



NEWSLETTER

2023-24



STUDENT TEAMS



Foreword

**From Principal's Desk:
Dr. Madhuri Khambete**



Dear Students,

It fills me with pride to see the remarkable dedication and ingenuity demonstrated by our Student Teams working on electric vehicles, robots, satellites, and automotive vehicles. These projects represent the cutting edge technology and innovation, and their involvement speaks volume about their passion and commitment to shaping the future.

As they work tirelessly to design, build, and refine these complex systems, they are not only gaining invaluable technical skills but also learning the importance of teamwork, problem-solving, and perseverance. These experiences are preparing them for the challenges of tomorrow and are vital to their growth as future leaders in the fields of engineering and technology.

Their efforts are a testament to what can be achieved when creativity, knowledge, and hard work come together. I encourage each of them to continue pushing the boundaries of what is possible, while also supporting one another in this incredible journey. Keep up the fantastic work, and let's continue to drive innovation and excellence within our college.

Foreword

**From Dean-Student Affairs' Desk:
Dr. Dipti Patil**



Dear Students,

At Cummins College, we are proud to have an array of student-led teams such as Team Vinidra, Team Bharadwaj, Team Adira, Team Zenith, and Team Suryaksh. These teams go beyond academics, working on cutting-edge technologies to design and develop satellites, electric vehicles, drones, robots, and on-road vehicles.

These innovative projects provide invaluable hands-on experience, allowing them to apply their classroom knowledge to real-world challenges. Through teamwork, creativity, and technical expertise, they are not only building remarkable products but also shaping the future of technology.

The college is committed to supporting their growth by offering the necessary guidance, mentorship, and resources needed to excel. We believe these experiences are instrumental in preparing them for future professional success.

We encourage all students to discover, participate in, and support these exceptional teams as they advance the frontiers of technology and innovation.



TEAM ZENITH

2023-24



Faculty Coordinator

- Prof. Nitin Patil
- Dr. Gautam Chandekar

Captains

- Captain: Jui Bhasale
- Vice Captain: Tanaya Naik

ABOUT TEAM ZENITH

Team Zenith was formed in 2013. The team participates in the BAJA SAE competition and consists of members from all of the CCOEW branches. Team Zenith 10.0 has 24 active members and 2 faculty advisors. BAJA SAE is an intercollegiate engineering design competition conducted by the Society of Automotive Engineers (SAE). In this competition, teams of undergraduate engineering students from all over the country compete to design, fabricate, and run offroad vehicles that can withstand harshest conditions and be driven on extremely rough terrains. Team Zenith has been participating in this event for last 11 years.



“ROAR” Our All Terrain Vehicle

The name “ROAR” embodies the force driving us through racing obstacles. It is designed to perform on all types of landscapes and in extreme climatic conditions.

Salient Features:

1. AllTime 4Wheel Drive
2. Customized Differential
3. AFCO63Series
4. Disc Brakes with Balance Bar Circuit
5. TwoStage Reduction Gearbox
6. Data Acquisition System

Despite the challenges of working remotely, Team Zenith excelled through unwavering persistence and teamwork. With valuable guidance from former members and faculty advisors, they optimized their designs and confidently tackled obstacles, learning from past experiences. More than just a group of individuals, Team Zenith is a growing family, united in breaking gender stereotypes and showcasing the strength and brilliance of women in engineering. Once again, Team Zenith 10.0 has made us proud, and we look forward to seeing what they achieve next!



Awards

National BAJA SAE

- All India Rank: 6 2024
National BAJA SAE
- All India Rank: 8

2023 Event Highlights

- Overall: AIR 6
- Acceleration: AIR 1
- Sledge Pull: AIR 2
- Statics: AIR 2
- Design: AIR 3
- Sales: AIR 5
- Endurance: AIR 8

2024 Event Highlights

- Overall: AIR 8
- SledPull: AIR 1
- Validation: AIR 2
- Engineering Design: AIR 3
- CAE: AIR 7
- GoGreen: AIR 5
- Acceleration: AIR 6
- Maneuverability: AIR 7
- Endurance: AIR 8
- Specialty Event (Suspension & Traction Event): AIR 1

Events



The SAE Knowledge event (STATIC Events):

- **Sales Event:** The team acted as a hypothetical ATV company, creating a business plan for global success, identifying ATV applications in agriculture and military rescue, and planning the racetrack layout with necessary amenities.
- **Cost Review:** Focused on the team's financial management to determine vehicle cost, with an emphasis on cost efficiency without compromising design.
- **Design Review:** Evaluated the team's understanding of the vehicle and its design parameters.
- **CAE Analysis:** Analyzed components to assess reliability, safety, and durability.
- Due to the **pandemic**, the team couldn't manufacture the vehicle and thus missed the validation event.



