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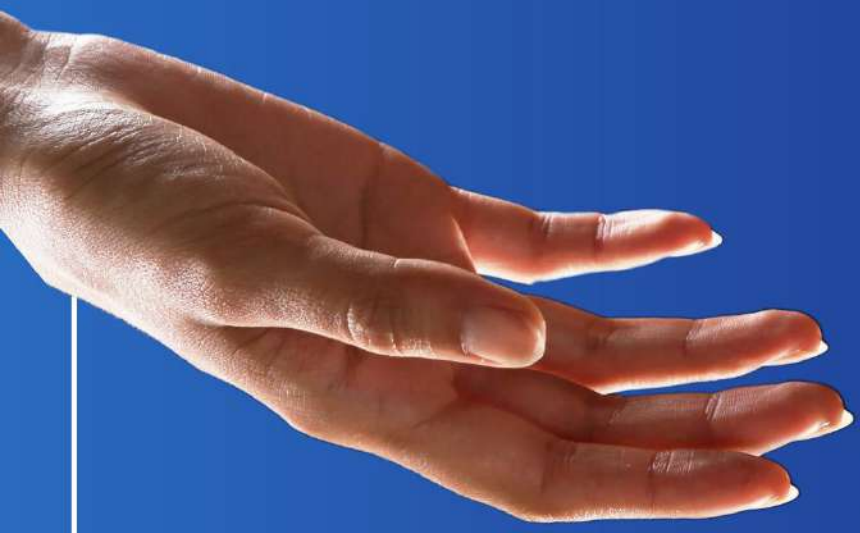
INSTITUTE OF TECHNOLOGY

An Autonomous Institute

Department of Computer Engineering



The TechnoVerse

Technical Magazine for A.Y. 24-25

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DEPARTMENT OF COMPUTER ENGINEERING

R. C. PATEL
INSTITUTE OF TECHNOLOGY
An Autonomous Institute

Department of Computer Engineering

Vision of the Institute

Fostering technical excellence through ethics, sustainable education, innovation and research.

Mission of the Institute

To impart high quality Technical Education through:

M1. Innovative and Interactive learning process and high quality, globally recognized instructional programs.

M2. Fostering a collaborative scientific temper among students with ethical responsibility towards the society.

M3. Preparing students from diverse backgrounds to have aptitude for employment, entrepreneurship and research with a spirit of Professionalism.

M4. To contribute to nation's sustainable development.

Vision of the Department

To provide high quality Computer Engineering education with socio-moral values.

Mission of the Department

M1 To provide state-of-the-art ICT based teaching-learning process.

M2 To groom the students to become professionally sound computer engineers to meet emerging needs of industry and society.

M3 To make the students employable professionals by inculcating ethical values.

Program Educational Objectives (PEOs) of the Department

PEO1 Graduates will have technical proficiency, lifelong learning skills to become a professional, entrepreneur and leader.

PEO2 Graduates will function effectively in diverse cultural and professional environments, respecting societal perspectives and inclusive practices.

PEO3 To foster ethical and social values to be socially responsible human being.

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Program Specific Outcomes (PSOs)

PSO 1 Apply programming principles, algorithms, and data structures to design efficient software solutions and intelligent systems using structured, object-oriented, and emerging technologies**.**

PSO 2 Design, develop, and deploy responsive web and mobile applications integrated with databases and cloud platforms, leveraging modern frameworks and tools for digital transformation.

DEPARTMENT OF COMPUTER ENGINEERING

FROM HoD'S DESK

It gives me great pleasure to present the Academic Year 2024–25 edition of *TechnoVerse*, the annual bulletin of the Department of Computer Engineering. This magazine highlights the key events, activities, and achievements accomplished throughout the year, reflecting the dedication, enthusiasm, and collaborative spirit of our students and faculty.

At the Department of Computer Engineering, we are committed to encouraging an environment that promotes continuous learning, innovation, and holistic growth. Through various technical events, workshops, competitions, and academic initiatives, we aim to equip students with the skills and mindset required to excel in an ever-evolving technological world.

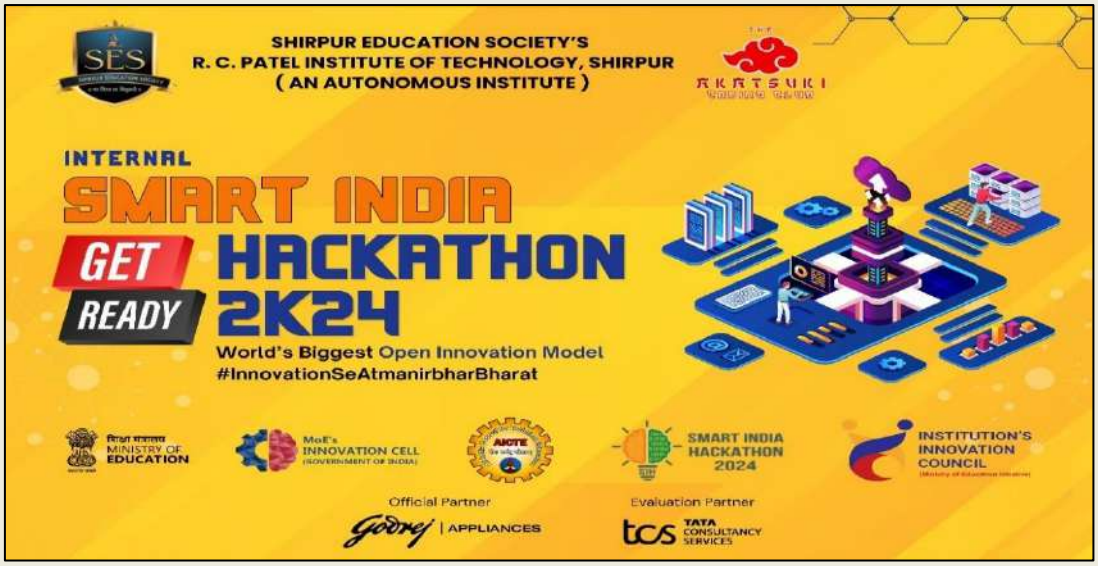
I extend my sincere appreciation to the faculty members, the TechnoVerse Editorial Board, and all student contributors whose efforts and teamwork have made this edition possible. Their commitment to quality and excellence strengthens the department's vision year after year.

