

**Bi-Annual E-Magazine of  
Mechanical Engineering Department**



# YANTRAM

**Issue No.: 12**

**August-2022 to December-2022**



**भारत 2023 INDIA**

**वसुधैव कुटुम्बकम्**

**ONE EARTH • ONE FAMILY • ONE FUTURE**



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## Department

### Vision:

To play an active role in producing globally competent mechanical engineers to make technologically proficient, innovative, enthusiastic, future leaders and responsible citizen possessing human values to contribute significantly towards meeting global challenges.

### Mission:

- 1) To provide sound basic knowledge of basic principles of engineering by imparting theoretical and practical understanding of various aspects of Mechanical Engineering.
- 2) To explore Institute–Industry linkage for fostering professional skill of students enabling them to become industry ready
- 3) To bring in good governance, transparent evaluation system and professional standards for ethical and human values in students.
- 4) To design and organise training programme to offer wide choice to industry and academia for their skills enhancement.
- 5) To promote faculty and staff members to become resourceful, innovative and through various development programmes.
- 6) To serve society through innovation and excellence.

## YANTRAM

### Vision:

To be a preeminent Instrument that depicts technical and non-technical matters among the department.

### Mission:

To be the great resource for the quality reporting and analysis of departmental stuffs.



# Message from Provost...



Dear Readers,

My hearty congratulations to the faculty, staff, and students of the Department of Mechanical Engineering for receiving the NBA accreditation. It is certainly a matter of pride for the department because it is the result of long-time hard work they have done and exhibited an example of cooperation.

Yantram is the Department's e-newsletter. It gives interesting information about technical and non-technical issues. It is also meant for showcasing literary talents of students and faculty/staff members. Yantram, unlike its literary meaning which only shows inclination towards mechanistic things, does foster extra-curricular and co-curricular talents of many.

There is a new colour of Diploma Course in the Department of Mechanical Engineering. It will definitely add new features to the development of the department in terms of placement and other activities in general.

My best wishes to Yantram!

Yours

**Shrikant J. Wagh**



Provost, UPL University of Sustainable Technology





## HOD Message...

In its early stages, the human mind is a coarse grain of sand, a recurring nurturing shell of a broad spectrum of earning opportunities and experiences. It eventually gets nourished into nature's most gifted ominous pearl of creative ideas, knowledge and critical thinking that ever revolutionized the world.

I am extremely confident that the Department of Mechanical engineering since its beginning in 2011 has offered itself as a shell for sheltering & fostering human minds in their raw state to be matured into empowered with engineering skills, leadership quality and a sense of entrepreneurship. In these 12 years, the department has unlocked the creativity of students and set a buoyant human spirit ever eroding and co-curricular activities. The wheel of excellence and continual progress has been steered with values & conventions as its fulcrum, quality education, constant improvement in infrastructure, educational technology, teaching and learning processes as its spokes to fortify innumerable efforts to set the wheel on its track.



Yours

**Samir D. Jariwala**

Head of Mechanical Engineering Department





# Department Activities





# Industrial Visit



Industrial visit to Shree Sai Gajanan Engineering Industries, Ankleshwar for 7<sup>th</sup> Semester Mechanical Engineering students on 23/08/2022. Students are able to deeply understand the working of different types of machines used in engineering works.



Industrial visit to BEIL Infrastructure Ltd., Ankleshwar has been organised for all BE Mechanical students on 03/10/2022 by MED of UPL University of sustainable Technology Vataria. During the visit students have understood the need of solid waste plant and basic working of material handling.





# Industrial Visit

Industrial visit to International Automobile Centre of excellence, Raisan, Gandhinagar for Mechanical Engineering students on 28/11/2022. This visit will be useful to the students in understanding the subjects like Automobile Engineering, Industrial Engineering and manufacturing process.