SAE BAJA INDIA (STATIC Finals):

- The static events from the SAE Knowledge Event were also conducted at the nationals.
- The team was selected for the CAE Finals and Design Finals.
- Reports were prepared, reviewed by subteams, faculty members, and finalized for presentation.
- Presentations were scored by judges.

BAJA SAE INDIA Virtual Dynamic Event:

- **IPG Car Maker Software:** Used to integrate and test subsystems virtually, simulating the vehicle's performance on rugged terrain.
- **Virtual Dynamic Events:** Included acceleration, brakes, maneuverability, hill climb, suspension and traction, and endurance run.
- **Vehicle specifications :** were submitted, and adjustments were made to ensure smooth performance on the provided tracks.



The Team



Captain: Jui Bhasale

Vice Captain: Shreya Bhosale

Team

- Jui Bhasale: Captain, Transmission, Cost, Manufacturing
- Shreya Bhosale: ViceCaptain, Suspension, CAE, CoDriver
- Tanaya Naik: Driver, Suspension, Sponsorship, Sales, CAE
- Sharvari Ghorpade: Treasurer, Brakes, CAE, Sales
- Manasi Chaudhari: Rollcage, Manufacturing, CAE
- Aayushi Jagtap: Transmission, CAE, Sponsorship, Sales
- Indrayani Naik: Transmission, Manufacturing, IPG, CAE
- Madhura Bartakke: Steering, CAE, Sponsorship, IPG
- Shrushtee Gaikwad: Suspension, Manufacturing, CAE
- Sanika Kulkarni: Suspension, CAE, IPG
- Krishna Manke: Rollcage, Manufacturing, CAE, IPG
- Renuka Nilgilwar: DAQ, Rollcage, Manufacturing
- Gargi Bahalkar: Transmission, Manufacturing, CAE, Sales, Sponsorship
- Aditi Kulkarni: Transmission, CAE, Sponsorship
- Diksha Talathi: Transmission, DAQ, IPG
- Ashwini Salunke: Suspension, Sponsorship, Manufacturing
- Snehal Pawar: Suspension, Manufacturing, IPG
- Arya Kokate: Suspension, DAQ, Sponsorship, Manufacturing, IPG
- Himani Kulkarni: Suspension, Manufacturing
- Razia Ahmed: Steering, Cost
- Shrutika Karande: Steering, IPG, CAE
- Kshitija Ghorpade: Brakes, Manufacturing
- Sai Motade: Brakes, CAE, IPG
- Deeya Kantak: Brakes, DAQ, IPG, Cost

Connect with us



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VINIDRA

2023-24



Faculty Coordinator:

- Dr. Dipti D. Patil

Founders:

- Purna Burande
- Kanchan Bhale

ABOUT VINIDRA

Team Vinidra, the Satellite team of CCEW, Pune, was formed in September 2021 under Project KarveSat. The team is dedicated to developing their own satellite, "**KARVESAT**," in honor of Maharshi Karve, with support from ISRO. Their mission is to **design, manufacture, and fabricate** a satellite that will be launched for the commercial or scientific benefit of the country. The team actively engages in hands-on projects, competitions, research, and workshops to achieve this goal and aims to position their college among others that have successfully launched satellites, making a national and global impact.

Competitions



CanSat India Competition 2022-24 (by IN-SPACE and ASI)

Team Vinindra participated in IN-SPACE and ASI's CanSat India Competition '22 and won the 'Best Teamwork' Award during the finals held at Ahmedabad in April 2024. The competition required students to design and build a can-sized satellite, and compete with other teams on several parameters throughout their two-year-long work progress.