I am confident that *TechnoVerse* will serve as a meaningful record of the year's accomplishments and inspire students to strive for even greater heights. I wish all readers an engaging and insightful experience.

Prof. Dr. Rajnikant B. Wagh
Head, Department of Computer Engineering
R. C. Patel Institute of Technology, Shirpur

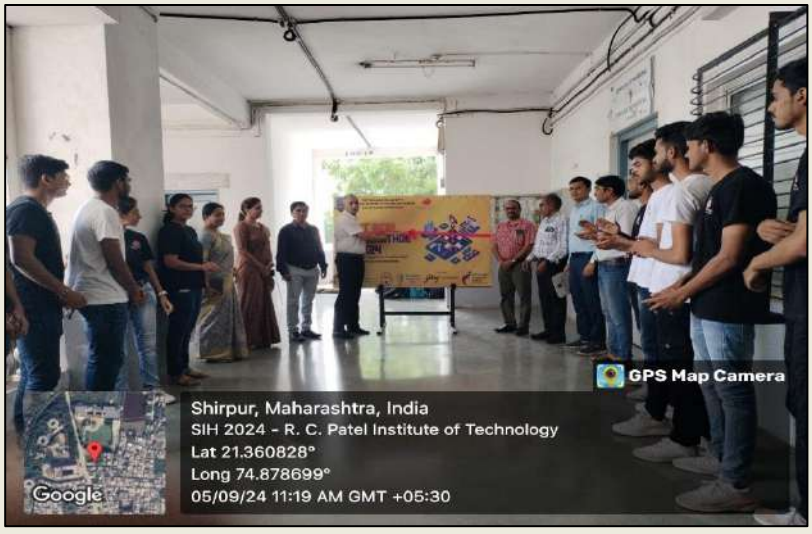
DEPARTMENT OF COMPUTER ENGINEERING

Internal Smart India Hackathon 2024



The Department of Computer Engineering successfully organized the **Internal Smart India Hackathon 2024** at **R. C. Patel Institute of Technology, Shirpur**, on **2nd and 5th September 2024**. The event aimed to encourage innovation, problem-solving abilities, and teamwork among students by providing a platform to present impactful ideas and working prototypes.

The competition was conducted in **two rounds**. Round I, held on **2nd September 2024**, focused on **idea presentation**, where teams pitched their innovative concepts. Round II, organized on **5th September 2024**, involved **prototype development and evaluation**. After comprehensive assessment based on novelty, feasibility, usability, and scalability, **30 teams** were shortlisted to represent the institute at the **National Level Smart India Hackathon 2024**.



A total of **43 teams** with **258 students** participated in the event, demonstrating collaborative effort from all branches with mandatory inclusion of girl participants. The hackathon provided students valuable exposure to real-world problem statements, teamwork culture, and hands-on learning with mentoring support.

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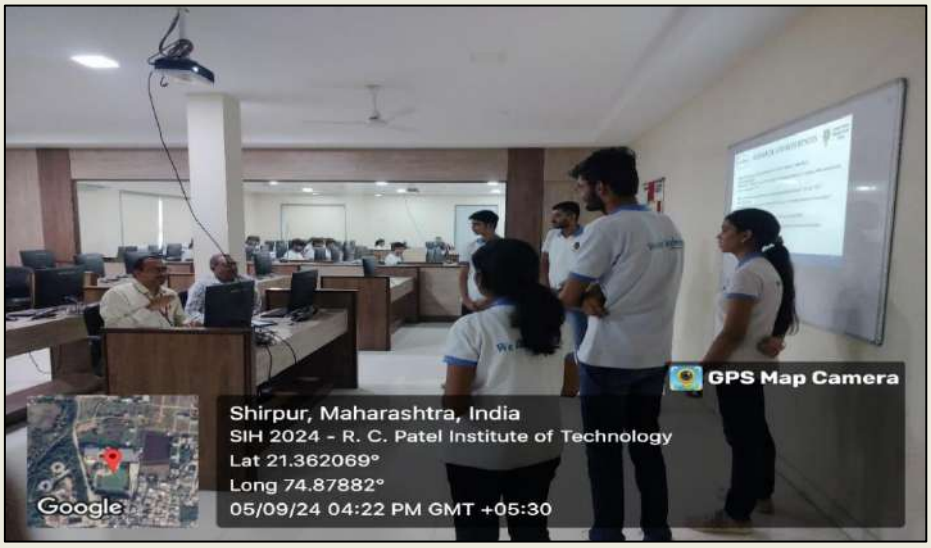
Internal Smart India Hackathon 2024

The event was efficiently coordinated under the guidance of **Mr. Sagar U. More** and **Mr. Harshal S. Patil** (Internal Hackathon Faculty In-charge), ensuring smooth and successful execution.

