



# E-MECHZINE



FIRST ISSUE

JULY-DECEMBER 2016



PROMULGATION



COLLOQUIUM



PATHMAKER LEAGUE



TECHNOCRATZ



JUKE BOX



We are delighted to welcome the readers to the very first issue of our magazine. This is going to be a one step information guide on what's happening in our department & lots more!!!!!!

Well For unleashing a person's creativity a proper medium is prerequisite. This very thing motivated us to launch this magazine, the quintessence of which is nicely imprinted. This issue contains something very special, innovative & informative sections for our budding engineers.

This magazine will try to enhance your creativity through the section called "JUKE BOX" where we have the mixture of poems, paintings etc and we will be taking a dive into the technical happenings around the world through our articles on Recent Innovations, Noble Prize Winners and Great Personalities which we are sure will keep you motivated!!!

The joy of bringing together all the imaginations, adventures, values and most of all the fun we have witnessed in past six months was unforgettable. We tried to add one more star to the crown of JECRC in the form of this magazine which with your support will evolve into an asset for JECRC foundation. In the end for making this magazine a grand success we need the support of all students, alumni and the faculty

So sit back and enjoy browsing through the magazine. Happy Reading Folks!!!!!!

--The Editorial Board

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## Director's Desk

A thought that has been enduring in mind when it becomes real; is truly an interesting and exciting experience and with the publication of this magazine Mechanical department has done one such cherished work that had its roots in the persuasion.



The introduction of this magazine is the result of the confidence, creativity and innovation of our beloved students and faculties. The JECRC Foundation has established itself as one of the leading self-financed colleges in north India. This has been primarily due to the large significance that the College puts on the Teaching-Learning process.

Proper communication plays a vital role in institution's development. This magazine will serve to reinforce and allow increased awareness, improved interaction and integration among all of us. I am glad to know that this communication will establish a tread of acquaintance with our alumni who are doing wonders across the world and raising the flag of JECRC higher and higher, for which JECRC owes a lot to them.

We are currently in the era where lots of things are going on in the field of engineering revolutions, spearheaded by recent developments in engineering sciences, providing sustainable solutions to various issues in different areas and this magazine will prove to be a milestone by connecting you all such innovations.

I once again congratulate the whole team and hoping that Mechanical Department will continue to create wonders in the sky of JECRC.

Happy Reading!!!!!!

---Arpit Agrawal

## Principal's Desk

It gives me an immense pleasure to introduce that Mechanical Engineering Department of JECRC is bringing out their departmental magazine. The initiative taken by the Department will facilitate the students with necessary information, record keeping as well as increasing student capabilities through active participation.



JECRC stands tall on the foundation of its excellent Vision and Mission being continuously achieved by its committed and deeply knowledgeable faculty, innovative and unique pedagogical tools and an eclectic and diverse student community that has a burning desire to make new paths of its own.

Nowadays, introducing such things provides the student a platform to share their ideas, explore the world and get aware of the recent trends in research and education field. JECRC has the privilege to have healthy and harmonious ambience and the credit goes to the blessing of our elite college management and the diligence put in by learned teachers. This institution has played a cascading role in the career and personality of innumerable students who have brought laurels to the college, state, and country.

The colours are vivid, reflecting the vitality and versatility of young minds. The editorial team has initiated something that will continue to help and guide present and upcoming students of the Department. I'm happy to see students doing such great things. I wish you all the best in your endeavours.

---Dr V.K. Chandna

## HoD's Desk

It is indeed a pleasure to announce our departmental magazine "E-MECHZINE" which highlights the academic and non-academic activities of the department. This magazine highlights the Departmental achievements showing heights attended by Students, faculty and also contain articles on latest topics.



The technology has been changing very fast. Today, new packages, newer versions of current software and new technological tools are being adopted by the trade and industry periodically. Mechanical Engineering is an essence of today's world. We are committed to providing not only the technical education to our students but also the leadership qualities through which they can create employment to others. The education therefore, must catch up with these developments well in time so that Graduating students do not face the problem of obsolescence.

Our team in the department at JECRC focuses on holistic development of the students by a combination of both curricular and extracurricular activities. We believe that to develop a tender mind we need to go beyond class room teaching to make the students industry ready and for that we never hesitate to go beyond the syllabus.

Finally, our department has a long-valued tradition of striving for excellence in whatever we do. I hope we will be able to maintain this in future too and I would congratulate the team of faculty members and the students for their brilliant efforts. I wish all the Students and Faculty a great academic career.

---Manish Jain

## **VISION and MISSION OF COLLEGE**

### **VISION:**

To become a renowned center of outcome based learning, and work towards academic, professional, cultural and social enrichment of the lives of individuals and communities.

### **MISSION:**

1. Focus on evaluation of learning outcomes and motivate students to inculcate research aptitude by project based learning.
2. Identify, based on informed perception of Indian, regional and global needs, areas of focus and provide platform to gain knowledge and solutions.
3. Offer opportunities for interaction between academia and industry.
4. Develop human potential to its fullest extent so that intellectually capable and imaginatively gifted leaders can emerge in a range of professions

## **VISION and MISSION OF DEPARTMENT**

### **VISION:**

The Mechanical Engineering Department strives to be recognized globally for excellent technical knowledge and to produce quality human resource, who can manage the advance technologies and contribute to society through entrepreneurship and leadership.

### **MISSION:**

1. To impart highest quality technical knowledge to the learners to make them globally competitive mechanical engineers.
2. To provide the learners ethical guidelines along with excellent academic environment for a long productive career.
3. To promote industry-institute linkage.



1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **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.
4. **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.
5. **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.
6. **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.
7. **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.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **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.
11. **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.
12. **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.






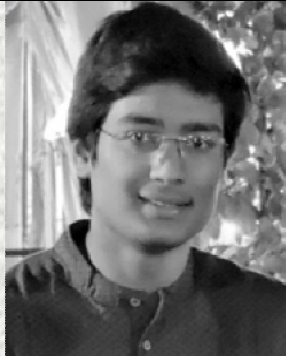






## Program Educational Objectives of Department

1. To provide students with the fundamentals of Engineering Sciences with more emphasis in Mechanical Engineering by way of analyzing and exploiting engineering challenges.
2. To train students with good scientific and engineering knowledge so as to comprehend, analyze, design, and create novel products and solutions for the real life problems.
3. To inculcate professional and ethical attitude, effective communication skills, teamwork skills, multidisciplinary approach, entrepreneurial thinking and an ability to relate engineering issues with social issues.
4. To provide students with an academic environment aware of excellence, leadership, written ethical codes and guidelines, and the self-motivated life-long learning needed for a successful professional career.
5. To prepare students to excel in Industry and Higher education by Educating Students along with High moral values and Knowledge.

## Semester Toppers

	
<b>Shubham Heda (79.4%)</b> [IV Sem. I-Shift]	<b>Raja Janmejy (73.1%)</b> [IV Sem. II-Shift]
	
<b>Himanshu Sharma (77.4%)</b> [VI Sem. I-Shift]	<b>Rishal Gupta (77.3%)</b> [VI Sem. II-shift]
	
<b>Bhanu Prakash Aggarwal (86%)</b> [VIII Sem. I-Shift]	<b>Ayush Pant (84.8%)</b> [VIII Sem. II-Shift]
<p>In addition one of our students <b>Mr. Himanshu Jain</b> Secured <b>5<sup>th</sup> Rank</b> in RTU merit with overall <b>83.50%</b>.</p> 	

## Guest Lectures/Workshops

### ➤ Guest Lecture on Career Counselling

**Date: 29 August 2016**

**Speaker: Mr. Rahul (Director, GATE Academy, Bengaluru)**

We organized a guest lecture on Career Counselling on 29 August 2016. The speaker of this guest lecture was Mr. Rahul, Director of GATE Academy, Bengaluru. The speaker deeply explained about all the possible career options after the graduation. This guest lecture was informative and very useful for under graduates.



### ➤ Guest Lecture on Introduction to Various Types of Automobile Engines

**Date: 01 October 2016**

**Speaker: Mr. Nimesh Baba (Director, Baba Academy, Jaipur)**

We organized a guest lecture on Various Types of Automobile engines on 01 October 2016. The speaker of the guest lecture was Mr. Nimesh Baba, who is presently the Director of Baba Academy, Jaipur. In this lecture Mr. Nimesh Baba discussed about the various types of engines and explained the working of an automobile engine. He also discussed the mainly used engines in Automobiles.



➤ **Guest Lecture on PSU Preparation**

**Date: 17 October 2016**

**Speaker: Mr. Pramod Vasist (Director, Engineers Academy, Jaipur)**

We organized a guest lecture for PSU preparation on 17 October 2016. The speaker of this lecture was Mr. Pramod Vasist, Director of Engineers Academy, Jaipur. The speaker explained about the PSU examination, syllabus and their exam patterns. This lecture was really helpful for the students.



➤ **Work Shop on Assembling and Disassembling of 2 & 4 Stroke Engines**

**Date: 15-19 November 2016**

**Trainer: Mr. Nimesh Baba (Director, Baba Academy, Jaipur)**

We organized a four days workshop on assembling and disassembling of 2-stroke and 4-stroke engines from 15-19 November 2016. This workshop was aimed for practical training purpose of the students. The trainer, Mr. Nimesh Baba discussed the engines used in Automotive, Aircraft and Industrial applications. Participants disassembled and assembled 2-stroke and 4-stroke engines during this workshop.



