



MAHARSHI KARVE STREE SHIKSHAN SAMSTHA'S  
CUMMINS COLLEGE OF ENGINEERING FOR WOMEN

MECHANICAL ENGINEERING DEPARTMENT

# MECHANICAL EXPRESS

2019-2020  
ISSUE#8

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## WORD FROM THE TEAM

Dear readers,

So, we come to the close of one more academic year. As a year closes in, we tend to look back to see what the year brought us and remember all that happened. The eight edition of MechExpress hopes to jog up your memories of the academic year 2019-2020. We bring to you the achievements of faculty and students, the various workshops conducted in our department, an insight into the many clubs in our department, and last but not the least, interviews from our very own students which we believe will truly inspire you! Our team, this year, has worked hard to bring you the best possible ensemble on technological advancements around the world introduced under the section called '**Quick Tech**'. We hope that these additions along with the new design of the magazine will make the reading experience pleasant and enjoyable.

We would like to thank all the faculty and students who contributed to this effort. Also, a big thank you to our department for supporting us, and to Poonam Bhore Ma'am for her guidance.

Happy reading!!!

## DEPARTMENT VISSION

To be recognised as a centre for quality education to develop women professionals in Mechanical Engineering.

## DEPARTMENT MISSION

1. To impart knowledge and skills in the field of Mechanical Engineering.
2. To develop Mechanical Engineers with professional ethics, who will respond to the current and future needs of society through academic, industrial, and research activities.
3. Develop facilities for higher education and promote research activities.



PROF. DR. AJIT BHOSALE  
HOD, MECH. ENGG. DEPT.



PROF. POONAM BHOIRE  
FACULTY CO-ORDINATOR

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NAYAN PARABAT  
FINAL YEAR (COORDINATOR)



NAMITA SABNIS  
T.Y.



GAURI JADHAV  
T.Y.



PRAJAKTA MAHAJAN  
S.Y.



SHRUTI SETHURAMALINGAM  
S.Y.

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KSHITIJA KULKARNI  
FINAL YEAR (COORDINATOR)



GARGI MHASAKAR  
T.Y.



RADHIKA JOSHI  
S.Y.



RAHEE KULKARNI  
S.Y.



TANVI AREY  
S.Y.



OVI DOKE  
S.Y.



PRERANA BURANDE  
S.Y.



RADHIKA GANU  
S.Y.

## FROM HOD'S DESK

Greetings to all!!

The academic year 2019-20 has been full of new additions, exciting events, incredible achievements and collaborations. We started by welcoming Second Year students, who are the third batch of the autonomous B.Tech. course in the Mechanical Department. They were briefed about the various facets of Mechanical Engineering course by the faculty. The session was a success as many queries were raised by the students and eventually we could satisfy them all.

The second batch of M. Tech. students have secured internships ranging for durations of 6 months to 1 year in various good companies such as Cummins India, ANSYS Inc., Honeywell, Ericsson, Schindler etc. Students are placed through campus recruitment process in companies such as Atlas Copco, Boeing, Furecia, Rolls Royce, Volvo, Siemens Ltd. etc.

The compulsory internship program for the current Third Year students under the curriculum has also been met with success and companies such as Cummins India, Mercedes Benz R&D India, Boeing, EATON, Siemens, etc.

The placements for both the UG and PG programs have been outstanding with nearly 90% students getting job offers in companies across the country. Mercedes Benz R&D India, Cummins India, General Electrics, PwC (PricewaterhouseCoopers)

Hero Motors, EATON, TATA Motors, Nestle, JCB etc have recruited students and have offered excellent salary packages.

The BAJA team of the College, Team Zenith, attended the Virtuals Event of the annual BAJA SAE India Competition, and they passed the test with flying colours. The final Endurance Race was held at Pithampur in January 2020. Our ATV put up a good show and this was a commendable effort to receive Skill Baja Award -Cash prize- Rs.10,000/-. In the same competition, Team Zenith stood 5th in Acceleration, 7th in Design Evaluation, 11th in Maneuverability.

This year we had two events- Cyclothon and Inventrix in Technical Fest Innovation 2020. We received a huge response for both the events. Both these events were innovative concepts thought of by a student from the department. We not only received an overwhelming response from participants across the city, but this event also captured the attention of our own college students as well as our faculty.

Team Zenith took the college to all new heights when a team from our college, an ALL GIRLS TEAM, represented INDIA at BAJA Tennessee Tech, United States of America. The performance put up was extremely commendable and the team emerged glorious having secured impressive ranks in all departments of the event such as endurance, design, acceleration and so on. The team secured 22<sup>nd</sup> position overall, all over the world. They have made us all exceedingly proud.

The SAEISS Aero-design Competition 2020 team Bharadwaj secured AIR 3 in the remote controlled aircraft category, winning a cash prize of 25,000 rupees. Along with this, the team secured AIR 2 for the Best technical presentation. The team has made great efforts to achieve the success. Congratulations to the team.

ASME (American Society of Mechanical Engineers) Cummins Student Chapter also had quite an eventful year. One day workshop ASME EFX 2019 was organized by the team. Our ASME chair Ms.

Radhika Dharmadhikari got selected to attend the Student Leadership Training Conference (SLTC) at the Salt Lake City, Utah, US. Members got the opportunity to visit industries and attend lectures delivered by senior professionals from the industry. Expert talks and industrial visits were well organized by the Student Chapter

Department had organized workshop Hands-on one week FDP on: Use of Moodle as LMS.

Prof. Deepak Watvisave received AICTE fund of Rs 1336000/- for Skill Development center at our college. Also Prof. Deepak Watvisave (PI) and Prof. Shridhar Kedar (Co-PI) got 2600000/- sanctioned for their DST Research proposal.

Prof. Shridhar Kedar and Dr. Anand K. Bewoor had filed Patent on Solar Desalination System.

Prof. Nilesh Kolhalkar received (ASPIRE) “Assistance by S.P.P.U for Project based Innovative Research” funding with approved budget of Rs. 3,00,000 /- and ranked 1st in qualified projects

Heartiest congratulations!!

In a nutshell, it has been an exciting year with lots of positive outcomes, important learnings and amazing experiences. The Mechanical Department strives to keep this momentum going in all spheres.

Best Wishes to All for a Bright Future.

- **Dr. A. A. Bhosale**

# TEAM ZENITH BAJA 5.0

AIR 25



SKILL BAJA AWARD  
(CASH PRIZE  
OF Rs.10,000/-)

5TH IN ACCELERATION

7TH IN DESIGN EVALUATION

11TH IN MANEUVERABILITY





# TEAM BHARADWAJ AERODESIGN

SAE Aero Design Competition, Coimbatore  
3rd Prize



CASH PRIZE  
OF Rs.25,000/-

2ND PRIZE IN  
TECHNICAL  
PRESENTATION

# TEAM AAVEG ROBOCON



DOCUMENTATION  
RANK 1

VIDEO ROUND  
RANK 4

OVERALL RANK 20

# TOPPERS

ACADEMIC YEAR 2018-2019



APURVA DHOKEY  
FINAL YEAR



SNEHA PATIL  
T.Y.



SIDDHI JOSHI  
S.Y.

## TEAM ZENITH 6.0 - BAJA SAE INDIA 2020

BAJA SAE is an intercollegiate engineering design competition conducted by SAE (Society of Automotive Engineers) wherein undergraduate and graduate engineering student teams from all over the country participate to design and build off-road vehicles that can withstand the extremely rough terrain. The competition is divided into two phases – Virtual event and Main event. This year, the Virtual event was scheduled from 11<sup>th</sup> to 13<sup>th</sup> July 2019 at Chitkara University, Chandigarh. The second phase, the Main event, was scheduled from 22<sup>nd</sup> January to 26<sup>th</sup> January 2020 at NATRAX, Pithampur, Indore (Madhya Pradesh).

Team Zenith 6.0, the official BAJA team of MKSSS's Cummins College of Engineering for Women, participated in BAJA 2020, marking its 8<sup>th</sup> year of participation. Last year, Team Zenith 5.0 participated in BAJA SAE Tennessee in USA and brought accolades for our college making us beam with pride.

Keeping the momentum going, 23 passionate team members from Mechanical Engineering department, Instrumentation department and Electronics and Telecommunication department, started working towards their dream back in the month of March 2019. With their highly enduring spirits, the team was all set to achieve their dream, 'ACE'.

Learning new things and tackling the challenges that came with it, the team started preparing for its first challenge -the Virtual Round. Working in a planned manner, the team focused on their-depth

study, designing using softwares like CATIA, SOLIDWORKS and analysis using ANSYS, HYPERMESH, etc. Banking on their knowledge designing, rule book and automobile basics, five team members represented the college at the event. In spite of tough competition between 400 teams from all over the country, the team successfully secured overall 11<sup>th</sup> rank and a 2<sup>nd</sup> rank in Presentation.

The team geared up for the manufacturing of buggy from the month of July. Team members in their respective subsystem took extreme efforts to get their components manufactured. Efficiently dealing with technical issues in In-House manufacturing as well as non-technical issues such as delays in deliveries by vendors, the team strived for perfection. The team worked hard to maintain symmetry and accuracy of vehicle and making each subsystem work properly in balance with other subsystems to get the best result.

The team members passionately worked hard, spending long strenuous hours in the workshop every day, throughout the year to make 'ACE' formidable and improve to make it even better. Being in the team not only taught them about how to deal with stress but also to manage time perfectly in such tight schedule, while balancing their academics simultaneously. They dealt with the constraints of being an 'All-Girls' team successfully.

After the car was completely manufactured, the team took many rigorous test-runs in accordance with events that will take place at Baja Main event, NATRAX Pithampur, Indore. The tests that were carried out were acceleration, brake, maneuverability, suspension traction and 4 hours endurance race.

## **“It’s the failure that gives you the proper perspective on success”**

The team’s spirit and confidence didn’t go down even after encountering failures in their journey. They came across failures during testing of the car and this is when the event was so close. But instead of being disappointed, they concentrated on improvisations to build the best vehicle.

Guidance of ex-team members helped the current team to optimize their designs more, learning from mistakes in the past and staying confident. Frequent visits from the seniors truly motivated them. Ex-team members guided them about industry-based aspects that they can implement.

With this, Team Zenith 6.0 was all set for the Main event. The event took place as follows:

### **Day 0: 22nd January**

The team was done with the Technical inspection in its first attempt itself, with just minor corrections to be done.

