



# Dronacharya College of Engineering

## ISSUE

Vol vii issue LXVIII

## Mechanical Engineering

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### From Editor's Desk :

**Success is only a Journey not the Destination.** Success does not come from a spin of a coin. one has to put tremendous effort, sacrifice and never say die-attitude to achieve what really he wants to. **Dronacharya College of Engineering, Gurgaon** has achieved a dream destination in the field of imparting Technical Education through its innovative teaching methodology and quality of its pragmatic programs. We make our Dronacharyans good human beings, useful engineers and last but never the least, professionally and technically sound in their area of interest.



Our extra-curricular and value added academic activities also give ample advantage to our students for their overall development including knowledge and personality. From time to time, we organize workshops, seminars, conferences, extension lectures etc in collaboration with well-reputed institutions and Industry.

We are continuously promoting higher education, research and projects by encouraging staff and students to the highest levels with competence, commitment and confidence. In fact, the intrinsic qualities of dedication, hard work, integrity and loyalty blended effortlessly into the professional education by our highly skilled faculty make our students a preferred choice for corporate.

Editor, (Dr. Sunil K. Mishra)

### From HOD's Desk :

**"Happiness is when what you think, what you say, and,  
What you do, are in complete harmony with each other"  
Mahatma Gandhi**

It is great to learn about how to be successful in your career and life. Remember, knowing where you want to go, and what you want to be in life, give you a starting point for you to plan the journey there. They are a reference to check against as you are travelling. Next, look at your values, so that you can make sure that the paths you choose are consistent and properly aligned with the values that you consider to be important. Look at a vision for your life. A vision which is based upon your dreams and your values that will help you in identifying whether you are in wrong or right direction.

The Department of Mechanical Engineering has distinguished and dedicated faculty and staff members who not only impart quality education and provide project guidance to the students but also build their career so that they could be able to be placed with reputed MNCs, PSUs etc. We encourage our faculty and students to participate in various seminars/conferences/ workshops to upgrade and update their knowledge.



Head of Department, (Prof. (Dr.) S. K. Bagga)

### Seminars/Conferences/Workshops :

- ▣ Mr. Rohit Kumar and Puneet Mehta VI SEM (ME) attended **SAE INDIA** Autofactory-2012 "**Workshop on Engine Design Simulation and Analysis of Commercial Car**" at **NIT, Jalandhar** during **2<sup>nd</sup> to 4<sup>th</sup> Mar 2012**.
- ▣ Mr. Rohit Kumar and Puneet Mehta, our students of VI **SEM (ME)** attended **Techniti - Technical Fest at NIT, Jalandhar** during **2<sup>nd</sup> to 4<sup>th</sup> Mar 2012** and also presented a paper entitled "**A Review of research in Alternative Fuel for I.C. Engine and how to reduce emissions from IC Engines**".
- ▣ **Mr. Sanjay Raheja Assistant Professor** at Deptt. Of **Mechanical Engineering** has attended short term course on "**Dynamics and Controls of Mechanical Systems**" at **IIT, Roorkee** during **25<sup>th</sup> to 31<sup>st</sup> Dec 2011**.
- ▣ **Mr. Narender Kumar Assistant Professor** at Deptt. of **Mechanical Engineering** has presented a paper entitled "**Value Analysis to Panel body Assembly**" in International Seminar at **SVNIT, Surat** during **17<sup>th</sup>-19<sup>th</sup>, Sept, 2011**.

### HR Summit 2012 :

**Dronacharya College of Engineering, Gurgaon** organized a one-day HR Summit- 2012 on 3rd March, 2012 in association with **Confederation of Indian Industry**. The theme of the Summit was "**Capability Building and Talent Management**".

The objective of this National Summit was to strengthen and streamline the increasing discrepancy between the education focus, pedagogy and the quality of skills developed at top-tier educational institutions and the others.