## Student Achievements

- **First in Chess**

Yeeshu Dwivedi (2<sup>nd</sup> Year) and Dhruv Laddha (ME 3<sup>rd</sup> Year) have won first prize in Inter College Tournament of RTU, Kota organised by Poornima College of Engineering during 22-24 August 2016.



- **Robowar, IIT Guwahati**

Mr. Harshul Khandelwal, Mr. Aditya Yadav, Mr. Gaurav Lodha, Mr. Bhupendra Suman and three more members from Electrical Engineering secured 8<sup>th</sup> Position among 30 teams in ROBOACALYPSE, Techniche (Annual Tech-fest, IIT Guwahati), during 01-04 September 2016.



- **Winner in Swimming Competition at BITS**

Rajat Shrivastav (2<sup>nd</sup> Year) won Silver Medal in Freestyle-100m and Bronze Medal in Freestyle-400m in National Level Competition held at BITS, Pilani during 15-19 September 2016.



- **Best Paper Award**

Mr. Sumit Khurana (3<sup>rd</sup> Year) awarded with Best Paper Award in National Conference “RESSD-2016”, held during 07-08 October 2016 at JECRC, Jaipur.



- **Best Paper Award**

Mr. Arun Shringi (3<sup>rd</sup> Year) awarded with Best Paper Award in National Conference “RESSD-2016”, held during 07-08 October 2016 at JECRC, Jaipur.



- **Winner of Debate Competition**

Mr. Shubhank Sharma (3<sup>rd</sup> Year) won debate competitions on “GST” in Hindi and English both, held during 13-14 October, 2016 at GIT, Jaipur.



- **Hindi Quiz Winner**

Mr. Shubham Khandelwal (3<sup>rd</sup> Year) participated and won 1<sup>st</sup> prize in Hindi Quiz Competition (Jigyasa) held at Global Technical Campus, Jaipur from 13-15 October 2016.



- **Automobile Mechanics & IC Engine [RENDEZVOUS - IIT Delhi]**

Mr. Pankaj Maharshi, Mr. Pankaj Sharma, Mr. Yash Sharma, Mr. Divyank Rathi, Mr. Sourabh Gupta, Mr. Yashwant Khandelwal, Mr. Himank Dave, Mr. Yeeshu Dwivedi and Mr. Rajat Shrivastav (all from 2<sup>nd</sup> Year) participated in Automobile Mechanics & IC Engine in “RENDEZVOUS” i.e. an Annual Cultural festival of IIT Delhi held during 21-24 October 2016 organized by Robosapiens Technologies Pvt. Ltd.

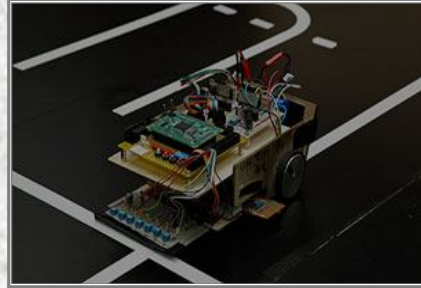


- **RTU Football Winners**

Mr. Shobit Yadav and Mr. Himanshu Acharya (both from 3<sup>rd</sup> Year) with their team won the RTU Football Tournament held at Arya College of Engineering, Jaipur on 27<sup>th</sup> October 2016. Our team defeated the team of RIET College, Jaipur by 4-1.



- Mesh Flare [Techfest – IIT Bombay]**  
 Techfest is an annual fest of IIT Bombay. Our JECRC foundation students Sourabh Mangal and Satyam Jain have been participated in MESH FLARE during Technorions at Techfest on 16-18 Dec. 2016 at IIT Bombay.



- MUN Conferences**  
**Mr. Shubham Gupta** participated in various **MUN conferences** during July-December 2016 and won two **2<sup>nd</sup> prizes** and **four 3<sup>rd</sup> prizes**.



- Kumar Memorial Awards for Public Speaking**  
 This event was focused on nurturing the talent of Public Speaking. It was organized in 3 levels, Mr. Shubham Gupta appeared for second level on DD-MM-2016 which hosted college students and won **2<sup>nd</sup> prize**.





## Faculty Achievements

1. **Dr. Bhuvnesh Bhardwaj** is awarded Ph.D. degree in July 2016 from Sant Longowal Institute of Engineering & Technology, Sangrur, Punjab.
2. **Mr. Manish Jain** has been acted as Guest Editor of ISST Journal of Mechanical Engineering, vol.7 No.2 (July-Dec 2016), ISSN 0976-7371.
3. **Mr. Ananya Chattree** had **4 Citations** on earlier published paper, "A New Facile Route for Synthesizing of Graphene Oxide Using Mixture of Sulfuric–Nitric–Phosphoric Acids as Intercalating Agent, Physica: E, Elsevier Pub, p.p. 235" in this semester.
4. Many research/review papers have been published in International Journals during this semester. The details of them are as follows:

S#	Author(s)	Title of Paper	Journal/Conference	ISSN
1	<b>Dr. M.P. Singh,</b> <b>Ramphool Meena</b>	A SURVEY ON THE ADOPTION OF LEAN PRACTICES IN INDIAN MANUFACTURING SECTOR	IJIIRD, Volume-7, Issue-2, July-2016, p.p. 52-62	<b>0976-6987</b>
2	<b>Dr. M.P. Singh,</b> <b>Anuj Singh</b>	MAJOR OBSTACLES AND RELATIONSHIP AMONG BARRIERS IN IMPLEMENTING LEAN MANUFACTURING IN INDIAN INDUSTRIES	IOSR-JMCE, Volume-13, Issue-4, July-2016, p.p. 80-86	<b>2278-1684</b>
3	<b>Dr. M.P. Singh,</b> <b>Shiv Singh</b>	STUDY OF THE PARAMETERS IN EDM THROUGH DESIGN OF EXPERIMENT USING TAGUCHI METHOD	IJIRSET, Volume-5, Issue-7, July-2016, p.p. 13542-13553	<b>2319-8753</b>
4	<b>R.O. Rustagi,</b> <b>Vivek Kumar,</b> <b>Prabhat Kr. Ranjan</b>	IMPROVEMENT IN QUALITY BY KAIZEN GEMBA	IJME, Volume-7, No. 2, July-December 2016, p.p. 04-07	<b>0976-7371</b>
5	<b>Manish Jain,</b> <b>Dr. M.P. Singh,</b> <b>Shubham Rathi</b>	OPTIMIZATION OF POWER THROUGH WASTE HEAT IN CEMENT PLANT	IJME, Volume-7, No. 2, July-December 2016, p.p. 13-16	<b>0976-7371</b>
6	<b>Rajendra Kr. Gupta,</b> <b>Hitesh Arora,</b> <b>Nitin Chhabra</b>	GEOHERMAL ENERGY UTILISATION AND MANAGEMENT	IJME, Volume-7, No. 2, July-December 2016, p.p. 30-34	<b>0976-7371</b>
7	<b>Bhuvnesh Bhardwaj,</b> <b>Varun Sharma</b>	A REVIEW ON THE INFLUENCE OF HEAT INPUT ON THE WELDABILITY OF QUENCHED AND TEMPERED STEELS	IJME, Volume-7, No. 2, July-December 2016, p.p. 35-40	<b>0976-7371</b>

8	Jaydev Varma, Bhuvnesh Bhardwaj, Pawan Kr. Sharma	GREY-TAGUCHI METHOD TO MULTI RESPONSE OPTIMIZATION OF DRILLING PARAMETERS	IJME, Volume-7, No. 2, July-December 2016, p.p. 41-46	0976-7371
9	Dr. M.P. Singh, Kuldeep Sharma, Mohit Pareek	ENHANCEMENT OF PRODUCTIVITY THROUGH LEAN MANUFACTURING: A CASE STUDY	IJME, Volume-7, No. 2, July-December 2016, p.p. 47-50	0976-7371
10	Vishwas Kr. Sharma, Kedar N. Bairwa, Raj Kumar Goswami, Bhuvnesh Bhardwaj	NEED FOR OPTIMIZATION OF MACHINING PARAMETERS USING DOE: A REVIEW	IJME, Volume-7, No. 2, July-December 2016, p.p. 77-83	0976-7371
11	Rajendra P. Bairwa, Kedar N. Bairwa, Bhuvnesh Bhardwaj	OPTIMIZATION OF CO <sub>2</sub> LASER CUTTING PROCESS PARAMETERS FOR MINIMUM SURFACE ROUGHNESS DURING THE CUTTING OF AISI304L STAINLESS STEEL	IJME, Volume-7, No. 2, July-December 2016, p.p. 84-89	0976-7371
12	Satyendra Kumar	MODLING AND SIMULATION OF FEMORE BONE REPLACEMENT USING FUNCTIONALLY GREADED MATERIAL (AL <sub>2</sub> O <sub>3</sub> /AL) UNDER BENDING AND COMPRESSION LOADING	IJME, Volume-7, No. 2, July-December 2016, p.p. 90-93	0976-7371

NOTE: GREEN [Faculty JECRC], BLUE [Student JECRC], RED [Outside JECRC]

## Induction Day

Enthusiastic faces, bright ones, with a dream in each eye, such was the scene of the inaugural function which was held to welcome the first year students to the JECRC Foundation on 1<sup>st</sup> August, 2016. The students were welcomed in the traditional manner by 'tilaks' on their foreheads, then they all were forwarded to the auditorium where they were addressed by the dignitaries, the founding members of the foundation, the Principal and some other faculties. In these addresses, they were told about the proud history, prosperous present and progressing future of the college. They were also told about numerous activities being held in the college campus like *Aashayein*, *Zarurat*, *Road Safety*, *Suhasini*, *Soch*, and other such ventures in which they could take part and enhance their co-curricular skills. Students were also made aware of the rules and regulations of the college and their academics schedule.



