LORDS INSTITUTE OF ENGINEERING & TECHNOLOGY

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DEPARTMENT OF Mechanical Engineering

Presents

Mechronicle

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Technical Article



Preventing energy loss in windows

Mechanical engineers are developing technologies that could prevent heat from entering or escaping windows, potentially preventing a massive loss of energy.

Mary Beth Gallagher | Department of Mechanical Engineering
January 6, 2020

In the quest to make buildings more energy efficient, windows present a particularly difficult problem. According to the U.S. Department of Energy, heat that either escapes or enters windows accounts for roughly 30 percent of the energy used to heat and cool buildings. Researchers are developing a variety of window technologies that could prevent this massive loss of energy.



Graduate students Elise Strobach and Kyle Wilke have developed a high-clarity silica aerogel that, when placed between two panes of glass, is 50 percent more insulating than traditional windows and lasts up to a decade longer.

"The choice of windows in a building has a direct influence on energy consumption," says Nicholas Fang, professor of mechanical engineering. "We need an effective way of blocking solar radiation."

Fang is part of a large collaboration that is working together to develop smart adaptive control and monitoring systems for buildings. The research team, which includes researchers from the Hong Kong University of Science and Technology and Leon Glicksman, professor of building technology and mechanical engineering at MIT, has been tasked with helping Hong Kong achieve its ambitious goal to reduce carbon emissions by 40 percent by 2025."Our idea is to adapt new sensors and smart windows in an effort to help achieve energy efficiency and improve thermal comfort for people inside buildings," Fang explains.

His contribution is the development of a smart material that can be placed on a window as a film that blocks heat from entering. The film remains transparent when the surface temperature is under 32 degrees Celsius, but turns milky when it exceeds 32 C. This change in appearance is due to thermochromic microparticles that change phases in response to heat. The smart window's milky appearance can block up to 70 percent of solar radiation from passing through the window, translating to a 30 percent reduction in cooling load.

College Vision:

Lords Institute of Engineering and Technology strives for excellence in professional education through quality, innovation and teamwork and aims to emerge as a premier institute in the state and across the nation.

College Mission:

1. To impart quality professional education that meets the needs of present and emerging technological world.
2. To strive for student achievement and success, preparing them for life, career and leadership.
3. To provide a scholarly and vibrant learning environment that enables faculty, staff and students to achieve personal and professional growth.
4. To contribute to advancement of knowledge, in both fundamental and applied areas of engineering and technology.
5. To forge mutually beneficial relationships with government organizations, industries, society and the alumni.

Department Vision:

To impart high standards of quality education which enhance students' career efficaciously, to become a holistic well-qualified engineer who are competent, innovative, entrepreneurial and research oriented to meet the standards of new millennium.

Department Mission:

DM1: An integrated educational approach that blends knowledge of engineering fundamentals, technical skills, practical knowledge and research.

DM2: To enrich undergraduate experience of distinctive academic curriculum through interaction with major stake holders, hands-on learning, team work, management and multi-disciplinary skill set.

DM3: To make students aware of professional responsibilities, ethics, global demands, sustainable solutions, environmental, technological challenges and the needs of lifelong learning.

DM4: To prepare students in developing solutions of global standards through research and innovation, design and development of demand-based projects, entrepreneurial skills and employability capabilities.

Program Educational Objectives (PEOs)

The educational objectives of the Mechanical Engineering program are designed to produce competent engineers who are ready to contribute effectively to the advancement of Mechanical Engineering causes and to accommodate the needs of the profession. The Mechanical Engineering department is dedicated to graduating Mechanical Engineers who

PEO1: To establish themselves as successful professionals with strong fundamental knowledge in basic and engineering sciences to find suitable solutions of technological and real-life challenges using innovative tools.

PEO2: To enhance technical competency and problems solving skills through state of art facilities for adequate solutions to technical problems.

PEO3: Acquire high skill-set by continuous training, multi-disciplinary activities, team work, effective communications, Information Technology tools usage and ethics so that students shall acquire good job opportunities and also will help in their higher education.

PEO4: Giving consultancy services to industrial, Societal challenges and promoting department-industry interactions, by enhancing technical, managerial, environmental responsibilities and lifelong learning with sustainable development.

Program Specific Outcomes (PSOs)

PSO1: Professional Skills: An ability to understand the basic concepts in mechanical Engineering and to apply them to various areas, like production, thermal, designing etc., in the design and implementation of complex systems.

PSO2: Problem-Solving Skills: An ability to solve complex Mechanical Engineering problems, using latest hardware and software tools, along with analytical skills to arrive cost effective and appropriate solutions.

Program Outcomes (POs)

Engineering Graduates will be able to:

PO1 :Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2 :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.

PO3 :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.

PO4 :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.

PO5 :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.

PO6 :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.

PO7 :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.

