



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

**INNOVATION CHRONICLES 2022**

# **MECHANICAL** **DEPARTMENT**

**Edition**  
**1.0**



# **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'S SHRI RAM POLYTECHNIC**

**INNOVATION CHRONICLES**  
**Yearly Magazine 2022**

**Unleashing Creativity and Inspiring Change!**

Welcome to the inaugural edition of Innovation Chronicles, the yearly magazine of Sandip Foundation Shri Ram Polytechnic! Here, we embark on a journey to celebrate the power of innovation and its transformative impact on society.

Within these pages, you will uncover a tapestry of inspiring stories, groundbreaking ideas, and remarkable achievements from our talented students, faculty, and alumni. From cutting-edge technological advancements to innovative solutions for real-world challenges, this magazine is a testament to our unwavering commitment to excellence in education.

Through engaging articles, captivating interviews, and vivid visuals, we aim to inspire and motivate readers to explore their own creative potential. Innovation Chronicles serves as a platform to showcase the diverse range of innovative endeavors taking place within our institution.

Join us as we dive into a world of possibilities, where ideas flourish, and imagination knows no bounds. Together, let's embark on a journey of innovation and shape a brighter future.

**Happy reading!**



# 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. Chandra Prakash**





# STUDENT EDITORS

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!

## **VINAY KUMAR** **MECHANICAL ENGINEERING**

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.

## **NITISH KUMAR** **MECHANICAL 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.

## **SAURAV KUMAR** **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.

## **SHUBHAM KUMAR** **MECHANICAL ENGINEERING**



# DEPARTMENT OF MECHANICAL ENGINEERING

Mechanical engineering is a broad profession that traditionally comprises three primary sub fields: energy, mechanisms and machinery, along with controls. The work done by mechanical engineers includes the design, construction, and use of systems for the conversion of energy available from natural sources (water, fossil fuels, nuclear fuels, solar radiation) to other forms of useful energy (for transportation, heat, light, power) design and production of machines to lighten the burden of servile human work and to do work otherwise beyond human capabilities, processing of materials into useful products, and creative planning, development, and operation of systems using energy, machines, resources and manufacturing.





# HOD'S MESSAGE, Mechanical



This is an era of Mechanical Engineering revolution. In almost all fields of Mechanical engineering technologies are essentially required. The department is mainly aimed to provide the useful knowledge and real-world experiences to its students in developing innovative insights and thoughts for future India. We impart training to our students according to market needs by involving them in the projects beyond the university curriculum. The students are engaged in the tasks which are helpful to provide an exposure to the latest technologies used in Mechanical Engineering industry. For this, students are engaged in projects from 3rd semester onwards implementing the gained subject knowledge. Utmost importance is given to impart good quality technical education along with moral values. A conducive ambience is created to enable the students to enjoy the maximum benefits out of the available state-of-the-art equipments and fabulous infrastructure.

**With Best Wishes,  
Prof. Manish Kumar Jha  
HOD, Mechanical Department**



# 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 Mechanical Engineering

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

## Mission of Mechanical Engineering

### M1

To offer quality technical education through innovative methods in teaching and learning that emphasizes Mechanical Engineering skills

### M2

To develop abilities of the students for Industry and Higher education.

### M3

To inculcate life-long learning habit in students and teachers. knowledge and technical services.

# WHY MECHANICAL ENGINEERING!

Mechanical engineering is a field of study and profession that offers numerous compelling reasons for individuals to choose it as their career path. Here are some reasons why people may choose to pursue mechanical engineering:

**Broad Application:** Mechanical engineering has wide-ranging applications across various industries, including automotive, aerospace, energy, manufacturing, robotics, and more. This versatility allows mechanical engineers to work on a diverse range of projects and technologies.

**Problem Solving:** Mechanical engineers are problem solvers at heart. They enjoy tackling complex challenges and finding innovative solutions. From designing efficient machines to optimizing processes, mechanical engineers have the opportunity to apply their analytical and critical thinking skills to make a tangible impact.