SCHOOL OUTREACH

On April 7, 2024, as part of the CanSat India Competition's school outreach initiative, we visited Shasakiya Safai Kamgaranchya Mula Mulinchi Niwas Shala in Yerwada. The experience was humbling and fulfilling as we engaged with students, sparking their interest in STEM and Space Science. To enhance learning, we provided handouts in English and Marathi and included a brief quiz for self-reflection. We also shared printed photos of CanSats, CubeSats, and their subsystems, along with various sensors and hardware from previous CanSat iterations. The visit concluded with an open discussion on topics like engineering, rockets, space habitation, and more.

Activities



WORKSHOPS

- **EINSAT project organised by BITS Pilani K.K. Birla, Goa**
 - We worked on individual projects over a period of three months to develop a satellite subsystem by completing various assignments. We were mentored by BITS Goa's satellite team, which has more experience and guided us through the process.
- **Ground Station Workshop 2022 organised by Ham Radio Club IIT, Bombay**
 - It was a one-day workshop which helped us to understand the ground station from building it to fetching the data continuously.
- **Satellite Workshop organised by VIT, Pune**
 - We got to learn about satellite manufacturing and designing from the ISRO scientists and got a chance to interact with them. And it was focused on remote sensing techniques, as well as communication satellites.
- **Webinar on 'Conducting a Literature Review' by Clarivate**
 - We understood the Literature Research Workflow and learnt about various open-source and paid publication and research activity platforms.
- **Symposium on genesis and evolution of organics in space**
 - The symposium was held as a part of an effort to develop a National research framework to explore the origin and evolution of organic matter in astrophysical environments.
 - The efforts were expected to culminate in proposals for future space payloads/missions to explore the molecular origin of life.
- **Miscellaneous Webinars** - KiCad Design, Advancements in Space Packaging, Innovative Antennas for Satellite Telecom, Radar Systems and Radio Telescope, etc.

RESEARCH WORK

- Apart from this, our **power subsystem** has worked on a **review paper 'Pico-Satellite Configurations and Discussions'**, discussing power budgeting and configuration of satellites 1U satellites which was directly applied in our project.
- Other than that, we are currently working on more research papers under various subsystems of the team.

The Team



Power:

- Alekhya Kanchibhatla (Lead)
- Janhavi Pendharkar
- Sakshi Varhadi
- Arya Kulkarni
- Dnyaneshwari Patil

Telemetry, Tracking and Commanding

- Shreya Somwanshi (Lead)
- Mrunmai Kandharkar (Former Lead)
- Swamini Bhagwat
- Samiksha Nankar
- Priya Gavanale
- Gauri Kalmath
- Ketaki Kelkar
- Saloni Madhekar
- Varada Dongre

Structures and Thermals

- Mugdha Deshmukh (Lead)
- Janhavi Bhopale
- Shreya Dhumal
- Mrunal Bodas
- Ashwini Kale
- Sanskruti Inamdar

Payload

- Ketaki Patil (Lead)
- Adya Srivastava
- Dhanashree Kokare
- Arshia Singh
- Mrudula Dafne
- Gayatri Manke

On-Board Computing (OBC):

- Tanishka Agiwal (Lead)
- Jahnavi Dande
- Janhavi Laturkar
- Dnyanda Patil
- Rashmi Apte

Attitude Determination and Control (ADCS)

- Aditi Sant (Lead)
- Neha Chatterjee
- Felicia Carvalho
- Tarini More
- Gargi Rajput
- Nandini Pathak

Co-ordinators (Administration Team)

- Gargee Dorle (Lead)
- Anjali Mane
- Arya Kokate
- Kuhu Kelkar
- Mitali Gawai
- Roheeni Narayankar
- Saniya Warade
- Diya Bhangdiya

Connect with us



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SURYAKSH

2023-24



Faculty Coordinator

- Dr. Seema Rajput

Student Coordinators

- Captain: Sumaiya Ansari
- Vice Captain: Payal Nikam

ABOUT SURYAKSH

Team Suryaksh is contributing to the future of automobiles, specifically in the field of solar vehicles. Considering the growing concerns about climate change and global warming, there is a pressing need for sustainable and environmentally friendly solutions and innovations. They are actively focused on designing and creating efficient, ecofriendly transportation solutions using solar energy. The team participates in national level solar competitions like the National Solar Vehicle Challenge (NSVC) to showcase and develop their ideas.