PO8 :Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9 :Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10 :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.

PO11 :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.

PO12 :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.

Committee Meetings

Department Advisory Committee (DAC), Department Academic Audit committee (DAAC) and Program Assessment Committee Committee (PAC), of Department of Mechanical Engineering, LORDS Institute of Engineering and Technology conducted meetings in order to get quality education at LIET Campus as listed below.

S. No	Committee	Meetings
1	DAC	1
2	PAC	1
3	DAAC	2

Department Advisory Committee (DAC) Responsibilities

This committee constituted to help the decision-making process with related to academics, infrastructures, facilities and student support systems for all programs in the department. This committee also helps in defining vision, Mission, PEOs of the department, for regular improvement of PEO & PO attainment levels. Members are listed below.

S.No.	Names	Designation	Role
1.	Dr. Mohammed Yousuf Ali	Principal	Chairman
2.	Dr. Syed Azam Pasha Quadri	HOD	Convener
3.	Dr. Nawazish Mehdi Syed	Professor	Member
4.	Prof. Ravi Kumar Puli	Professor in department Of Mechanical Engineering, NIT-W.	Member
5.	Dr. M. Manzoor Hussain	Professor in department Of Mechanical Engineering and director of admissions in JNTUH	Member
6.	Mr. Ravi Kiran	Robotic and IOT developer, Inventive Core IntegrationsPvt.Ltd.	Member
7.	Mr. M.V.S Krishna	CEO of Mayinkrish Ventures PVT. LTD.	Member
8.	Dr. Gunasekharan	Professor	Member
9.	Dr. Chakradhar Goud	Professor	Member
10.	Mr.N. Raghu	Assistant Professor	Member
11.	Mr. B. Rahul Chandra	Alumni Representative	Member
12.	Mr. Mohammed Ghouse	Alumni Representative	Member
13	Mr. Ali Ahmed	Parent Representative	Member
14.	Mr. A Nasrulla Khan	Student Representative	Member
15.	Mrs.D. Simhna Devi	Assistant Professor	Coordinator

Department Academic Audit Committee (DAAC) Responsibilities

To study various inputs from stake holders and give recommendations on improvement of COs, POs, PSOs. Curricular gaps, Industrial Visits, Internships, guest lectures, events, additional training programs faculty and infrastructure, to consider revision of Vision, Mission of the department and PEOs of the programs offered. Members are listed below.

S.No.	Names	Designation	Role
1.	Dr. Syed Azam Pasha Quadri	HOD	Chairman
2.	Dr. Anwarullah	Professor	Member
3.	Mr. Kondala Rao	Assistant Professor	Member
4.	Mr. R. Suman	Assistant Professor	Member
5.	Mr. Baquer Mohinuddin	Assistant Professor	Member
6.	Mr. M. Guru Bramhanandha Reddy	Assistant Professor	Member
7.	Mr. Khalid Ahmed	Assistant Professor	Member
8.	Mr. Hari Chandrudu	Assistant Professor	Member
9.	Mr. D. H. Pachinavar	Assistant Professor	Member
10.	Mr. A. Nihar	Assistant Professor	Member
11.	Mr. Md. Abdul Junaid	Assistant Professor	Member

Program Assessment Committee (PAC) Responsibilities

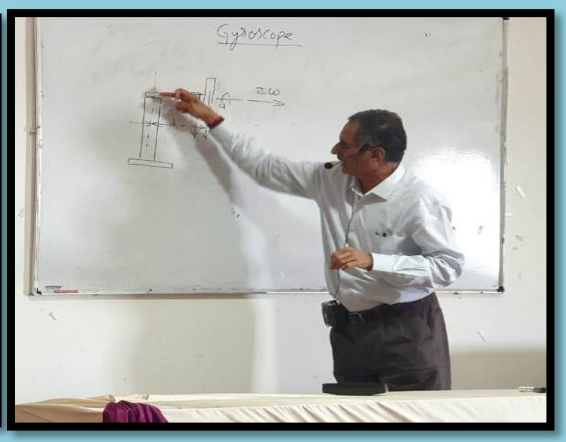
PAC to verify Co-PO Mapping done by the faculty, to maintained POs & PEOs, Motivates the faculty and students towards attending workshops, developing projects, working models, paper publications and research and development in facilitating the program educational objectives, suggesting steps to improve the quality of the program. Members are listed below.