The students took the oath not to exercise or bear any kind of ragging in the college campus to eradicate this menace from college. In order to make their first day of college as a memorable one for them, their seniors did not leave any stone unturned as the palm impressions of new comers were being engraved on a banner so that they could make the day remember for them. New students showed curiosity in visiting college as they visited different clubs like *SAE-Moonriders club*, *Robotics club*, *Centre of Apps and Ideas (CAI)*. After their visits, they looked very much excited as they gathered for a photograph in the central lawn. The view of new faces feeling excited as they were going to embark a new journey was soothing.



## Independence Day

A day when all of a sudden the patriotism inside us ignites, a day when nothing seems better than our country, yes it is the Independence Day which is celebrated with great pomp and show every year in our college campus. This year too we had the 69<sup>th</sup> Independence Day celebrated on 15<sup>th</sup> Aug 2017 in the vicinity of our college.

We had Shri P.K. Tiwari, Retired DGP, Rajasthan Police amongst us as the Chief Guest of the function. Flag hosting was done by Shri V.K. Chandna, Principal, JECRC.

The flag hosting was followed by the speech of our Principal and Chief Guest. This was followed by various cultural programs such as patriotic poems, group songs, and solo songs. The main attraction of this event was a Violin performance by Ms. Palak Vaid and Kathak dance performance by Ms. Radhika Juneja. The celebration ended with the sweet distribution among the students which once again filled enthusiasm in the students.



## Engineer's Day

We design, we construct, we observe, we initiate, we drive, we move, we accelerate the world, we are the gears of progress and who we actually are... we are ENGINEERS. Engineer's Day is celebrated as a tribute to one of the first and the finest engineers, India has ever produced, Sir Makshagundam Visvesvaraya.



We celebrate Engineer's Day every year on 15<sup>th</sup> September with the motive to motivate and praise the students to achieve their goals and bring laurels to their family. It is inaugurated by an inspirational speech of our principal followed by various cultural programs such as Plays, Singing and Dancing.



Shri M.L. Sharma and Shri P.K. Tiwari distributed prizes and certificates to the students who have topped in the semester exams of respective branches. In this way the day bores out inspiration to the young mind to toil for their goals.



## Vande Mataram

The event, called “voice of unity”, was organised by Hindu Spiritual Fair. HSS is an organisation backed by Rashtriya Swayamsevak Sangh. The event was held on September 21, 2016 at Amrudo Ka Bagh with the objective to connect young mind with values and culture of India. One Lakh people sang ‘Vande Matram’ along with Chief Minister of Rajasthan Smt. Vasundhra Raje here as over 500 musicians performed on stage.



It was a proud moment for JECRC that the whole event was chief coordinated by Mr. Amit Agrwal. Also the student of JECRC actively and enthusiastically participated in this event with a cumulative strength of more than 300 students from the Mechanical Engineering Department. The Jaipur had a beautiful morning on Janpath, as Voice of Unity event was organized. The aura of an event was so patriotic that it was giving the feeling of Independence Day or Republic Day. This was the second consecutive year of show and this time song was managed by around 500 musicians and 18 different musical instruments were used to co-ordinate the event. The event was defining that JECRCians doesn't need any specific day to celebrate patriotism.



## Conference

For a society to develop, it is necessary to have a vision, the ability to see what lies ahead, as well as the knowledge of various impediments in the present and of the means to arrive at a better future. The world around us is dramatically changing. It is becoming more and more interconnected through technology. Changing global conditions demand that we rethink the strategies of growth, and research is a tool to understand reality in order to make it a better living experience. Every walk of life is enriched due to research. It was scientific innovation that brought about the invention of a steam engine at a primitive level, thereby, making life easy at a click in the digital world. Research in its manifold pattern lays its foundation in diverse fields of Mechanical and Civil Engineering.

### OBJECTIVES:

- To provide an exceptional platform to the academicians, researchers and students.
- To meet and discuss the practical solutions, scientific results and methods in solving various problems with people who are actively involved in emerging research fields.
- To focus on the recent technological developments in all the areas of renewable energy sources and sustainable development.

### About RESSD-2016:

Department of Mechanical and Civil Engineering organized a Conference “**Renewable Energy Sources and Sustainable Development: Opportunities and Challenges**” during 07-08 October, 2016. The inaugural function was graced by the presence of Chief Guest **Prof. S.K. Ghosh, IIT Roorkee**. He motivated the faculty members and participants to contribute for upgrading the level of technical education with the help of research in their field.





RESSD-2016 provided a unique opportunity of presenting and discussing recent advancement in renewable energy and sustainable development and made the bridge between academia and industries. The conference was consisting of scientific session, symposia on specific topics and paper presentation. A Group of experts shared information and got in touch with other groups. A special attention was also given to Green Manufacturing, Renewable Energy Sources for Sustainable Development, Green & Smart Construction and Future Fuels. Nowadays these aspects are becoming more and more important both in respects of human life and environment.







Session	Chair Person	Designation	Number of Papers Presented
I	Mr. M.K. Bohara	Retired Chief Engineer, NHPC	14
II	Dr. P.N Dardey	HOD(CE), JNU, Jaipur	12
III	Dr. Anand Pandey	HOD(ME), MU, Jaipur	14
IV	Dr. M.L. Meena	Asst. Prof.(ME), MNIT, Jaipur	14
V	Dr. Jinesh Kumar Jain	HOD(ME), GCA, Ajmer	14
VI	Dr. K.B. Rana	Asst. Prof.(ME), RTU, Kota	14





This conference was successfully conducted in association with IEEE Education Society, New Delhi and ISST Journal. **Prof. Dilip Sharma, MNIT**, expert in the field of Renewable Energy concluded the session with his words. He talked about the current status and ongoing research in the field of Renewable Energy.





## HIGHLIGHTS:

Total Number of papers received	<b>103</b>
Total papers shortlisted	<b>82 (out of 103)</b>
Outside Rajasthan	<b>06 (out of 82)</b>
Selected for Publication in IJME [ISSN: 0976-7371]	<b>39 (out of 82)</b>

## OUTCOMES:

- Students and research scholars were made aware about the recent trends in the field of renewable energy.
- Students knew about the benefits of such conferences so that they may get an insight into the field of research which is an essential factor for the advancement of their career.

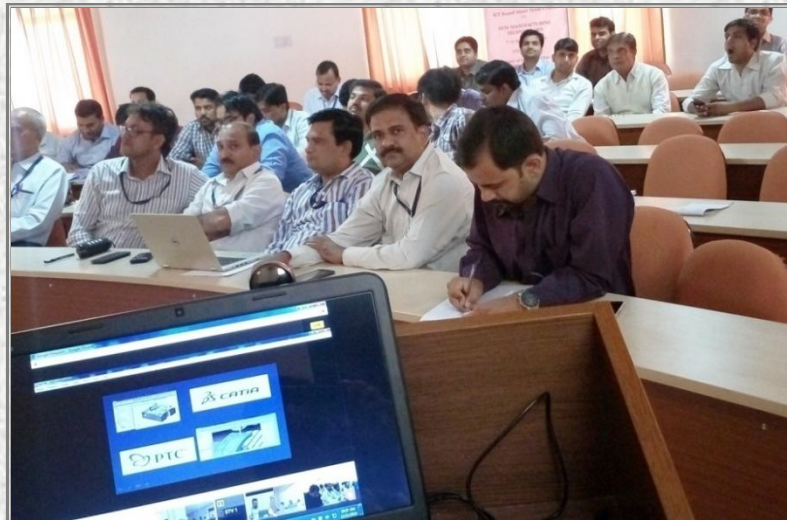
## Faculty Development Programme

Department of Mechanical Engineering organized an ICT based short term course on “New Manufacturing Technologies” in association with NITTTTR Chandigarh during 07-11 November, 2016. The entire program was very satisfactory and learner-centric. On the day beginning after introduction, some aspects of manufacturing were discussed. The Programme was inaugurated by a chief guest Prof. V.K. Chandna (Principal JECRC).



### OBJECTIVES OF STC

The changing economics of production and distribution, along with shifts in consumer demand and the emergence of smart products, are pushing manufacturers to explore radically new ways of creating and capturing value. Emergence of new materials has resulted in new manufacturing techniques being used in the industry. The main aim of the program was to expose the participants to advanced manufacturing technologies including hybrid machining and additive manufacturing.



### HIGHLIGHTS:

**[Session-I]** Shri Sunil Jassal delivered lecture on Advanced machining processes. He discussed Non-Traditional machining methods their needs, advantages and limitations.

**[Session-II]** Shri Alkesh Manna explained basic concept and need of Micro-mechanical electronic systems (MEMS) in mobile sensors, microprocessors, IC, Displays etc.

**[Session-III]** Prof. Rao delivered explained some basic concept on Rapid Prototyping. He also addressed the need of CAD, CAM and rapid prototyping.

