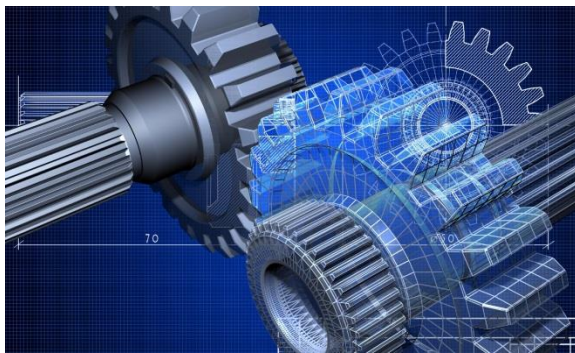


# MECHVISION

July – December 2023

Mechanical Engineering Department

L. D. College of Engineering



**Advisor:**

**Dr. V. B. Patel**

**Editor:**

**Dr. K. G. Dave**

**Committee Members:**

**Prof. G. N. Sutaria**

**Prof. A. G. Momin**

**Dr. M. D. Chaudhari**

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## Principal Message:



Dear students and faculty members,

Team LDCE, with its faculty, staff and students - are forever committed to realize the vision of LDCE. The LDCE community celebrated Independence Day with great joy as our institution marks 75 years of fostering creativity, innovation, and national progress this year. Our journey since 1948 shows our institution's enthusiasm, tenacity, and quality. We impart an education that instills social responsibility and technological proficiency.

The Mechanical Engineering Department, a cornerstone of L. D. College of Engineering, has led the way in promoting cutting-edge research, innovation, and hands-on learning. The new batch of 2023 has arrived at campus bringing a whiff of fresh air along with them. There is always something so invigorating about welcoming students on campus on orientation day. Brilliant young minds ready to take on the world, excited yet nervous, looking up to the institute to build their future.

I appreciate the efforts of the faculty, students, staff, alumni, and all those who have contributed to the growth and success of our institution. I am confident that, together, we will continue to make strides towards a brighter future.

Jay Hind !!!

Major Dr. C. S. Sanghavi

Principal,

LDCE, Ahemdabad

31<sup>st</sup> December 2023

## The message from Head of the Department



Dear students and colleagues,

It is a matter of great pleasure to present before you Newsletter of Mechanical Engineering Department “MECHVISION”. I feel very proud to write that Mechanical Engineering Department is consistently upgrading the knowledgebase through publications, expert lectures, faculty development programs, etc. Department has been a frontrunner in applying the knowledge to foster innovative practices and outcome-based education practices.

The students and faculty members have won several prizes across different competitions like ROBOCON and ROBOFEST 3.0. In ROBOFEST 3.0, 2 teams out of 7, under the guidance of Mechanical Department faculties have won cash prize of 10,00,00 INR and 1,50,000 INR each in the different categories. Several teams from the Mechanical Engineering Department have participated and been finalists at Hackathons.

Its a matter of ‘great pride that faculty members are upgrading their qualifications in the form of completing Ph.D. Department has organized SAHYOG-2023, Industry – Academia meet with the participation of more than 25 industries in the core areas of Mechanical Engineering. Professional student’s chapters of the department (PMI, ISHRAE, etc) providing platform to interact with the industry professionals, capacity building, team work, leadership, etc.

Department has upgraded infrastructure in the form of three smart class rooms and Centre of Excellence in the fields of Hydraulics & Pneumatics with the support from esteemed Alumni.

The newsletter would have been possible with the support of all stake holders of the department. Any constructive suggestions for improving the future issues of MECHVISION are most welcome.

With Regards,

Dr. V B Patel  
Professor and Head,  
Mechanical Engineering Department  
LDCE, Ahemdabad

31<sup>st</sup> December 2023

### 3. Vision and Mission of the Department

#### Vision

To prepare self-driven, environmentally-friendly, self-esteemed, inventive and oriented Mechanical Engineers with virtuous knowledge, proper analytical perceptive and good communication skills.

#### Mission

To develop industry oriented Mechanical Engineering graduates to accept the challenges of society by,

- (1) Teaching Mechanical Engineering knowledge through highly qualified and trained faculty in encouraging environment.
- (2) Creating awareness about the needs of industries and society through alumni and Industry-Institute interactions.
- (3) Encouraging them to think inventively and introduce them to various research activities through advanced project works related to Mechanical Engineering.
- (4) Supporting them to prepare in all aspects like communication, entrepreneurship and interpersonal skills.

