MECH @ CONNECT

LNCT GROUP OF COLLEGES
"WORKING TOWARDS BEING THE BEST"

DEPARTMENT OF MECHANICAL ENGINEERING

April-June, 2019

LAKSHMI NARAIN COLLEGE OF TECHNOLOGY, BHOPAL

VISION:

To be a premier institute where engineering education and research converge to produce engineers as responsible citizens.

MISSION:

- To improve continually in the teaching-learning process by strengthening infrastructural facilities and faculty credentials.
- To undertake interdisciplinary research and development by engaging the faculty and students in curricular, co-curricular and industry collaborated projects towards problem solving.
- To enhance proportion of skilled based courses beyond curriculum to create more employable graduates.
- To inculcate human values, ethics, patriotism and responsibility in our outgoing engineers by providing conducive environment.

DEPARTMENT OF MECHANICAL ENGINEERING

VISION:

To be recognized in academics and research for producing engineers as responsible citizen who are innovative, choice of employers and able to do further studies & research.

MISSION:

- To provide knowledge and skills of Mechanical Engineering to the students.
- To impart quality education to make students competent mechanical engineer and responsible citizen.
- To provide facilities and environment conducive to grounding scholars for employability, higher studies and research.
- To prepare its students for successful career in engineering.

Program Educational Objectives (PEOs)

To make the students able of applying knowledge of mathematics, science and subjects of mechanical engineering in dealing with engineering problems.

To be able to identify and understand real life problems and suitably design and manufacture, feasible and sustainable mechanical devices and systems.

To be able to carry out the research work in the field of Mechanical Engineering.

To be able to use modern tools and techniques for the efficient working and meeting challenges of modern society and industry.

PROGRAM OUTCOMES (POs)

Engineering Graduates will be able to:

Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.x

DEPARTMENTAL NEWS

1. Students of Mechanical Engineering department swept the Graduate Aptitude Test Engineering (GATE) Exam, achieving unprecedented results:

a. Sourabh Suman- AIR 216

b. Rishabh Patidar- AIR 309

c. Shubham Ojha- AIR 407

d. Omang Saxena- AIR 686

2. Dr. A.S. Yadav, Prof. R. Waghdhare & Dr. A.K. Wamankar registered for a new design patent for "LAPTOP CASE".

3. Students Mr. Anant Barasker and Mr. Deepanshu S. Solanki topped the RGPV Exams for the 8th semester (2018-2019) by achieving 9.01 CGPA each.

4. Prince Verma, Student of 6th Semester, Department of Mechanical Engineering, has participated in "National Conference on Futuristics in Mechanical Engineering (FME-2019)", organized by Department of Mechanical Engineering, Madan Mohan Malaviya University of Technology, Gorakhpur (UP), during March 28-29, 2019.

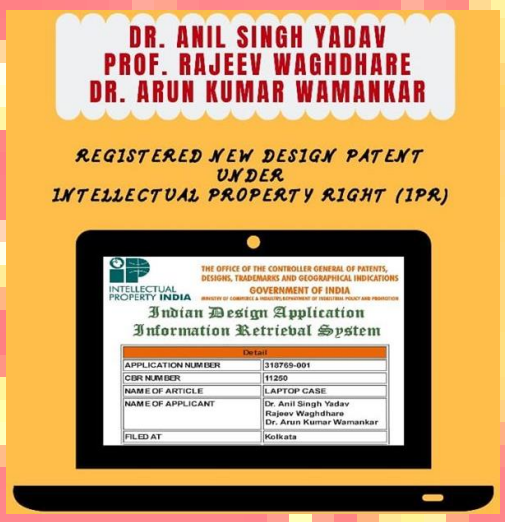
5. Students of the Mechanical Engineering Department- Mr. Prakash Wankhade, Mr. Abhishek Mudgal, Mr. Deepam Tyagi, Ms. Harmeet Kaur, Ms. Kratika Bhaskar, Mr. Suraj Parmar & Mr. Abhishek Srivastava got placed in 'ZETATEK'.