### **Day 1: 23rd January**

The Sales Presentation, Cost Evaluation were conducted. The team completed the technical inspection in the first half. Also, on same day brake test was opened and the team completed it in its very first attempt.

### **Day 2: 24th January**

The dynamic events were started, team completed the first attempt of Acceleration and static event of Design Evaluation on the same day.

### **Day 3: 25th January**

Team completed all dynamic events of Maneuverability, Suspension Traction, Rock Crawl and Acceleration. The team performed the dynamic events satisfactorily.

### **Day 4: 26th January**

The 4-hour Endurance Race started at 10 a.m. in the morning. The team faced an issue with the lap counts during the race as the transponder, which measures laps, was not detected in the race control system. Due to this, the team lost almost 2 hours of the race, yet they were able to complete 14 laps.

## **RANKS AND AWARDS**

- All India Rank: 25
- Skill Baja Award (Cash prize- Rs.10,000)
- 5<sup>th</sup> in Acceleration.
- 7<sup>th</sup> in Design Evaluation.
- 11<sup>th</sup> in Maneuverability.

## **“Difficulties are bound to occur, but we can’t let them deter us”**

The Team is not only about working together but is also about emotional bond the team members share with each other and their dream, their car. Spending a lot of time with each other, getting used to the habits and nature of each other, learning to adjust and get along better and encouraging each other, Team Zenith is not just a team. It is big family that grows every year. Together in challenges and successes, quashing the gender stereotypes, Team Zenith stands as an epitome of strength and extent of what women can achieve.

Yet again, Team Zenith 6.0 had made us proud and we eagerly await their future endeavors!

**-Prerna Burande  
(SY)**

## FLYING HIGH - TEAM BHARADWAJ

SAE AERO-DESIGN 2019-20



**“To most sky is limit, for us it’s home.”**

What is Aero-design? Aero-design is the art of designing and building aircrafts based on engineering principles. It mainly comprises of designing and development processes, involving trade studies and making compromises to arrive at a design solution that will optimally meet the mission requirements while still conforming to the configuration limitations.

Every year the society of automotive engineers (SAE) arranges a SAE Aero-design competition. In this competition, the participant teams are required to design, fabricate and fly a fixed wing UAV (Unmanned Aerial Vehicle) as per the objectives of SAE Aero Design Competition. The competition is divided into 2 classes – Micro class and Regular class. The objective for Micro class is to build an RC (Remote Controlled) aircraft with highest payload carrying capacity while pursuing lowest empty weight possible. For, Regular class, it is to build

UAV which can carry maximum possible payload.

For the SAE India Southern Section Aero-design Competition (SAE ISSADC), the registrations start months in advance. The first event is attending the ADC workshop held by SAE in which the basic theory related to Aero Designing is covered along with actual fabrication and flying of the RC aircraft. Next step involves creating a report, which is to be submitted electronically, describing the entire designing process of the team. Finally, the main event includes the presentation round with Q/A session with the judges and technical inspection followed by the flight round. Points are awarded for each of the above rounds which would then decide the overall performance of a team.

The preparation for this three days competition starts with team selection. The team selection process involves 3 rounds. First is a written test which is followed by an Interview round. Selected students work as off-team members for a certain period. This phase is the actual test as; in this period various technical and non-technical skills of the students are explored and realized. Undergoing the above three rounds determines each member’s individual role after joining the core team and while participating in national competitions.

For the SAEISS Aero-design Competition 2020 team Bharadwaj began its work in August 2019. The process was divided into 3 stages. The First Stage was Research wherein the members referred to national and international journals, reference books and open online courses. This was followed by the Conceptual Design Stage. Various softwares were used for analysis of initial design sketches. Final design stage included fabrication, flight tests and iterations based on the failures encountered.

The team has overcome many challenges they faced. They had to explore the modern fields of Aero-designing. This experience was different from studying core subjects of engineering as practical implementation was also important. The team also managed to secure sponsorship even after being a new and lesser known team. A pilot was arranged externally to fly the aircraft as no one from the team itself was trained to do it.

The SAEISS Aero Design Competition 2020 was held from February 28<sup>th</sup> to March 3<sup>rd</sup>. team Bharadwaj secured AIR 3 in the remote controlled aircraft category, winning a cash prize of 25,000 rupees. Along with this, the team also bagged AIR 2 for the Best technical presentation.

“All the team members' yearlong efforts paid-off well. The competition wouldn't have been as much fun had it not been for our competitors. The constant support from our mentor Prof Amit Rajurkar, our faculty advisor – Prof Atul Joshi and all the teaching, non-teaching staff had been instrumental”, quoted Shraddha Kale, Captain of team Bharadwaj

The excellent performance of the team was well awarded this year!

- **Radhika Ganu**  
(SY)

Department of Heavy Industries of Government of India implemented Faster Adoption of Manufacturing of Electric and Hybrid Vehicles (FAME) in India in the

hybrid and electric vehicle technology and to ensure sustainable growth of the same.



The team is named after the bird Bharadwaj, which is a commonly used Indian name for the bird Greater Coucal. This bird is mostly found in Indian subcontinent.

Sighting a Bharadwaj bird is considered to bring luck.

This is the participation of team Bharadwaj in SAE ADC.

In its first year, in 2019, the team secured overall 2<sup>nd</sup> position and 2<sup>nd</sup> presentation in micro class.

This year, the prize amount was Rs.25, 000.

## PURDUE FELLOWSHIP AWARDEE INTERVIEW

-Gargi Mhasakar



**KSHITIJA KULKARNI**

**Q. Hello Kshitija! Congratulations on being selected for Cummins Fellowship Program at Purdue University! How do you feel?**

Thanks a lot, Gargi! I had known about this Fellowship Program well before my first year here, so it had always been an aspiration for me. I had huge admiration for students who had been selected for this fellowship. It felt so surreal when I first received my admit letter. It was a goal ticked off my list and start of an exciting new journey. I am so thankful to have received this opportunity!

**Q. Could you elaborate on the selection process for the program?**

The process starts with interested applicants submitting their Resume and Statement of Purpose to the college. The first round of interviews is then conducted by the college and some

candidates are shortlisted. These candidates are interviewed by Cummins Inc. after which a few applicants are selected to apply to Purdue University. After the standard application process, Purdue University admits suitable candidates for the fellowship.

**Q. Being a 2020 graduate, how did the Coronavirus Pandemic affect this process?**

Oh 2020 has been so tumultuous! Usually, the admit letters are received before April but this year, the whole process was halted and we heard back from the University in late July. I joined the Fall 2020 Semester Online in August. Our B.Tech Final Exams were held in October, so basically I was studying for MS and B.Tech at the same time. On top of this, USA was issuing only limited visas in 2020, so even securing an appointment was a huge task. It was a roller coaster ride but fortunately, everything worked out well.

**Q. How, do you think, can one build the right profile for such opportunities?**

Resume is the first image of yourself that you present to the world. So, spend some time in building a good resume. Explore other activities apart from Academics to upgrade your skillset. Be informed about recent breakthroughs and achievements in your field of interest. Grades and Exam Scores do matter- I wish someone had told me this earlier. So, finding the right balance is crucial. Work on developing your character, the profile would follow the suit. Also, none of this would have been possible without the unwavering support and encouragement of my family and their faith in me has driven me to seize such opportunities.

**Q. How was your internship experience at Mercedes Benz Research and Development India?**

I owe a lot to MBRDI! It was an honour to be associated with such a prestigious company so early in my career. Not only did I learn a lot about technology and automobile industry but also developed a lot as an individual. During the 2 months of internship, I evolved from someone who was scared to start a conversation to the point of being confident to initiate small talks and know inner workings of the industry.

**Q. What role does extra and co-curricular activities play in shaping your personality?**

From my experience, it definitely helped me figuring out what I did not want to do in life. I kept working on a mini-project with my friend and participating in tech-fests. I learnt German and was a part of Department Magazine for 3 years. It helped me break the monotony of studying and kept in interested in recent research around the world.

**Q. Please share your experience as a student of Purdue University**

I completed my first semester online which I found a bit challenging. There is so much to explore and I have spent so much time reading about on-going research along with my coursework. The weekly graded homework, assignments, exams and projects have kept me on my toes! But I have learned new softwares and most importantly, the importance of continuous studying. I must mention that the transition is not easy and requires efforts but so far, the journey has been amazing!

**Q. How different is the American Education System from its Indian Counterpart?**

American Education System, especially at a graduate level is much more

liberating. It is more focused on individuality and uniqueness of the student. I love Thermodynamics, Fluid Mechanics and Coding and to my surprise, I could combine these into my current research. However, due to control you have over selecting your courses, you have to be alert and responsible to choose the relevant ones.

**Q. Now that you've graduated, what do you miss the most about college life here?**

I miss talking to my friends everyday and frequent cold coffees in the canteen!

**Q. How do you envision your future path?**

Honestly, at this moment I am not sure as to what future holds. I am yet to decide whether I would pursue my Ph.D. or seek a job after MS. Right now, I am just going with the flow and hoping the pieces fall in right places!

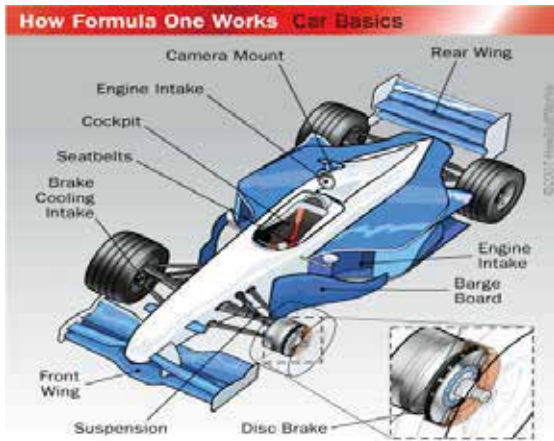
**Q. What advice would you give us?**

Reach out to experts in the domain that you are interested in. Most Professors and Experts are eager to discuss their work if you approach them. But be sure that you have studied their work and are genuinely interested. Do not be demoralized if you don't get a positive response. Acknowledge your weaknesses and try to improve yourself. Our college provides us with a sea of opportunities try to make the most of it. Cheers!



## F1 Cars

- Radhika Joshi



F1 cars are synonymous with Speed. F1 cars are built with modern materials and innovative engineering that cost over \$10 to \$20 million (excluding research) just for one purpose, top-notch speed. Hence it differs in structural and technical aspects from the road cars.

