



LNCTSM
GROUP OF COLLEGES
"WORKING TOWARDS BEING THE BEST"

**DEPARTMENT OF
MECHANICAL
ENGINEERING**

**Oct- Dec,
2019**

MECH @ CONNECT



EDITORIAL BOARD:
Faculty Editors:-
Dr. SHAILENDRA DWIVEDI
Dr. T. RAVI KIRAN
Dr. NEERAJ DUBEY

Student Editor:
AKSHAT KAPOOR
Segment Editors:
ABHINAV RAJ
(News around the world)
ABHISHEK MOHAN
(Sports news)

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, LNCT Group, Bhopal participated in "HITACHI AQUEST 2019" under ISHARE Chapter activity. Competition was held in Indore on 4th October. In all, 40 teams from all over MP participated in this competition.

Our students secured "first position" in this competition.



2. Mr Manish Rajput, alumni, 2018 Batch, Mechanical Engineering Department, LNCT Bhopal, secured "AIR 7th" in the most prestigious exam in the field of engineering- the Indian Engineering Services examination (IES-2019).



3. Mr. Piyush Pratap Singh, alumni, 2016 Batch, Mechanical Engineering Department, LNCT Bhopal, secured "AIR 41st" in the most prestigious exam in the field of engineering- the Indian Engineering Services examination (IES-2019).





4. Dr. Anil Singh Yadav, professor, Mechanical Engineering Department registered & protected his literary work titled "Phenomenological Correlation for Heat Transfer" under the Indian Copyright Laws.

In this literary work, Dr. Yadav developed a unique phenomenological correlation which almost perfectly predicts the heat transfer characteristics for turbulent flows through a rectangular passage, subjected to partial blockage.

|   Extracts from the Register of Copyrights | | | | | |
|--|--|--------------------|------------------|--------------|------------|
| ROC Number | Work Title | Class of Work | Submitted By | Submitted On | Status |
| L-86756/2019 | A Phenomenological Correlation for Heat Transfer | Literary/ Dramatic | Anil Singh Yadav | 25/08/2019 | Registered |

5. Dr. Anil Singh Yadav, Dr. Naveen Agrawal, Prof. Sachin Nikam, Prof. Sandeep Mahore, Prof. Anil Chourasia and Prof. Deenoo Pawar, faculty members of Mechanical Engineering Department, Registered & Protected their literary work titled "An Epitome of the Thermodynamics-I" under the Indian Copyright Laws.

|   Extracts from the Register of Copyrights | | | | | |
|--|------------------------------------|--------------------|--|------------|--|
| ROC Number | Work Title | Class of Work | Submitted By | Status | |
| L-88677/2020 | An Epitome of the Thermodynamics-I | Literary/ Dramatic | Dr. Anil Singh Yadav Dr. Naveen Agrawal Sachin Nikam Sandeep Mahore Anil Chourasia Deenoo Pawar | Registered | |

6. The AAROH Racing Team, of students of Mechanical Engineering Department, participated in the Formula Kart Design Challenge- Season 4 competition with an electric go- kart, organised by Fraternity of Mechanical and Automotive Engineers. The event was held at Kari Motor Speedway in Coimbatore, which is a Formula-3 standard racetrack.

The team bagged 2 prizes in its very first outing- including winners in Cost Report Evaluation and a runners- up award in the Business-Plan category.

7. Team Grip Racers- the racing team of second-year students of the Mechanical Engineering Department- designed and manufactured their first- ever go- kart which is based on an internal- combustion engine to participate in various national- level karting competitions- such as FKDC, by FMAE.



NEWS AROUND THE WORLD

- **First-Ever Image of Black Hole Revealed**

The first direct visual evidence of a black hole and its "Shadow" has been revealed by astronomers working on the Event Horizon Telescope (ETH). The image is of the supermassive black hole that lies at the centre of huge Messier 87 galaxy, in the Virgo galaxy cluster.

- **CSIR Launched First Indigenous High Temperature Fuel Cell System**

The Council of Scientific and Industrial Research (CSIR) has launched the first indigenous High-Temperature Fuel Cell system under India's flagship program 'New Millennium Indian Technology Leadership Initiative (NMITLI).