### 4. Mechanical Engineering Department - at a Glance

Name of Course	Type	Period (Years)	Intake	Year of Starting
Mechanical Engineering	UG	4	120	1948
Computer Aided Design & Manufacturing	PG	2	18	1996
Cryogenic Engineering	PG	2	15	1990
Internal Combustion Engines & Automobile	PG	2	18	2003
Mechanical Engineering	PDDC	4	120	1968

## Faculty members of Mechanical Engineering Department

<i>Professor</i>	
Dr. V. B. Patel	Dr. R. G. Kapadia
Dr. K. G. Dave	
<i>Associate Professor</i>	
Dr. N V Bora	Dr. P. R. Rathod
Prof. M. A. Lohia	Prof. M. M. Makwana
Dr. R. J. Jani	Prof. R. O. Paliwal
Dr. S. S. Pathan	Prof. M Y Patil
Prof. S. A. Saraswat	Dr. A. V. Patel
<i>Assistant Professor</i>	
Prof. H. P. Patel	Prof. P. C. Sheth
Dr. S. R. Pandya	Dr. B. K. Patel
Prof. M. K. Vyas	Prof. P. V. Jotaniya
Prof. H. M. Ravat	Dr. V. D. Sonara
Dr. S. P. Shah	Dr. U. A. Patel
Dr. D. U. Panchal	Prof. S. B. Bhatt
Dr. D. R. Shah	Prof. N. K. Patel
Prof. K. K. Pansal	Prof. G. N. Sutaria
Prof. A. G. Momin	Dr. D. K. Patel
Prof. S. J. Patel	Prof. D. M. Chandra
Prof. A. C. Pambhar	Dr. H. M. Gajera
Prof. H. R. Patel	Dr. K. P. Hirpara
Dr. N. H. Pancholi	Prof. M. D. Patel
Prof. N. K. Pranami	Prof. J. P. Dataniya
Prof. M. M. Makwana	Dr. M. D. Chaudhari
Prof. K. A. Patel (Adhoc)	Prof. S. B. Shah (Contractual)



## 5. Faculty and Student Achievements

- The team from L D College of Engineering comprises 01 mentor (Prof. Saurabh P. Shah) and 05 students (Dudhia Manush Tusharkumar, Prajapati Utsav Rohitbhai, Modi Dhruvil Rohitbhai, Jagtiya Dharmik Hasmukhbhai and Patil Dhiraj Sunil) participated for the Robofest 3.0 (National level Competition) organized by GUJCOST and Govt. of Gujarat during 29-31 December, 2023. The team appeared in the category of the Two Wheeled self-balancing robot and stood runner-up in the final round. Our team won Rs. 7.5 lakh cash prize money.



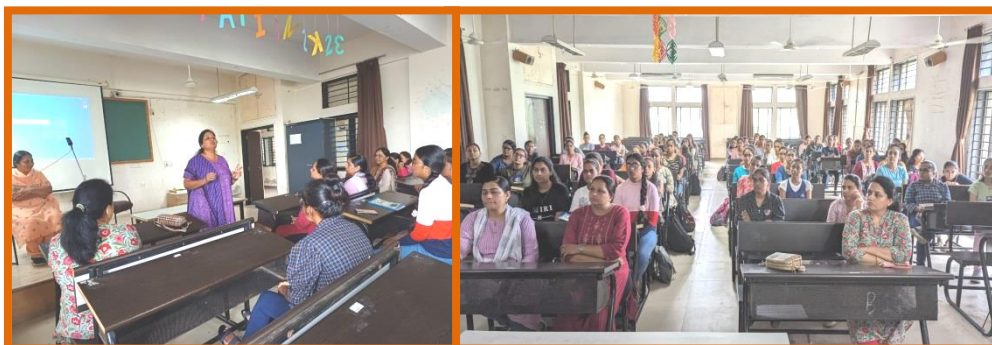
- Internal Complain Committee (ICC), Woman Development Cell (WDC) and NSS unit of LDCE have celebrated “Surakshabandhan” program under initiative of Wajra O’ Force Empowerment Foundation on 28/08/2023 at civil lawn, LDCE. The girls students of college and female faculty members have tied “Rakhi” to security brothers of college. Dr. C S Sanghavi, Principal of LDCE has given encouragement speech to participants. Dr. Komal G Dave, Professor, Mechanical department have made all coordination of this event with help of members of WDC committee.



- A special session of Ms. Shachi Patel an alumna of LDCE and currently works with the US federal as advisor for women in technology is organized by ICC and WDC, LDCE on 21 July 2023. More than 150 students have participated and interact with expert enthusiastically. Dr. Komal G Dave and Dr. R N Desai have coordinate whole event with effective support of committee members of WDC and faculty members of environment department.



- Dr. Komal G Dave, presiding officer ICC and committee member of WDC have made drive for an awareness of ICC functions and promote general well-being of girl students, female staff and faculty members. A special event has been organized for first year girl students on 21 July 2023. Prof Reena Shukla, Associate Professor Civil Engineering Department has given systematically understanding of ICC function to students.



- Dr. Nisha Bora participated in the All India Civil Service Tournament – ( Table Tennis women open ) at Gandhinagar Gymkhana on 11th August 2023.



