



R. C. PATEL

INSTITUTE OF TECHNOLOGY, SHIRPUR

An Autonomous Institute



ENERGY CLUB

ACTIVITIES REPORT 2023-24



DEPARTMENT OF ELECTRICAL ENGINEERING



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ABOUT ENERGY CLUB

The Energy Club of our institute is dedicated to fostering awareness and understanding of diverse energy-related topics, ranging from renewable energy sources to sustainable practices. The club provides a vibrant platform for students to explore, discuss, and contribute to the ever-evolving field of energy through interactive events, workshops, seminars, and discussions.

Members actively collaborate on projects that promote energy conservation and advocate cleaner and greener solutions. By nurturing innovation and knowledge sharing, the club aims to inspire the next generation of leaders committed to tackling global energy challenges.

To enrich students' real-world understanding, the club regularly organizes industrial visits, expert talks, and hands-on sessions with professionals from the energy sector. Overall, the Energy Club plays a crucial role in empowering students to make a meaningful contribution toward energy efficiency and sustainability.

VISION

To be a dynamic platform that inspires students to innovate, explore, and lead in the field of sustainable energy by promoting technical excellence, environmental responsibility, and research-driven solutions for a greener future.

MISSION

- To create awareness about renewable energy, energy conservation, and sustainable engineering practices through technical activities, workshops, seminars, and outreach programmes.
- To enhance students' practical knowledge and technical skills through hands-on learning, industrial interactions, innovation competitions, and research activities.
- To encourage interdisciplinary collaboration, leadership, teamwork, and professional ethics while addressing real-world energy challenges.
- To promote emerging technologies such as Electric Vehicles (EVs), IoT, Embedded Systems, Smart Grids, Automation, and Clean Energy Solutions.
- To contribute towards societal development by organizing community outreach programmes and supporting the achievement of the United Nations Sustainable Development Goals (SDGs).



CLUB CONSTITUTION

Position	Designation	Name / Detail
Faculty Advisor	Head of Department	Prof. Dr. Shailaja Arjun Patil
Faculty Coordinator	Coordinator	Prof. Krunalkumar Jitendrakumar Gandhi
Student Coordinator	Student (TY-Electrical)	Marathe Ashwini Kailash
Student Coordinator	Student (TY-Electrical)	Patil Yash Dagadu
Secretary	Student (TY-Electrical)	Marathe Puja Rama
Members	28 Student Members (TY & Final – Electrical)	Full roster in Annexure I

ANNEXURE I: CLUB MEMBER ROSTER

Sr. No.	Name	Mobile No.	Email ID
1	More Gaurav Ramesh	9689221841	gauravmore1437@gmail.com
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3	Patil Pranjal Kishor	7038867714	pranjalkpatil2003@gmail.com
4	More Vicky Ramesh	9021162937	vickymore2110@gmail.com
5	Bagad Sanket Kiran	7666954724	bagadsanket313@gmail.com
6	Patil Sanika Lilachand	7620382576	patilsanika881@gmail.com
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10	Patil Neha Rajendra	7798593658	patilneha14062003@gmail.com
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12	Gosavi Ankit Ajay	9511664701	ankitgosavi21703@gmail.com
13	Sachin Vinod Lohar	7721876610	sachinlohar4444@gmail.com
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15	Sonar Jignesh Amol	7058037914	jigneshsonar29@gmail.com



ACTIVITY - 1

EVENT REPORT

Event: Sustainable Energy Solutions Hackathon – 2023

Venue: Electrical Engineering Department classroom

Organized by: Energy Club, R. C. Patel Institute of Technology, Shirpur

Date: 02–03 November 2023

INTRODUCTION

The Energy Club of the Department of Electrical Engineering, R. C. Patel Institute of Technology, Shirpur organized the Sustainable Energy Solutions Hackathon–2023 on 2nd and 3rd November 2023. The two-day hackathon was designed to encourage students to develop innovative, practical, and sustainable solutions for current energy challenges through collaborative learning and project-based innovation.

The event brought together 50 enthusiastic participants from various engineering disciplines, forming 10 interdisciplinary teams. Students worked intensively on real-world problem statements related to renewable energy, energy conservation, smart monitoring systems, and sustainable technologies. Throughout the hackathon, faculty mentors and experts guided participants in transforming their ideas into functional prototypes.