Topic	Speaker	Designation	Semester	Date
Overview of Boiler	Mr. Paresh Vyas	Assistant Director, Govt Boiler Dept.	4 <sup>th</sup>	24/08/22
Campus to Corporate	Dr. B.K. Basu	Ex. Chief Executive, Larsen & Toubro	6 <sup>th</sup>	28/09/22
Industrial Piping Concepts	Mr. Harsh Gupta	Sr. Engineer, Aarti Industries	4 <sup>th</sup> & 6 <sup>th</sup>	03/10/22
Industrial Significance for using CAD	Mr. Alpesh Patel	Technical Lead, L&T Technological Services	4 <sup>th</sup> & 6 <sup>th</sup>	15/10/22
Overview of Process Industry	Mr. Robin W	Sr. Project Manager, Petromech LLP	4 <sup>th</sup> & 6 <sup>th</sup>	15/10/22
NDT Methods for Industrial applications	Mr. Sumit J. Kainthola	Proprietor, Industrial NDT	4 <sup>th</sup>	02/12/22





# Peer Learning Initiative

Enrollment No.	Name of Student	Date of PLI	PLI Subject Name	Name of Concerned Faculty
200990119014	Dubey Himanshu Suryamani	30/09/22	MSM	Mr. Satish Verma
190990119010	Rana Mihir Deepak Kumar	09/09/22	DOM	Mr. Girish Bramhakshatriya
190990119008	Prajapati Dhruvkumar Naranbhai	21/09/22	DOM	Mr. Girish Bramhakshatriya
180990119002	Bhavsar Divyank Ganeshbhai	06/09/22	NTSE	Mr. Girish Bramhakshatriya
180990119011	Patel Vihar Shailesh	12/09/22	QRE	Mr. Girish Bramhakshatriya
190990119012	Vansia Bhargavkumar P.	12/09/22	MT	Samir Jariwala
190990119012	Vansia Bhargavkumar P.	30-09-22	MT	Samir Jariwala
210990119503	Rana Sandeepkumar	19/11/22 & 22/11/22	FMHM	Samik Bhatt
200990119014	Dubey Himanshu Suryamani	21/11/2022	EM	Chetan Patel







3 days Hands on Workshop on "FUSION 360" for 4<sup>th</sup> Semester Students from 15<sup>th</sup> to 17<sup>th</sup> September, 2022 delivered by Mr. Jay Patel (CAD Engineer), Khodiyar E-Solution LLP, Ahmedabad. Event coordinated by Ms. Sandhya Shetty.







# Orientation Program



Orientation Program is organized for B.E. 3<sup>rd</sup> Semester Students on 23<sup>rd</sup> August, 2022. Orientation Given by Dr. Hemant Kumar Gupta and Mr. Girish Bramhakshatriya. Students are guided about their role in department activities, events, exams and placement .







On the occasion of Engineer's Day, Department of Mechanical Engineering is organized a "Vishwakarma Pooja" on 15<sup>th</sup> of September, 2022 at Mechanical Workshop for seek blessings from almighty to organization and to all.







The Alumni association of our University has organized an alumni talk's series- 'RETROSPECT'. In Episode-03 on 13<sup>th</sup> October, 2022 students of Mechanical Engineering and alumni actively interacted under this event at university campus.

Alumni Professionally engaged in a variety of domains including manufacturing, purchase, production and applications as well entrepreneur shared their valuable knowledge and expertise with students with a view to helping them in the transcendence from the student life in a university campus towards the professional life of a workplace.







Alumni Interaction is held on 09/11/2022 with our Student and alumni Mr. Vishal Prajapati (Batch 2016-2020), Pursuing his master degree in “Industrial Engineering” from Hochschule BBW Institute, Germany.



Alumni Interaction held on 12/09/2022 with our Student and alumni Mr. Ravirajsinh Chauhan (Batch 2016-2020), Senior Executive at Convergence Chemicals, Dahej.





# Student Achievements

Chauhan Dhruvsinh Natvarsinh & Himanshu Suryamani Dubey students of mechanical engineering successfully completed NPTEL Online Certification courses in “Introduction of Mechanical Vibration”.



**Elite**  
**NPTEL Online Certification**  
(Funded by the MoE, Govt. of India)



This certificate is awarded to  
**CHAUHAN DHRUVSINH NATVARSINH**  
for successfully completing the course

**Introduction to Mechanical Vibration**

with a consolidated score of **71** %

Online Assignments	21.96/25	Proctored Exam	49.5/75
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Total number of candidates certified in this course: **75**