- Dr. S S Pathan have delivered an expert lecture on "Strategies for Vibration Control" At Nirma University for the students of B.Tech (Mechanical Engg.) Sem. V, on Sept. 26, 2023



- Dr. Nisha Bora and Prof. Mitul Makwana were invited to serve as jury member for internal evaluation of Smart India Hackathon 2023 at VGEC on 23rd August 2023.



- Prof. V B Patel delivered an expert lecture on Teaching Practices on December 22, 2023 at ATAL FDP on “ Alternate Fuels and Electrical Vehicles organized by Automobile and Electrical engineering department, L D. College of Engineering.
- Prof. V B Patel delivered an expert lecture on “” Foundry basics and casting processes on December 23, 2023 at a Faculty Development Program on “Metallurgy for Engineers” organized by NITTTR extension centre, Ahmedabad in association with the Metallurgy Department, Government Engineering College, Sector -28 Gandhinagar
- An awareness talk on PG-AICTE scholarship has been given at PG-orientation program on 29/8/2023 by Dr. K G Dave, coordinator for PG-AICTE scholarship, LDCE.
- One team (Kshalan) under the guidance of Prof. G N Sutaria and Dr. M. D. Chaudhari was finalist at the Smart India Hackathon 2023, PS Numbers SIH1444.
- Dr. M. D. Chaudhari delivered two expert talks at Centre of Excellence - Welding, L. D. College of Engineering on 8<sup>th</sup> and 20<sup>th</sup> September, 2023 on the topic of “Welding Metallurgy” as a part of 10 days program “Fundamentals of Welding” organized for students.
- Dr. M. D. Chaudhari delivered an expert talk at NITTTR, Ahmedabad Extension Centre on 20<sup>th</sup> October, 2023 on the topic of “Research Trends in Metallurgy and Materials Processing” as a part of one week DTE approved FDP on "Metallurgy for Engineers"; organized by NITTTR, Gujarat Extension Center Ahmedabad in association with Metallurgy Department, Government Engineering College, Gandhinagar during 16- 20 October 2023.
- 5 teams under the guidance of Mrunalkumar Chaudhari were finalists at the SIH 2023 Internal Hackathon in the PS Numbers SIH1475, SIH1327, SIH1470, 1361 and 1472 under the categories of Robotics and Drones, Miscellaneous and Renewable and Sustainable energy.
- Prof. A. G. Momin has attended a STTP on “ Metallurgy for Engineers” during 16<sup>th</sup> – 20<sup>th</sup> December 2023 at NITTTR Extn. Centre, Ahmedabad.
- Dr. Nisha Bora. Dr. C H Vithalani and Prof. Swati Saraswat were invited as Guest of Honor at the inaugural function of new batch for training at Keepsake Welding Research & Skill Development Centre



- The students of Mechanical Engineering Department along with faculty members Dr. Sheetal Pandya and Dr. Dhaval Patel have been visited “Vigyan Bharati Sammelan” expo on 21/12/2023 at science city, Ahemdabad . The focus theme of sammelan and expo was “A new integral vision for development”. The sammelan have different events like interactive session with scientist, science book fair, science magic show, Indianan science film festival. The expo displayed Indianan defense equipments, musical instruments, handicrafts, Indian space program, agriculture etc. The students have gat knowledge in each area and enjoyed a lot. They came to know about latest technologies in different fields.



- Prof. G N Sutaria and Dr. Mrunalkumar Chaudhari have participated in blood donation camp organized by NSS LDCE and Red cross blood bank on 26/09/2023.
- Dr. Nisha Bora was appointed as external examiner for PhD thesis evaluation and final viva Voice examination on 14th Oct 2023 at VelTech University, Chennai.
- Dr. Nisha Bora contributed during Startup Conclave-2023 at Exhibition Centre, Helipad, sector-17, Gandhinagar from 5th to 9th Dec 2023.
- Students of ISHRAE LDCE chapter along with Prof. S A Saraswat and Prof R O Paliwal attended the Confluence and Refcold India 2023 on the theme of Decoding Decarbonization at AMA Ahmedabad during 13 and 14 Dec' 2023. Speakers from UNEP and Ishrae shared information about new challenges in Air conditioning and Refrigeration, Cold chain and new refrigerants.

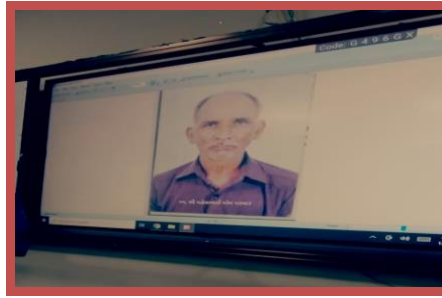


- Dr. V B Patel, Dr. Nisha Bora and Prof. R O Paliwal were invited to attend IAC Faculty Meet conducted by ISHRAE Ahmedabad Chapter on 18th July, 2023. The objective of the faculty meet was to have inputs from faculties from various colleges regarding expectations from a technical society like ISHRAE.