A F1 car speeds from 0-100mph in just a few seconds by the virtue of light weight structure built from modern composite materials. Like most of the modern cars, F1 car uses Monocoque (single shell) construction i.e. making a car out of single piece of material. Nowadays materials like spun carbon set in resin are used. Such materials allow the car to get more downforce. This downforce acts as a vacuum below the car and offers more grip to the cars in heavy turning zones like hairpin. To increase this downforce the designs like wings (front and rear), bargeboards, narrow back end (tail) are introduced on the cars.

The Wings were first incorporated in F1 cars in 1960s acting on the same principle as the airplane wings but in reverse sense. These wings produce downward force which helps to grip the car to the race track. The endplates present on the edge of the front wing helps 'grab' the air. Also,

the bargeboards present just behind the front wings pick up the air from the front wing and accelerate it further. It results into generation of almost 2500 kg of down-force which is almost equivalent to four times the weight of the car itself.

The heart of every car is the Engine. As of 2014 season, F1 cars race with 1.6 L turbocharged V6 engine which has a maximum of 15,000 rpm.

This engine power is transferred to the rear wheels by means of Transmission system. Bolted directly to the back of engine, it includes all the parts that a road car transmission has-gearbox, differential, driveshaft etc. Initially 6-speed gearbox was preferred but now a F1 cars use 7-speed unit with reverse gear. Drivers change the gears by the paddles located behind steering wheel; downshifting on one side and upshifting on the other.

The road car steering wheel and the F1 car steering wheel hardly have any resemblance. The F1 car steering wheel houses arrays of buttons, toggles and switches which allow the driver to access everything-the gear changing, fuel mixture etc. It is attached to the steering column using Snap-On connector. This enables the driver to get out of the car within seconds removing nothing but the steering wheel-which is the FIA rule.

Although the Suspension in the F1 car is the same as the road car suspension, the teams tweak the setting of the suspension to ensure the safe corner braking.

The Brakes of F1 car (disk brakes) are expected to stop the vehicle travelling at the speeds greater than 200mph. It causes them to glow red-hot after usage. So, to reduce the wear and tear, carbon fibre disk and pads are used which are efficient of

delivering the same performance at temperatures around 750°C. The holes around the brake disks allow the heat dissipation.

Last, but not the least, the Tyres. The F1 tyres come in 9 different types/compounds; 7 for dry conditions namely super-hard, hard, medium, soft, super-soft, ultra-soft, hyper-soft and 2 for wet conditions which can absorb up to 85L of water per second. These tyres are made up of soft rubber compound which provide more grip after they get heated. Hence, they are warmed up before the races. The front tyres are around 12-15-inch-wide whereas the rear tyres are 14-15 inches wide. These tyres are used according to their performance in suitable weather, temperature, pressure conditions.

#### References:

1. [www.auto.howstuffworks.com](http://www.auto.howstuffworks.com): 'How Formula One Works'
2. Wikipedia: 'Formula One Car', 'V6 Engines'
3. [www.pirelli.com](http://www.pirelli.com)

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#### F1 Firsts and Records!

- The first World Championship held at Silverstone, Great Britain took place in 1950
- Italian driver Giuseppe Farina won the first World Championship title in his Alfa Romeo car.
- Juan Manuel Fangio held the record for most World Championship titles (5) for 45 years before Michael Schumacher won his 6<sup>th</sup> World Championship title in 2003.

#### Fun Facts:

- The weight of F1 car should not exceed 740kg. This excludes fuel which is 110 kg but includes driver's weight which should not be more than 80 kg including the equipments in the cockpit.
- During a single season, one team uses approximately 2,00,000 litre fuel in testing and racing.
- F1 engine is rebuilt after every 500 miles as enormous amount of heat is generated by the engine running at 15000 rpm puts lot of stress on the moving parts.

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#### Did you know?

- Fédération Internationale de l'Automobile (FIA) is an international association that governs many auto-racing events including Formula One Events.
- From 2010, refueling was banned during pitstops as it increases the pitstop time and the teams were allowed to change only the tyres.
- During any race the drivers must use two different compounds of tyres.
- The amount of downforce created by the F1 cars enables them to drive up-side-down in a canal.

## INNOVATION 2020

Innovation 2019 raised the bar higher for itself and keeping up with it, Innovation 2020 has set a benchmark for the coming years. This year our very own Mechanical Department hosted the event under the dynamic leadership of Event Co-ordinator Prof. Sunil Divekar. Accordingly, our department supervised responsibilities like security, decoration and so on. Prof. Shridhar Kedar handled the finances for department events and Prof. Parag Chaware looked after the pandal arrangements.

This year we had two events- Cyclothon and Inventrix. While Cyclothon was a popular event from last year that tested hands-on skills of the participants, Inventrix was a brand-new event conceptualised to test technical knowledge of the participants. With the expert guidance from Faculty Co-ordinator Prof. Nitin R. Patil and the leadership of Assistant Technical Secretary- Madhura Mahagaonkar, event Co-ordinators for Cyclothon, Gargi Mhasakar and Gauri Jadhav, and event co-ordinators for Inventrix, Tanvi Vaidya and Madhura Sahasrabudhe started working on the modifications to Cyclothon and problem statements for Inventrix. The Sponsorship team successfully brought in the sponsors for individual events. The Event Co-ordinators finalized the structure, obtained the procurement from vendors and planned the schedule of their respective events meticulously. A team of 27 volunteers along with other panel members worked hard to execute the event.

We received a huge response for both the events. 88 teams registered for Cyclothon and 33 teams for Inventrix. First Round for

Cyclothon was held on 14<sup>th</sup> February in which the participating teams were given dismantled parts of a cycle. They were to complete the assembly and take 2 laps on cycling track provided. The criteria for judging were accuracy in assembly and overall time taken for the round. Top 12 teams advanced to Final Round held on 15<sup>th</sup> February in which they were given more complex assemblies to be assembled in least time. Volunteers worked enthusiastically, performing the allotted duties such as calling teams according to time slots, certificate distribution and acting as a referee to moderate the teams diligently. The much-awaited Faculty Round was conducted amongst enthusiastic cheers of students as faculty members competed against each other.

Inventrix was held on 14<sup>th</sup> February in which teams chose one of the five domains declared and then a problem statement related to it was allotted. The teams were to ideate solutions to the problem statement in specified time and present their idea to the judges. Many creative ideas were presented by the teams which resulted in close competition to rank in Top 3. So much so, that special cash prize of appreciation was given by Mechanical Faculty to a team for their creative effort, who had missed the third rank just by a very small margin!

Innovation 2020 witnessed a footfall of 3000+ students overall and many on-the-spot registrations. It was a proud moment for all the students who worked hard for this fest. This year, a new concept called the Championship Trophy, was introduced which was awarded to VIT Pune on account of their huge participation and majority of winners. Innovation 2020 ended with a bang, setting new records!

- **Rahee Kulkarni**  
(SY)

## ASME ADVANCEMENTS IN THE YEAR 2019-2020

### ASME CUMMINS STUDENT SECTION: (ESTD.2016)

The ASME's student section saw the dawn in the new era as it hosted its first-ever ASME EFX® on 28<sup>th</sup> of September 2019, in CCOEW. An ASME EFX ® is designed to bring the excitement, innovation and vibrant experience of ASME Engineering Festivals® (EFests) to local colleges and universities around the world. E-Fest events also provide a platform for professional development, skills training and technical competitions.

The event witnessed a total of 308 participants pouring in not only from engineering colleges in Pune but also from Nashik, Sangli, Nagpur and Ratnagiri. It was graced by highly respected dignitaries like Dr. Sadanand S. Gokhale-Executive director of LNMIIT Jaipur, Mr. Madhukar Sharma-President of ASME India, Dr. Madhuri Khambete- Director of MKSSS's Cummins College of engineering for women, and Dr. Ravindra Ingle- Advisor of ASME section. Cummins College was one of the 9 colleges to host EFX'19 in India and secured the first position in the 'EFx tagline contest' for its brilliant entry 'Educate Fervent Excel'.

Mr Sharma, the President of ASME India praised our efforts saying, "It was indeed a pleasure to be the part of such a well organised event. In terms of management, quality, organization skills with an environment so pristine, this was the best I have witnessed." The #efxccoew spoke volumes about what an all feminine force can accomplice with sheer determination and hard work.

Adding a feather in the cap, our chair Ms. Radhika Dharmadhikari got selected to attend the Student Leadership Training Conference (SLTC) at the Salt Lake City, Utah, US. There were 70 participants from 10 different countries. Information regarding ASME Efest, EFX scholarships, awards, competitions was briefed by Charbel Mosleh. The need of values such as being visionary, adaptable and optimistic and a team player were highlighted.

"Listening to ideas from students of different countries made it very interesting and unique. All the teams presented their thoughts. Listening to everyone's ideas was very inspiring"- Radhika shared.

On 18<sup>th</sup> of January 2020, the Section arranged an industrial visit to 'Fabtech Projects and Engineers Ltd.' at the Vasuli unit. Fabtech Project and Engineers Ltd. specialises in the design, fabrication, quality control and safety of large pressure vessels and heat exchangers mainly used for oil and gas industry. The Vasuli plant deals with the fabrications of pressure vessel, heat exchangers and exports them to a refinery in Nigeria. Students received interesting information and were given the thrilling opportunity of seeing the pressure vessel from inside. This gave them a chance to see the welds, nozzles and baffle plates in the vessel.

A novel initiative was taken by the section to host 'Internship Talks'. Fourth year students who had already undergone the internships shared their first-hand experience to the juniors. This session was arranged on 28<sup>th</sup> of January 2020. The session was blessed by the presence of Mechanical dept. faculty Prof. Amit Rajurkar, Dr. Gautam Chandekar and Dr. Parag Chaware. The session was appreciated by the students as it helped

them to understand what to expect from the internships.

This year for our college's National technical festival 'Innovation', on 14<sup>th</sup> of February 2020, the Section arranged a lecture on 'Advanced Batteries: Cell Chemistry to Technology.' The speaker was Dr. Bharatkumar Suthar who is currently working as Assistant Professor in department of chemical engineering in IIT Bombay. He gave insights about his research that is mainly focused on reducing the resistances in the path of lithium ions to boost the charging rate of batteries. The session gave insights to the leading edge research and the students got opportunity to speak with the eminent speaker.