External Jury for the Event:

Name	Designation	Organization
Dr. N. S. Chaubey	Professor	SVKM's NMIMS Shirpur
Mr. Piyush K. Soni	Assistant Professor	SVKM's NMIMS Shirpur
Dr. Atul V. Dusane	Assistant Professor	SVKM's NMIMS Shirpur



Activity In-Charge: Mr. S. U. More and Mr. H. S. Patil

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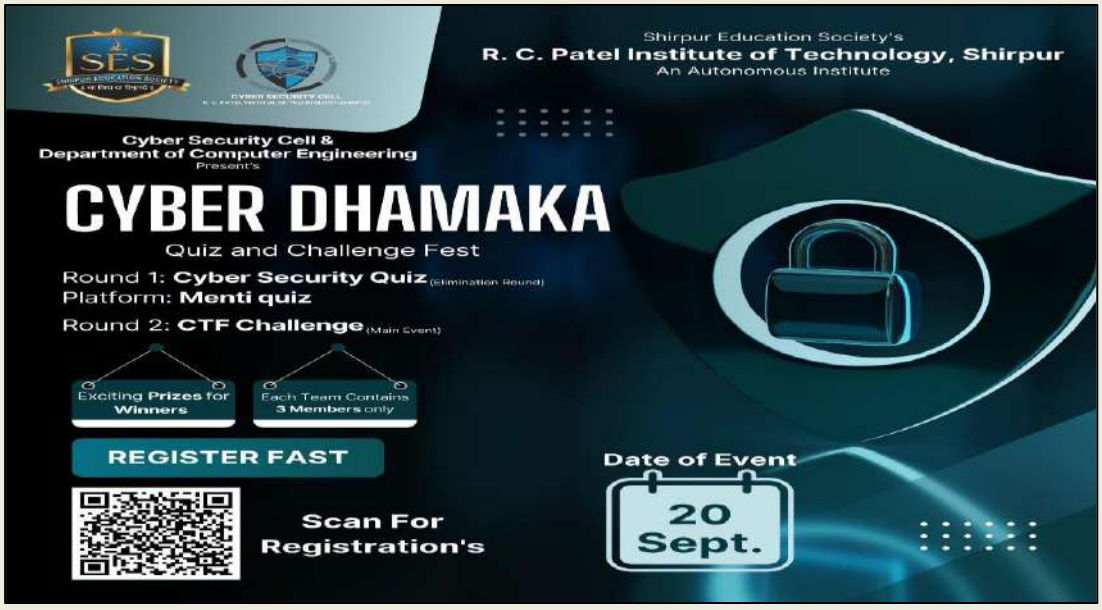
Cyber Dhamaka Quiz and Challenge Fest



The Cyber Dhamaka Quiz and Challenge Fest was organized by the Cyber Security Cell and the **Department of Computer Engineering**. As per **AICTE** guidelines, the main objective of the **Cyber Security Cell** is to raise awareness about cyber security among students.

The event was conducted in **two rounds**. The first round of the quiz was conducted on 20th September 2024, and the second round was a CTF (Capture The Flag) challenge that was conducted on 27th September 2024. In the **first round, 48 teams participated**, from which **10 teams were shortlisted** for the final round.

In the final round, 10 CTF challenges were given to each team. The team that solved the maximum number of challenges quickly was considered the winner. The prize distribution of the event was held on 10th October 2024.

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Cyber Dhamaka Quiz and Challenge Fest

Winner Teams:

Position.	Team Name	Team Members	Year	Div
1	Byte Masters	Ojaswini Kiran Borse	S.Y. B.Tech	C
		Aditi Satish Joshi	S.Y. B.Tech	C
		Heramb Chaudhari	S.Y. B.Tech	A
2	Cyber Craker	Piyush Ishwar Patil	T.Y. B.Tech	A
		Suraj Sudhir Thoke	T.Y. B.Tech	B
		Vidyesh Kishor Patil	T.Y. B.Tech	A

Activity In-Charge: Mr. S. U. More and Mr. H. S. Patil

DEPARTMENT OF COMPUTER ENGINEERING

Nodevember 2.0

The **Department of Computer Engineering**, under the **Akatsuki Coding Club**, organized a hands-on workshop titled **"Nodevember 2.0"** from **11th to 14th November 2024** for **third-year** Computer Engineering students at **R. C. Patel Institute of Technology, Shirpur**. The workshop aimed to enhance students' backend development skills through industry-focused training on **JavaScript, Node.js, Express.js**, and **MongoDB**. Students learned to build scalable server-side applications, develop secure **RESTful APIs**, integrate cloud databases, and deploy practical software solutions.

The event followed a blended learning approach with concept sessions, live demonstrations, and guided hands-on practice, helping participants gain both theoretical and practical expertise. Daily **Menti quizzes** reinforced concepts, increased engagement, and encouraged healthy competition.

A total of **120 students** actively participated, showing strong curiosity and teamwork. The workshop significantly strengthened their backend development skills and prepared them for advanced projects, internships, and future career opportunities in the software industry.

Day-wise Highlights

Day 1 – Client-Server Technology & JavaScript Basics The workshop began with core concepts of client-server architecture and RESTful APIs, explaining how web systems communicate. Students revised JavaScript fundamentals such as variables, data types, loops, and decision-making. Hands-on coding helped apply concepts in real time. A Menti quiz boosted engagement and tested understanding.