- **Defence India Startup Challenge Launched**

The Defence India Startup Challenge has been launched by Defence Innovative Organisation to boost innovations under the 'Innovations for Defence Excellence' (iDEX) Scheme. The initiative has been launched with support from the Department of Defence Production, Ministry of Defence, Atal Innovative Mission and Niti Aayog.



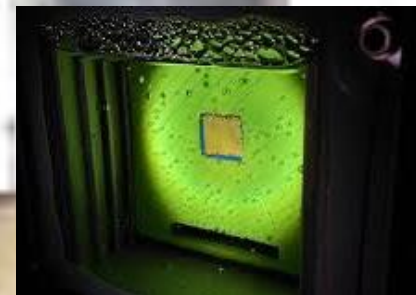
- **GEMINI: Device for disaster warning launched by Govt. of India**

The government of India launched the 'GEMINI Device' which will provide information related to disaster warnings. This is exclusively designed for fishermen about disasters when they are 10 to 12 km away from the coast.



- **'Artificial leaf' successfully produces clean gas**

The carbon-neutral device sets a new benchmark in the field of solar fuels, after researchers at the University of Cambridge demonstrated that it can directly produce the gas- called Syngas -in a sustainable and simple way. Rather than running on fossil fuels, the artificial leaf is powered by sunlight, although it still works efficiently on cloudy and overcast days. And unlike the current industrial processes for producing syngas, the leaf does not release any additional carbon dioxide into the atmosphere. The results are reported in the journal 'Nature Materials'.



- **Argon-40: Chandrayaan-2 detected isotope of noble gas in lunar exosphere**

Chandrayaan-2 -currently orbiting the moon- has detected Argon-40 in lunar exosphere. It has been able to do that with help of its Chandra's Atmospheric Composition Explorer-2 (CHACE-2). The CHACE-2 payload in the Chandrayaan-2 orbiter is a neutral mass spectrometer. It detects constituents in the lunar neutral- exosphere. It has detected Argon-40 from an altitude of 100km, capturing day-night variations. The gas in the lunar exosphere condenses during lunar night. The gas is released after lunar dawn.





- **GAZMO 3D - India's first mobile app, enabling Ease of Manufacturing**

Chizel, a team of mechanical engineers, manufacturing experts and technology builders brings this digital innovation to the Indian manufacturing industry, united to make on-demand manufacturing a reality. GAZMO 3D is India's first indigenously- built mobile app that allows users to access 3D CAD data right from their mobile phones. The app is built for machine shops and manufacturing teams who do not have access to computers all the time. For the users, checking the CAD files and inspecting the dimensions is only possible when they have access to computers.



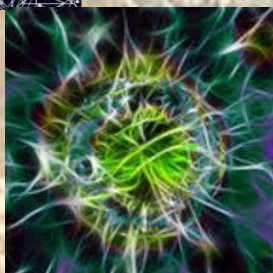
- **NASA's Curiosity Rover finds an ancient oasis on Mars**

Imagine ponds dotting the floor of Gale Crater, the 100-mile-wide (150-kilometer-wide) ancient basin that Curiosity is exploring. Streams might have laced the crater's walls, running towards its base. Watch history in fast forward, and you'd see these waterways overflow, then dry up, a cycle that probably repeated itself numerous times over millions of years. That is the landscape described by Curiosity scientists in a Nature Geoscience paper. The authors interpret rocks enriched in mineral salts discovered by the rover as evidence of shallow briny ponds that went through episodes of overflow and drying. The deposits serve as a watermark created by climate fluctuations as the Martian environment transitioned from a wetter one to the freezing desert it is today.



- **Machine learning predicts behavior of biological circuits**

In a new study, the researchers trained a neural network to predict the circular patterns that would be created by a biological circuit embedded into a bacterial culture. The system worked 30,000 times faster than the existing computational model. To further improve accuracy, the team devised a method for retraining the machine- learning model multiple times to compare their answers. Then, they used it to solve a second biological system that is computationally demanding in a different way, showing the algorithm can work for disparate challenges. "This work was inspired by Google showing that neural networks could learn to beat a human in the board game Go," said Lingchong You, professor of biomedical engineering at Duke University.