The ASME members awaited, with the unusual sense of pride, the arrival of Col. K. Joshil Raj on 18<sup>th</sup> of February 2020. Col. Raj the present HoD of department of Electrical Engineering in college of Military Engineering and is also the founder of the AI and Robotics lab of CME Pune. The talk was based on "AI and Robotics in military". He elaborated the subject of warfare, explaining how technology used in military needs to adapt continuously. The students were briefed about the initiative taken by CME such as their Milbotics competition and the iDEX challenge.

A visit to Tata-Cummins Phaltan plant was organised on 27<sup>th</sup> of February 2020 for students of SY mechanical and MTech who were also accompanied by ASME panel members. The students were informed that the company has stopped production of BS-IV and are now producing BS-VI engines for Tata vehicles which give nearly 1/5<sup>th</sup> of emissions as compared to BS-IV engines. The students were allowed observe the entire assembly

lines which were explained by the authorities.

With extraordinary accomplishments this year, the Section continues to work on more activities that will benefit engineering students. The Section aims to equip students with recent technical knowledge and attempts to bridge the gap between industries and college curriculum. ASME Cummins student section will continue to prosper under guidance of Dr. Ravindra Ingle and will continue to serve engineering students.

**-Arya Vyavahare  
(Vice Chair, ASME student panel)**



### Facts about ASME:

Founded in 1880 by a small group of industrialists, ASME has grown through the decades to include more than 100,000 members in 140+ countries. Thirty thousand of these members are students.

Starting from first issuance of its legendary boiler and pressure vessel code in 1914, ASME's codes and standards have grown to nearly 600 offerings currently in printing.

From college students and early-career engineers to project managers, corporate executives, researchers and academic leaders, ASME's members are diverse as engineering community itself.

## ALUMNA INTERVIEW



**Zareen Cheema**

**Studio Engineer (Volvo Cars, Sweden)**

**Q. Hi Zareen! Thank you so much for connecting with us. How does it feel to be associated with CCOEW?**

It feels fantastic. I have spent four of my most formative years at the Dept. of Mechanical Engineering at CCOEW (2013-2017). So, my association with it will always be strong one.

**Q. What are your memories from college life?**

I have very fond memories of college right from my incredible classmates, attending early morning classes, sitting back late to complete submissions, hanging out in the canteen (the old one with the slanted roof), taking part in Gandhaar and Innovation, campaigning and eventually taking on the responsibility for the University Representative position along with my closest friend who was the General Secretary. These and many more memories, which I will cherish forever.

**Q. What is your current job profile?**

At present, I am working as a Studio Engineer in the exterior design of the

upcoming Volvo battery operated vehicles, hybrid vehicles and Polestar electric cars. The design Headquarters in Gothenburg, Sweden is a unique and challenging studio to be in. My work is highly cross-functional intersecting with product designers, digital surface modelers, design program managers, engineers, project leaders, manufacturing and quality.

**Q. What are the challenges you face?**

The challenges that I face everyday are very broad and there is a huge need to be flexible and think out of the box to achieve the best solution to meet the design intention. Working with early phase conceptualization and development provokes creativity and thought. It keeps me on my toes.

**Q. How challenging was it to pursue Masters Education in USA?**

I began my studies at UC Berkeley right after graduating from CCOEW. The continuity ensured that all the concepts I had learned, were carried over to graduate school. Although intimidating at first, the school is challenging and fierce. Your colleagues are exceptionally smart and very hardworking. Every corner of the campus has mind tinkering opportunities and it is important to prioritize what you want out of your Graduate School experience.

**Q. How was the experience of working with NASA Ames Research Centre?**

Soon after I arrived at Berkeley, I was offered a chance to be a part of the Berkeley Emergent Space Tensegrity Lab which worked with the NASA Ames Research Centre to develop spherical soft robots which could potentially land on Mars. It offered me a window into opportunities working with mechanical design, performing CAE analysis on the stress- strain relations when robot is

dropped from a particular height on another planet. To summarize, the experience was beyond the world!

**Q. Tell us about your Antarctic research expedition.**

Well, in two words, Life Transformative! I was very lucky to be selected as a part of an expedition to Antarctic Peninsula. It is untouched natural land with 24 hours sunshine during Summer and diverse species, some of which I had never known. It has been a pivotal journey in my life.

**Q. Being associated with organizations like National Space Society, Mars One and so on, what do you think is the future scope for mechanical engineers in Aerospace?**

I have been on the International Committee of the National Space Society for two years followed by being on executive panel of Space Advisory Forum and I can vouch that the opportunities are endless once you identify the path. Space technologies have always been close to my heart and I dream of stepping into outer space. Getting involved with these organizations helps to build a network of enthusiasts sharing the same passion as you do.

**Q. Being the co-founder of ASME Cummins Student Section, how does it feel as it organized national level ASME EFX this year?**

I still remember the day when my two good friends Tejaswani and Nutan came up with the idea of having an ASME section in CCOEW. In the beginning, it was a rocky road to get everything set up from scratch. The section was the first within University of Pune and Dr. Ingle sir was instrumental in helping us set it up. I feel very proud to see the section performing exceptionally well under the strong leadership of current committee

members. EFX was a huge success and I am certain that the section will impact students for all years to come.

**Q. Owing to your experience as a mechanical engineer, what advice do you have for students pursuing it?**

There is a huge difference in being an engineer and being a *good* engineer. For being the later, you need to get as much hands-on experience as you can. Strengthen your foundation by understanding the fundamentals and then build on top of that by doing mini-projects. Read beyond the textbooks, subscribe to online journals and newsletters to keep an eye on recent developments. Value Punctuality and be sincere to yourself. It is important to figure out which area to pursue and be informed so that when the opportunity comes your way, you are armed and prepared to take it and move forward.

**Q. What are your future plans?**

I am a firm believer in identifying opportunities which come your way and going after your dreams. I had always hoped to design products and designing these beautiful cars at Volvo gives me the spark and joy to work in this field. At present, keep calm and work hard.

- Gargi Mhasakar  
(TY)

## Fighter Aircrafts - Rahee Kulkarni

Fighter Aircrafts are designed to secure the essential airspace. Equipped to carry heavy ammunitions they are faster and ability to withstand more 'g force' than commercial aircrafts.

The performance of any fighter aircraft is decided by factors like

- i. Fire Power
- ii. Maximum Permissible Speed
- iii. Maneuverability
- iv. Capability of carrying bombers or protective armament

A fighter aircraft is primarily designed for air to air combat. A given type may be designed for specific combat conditions, and in some cases for additional roles such as air-to-ground fighting. Historically the British Royal Flying Club and Royal Air Force referred to them as called them 'pursuit' aircraft until the late 1940s. The UK changed to calling them fighters in the 1920s, while the US Army did so in the 1940s. A short-range fighter designed to defend against incoming enemy aircraft is known as an interceptor.

Recognised classes of fighter include:

- i. Air Superiority Fighter
- ii. Fighter Bomber
- iii. Heavy Fighter
- iv. Interceptor
- v. Light fighter
- vi. All-weather Fighter
- vii. Reconnaissance Fighter
- viii. Strategic Fighter

Aviation community classify jet fighters by 'generations' for historical purposes.

First Generation Subsonic Jet Fighters (mid 1940s to mid 1950s)

These were introduced in the late of WWII and had a decisive advantage of greater speeds than piston engines. They had basic avionic systems with no radars or self protection countermeasures, and were armed with machine guns or cannons, as well as unguided bombs and rockets. A common characteristic of this generation of fighter was that the jet engines did not have afterburners and the aircraft operated in the subsonic regime. First operational Jet Fighter: Me262A

### Second Generation Jet Fighters (mid 1950s to early 1960s)

Designers experimented with aeronautical innovations like swept wings, delta wings and area-ruled fuselages. These were the first production aircrafts to break sound barriers and sustain supersonic speeds. The new feature was the use of small effective radars to detect enemy beyond visual range. The Infrared-guided (IR) missiles these aircrafts carried had poor sensitivity and field of view was 30 degrees (max.).

### Third Generation Jet Fighters (early 1960s to 1970)

These aircrafts came with renewed and enhanced maneuverability and ground attack capabilities, flight control surfaces like canards, powered slats and blown flaps. Analog avionics replaced 'steam gauge' cockpit instrumentation. IR missiles had their fields of view expand to 45 degrees. These aircrafts witnessed a development of new automatic-fire weapons that use an electric motor to drive the mechanism of a canon. Jet engines became 'smokeless' making it harder to sight the aircrafts.



## Fourth Generation Jet Fighters (1970 to late 1980s)

The designs were influenced by Energy-Maneuverability (EM) theory by Colonel John Boyd and Mathematician Thomas Christie. Analog avionics began to be replaced by digital-flight control system in late 1980s. They started including pulse-doppler fire-control radars, head-up displays, hand on throttle and stick controls and multi-function displays, all essential equipments even today. Composite materials were used in the form of bonded Aluminium honeycomb structure and graphite epoxy laminate skins to reduce weight. Easier maintenance leading to standardization of parts. Earlier – Jetfighters required 50 man-hours of work for every hour the aircraft was in the air. Now – Jetfighters require only 10 man-hours.

## 4.5<sup>th</sup> Generation Jet Fighters (late 1980s and into the 90s)

End of cold war in 1991 led to decrease in military spending as a “peace dividend”. Advances in microchip and semiconductor technologies enabled designers to significantly enhance the capabilities like Beyond Visual Range (GPS) – guided weapons, solid-state phased-array radars, helmet-mounted sights, etc. It became more cost-effective to add ‘stealth’, radar absorbent materials, thrust vector controlled engines, greater weapons carriage capacity and to extend the range of fourth generation fighters, such as the Hornet, Eagle and Flanker, than to design new aircraft.

## Fifth Generation Jet Fighters (2005 to date)

These are equipped with multifunction AESA radars with high-bandwidth. Infrared search and track sensors fused with other sensors for situational awareness which tracks all targets of interest so that pilot need not guess when he glances hence easing the

pilot’s workload. This provides greater chances of survivability, which when combined with effective lethality, assures battlespace dominance. Equipped with thrust-vectoring which helps reduce take off and landing distances.