- With regrade it conveys that department has lost one of employee Mr. Mahesh M Parmar, peon on date 4/1/2024. He has served at department and institute nearly 35 years. Mechanical Department gave “Shok Sandesh” to his family during “Prathana Sakha”



## 6. Research and Development Activities

- Prof. Saurabh P. Shah has completed his PhD from Gujarat Technological University in Oct-2023. He has worked on the thesis title "An Investigation of the Machining Characteristics for Hard to Cut Material using TiN Coated End Milling Inserts" under supervision of Dr. Anand Y. Joshi and Dr. Kamlesh V. Chauhan.



- Prof. Keyur Hirpara has completed his PhD from Gujarat Technological University in Dec-2023. He has worked on the thesis title "Experimental Investigations on Multi-layered Plasma Transferred Arc hard facing on Austenitic Stainless Steel using Cobalt Based Super alloy" under supervision of Dr. Janak Valaki and Dr. Mrunal Chaudhari.
- Patent application number 202121021196 titled "Floating Trash Collecting Device" was granted by the Indian Patent Office on 18<sup>th</sup> October 2023. The applicants for this patent include Mishra Yash Rajneeshbhai, Soni Daxit Bharatbhai, Maurya Shivane Lalsahab, Sarvaiya Khushi Dharmendrabhai, Singh Ankit Sunil, Bhatt Kirtan Pradipkumar, Dr. Mrunalkumar D. Chaudhari and Prof. Vasani Jayendra Pankajbhai.
- Dr. Komal G. Dave, Professor, Mechanical, LDCE and Prof Manta Patel have published a technical paper titled “Pouring Time Influence on Residual Mg, Compacted Graphite Formation and Mechanical Properties of Compacted Graphite Iron” in International Journal of Production Technology and Management, IAEME Publication, Vol. 14, Issue 2, 2023.
- Falgun V. Suthar, Hetalkumar N. Shah, Ronak N. Parmar, Mrunalkumar D. Chaudhari, Pina M. Bhatt & Sujoy K. Chaudhury published a paper titled, "Optimization of GTAW process parameters for deposition of nickel-based hardfacing alloy using Taguchi method", in Journal titled, Welding in the World, Volume 67, Issue 8, Pages 1951–1966, August 2023.
- Manish V. Mehta, Mrunalkumar D. Chaudhari, Rakesh Chaudhari, Sakshum Khanna and Jaykumar Vora published a paper titled, "Comprehensive Investigation of Hastelloy C-22

Powder Weld Overlay on SA 240 Type 316L Using Laser Beam Welding for Enhanced Performance", in the journal titled, Journal of Manufacturing and Materials Processing, Volume 7, Issue 6, 207, November 2023.

## 7. Departmental Activities

### Sahyog 2023

SAHYOG-2023 - An Industry-Academia meet has been organised on 16<sup>th</sup> Sept 2023 at V J Jani seminar hall, Mechanical Engineering Department. Persons from industry and well-known organizations have been invited to open discussion for strengthening the ties between academia and industry. The valuable suggestions from industry and academicians have been taken to bridge the gap between the industry and academia requirements. There were more than 70 members including alumni and faculty members were present in the meeting. Dr. Komal Dave, Professor, Mechanical Dept. addressed the dignitary with the vision and mission of Mechanical and Automobile Dept. followed by introduction and achievements of all the faculty members. The functions of various clubs and SSIP cell have been introduced to all the members, faculties and students present over there. Then the forum was made open for discussion by Dr. Nisha Bora and Dr. R J Jani. All alumni and faculties discussed about various means for betterment of teaching and learning process of college. Dr. V B Patel, head of mechanical department have gave concluded remarks and vote of thanks.



### UG Orientation of Mechanical and Robotics & Automation Engineering

- Orientation Program for newly admitted students of Mechanical Engineering and Robotics & Automation has been organized at Mechanical Engineering Department, L DCE Ahmedabad on July 12, 2023. The Program was initiated with the lighting of lamp



by Head of Department Dr V B Patel accompanied by other faculty members. Principal of L D College of Engineering, Dr R K Gajjar, welcomed the new students and congratulated them on getting admission into LDCE. She enlightened the students regarding the magnificent 75 years journey of institute and encouraged them to strive for excellence in academics and research.



Dr V B Patel, HOD, Mechanical Engineering Department congratulated the students and spoke about the achievement of Mechanical Engineering department. He reminded the students that they were at a critical phase of life where they could really make a difference to the society. Senior faculty members of the Department Prof K G Dave, Prof P R Rathod and Prof N V Bora shared their experiences with the students and pushed the students to work towards excelling themselves with positive attitude.