The hackathon provided an excellent platform for enhancing technical competency, innovation, teamwork, and entrepreneurial thinking while promoting sustainable engineering practices aligned with national and global energy goals.

OBJECTIVES OF THE WORKSHOP

The key objectives of the hackathon were:

- To encourage innovative thinking for sustainable energy solutions.
- To provide practical exposure to real-world engineering problem solving.
- To promote interdisciplinary collaboration and teamwork.
- To enhance technical skills in design, coding, prototyping, and project development.
- To motivate students to develop feasible solutions addressing energy and environmental challenges.
- To strengthen innovation, entrepreneurship, and research culture among engineering students.



PLANNING

The Energy Club of the Department of Electrical Engineering planned a two-day Sustainable Energy Solutions Hackathon to promote innovation in renewable energy and sustainable technologies. Prior to the event, the organizing committee finalized the hackathon theme, problem statements, judging criteria, registration process, venue arrangements, and technical infrastructure. Faculty coordinators and industry experts were invited to mentor participating teams throughout the event.

Necessary arrangements including laboratories, internet facilities, prototype development resources, presentation equipment, and evaluation panels were completed well in advance. Participants were informed about the event guidelines, evaluation parameters, and submission requirements. The programme schedule was carefully designed to include team formation, mentoring sessions, coding and prototype development, technical reviews, final project presentations, and prize distribution.

EXECUTION

The hackathon was successfully conducted on 2nd and 3rd November 2023 with the participation of 50 students, who formed 10 interdisciplinary teams representing various engineering disciplines. The event commenced with an inaugural session introducing the objectives, competition rules, evaluation methodology, and the significance of sustainable energy technologies.

During the development phase, participants engaged in brainstorming, coding, circuit design, simulation, prototype development, and testing under the continuous guidance of faculty mentors and technical experts. Teams actively collaborated to transform innovative concepts into practical engineering solutions addressing energy generation, monitoring, conservation, and environmental sustainability.

On the final day, all teams demonstrated their working models and presented their innovative solutions before an expert evaluation panel. Projects were evaluated based on innovation, technical feasibility, sustainability, implementation potential, and presentation quality. The hackathon concluded with the announcement of winners, distribution of certificates and prizes, and appreciation of all participants for their creativity and technical excellence.

OUTCOMES

After successful completion of the hackathon, participants were able to:

- Apply engineering principles to solve real-life sustainable energy problems.
- Develop innovative prototypes addressing renewable energy and smart energy management.
- Enhance design thinking, analytical ability, and problem-solving skills.



- Gain practical experience in rapid prototyping and project development.
- Improve teamwork, leadership, communication, and project management skills.
- Understand the importance of sustainable engineering and emerging technologies.
- Strengthen innovation and entrepreneurial mindset through competitive project development.

IMPACT

The Sustainable Energy Solutions Hackathon successfully created a platform for students to transform innovative ideas into practical engineering solutions addressing sustainable energy challenges. The event promoted experiential learning by integrating technical knowledge with real-world problem-solving and prototype development.

The interdisciplinary collaboration among participants strengthened technical competence, creativity, and innovation while encouraging students to explore renewable energy technologies and smart energy management systems. The hackathon also enhanced leadership, communication, and teamwork skills among participants.

For the institute, the event reinforced its commitment to innovation-driven education, project-based learning, and sustainable development. The successful implementation of ten innovative projects demonstrated the capability of engineering students to contribute meaningful technological solutions for society and future energy needs.

PO / PSO MAPPING

PO / PSO	Level	Justification
PO1	3	Applied engineering knowledge to develop sustainable energy solutions and working prototypes.
PO2	3	Analysed real-world energy challenges and identified practical engineering solutions.
PO3	3	Designed and developed innovative prototypes addressing sustainability problems.
PO5	2	Utilized modern engineering software, programming tools, and development platforms.
PO9	3	Demonstrated effective teamwork through interdisciplinary project development.
PO10	3	Enhanced communication skills during project presentations and technical discussions.
PO12	3	Encouraged lifelong learning, innovation, and continuous technological development.

PSO1	3	Analysed and designed innovative solutions related to power systems, renewable energy, energy management, and smart grid applications.
PSO2	2	Applied electrical machines, drives, and control concepts in energy-efficient and renewable energy-based applications.
PSO3	3	Developed intelligent automation solutions using sensors, IoT, embedded systems, and emerging technologies for sustainable energy applications.