Milestones Achieved



Mechanical Branch Milestones:

- **Research and Calculations:** Chassis: The team analyzed materials and structural designs to optimize strength-to-weight ratios. They calculated parameters such as length, breadth, height, driver position, load distribution, and truss placement. Research on various pipes ensured the chassis could withstand operational stresses while remaining lightweight. Steering System: Detailed calculations determined appropriate steering geometry, including turning radius, steering ratios, toe-in, toe-out, and caster-camber angles. Suspension System: The team evaluated suspension design parameters, calculating spring rates, damping coefficients, and suspension travel to balance comfort and handling.
- **Chassis Design:** Using SolidWorks, a 3D model of the chassis was developed. The design is now undergoing analysis in Ansys to evaluate performance and meet structural and safety standards.
- **Component Design:** Steering: A detailed 3D model of the steering system, including rack and pinion, steering wheel, and rods, was created using SolidWorks. Suspension: Research on suspension types and components was conducted. Calculations for stress, scrub radius, damping, and wheel rate are ongoing, with the suspension system design in progress.

Electrical Branch Milestones:

- **Finalization of Electrical Components with Calculations:** The solar electric car primarily operates using electrical components. To meet the vehicle's needs, the team finalized the crucial components required to run the car by storing energy in the battery and converting it to mechanical power via motors. All components were analyzed and studied in-depth. Based on the specifications and guidelines provided by the NSVC, they selected the best types of components and performed the necessary calculations.
- **Market Analysis of Components:** The team conducted a market analysis for each component according to specifications and requirements, selecting the best components that are not only economical but also offer long life and consistent performance. Team Suryaksh conducted a market survey of components and thoroughly reviewed each component's datasheet.
- **Simulations:** Team Suryaksh completed integrated simulations of the battery and PV systems. Additionally, the team conducted simulations of the battery and motor.



Future Goals



Future Goals of the Mechanical Subsystem:

- Analysis of the steering system.
- Designing the suspension.
- Simulation of the suspension system.
- Research and calculations for components such as brakes.
- Designing and analysis of brakes.
- Integrated system testing.
- Manufacturing the solar vehicle.
- Finally, participating in the NSVC competition

Future Goals of the Electrical Subsystem:

- Analyze the need to protect components and use sensors accordingly.
- Study and develop a battery management system (BMS).
- Finalize the placement of electrical components.
- Build our own integrated battery.
- Develop loops for synchronizing motors.
- Analyze safety measures.
- Implement isolation and insulation of the battery



The Team



Captain: Sumaiya Ansari

Vice Captain: Payal Nikam


Team Electrical:


- Sumaiya Ansari
- Utkarsha Shinde
- Gayatri Kulkarni
- Shreya Kokate
- Shraddha Bhabad
- Sphurti Thombare
- Anushka Hore
- Mishwka Raut
- Sayali Hirkar
- Apeksha Gundale
- Sanchita Salunkhe
- Avantika Bolli
- Srushti Gande


Team Mechanical:

- Nikita Awaghad
- Payal Nikam
- Adima Aphale
- Aditi Chitode
- Bhuvneshwari Giri
- Devi Mane
- Isha Mahajan
- Maitreyi Joshi
- Pallavi More
- Samyukta Nayar
- Sanchi Kasbe
- Tanisha Joshi

Connect with us

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 solarvehicle@cumminscollege.in



ADIRA

2023-24



Faculty Coordinator

- Dr. Nitin Palan
- Dr. Prachi Mukherji

Student Coordinators:

- Palavi Gaikwad
- Swarali Satale

ABOUT ADIRA

Team Adira Electric is the country's FIRST & only girls' team in the ELECTRIC category and was the second all-women formula student team in the combustion vehicle category at Formula Bharat.

Achievements:



E16

- Team Adira Electric's car no. for FB'2025
- 6 mins 13 secs
- Fastest team in the EV category out of 47 teams across India & neighbouring countries
- Ranked 1st in Tier 2 Electric category teams



FORMULA BHARAT

- Overall AIR 2
- Class 1 Combustion Category
- AIR 2- Business Plan Presentation Event
- AIR 2- Concept Goals



Achievements



PI-EV 2023



The Team



TEAM LEADS

Captain: Palavi Gaikwad

Vice Captain: Swarali Satale

SUBSYSTEM HEADS

- Purva Bhosale - HVS Head
- Tanvi Kasmalkar - LVS Head
- Sweta Vimal - Brakes Head
- Shravani Gogawale - Vehicle Dynamics Head
- Apurva Bhagwat - Chassis Head