**[Session-IV]** Prof. S. Paul delivered lecture on working principle of ECM. He told about the Potential drop in ECM, MRR models, Process Parameters, Applications and Limitations.

**[Session-V]** Dr. Sarbjit Singh explained conventional & non-conventional machining and basic concept of metal matrix composite, hybrid composite and type of reinforcements.

**[Session-IV]** Prof. Kansal took lecture on Nano Manufacturing towards Nano finishing. He discussed about basic concept of Nano technology and its application in various.

**[Session-VII]** Prof. Alakesh Manna continued his lecture. He explained working of various hybrid processes like AECG, AEGH, ECAM, ECDM, MAF, CAAF, AEDM etc.

**[Session-VIII]** Dr. Atul Kumar emphasized on Wearing of gear under meshing and explained the wear phenomena with the help of laser scanning.

**[Session-IX]** Dr. J. P. Mishra explained some processes briefly with the help of schematic diagram his main focus was on Electro Chemical Honing (ECH).

**[Session-X]** Shri Sandeep Bhardwaj delivered lecture on Micro machining. He explained nonconventional micromachining processes with merits and demerits.

**[Session-XI]** Prof. Rao delivered lecture Overview of Product design and Development in this lecture. He explained CAD/CAM History and evolution of CAD/CAM.

**[Session-XII]** Prof. Sanjeev explained various concepts of nanoparticles in his lecture like aspect ratio, quantum confinement, and luminance.



## OUTCOMES:

Faculty members gained extensively details of new materials, manufacturing technologies, manufacturing processes, hybrid machining, additive manufacturing knowledge along with practical knowledge. Case studies and practical examples enriched faculty members concepts on above topics and that will help faculty members to conduct lab in institution. The advanced manufacturing technologies and manufacturing processes also benefited faculty members for upgrading the knowledge of students, so that they can easily interact with industry and make a strong bond between institution and industry.

## SAE-Moonriders

SAE International, initially established as the Society of Automotive Engineers, is a U.S. based, globally active professional association and standards developing organization for engineering professionals in various industries. It currently has more than 127,000 members globally. Principle emphasis is placed on transport industries such as automotive, aerospace, and commercial vehicles.

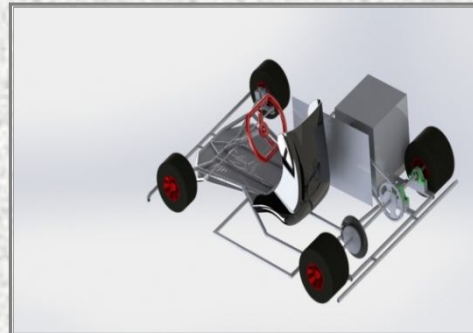
Aside from its standardization efforts, SAE International also devotes resources to projects and programs in STEM education, professional certification, and collegiate design competitions.

**SAE-INDIA** is an affiliate society of SAE International registered in India as an Indian non-profit engineering and scientific society dedicated to the advancement of mobility industry in India. Our 55 students from 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> year are registered with SAE India.

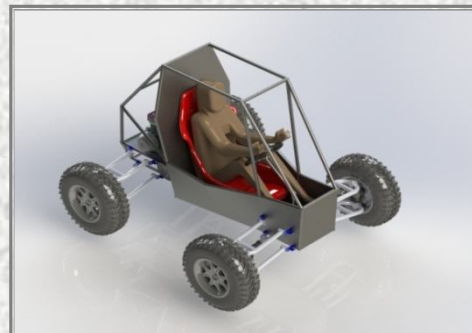
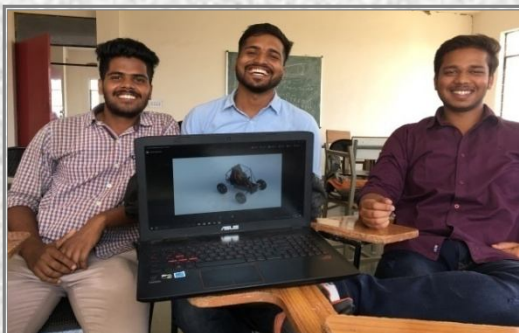
MOONRIDERS is part of SAE club. We design and manufacture various automobiles and projects in campus and till now it has been part of various events like ATV, Go-Kart, Efficycles, Robowar, RC-Car and RC-Plane.

### Achievements

- Cleared virtual round in “Elite Go-Karting”, with rank 23<sup>rd</sup> among 168 participants, held on 10 August, 2016 at G. L. Bajaj Institute of Technology & Management, Delhi.

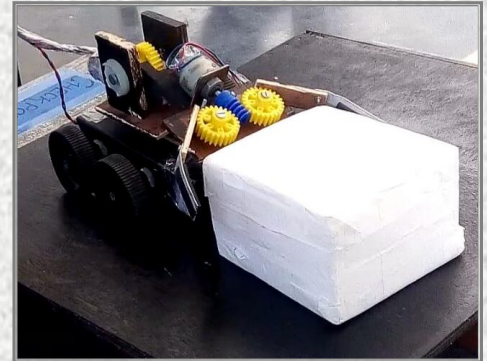


- Cleared virtual round in “Mega ATV Championship”, held on 12 September 2016 at Ahmednagar, Maharashtra.



## Robotics Club-Xananoids

Robotics Club-Xananoids is an active club of JECRC having its mission to promote Advance Robotics and Embedded systems and its vision is helping people to live the robotics world. Team members of Xananoids are regularly not only participating in different technical competitions, also winning the competitions. They are promoting development of students in field of robotics and embedded systems. Team members of Xananoids are from all fields of engineering (ECE, ME, EE, CSE, & IT). Recently this team is developed a robot named as "Transporter".



### Transporter:

It also known as pick and place robot. It is used to pick up an object and place it in the desired location. It is providing movement in horizontal, vertical and rotational areas.

### Working Principle of Transporter:

In front of the transporter we use the gripper. The gripper is made by gear mechanism. The gear is used to grip and replace the object and it is control by the motor. The gripper mechanism is also capable for doing the vertical motion by this we can easily lift the object at some height. The gripper mechanism is also capable for rotational motion which is help in to rotate the lifted object in 360 degree. The base of transporter is connected with wheels which provide the linear motion to the robot.

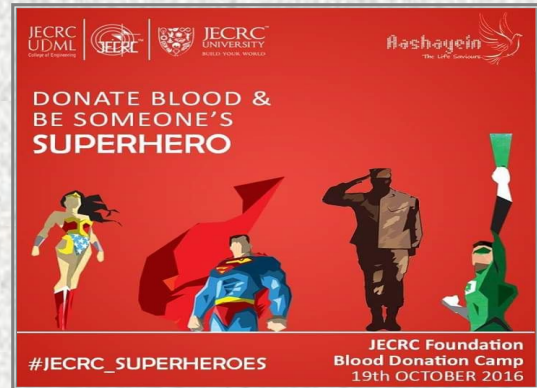






## Blood Donation-Aashayein

Aashayein "The Life Saviours" a club managed by students of JECRC organized a blood donation camp on October 19, 2016, which was tribute to the soldiers who shed their blood for the protection of our motherland. This was the 19<sup>th</sup> camp organized by them and it turnout to be a massive success with **1618 units** donations of blood.



The event was inaugurated by Mrs. Diya Kumari princess of Jaipur Royal Family and a member of Rajasthan Legislative Assembly, Mr. Arpit Agrawal Director of JECRC Foundation and Dr. V.K. Chandna principle of JECRC. Mrs. Diya Kumari visited throughout the camp and motivated the donors.

Teachers and students of Department of Mechanical Engineering took part in huge numbers and motivate others. The tempo is high and the campus is abuzz with the spirited enthusiasm of student willing to do their bit for the society. The donors feel satisfied with himself after donation of blood.



The institution and club want to spread the message that by donating blood we can save many lives and fight with many diseases. Nowadays dieases like dengue and chicken guniea are widely spread and their patient need hemoglobin, blood cells and other content of bloods. So they have a slogan "Donate Blood and Be Someone's Superhero".

## Zarurat-the help beyond

“Zarurat-the help beyond” founded on November 20, 2011 is a student-based social group of JECRC. This group has been serving the underprivileged children of the slum area in the vicinity of the college campus and has been working to provide them quality education. The group also organizes many activities for these children like computer classes, movie sessions, art and craft activities, sports day, visits to the science park, museums, children literature fests and other educational places.

Every year the team Zarurat organizes a day-long social event for these children and also invites other social groups (NGOs) from the city, Jaipur. The fest witnesses a gathering which exceeds 1000 people. On these occasions the institute has been fortunate enough to have the blessings of several dignitaries like Shri D.R. Mehta, the world famous Jaipur Foot developer, Shri Kailash Satyarthi, Nobel Peace Prize Laureate 2014, Ms. Gloria Benny, founder of Make a Difference and Guardian of Dreams, Shri Anshu Gupta, founder of Goonj and the Magsaysay Award recipient and the co-founder of People’s Vigilance Committee on Human Rights Shri Lenin Raghuvanshi.

Our work has also been acknowledged by some popular faces like Shri Anil Agarwal, the chairman of the Vedanta Resources Ltd. well known as “The Metal King of India” and the famous celebrity Shri Abhishek Bachchan, during their visits to the institution.

In the first week of October we celebrated the festival of giving “The Joy of Giving Week” which is celebrated throughout the nation under the name “Daan Utsav”. Our team celebrated this week by performing various activities of philanthropy for the kids. On the last day goodies were distributed to all the kids.