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Nodevember 2.0

Day 2 – Advanced JavaScript, Node.js & Express.js

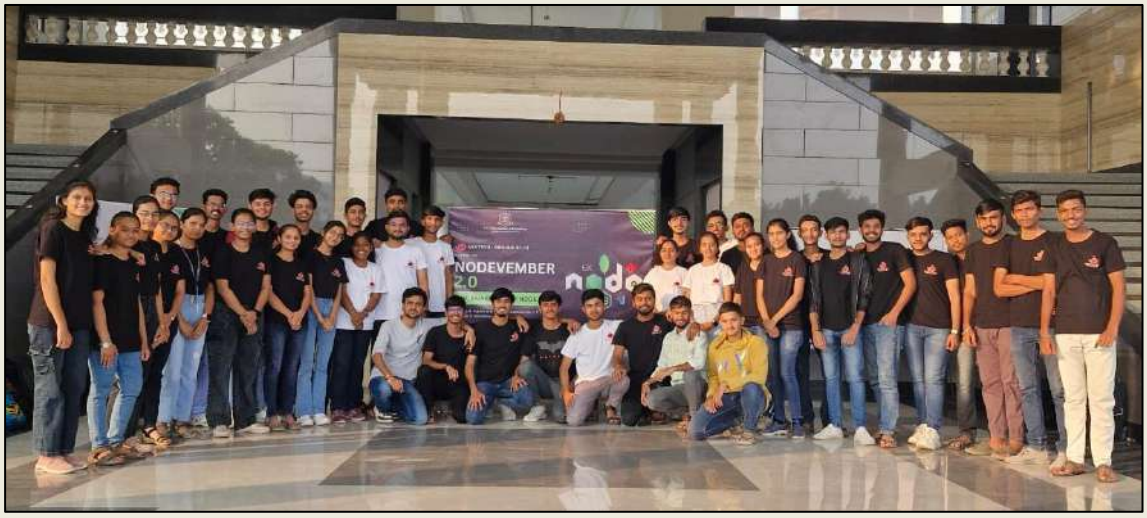
Day 2 covered advanced JavaScript topics, including functions, callbacks, promises, and async/await. Students were introduced to Node.js for server-side programming and Express.js for building APIs. Through live demos, they learned routing, middleware, and request/response handling. Practical exercises strengthened their ability to create scalable backend applications.

Day 3 – MongoDB, MongoDB Atlas & Mongoose Integration:

Students explored MongoDB fundamentals, data modeling, and connecting Node.js applications to databases. They learned to use MongoDB Atlas for cloud deployment. With Mongoose, they implemented schemas and CRUD operations. By the end, every student integrated a working database into their project.

Day 4 – Backend Project Development:

The final day centered on practical backend development. Students began building the Company Review System project using the MVC structure, creating schemas and APIs, and testing endpoints through Postman. This hands-on development helped them apply all concepts learned throughout the workshop, resulting in a working backend prototype and boosting their project-building confidence.



Activity In-Charge: Mr. S. U. More

DEPARTMENT OF COMPUTER ENGINEERING

Computer Literacy Program 2.0

In an era where technology drives progress, digital literacy has become a fundamental skill for individuals of all ages. Recognizing this need, the students of the **Computer Engineering Department** organized a social activity under the initiative "**E-Builder**" at **Smt. H. R. Patel Secondary & Higher Secondary School, Tekwade (Shirpur)**, on **28th November 2024**. This initiative aimed to bridge the digital divide by providing students with essential computer skills, enabling them to navigate the modern world with confidence. From fundamental tasks like using software applications to more advanced concepts such as coding and data analysis, the program was designed to introduce students to the vast potential of digital tools and technology.

The event was successfully conducted under the guidance of **Dr. R. B. Wagh** (Head of the Computer Department), with **Prof. Dushyant Potdar and Prof. Pallavi Agrawal** serving as event coordinators. Their leadership and expertise played a pivotal role in the seamless execution of the program. Additionally, student coordinators Darshan Chaudhari, Ankita Patil, Mayuresh Patil, Gaurav Patil, Nikita Chaudhari, and Hitesh Suryavanshi worked tirelessly to ensure the smooth flow of activities.

Activity In-Charge: Prof. D. S. Potdar and Prof. P. A. Agrawal

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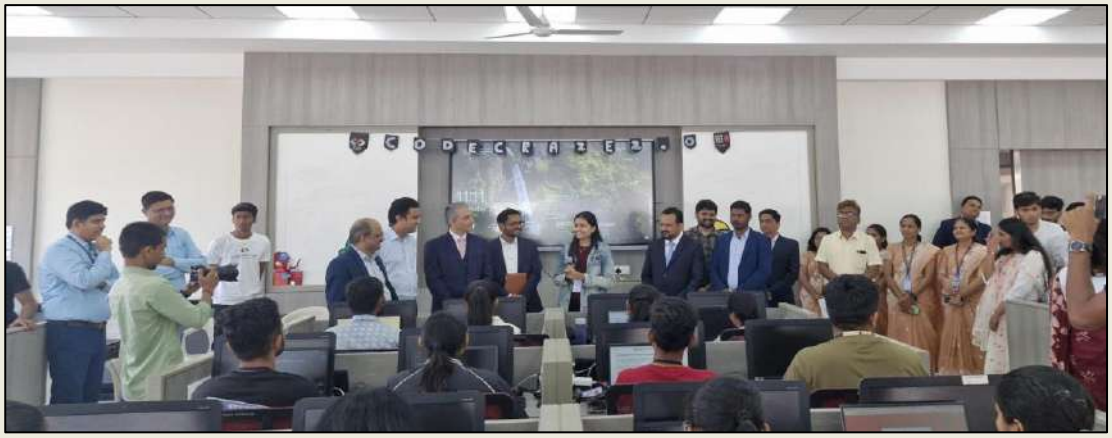
CodeCraze 2.0