S.No.	Names	Designation	Role
1.	Dr. Syed Azam Pasha Quadri	HOD-ME	PAC Head
2.	Dr. Nagireddy	Professor	Member
3.	Dr. C Vasanthakumar	Professor	Member
4.	Dr. Anwarullah	Professor	Member
5.	Mr. Syed Aslam	Associate Professor	Member
6.	Mr. Kondal Rao	Associate Professor	Member
7.	Mr. Mohammed Iqbal Khatib	Assistant Professor	Member
8.	Mr. Nithin Chandra Manas	Assistant Professor	Member
9.	Mr. Mohammed Asif Kattimani	Assistant Professor	Coordinator

Guest Lectures

Mechanical engineering department has conducted guest lecture on "**Kinematics of Machines**" for II-year II semester B-Tech Mechanical Engineering Students in 2nd floor seminar hall on **30/12/19** by the guest **Dr. SatishBabu** Professor from **JNTU Hyderabad Telangana.**





Impact Analysis: The Guest Lecture is taken by **Dr. SatishBabu,** he explained about field of kinemtaics and basic kinematic link, kinematic pair, degree of freedom, inversion of mehcanism, Analysis of grsphical method. Students were benefitted a lot as they gained a practical knowledge and insight in kinematics of machinary.

A Guest lecture on "**Heat Transfer**"**."** is conducted for III-year II semester B-Tech Mechanical Engineering Students in 2nd floor seminar hall on 20/01/20 by the guest **Dr. Puli Ravi Kumar, Professor** from **NIT Warangal.**





Impact Analysis: Dr. Puli Ravi Kumar given introduction to Thermal conduction, convection and radiation, transfer of energy phase with the help of animated videos and flow takes place in bulk or medium. Students raised plenty of questions for which they got satisfactory answers.

Mechanical engineering department has conducted guest lecture on "**Thermal Engineering**" **for** III-year II semester B-Tech Mechanical Engineering Students in 2nd floor seminar hall on 06/01/20 by the guest **Ravi Krian, Senior Industrialist.**





Impact Analysis: Ravi Krian has covered the introduction then gradually goes toward the concepts with multiple examples. He also covered different types of cycles Otto cycle, Diesel Cycle & dual cycle and their applications in solving various thermal and Air Conditioning problems. By this lecture 85 students increase the level of confidence and resolved the confusion faced in the subject.

Seminars

Workshops

Students Achievement

CAMPUS Placements

Industrial Visit

Student's Internship

Faculty Development Programs

Consultancy projects done by Mechanical engineering faculty in collaboration with various organisation are listed below.

Sl. No.	Name of the Faculty	Funding Agency	Title of the Work	Period	Amount
1.	Dr. Mohd Yousuf Ali	Mr. Shareef Gitam university	Performance emission of combustion analysis of Magkesar oil in a four-stroke diesel engine	6Months	63,000/-
2.	Mr. Sarap Raghavendra	Dr. A Raj Kumar Guru Nanak Engineering college	Analysis of four stroke single cylinder diesel engine by variation of VCR and IOP by magnetizing the fuel	6Months	60,000/-
3.	Mr. Mohammed Asif Kattimani	Mrs. P. Krishna bharathi	Performance, emission and combustion characteristics of Kosme oil bio in four stroke	6Months	70,000/-

			diesel enriched with HCNG		
4.	Dr. Syed Azam Pasha Quadri	Mr. K Krishna (JNTUH)	Hydrogen Induction and fuel diesel engine using with different bio-diesel blends on VCR engine	6Months	57,000/-
5.	Mr. Nithin Chandra Manas	Yucan Tech. Pvt LTD	Development of Gravity Based water purifier by using different materials	3Months	70,000/-
					320000/-

Spon sored projects done by Mechanical engineering faculty in collaboration with various organisation are listed below.

Sr No	**Name of Faculty**	**Project Title**	**Project Type Research**	**Funding Agency**	**Amount**	**Period**
. 1	Dr. Mohammed Yousuf Ali	Magnetic separator	Sponsored Research	Yucan TechnologisPvt.Ltd	1,20,000/-	6 Months
. 2	Dr. Syed Azam Pasha Quadri	Hydraulic press machine	Sponsored Research	Lords Institute of Engineering and Technology Seed funded Project	1,20,000/-	9 Months
. 3	Mr. Mohammed Asif Kattimani	Fatigue Testing Machine	Sponsored Research	Mayinkrish Venures Pvt.Ltd	80,000/-	6 Months
. 4	Mr. Mohammed Abdul Junaid	Thermal Refrigeration Using Solar Energy [Without Compressor]	Sponsored Research	Lords Institute of Engineering and Technology Seed funded Project	75,000/-	6 Months
. 5	Mr. Mohammed Asif.Kattimani	Experimental Evaluation of fatigue life of steel alloy using induction heating	Sponsored Research	RV Engineers	85,000/-	6 Months

Student Chapter List, Institute of Engineering Research and Publication(IFERP)