SDG MAPPING

SDG	Description	Relevance
SDG 7	Affordable and Clean Energy	Encouraged innovative solutions for renewable energy generation and efficient energy utilization.
SDG 9	Industry, Innovation and Infrastructure	Promoted engineering innovation through prototype development and technological problem-solving.
SDG 11	Sustainable Cities and Communities	Developed smart solutions contributing to sustainable urban infrastructure and energy management.
SDG 12	Responsible Consumption and Production	Encouraged efficient resource utilization and sustainable engineering practices.
SDG 13	Climate Action	Supported technologies that reduce environmental impact and promote clean energy adoption.

EVIDENCE





ACTIVITY HIGHLIGHTS

- Two-day Sustainable Energy Solutions Hackathon successfully organized.
- Participation of 50 students from multiple engineering disciplines.
- Formation of 10 interdisciplinary innovation teams.
- Continuous mentoring by faculty members and technical experts.
- Development of 10 innovative sustainable energy projects.
- Winning projects included Power Complaint Tracking, Monitoring and Resolving System and Energy from Agricultural Waste.
- Enhanced practical learning through design thinking, coding, and prototype development.
- Strengthened innovation, entrepreneurship, teamwork, and problem-solving skills.
- Promoted sustainable engineering practices aligned with national and global energy goals.
- Reinforced the institute's commitment to experiential learning, research, and technological innovation.



ACTIVITY - 2

WORKSHOP REPORT

Event: Ideathon – 2024

Venue: R. C. Patel Institute of Technology, Shirpur

Organized by: Energy Club, R. C. Patel Institute of Technology, Shirpur

Date: 06 March 2024

INTRODUCTION

The Energy Club of the Department of Electrical Engineering, R. C. Patel Institute of Technology, Shirpur organized Ideathon–2024 on 06 March 2024 with the objective of fostering innovation, creativity, and research aptitude among students. The event provided a platform for participants to present original ideas and innovative solutions addressing real-world challenges across diverse domains such as Engineering and Technology, Medical and Pharmacy, and Agriculture and Animal Husbandry.

Students enthusiastically presented their research concepts before an expert evaluation panel, where projects were assessed based on originality, technical feasibility, societal impact, and innovation. The event successfully encouraged interdisciplinary thinking and strengthened the research culture within the institute while preparing students for higher-level innovation and research competitions.

OBJECTIVES OF THE WORKSHOP

The key objectives of the Ideathon were:

- To encourage innovative thinking and creativity among students.
- To promote research-oriented learning and problem-solving skills.
- To provide a platform for presenting novel ideas addressing societal and technological challenges.
- To enhance students' presentation, communication, and analytical abilities.
- To motivate participation in research conventions and innovation competitions.
- To foster interdisciplinary collaboration and entrepreneurship.



PLANNING

The Energy Club of the Department of Electrical Engineering meticulously planned Ideathon-2024 as a departmental innovation event to identify promising research ideas for participation in research conventions such as Avishkar. The organizing committee finalized the event schedule, evaluation criteria, registration process, presentation guidelines, and judging parameters well in advance. Faculty coordinators invited expert judges from various disciplines to evaluate the projects based on innovation, originality, technical feasibility, research methodology, and societal relevance.

Necessary arrangements, including presentation halls, audiovisual facilities, registration support, judging sheets, and certificates, were completed before the event. Participants were informed about presentation rules, time limits, and evaluation rubrics to ensure smooth execution of the programme.

EXECUTION

The Ideathon was successfully conducted on 06 March 2024 with enthusiastic participation from students across various engineering disciplines. The programme commenced with an inaugural session highlighting the importance of innovation, research, and entrepreneurship in engineering education.

Participants presented their innovative ideas before the expert evaluation panel through technical presentations and interactive discussions. Each project was assessed based on innovation, practical implementation, technical content, presentation skills, and societal impact.

The event concluded with the declaration of winners across different research themes. Outstanding projects demonstrating originality and technical excellence were recognized and awarded, motivating students to pursue research and innovation at higher levels.

The following teams were declared winners:

First Prize – Engineering and Technology Theme

- Marathe Anjali
- Patil Arti
- Mali Bhumika
- Potdar Dipali
- Mali Rutuja

Second Prize – Medical and Pharmacy Theme

- Ravandale Dhiraj
- Sonawane Om
- Waswani Sumit
- Sonawane Nishant



Third Prize – Agriculture and Animal Husbandry Theme

- Girase Bhagwat
- Rajput Satpalsingh

The prize distribution ceremony concluded the event, recognizing the outstanding efforts of all participants and encouraging them to continue their research journey.