## Suhasini-beti bachao beti padhao

“**BETI BACHAO BETI PADHAO**”, with the message of this noble cause SUHASINI, a social group of our college was founded two years ago. This group basically works for the upliftment of the girls.

Suhasini as a group has been successful in influencing people towards the betterment of girls in the society through its nukkadnatak at Janpath on November 20, 2016 which fetched the attention of all the dignitaries and the crowd present there.

Team Suhasini has also started the door to door awareness campaign in goner from 25<sup>th</sup> Sep 2016. Interactions on regular basis was carried with students and their families personally to ask their problems and find out the reason why no one over there wants to send their girls to school and team tried level best to solve their problems.

Through its hard work team is available to achieve many feats like:

- 15 girls were admitted in schools but a few were not regular, those are made regular now.
- 8 students who left their schools permanently are again in touch with self study and schools.
- 12 new girls are admitted to schools.



## Soch-kuchh kar dikhane ki

Soch-a social awareness group of JECRC, started on September 11, 2014 by Mr. Aman Goyal and Ms. Nikita Kochchar has made a great contribution towards educating and awaring the society on different social grounds. The Group encourages students of foundation to step out of their routine life and think out of the box to work for the needy and downtrodden.



SOCH group organizes different events at regular intervals. We organized "VASTRA SAMMAN" on 22 October, 2016 to donate old and unused clothes among the needy people to make appear an unfading smile on their pale faces. Not only the team members but the students of the college raised a helping hand and donated more than 1250 clothes enthusiastically along with fruits, stationery & toys.

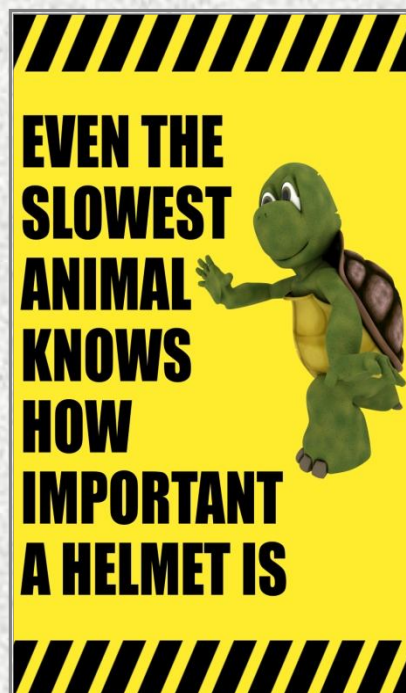


Recently this group organized an ORPHANAGE VISIT to make a moment of joy and enlightenment in the lives of people who are left unattended by their family and in this way the whole SOCH team made a little attempt of reviving old days of happiness.

Another important part of the group includes CLEANLINESS DRIVE inspired from "SWACH BHARAT ABHIYAN", organized by the whole team at regular intervals in the college campus. The aim of the event is to aware the students to maintain cleanliness not only at their home but each and everywhere and also to make aware people about it wherever they find people throwing waste here and there.

## Road Safety

Road Safety Club has been formed with 8 Faculties as members and 50 student volunteers with the aim to spread awareness about safe driving in and around Campus. As a first exercise, two faculty members and a few student volunteers was at main gate to educate and persuade students and faculties to wear helmets and adhere to traffic rules. The faculty speak for few minutes, at the end of the class, about road safety to the students. All of the faculty members and almost all of the students are now habitual to wear their helmets while driving. With our mission, we are in near future hope that all members of JECRC foundation will not only be habitual of wearing helmets but also will aware others.



## Make in India-the next manufacturing destination

In the past few years, manufacturing has emerged as one of the booming sectors in India. To strengthen it further our Prime Minister Mr. Narendra Modi, has launched the 'Make in India' campaign.

The motive behind this campaign is to place India on the face of the world map as a manufacturing hub by providing conducive environment. Its aim is to showcase India as a business friendly destination to attract foreign business industries.

India currently placed at sixth position among the top manufacturing countries of the world. As per the report by McKinsey Global Institute, India's manufacturing sector has the potential to touch US \$1 trillion by 2025. There is potential for the sector to account for 25-30 percent of the country's GDP and create up to 90 million domestic jobs by 2025.

To push the Make in India campaign, the Government of India has taken several initiatives to set-up a friendly environment for the advancement of manufacturing sector.

Some of the notable initiatives and developments are as follows:

- Union Budget 2017 provides a renewed impetus to manufacturing and 'Make in India'. For instance, Infrastructure – which is considered as a key pillar under the 'Make in India' program, has been strengthened with a large budgetary allocation. The total allocation for infrastructure development in 2017-18 is Rs 3,96,135 Crores. A specific program for the development of multi-modal logistics parks together with multi-modal transport facilities is considered as a big boost to 'Make in India' initiative.
- The National Institution for Transforming India (NITI Aayog), after its recent push for Rs 6,000 Crores (US \$889 million) textile sector package, aims to persuade the government for similar support in the manufacturing sectors with large-scale employment generation opportunities, such as electrical and electronics engineering, footwear and light manufacturing segments, which also have export potential.
- The Ministry of Labour and Employment plans to relax compliance measures for MSMEs by exempting them from inspections related to key labour laws in order to encourage entrepreneurs to help promote manufacturing in India.
- The Government of India plans to give a big boost to local manufacturing by introducing the new channel 'Make in India Green Channel', which will reduce the time taken for cargo clearance at ports from about one week to a few hours without any upfront payment of duties.
- The Ministry of Heavy Industries and Public Enterprises, in partnership with industry associations, has announced creation of a start-up centre and a technology fund for the capital goods sector to provide technical, business and financial resources and services to start-ups in the field of manufacturing and services.
- The Government of India adopted a new Defence Procurement Policy

(DPP) under which priority will be given to the indigenously made defence products and 25 percent share of defence production will be open to private firms.

- Ms Nirmala Sitharaman, Minister of State for Commerce and Industry, has launched the Technology Acquisition and Development Fund (TADF) under the National Manufacturing Policy (NMP) to facilitate acquisition of Clean, Green and Energy Efficient Technologies, by Micro, Small & Medium Enterprises (MSMEs).
- The Government of Uttar Pradesh has secured investment deals valued at Rs 5,000 crores (US\$ 741.2 million) for setting up mobile manufacturing units in the state.
- Government of India has planned to invest US \$10 billion in two semiconductor plants in order to facilitate electronics manufacturing in the country.

The government of India has an ambitious plan to locally manufacture as many as 181 products. This move could help infrastructure sectors such as power, oil and gas, and automobile manufacturing that require large capital expenditure and revive the Rs 1,85,000 Crores (US \$27.42 billion) Indian capital goods business.

Many global manufacturing leaders had responded to the government initiatives and that resulted in the major investments and development in this sector in the recent past:

- Tata Power has partnered with US-based Javelin Joint Venture, which is a partnership between Raytheon Company and Lockheed Martin, for its strategic engineering division (SED), in

order to create a strategy to co-develop and produce the javelin missile system and integrate platform mounts to meet Indian requirements.

- Tristone Flowtech Group, the Germany-based flow technology systems specialist, has set up a new facility in Pune, which will manufacture surge tank as well as engine cooling and air charge hose for the Indian market. The company plans to start the production at the plant in the fourth quarter of 2017.
- Honda Motorcycle & Scooter India plans to invest around Rs 600 Crores (US \$88.94 million) to add a new line at its narsapura facility at Karnataka, and launch at least 10-15 products during FY 2016-17 in the country.
- Force Motors, a utility and commercial vehicles manufacturer, inaugurated its Rs 100 Crores (US \$14.82 million) manufacturing facility in Pune, which will supply engines and axles to the Germany-based automobile manufacturer Mercedes-Benz.
- Boeing Company, an American plane maker, and Tata Advanced Systems Ltd (TASL), a fully owned subsidiary of Tata Sons, have entered into a joint venture to set up a new facility in Hyderabad to manufacture Boeing AH-64 apache helicopter fuselages.
- Isuzu Motors, the Japan-based utility vehicle manufacturer, has inaugurated its greenfield manufacturing unit in Sri City, Andhra Pradesh, which was set up for Rs 3,000 Crores (US \$444.72 million), with an annual production capacity of 50,000 units and is estimated to generate around 2,000-3,000 jobs.

- Huawei, the China-based Smartphone manufacturer, has entered into an agreement with solutions provider Flextronics Technologies (India) Private Limited, to manufacture its smart phone in India. Flextronics would start by making 3 million smart phones at its facility in Chennai and is expected to generate additional 1,500 jobs.
- Havells India Limited, one of the top Indian consumer electrical equipment producer, plans to set up a new manufacturing unit near Bengaluru by making an investment of Rs 1,059 Crores (US \$156.99 million), which would be its twelfth plant in India and its first outside north India.



With impetus on developing industrial corridors and smart cities, the government aims to ensure holistic development of the nation. The corridors would further assist in integrating, monitoring and developing a conducive environment for the industrial development and will

promote advance practices in manufacturing. Manufacturing remains a critical force in both advanced and developing economies. But the sector has changed, bringing new opportunities and challenges to business leaders and policy makers.