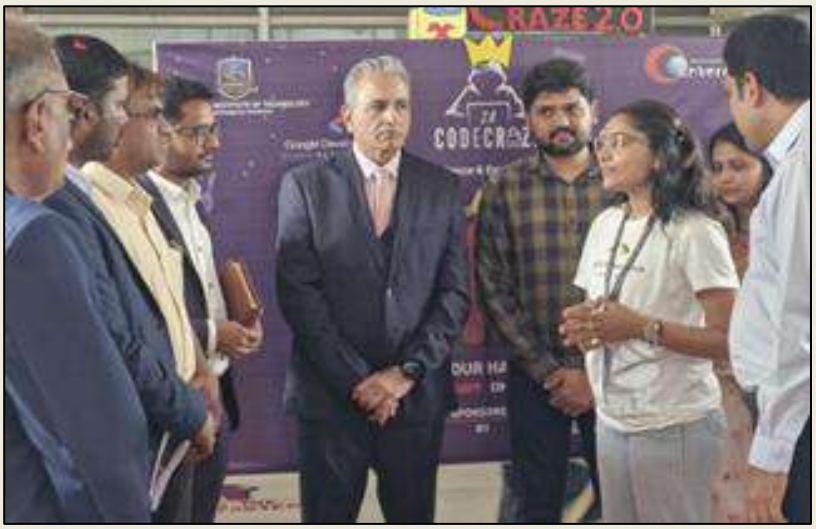


The Department of Computer Engineering, under **GDG On Campus RCPIT**, successfully organized **CodeCraze 2.0**, as part of **Converges 2025,** an Among Us-themed **24-hour hackathon**, held at **R. C. Patel Institute of Technology, Shirpur,** on **26th–27th February 2025**. The event focused on boosting innovation, teamwork, and real-world problem-solving skills among budding technocrats.

Event Format

Round 1 – Online Idea Presentation (12th–23rd February 2025)
- 113 teams submitted ideas
- 40 teams were shortlisted for Round 2

Round 2 – Offline Prototype Round (26th–27th February 2025)
- Conducted at the Computer Centre & Language Lab with random seating
- 160 participants (80 in-house + 80 external)
- Teams developed impactful prototypes within the 24-hour limit.



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CodeCraze 2.0

Evaluation Criteria

- Innovation – 50%
- Prototype Development – 25%
- Impact – 25%

Judging Panel

The event was evaluated by distinguished **academicians** and **industry experts**:

Dr. Suresh Kurumbanshi, Mr. Sagar Patil, Dr. Vinodkumar R. Patil, Dr. Priti S. Sanjekar, Dr. Manoj S. Ishi, and Dr. Sudarshan S. Sonawane.

Prize Distribution

🏆 ₹5,000 – 1st Prize
🥈 ₹3,000 – 2nd Prize
🥉 ₹2,000 – 3rd Prize

CodeCraze 2.0 successfully delivered a competitive yet enjoyable platform for students to explore emerging technologies, collaborate under pressure, and build innovative, real-world solutions.

Activity In-Charge: Dr. S. M. Pardeshi

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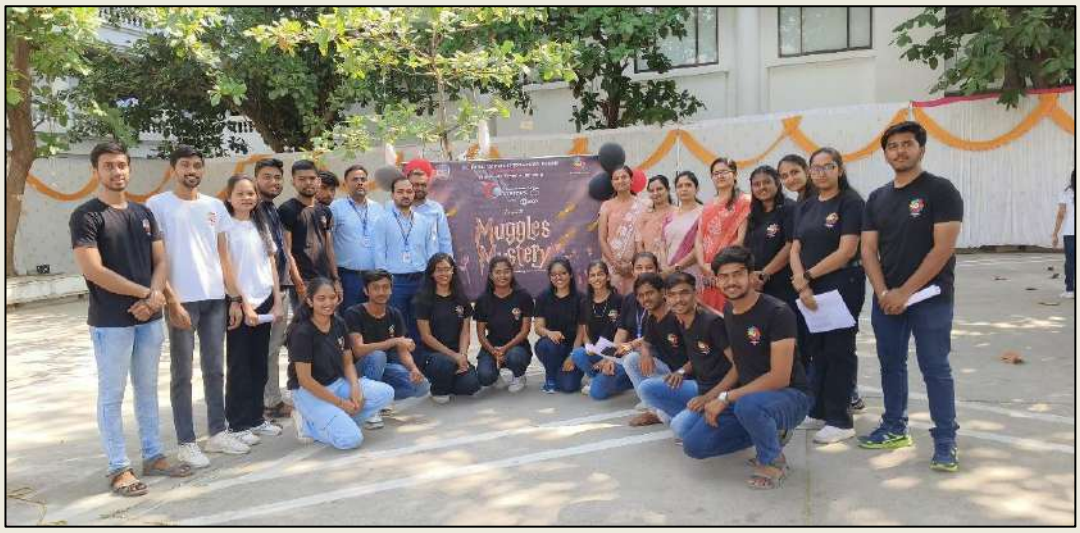
Muggles Mystery



The Department of Computer Engineering, under **E-Builders**, successfully organized an engaging and dynamic event titled **"Muggles Mystery"** as part of **Converges 2025** on **27th and 28th February 2025**. The event combined physical challenges, technical skills, and deduction-based strategy, providing participants with a thrilling and competitive experience.

The primary objective of the event was to enhance students' **teamwork, communication**, and **problem-solving abilities** while integrating entertainment with technical learning.

A total of multiple teams participated, each consisting of **4 members**, competing across **four uniquely designed rounds**.

Round 1 – Trust the Trail

Part 1: One team member, blindfolded, navigated an obstacle path solely through verbal instructions from teammates. Teams with the slowest completion time or repeated errors were eliminated.

Part 2: Teams competed in a target-based task by tossing balls into designated buckets—Hogwarts (10 points), Gryffindor (5 points), and Harry (15 points). Scores earned at this stage provided an initial technical advantage for subsequent rounds.