**Design and Creativity:** Mechanical engineering involves the design of machines, systems, and structures. It provides an outlet for creativity, as engineers get to conceive and develop new products or improve existing ones. The ability to bring concepts to life through design is both rewarding and fulfilling.

**Hands-On Work:** Mechanical engineering often involves hands-on work, whether it's prototyping, testing, or working with machinery. This aspect appeals to individuals who enjoy practical and tangible applications of their knowledge, as they get to see their creations come to life.

**Continuous Learning:** The field of mechanical engineering is constantly evolving, driven by technological advancements and new discoveries. This ensures that engineers are continually learning and adapting to stay up to date with the latest developments. This aspect keeps the work dynamic and intellectually stimulating.

**Collaboration and Teamwork:** Mechanical engineering projects often require collaboration with professionals from other disciplines, such as electrical engineers, materials scientists, and software developers. This fosters teamwork and provides opportunities to learn from others while working towards a common goal.

**Global Opportunities:** Mechanical engineering is a global profession, offering opportunities to work and collaborate with professionals from around the world. This global perspective allows engineers to tackle global challenges and contribute to projects with an international impact.

**Job Security and Demand:** Mechanical engineering is a well-established and highly sought-after profession. The demand for mechanical engineers remains strong across various industries, providing good job security and potential for career growth.

**Impact and Sustainability:** Mechanical engineers play a crucial role in developing sustainable technologies and practices. They have the opportunity to contribute to creating a more environmentally friendly future by designing energy-efficient systems, renewable energy technologies, and sustainable manufacturing processes.

**Competitive Salaries:** Mechanical engineering is known for offering competitive salaries and benefits, reflecting the value and demand for skilled professionals in the field.

Ultimately, the choice to pursue mechanical engineering depends on an individual's passion, interests, and career goals. It offers a fulfilling and rewarding career path for those who are interested in the application of science, engineering principles, and problem-solving to create tangible solutions.



**SANDIP**  
FOUNDATION

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

# **ACTIVITIES**



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# Demystifying Thermodynamics: Understanding the Fundamental Principles of Energy Flow

ANKUR KUMAR  
3rd Year  
Mechanical Engineering  
Sandip Foundation's Shri Ram Polytechnic

## Introduction:

Thermodynamics, the study of energy and its transformations, forms the backbone of our understanding of the physical world. From the behavior of gases to the operation of power plants, thermodynamics provides the fundamental principles that govern energy flow in various systems. This article aims to demystify thermodynamics and shed light on its core concepts, including the laws of thermodynamics, energy transfer, and the application of these principles in everyday life.

## The Laws of Thermodynamics:

Thermodynamics is built upon four fundamental laws, with the first and second laws serving as the pillars of the discipline. The first law, also known as the law of energy conservation, states that energy cannot be created or destroyed; it can only change its form. The second law introduces the concept of entropy, which measures the disorder or randomness of a system. It states that the entropy of an isolated system tends to increase over time, leading to the concept of heat transfer from hot to cold bodies.

## Energy Transfer and Heat:

Thermodynamics deals extensively with energy transfer in the form of heat and work. Heat transfer occurs when there is a temperature difference between two objects, resulting in the flow of thermal energy from the hotter object to the colder one. This principle is vital in understanding various natural phenomena, such as conduction, convection, and radiation. Work, on the other hand, involves the transfer of energy through mechanical processes.

## Thermodynamic Processes:

Understanding how energy flows and changes in different systems requires a grasp of thermodynamic processes. These processes include isothermal, adiabatic, isobaric, and isochoric processes, each characterized by specific conditions and energy transformations. For example, an isothermal process occurs when the temperature remains constant, while an adiabatic process is one in which no heat is exchanged with the surroundings.