---Manish Jain [HoD, ME]



## India—the new R&D hub

Research and development is the showcase of the extent of advancement a country is making in the field of science and technology. The research ecosystem in India presents a significant opportunity for multinational corporations across the world due to its intellectual capital available in the country. Consequently, several MNCs have shifted or are shifting their research and development (R&D) base to India. India hosts 30% of global top 1000 R&D centres. These R&D bases either develop products to serve the local market. India will likely get into the list of the top 25 nations in the Global Innovation Index, in the next 10 years. Overall India-based R&D Globalization and R&D Services market reached US\$ 20 billion in 2015.

Country	Number of ER&D Centers	Key Examples
India	57	BASF, Bosch, <u>Coolpad</u> , Daikin, Danfoss, Delta, Ericsson, Foxconn, <u>LeEco</u> , Michelin, Rolls-Royce, <u>Sandvik</u> , Simon, Vivo
US	34	Alcoa, Boeing, <u>Didi Kaudi</u> , GM, Honda
China	13	Acer, BASF, Ford, Dell, <u>Kone</u> , Mercedes-Benz
Singapore	13	3M, Alcatel, DuPont, Grab Taxi,
France	7	Bosch, Cisco, Facebook, Michelin, Salesforce
Israel	7	Facebook, PayPal, <u>Marketo</u> , Visa, SanDisk
UK	6	<u>Arcelik</u> , <u>Geely</u> , Royal Enfield
South Korea	5	Henkel, Mitsubishi, Samsung
Ireland	4	Dell, Huawei, Intel
Others	45	
<b>Total</b>	<b>190</b>	

**Recent Investments and development:** Many researches and developments have taken place in recent times, thanks to the conducive budget and infrastructure provided by the Govt. The notable ones are:

1. Mondelez International plans to invest US\$ 15 million.
2. The Indian Space Research Organization (ISRO) has successfully launched 104 satellites.
3. Ford Motor Company plans to set up a new global technology and business centre in Chennai.
4. Hero Motocorp has set up an integrated R&D facility with an investment of Rs. 850 crore on the outskirts of Jaipur.
5. Twitter Inc. is planning to set up its first facility outside the US in the form of an R&D centre in Bengaluru.

### Government's initiatives:

Some of the major initiatives taken by the Government of India to promote R&D sector are development of Special Economic Zones (SEZs), a fund of Rs. 100 Crore for R&D units by steel minister, joint research with Bangladesh in marine field.

### Future scope:

With the government's support, the R&D sector in India is all set to witness some robust growth in the coming years. India is also expected to witness strong growth in its agriculture and pharmaceutical sectors as the government is investing large sums to set up dedicated research centres for R&D in these sectors. The Indian IT industry is also expected to add to the development of R&D sector.

---Anmol Rajawat [III Year, ME]

## Guns-the hidden machines

Guns when heard in mind gives us an thought of mass destruction, but remember that guns are machines with lots of little parts, and the term we use for it matter as much with guns as they do with other machines. A gun though used for destruction has many parts when thought of as a machine. It has parts like the Barrel, Blank, Burst, Clip, Chamber, firing pin, hammer, jacket, kick, magazine, primer and many more. Interesting, isn't it?



And not only this, when seen in deep we found that not only the gun being an hidden machine has involved many mechanical parts within it but also the tiny bullets that are used to shot has many types within it. A bullet also known as the Cartridge comes in the range of 0.22 caliber to 0.45 caliber, rifle bullets being far more diverse.

When going through the gun from a mechanical engineers point of view we further enhanced that guns are not limited to those seen in televisions. As our machines have various type they also do like the Shotguns, Hand guns, Semi-automatic pistol, Revolvers, long guns,, machine guns and many more like them which is beyond our imagination.

That's the bare bone terminology lesson. Because of the number of guns and types of ammunnition out there, you will have to research a personal sidearm on your own, but I hope this helps you understand the basic difference between a weapon of destruction and a bare machine.

---Samaksh Jha [III Year, ME]



## Recent Innovations

### PAL-V: Car That Flies:

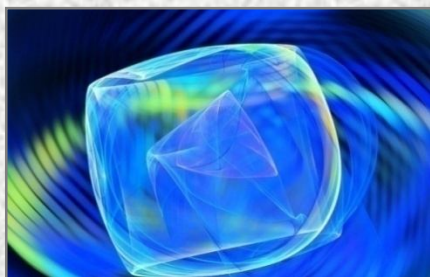
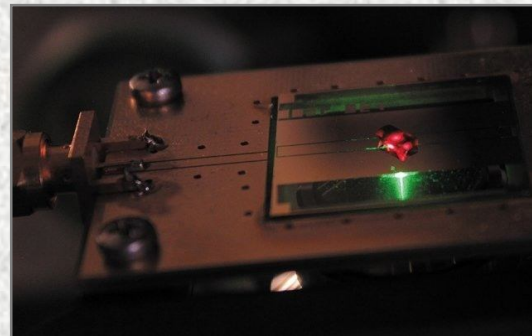
PAL-V International B.V Dutch vehicle manufacturer has developed flying cars PAL-V ONE (Personal Air and Land Vehicle One) and made them commercially available for the first time ever. Company is now accepting pre-orders for its Liberty vehicle, which it calls “*the first certified commercial flying car ever*”. The Pricing begins at \$400,000, but that’s for a base model before taxes



The PAL-V ONE in flight is an autogyro or gyrocopter, with a foldable pusher propeller providing forward thrust and a free-spinning rotor providing lift. Directional stability is provided by twin boom-mounted tailfins. It has a tricycle undercarriage with relatively large wheels. The PAL-V One has two seats and a 160 kW flight certified gasoline engine, giving it a top speed of 180 km/h (112 mph) on land and in air, and a Maximum Takeoff Weight of 910 kg.

### TIME CRYSTALS: New Form of Matter Created by Scientists:

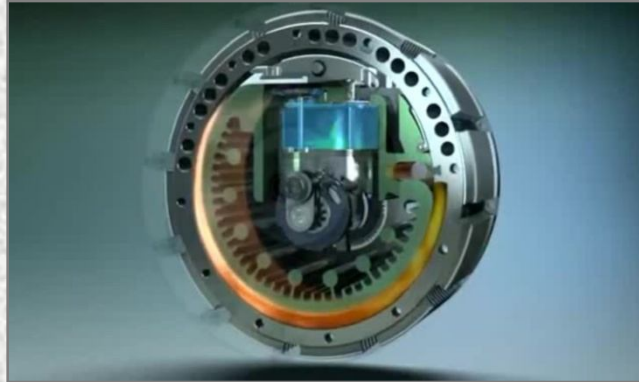
In 2016, two research teams from Harvard and university of Maryland published research paper that how they independently produced live crystals in the lab for first time. It was reported that the theoretical concept of time crystals had been proven, Space-time crystals extend the ordinary three-dimensional symmetry seen in crystals to include the fourth dimension of time; a time crystal spontaneously breaks the symmetry of time translation. The idea of a time crystal was first put forward by Nobel laureate and MIT professor Frank Wilczek in 2012.



The crystal's pattern repeats not in space, but in time, which allows for the crystal to be in perpetual motion. The Time crystals are a new phase of matter that may have applications in quantum computers. They are kicked periodically, sort of like tapping Jell-O repeatedly to get it to jiggle. Time crystals are closely related to the concepts of *zero-point energy* and the dynamical *Casimir effect*. It is also thought that time crystals could provide deeper understanding of the *theory of time*.

## TURBO-COMBUSTION: Green Engine Technology:

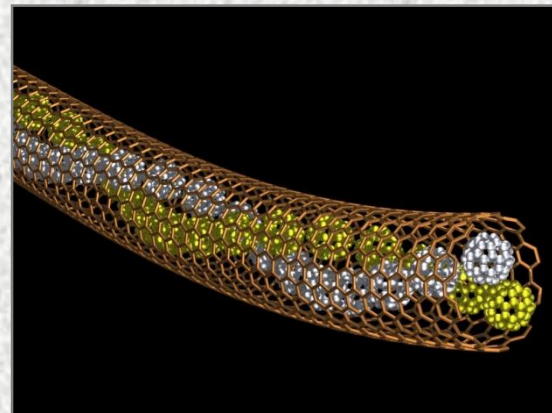
This design allows the engine to convert the entire combustion force to useful rotating energy and to boost the fuel efficiency to nearly 80%. To make the engine environmental friendly, they also added a computer controlled “Variable Compression Ratio” (VCR) system that can detect the type of fuel entering the engine and can adjust the compression ratio accordingly to generate the most powerful combustion force under all atmospheric conditions and fuel types.



## CARBON NANOTUBE 'Shock Absorbers': Excel at Dampening Vibration:

Research on a new class of nanostructured materials used to reduce vibrations in mechanical equipment and electronic devices, being developed by a team of mechanical engineers at Rensselaer Polytechnic Institute, will be featured in nature materials

“The new systems reduce and control vibrations within structures and will benefit the performance, safety, and reliability of future manufacturing equipment, sensitive laboratory equipment, and everyday electronic devices.”



The Rensselaer research team, added carbon nanotube fillers to traditional vibration reduction materials to enhance their energy dissipation capability. Adding large quantities of nanoscale fillers increases the amount of surface area, and thereby increases frictional sliding that occurs at the filler-to-filler interface. The result is a decrease in vibrations. The research is available in the Nature Materials journal online, and will be published in an upcoming print edition of the journal.