- **A new level of torque and speed through a nascent GPT Gearhead Family**

The nascent metal GPT planetary gearhead family has excellent features such as compact dimensions, high torque and extremely fine graduations of the several gear ratios. It's robust design can endure both- frequent and sudden alterations in load. The gearheads can enable various shaft configurations, be combined with several motors, and work with high efficiency. This family has a performance comparable with ceramic components and other more costly technologies. The diameters of the gearheads are 22, 32, and 42 millimeters. As compared with the previous models, the input speeds were supported up to 20,000 rpm in intermittent mode and the continuous input speed was more than two times to 10,000 rpm.



SPORTS NEWS



1. Mr. Abhishek Mohan of the Mechanical Department has participated in various Football tournaments. He recently represented Bhopal at State-level Football tournament held at IES Group of Colleges, Bhopal. The team dominated the whole tournament and managed to win the tournament convincingly. Due to his consistent and brilliant performance, he was selected for RGPV University's National team.



2. Mr. Satwik Pandey of Mechanical Department has participated in various Cricket tournaments and has achieved laurels for the college. He participated in the following tournaments :-

- IIM-Indore - **Runners Up**
- All Saints Cup- **Winners**
- Aisect Cricket league- **2nd Runners Up**

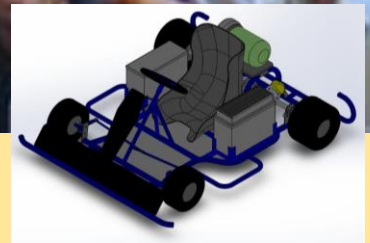


3. Students of Mechanical Department, Mr. Romil Patel and Mr. Abhishek Mohan represented the college in the Football tournament, organized by Reliance Foundation Youth Sports (RFYS). The team showed great resilience and composure in the month-long tournament. They were undefeated throughout the tournament and were crowned as City Champions. The team also qualified for the National Championship which will be held at Emerald High School, Indore.

4. Mr. Satyam Pandey of Mechanical Department participated in the Kabaddi Regional championship, held at Sagar College. Satyam was an integral part of the team and with consistent performance, the team emerged as Champions.



Electric vehicle club AAROH RACING TEAM



As the name of the club suggests, we as members of this club aim at building electric go karts and all terrain vehicles in order to enhance our automobile production skills and to test them in various state and national- level competitions. In case, you are wondering what a go kart or an all terrain vehicle (a.k.a. ATV) is, then, you have been bestowed upon with the liberty to Google it. Go ahead.

The production of electric vehicles is done under the banner of "AAROH RACING TEAM" which is our official team name for participating in various competitions. We established this because of our fascination with automobiles. Every kid who has grown up watching Formula 1, or indeed any four/two-wheeled form of racing, has always secretly harboured a wish to stop watching and get behind the wheel of the automobile in question or to start making one of his own (we are a group of people with similar interests). There's a satisfaction in knowing you are doing what you thought of doing in college. Also, we wanted to apply what we'd studied in class over the years. Building an automobile is a very complicated process as the majority of us already know. What you don't know is how it's made, what all components are required, how are the components designed, how are the components manufactured, how do these components work, what's the working mechanism behind them, how economically feasible the design of the product is? It is one thing to sit and study in class and an entirely different thing to go out there and apply what you have studied. Also, it's not only about physics, maths and manufacturing processes. There's a management aspect to it as well, one of the competitions is to make the judges buy what we make as a product. So, there's also a management department in our team which looks after economic feasibility of designs, business plans, cost reports, project planning, and various others. Those who aren't interested in the field of applied mechanics, manufacturing or CAD modelling can opt for management or can also get an opportunity to get behind the wheels. Also, on a side note. It is kind of cool being a part of a racing team, you get respect and appreciation from your fellow mates- be it in the college or outside. Majority of you will understand what we mean by that. The membership also gets you a lot of other perks, like the company of some mental machines, along with working in an intensely competitive, fast- paced and time- bound environment. If you think you can be a part of AAROH RACING TEAM, ping us.

Adieu.

Deepanshu Sharma

aarohracingteam@gmail.com

Published- December 31, 2019

For feedback, Contact: melnctnewsletter@gmail.com