## Carnot Cycle and Efficiency:

The Carnot cycle, a theoretical construct, illustrates the maximum efficiency attainable in a heat engine operating between two temperatures. This cycle serves as a benchmark for evaluating the performance of real-world heat engines and helps us understand the limitations imposed by thermodynamic principles. The concept of efficiency is crucial in the design and optimization of energy conversion systems, such as power plants and heat engines.

## Applications in Everyday Life:

Thermodynamics finds wide-ranging applications in our daily lives. From the operation of refrigerators and air conditioners to the functioning of internal combustion engines and power generation plants, understanding the principles of thermodynamics allows us to improve energy efficiency, reduce waste, and develop sustainable technologies. Furthermore, thermodynamics plays a vital role in fields like chemical engineering, materials science, and environmental science.

## Conclusion:

Thermodynamics forms the basis of our understanding of energy flow and transformation in various systems. By unraveling the laws of thermodynamics, energy transfer mechanisms, and the application of these principles, we can make informed decisions to enhance energy efficiency, mitigate environmental impacts, and design more sustainable technologies. Embracing the principles of thermodynamics is crucial as we strive to build a more energy-conscious and sustainable future.



# Unveiling the Secrets of Fluid Mechanics: Exploring the Dynamics of Flowing Substances

SHIVAM KUMAR  
3rd Year  
Mechanical Engineering  
Sandip Foundation's Shri Ram Polytechnic

## Introduction:

Fluid mechanics is a branch of physics that delves into the behavior and motion of fluids, encompassing both liquids and gases. It is a fundamental field of study with a wide range of applications, from understanding the flow of blood in our bodies to designing efficient transportation systems. This article aims to provide an overview of fluid mechanics, highlighting key concepts such as fluid properties, fluid statics, fluid dynamics, and their practical implications.

## Understanding Fluid Properties:

Fluids are substances that can flow and conform to the shape of their containers. Key properties of fluids include density, viscosity, pressure, and surface tension. Density refers to the mass per unit volume and determines the fluid's behavior in different conditions. Viscosity measures the resistance to flow, distinguishing between thick and thin fluids. Pressure arises from the collisions of fluid particles and is essential in determining fluid behavior.

## Fluid Statics:

Fluid statics deals with fluids at rest or in equilibrium, focusing on the forces acting on them. Pascal's law states that pressure is transmitted equally in all directions within a fluid. This principle enables hydraulic systems and explains phenomena such as buoyancy. Archimedes' principle states that the buoyant force on an object submerged in a fluid is equal to the weight of the fluid displaced by the object, leading to the concept of buoyancy and its applications.

## Fluid Dynamics:

Fluid dynamics explores the motion of fluids and the forces that govern their movement. It encompasses the study of both incompressible and compressible fluids. The Navier-Stokes equations form the foundation of fluid dynamics, describing the conservation of mass, momentum, and energy in fluid flow. Understanding these equations helps in analyzing fluid behavior in different scenarios, such as pipe flow, boundary layers, and turbulent flows.

## Bernoulli's Principle and Applications:

The Carnot cycle, a theoretical construct, illustrates the maximum efficiency attainable in a heat engine operating between two temperatures. This cycle serves as a benchmark for evaluating the performance of real-world heat engines and helps us understand the limitations imposed by thermodynamic principles. The concept of efficiency is crucial in the design and optimization of energy conversion systems, such as power plants and heat engines.

## Practical Applications:

Fluid mechanics has extensive practical applications across various industries. In civil engineering, it aids in designing efficient water supply systems and analyzing the behavior of fluids in dams and pipelines. In mechanical engineering, it is crucial for designing pumps, turbines, and cooling systems. In the field of medicine, fluid mechanics helps in understanding blood flow, respiratory systems, and drug delivery mechanisms. Furthermore, it plays a vital role in weather prediction, oceanography, and environmental studies.

## Conclusion:

Fluid mechanics provides the foundation for understanding the behavior of fluids in various scenarios. By comprehending the properties of fluids, the principles of fluid statics and dynamics, and their practical applications, we can unlock new possibilities for designing efficient systems, optimizing processes, and improving our understanding of the natural world. Embracing the concepts of fluid mechanics empowers us to tackle real-world challenges and develop innovative solutions across numerous fields of study and industry.