## Nobel Prize

### **Nobel for Discoveries of Topological Phase Transitions and Topological Phases of Matter:**

**David J. Thouless, F. Duncan M. Haldane and J. Michael Kosterlitz** were jointly awarded Nobel Prize in the year 2016 for “**Theoretical Discoveries of Topological Phase Transitions and Topological Phases of Matter**”. These theoretical discoveries revealed the possibility of a bizarre world where matter can take on different, and strange, states. Using advanced mathematics, the trio examined weird states of matter, such as superfluids, or substances that behave like liquids but have zero viscosity or resistance to flow. In superfluids, there is no friction impeding the liquid's flow and so its particles act as one super particle. Other exotic states of matter include thin magnetic films and superconductors.



### **Nobel for the Design and Synthesis of Molecular Machines:**

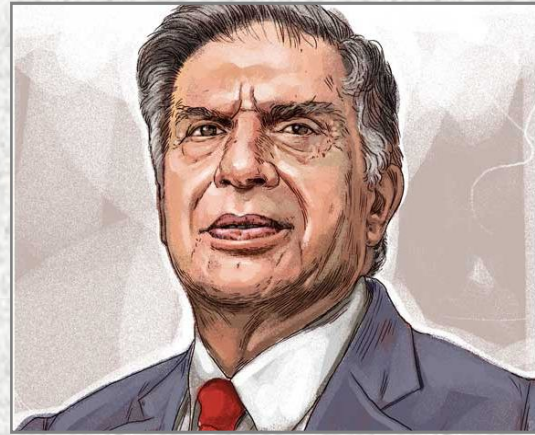
**Jean-Pierre Sauvage, Sir J. Fraser Stoddart and Bernard L. Feringa** were jointly awarded Nobel Prize in the year 2016 for “**The Design and Synthesis of Molecular Machines**”. In other words, this trio developed the world's smallest machines by linking together molecules into a unit that, when energy is added, could do some kind of work. These machines, a thousand times thinner than a strand of hair, included a tiny lift, mini motors and artificial muscles.



## Ratan Tata- the business legend

If you do what you've always done, you'll get what you've always had. Think differently. Same can be said about the success of Ratan Naval Tata, one of the greatest Indian businessmen of India.

**Ratan Tata**, in full **Ratan Naval Tata** (born December 28, 1937, Bombay [now Mumbai], India), Indian businessman who became chairman (1991-2012 and 2016-17) of the Tata Group, a Mumbai-based conglomerate.



A member of a prominent family of Indian industrialists and philanthropists, he was educated at Cornell University, Ithaca, New York, where he earned a B.S. (1962) in architecture before returning to work in India. He gained experience in a number of Tata Group businesses and was named director in charge (1971) of one of them, the National Radio and Electronics Co. He became chairman of Tata Industries a decade later and in 1991 succeeded his uncle, J.R.D. Tata, as chairman of the Tata Group.

Upon assuming leadership of the conglomerate, Tata aggressively sought to expand it, and increasingly he focused on globalizing its businesses. In 2000 the group acquired London-based Tetley Tea for \$431.3 million, and in 2004 it purchased the truck-manufacturing operations of South Korea's Daewoo Motors for \$102 million. In 2007 Tata Steel completed the biggest corporate takeover by an Indian company when it acquired the giant Anglo-Dutch steel manufacturer Corus Group for \$11.3 billion.

In 2008 Tata oversaw Tata Motors' purchase of the elite British car brands Jaguar and Land Rover from the Ford Motor Company. The \$2.3 billion deal marked the largest-ever acquisition by an Indian automotive firm. The following year the company launched the Tata Nano, a tiny rear-engined, pod-shaped vehicle with a starting price of approximately 100,000 Indian rupees, or about \$2,000. Although only slightly more than 10 feet (3 metres) long and about 5 feet (1.5 metres) wide, the highly touted "People's Car" could seat up to five adults and, in Tata's words, would provide a "safe, affordable, all-weather form of transport" to millions of middle- and lower-income consumers both in India and abroad. In December 2012 Tata retired as chairman of the Tata Group. He briefly served as interim chairman beginning in October 2016 following the ouster of his successor, Cyrus Mistry. Tata returned to retirement in January 2017 when Natarajan Chandrasekaran was appointed chairman of the Tata Group.

Among many other honours accorded him during his career, Tata received the Padma Bhushan, one of India's most distinguished civilian awards, in 2000.

---[Aniruddh Jain, III Year, ME]

## B.M. Munjal-a hero

India has been the birthplace of many entrepreneurs, industrialists and visionaries. When we remember those successful entrepreneurs who pushed the innovations to new limits in India through their visions, we can't overlook the achievements of the great Late Mr. Brijmohan Lall Munjal, Chairman and Managing Director of Hero Honda Motors. Mr. Munjal provided invaluable contributions to the Indian cycle industry.



Mr. Munjal Born on 1 July 1923, in a rather non-descript tehsil called Kamalia in Lalpur district of undivided Punjab. He had three brothers. Munjal brothers set up their first cycle making business in the early 1950s in Ludhiana. Hero Cycle was established in 1956 and started with manufacturing cycle components. Today, Hero Cycles is the one of the world's largest manufacturer of bicycles and producing 19,000 cycles per day. Hero Honda started its operations in 1984 as a joint venture between Hero Cycles of India and Honda of Japan. In 2010, when Honda decided to move out of the joint venture, Hero Group bought the shares held by Honda. Subsequently, in August 2011 the company was renamed Hero MotoCorp with a new corporate identity. During the 1980s, the company introduced motorcycles that were popular in India for their fuel economy and low cost.

Both these ventures are utmost successful because of the quality and efficiency of the cycles and automobiles they produced. The plants of Hero group are equipped with the most modern machines from Germany and Japan which produce maximum output. Mr. Munjal contributed to Indian industry as the economy flourished with homemade automobiles obviating the mammoth imports which would have incurred stupendous expenses. He is an epitome of hard work and sets many examples for many young entrepreneurs. Highly accomplished in the field of business, Munjal had been president of CII and SIAM and was on the board of the Reserve Bank of India. He was also one of India's richest and in October, he featured in the 27<sup>th</sup> position in Forbes Asia's list of richest Indians with a family fortune of \$3 billion. All this is from a person who never went to college. With his demise, one of the doyens who built Indian industry in the license Raj era and saw a seamless transition into a liberalized India and recently into today's modern e-commerce has gone. He will be deeply missed. He died on 1<sup>st</sup> November 2015 in South Delhi after a short illness.

---[Shubham Khandelwal, III Year, ME]

## Alumni Speaks

I **Bharat Matta** completed Bachelor degree in Mechanical Engineering from JECRC in the year 2007. I did it in Honours. I never thought I will be achieving that with so many activities during those 4 years. I was also the founder of Yuva, a non-profit foundation. You can learn more about Yuva at [www.planetyuva.com](http://www.planetyuva.com). I was also selected during college placement at **Reliance communication** as Graduate Engineer. However, that didn't work out as my expectation for myself was a bit high towards the vision of life. I had already prepared for GRE during my college days.



Bharat Matta [2003-07]

Yuva, Mechanical Engineering, GRE and College life, was a passion for me. I never had a moment where I felt like it's a burden on me. Even during university, I enjoyed studying with hostel roommates. I also stayed in the hostel for 4 years. Indeed, even in hostel leadership worked. We improved food menu. It was all decided by every member of the 1<sup>st</sup> year, 2<sup>nd</sup> year, 3<sup>rd</sup> year and 4<sup>th</sup> year. We did celebrate all the functions. I had very good bonding with my batch mates, teachers and all juniors/seniors. My seniors shaped me a lot. They had their own charm I learned a lot from them. Everyone motivated me to publish my own book name as "Journey of Life" in 2005. It was a huge launch. Sometime, I always think that without two special professors I wouldn't have achieved all this and they are MP Singh Sir and Manish Jain Sir. Also, I had big support from Director Sir. Sometime, I had long conversations with him regarding Yuva. He has always uplifted me. JECRC is a perfect mix where one can groom himself/herself in all way.

Then, I moved to Detroit for my Master Degree in Industrial engineering at Detroit in 2008. I don't know why I loved Industrial Engineering but it was awesome. I had always desired from inside to learn new things. US Style is different from India. Every week, they teach you, you give exam, present case study, solve problem and presentation. Their way of teaching is so intense that you have to focus every week and get it done. Every week decides your final grade. I almost completed by 75% of degree in first 8 months. Then I moved to Chicago for my Internship at Motorola. In meantime, there was one rule in my university, where you have to pay 9 credit fee for 1 year and that total to almost \$10,000. This doesn't count in your degree program. I wasn't aware of it and this was extra. More than that I felt like, this is wrong. I am not using any university resource then why should I pay the fee. I started asking questions to my adviser, dean and head of college of engineering. It further went till university president. I also created awareness among student. Slowly it turned into a movement and finally university change the law in favour of students. Now student needs to pay 3 credit fee and that too count in a degree program.



After that, I focused on my internship. During my internship, I was certified as Six Sigma Black Belt from ASQ. Later I joined Motorola as full time. The black belt was the biggest achievement for me as I was too young for that.

I worked with **Motorola** for 3 years and then part of Motorola was acquired by **Intel**. So now, I am **Intel** employee with 7+ Years of experience. Currently, I am located in Dallas. I am working as Customer Experience Process Engineer for Enterprise Customer. It's a way you understand customer problem and figure out the solution. Industrial Engineering, will teach you so many aspects of business. My technical experience working with Mobile & Chip-set Development is also an add-on. One should be always open for learning.