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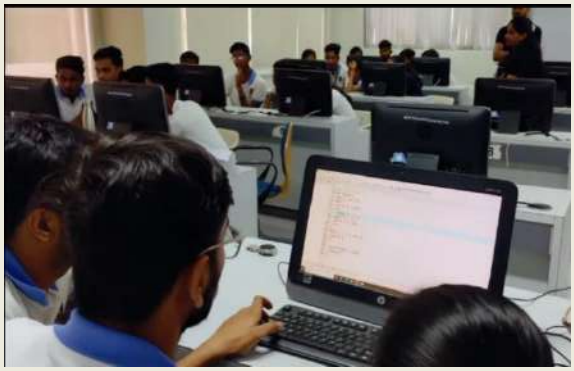
Muggles Mystery

Round 2 – Technical Evaluation Round

This round measured participants' core technical abilities through a three-stage assessment:

1. **Debugging:** Identifying and resolving errors in faulty code snippets.
2. **Problem Solving:** Completing logic-based and puzzle-oriented PDF tasks involving patterns and riddles.
3. **Web Development:** Designing a responsive webpage using Bootstrap within a strict 20-minute timeframe.

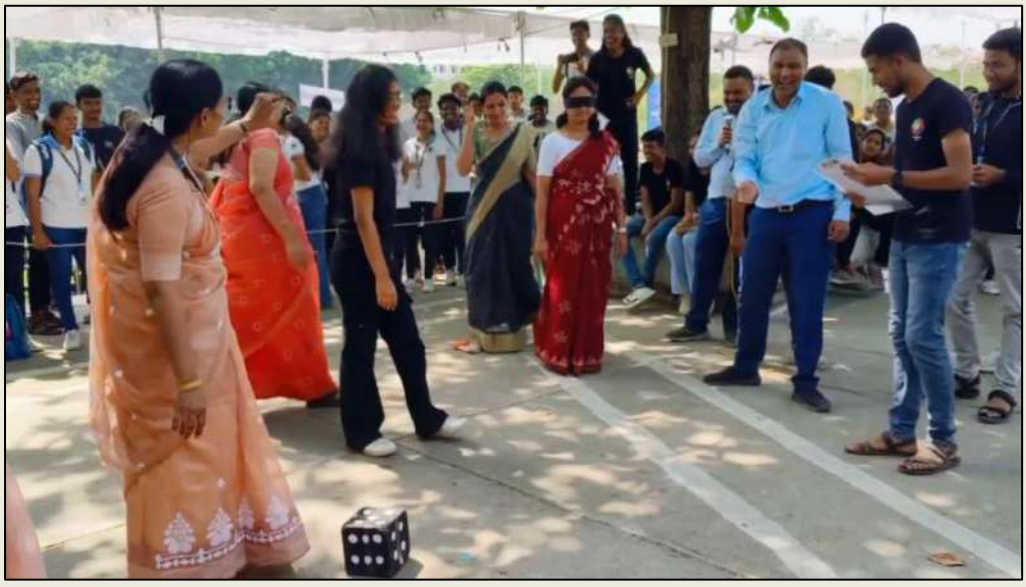


Round 3 – Who is the Spy?

Designed to test analytical thinking and strategic reasoning, this round assigned one hidden "spy" within each team. Participants evaluated clues, monitored interactions, and attempted to identify the spy with only two allowable guesses. Points were awarded based on the correctness and timing of the identification.

Round 4 – Mystery Round

The final round introduced unexpected tasks through on-the-spot instructions, adding an element of suspense and unpredictability. This decisive stage ultimately determined the champions of Muggles Mystery.



Activity In-Charge: Prof. D. S. Potdar

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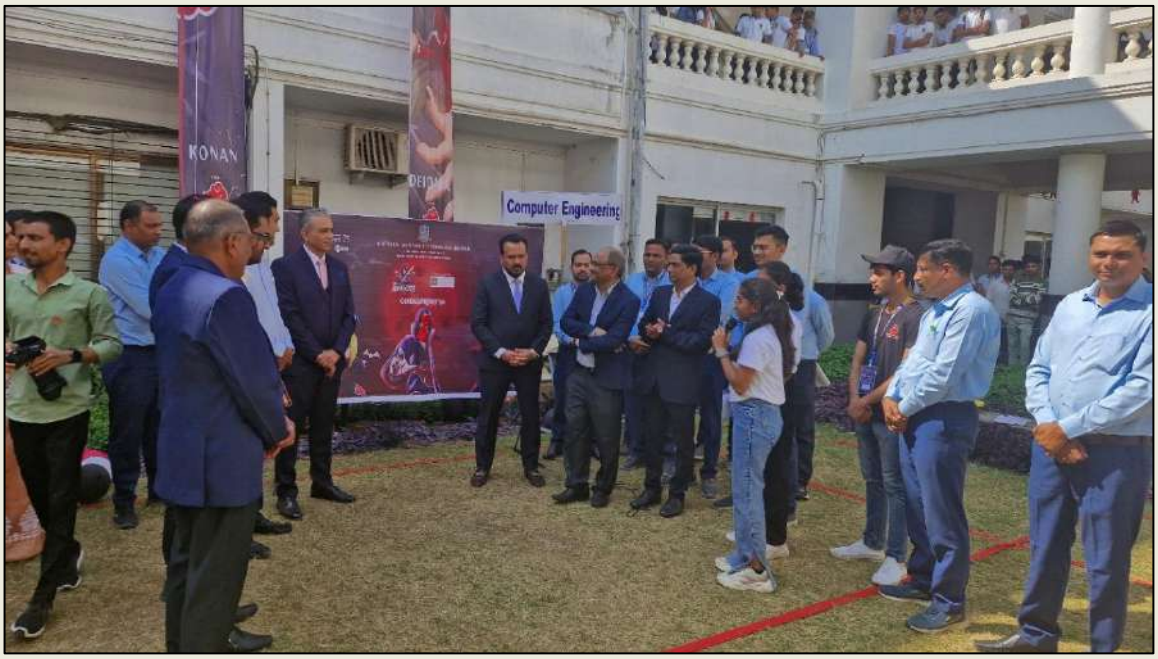
The Animeverse