Inaugurating the Summit, **Hon'ble Principal Prof. (Dr.) B.M.K. Prasad** expressed that in the current competitive Business scenario, companies need the right technology to identify, develop and retain the right talent. He reiterated that this Summit -2012 is to provide a platform to the HR Leaders, Business Leaders to interact and share their experiences in technology for Human Resource Management.

Eminent speakers like **Mr. T.S. Madaan (Media Speaker, CNBC)**, **Dr. Ashish Mohan (Sr. Director, JCB)**, **Mr. Rajiv Naithani (Director, HR- Global Logic Ltd.)**, **Ms. Nidhi (HR Lead, Infosys)**, **Mr. Kunal (Vice Precsident, HDFC Bank)**, **Avinash Tiku (International Speakers, Art of Living)**, **Mr. Priyank Thanku (Director- HR Sales, Juventus Software)**, **Ms. Preeti Jain (GM-HR , Huawei)**, **Ms. Vaishali (Director, Tipping Point Advisory)** enabled the participants to leverage technology for further enhancing HR effectiveness.

A number of HR Heads & Other Senior Management Personnel, academicians, students and faculty from Management Institutions participated and talked about enhancing employability opportunity, building & talent planning process and economic competitiveness etc.

The Summit ended with a vote of thanks by the **Convener Mrs. Neelam Ruhil** from **Computer Science & Engineering** Department. She expressed her heart-felt gratitude to all the participants, Principal & all HODs for making this **HR Summit 2012** a great success.



**Mr. T. S. Madaan (Media Speaker, CNBC)**  
Mesmerising the audience in HR Summit



**Mr. Avinash Tiku from Art of Living**  
receiving a memento

### In-Campus Workshop :

Department Of **Mechanical Engineering** at **Dronacharya College of Engineering, Gurgaon** organised a two- day workshop on "**Ignition to Young Minds: Ideating, Inventing and Patenting**" during **17th-18th February, 2012** in association with **Inventi-NovoTrail Consortium, Bhopal**. The workshop was aimed at triggering students and young professionals to out-of-the-box thinking and also helps boosting all-round progression and confidence. **Dr. V.B. Gupta**, co-founder of several knowledge enterprises and **Mr. Emmanuel Toppo**, co-founder of Inventi Journal & NovoTrail Innovations spared their precious time in sharing their views on generation of ideas and patenting of the innovations / projects etc.

Talking about the advantages of having a patent, **Dr. V.B. Gupta** expressed that patents may also serve as a **barrier to entry** for competitors who are contemplating entering the market for the patented service. Competitors may consider the risks of patent infringement greater than the rewards of potential profits. The patent is a kind of contract between the inventor and society. It is the most reliable tool to protect one's invention.

Addressing more than **nine hundred participants**, **Mr. Emmanuel Toppo** emphasized that an idea that does not materialize in an invention cannot be protected by a patent. Ideas may, of course, be kept secret. If an idea is kept secret and the same idea is developed independently by another person, the fact that the first idea was kept secret will be of no avail to prevent the other person from using his idea. A secret idea is not an industrial property right. it is merely protected against its illegal appropriation or use.

This workshop was interesting, useful and highly informative to the participants. The guest speakers enlightened the students, faculty and other research scholars about invention and innovation, patentable invention, patent protection etc.

The workshop ended with certificate distribution ceremony and a vote of thanks by the **coordinator Prof. (Dr.) S.K. Bagga**, Head, Department of Mechanical Engineering.



**Mr. Emmanuel Toppo, National Coordinator of Inventi Journals & NovoTrail Innovations enlightening the participant.**



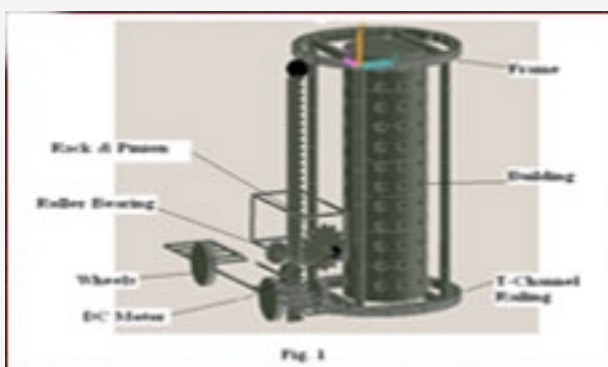
**Dr. V.B. Gupta, resource person from Inventi-NovoTrail Consortium having interaction with the participant.**