**A Poetry on  
Earth will forever live.**

In a world of wonders, vast and grand,  
Lies a planet where life takes its stand.  
Earth, our home, a precious gem,  
A fragile beauty we must not condemn.

Let us gather our voices, together as one,  
To protect this planet, our duty not done.  
For the Earth is calling, with a plea so grave,  
To save its essence, its land, and wave.

In the forests, where tall trees sway,  
Creatures dwell, in harmony they play.  
But deforestation threatens their home,  
Let's raise our voices, let compassion roam.

In the oceans deep, where life abounds,  
Coral reefs, colors that astound.  
Yet pollution spreads, in toxic streams,  
We must act now, to mend these dreams.

The air we breathe, so pure and free,  
But pollution's grip taints what should be.  
Let's curb emissions, embrace cleaner ways,  
Preserve the air for future days.

The Earth's climate, in turmoil and strife,  
Calls for action to save its precious life.  
Let's reduce our footprint, embrace renewable might,  
For a sustainable future, we must unite.

From mountains high to valleys low,  
Nature's gifts, in abundance they bestow.  
But greed and exploitation take their toll,  
Let's tread gently, with a mindful soul.

For every species, every living being,  
The Earth's salvation, we must be foreseeing.  
With compassion and love, let's make a start,  
To save our planet, we hold in our heart.

So let us stand together, hand in hand,  
In this quest, for Earth's future to withstand.  
For the beauty of nature, the life it can give,  
Together, we'll ensure Earth will forever live.