6. Three teams of mechanical engineering students- led by Mr. Akshat Kapoor, Mr. Jay Soni and Mr. Mayank Giri, respectively have been selected for the pre-final round of Smart India Hackathon- 2019, Hardware Edition.

7. Mechanical Department students- Mr. Tanmay Sharma and Mr. S. Zaeem Khan were granted a patent for a revolutionary exhaust- gas purifier system. Their purifier system is designed on a truncated cone design principle for increasing contact surface- area which enabled them to achieve an efficiency of 65-75%.

The device is made of lead and brass which acts as negative and positive charge to attract the pollutants, utilising the exhaust gas' energy.

Their research has also been published in 2 international research journals.



NEWS AROUND THE WORLD

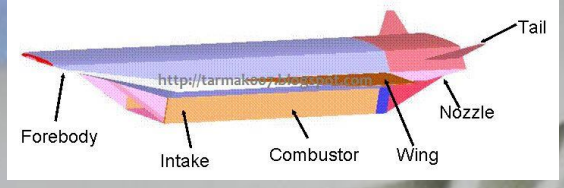
- **ISRO launched Chandrayaan-2**
  The Indian Space Research Organisation Launched India's Second Lunar Mission Chandrayaan-2 on 22nd July, 2019 from Satish Dhawan Space Center, Sriharikota, Andhra Pradesh. The Chandrayaan-2's lander is expected to touch down near Moon's South pole on 7th September, 2019. It had been scheduled for 15th July, 2019, but was called off due to a technical snag- noticed while filling the cryogenic engine of the rocket with Helium. It has three modules (a detachable self-contained unit of a spacecraft) namely an orbiter, a lander named Vikram and the rover named Pragyan. The significance of Chandrayaan-2 is- it will land on the South-Pole of Moon, which is still unexplored by any of the countries. Therefore, landing of spacecraft near lunar South Pole will be historically significant as it will give ISRO the opportunity to name that site on the Moon.

- **Indian Railways Conducts Tri-Netra technology trials**
  Union Ministry of Railway announced in Rajya Sabha for conducting TRI-NETRA (Terrain Imaging for Drivers- Infrared, Enhanced, Optical & Radar Assisted). It comprises of infrared camera, optical camera and radar- assisted imaging system for assisting loco- pilots in identifying obstructions on tracks, mainly in foggy conditions.

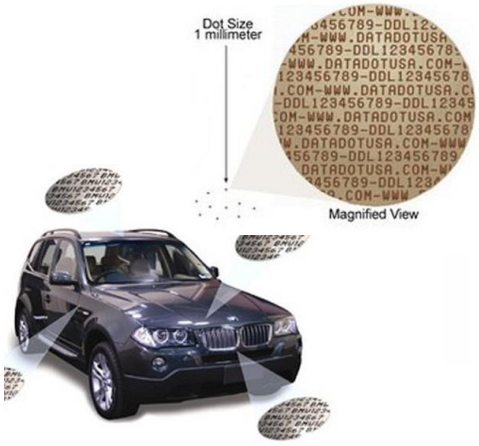
- **ISRO Launched Satellite- RISAT 2BR1**
  ISRO has launched latest radar imaging reconnaissance satellite- RISAT 2BR1. The radar imaging satellite will be carried by PSLV-C46. It is one of the reusable variants of ISRO's polar- satellite launch vehicle (PSLV) rocket. These radar- imaging satellites are designed to do all- weather surveillance, using Synthetic Aperture Radar (SAR) i.e. they provide a continuous (24×7) view of earth, day or night and even during bad weather for defence forces to detect infiltration along border.

- **Government to set up Defence Space Research Organisation.**
  The union government has cleared setting up of new agency called Defence Space Research Organisation (DSRO), which has been entrusted with the task of creating space- warfare weapon systems and technologies.