ELECTRIC DRIVETRAIN

- Neha Shroff
- Deepti Pandit
- Tanmayee Kulkarni
- Ankita Kirloskar
- Tanishqa Mahamuni
- Vaishnavi More
- Sakshi Loya
- Aabha Joshi
- Tanaya Sondur

BRAKES

- Shravani Bhalerao
- Mehak Shah
- Vaishnavi Patil

FINANCE & ADMIN

- Neha Shroff - Team Treasurer
- Shravani Bhalerao - Team Admin

VEHICLE DYNAMICS

- Ruchita Joshi
- Pranavi Deshmukh
- Vaishnavi Borkar
- Janhavi Chavan
- Tanaya Choughule
- Devika Menon
- Srushti Bartakke

CHASSIS

- Shruti Kokil
- Maitreyee Badgire
- Vishwarupa Kokate
- Arya Desai
- Shravani Waghmare
- Shravani Kherdekar

Connect with us



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TEAM BHARADWAJ

2023-24



Faculty Co-ordinator

- Dr. Atul Joshi

Student Co-ordinators

- Rhuta Akolkar
- Vaishnavi Pawar

ABOUT BHARADWAJ

Team Bharadwaj, the official aeromodelling team of MKSSS's Cummins College of Engineering for Women, Pune, designs, models, fabricates, and pilots fixed-wing RC aircraft. Competing in events like the SAE Drone Development Challenge, the team fosters a learning environment for aeronautical enthusiasts to push boundaries in aviation.

Events Conducted



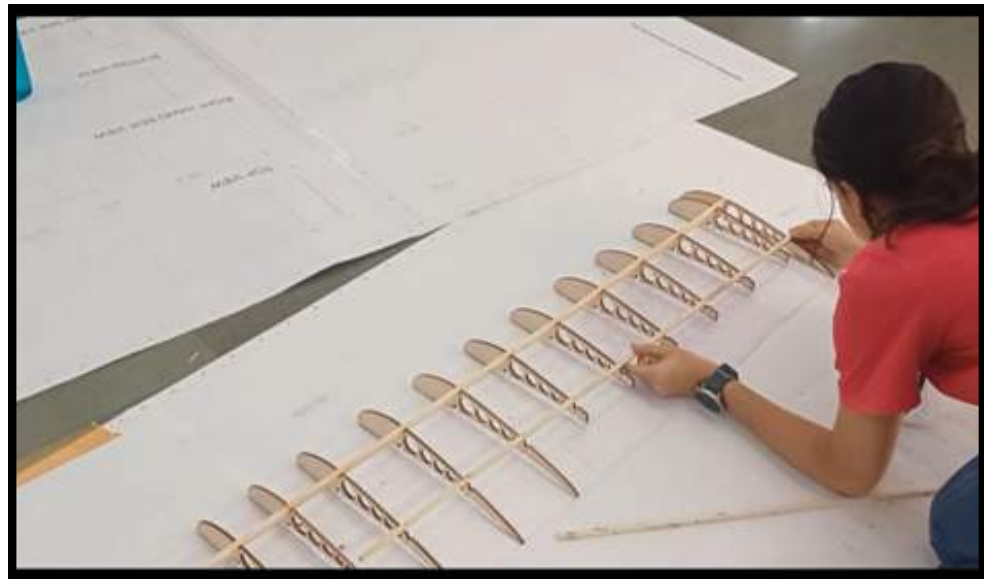
SAE COMPETITIONS:

- 2019: AIR 6 - Micro Class Overall
- 2020: AIR 3 - Regular Class Overall
- 2021: AIR 1 - Best Technical Presentation
- 2021: AIR 1- BIT Techfest Smart Drone challenge
- 2022: AIR 9 - Micro Class Overall
- 2023: AIR 2 - Best Aerodynamic Analysis (CFD)