The Department of Computer Engineering, under the **Akatsuki Coding Club**, successfully organized an exciting and intellectually stimulating event titled **"The Animeverse"** as a part of **Converges 2025**, the international tech fest of **R. C. Patel Institute of Technology, Shirpur**. Conducted on **27th and 28th February 2025**, the event witnessed a massive participation of **66 teams**, each comprising **3 to 4 members**, who showcased their **technical expertise, creativity, and problem-solving skills**.

The core objective of the event was to **enhance students' coding proficiency, logical reasoning, teamwork, and strategic thinking**, while blending fun and innovation with a competitive spirit inspired by anime themes.

The Animeverse

Round 1 – Matrix Showdown (Fun Round)

The opening round included two engaging activities testing teamwork and quick thinking.

X-O Blitz: A life-size Tic-Tac-Toe race requiring speed and coordination, becoming a major highlight of Converges 2025.
Binary Unlocked: A memory-based binary conversion task powered by a custom digital system created by the Akatsuki Coding Club.
All teams advanced to the next round.

Round 2 – CodeSprint 50

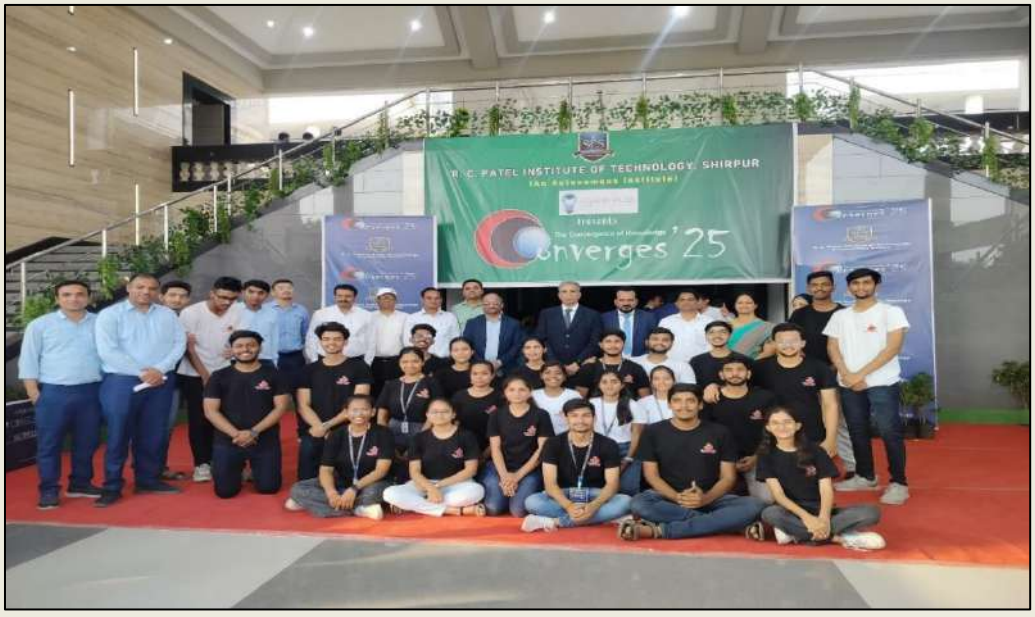
A 50-minute HackerRank challenge with 50 questions:

- 20 Easy (50 pts)
- 20 Medium (100 pts)
- 10 Hard (200 pts)

This round tested coding accuracy and time management. Only the **top 28 teams** qualified for the final stage.

Round 3 – Chamber of Secrets (Final Round)

The finale featured **15 progressive coding and logic levels**, each unlocked using passwords generated from solved challenges. Teams could use digital currency earned in earlier rounds to buy hints or answers. A live leaderboard tracked progress, creating a highly competitive finish.



Activity In-Charge: Prof. M. M. Mahajan, Prof. S. R. Sonawane

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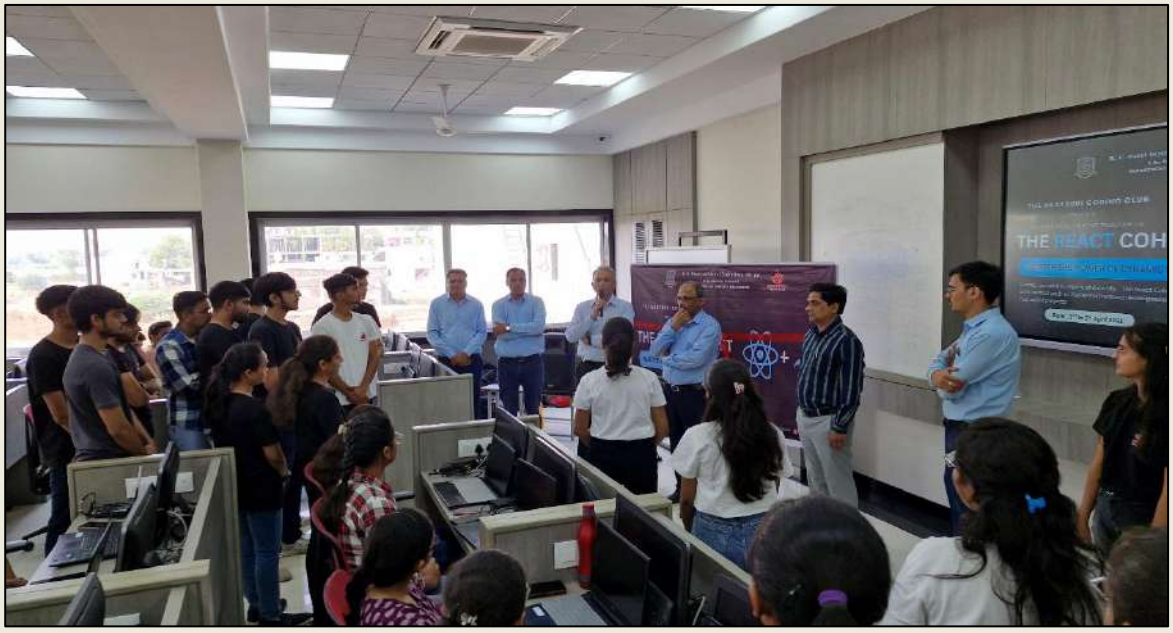
The React Cohort