- **India's Defence Research and Development organisation (DRDO) conducted maiden test of an indigenously- developed Hypersonic Technology Demonstrator Vehicle (HSTDV) from launch pad no.-4 of Integrated Test Range (ITR) at Abdul Kalam island off Odisha coast.**



- **Mercedes to launch first fully-electric vehicle in India in April** German auto giant Mercedes-Benz could become the first luxury carmaker to launch a fully-electric vehicle in India when it commercially launches the EQC, a battery-powered sports utility vehicle (SUV) in April. The five-seater SUV is one of the several new electric vehicles being planned by Mercedes for India. While the EQC will become the flagship model, there are plans to introduce the EQA, a compact EV, in India that could become the base EV for the company.



- **Your car may become almost theft proof- new technology hits the market.** Soon, it would become almost impossible for car thieves to dispose off the stolen car, even after dismantling. According to a report, to stop car thefts, the government has approved a new technology called “Microdots” that will make it almost impossible for lifter to remove the dots and make vehicles untraceable. Microdots is a technology by which thousands of micro dots are sprayed over the body of vehicle. These small laser-etched dots contain nano-size (0.5 mm) particles that carry information like unique number and vehicle identification number.

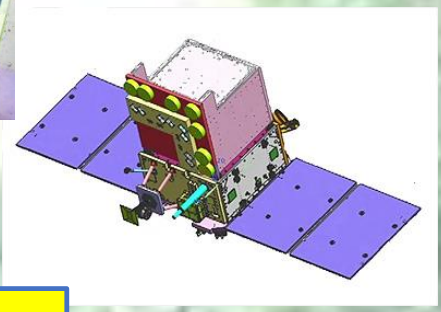
- **“Robot Blood” Powers Machines for Lengthy Tasks** Researchers at Cornell University have created a system of circulating liquid “robot blood” within robotic structures, to store energy and power robotic applications for sophisticated, long-duration tasks. The researchers have created a synthetic vascular system capable of pumping an energy-dense hydraulic liquid that stores energy, transmits force, operates appendages and provides structure, all in an integrated design.

- **Sensor-packed glove learns signatures of the human grasp** The researchers developed a low-cost knitted glove, called “Scalable Tactile Glove” (STAG), equipped with about 550 tiny sensors across nearly the entire hand. Each sensor captures pressure signals as humans interact with objects in various ways. A neural network processes the signals to learn a dataset of pressure-signal patterns related to specific objects. Then, the system uses that dataset to classify the objects and predict their weights by feel alone, with no visual input needed. In a paper published in Nature, the researchers describe a dataset they compiled using STAG for 26 common objects- including a soda can, scissors, tennis ball, spoon, pen, and mug. Using the dataset, the system predicted the objects-identified with up to 76 percent accuracy. The system can also predict the correct weights of most objects within about 60 grams.

- **Hummingbird Robot uses AI to soon go where drones can’t** Researchers have engineered flying robots that behave like hummingbirds, trained by machine- learning algorithms, based on various techniques the bird uses naturally every day. Artificial intelligence, combined with flexible flapping wings, also allows the robot to teach itself new tricks. Even though the robot can’t see yet, for example, it senses by touching surfaces. Each touch alters an electrical current, which the researchers realized they could track.

- Engineers tap DNA to create ‘lifelike’ machines Tapping into the unique nature of DNA, Cornell engineers have created simple machines constructed of biomaterials with properties of living things. Using what they call DASH (DNA-based Assembly and Synthesis of Hierarchical) materials, engineers constructed a DNA material with capabilities of metabolism, in addition to self-assembly and organization- three key traits of life. “We are introducing a brand-new, lifelike material concept powered by its very own artificial metabolism. We are not making something that’s alive, but we are creating materials that are much more lifelike than have ever been seen before” said Dan Luo, professor of Biological and Environmental Engineering.