### References:

Fighter World  
Britannica Encyclopaedia  
Wikipedia



## FUN FACTS

- Modern supersonic jet fighters can fly at more than 1,000 miles (1,600 km) per hour. They have fast rates of climb, great maneuverability, and heavy firepower, including air-to-air missiles. The U.S. F-16 and the Soviet MiG-25 are among the most advanced jet fighters in the world.
- In the first jet vs. jet fight, occurred during the Korean War on November 8, 1950, an F-80 shot down 2 North Korean MiG-15s
- Lockheed Martin’s F-35B short takeoff/vertical landing (STOVL) variant is the world’s first supersonic STOVL stealth aircraft.

## NSS 2019-2020



### “NOT ME BUT YOU”

NSS is The National Service Scheme which is an Indian government sponsored public service program conducted by the Ministry of youths. The program aims to instill the ideas of social welfare in students and to provide service to society without bias. Every college has their own NSS volunteers' team which together contributes for the benefit of the society. NSS volunteers work to ensure that everyone who is needy gets help to enhance their standard of living and lead a life of dignity. Our college also has a team of hard working volunteers devoted to this work. There are many events that they have conducted.

#### 1. Saplings distribution program :

This event was conducted at SPPU. All the NSS volunteers from different colleges participated in this event. Around 36 volunteers from our college participated in this event. The motto of this event was to increase the awareness of tree plantation and make Earth a greener place to live in.

#### 2. Road safety program :

The NSS volunteers hosted this seminar in the college campus. A special anchor R.J Kedar had conducted this seminar along

with the chief guest RTO officer Pantoji Sir who guided the event.

#### 3. Fund raising for Sangli and Kolhapur :

In this activity the NSS volunteers collected funds for the floods that occurred in Sangli and Kolhapur. Funds collected were given to higher authorities so that it could be provided to the cities.

#### 4. Swachh abhiyan program :

Almost 30 volunteers participated in this activity. It included the cleaning of the campus, parking, classrooms, washrooms, corridors etc.

#### 5. Tree plantation program :

NSS volunteers along with the staff took part in this program. Small saplings were planted inside the college campus and the surrounding area. The motto was to make the environment greener and cleaner.

#### 6. Traffic awareness program :

This initiative was conducted in collaboration with the RTO officers. At the traffic signal, whenever the signal turned red, all the volunteers along with the banners stood on the roads to spread awareness about the safety measures. Some volunteers distributed chocolates to the citizens wearing helmets and gave tokens to the ones not wearing helmets and instructed them to wear helmets.

#### 7. Fit India program :

In this activity all the volunteers took a rally in the slum area and read out slogans loudly. The slogans were read out in Marathi and Hindi so that everybody could understand. The banners made people

aware of being fit and make them understand the importance of this.

8. River cleaning program :

This was a very large activity that took place this year. Not only the NSS volunteers of our college but the college students and staff also participated in this event. The Mula-Mutha river near Rajaram bridge was cleaned under this activity. Everybody got a chance to experience the joy of helping.

9. Blood donation program :

The NSS organizes the blood donation camp every year. Janata Sahakari blood bank had come to take blood of the willing donors. This program gets a very large response from students as well as staff. Due to the huge response, the event was conducted twice again. The donor was rewarded with a certificate and also got benefits of donation that at each time when they need blood; they will get it at 50% of the price.

10. Winter camp program :

This year the winter camp arranged was at khadakwadi village Both the Cummins college and Siddhivinayak students went for the camp. 24 NSS volunteers from Cummins college had participated. Various activities were held during the camp like eye checkup activity, blood group checkup activity, dental checkup activity etc. It was 10 day campus and students managed the chores distributed and learnt many things over there.

11. Thyroid checkup program :

It was organized by the NSS volunteer s and staff. It was an entire day event and there was a huge response. Almost 50 NSS

volunteers worked throughout the day and the charge for the checkup was Rs. 50 per person.

12. Eye checkup program :

This program was conducted in the college campus. A free eye checkup service was given to everyone. There was the sale of spectacles also made available. This event had a huge response.

13. Sinhgad swachh abhiyan program :

All the NSS volunteers had visited the Sinhgad fort. There was a trek organized and along with that a cleanliness program was initiated. They also got a lot of help from other people who had come for trekking. It was a great and refreshing activity.

All these activities conducted by the NSS volunteers of our college were commendable and worth applauding.

- **Tanvi Bipin Arey**  
(SY)



## BEST OUTGOING STUDENT



**Suhasinee Rane**

**Q. Hello Suhasinee! Congratulations on being awarded the Best Outgoing Student! How do you feel?**

Thank you! Actually, I have no words to express my feelings right now! This award is like a surprise gift from the college, our department and teachers. It was a feeling of joy and surprise when I was informed about it. But now, I have a greater responsibility to maintain the value of this award which implies that I should give my best to whatever I pursue.

**Q. How was it to go through the process of selection?**

I think the process starts as soon as we enter the college because during the interview, all our efforts from four years are considered. I think, we are more comfortable giving an interview to someone unknown but it is quite different to face our own faculty. I was nervous but it was one of the easiest interviews.

**Q. What, do you think, sets you apart from your peers?**

As quoted by Swami Vivekanand, every soul is potentially divine. Fortunately, since childhood, I preferred utilizing time effectively and qualitatively. I firmly believe that we decide our own fate. I am

always open to positive changes and work on myself to be better each time.

**Q. You have been a volunteer for 'Swami Vivekanand, Kanyakumari'. What activities have you undertaken?**

As of now, I am the 'Pune Nagar Karyapadhati Pramukh'. The aim of the organization is to contribute towards 'Man-making and Nation-building'. 'Karyapadhati' comprises of activities which are tools of self-development. My role is to oversee its effective implementation. I have regularly attended one-day camps and a residential 5-day camp 'Sthanik Karyakarta Prashikshan Shibir' at Solapur in 2018. These initiatives inculcate the values of patience, teamwork and importance of time. I have also participated in other activities like conducting PDC camps for children, 'Vishvabandhutva Divas' and so on. Last year I also worked as the head of 'Bhartiya Sanskriti Exam' conducted by the organization.

**Q. You are the recipient of Eaton's Pratibha Scholarship Award. How was the experience of participation?**

It was quite unexpected! Students are shortlisted for final round presentations on the basis of their academic record, extra-curricular activities and social contributions. We were given problem statement related to Electric Vehicles due to their relevance to the future. I chose the topic 'How to promote EVs in India? Due to a workshop I had attended, I had an introduction to EVs. While preparing, I understood the current scenario of EVs in our country and government initiatives such as the FAME scheme. I presented it confidently and through the process, I realized that thinking about the practical implementation of the information to build new things is extremely important. I enjoyed this experience and having given my best, I was satisfied.

**Q. How was the experience of participating in ‘Ignited Innovators of India’ competition?**

Really Awesome! It started with four friends deciding to participate. We searched for the topic, discussed with each other and decided that we would do something related to Agriculture. After seeking guidance from our faculty, we finalized ‘Design of Real-Time Monitoring Device’ that would meter the soil moisture and intimate the farmer about it through SMS. Having no background about electrical concepts, we sought help from the faculty of E&TC and Instrumentation departments and read a lot of research papers and learnt about electrical terms like the GSM module. We submitted the presentation and were selected for the second round wherein we had to explain strategy of implementation. We made it to the third round when we had to build a working model. We learnt Arduino programming through tutorials and experimented with various soil samples. It was a fun learning experience.

**Q. What are your hobbies and how do you pursue them?**

In my free time, I like to read and write poems. I also love to spend time in nature. It is like a magical solution to our busy and tiring routine life. Since January 2020, I have joined a professional course for Karate and it feels nice practicing it. I practice Yoga regularly. It aids internal development.

**Q. What is the key to balance academics and extra-curricular activities?**

I think qualitative utilization of time is the only key to do it. Actually, we have a lot to do but tend to waste time on things like Social Media. It is important to be aware of the value of something and the amount of time to be invested on it. It keeps us

open to learn new things. Writing down what we do every day also helps.

**Q. Since you would be graduating this year, what would you miss the most about our college?**

Entire campus, especially the library and our department building. I feel there is a certain freedom in our campus. I loved spending time here, even during holidays. I feel lucky to be admitted in this college which is a part of Maharshi Karve Stree Shikshan Sanstha established by Maharshi Karve and I am proud that our college, even today, is so firmly rooted in its values. I would miss our teachers who have not only helped me with academics but also with my life. Last but not the least, my friends, who were such an integral part of my college life.

**Q. What do you aspire to do as a mechanical engineer?**

I wish to excel with the help of the knowledge I have gained by its utilization and sharpening of required skills. I want to innovate and create something that will impact the society or someone’s life positively.

**Q. What message do you have for us?**

Love whatever you are doing and try to dedicate all your energy in it. Instead of complaining, accept, improve and find a solution for any problem. Be positive and spread it to others. Try not being judgmental and respecting everyone. Be natural. Be original. Happy Learning! Happy Engineering!

- **Gargi Mhasakar  
(TY)**

# QUICK TECH

## Concept Cars 2019-20 - Radhika Ganu

### 1. Mercedes-Benz Vision AVTR concept



Biometric connection of the driver with the VISION AVTR is one of its the unique feature which increases its awareness of the environment. The flow of digital neurons from interior to the exterior results in visualization of the flow of energy and information. For example, while driving, the neurons flow over the outside of the vehicle. Reference: mercedes-benz.com

### 3. Piëch Mark Zero



The sportscar Piëch Automotive not only boasts of a beautiful body but also has some unique features. The battery is fast charging and air-cooled, making it very light. Piëch claims a kerb weight of only 1800kg! Although a production plan is yet to be set, the company plans to introduce more models in the next three years. Reference: outlookindia.com, zigwheels.com

### 2. Aston Martin Vanquish Vision Concept



Vanquish Vision aims to feature a twin turbocharged version of V6 Aston Martin engine. Departing from Aston Martin Valkyrie which had an all-carbon fiber construction, chassis of Vanquish Vision uses bespoke bonded aluminum. Reference: astonmartin.com

### 4. GFG Style Kangaroo



While it may not look like one, the GFG Style Kangaroo is a Sports Utility Vehicle (SUV) in the truest sense of the phrase. It is a fast utilitarian vehicle which is sporty and it has an adjustable suspension which gives it a maximum ground clearance of 260 mm if needed. References: outlookindia.com, zigwheels.com

## Specially-abled Cars

- Ovi Doke

Driving might seem like a cakewalk to us, but for the specially-abled people, it is not. This is due to lack of awareness and unavailability of the car modifications that can be done to make driving easier for them. New technology enables broadening of the spectrum to give opportunities to people with disabilities to drive vehicles with adaptive devices. When it comes to getting a license, people cannot be denied the opportunity to apply for a permit or license because of disability. Muscle strength, flexibility, and range of motion; coordination and reaction time; judgment and decision-making abilities; ability to drive with adaptive equipment are some of the points taken into consideration during automobile modification.