***Live projects Undertaken by students :***

**Smart Lift:**

The aim of this project is to develop a highly cost effective mechanical lift to cater builders, contractors and real estate organizations. It can be easily customized as per the requirement and available resources (mechanical or electrically) to suit the need of work. It is easy to construct and can be operated by a single person. A working prototype has been constructed to ascertain its effectiveness. It is based on the principle of simple mechanical lift in which rack and pinion arrangement is provided for vertical motion of lift. The sprocket and chain arrangement is used to move the lift in horizontal direction.

<b>Project Guides:</b>	<b>Team Members:</b>	<b>Roll No.</b>
Prof. (Dr.) S.K. Bagga	Manuj Arya	(11294)
Mr. Ravi Kr. Sharma (Asst. Prof.)	Bhupesh Bangia	(11272)
	Gaurav Verma	(11278)
	Amit Mehndiratta	(11834)



## Electricity Generation by Ocean Waves:

Ocean is a source utilized for generating the electricity permanent source of energy. Consider a moderate ocean swell, in deep water, a few kilometers off a coastline, with a wave height of 3 meters and a wave period of 8 seconds. Using the formula to solve for power, we get

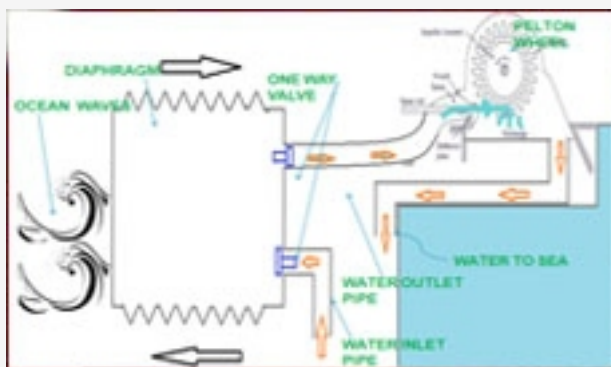
$$P \approx 0.5 \frac{\text{kW}}{\text{m}^3 \cdot \text{s}} (3 \cdot \text{m})^2 (8 \cdot \text{s}) \approx 36 \frac{\text{kW}}{\text{m}}$$

It means that there is 36 kilowatts of power potential per meter of coastline and in major storms, the largest waves offshore are about 15 meters high and have a period of about 15 seconds. According to the above formula, such waves carry about 1.7 MW of power across each meter of wave front.

It is a mechanical arrangement in which the energy of sea waves is used which is a permanent source of energy. As the waves never die, the waves hit the shores with a very high energy and pressure. This impact of waves will be used to generate electricity.

Project Guides:	Team Members:	Roll No
Prof. (Dr.) S.K. Bagga	Bhaskar Bhawani	(11271)
Mr. Ravi Kr. Sharma (Asst. Prof.)	Hemant Khandelwal	(11281)
	Kavita Gambhir	(11288)
	Karun Ahuja	(11837)

System upto the diaphragm would be submerged under the water. The diaphragm consists of two one way valves; inlet and outlet. As the wave hits the diaphragm, air from the pipe is removed and vacuum is created. Due to this water is sucked in and fills the diaphragm. With the another hit of wave, the water stored gets pushed out under pressure through the outlet valve. This water is further pressurized with the help of a nozzle. And this water is allowed to impinge on the buckets of the Pelton turbine coupled with generator to generate electricity.