DRONE COMPETITIONS

- BIT TECH Fest 2021: AIR 1
- UDAAN Ideation: AIR 2



The Team



Manufacturing Head: Nayyara Sayyad

Design head: Saloni Gaikwad

Treasurer: Vaishnavi Gaikwad

Domain:Wings

- Sharayu Chintal
- Sara Dange
- Piya Shrivastava
- Shreeya Chavan

Domain: Avionics

- Rishika Rai
- Archita Jha
- Swarali Barpande
- Sweta Jagtap

Domain:Fuselage

- Amitoj Panesar


Domain:Stablizer

- Maitreyee Gadgil

Domain: Social Media and Graphics

- Aadya Singh

Connect with us

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 Instagram

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TEAM AAVEG

2023-24



Faculty Co-ordinator

- Dr. Atul Joshi

Head Co-ordinators

- Garima Kodkani
- Aastha Shah

ABOUT TEAM AAVEG

Team Aaveg is a dedicated group of women passionate about robotics, striving to make a mark in the field. Since our formation in 2012, we've consistently participated in ABU ROBOCON and national competitions, achieving steady progress. Our commitment was recognized in 2015 with "The Best Women's Team Award." Beyond competitions, we aim to inspire more women to pursue robotics and engineering, proving that gender is no barrier to success in technology.

Competitions & Activities



VJTI Technovanza 2023 VRC

Team Aaveg was one of the participants in VJTI Robotics Challenge 10.0, it was conducted on account of 'The Unsung Heroes of 26/11'. For this an autobot was made which facilitated emergency and ambulance services. Their sheer dedication led them in top 4 among all the teams.



Orientation Session

The team held an orientation for first year and second year students to give an overview of team member's contributions and work and also what were their achievements in various competitions they participated in.

IITB Techfest 2023-Technorion

Cozmo clench:

Team Aaveg participated in the Cozmo Clench competition at IIT Bombay, where they built a manually controlled bot to grip and place objects in target zones while overcoming obstacles.

Meshmerize:

Team Aaveg showcased their skills by building an autonomous line following robot for this competition. They excelled in both the rounds of maze-mapping, 'Dry Run' and speed focused, 'Actual Run'. Their efforts led to securing 3rd and 4th ranks respectively and were qualified for finals.



Competitions & Activities



COEP Techfest 2023- Mindspark

Team Aaveg secured 3rd place amongst 20 teams in the 'Search and Destroy' competition held by COEP. An autonomous robot was developed which had to follow a complex path of white and black lines while navigating through checkpoints by completing tasks. Such achievements make Team Aaveg work harder and give their best in future competitions.



VJTI Technovanza 2024- VRC

One of the greatest achievements of Team Aaveg is securing 1st rank among 20 teams in VJTI Robotics Challenge. They designed and programmed an automated line-following robot and a manual robot to navigate obstacles and complete tasks in a space station-themed challenge. Their bots excelled in collecting tools and solving the tesseract puzzle, leading to their top position.

TechnoVoyage Event for Innovation 2024

For Innovation 2024, Team Aaveg conducted an event called "TechnoVoyage: The Venusian Explorer", a two-day event with over 200 participants. TechnoVoyage was a 1v1 robot-controlling game where players competed to help the Shukrayaan reach its destination. The game got huge appreciation from all the professors, students who played it.



The Team



Captain: Garima Kodkani

Vice Captain: Aastha Shah

Mechanical Domain Head: Aastha Shah

- Radhika Patwe
- Shreya Kulkarni
- Sakshi Chavan

Social Media Team

- Gayatri Panse
- Snehal Malkunje

Coding Domain Head: Garima Kodkani

- Gayatri Panse
- Snehal Malkunje


Sponsorship Team

- Anagha Shirale
- Snehal Malkunje
- Sakshi Chavan


Electronics Domain Head: Prachi Mudholkar

- Anagha Shirale
- Aparna Gumaste

Connect with us

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It's not about having time. It's about making time.

-Anonymous

Student teams at Cummins College are student-initiated, student-led groups that cater to diverse interests, talents, and passions, ranging from technology to arts, culture, business, and social sciences. These clubs play a vital role in enriching campus life, fostering all-round personal development, and enhancing students' technical, leadership, and soft skills. The college supports the creation and growth of these clubs by providing resources such as classrooms, laboratories, and auditoriums, as well as mentorship and guidance. Additionally, the college offers funding and resources for inter-college competitions in fields like arts, music, and drama, ensuring a vibrant and enriching college experience.



A Comprehensive Newsletter for 2023-24

The Editorial Team



Dean Student Affairs : Dr. Dipti Patil

Faculty coordinator & Associate Dean Student Affairs: Dr. Neeta Maitre

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Kudos to all the contributors!