To familiarize the new students with the College and Department, the information was disseminated by the anchors through central PPT and Department PPT presentation. Queries of students related to different aspects of campus life were answered by faculty coordinators and student volunteers. At the end of program a college tour was organized for the students to familiarize them with different facilities available at L D college of Engineering. All faculty members of Mechanical Engineering Department have been made their best efforts to make event success.



### **Internship Guidance**

Mechanical department has organised session on Internship guidelines for final year students on 16/12/2023. Dr. Komal Dave, Professor, Mechanical Engineering department has informed about the opportunities in industry and instructed students to take advantage of industrial experience as a part of curriculum. Prof. G N Sutaria and Prof. Niketa Patel have organised the event.



### **Technical training at Blue Star center**

A technical training program was conducted for technicians of Blue Star Ltd and the students of final and pre-final year on 23<sup>rd</sup> Aug 2023 at Blue Star Centre of Excellence, L.D. College of Engineering. The program was co-ordinated by Dr. Nisha Bora, Prof. Swati Saraswat and Prof. Kamlesh Pansal.



### Experts lectures series at mechanical Department

- An interactive session on preparation for CAT, placements and life after graduation have been arranged by Dr. Nisha Bora for students of final year on 14<sup>th</sup> August 2023. The resource persons- Mr. Anupam Mishra and Mrs. Maitri Mishra, who are alumni of our college, have gave full information to all participates. The objective of the session was to share the learnings from the CAT & Corporate journey of LD Alumni. The students were also guided regarding properly planning a successful professional career. The speakers also discussed about what do employers really look for in candidates and how to ace your placement process.
- An interactive session on Guidance about preparing for masters in German University has been arranged by Dr. Nisha Bora for students of final year on 14<sup>th</sup> August 2023. The resource person was Mr. Nakul Patel who is alumni of our college. The objective of the session was to share the learning experience from an LD Alumnus. The students were also guided regarding the process of applying for Masters in German Universities. The students were guided regarding how to select a particular course and university. The speakers also discussed about Importance of a strong resume, LOR and online certification/courses from renowned organisations.



- An Expert talk on “The Billion-Dollar Space Race: Opportunities in the Space Industry”, has been arranged at the department on 7/11/2023, 11.00 Am in room in 603. A talk has been delivered by the MR. Ravindra Raj BM, CEO & Director Omspace Rocket and Exploration Pvt. Ltd, Sanand, Ahmedabad. He had shares his experiences of working in the aerospace industries and story behind the formation of his own industry in the same area. He had shared his experiences working with the ISRO scientist and future planes of the ISRO. He talked on the different areas available in the aerospace industries, its scope and requirements. Also he had discussed on the carrier opportunities available for the students in the aerospace industries. Dr. C. S. Sanghvi, Principal was remaining present and shared his views. Dr. V. B. Patel, HOD, Mechanical and faculty members of Mechanical, Electrical and EC departments were remaining present. Final year students of Mechanical, Electrical and EC departments were present in the seminar. Dr..Patel. Head, Mechanical and Prof. M Y Patil, Asso. Prof, Mechanical have coordinate the whole the program.





### **Navratri Celebration**

Navratri celebration have been celebrated at workshop building on 21st Oct 2023 by performing Arti and Garba by faculties and students of Automobile and Mechanical Department. Dr. C S Sanghavi Principal, LDCE and head of department of other department have joined the event and done Arti.



### **IGNITE-PMI students CLUB**

PMI student club of LDCE have organized “IGNITE-2023” event on 25-8-2023 at Mechanical Engineering Department. Club President Aryan Tiwari and Vice president Dhanvi Desai have planned whole function and their various sub events activities such as Debate Dynamo, Pick Prepare Pitch, Memory Mania, Dress Your Formals, Chat Out of the Box under guidance of Prof V B Patel and prof D M Chandra. Faculty members professors Dr. K G Dave, Dr. Nisha Bora, Dr. S R Pandya, Dr. P R Rathod, Prof. Poonam Modi, Prof. D M Chandra, Prof. S P Shah, Prof. D U Panchal, and Prof. Mitul Makwana, Prof. G N Sutaria graced the occasion with their presence, illuminating the event with the traditional lamp-lighting ceremony. In this luminous act, they symbolized the enlightenment that education brings and the guidance they provide to the students.



## 8. COE Welding Activities

- CoE Welding – Keepsake welding Research and Skill Development center has organized 06 training programs for the students of engineering colleges, ITI and people from industry. In addition to instructing students in the fundamentals of welding, KWRSD provides a good platform for them to learn about social awareness as well as actual hands-on experience of the theory class through job manufacturing. The center also arranged a visit for 87 students of engineering institutions in which students learnt the facilities of Keepsake CoE. The visit also gave them an opportunity to understand industry environment. A Seminar organized on “Porous metal foams and its application various sector” with the help through ASM Gujarat Chapter. It was beneficiaries for Industries/Academic Institute.