  
**Prof. Sanjeev Manhas**  
Coordinator, Continuing Education Centre  
IIT Roorkee

**Jul-Sep 2022**  
(8 week course)

  
**Prof. Priti Maheshwari**  
NPTEL Coordinator  
IIT Roorkee

  
Indian Institute of Technology Roorkee



Roll No: NPTEL22ME76S13290417

To validate the certificate 

No. of credits recommended: 2 or 3



**NPTEL Online Certification**  
(Funded by the MoE, Govt. of India)



This certificate is awarded to  
**HIMANSHU SURYAMANI DUBEY**  
for successfully completing the course

**Introduction to Mechanical Vibration**

with a consolidated score of **50** %

Online Assignments	15.17/25	Proctored Exam	34.5/75
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Total number of candidates certified in this course: **75**

  
**Prof. Sanjeev Manhas**  
Coordinator, Continuing Education Centre  
IIT Roorkee

**Jul-Sep 2022**  
(8 week course)

  
**Prof. Priti Maheshwari**  
NPTEL Coordinator  
IIT Roorkee

  
Indian Institute of Technology Roorkee



Roll No: NPTEL22ME76S13500033

To validate the certificate 

No. of credits recommended: 2 or 3



# Faculty Achievements



Glimpse of Lecture delivered at OPAL Ltd, Dahej by Mechanical Engineering Department Faculty Members.

Title of Topic	Name of Faculty	Date
Mechanical Seal	<input type="checkbox"/> Mr. Samir Jariwala <input type="checkbox"/> Dr. Divyang Patel	12.10.22
Centrifugal Pump	<input type="checkbox"/> Dr. Hemant Kumar Gupta	13.10.22
Reciprocating Compressor	<input type="checkbox"/> Dr. Hiren Mahida <input type="checkbox"/> Mr. Gunjan Kumar	21.11.22







# Faculty Achievements

Department faculty members delivered the Lecture at UPL Ltd, Ankleshwar to share the knowledge with techie.

Title of Topic	Name of Faculty	Date
Material of Construction	Mr. Girish Bramhakshatriya	19-08-22
Types of Insulation Material (Hot & Cold) & Application	Dr. Hemant Kumar Gupta	02-09-22

Dr. Hemant Kumar Gupta, delivered the presentation at two days' program on STI Ecosystem for societal development on 5 & 6<sup>th</sup> January, 2023 at Science City, Ahmedabad.





# Shreeji Engineers Experience

I have undergone 15 days industrial training at Shreeji Engineers, Makarpura GIDC, Vadodara under the "Faculty Industrial Training" program. During my training, This organisation is engaged to manufacture Engineering precision Spare Parts & Job Works as per the requirement of different industries.

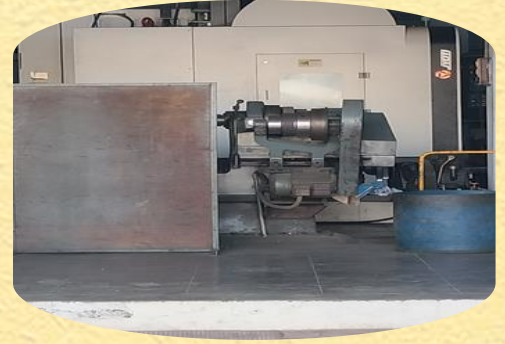
This industry is manufacturing different parts like: Transformer rewinding plates, Bushing components used in high tension lines, Bus bar, Spider block of tyre, Taste cap (Bushing assembly), Pipe transformer parts. Apart from this, many orders such as Vande Bharat train rack, Bullet train handle also received to manufacture it in their industry.

Major companies such as Hitachi Energy, ABB, Voltamp, Siemens, GFL and many more, give job orders as per their requirements to Shreeji Engineers.

In the industry, I have seen 3 Vertical Milling Centers mfg. & service by Jyoti CNC, Vadodara. Apart from this, there are different machines such as Lathe machine, Drilling Machine, CNC Machine.

I am really thankful to the Management, Respected Provost; Dr. Shrikant J Wagh, Dean of Engineering, Dean of Science, H.R. of UPL University of Sustainable Technology and H.O.D. of Mechanical Engineering Department to grant me permission for Faculty Industrial Training, all my dear colleagues from Mechanical Engineering Department & other departments, who have supported me to adjust my various academic duties & also to Mr. Sahil Vasoya (Mechanical Engineer) & Mr. Dhanji Vasoya (Proprietor) for giving me this opportunity to undergo training in their organisation. I am also thankful to employees who are working in the industry to show & describe to me each & every operation on different jobs on different machines.