The modifications are made to vehicle according to the need of customer. Automatic seats provide better flexibility. They can be customized for balance, positioning and stability. Room to accommodate a driver seated in a mobility device can be made by means of a raised roof or dropped floor. To ease the transfer from a wheelchair into a bucket seat, power seats can be employed.

For people having leg-related disabilities, height of the brake and accelerator can be raised by a pedal extender, so that the driver can control them with his/her hands. Controls

should be big and bold. Touch screen controls or a single-handed device like a joy



stick system can be used for control. The steering wheel can be moved closer by a steering column extension. Floor-mounted steering is a floor steering wheel for foot control. A complete support and control for a driver with a totally disabled hand and wrist can be offered by steering cuff.

Automatic locks and window controls increase the feasibility. A wheelchair or scooter lift also can be installed for entering or exiting a vehicle. Foldable ramps are available in a variety of styles. Several type of tie-downs secure a wheelchair or scooter in place, so it won't roll while car is moving. Many renowned automobile companies like Honda, Toyota and Ford are manufacturing disability-friendly cars. Honda Odyssey wheelchair van, Dodge journey, Ford connect, Toyota sienna handicap vans and wheelchair vans are some of the examples.

Car modification and adaptive driving are one of the important fields which are full of opportunities of research. The budding engineers can contribute to this field and make this world a better place for the specially-abled.

### References:

1. [www.nhtsa.gov](http://www.nhtsa.gov)
2. [www.infinitec.org](http://www.infinitec.org)

## RESULT ANALYSIS: A.Y. 2018-19

### Second Year Mechanical Engineering (Top 10)

RANK	LAST NAME	FIRST NAME	CGPA
1	Joshi	Siddhi	9.52
2	Sabnis	Namita	9.36
3	Kale	Shraddha	9.15
	Bhide	Neeraja	
4	Kulkarni	Devika	9.04
5	Joglekar	Mrunal	8.97
6	Shinde	Ketki	8.96
7	Shete	Rutuja	8.91
8	Mhasakar	Gargi	8.83
9	Mahagaonkar	Madhura	8.81
10	Ratnaparkhi	Mayuri	8.72

### Third Year Mechanical Engineering (Top 10)

RANK	LAST NAME	FIRST NAME	CGPA
1	Patil	Sneha	8.99
2	Gosavi	Prajakta	8.75
3	Rane	Suhasinee	8.75
4	Agrawal	Rutvi	8.60
5	Apte	Anuja	8.53
6	Mane	Shital	8.53
7	Patil	Dhanashree	8.51
8	Nandre	Aarati	8.49
9	Deshmane	Bhagyashri	8.48
10	Deshmukh	Pallavi	8.42

### Final Year Mechanical Engineering (Top 10)

RANK	LAST NAME	FIRST NAME	CGPA
1	Dhokey	Apurva	9.00
2	Bhawar	Snehal	8.95
3	Bandiwadekar	Siddhi	8.91
4	Gejji	Abha	8.81
5	Tambolkar	Pooja	8.79
6	Bhojane	Megha	8.79
7	Desai	Shubhada	8.69
8	Daphal	Dnyaneshwari	8.63
9	Shukla	Shruti	8.61
10	Rajadnya	Purva	8.57



# SUBJECT TOPPER

## SEMESTER I

### SECOND YEAR

SR. NO.	STUDENT NAME	SUBJECT NAME	MARKS
1	Namita Sabnis	Engineering Thermodynamics	91
2	Namita Sabnis	Materials Technology- I	72
3	Sheetal Raskar	Manufacturing Processes- I	71
4	Neeraja Bhide	Electrical & Electronics Engineering	96
5	Siddhi Joshi	Principles of Economics & Finance	91

### THIRD YEAR

SR. NO.	STUDENT NAME	SUBJECT NAME	MARKS
1	Rutvi Agrawal	Computer Oriented Numerical Methods	72
	Sneha Patil		
3	Prajakta Gosavi	Analysis and Synthesis of Mechanisms	87
4	Sneha Patil	Heat Transfer	74
5	Pradnya Mane	Automation & Control Engineering	66

### FINAL YEAR

SR. NO.	STUDENT NAME	SUBJECT NAME	MARKS
1	Apurva Dhokey	Hydraulics and Pneumatics	81
2	Aishwarya Ponkshe	CAD CAM Automation	82
3	Megha Bhojane	Dynamics of Machinery	79
4	Ashwini Udupure	Finite Element Analysis	80
5	Purna Meher	Heating Ventilation and Air Conditioning	79
6	Shivanjali Jadhav	Automobile Engineering	78
7	Ankita Nandgaonkar	Operation Research	77
8	Avanti Unde	Energy Audit and Management	77

## SEMESTER II

### SECOND YEAR

SR. NO.	STUDENT NAME	SUBJECT NAME	MARKS
1	Mrunal Joglekar	Engineering Mathematics- III	92
	Siddhi Joshi		
2	Mrunal Joglekar	Strength of Materials	94
3	Namita Sabnis	Fluid Mechanics	86
	Devika Kulkarni		
4	Siddhi Joshi	Manufacturing Processes- II	63
	Ketki Shinde		

### THIRD YEAR

SR. NO.	STUDENT NAME	SUBJECT NAME	MARKS
1	Sneha Patil	Applied Thermodynamics	96
2	Sneha Patil	Machine Design	93
3	Prajakta Gosavi	Metrology & Quality Control	67
4	Sneha Patil	Machines & Mechanisms	63
5	Aarati Nandre	Nanotechnology	55
6	Sneha Patil	Computational Fluid Dynamics	54
7	Rutvi Agrawal	Mechanics of Composite Materials	64
9	Suhasinee Rane	Jig & Fixture Design	63

### FINAL YEAR

SR. NO.	STUDENT NAME	SUBJECT NAME	MARKS
1	Aishwarya Kadam	Energy Engineering	68
2	Pooja Tambolkar	Mechanical System Design	84
3	Megha Bhojane	Industrial Engineering	78
4	Apurva Dhokey	Robotics	81
5	Megha Bhojane	Advanced Manufacturing Processes	79
6	Avanti Unde	Product Design and Development	82

## PLACEMENTS 2019-20

NAME OF THE COMPANY	NAMES OF THE STUDENTS	SALARY OFFERED (LPA)
GE Transportation	Pallavi Deshmukh	12
Baxter	Ketki Date	10.03
	Vandana Sakhare	
PWC	Mouni Pendharkar	8.43
	Rhea Patranabis	
Boeing	Sneha Patil	8
	Samiksha Hingalaje	
	Priyanka Chougule	
	Prajakta Gosavi	
	Pallavi Deshmukh	
Fractal Analytics	Rutvi Agrawal	
	Papiya Bhattacharya	7.5
Becton Dickinson	Radhika Dharmadhikari	7
	Suman Rajput	
	Aishwarya Landekar	
Tata Motors	Dhanashree Patil	7
	Bhagyashri Deshmane	
	Anuja Apte	
	Poorva Joshi	
Hero Motocorp	Nilam Londhe	7
	Hemangi Patil	
	Shreya Kulkarni	
	Sayali Mulatkar	
	Rohini Shinde	
Mahindra and Mahindra	Apurva Zingade	6.5
Alstom Transportation	Nisha Kolekar	6.5
	Riya Wangikar	
	Ojal Jawale	
	Kanchan Avhad	
	Shital Mane	
	Pradnya Mane	
Eaton India Innovation Centre	Poonam Pingle	6.25
	Manasi Shete	
	Suhasinee Rane	
	Neha Shastri	
Technip FMC	Pratiksha Shivarkar	6
	Prajakta Sudrik	
JCB	Nirali Ghorpade	5.5

Rockwell Automation	Vaishnavi Bhadane	5.25
Varroc	Rutuja Badve	5
Seimens Ltd.	Krushna Sisodiya	5
	Sharayu Borse	
	Shivani Pawar	
TE Connectivity	Rutuja Kadam	4.5
	Aditi Gaikwad	
Airproducts	Shivani Rajopadhye	4
	Ashlesha Lashkar	
Mercedes Benz	Rutuja Waskar	TBD
	Nayan Parabat	
	Anuja Sangwai	
	Kshitija Kulkarni	
	Tejal Gujarathi	

## INTERNSHIPS 2019-20

NAME OF THE COMPANY	NAMES OF STUDENTS
Tata Autocomp	Gargi Mhasakar
	Tanvi Vaidya
Cummins India Pvt. Ltd.	Neeraja Bhide
<b>OFF-CAMPUS INTERNSHIPS</b>	
Collins Aerospace	Gauri Jadhav
Devise Electronics	Samruddhi Jadhav
Genrich Membranes Pvt. Ltd.	Mitali Kharul
INMOVIDU Online Platform	Aishwarya Shewale
Internship Studio	Shreya Bahalkar
KPMG	Kiran Raskar
MetroHop	Shraddha Kale
Piaggio Vehicles Pvt. Ltd.	Arya Vyavahare
R2A Automation Pvt. Ltd.	Savani Prabhune
Vardhan Consulting Engineers	Sakshi Salvi

The table below lists internship offers that were received by students but cancelled due to COVID-19 Pandemic.