## 9. Student Placement

- Students of BE and ME Mechanical have got placement during July to December 2023.

Sr. No.	Enrollment No	Student Name	Company Name	Package
1	200280119114	DHYAN PATEL	KHS MACHINERY	4
2	200280119014	AKBARI HARSH DINESHBHAI	KHS MACHINERY	4
3	200280119093	JANI KALPIT	WORLEY	5.15
4	210280119512	SINGH RAHUL ANIL KUMAR SINGH	AIR PRODUCTS	7.8
5	200280119031	PATEL JAYKUMAR MANISHBHAI	AIR PRODUCTS	7.8
6	200280119021	KRISHNAKUMAR LAD	AIR PRODUCTS	7.8
7	200280119032	SHAH MEET SANJAYKUMAR	AIR PRODUCTS	7.8
8	210280119516	MISHRA DARSHAN BRIJNANDAN	AIR PRODUCTS	7.8
9	200280119010	SHUKLA MANAN VIPULKUMAR	L&T	6.57
10	200280119029	MISTRY DHRUV GHANSHYAMBHAI	L&T	6.57
11	200280119044	JULASANA DHRUVIL NAYANBHAI	L&T	6.57
12	200280119073	VAYAK BHAVIN HIMMATBHAI	L&T	6.57
13	200280119080	CHAVDA VIREN PRAKASHKUMAR	L&T	6.57
14	200280119090	JAY JAYESHKUMAR PATEL	L&T	6.57
15	200280119101	HALPATI MEET ASHOKBHAI	L&T	6.57
16	200280119112	ADARSH MISHRA	L&T	6.57
17	200280119114	DHYAN PATEL	L&T	6.57
18	200280119125	MUNJANI NIDHESHKUMAR G	L&T	6.57
19	200280119134	KRUNALKUMAR CHAUDHARI	L&T	6.57
20	210280119507	MAKWANA JAY KAUSHIKBHAI	L&T	6.57
21	210280119510	BHATT KEYUR HARSHITKUMAR	L&T	6.57
22	210280119521	GADHAVI ARJUNSINH GAMBHIRDAN	L&T	6.57
23	200280119025	PATEL SHUBH MUKESHBHAI	CEAT TYRE	6
24	200280119026	PATEL MITKUMAR AMARATBHAI	CEAT TYRE	6
25	210280119507	MAKWANA JAY KAUSHIKBHAI	CEAT TYRE	6
26	200280119001	PATEL MANAN CHANDRESHBHAI	CEAT TYRE	6
27	200280119047	JADEJA YASHRAJSINH INDRASINH	CEAT TYRE	6
28	200280119061	VYAS MANTHAN P	DCM SHRIRAM	7.8
29	200280119139	SINGH HARSHITA MANOJKUMAR	DCM SHRIRAM	7.8
30	200280119012	PATEL DHRUVSANDIPKUMAR	L&T	6.57
31	200280119013	SARVAIYA DHRUV DILIPBHAI	L&T	6.57
32	200280119028	PATEL MEET DHARMESHBHAI	L&T	6.57
33	200280119036	SHAH TANISHQ RITESHKUMAR	L&T	6.57
34	200280119061	VYAS MANTHAN P	L&T	6.57
35	200280119068	PATEL PINKESH KETANKUMAR	L&T	6.57
36	200280119100	PATEL MITKUMAR KIRANBHAI	L&T	6.57
37	200280119139	SINGH HARSHITA MANOJKUMAR	L&T	6.57
38	210280119506	BHUDIYA BRIJESH BHIMJI	L&T	6.57
39	210280119511	SAPARA HARDIK DHIRUBHAI	L&T	6.57
40	200280119035	RATHOD KALPIT ANILBHAI	L&T	6.57