OUTCOMES

After successful completion of the Ideathon, participants were able to:

- Develop innovative and research-oriented thinking.
- Present technical ideas confidently before expert evaluators.
- Improve analytical, problem-solving, and critical thinking abilities.
- Enhance communication and technical presentation skills.
- Understand the process of transforming ideas into research projects.
- Gain motivation to participate in state and national-level research competitions.
- Promote interdisciplinary collaboration for solving real-world challenges.

IMPACT

Ideathon-2024 successfully created a vibrant platform for nurturing innovation, creativity, and research culture among students. The event encouraged participants to identify practical societal problems and develop technically feasible solutions through systematic research and engineering design.

The competition strengthened students' confidence in presenting technical ideas while improving their analytical, communication, and teamwork skills. Recognition of outstanding projects inspired other students to actively participate in innovation-driven activities and research conventions.

For the institute, the event reinforced its commitment to fostering innovation, entrepreneurship, and outcome-based education. The success of Ideathon-2024 significantly contributed to strengthening the institute's research ecosystem and preparing students for future academic and technological competitions.



PO / PSO MAPPING

PO / PSO	Level	Justification
PO1	2	Applied engineering fundamentals while proposing innovative research ideas.
PO2	3	Analysed real-world problems and identified suitable engineering solutions.
PO3	3	Developed innovative concepts addressing technological and societal challenges.
PO9	3	Promoted teamwork through collaborative project development.
PO10	3	Enhanced communication and technical presentation skills during idea presentations.
PO12	3	Encouraged lifelong learning, innovation, and research culture.
PSO1	2	Proposed innovative solutions related to electrical power systems, energy management, and sustainable technologies.
PSO2	2	Applied concepts of electrical machines, control systems, and renewable energy applications in project ideas.
PSO3	3	Demonstrated intelligent automation, IoT, sensors, and emerging technologies while developing innovative concepts.

SDG MAPPING

SDG	Description	Relevance
SDG 4	Quality Education	Promoted innovation, research, and experiential learning among students.
SDG 7	Affordable and Clean Energy	Encouraged development of innovative sustainable energy solutions.
SDG 9	Industry, Innovation and Infrastructure	Fostered research, innovation, and technology-based problem-solving.
SDG 11	Sustainable Cities and Communities	Motivated development of practical solutions for societal challenges.



ACTIVITY HIGHLIGHTS

- Ideathon–2024 organized on 06 March 2024.
- Students presented innovative research ideas across multiple themes.
- Expert evaluation based on innovation, technical feasibility, and societal impact.
- Two teams secured First Prize under the Engineering and Technology theme.
- One team secured Second Prize under the Medical and Pharmacy theme.
- One team secured Third Prize under the Agriculture and Animal Husbandry theme.
- Strengthened innovation, research aptitude, and technical presentation skills.
- Encouraged participation in higher-level research conventions such as Avishkar.
- Reinforced the institute's commitment to innovation, research, and outcome-based education.



ANNUAL SUMMARY

The Academic Year 2023–24 was marked by significant achievements in innovation, research, and technical excellence through the activities organized by the Energy Club, Department of Electrical Engineering. The club successfully conducted two major technical events—Sustainable Energy Solutions Hackathon–2023 and Ideathon–2024—providing students with opportunities to apply engineering knowledge to real-world challenges, develop innovative prototypes, and present research-oriented ideas.

The Sustainable Energy Solutions Hackathon brought together 50 students working in interdisciplinary teams to develop practical solutions for renewable energy and sustainability, resulting in ten innovative projects. Ideathon–2024 further strengthened the institute's research culture by encouraging students to present original ideas across Engineering & Technology, Medical & Pharmacy, and Agriculture & Animal Husbandry themes. The outstanding performance of participants was reflected through the achievement of two First Prizes, one Second Prize, and one Third Prize in different research categories.

Through these activities, the Energy Club successfully promoted innovation, teamwork, technical competency, research aptitude, entrepreneurship, and sustainable engineering practices. The events significantly enhanced students' problem-solving abilities, presentation skills, and confidence while reinforcing the institute's commitment to Outcome-Based Education, experiential learning, and innovation-driven technical education.