- EMISAT added to India’s Defence capability. After the successful test of A-SAT through Mission Shakti, India’s defence capability has got a further boost with the successful launch of the Electromagnetic Intelligence Satellite (EMISAT).



SPORTS NEWS

- **Mechanical Department students, Mr. Abhishek Mohan and Mr. Romil Patel participated in the national- level Football tournament "Ranbhoomi“, held at "Dr. Ram Manohar Lohiya National Law University". The team performed exceptionally well and ended up winning the tournament.**
- **Mr. Anas Parvez, a student of Mechanical Department represented the college for the Tennis- Nodals, held at BHEL SPORTS COMPLEX, conducted by Oriental College of Technologies. He achieved laurels for the college by winning the tournament. He will now be representing Bhopal at university- state level tournament, which will be held at Vindhya Institute of Technology, Satna in October.**
- **Mr. Satwik Pandey of Mechanical Department is a talented and aspiring Cricketer. He participated in the Cricket- Nodals, held at Radharaman College, Bhopal. The college team lost the semi- final match by a close margin and were eliminated form the tournament. But Satwik's consistent performance throughout the tournament earned him a place in the RGPV University’s state team.**
- **Mr. Mohit Lodhi of Mechanical Department has an avid interest in the sport of Basketball. He has participated at various state and college- level championships and has won laurels for the college.**
- **Mr. Satyam Pandey of Mechanical Department participated in the Kabaddi- Nodals, held at Oriental College . Satyam was an integral part of the team and with the help of his consistent performance, the team emerged as Champions.**

SAE LNCT is an endeavour of passionate and dedicated students at one of the premier institutions of Central India that works to develop off road and formula racing vehicles. The aim is not only to develop conventional and non- conventional racing vehicles, but also to delve into the details- to appreciate the science behind it and innovate. So that we, as engineers, can add our share of value in the prosperity of the society.

LNCT SAE CLUB

The team was established as a student-run organisation in 2013. Since then, the team has been consistent in its effort which has earned it respect in many prestigious events across India and has been among the top few in the region to do so.

SAE ATV Team stood

- 7th in BAJA SAE 2018 technical round in all over India and got 45th rank overall.
- 1st in Mega ATV 2018 in all over Madhya Pradesh.

Once a person is a part of this SAE family, he is bound to become a better multifaceted version of himself by imbibing managerial, technical and business skills that will lead him to a prosperous career ahead. SAE stands for Society of Automotive Engineers, and is a global association of more than 128,000 engineers and related technical experts in the aerospace, automotive and commercial- vehicle industries. The core competencies are- life-long learning and voluntary consensus standards development. SAE India is an affiliate society of SAE International, registered in India as a national non-profit engineering and scientific society, dedicated to advancement of automobile industry in India.

The Indian Society of Heating, Refrigerating and Air Conditioning Engineers (ISHRAE), was founded in 1981 at New Delhi by a group of eminent HVAC&R professionals. ISHRAE today has more than 28,780 HVAC&R professionals and Student-members. ISHRAE operates from 41 Chapters and sub Chapters spread all over India, with HQ in Delhi. It is led by a team of elected officers, who are members of the Society, working on a voluntary basis, and collectively called the Board of Governors. ISHRAE's focus in the coming year shall be Advocacy, Research, Standards, Publications and Education . The theme for the year 2019- 20 is "EXCELL", Excellence in Communication, Engineering and Lifelong Learning.

The Bhopal Student Chapter of ISHRAE was recently started in Lakshmi Narayan College of Technology in the month of April. It is currently the only Student Chapter in the city. The students who choose to become the members of this club get the privilege to attend various activities like expert lectures, industrial visits, K20 (a program based on spreading awareness to the society), national- level quiz competition, etc. This club is regulated by the student body of the college. There is so much to learn when we come across such educated professionals in such an elite group as ISHRAE.

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