society. The infrastructure you help build may serve communities for decades or even centuries, improving the lives of countless people and shaping the physical landscape.

Overall, civil engineering offers a fulfilling career that combines technical expertise, creativity, problem-solving, and the opportunity to contribute to the betterment of society. It is a field that appeals to those who are passionate about making a tangible and positive difference in the world.



**SANDIP**  
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**SANDIP FOUNDATION'S**  
**SHRI RAM POLYTECHNIC**

**ACTIVITIES**



Neelam Vidya Vihar, Village - Sijoul, Post – Mailam, District – Madhubani, BIHAR – 847235  
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# Understanding Bitumen: Properties, Uses, and Environmental Impact

Rakhi Roshan  
3rd year  
Civil Engineering

## Introduction:

Bitumen is a versatile and widely used material in various industries, primarily known for its use in road construction. It is a sticky, black, and highly viscous liquid or semi-solid form of petroleum. Bitumen plays a crucial role in infrastructure development, but it also raises concerns due to its environmental impact. This article aims to explore the properties, uses, and environmental implications of bitumen.

## Properties of Bitumen:

**Physical Properties:** Bitumen is a dense and sticky substance with a high viscosity at ambient temperatures. It is insoluble in water but can dissolve in many organic solvents. It has a black or dark brown color and is characterized by its adhesive properties.

**Chemical Composition:** Bitumen is a complex mixture primarily composed of hydrocarbons, such as asphaltene, aromatic compounds, resins, and saturates. The composition varies depending on the source and processing methods.

## Penetration Grade:

Bitumen is classified into different penetration grades based on its consistency. The penetration grade indicates the hardness or softness of the bitumen and its suitability for various applications. Lower penetration grades are harder, while higher grades are softer and more viscous.

## Uses of Bitumen:

**Road Construction:** One of the most significant applications of bitumen is in road construction. It is used as a binder to hold the aggregate particles together, creating asphalt concrete. Bitumen provides durability, weather resistance, and flexibility to withstand heavy traffic loads and various climatic conditions.

**Roofing and Waterproofing:** Bitumen is widely used in the construction industry for roofing and waterproofing purposes. It is applied as a waterproofing membrane or coating on roofs, foundations, basements and other structures to protect them from water penetration. **Pavement Preservation:** Bitumen-based surface treatments, such as seal coats and microsurfacing, are employed to extend the lifespan of existing road surfaces. These treatments protect the pavement from oxidation, weathering, and cracking, enhancing its durability.

**Adhesives and Binders:** Bitumen's adhesive properties make it suitable for manufacturing various adhesives, including tapes, laminates, and bonding agents. It is also used as a binder in the production of paints, inks, and insulating materials.

## Environmental Impact:

**Carbon Emissions:** The production and use of bitumen contribute to carbon emissions and air pollution. The extraction, refining, and transportation processes require energy and can release greenhouse gases, contributing to climate change.

## Habitat Disruption:

Bitumen extraction from oil sands and other sources often involves large-scale mining or drilling operations that can disrupt ecosystems, affect wildlife habitats, and lead to deforestation.

**Water Contamination:** Spills or leaks of bitumen can contaminate water bodies, causing harm to aquatic life and affecting water quality. The cleanup process for such spills can be challenging and expensive.

**Recycling and Disposal:** Proper disposal of bitumen-containing materials, such as asphalt pavement, is crucial to minimize environmental impact. Recycling techniques for bitumen-based materials are evolving to reduce waste and promote sustainable practices.

## Conclusion:

Bitumen is a vital material in various industries, particularly in road construction and infrastructure development. While it offers excellent properties for durability and performance, its environmental impact cannot be ignored. The industry is actively exploring sustainable practices, such as recycling and alternative materials, to mitigate the environmental footprint of bitumen and promote a greener future.

# PAINTING OF THE YEAR

SANDIP FOUNDATIONS SHRI RAM POLYTECHNIC ★




NAME:—Hamza Shad

DEPARTMENT OF  
CIVIL ENGINEERING

**Hamza Shada**  
2nd year  
Civil Engineering



# Participation Of Certificate



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Department of Civil Engineering

**CERTIFICATE OF PARTICIPATION**


*This is to certify that,*

**RAVI KUMAR**


*has attended "Five Days Webinar Series\_2020 on Civil Engineering Aspect" from 12<sup>th</sup> May 2020 to 16<sup>th</sup> May 2020 organized by Department of Civil Engineering.*

 Er. Vishal B Shinde Coordinator	 Er. Satish S Barmade Coordinator	 Prof Kisan L Bidkar HOD, CED	 Dr. (Prof) Dipak P Patil Principal
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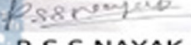


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**E - Certificate of participation**

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**RAVI KUMAR**  
From

shri ram polytechnic  
has successfully completed a online awareness Quiz on  
"RESEARCH" organized by Journal of Advanced Research in  
Technology and Management Sciences, Hyderabad, Telangana  
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ISTE Faculty Chapter

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This is to certify that, **RAVI KUMAR** has participated in a State level Faculty Awareness Programme through *E-Quiz* on "Outcome Based Education (OBE) and Administrative Policies" organized by Department of Mechanical Engineering of MET's Institute of Technology-Polytechnic, Nashik in association with ISTE Faculty Chapter.

  
**Prof. V E Kothawade**  
Event Coordinator  
Lecturer in Mech. Engg.

  
**Prof. A P Vadnere**  
Head  
Department of Mech. Engg.

  
**Dr. R S Narkhede**  
Principal  
MET BKC IOT-P, Nashik

**Stay at Home**      **Stay Safe**      **All the Best**

\*\*\*\* This certificate is auto generated and digitally offered. \*\*\*\*

## CERTIFICATE

PROUDLY PRESENTED TO

*Ravi Kumar*

Problems and New Technologies for Rigid Pavements

Jul 10, 2021  
Date of Completion

UltraTech Cement Ltd.  
Organizer

  
INDIA'S NO.1 CEMENT



# PHOTO GALLERY-2022

## N.C.C.



# SPORT MEET



# SPORT MEET



**Babuji Pathshala**



**Babuji Pathshala**



**Babuji Pathshala**



# STUDENTS' TWEET



"The institute's emphasis on practical learning has been instrumental in preparing us for the real world. Through internships, industrial visits, and guest lectures, we have gained valuable industry insights and developed a deeper understanding of our chosen field."

**MITHILESH KUMAR PASWAN**  
Civil Engineering  
Shri Ram Polytechnic



"As students, we are aware of the efforts and sacrifices made by the institute to provide us with the best possible education and opportunities. We acknowledge and appreciate the vision, commitment, and tireless efforts of everyone involved in making this institute a center of excellence."

**MD SAQUIB AQBAL**  
Civil Engineering  
Shri Ram Polytechnic



"Thank you for believing in us, pushing us to strive for greatness, and helping us become the best versions of ourselves. We are proud to be associated with this institute, and we will carry the lessons and values instilled in us throughout our lives."

**AJAY KUMAR**  
Civil Engineering  
Shri Ram Polytechnic



"We are also grateful for the diverse range of courses and programs offered by the institute. The curriculum is thoughtfully designed to provide us with a well-rounded education, blending theoretical knowledge with practical applications. The hands-on experiences, industry exposure, and internships have allowed us to bridge the gap between classroom learning and real-world challenges."

**RAVISHESH KUMAR**  
Civil Engineering  
Shri Ram Polytechnic

