



# DRONACHARYA COLLEGE OF ENGINEERING

## FEBRUARY NEWSLETTER, 2007

### ISSUE OF MECHANICAL ENGINEERING DEPARTMENT

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#### From Editor's Desk :

We are slightly over a month into 2007 and face to face with Feb., a fabulous month that exhales fragrance, elegance and beauty in a wide spectrum. This month's News Letter belongs to the Department of Mechanical Engineering which enjoys the reputation of being **"ever green"**. In the token space of this concise Editorial I would like to pinpoint that under the reasoned and seasoned HOD's supervision, this Department has been making all out endeavors to rise to a new level through its enviable achievements on academic, cultural, sports and placement fronts. The deft handling of Seminars, Project planning, defiantly going through the ordeal of an accreditation process by the national level NBA team offer adequate evidence of the "mettle" the Mechanical Department is endowed with. Renowned American writer R.W. Emerson said, **"A hero is no braver than an ordinary man but he is braver five minutes longer."** But in a crisis five minutes become an eternity. India is passing through an unprecedented phase of development. India's booming economy is giving the west sleepless nights. Let us grow more frantic on the industrial front to make our economy all the stronger for the prosperity of the masses.



Editor, (Dr.R.C. Narula)

#### From HOD's Desk :

It gives me immense pleasure that February, 2007 issue of the Newsletter from Mechanical Engineering Department is going to be displayed on our website [www.dronacharya.info](http://www.dronacharya.info). Role of engineering faculty has changed over the years from that of mere teaching to one involving Research & Development, enhancing learning resource materials, testing, consultancy and managing the Department. The faculty has to educate himself / herself through formal and informal media. Knowledge has always been the prime mover of prosperity and power. Sharing the experience of knowledge is a unique culture. Efficient utilization of this existing knowledge can create comprehensive wealth in the form of better health, education and infrastructure among students, and faculty. Department of Mechanical Engineering organized a national level seminar **"Fatigue and Fracture"** on 13th Jan 2007 in which the participants from various Engineering Colleges including our College presented their papers. It was inaugurated by Mr. Balraj Gupta, Scientific Adviser to The Chief of the Army Staff, Govt. of India. The alumni, who have gone abroad, have been our brand ambassadors to actively help build and develop a highly positive image of not only of our college but also the nation. The Department is striving hard to become the best department of Haryana under the leadership and able guidance of our Hon'ble Chairman, Dr. Satish Yadav, and Principal, Dr. BMK Prasad.



Head of the Department, (Professor S.K. Bagga)



## Live Projects Undertaken By Students :

### DESIGN OF MATERIAL HANDLING CONVEYOR SYSTEM USING MECHATRONICS :

For handling bulk materials belt conveyors have a vital application of their capability of handling higher tonnage over long distances at a cost lower than other types of conveyors. They are in use extensively for small and big capacities as they are able to handle a wide variety of materials economically. Belt conveyors are performing other functions in addition to transporting bulk materials such as weighing blending, sampling and stocking.

The need of integrated approach (Mechatronics) is centered on mechanics, electronics and computing which combined, make possible the generation of simple, economical, reliable and versatile system. In design of material handling conveyor variables influencing the system: motor horse power, type and quantity of material to be conveyed, length and width of conveyor, cycle (starts/stop) per hour or day, method of loading and unloading conveyor, type of conveyor belt were considered. Thereafter frame design, protection system and monitoring system was incorporated.

#### ***Team Members MECH VIII Semester***

1. Amber Ahluwalia (5214)
2. Bharat Bhushan (5223)
3. Devender Singh (5225)
4. Girdhar Singh (5227)



### DESIGN OF 3 SPEED GEAR BOX

Gears operate in pairs to transmit and modify rotary motion and torque without slip, the teeth of one gear engaging the teeth of mating gear. To transmit motion smoothly and with constant speed ratio at every instant the contacting surface of the gear teeth must be carefully shaped to specific profile. If the pinion on the driving shaft the pair acts to reduce speed and amplify torque; if the pinion is on the driven shaft the pair acts as a speed increaser and torque reducer. In the gear box single input speed giving variable outputs depending upon the transmission. Generally the input speed obtained at the input shaft is obtained as increased or reduced by the gears employed depending upon the gear ratio. Hence, we can term all gear boxes as reduction gear boxes or speed reducers.

A 3 speed gear box was designed and fabricated which can be utilized by industries.

#### ***Team Members MECH VIII Semester***

1. Jai (5229)



## DESIGN OF HAND DRIVEN CRANE OF 2 TONNES CAPACITY

The material handling system is an integral part of mechanical equipment in every enterprise. The entire production process in every enterprise essentially depends on rational choice of types of material handling equipment. The numerous designs of material handling equipment are the result of great variety of the kinds and properties of loads being moved, abundance of transporting operations without which modern production is unthinkable.