# PLACED STUDENTS-2021



**SATYAM KUMAR**  
Mechanical Eng.  
Trainee Eng.  
Federal Mogul



**PRITH RANJAN JHA**  
Mechanical Eng.  
Trainee Eng.  
Federal Mogul



**SHANKAR KR. SHARMA**  
Mechanical Eng.  
Trainee Eng.  
Dhoot Transmission Pvt.Ltd.



**PRIYANSHU MANDAL JHA**  
Mechanical Eng.  
Trainee Eng.  
Dhoot Transmission Pvt.Ltd.



**SHUBHAM SAGAR**  
Mechanical Eng.  
Trainee Eng.  
Dhoot Transmission Pvt.Ltd.



**AJAY KUMAR**  
Mechanical Eng.  
Trainee Eng.  
Bajaj/Dhoot Transmission Pvt.Ltd.



**SANJEET KUMAR**  
Mechanical Eng.  
Trainee Eng.  
Dhoot Transmission Pvt.Ltd.

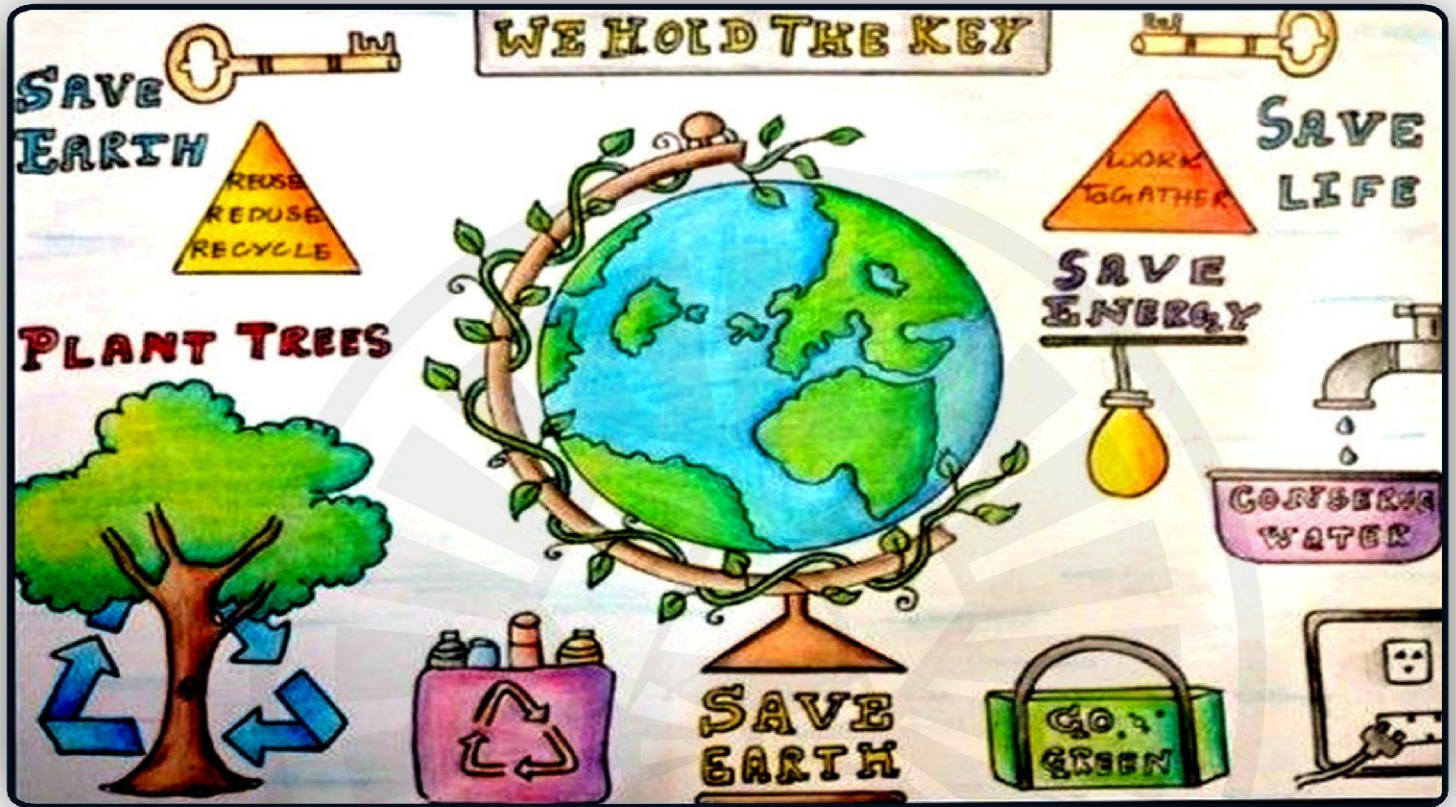


**SHIV SHANKAR SAH**  
Mechanical Eng.  
Trainee Eng.  
Dhoot Transmission Pvt.Ltd.





# PAINTING OF THE YEAR



**Shreshtha Kumari**

2nd Year

Mechanical Engineering

**Sandip Foundation's Shri Ram Polytechnic**



# PHOTO GALLERY-2022

## N.C.C.



# SPORT MEET



# SPORT MEET



**Babuji Pathshala**



**Babuji Pathshala**



**Babuji Pathshala**



# COMMENTS

"I am extremely grateful to be a part of this institute. The faculty members are highly knowledgeable and dedicated to ensuring our success. The learning environment is stimulating, and I feel motivated to push my boundaries and excel."

SHIVAM KUMAR  
Mechanical Engineering  
Shri Ram Polytechnic

"The institute provides an excellent platform for holistic development. Apart from academics, there are numerous extracurricular activities and clubs that allow students to explore their interests and enhance their skills. It truly fosters a well-rounded educational experience."

RAUSHAN KUMAR  
Mechanical Engineering  
Shri Ram Polytechnic

"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."

RAKESH KUMAR  
Mechanical Engineering  
Shri Ram Polytechnic

"The institute's emphasis on research and innovation sets it apart. The faculty members actively involve students in research projects, giving us hands-on experience and a chance to contribute to the advancement of knowledge in our field."

AJAY KUMAR  
Mechanical Engineering  
Shri Ram Polytechnic