NAME OF THE COMPANY	NAMES OF STUDENTS
Eaton	Siddhi Joshi
	Namita Sabnis
	Mayuri Ratnaparkhi
	Rutuja Shete
	Ketki Shinde
	Mrunal Jogalekar
Schneider Electric	Monali Bendale
	Vibhuti Raina
Mercedes Benz	Pranjali Joshi
	Snehal Bandekar
	Arya Vyavahare
	Anisha Kulkarni
	Madhura Sahasrabuddhe
	Saloni Gosavi
	Rucha Patil
	Madhura Mahagaonkar
	Sanyami Kothari
	Tanvi Kuray
	Shraddha Kale
	Devika Kulkarni
Neeraja Bhide	

## STUDENT SPORTS ACHIEVEMENTS

FULL NAME	YEAR	SPORTS	ACHIEVEMENT
Gayatri Sanjay Bhagat	SY	Cricket Volleyball	First place in cricket in Damini sports event Second position in volleyball in Zest event
Vaishnavi Vinod Shrigadi	SY	Kho-Kho	Third place in Damini sports event
Balsaraf Krushna Vasant	SY	Cricket	First place in Damini sports event First position in AIT sports event Runner up in Zest event
Kajal Baban Datir	TY	4×100m relay	Second place in Damini sports event Third position in Zest event
Papiya Bhattacharya	Final Year	Basketball	Represented Pune city zone in basketball Winners of Summit, Vedant, Damini, Pace, Elevate, Pentacle sports events Runners up in university events

## STUDENT ACADEMIC ACHIEVEMENTS

NAME OF THE STUDENT	YEAR	ACHIEVEMENT	SPECIFICATIONS
Suhasinee Rane	Final Year	Best Outgoing Student Award	-
Anuja Sangwai	Final Year	Mercedes in Mech –MBRDI	1,00,000/-
Tejal Gujrathi	Final Year	Mercedes in Mech –MBRDI	1,00,000/-
Nayan Parabat	Final Year	Mercedes in Mech –MBRDI	1,00,000/-
Kshitija Kulkarni	Final Year	Mercedes in Mech –MBRDI	1,00,000/-
Rutuja Waskar	Final Year	Mercedes in Mech – MBRDI	1,00,000/-
Manisha Chaudhari	Final Year	Scholarship from Cummins, India	64,000/-
		Scholarship from Katalyst	5600/-
Radhika Dharmadhikari	Final Year	Selected to attend ASME SLTC at Salt Lake City, USA	
		1 <sup>st</sup> place, Elevator Pitch Competition, ASME Efest Asia Pacific	250 \$
		2 <sup>nd</sup> place, Biomimicry Challenge, ASME Efest Asia Pacific	10,000/-
Saloni Gosavi	TY	Mercedes in Mech –MBRDI	1,00,000/-
Neeraja Bhide	TY	Mercedes in Mech – MBRDI	1,00,000/-
Madhura Mahagaonkar	TY	Mercedes in Mech – MBRDI	1,00,000/-
Madhura Sahasrabudhe	TY	Mercedes in Mech – MBRDI	1,00,000/-
Arya Vyavahare	TY	Mercedes in Mech – MBRDI	1,00,000/-
Sanyami Kothari	TY	Mercedes in Mech – MBRDI	1,00,000/-
Pranjali Joshi	TY	Mercedes in Mech – MBRDI	1,00,000/-
Snehal Bandekar	TY	Mercedes in Mech – MBRDI	1,00,000/-
Rucha Patil	TY	Mercedes in Mech – MBRDI	1,00,000/-
Anisha Kulkarni	TY	Mercedes in Mech – MBRDI	1,00,000/-
Tanvi Kuray	TY	Mercedes in Mech – MBRDI	1,00,000/-

Shraddha Kale	TY	Mercedes in Mech – MBRDI	1,00,000/-
		Tata Samarth Scholarship	25,000/-
Devika Kulkarni	TY	Mercedes in Mech – MBRDI	1,00,000/-
		WeTech Goldman Sachs Mentorship Award	
Monali Bendale	TY	Scholarship from Katalyst	
		Cummins India Ltd. Scholarship	
Sakshi Shah	TY	Eaton Pratibha Award	56,000/-
Sanyami Kothari Shreya Bahalkar Arya Vyavahare	TY	1 <sup>st</sup> Prize, Project Competition by Garrett Motion	21,000/-
Kshitija Chavan Awanti Marathe	SY		
Pranali Pawar	SY	Scholarship from LPF	60,000/-
		Scholarship from Katalyst	20,000/-
Pooja Kokate	SY	Scholarship from LPF	20,000/-
Rutuja Gawali	SY	Scholarship from LPF	50,000/-
		Scholarship from Katalyst	20,000/-
		Research Paper Published – Cereal Vending Machine	
Kshitija Chavan	SY	Selected for Student exchange programme, Japan	

## SCHOLARSHIP DETAILS :

### Best Outgoing Student Award :

Awarded to the student who stands out due to their academic and overall excellence by Cummins College of Engineering, Pune.

### Cummins India Scholarship :

Open to all students from all branches. Aptitude tests and personal interviews are carried out for selection of 200 students from approximately 7500.

### Katalyst :

Awarded to budding women from low income backgrounds. The Scholarship is awarded by an NGO and involves training in technical and soft skills. Criteria include academic merit and performance in training sessions.



**Lila Poonawalla Foundation (LPF) Scholarship :**

Awarded to outstanding and financially deserving girls to pursue higher education. These scholarships are merit-cum-need based scholarships.

**Mercedes in Mech - MBRDI, India :**

Awarded to promising young women in engineering. The scholarship program provides mentorship and internship opportunities.

**Pratibha, The Eaton Excellence Prize :**

Awarded to exceptional women engineers across leading institutions with academic excellence as well as co-curricular achievements.

**Tata Samartha Scholarship :**

Open to all branches of only first year engineering degree course. Selection is based on 12th board marks, CET score and performance in interview. It comprises of scholarship for all four years of engineering along with interaction with industry professionals.

**WeTech Goldman Sachs Mentorship Award :**

Awarded to women engineers with leadership potential. It comprises of a Scholarship along with virtual mentorship. It has been instituted by Institute of International Education (IIE) and Goldman Sachs.

## SAE BAJA 2020 : ZENITH 6.0 TEAM MEMBERS

NAME OF THE STUDENT	YEAR	SUBSYSTEM/ POST
Rutuja Waskar	Final Year Mech	Vehicle Dynamics / Captain
Aditi Gaikwad		Vehicle Dynamics
Aishwarya Shewale	TY Mech	
Sharvari Buttepatil		
Puja Kamble		
Siddhi Kinage	SY Mech	
Rajeshwari Vaidya		
Mrunmayee Patwardhan	FY Mech	
Aditi Khaire		
Shrutika Pujari	TY Mech	Rollcage / Vice Captain
Disha Sabade		Rollcage
Swamini Khedkar		
Tanishka Damle		
Anusha Patil		
Samruddhi Jadhav	TY Mech	Brakes / Driver
Priyanka Chaugule	Final Year Mech	Brakes
Vaishnavi Raut	SY Mech	
Rahee Raghuvanshi		
Samruddhi Ambavle	FY Mech	
Hemangi Patil	Final Year Mech	Transmission
Mayuri Ratnaparkhi	TY Mech	
Unnati Chambhare	SY Mech	
Disha Shinde		
Yashaswi Gadekar	FY Mech	
Rishika Lalwani	SY Instru	Data Acquisition
Pranauti Kendhe	SY E&TC	
Vaishnavi Madhekar	SY Comp	

## **MECHANICAL DEPARTMENT STUDENT PANEL MEMBERS**

<b>NAME OF THE STUDENT</b>	<b>YEAR</b>	<b>POST HELD</b>
Nayan Parabat	B-Tech	Branch Representative
Aishwarya Landekar	B-Tech	Cultural Secretary
Poonam Pingle	B-Tech	Training and Placement Representative
Madhura Mahagaonkar	TY	Assistant Technical Secretary
Rahee Kulkarni	SY	Assistant Treasurer

## FACULTY ACHIEVEMENTS

### JOURNAL PUBLICATIONS

SR. NO.	AUTHOR (FACULTY) NAME	PAPER TITLE	NAME OF JOURNAL	VOLUME, ISSUE NO., (MONTH/YR. & PAGE NO.)
1	Kalusuraman, G., Siva, I., <b>Munde, Y.</b> , Selvan, C. P., Kumar, S. A., & Amico, S. C	Dynamic-mechanical properties as a function of luffa fibre content and adhesion in a polyester composite	Polymer Testing	July 2020, Volume 87, 106538
2	<b>H. M. Shinde, A. K. Bewoor</b>	Evaluating petrol engine oil deterioration through oxidation and nitration parameters by low-cost IR sensor	Applied Petrochemical Research	22 June 2020, 10 (2), 83-94
3	<b>Harish M. Shinde, Anand K. Bewoor</b>	Viscosity Assessment for Quantifying Engine Oil Deterioration Using New Cost-effective and Handy Fluid Property Sensor	International Journal of Advanced Science and Technology	June 2020, 29(7), Pages 8649-8659
4	Hanumant Jagtap, <b>Anand Bewoor</b> , Ravinder Kumar, Mohammad Hossein Ahmadi, Giulio Lorenzini	Markov-based performance evaluation and availability optimization of the boiler–furnace system in coal-fired thermal power plant using PSO	Energy Reports	May 2020, 6, 1124–1134
5	Suyog Subhash Patil, <b>Anand K. Bewoor</b>	Reliability analysis of a steam boiler system by expert judgment method and best-fit failure model method: a new approach	International Journal of Quality and Reliability Management	26 May 2020
6	Hanumant P. Jagtap, <b>Anand K. Bewoor</b>	Failure analysis of induced draft fan used in a thermal power plant using coordinated condition monitoring approach: A case study	Engineering Failure Analysis	20 February 2020, 111, 104442, 1-18
7	<b>Nilesh R. Kolhalkar</b> ,Dr. V.L.Krishnan	Mechatronics System Design for Weed Management and Soil Condition Monitoring Within the Rows of Vineyards	International Journal of Innovative Technology and Exploring Engineering (IJITEE)	February 2020, Volume 9, Issue 4, 3088-3094