Thanks to all who have directly or indirectly helped me to complete my training successfully.



**Mr. Samik Bhatt**  
Assistant Professor

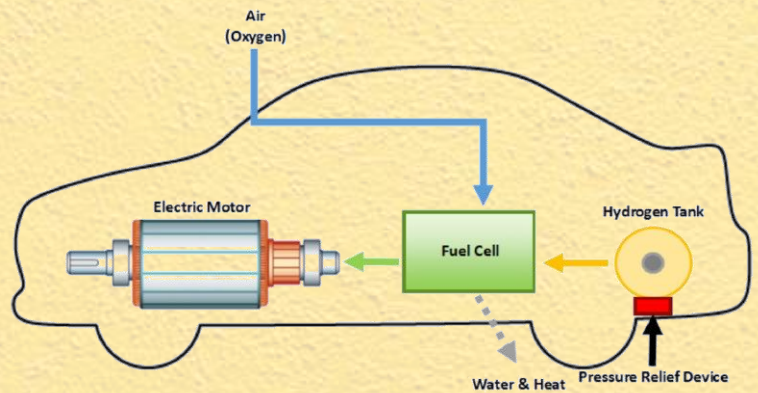
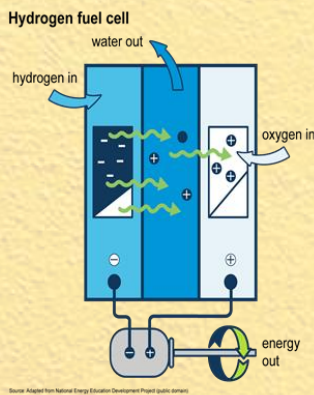


## Hydrogen Fuel Cell

Hydrogen, the most abundant element on earth is a powerful clean energy carrier when used in a hydrogen fuel cell - highly efficient and flexible, emitting only electricity, heat and water. In this study, we explore the potential for a hydrogen-powered future by looking at the state of the hydrogen economy today.

Hydrogen fuel cells produce electricity by combining hydrogen and oxygen atoms. The hydrogen reacts with oxygen across an electrochemical cell similar to that of a battery to produce electricity, water, and small amounts of heat.

Many different types of fuel cells are available for a wide range of applications. Small fuel cells can power laptop computers and even cell phones, and military applications. Large fuel cells can supply electricity to electric power grids, supply backup or emergency power in buildings, and supply electricity in places that are not connected to electric power grids.



As of the end of October 2021, there were about 166 operating fuel cell electric power generators at 113 facilities in the United States with a total of about 260 megawatts (MW) of electric generation capacity. The largest single fuel cell is the Bridgeport (Connecticut) Fuel Cell, LLC with about 16 MW of generation capacity. The next two largest operating fuel cells each have 6 MW of generation capacity. One of them is located at the Red Lion Energy Center in Delaware, which has another five smaller fuel cells for a combined facility total electric generation capacity of 25 MW. The majority of all the operating fuel cells use pipeline natural gas as the hydrogen source, but three use landfill gas and three use biogas from wastewater treatment.

Generally, if the operating pressure of PEM fuel cells is increased above 4 bar, the effect of the voltage increase is getting smaller due to mass transport issues. Therefore, the optimal PEM-fuel cell operating pressure lies typically between 3 and 4 bar

Toyota Kirloskar Motor (TKM), along with the International Center for Automotive Technology (ICAT), is conducting a pilot project to study and evaluate Toyota Mirai on Indian roads and climatic conditions.

The company claimed that Toyota Mirai is powered by a hydrogen fuel cell battery pack and capable of providing a range up to 650 km in a single charge, with a refuelling time of five minutes. This could bring down the cost of travel to just Rs 2 per km. In Japanese, the word 'Mirai' means 'future'.