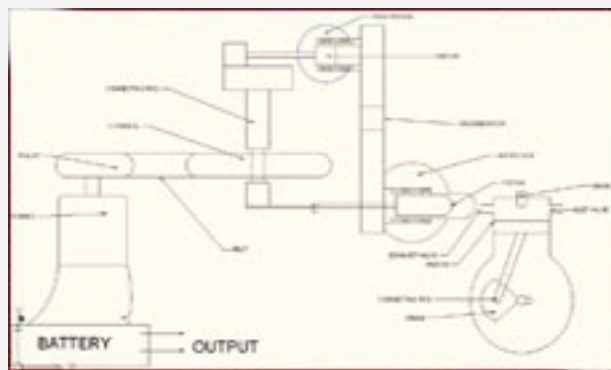


## Cogeneration For Effective Vehicles:

It is based on Cogeneration (combination of heat and power) in which waste heat energy is used for producing a purposeful source of energy. The cylinder head of sterling engine is connected to an internal combustion engine, 150cc Bajaj Pulsar liquid cooled engine. Maximum waste heat energy is available nearby exhaust exit.

Radiated heat from I.C. engine is transmitted to sterling engine by conduction. Sterling engine has two cylinders one at higher temperature and other at lower temperature. Expansion takes in the cylinder at higher temperature while compression takes place in the cylinder at lower temperature. A regenerator is connected in between two cylinders through connecting tube for passing the working fluid. These two pistons are coupled to flywheels through connecting rods to provide rotating motion. A manual push is required for starting the flywheel of sterling engine.

This flywheel is connected to the generator through pulley and belt arrangement. In nutshell the mechanical energy of the flywheel is converted into electric energy available at generator which will charge the Li-ion battery to run the low powered machinery. The block and the working diagrams are shown in Fig.



**Project Guides:**

Prof. (Dr.) S.K. Bagga  
Mr. Rajesh Arora (Asst. Prof.)

**Team Members:**

Anmolmeet Singh  
E.S Sarath  
Lovee Kharbanda  
Mohammed Aquib  
Mohit Kaushik

**Roll No.**

(11269)  
(11277)  
(11291)  
(11296)  
(11297)

***Placement :***

Our students are trained and prepared for various attributes of their personality development viz communication skill, leadership, speaking power, group discussion and mock interviews so that they could be placed in various MNCs, PSUs and private organizations etc. So far, a good number of students are placed in various companies like ***iGATE Patni, Indian Army, Soft2cool Technologies, Munjal Showa, Mitsuba Sikal, JBM, Larsen & Toubro (L&T), Petro Engineering, Sona Steering, Sona Okegawa, Sandhar Technology etc.***

***Student's Viewpoints:***

***"Greater virtues are necessary in bearing good fortune than bad."***

I am glad to be associated with the Mechanical Engineering Stream. Our department has well equipped workshops, labs and lecture halls and the faculty and staff are ever reachable. The Training & Placement Cell arranges talks by eminent professionals grooming us for communication skills, speaking power, group discussion etc.



***Akriti Rupal (Roll No. 11267)***

***"A dream doesn't become reality through magic; it takes sweat, determination and hard work".***

It gives me immense pleasure to be associated with the Department of Mechanical Engineering where I gained not only the theoretical and Practical knowledge but also developed my personality. I am really thankful to my H.O.D and faculty for grooming and nurturing me overall.



***Kavita Gambhir (Roll No. 11288)***

**"Pride is at the bottom of all great mistakes"**

It gives me immense pleasure to be associated with the Mechanical Engineering branch where I have gained not only the technical Knowledge but also improved my communication skills and leadership qualities. I feel proud to be a part of this college.



**Rahil Andleeb (Roll No. 11312)**

**"What nobler employment, or more valuable to the state,  
than that of the man who instructs the rising generation".**

I am fortunate to be a student of Mechanical Engineering branch of Dronacharya College of Engineering, Gurgaon. The teamwork in this College is par excellence of which the students are the proud beneficiaries. Our one of the projects

**Electricity generation by ocean waves** was selected for funding by **DST, Govt of India**



**Hemant Khandewal (Roll No. 11281)**