41	200280119041	PATEL VISHWAM PANKAJBHAI	FUTURES FIRST	12.88
42	200280119072	SONI HARSH MITESH	IMEG	3.6
43	200280119128	ZALA DEVENDRASINH AJITSINH	WELSPUN	4.25
44	200280119133	SHAIKH MOHAMMED M	AARTI INDUSTRIES	5.5
45	200280119007	KHARODIYA ANIK IBRAHIMBHAI	AARTI INDUSTRIES	5.5
46	200280119011	KORIYA ASHOK MANSUKHBHAI	AARTI INDUSTRIES	5.5
47	200280119027	VAGHASIYA VRAJESHKUMAR A	SUZUKI MOTOR GUJRAT Pvt. Ltd.	6.7
48	200280119043	PRAJAPATI JAINISH HEMANTBHAI	SUZUKI MOTOR GUJRAT Pvt. Ltd.	6.7
49	200280119045	PATEL DHARM RAMESHBHAI	SUZUKI MOTOR GUJRAT Pvt. Ltd.	6.7
50	200280119066	NAYEE KUSHKUMAR NAGINBHAI	SUZUKI MOTOR GUJRAT Pvt. Ltd.	6.7
51	200280119106	PARMAR MOHIT GAUTAMKUMAR	SUZUKI MOTOR GUJRAT Pvt. Ltd.	6.7
52	200280119109	PATIL PARTH SHANKARBHAI	SUZUKI MOTOR GUJRAT Pvt. Ltd.	6.7
53	200280119118	SHAH SAIYAM DEVESHBHAI	SUZUKI MOTOR GUJRAT Pvt. Ltd.	6.7
54	200280119083	BHADORIYA VIJAYSINGH MAHIPALSINGH	Atul Ltd.	5.16
55	200280119084	KHATSURIYA YASH SANJAYBHAI	Atul Ltd.	5.16
56	200280119087	VASHI KRUSHANK RASIKBHAI	Atul Ltd.	5.16
57	200280119037	PEDVA SHANI MAHESHBHAI	ARCELOR MITTAL	6
58	200280119039	PIPALIYA JAY HARESHBHAI	ARCELOR MITTAL	6
59	200280119091	PAREKH DIPEN NILESHBHAI	ARCELOR MITTAL	6
60	200280119108	DHAMELIYA DEEP PRAKASHBHAI	ARCELOR MITTAL	6
61	200280119113	LAKHANI PRANJALKUMAR K	ARCELOR MITTAL	6
62	200280119120	PATEL ZIL PRAVINBHAI	ARCELOR MITTAL	6
63	200280119123	CHOVATIYA NISHIL ASHOKBHAI	ARCELOR MITTAL	6
64	210280119508	PATEL SOHEN AZIZUDDIN	ARCELOR MITTAL	6
65	200280119136	CHAUDHARY DALABHAI AJESHBHAI	DRASHTA POWER	4
66	200280119062	MODHAVADIYA DEEP POPATBHAI	ACADEMOR	6
67	200280119092	SUTHAR JAY ANILKUMAR	ACADEMOR	6
68	200280119098	SHAH KHEVANA KALPESH	ACADEMOR	6
69	200280119126	THAKAR KARAN JAYESHBHAI	ACADEMOR	6
70	200280119138	RAI RAHULKUMAR RAJESHKUMAR	ACADEMOR	6
71	210280119519	GOHIL VIJAY SURESHBHAI	TORRENT GAS	4.25
72	200280119075	VADECHA HEETKUMAR D	TORRENT GAS	4.25
73	200280119098	SHAH KHEVANA KALPESH	TORRENT GAS	4.25

## યાંત્રિક ઇજનેરી ના પિતામહ - જેમ્સ વોટ

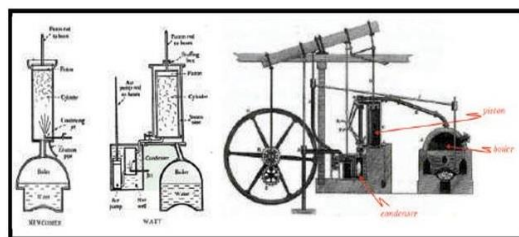
**પ્રો. મિતુલ મકવાણા** (એલ.ડી. એન્જિનિયરીંગ કોલેજ, અમદાવાદ)

આપણે સહુ જેમ્સ વોટના નામથી પરિચિત છીએ. તેમના વિશે પ્રચલિત માન્યતા છે કે તેઓ સ્ટીમ એન્જિનના શોધક હતા. પરંતુ તેમના જન્મના ૨૫ વર્ષ પહેલા જ થોમસ ન્યુકોમેને સ્ટીમ એન્જિનની શોધ કરી હતી. તો, શા માટે જેમ્સ વોટનું નામ સ્ટીમ એન્જિન તથા સ્ટીમ પાવરના શોધક તરીકે પ્રચલિત થયું ? તેનું કારણ એ હતું કે ન્યુકોમેને શોધેલા સ્ટીમ એન્જિનની કાર્ય ક્ષમતા ઘણી ઓછી હતી તથા તે ફક્ત કોલસાની ખાણમાંથી પાણી ઊલેચવા માટેના પંપ ચલાવવા માટે જ વપરાતું હતું. જ્યારે જેમ્સ વોટ દ્વારા સુધારેલા સ્ટીમ એન્જિન દ્વારા અગણિત યંત્રો કાર્યશીલ બન્યા અને અંતે જગતમાં ઔદ્યોગિક ક્રાંતિ સર્જાઈ અને જગતની કાયાપલટ થઈ ગઈ.

જેમ્સ વોટનો જન્મ તા. ૧૯ જાન્યુઆરી, ૧૭૩૬ના રોજ સ્કોટલેન્ડના ગ્રીનકોક ખાતે થયો હતો. વિશ્વને અનેક મહાન શોધકોની ભેટ આપનાર સ્કોટલેન્ડમાં જન્મેલા જેમ્સ બાળપણથી જ અત્યંત જિજ્ઞાસુ હતા. તેમના પિતા જહાજોનું બાંધકામ કરવાનું કામ કરતા હતા.