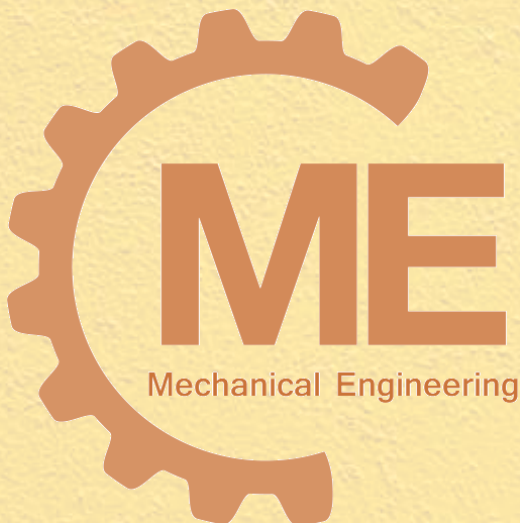
Himanshu Dubby  
B.E. Mechanical Engineering (2020 Batch)



# Students Speaks

For development to be sustainable, it should be able to meet the needs of the present without compromising the ability of future generations to meet their own needs. Generally, development is considered unsustainable when insufficient attention is paid to the economic, environmental and social consequences. A prerequisite for development is growth and that is directly related to production or output of a country. If production is done via a sustainable path it can maintain the sustainability of development.

Mechanical and Manufacturing Engineers predominantly shoulder manufacturing. As mechanical engineering is some what considered the merging ground of all forms of engineering, the level of mechanical engineering can be a reliable barometer for measuring the development in a country. Thus mechanical engineers play a vital role in development in countries across the globe. This paper highlights the role, responsibilities and necessary contributions required by mechanical engineers to achieve sustainable development in time.



Mechanical Engineering



**Mr. Anjeet Kushwaha**  
**B.E. Mechanical Engineering**  
**(2021 Batch)**





# Photography



# Students Corner



**Devansh Patel**

B.E. Mechanical Engineering  
(2022 Batch)

# Pencil Sketch



**Sandeep Rana**

B.E. Mechanical Engineering  
(2020 Batch)



Placement (2019 Batch)

# Congratulations

*On Your Placement*



**Mihir Rana**



**Dhruv Prajapati**



**Bhargav Vansia**



**Chirag Modi**



**Akshay Rajpurohit**



**Sohag Patel**





# Group of Twenty

The G20 or Group of Twenty is an intergovernmental forum comprising 19 countries and the European Union (EU). It works to address major issues related to the global economy, such as international financial stability, climate change mitigation, and sustainable development.

The G20 is composed of most of the world's largest economies, including both industrialised and developing nations; it accounts for around 80% of gross world product (GWP), 75% of international trade, two-thirds of the global population, and 60% of the world's land area.

The G20 was founded in 1999 in response to several world economic crises. Since 2008, it has convened at least once a year, with summits involving each member's head of government or state, finance minister, or foreign minister, and other high-ranking officials; the EU is represented by the European Commission and the European Central Bank. Other countries, international organizations, and nongovernmental organizations are invited to attend the summits, some on a permanent basis.

At its 2009 summit, the G20 declared itself the primary venue for international economic and financial cooperation. The group's stature has risen during the subsequent decade, and it is recognised by analysts as exercising considerable global influence; it is also criticised for its limited membership, lack of enforcement powers, and for the alleged undermining of existing international institutions. Summits are often met with protests, particularly by anti-globalisation groups.



**Ms. Sandhya Shetty**  
Lecturer



# From the Desk of Editor....

A newsletter is like a mirror which reflects the clear picture of all sorts of activities under taken by the Department. It is a matter of great pride and satisfaction for Mechanical Engineering to bring out the Newsletter. We are confident that this issue of the Mechanical Engineering Department newsletter will send a positive signal to all the students, faculty and staff.

We are indeed very happy and proud in bringing this newsletter about the latest developments and Programs in the department. Newsletter acts as a communication channel among the alumni, faculty, students and experts in Mechanical Engineering fields.

Congratulations to the Editorial Board of this newsletter who have played a wonderful role in accomplishing the task. Heartfelt gratitude to HOD, Faculty, staff members and Students for their fruitful effort during the period.

## Editorial Team



**Ankit Solanki**



**Sandhya Shetty**



**Devansh Patel**



**Himanshu Dubey**



**Anjeet Kushwaha**





**Department of Mechanical Engineering**  
**UPL University of Sustainable Technology**  
Block No. 402, Ankleshwar-Valia Road, Ta: Valia, Dis: Bharuch-393135

# Congratulations

**We feel proud to announce that our  
UG Program in  
Mechanical Engineering  
is accredited by**



*Promoting International  
Quality Standards for Technical  
Education in India*



**वसुधैव कुटुम्बकम्**

**ONE EARTH • ONE FAMILY • ONE FUTURE**