### The main types of material handling systems are :

- Conveyor for continuous movement of material.
- Crane for individual movement of material

### Types of cranes :

- E.O.T. Electric Overhead Traveling Crane
- Electric operated stationary crane
- Hand operated mobile crane

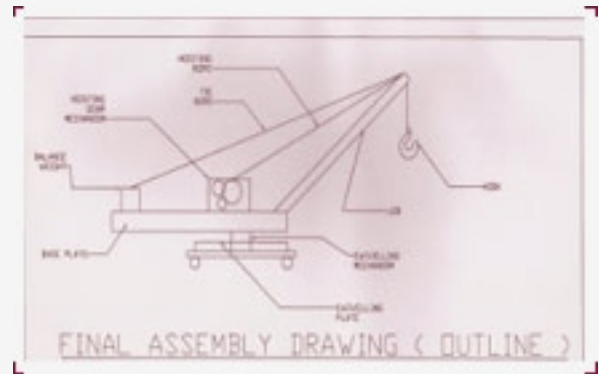
The conveyors and electric operated cranes are organization specific, costly, consume electric power and require frequent maintenance whereas hand operated mobile crane is versatile, cheaper, easy to manufacture and maintenance.

### The design crane has following features :

- Loading of load of two tones or hoisting,
- Derricking or luffing or changing the inclination of jib,
- Movement in horizontal plane about horizontal axis.

#### **Team Members** **MECH VIII Semester**

1. Baljeet Singh(5222)
2. Anirudh Kaushik(5218)
3. Amit Nagpal (5232)
4. Rahul Sheoran (5243)



### Technology Focus :

#### **SIGNATURE ANALYSIS - A TOOL FOR PREVENTIVE AND PREDICTIVE MAINTENANCE**

With the advancement of modern science and technology dynamic problems concerning machines and plants, designed for optimum weights and requirements are becoming increasingly important. It is not just enough, if machines are looked after through predictive maintenance alone, but predictive maintenance is also as essential for smooth running of machines and plants. Without unexpected breakdowns, thus endangering both life and economy.

The science of detecting characteristic signature patterns (m/cs vibrations, noise, temperature, wear particles size. etc.) with a view to exposing existing malfunctions has been called mechanical signature analysis from which one can have an indication about the health of machine and finding considerable application in exposing existing malfunctions of a m/c and in detecting incipient or impeding machine failures.

#### Benefits of Mechanical Signature Analysis

- Prolonged machinery life
- Minimum unscheduled downtime
- Reduced Maintenance cost
- Lower Insurance cost
- Quieter operation
- Increased machinery safety

Regular monitoring of Mechanical signature leads to improved availability of running equipments.

## Student's Viewpoint About The Department :



**"True education is not be words and ink. Education is an atmosphere"**

I take this opportunity to present my views about the Mechanical Engineering Branch. The faculty always encourages us to do the work efficiently with a cooperative spirit. They are updating their knowledge and qualifications. They help us to cultivate three qualities with the help of education i.e. thinking, creativity and leadership.

These qualities of personality and character have helped me to get selected with M/s Jay Bharat Maruti Ltd. Through Campus Placement I am really thankful to our respected Head of Deptt. and faculty for building my career.

**Varun Satija**

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**"True education is not be words and ink. Education is an atmosphere"**

I am glad to be associated with the Mechanical Engineering Branch. Mechanical Engineering Department has well equipped labs. Faculty and staff are very disciplined and they teach, counsel and build our skill, knowledge and character. Faculty train us for personality development, motivation, communication skills, attitude and behaviors, do's and don'ts during interview, self esteem and confidence building etc. so that we could get a good job in an organization of repute.

With the blessing of our faculty I got my placement in M/s JBM Ltd. Gurgaon through Campus Selection and wish to be associated with the department for a long run.

**Vipin Tanwar**

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**"The future is full of challenges; let us take them in stride  
Let us bow to make a difference, not just flow with the tide"**

Mechanical Engineering Department of Dronacharya College of Engineering has given me not only the education but also built my career and character.

The faculty of this department is very disciplined and impart theoretical, practical and case studies. Industrial visits were arranged where we gained a lot of practical knowledge. Faculty and invited HR personnel groom us for communication skills, speaking power, group-discussion, mock interview which helped me to achieve a good job with M/s Jay Bharat Maruti Ltd. Gurgaon.

I am really very happy and express my deep sense of gratitude to faculty of the department and the college.

**Goldi Gupta**

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## Placement Achievements :

- Five Students have been selected through campus placement with M/s JBM Ltd. Gurgaon.
- Placement coordinator from Mechanical Engineering Department is constantly liason with the Training & Placement office of the college for further placement avenues.