8	Chithirai Pon Selvan, I. Siva, <b>Avinash Shinde</b> , Sandro C.Amico	Tribological investigation on nano-graphene and curauá filled three-phase polymer composites	Materials Today: Proceedings	February 2020, Volume 28, Part 1, 172-176
9	T. Premkumar, I. Siva, <b>Yashwant Munde</b> , S. Rajesh and Sandro C Amico	Basalt Fiber Hybridization Effects on the Thermal Degradation Properties of Curauá Fiber Composites	Materials Today: Proceedings	February 2020, Volume 28, Part 1, 258-260
10	Abhishek D Patange, <b>AK Bewoor</b> , SP Deshmukh, SS Mulik, SS Pardeshi, R Jegadeeshwaran	Improving Program Outcome Attainments using Project Based Learning approach for: UG Course-Mechatronics	Journal of Engineering Education Transformations	November 2019, 33(1), 1-8
11	<b>Parag Chaware</b> , CM Sewatkar	Flow Transitions for Flow Through a Pipe With a Twisted Tape Insert	Journal of Fluids Engineering	Nov 2019 111110, 141(11), 1-10
12	<b>Nilesh R. Kolhalkar</b> , Dr. V.L.Krishnan	Mechatronics system for diagnosis and treatment of major diseases in grape vineyards based on image processing	Materials Today: Proceedings (23)	4 September 2019 43586, 23, 549-556
13	<b>SA Kedar</b> , K Arul Raj, <b>AK Bewoor</b>	Performance analysis of hybrid solar desalination system using ETC and CPC	SN Applied Sciences	September 2019, 1(9), 965-970
14	H. P. Jagtap, <b>Anand K. Bewoor</b> , R. Kumar	Thermal power plant condenser fault diagnosis using coordinated condition monitoring approach	Instrumentation Mesure Métrologie	30 August 2019, Vol. 18, No. 3, 223-235
15	Deepak Joel Johnson, V Arumugaprabu and <b>Yashwant S Munde</b>	Constitutive models to predict the mechanical performance of sansevieria cylindrica reinforced vinyl ester composite	Materials Research Express	July 2019 095310, 6(9), 1-7
16	Sunil G Dambhare, Sandeep S Kore, Firoz Z Pathan and <b>Mandar Vahadane</b>	Diesel engine performance and emission characteristic enhancement using TOPSIS	International Journal of Advanced Technology and Engineering Exploration (IJATEE)	May 2019 Vol 6(54) 126-132

## BOOK CHAPTER PUBLICATIONS

SR. NO.	AUTHOR (FACULTY) NAME	CHAPTER TITLE	BOOK TITLE	MONTH-YEAR	PUBLISHER
1	H. P. Jagtap, <b>A.K. Bewoor</b> , R. Kumar, M. H. Ahmadi, D. K. Rajak	Reliability analysis using condition monitoring approach in thermal power plants	Reliability Management and Engineering: Challenges and Future Trends	June 2020	CRC Press
2	<b>Y. S. Munde</b> , <b>R. B. Ingle</b> , <b>A. S. Shinde</b> and I. Siva	Micromechanical modelling and evaluation of PALF composites through Representative Volume Element Method	Pineapple Leaf Fibers: Processing, Properties, and Applications	February 2020	Springer
3	R. Kumar, Hanumant P. Jagtap, Dipen Kumar Rajak and <b>Anand K. Bewoor</b>	Traditional and non-traditional optimization techniques to enhance reliability in process industries	AI Techniques for Reliability Prediction for Electronic Components	December 2019	IGI Global
4	HP Jagtap, <b>AK Bewoor</b>	Markov Probabilistic Approach-Based Availability Simulation Modeling and Performance Evaluation of Coal Supply System of Thermal Power Plant	Reliability, Safety and Hazard Assessment for Risk-Based Technologies, 813-824	August 2019	Springer

## CONFERENCE PUBLICATIONS

SR. NO.	AUTHOR (FACULTY) NAME	PAPER TITLE	NAME OF CONFERENCE	LOCATION	DATE
1	Chithirai Pon Selvan, I. Siva, <b>Avinash Shinde</b> , Sandro C. Amico	Tribological investigation on nano-graphene and curauá filled three-phase polymer composites	International Conference on Advanced Materials and Nanotechnology (AMN-2020) at	Jaypee Institute of Information Technology Noida	20-22 February 2020
2	T. Premkumar, I. Siva, <b>Yashwant Munde S.</b> Rajesh and Sandro C Amico	Basalt Fiber Hybridization Effects on the Thermal Degradation Properties of Curauá Fiber Composites	International Conference on Advanced Materials and Nanotechnology (AMN-2020)	Jaypee Institute of Information Technology Noida	20-22 February 2020

## RESEARCH GRANT- R&D PROJECTS

SR. NO.	FACULTY NAME PI, CO-PI	PROJECT TITLE	NAME OF AGENCY	AMOUNT (Rs.)	DURATION A.Y
1	Dr. D. S. Watvisave	Skill and Personality Development Center	AICTE Skill and Personality Development Programme Centre for SC/ST Students	13,36,000/-	2019-20 2020-21 2021-22
2	Nilesh R. Kolhalkar, Dr. Ajit A. Bhosale	Mechatronics system design for weed management, detection of major diseased and harvesting the ripen grapes clusters in vineyards	S.P.P.U- <b>ASPIRE</b> (Assistance by S.P.P.U for Project based Innovative Research)- Research Mentorship Grant	3,00,000/-	2019-20 2020-21
3	Dr. Ajit A. Bhosale, Yashwant S. Munde	Modernization of Composite Material Laboratory for composite materials processing, materials testing and machining	AICTE MODERNISATION AND REMOVAL OF OBSOLESCENCE (MODROBS) scheme	13,24,000/-	2019-20 2020-21
4	Dr. A. K. Bewoor, H. M. Shinde	Experimental Investigation for developing cost effective instrument to predict remaining useful life of engine oil	Rajiv Gandhi Science and Technology commission, Government of Maharashtra	16,80,000/-	2018-19 2019-20



## FACULTY PARTICIPATION IN STTP/FDP WORKSHOP

SR. NO	FACULTY NAME	TITLE OF STTP / FDP / WORKSHOP/ SEMINAR/ EXPERT /TRAINER	DATE (FROM - TO)	ORGANIZED BY/ VENUE	DURATION	SPONSORED BY
1	Prof. A. S. Shinde	FDP on Software Tools used in FEA	27 July - 3 August 2020	Kalasalingam University	1 week	AICTE
2	Prof. V. A. Mali	The Bhodhi Tree and SAFE Tools for effective online teaching: A hands on workshop	18-24 June 2020	Online FDP IIT Bombay	1 Week	MHRD
	Prof. S. A. Kedar					
3	Prof. Harish Shinde	Open Source Tools for Research	8-14 June 2020	Teaching Learning Center Ramanujan College University of Delhi	1 Week	MHRD sponsored STTP
4	Prof. Rujuta Agavekar	Futuristic Technologies in Mechanical Industries	5 June - 9 June	Online-DYPIMER	1 week	ISTE and IWS
5	Prof. Rujuta Agavekar	Building Energy Technology and recent trends in HVAC	1 June - 6 June	Online-PCCOE, Pune	1 week	ISHRAE student chapter
6	Prof. Rujuta Agavekar	Python 3.4.3	25 May-30 May	Online-PVGCOET and Spoken Tutorial project, IIT Bombay	1 week	NMEICT, MHRD
7	Dr. Yashwant Munde	Advanced Optimization Tools & Techniques for Researchers and Engineers	23rd May to 27th May 2020	Online FDP SKN Sinhgad College of Engineering, Pandharpur	1 Week	Solapur University
8	Dr. Anand Bewoor	OUTCOME BASED EDUCATION: A STEP	11-15 May 2020	Government College of Engineering, Karad	1 Week	Margdarshan Scheme of AICTE, New Delhi.

		TOWARDS EXCELLENCE				
9	Prof. Harish Shinde	Recent Trends in Energy and Environment	6-10 Jan.2020	SVNIT, Surat	1 Week	TEQIP-III
	Prof. S. A. Kedar					
10	Prof. N. R. Patil	Research Methodologies and Advanced Optimization Techniques'	16 Dec-20 Dec 2019	School of Mechanical Engineering MIT WPU	1 week	Institution of Engineers and Technology (IET)
11	Prof. N. R. Patil	Chemistry and Engineering Aspects of Water Remediation'	1 July-5 July 2019	COEP	1 week	TEQUIP-III
12	Dr. Yashwant Munde	ACOUSTIC	19, 26 July and 2 August 2020	Shri B.V.V. Sangha's BASAVESHWAR ENGINEERING COLLEGE BAGALKOT-587102	3 days	ENVIRO SENSE TECH (EST) Bangalore
13	Prof. N. R. Kolhalkar	Rehabilitation Robots-A Practical Approach- Dr. Santhakumar Mohan	25 May 2020	IIT Palakkad	1 day	IIT
14	Prof. Rujuta Agavekar	Effective and Efficient Online Teaching in the age of CORONA, a hands-on workshop	16 May 2020	IIT Bombay	1 day	MHRD

# INNOVATION 2020



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# ASME STUDENT SECTION



ASME EFX 2019



INDUSTRIAL VISIT TO  
TATA CUMMINS PVT. LTD.,  
PHALTAN



TALK BY COL. JOSHIL RAJ  
ON 'ARTIFICIAL INTELLIGENCE IN MILITARY'



GUEST LECTURE ON 'ADVANCED BATTERY'  
IN INNOVATION 2020



INDUSTRIAL VISIT TO FABTECH PROJECTS  
AND ENGINEERS LTD., VASULI



GUEST LECTURE BY  
'IMPERIAL OVERSEAS EDUCATION'

# NATIONAL SERVICE SCHEME



NSS MEMBERS



SWACHH BHARAT ABHIYAN  
KHADAKWADI VILLAGE



SWACHH BHARAT ABHIYAN  
MECHANICAL DEPARTMENT



TREE PLANTATION



# INDUSTRIAL VISITS



SOMESHWAR SUGAR FACTORY  
S.Y.



IMAGICA  
T.Y.



ARTI, PHALTAN  
FINAL YEAR B.TECH

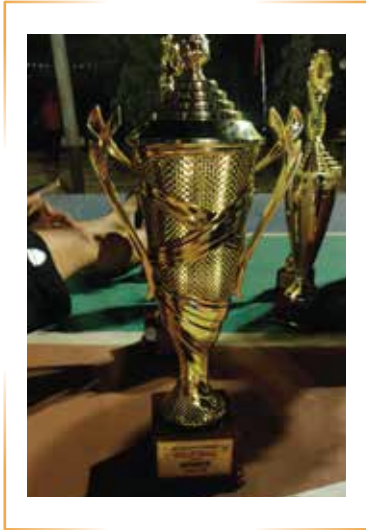


CUMMINS INDIA LTD., PHALTAN  
FINAL YEAR B.TECH AND  
M.TECH



VARASGAON HYDROPOWER  
PLANT, FINAL YEAR B.TECH

# SPORTS



PICT ELEVATE  
VOLLEYBALL  
WINNERS



AIT PACE  
VOLLEYBALL  
WINNERS



CCOEW PENTACLE  
VOLLEYBALL  
WINNERS



CRICKET TEAM - AIT PACE  
WINNERS



VOLLEYBALL TEAM



CRICKET TEAM - DAMINI  
WINNERS