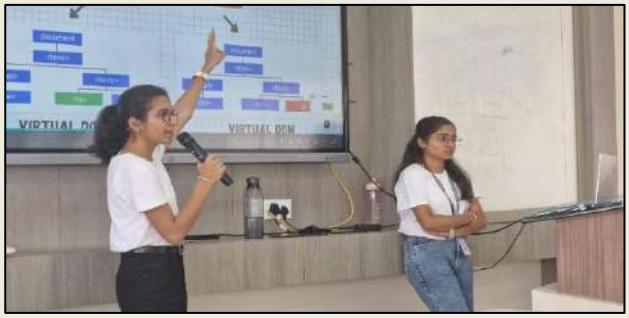
The Department of Computer Engineering, under the **Akatsuki Coding Club**, successfully organized a 4-day technical workshop titled **"The React Cohort"** from **2nd to 5th April 2025**. Designed exclusively for second-year students, the workshop provided **hands-on training in React.js and Tailwind CSS**, focusing on **modern frontend development, component-based design, and real-time deployment**.

A total of **98 students** actively participated, developing an **"Online Project Selling Platform"** through a **project-based learning approach** in the department's computer center.

Highlights:

Day 1: Front-End, JavaScript & TypeScript Basics

The workshop opened with an overview of modern front-end development and the role of React in today's ecosystem. Students learned core JavaScript concepts—variables, loops, functions, and asynchronous programming—along with an introduction to TypeScript, building a strong foundation for dynamic web applications.



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The React Cohort

Day 2: React Fundamentals & Tailwind CSS

Participants explored React essentials, including components, props, JSX, and state management using useState. They also began working with Tailwind CSS, practicing fast and responsive UI design directly within their React projects.

Day 3: Project Development with Advanced React

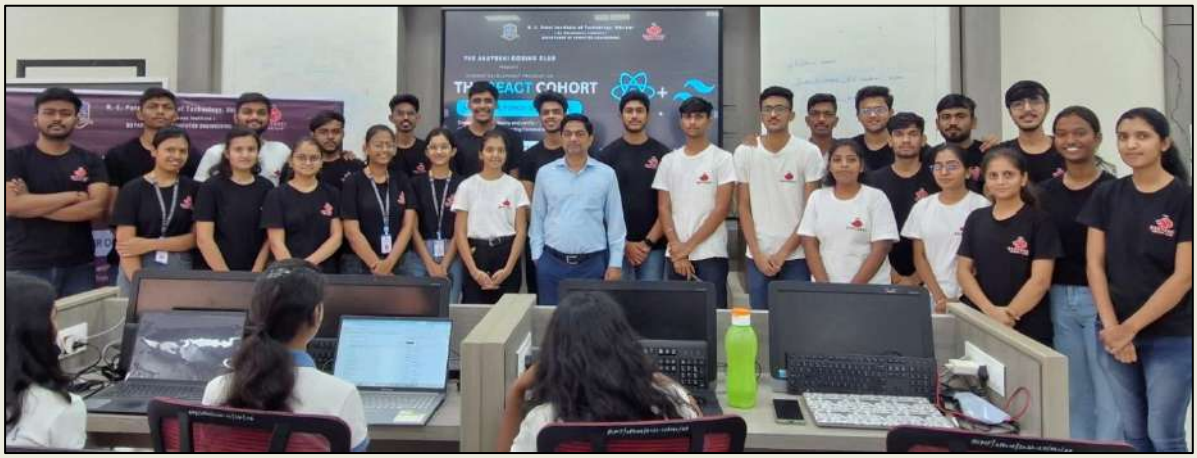
Students built an **Online Project Selling Platform**, applying advanced concepts such as React Router, useEffect, conditional rendering, and API integration using Axios. The day emphasized hands-on coding, debugging, and mentor-guided development.

🚀 Day 4: Project Finalization & Deployment

Participants deployed their projects on **Vercel**, learning GitHub integration, build optimization, and deployment workflows. The workshop concluded with project presentations, feedback, and acknowledgment of the mentors.

Students also completed post-event tasks, including a React portfolio and Microsoft Learn modules, to earn certification.

The event was inaugurated by **Hon. Director Prof. Dr. J. B. Patil**, with support from **HOD Prof. Dr. R. B. Wagh**, **Department Coordinator Mr. M. M. Mahajan**, and **Faculty Coordinator Mr. S. U. More**, whose guidance contributed to the workshop's success.



Activity In-Charge: Prof. M. M. Mahajan, Prof. S. U. More

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