આપણે આગળ જોયું તેમ સને ૧૭૧૨માં જેમ્સ વોટના જન્મના આશરે ૨૫ વર્ષ પહેલા યોમસ ન્યુકોમેને સૌપ્રથમ વ્યવહારુ સ્ટીમ એન્જિન બનાવ્યું હતું. તેનું એન્જિન મોટેભાગે ઈંગ્લેન્ડમાં આવેલી કોલસાની ખાણમાંથી પાણી ઉલેચવાના પંપને ચલાવવા માટે વપરાતું. ન્યુકોમેન એન્જિનની કાર્યક્ષમતા ઘણી જ ઓછી હતી. પરંતુ ઓછી કાર્યક્ષમતાને કારણે તેનો ઉપયોગ બીજે ક્યાંય થતો નહીં. ન્યુકોમેન એન્જિન “Atmospheric Engine” તરીકે પણ ઓળખાતું. આજના એન્જિનોથી વિપરિત તે એન્જિનમાં વધારે દબાણ નહીં પરંતુ ઓછા દબાણ/શૂન્યાવકાશ ઉત્પન્ન થવાના કારણે એન્જિનમાં પીસ્ટનની ઉપર-નીચે (Reciprocating) ગતિ થતા કાર્યશક્તિ (Power) પ્રાપ્ત થતી. આ શૂન્યાવકાશ એન્જિનના સિલિન્ડરમાં પાણી તથા વરાળના મિશ્રણને કારણે થતો. પીસ્ટનની ઉપર-નીચે ગતિ પમ્પને પહોંચાડવામાં આવતી જેને કારણે કોલસાની ખાણમાંથી પાણી ઉલેચાતું.

જેમ્સ વોટ પાસે ન્યુકોમેન એન્જિનનું મોડેલ આવતા તેમણે તેનું રિપેરીંગ હાથ ધર્યું. સાથે-સાથે તેમણે ન્યુકોમેન એન્જિનના મોડેલ સાથે સુધારણા માટેના પ્રયોગો હાથ ધર્યા. સતત વિચારણા બાદ તેમને એક એનોખો વિચાર સ્ફૂર્યો. તેમણે જૂના એન્જિનમાં કન્ડેન્સર ફીટ કર્યું. આ સુધારણા સંદર્ભે શૂન્યાવકાશ પેદા કરવા માટે પાણી તથા વરાળ એન્જિનના સિલિન્ડરમાં ભેગા કરવાની જગ્યાએ કન્ડેન્સરમાં ભેગા કરવાનું નક્કી કર્યું. સિલિન્ડરમાં પાણીનો છંટકાવ ન કરવાને કારણે સિલિન્ડરનું તાપમાન જળવાઈ રહેતું તથા ઉષ્માનો વ્યય ઘટી જતો. ઉષ્માનો વ્યય ઘટવાના કારણે બળતણની પણ જરૂરિયાત ખાસી ઘટી જતી. તેમણે ૧૭૬૮માં સુધારેલા સ્ટીમ એન્જિનની પેટન્ટ લીધી કે જેની કાર્યક્ષમતા જૂના સ્ટીમ એન્જિન કરતા ત્રણ ગણી વધારે હતી. ન્યુકોમેનનું જે એન્જિન કોલસાની ખાણમાંથી પાણી ઉલેચવા માટે બે



મહિના જેટલો સમય લેતું તે જ એન્જિન સુધરણા કર્યા બાદ ફક્ત ૧૭ દિવસમાં એ જ કામ કરી આપતું.

પોતાના ધમધોકાર ચાલતા કારખાનાથી જેમ્સને સારી એવી આવક થતી, પરંતુ ધનને સંઘરી રાખવાની વૃત્તિ ત્યજીને તેઓ વધુ સારા એન્જિન બનાવવામાં પોતાના ધનને ખર્ચતા.

જેમ્સ વોટ ૬૪ વર્ષની વયે કામમાંથી નિવૃત્ત થયા તથા ૧૮૧૯માં ૮૩ વર્ષની વયે તેમનું નિધન થયું. એમના પાર્થિવ દેહને ખૂબ માન તથા અદબથી શાહી કબ્રસ્તાનમાં દફન કરવામાં આવ્યો. તથા ત્યાં તેમનું સ્મારક પણ રચવામાં આવ્યું. તેમના માનમાં પાવરનો એકમ (Unit)ને ‘વોટ’ (Watt) રાખવામાં આવ્યો.

ઔદ્યોગિક ક્રાંતિ (Industrial Revolution)ના પ્રણેતા તથા 'Engineering'ના પ્રણેતા એવા જેમ્સ વોટને સાદર નમન.