Sl. No.	Regd. No.	Name of the Student	Year	Membership Number	Period
01	17M21A0301	SYED NAJEEBULLAH HUSSAINI	2019-20	SMIN58370196	1 YEAR
02	17M21A0310	ABDALLAH AYYUB ALI	2019-20	SMIN02571936	1 YEAR
03	17M21A0315	MOHD UZAIR ASHRAF	2019-20	SMIN51879342	1 YEAR
04	17M21A0317	MOHD ABDUL SUBHAN	2019-20	SMIN76804231	1 YEAR
05	17M21A0319	MOHAMMED ALI	2019-20	SMIN17620453	1 YEAR
06	17M21A0322	ABDUL RAHMAN	2019-20	SMIN43921876	1 YEAR
07	17M21A0326	REHAN AHMED	2019-20	SMIN43810659	1 YEAR
08	17M21A0329	MD MASTAAN	2019-20	SMIN096514938	1 YEAR
09	17M21A0331	MOHD ANAS ALI QURESHI	2019-20	SMIN95408761	1 YEAR
10	17M21A0332	SYED ADIL	2019-20	SMIN39506178	1 YEAR
11	17M21A0354	KHAJA AKRAMUDDIN	2019-20	SMIN64873520	1 YEAR
12	17M21A0360	SHAIK IKRAMUDDIN	2019-20	SMIN37506984	1 YEAR
13	17M21A0370	MUNEEBUDDIN	2019-20	SMIN42701398	1 YEAR
14	17M21A03B0	MIRZA AHMED BAIG	2019-20	SMIN53869201	1 YEAR
15	17M21A0312	SYED ASIFUDDIN	2019-20	SMIN06215349	1 YEAR
16	17M21A0330	SHAIK ABUBAKER	2019-20	SMIN61235948	1 YEAR
17	17M21A0338	SYED IDREES UR RAHMAN	2019-20	SMIN85094261	1 YEAR
18	17M21A0327	SYED FURQAN	2019-20	SMIN59872036	1 YEAR
19	18M25A0310	MOHAMMED AIZAZ AHMED	2019-20	SMIN26407159	1 YEAR
20	18M25A0313	MOHAMMED ABDULKHALIQ	2019-20	SMIN91430782	1 YEAR
21	18M25A0314	VOOTLA VISHAL KUMAR	2019-20	SMIN28594716	1 YEAR
22	18M25A0306	M AKASH REDDY	2019-20	SMIN41697032	1 YEAR
23	18M25A0318	U RANGASWAMI	2019-20	SMIN01258396	1 YEAR
24	18M25A0315	MOHAMMED SOHEL	2019-20	SMIN76819450	1 YEAR
25	18M25A0308	MOHAMMED TAJ SARFARAZ	2019-20	SMIN13408762	1 YEAR

MoU's

Lords Institute of Engineering and Technology has entered into a memorandum of understanding (MoU) with various organisations for promotong and reinforcing cooperation, mutual exchange of information, intermships, placments, inffrsatructure development, improvement of reserachand academic programmes and also exchange of experts and researchers.

S.No	Name of the Company	Purpose of MoU	Activity
1.	TSCOST	Cooperation in science, technology and innovation through exchange of institutional experience, researchers and resources for the purpose of promoting sustainable growth, quality of life and equity. R&D support, take up multi-sectoral, multi-organisational projects in	Research Proposal
2.	Rizco Power (Opc) Pvt.Ltd.	Collaborative Research Projects, conduct lectures, joint Research activities, Organizingsymposia, Train studentson different aspects of solar Energy.	Collaborative Research Proposals subm TSCOST
3.	Inventative core integrations Pvt.Ltd.	Developing training module for IOT technology, incubation center, research and development activities in the campus.	1. Workshop on Robotics 2. Student Chapter 3. Guest Lectures 4. Internships 5. Consultancy
4.	Mayinrish ventures Pvt.Ltd.	To collaborate, share information and technology to develop the required skills and intend to create a center of excellence to support these collaborative efforts. Organization of joint workshops, seminars and joint guidance of student projects.	1. Guest lectures 2. Seminar 3. Consultancy 4. Sponsored projects 5. Internships
5.	Yucan technologies Pvt.Ltd.	To sensitize the students and faculty about new design softwares and assist in publications.	1. Workshop on Libre CADD 2.0 2. Publications 3. Sponsored Projects
6.	Exclusive Magnesium Pvt.Ltd.	Services in all mechanical engineering services, Magnesium Alloy castings by Sand, Permanent mold, Centrifugal and Pressure die cast process, Forging, Extrusion Rolled Plates & Sheet.	1. Consultancy Projects 2. Arranged Industrial Visits to Hindustan Machine Tools. 3. Seminar on Technology Transfer India- Hyderabad
7.	Aurobindo Pharma Pvt.Ltd.	Technical and Managerial trainings Testing of materials, Third party Auditing, debottle necking, continuous improvement and operational excellence.	1. Organized Guest Lectures 2. Arranged Industrial visits to-NSHES Nagarjun sagar 3. Arranged Industrial to Kakathiya Thermal plant.