Apart from current job, I am working on new project name as "Ask us Local". It's an initiative where I'm contributing towards American economy to teach local business how they can be smart. You can learn more on web "[www.askuslocal.com](http://www.askuslocal.com)".

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I **Abhishek N Joshi** student of JECRC, Mechanical Engineering 2007 batch. It was the golden period of my life I have learnt a lot from my faculties and always feel proud to be a part of JECRC. With so many memories to cherish and knowledge to explore the world, JECRC is a complete package.

After passing the college I got placed at **Bosch Limited, Jaipur, Rajasthan** as an Assistant Manager, Quality. It was indeed a new experience of learning I have performed various task such as Process and Product Audit department head handling PPAP, Process FMEA and control plan based audits, TS audits and Customer audits, resolution of chronic problems of customer using Quality Tools of SHAININ to identify root cause, design improvements and product reliability and performance improvements by drill deep analysis and choosing best alternative, lead senior management review meetings with Customers.



Abhishek N Joshi [2003-07]

Then I was moved to **Bosch Limited, Gurgaon, Haryana** in 2013 as a Field Service Competency Leader–North, where I was Responsible for Northern India service issues related to 11 product portfolios of Bosch. In September 2014 I joined **Ingersoll Rand India Limited, Ahmedabad, Gujarat** as a Quality Manager and still working there.

It's been an amazing journey from JECRC to a corporate world, I must say the position at which I'm today is only because of the faculties and the environment at JECRC which has nurtured us in such a beautiful way that I'm always ready to face the challenges coming on my way.

## Artist's Column



Himanshu Guneshwar [III Year, ME]



Dhruv Laddha [III Year, ME]



Lalit Kumar Sharma [Faculty, ME]

## ..from the Diary

### LANTERN

Dark Night was Empowered with Bright Bolors Gleaming in the Sky,  
Due to Launching of a Jack of Lanterns,  
Despite in the Times of Unfavoured Planet Saturn,  
Prone to Affecting the few Souls Mercilessly,  
No lantern Consented to Fall down,  
Hoping It would Explore Unknown Destination.  
Each One of them Wanting to Encompass the Earth.  
The Only Time,  
When It Seemed to have Negativity at Dearth.  
In a Jiffy,  
Those Raised Earlier Started Losing Energy.  
Whatever got Smoked with Fire was Hatred.  
On the Witching Hour,  
The Unusual Scene of the Sky got Faded.  
That's how the Sky got Enlightened,  
With Bullish Belief,  
Replaced the Sky Darkened from Celestial Grief.

**-Vishal Bajpai [IV Year, ME]**



### NATURE

Where there is Nature there is Soul,  
In its Purest form of all,  
Calling Positive Vibes,  
Detaching Unfaithful Ones,  
Bursting Courage,  
For Climbing up the Rude Mountain,  
Irrespective of having gone,  
Through Unprecedented Depth of Life,  
Living a Life has its own Consequences,  
It has to be Driven on Frictional Road,  
To end up being Experiential Tyre,  
Vibrant elements Assembling,  
To form Nature bring Immense Satisfaction,  
Nature is one of the Lesser found Places,  
Where Evil Subsides,  
And God Acts !!

**-Vishal Bajpai [IV Year, ME]**



## “कराह”

अहिंसा की मूरत को हिंसा में बदलते देखा है  
 उस निश्छल छवि को शंका में बदलते देखा है  
 मालिकों की नियत, गरीबों के खून में घुली  
 मेहनत को मुनाफे की मंशा में बदलते देखा है  
 चंद पैसों के बूते घिस गए गरीबों के जूते  
 माथे पर बेबस, बेसहारा गरीबी की रेखा है  
 और कर लो खड़ा चार दीवारों पर महल को  
 हमने भी तो सोने की लंका को जलते देखा है  
 बुर्जुआका वज्र जो गरीबों का तो है मगर  
 लालची अमीरों की किस्मत का लेखा है  
 सूरज जो तैश में आकर चमड़ी जलाता है  
 हमने भी उसे तीसरे पहर में ढलते देखा है

-हेमंत नईवाल [Lab Instructor, ME]



## “माटी”

ऐ माटी के शरीर, तुझमे भी क्या जान है  
 दूसरों में ना पाता खुद को, फिर भी तू अनजान है  
 चला जा रहा है अकेला, सोचता होगा इसमें तेरी शान है  
 जो चलता है साथ सबके,  
 देख ज़रा उसकी क्या पहचान है  
 पूछेगा खुदा ये ज़रूर, कैसे ये जीवन काट दिया  
 ना होगा कोई जवाब, क्योंकि वो तो लकीरों में बाँट दिया  
 एक लकीर है हाथों में, जिन्होंने कलम का साथ दिया  
 पर तेरी बनायी लकीरों ने, हथियारों को थाम लिया  
 माना आग है सभी के भीतर,  
 बस इक चिं गारी का काम है  
 वरना कट जायेगी ज़िन्दगी, जैसे कोई बेजान है  
 अब वक़्त है फिर से, बनने का गाँधी और कलाम  
 एक कर दे दिलों और देश को, दे नयी अग्नि की उड़ान  
 है सभी माटी के पुतले, सब में एक सी जान है  
 कर जाऊं बस इतना की रब कहें, हाँ! ये मेरा इंसान है

-भुवनेश यादव [II Year, ME]



## ROAD SAFETY

Much to the road safety,  
I don't know what falls under it !!  
Some of I think is driving with love,  
And patience a little bit !!  
We never believe in !!  
Prevention is better than cure !!  
I don't want to look fool !!  
I don't want to argue on rules !!  
If he had never been superstitious !!  
He could have save a wing !!  
By knowing some safety thing !!  
The black sign is never of cat !!  
It is of, if you don't wear helmet !!  
When you sit on your car's seat !!  
If you fasten your seat belt !!  
You fell complete !!  
When you speed up for some thrill !!  
Wait wait !!  
Cause it may kill !!  
Parents are waiting for your help !!  
Or a sister is waiting to tie a Rakhi !!  
Or a brother is waiting,  
For your suggestion !!  
A half is waiting for her other half !!  
You leave some connections behind,  
When you are on road !!  
Take care of your loved ones,  
Gift them yourself on safe mode !!  
If find a red light blown on traffic !!  
You need to make a habit !!  
You need to show some patience !!  
Not just for light !!  
Just for someone !!  
Who waits for you miles away,  
With a beautiful smile !!  
Never make them cry !!  
By crossing the light !!  
You were drunk !!

And you are high !!  
The red are your eye !!  
And now you think your car can fly !!  
It seems like,  
You wanna say everyone goodbye !!  
If you drive and answer to calls !!  
The life is of more worth, after all !!  
If you drive and keep on texting !!  
Knot the words !!  
These are not habits of living being !!  
When someone hit your vehicle !!  
If he is old,  
Might be pain of body let him done !!  
If he is young,  
Might be his spouse is not well !!  
That's why he is hurry in home run !!  
If he is child, might be a series !!  
He is playing from the last 5 year,  
He won !!  
Act later !!  
And try to lister what is matter !!  
If we try to know !!  
What's Life's rainbow !!  
Understanding each other !!  
After all, we all are brother !!  
We can't have control on mishap !!  
But lets promise while driving !!  
We will not take a nap !!  
We will always wear helmet !!  
Our priority will be belt !!  
We will not get in speed trap !!  
We will not get in speed trap !!  
Make a knot !!  
When you say you care,  
And love everyone !!  
Your bike's helmet,  
And car's belt do count in !!  
DRIVE SLOW... DRIVE SAFE...!!!

**-Amit Modi [IV Year, ME]**



Mr Manish Jain  
Associate Professor, HoD



Dr Mahendra Pratap Singh  
Professor



Dr Bhuvnesh Bhardwaj  
Associate Professor



Dr Manish Srivastava  
Associate Professor



Mr Lalit Kumar Sharma  
Assistant Professor



Mr Kuldeep Sharma  
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Mr Dayal Singh Rathore  
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Mr Sandeep Yadav  
Assistant Professor



Mr Vipin Goyal  
Assistant Professor



Mr Satyendra Kumar  
Assistant Professor



Mr Rajendra Kumar Gupta  
Assistant Professor



Mr Nikhil Jain  
Assistant Professor



Mr Jaydev Varma  
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Mr Nitin Chhabra  
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Mr Akhil Vijay  
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Mr Veerendra Kumar  
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Mr Jitendra Kumar Gupta  
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Mr Ravi Kumar Jangid  
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Mr Aashish Nagpal  
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Mr Ravi Yadav  
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Mr Ravindra Singh Yadav  
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Sr Lab Instructor



Mr Hemant Naiwal  
Lab Instructor



Mr Narendra Singh  
Lab Instructor



Mr Sunil Kumar Yadav  
Lab Instructor



Mr Sandeep Sharma  
Lab Instructor



Mr Vikas Maurya  
Lab Instructor



Mr Birsingh Sirowa  
Lab Instructor



From Left : Inzamam Ul Haque, Lalit Kumar Sharma, Dhruv Laddha, Aniruddh Jain, Devendra Singh, Akshay Pal, Shubham Khandelwal, Ankur Kumar Pareek, Manish Kumar, Anshul Jain, Prashant Kumar, Amit Modi, Pankaj Maharishi, Akshay Darshan Singh, Shubhank Sharma, Satyendra Kumar, Yogesh Dubey, Palak Jindal

