



Newsletter October 2006

DRONACHARYA COLLEGE OF ENGINEERING

Special Edition by Department of Mechanical Engineering

From Editor's Desk :

The October issue of the monthly News letter aims at highlighting the achievement of the Department of Mechanical Engineering, a branch that seldom swings and swerves like various other branches of Engineering. A steady development has been a hallmark of this branch with a reputation of being ever green. The special feature of this Department at Dronacharya College of Engineering happens to be its highly qualified and experienced faculty. Dr. J.K.Goel, the Dean Academics, extends full co-operation to the dedicated HOD and other Faculty members. The University results have shown a marked improvement. Significant Seminars, Faculty Improvement Programmes and sincere efforts on the placement front have helped in the up gradation of this distinctive Department.



This issue gives a glimpse of a few significant projects prepared by the final year students of the Mechanical branch. It is heartening to find that the young talents are yoked to most purposeful projects under the expert guidance of seasoned, senior-most and distinguished Faculty members. These properly planned and exquisitely executed projects are not only a means of partial fulfillment of the B.E. Degree, as per University norms, these innovative works help students in linking theoretical knowledge and bookish learning to the most desirable practical aspects. The diligence and intelligence jointly put into these projects eventually leads to in-depth study of the concerned subject and paves a path for research activities which make knowledge reach its culmination. The projects manifest the quintessence of the faculty's knowledge and role as guide and the desired involvement of the students. To boost the morale of the students this year the Management has taken an appreciable initiative to offer an Award of Rs.25000/- for the best project to be given away on the Annual Day and this for sure is going to considerably elevate, exalt and upgrade our Research and Development section. Wishing the readers a dazzling Deepawali of new hopes, immense happiness and unprecedented prosperity.

Editor
(Dr.R.C. Narula)

From HOD's Desk :

It is a matter of great pleasure that the October issue of the Newsletter is going to be presented from Mechanical Engineering Department on the website of the College. The standard and standing of Dronacharya College of Engineering as an educational institute must be preserved and even enhanced. Alumni have a vital role to play in meeting these objectives. They offer an evidence of the success of our institute with a steadily growing repute. As a matter of fact the Association is composed of individuals who have to communicate and interact to achieve any objective. And the Newsletter can be a vehicle for such communication. Over the years the infrastructure of the Mechanical Engg. Department of the College has multiplied many folds under the patronage and able guidance of our Hon' ble Chairman, *Dr. Satish Yadav* and Principal, *Dr. BMK Prasad*.



We are endeavoring our best to seek assistance of our alumni in building a network between organizations and Dronacharya College of Engineering whereby it could be possible to develop programme which would be of benefit to both.

Head of the Department
(Prof. S.K.Bagga)

Live Projects Undertaken by students:

MULTIFUEL ENGINE TECHNOLOGY AND POLLUTION CONTROL :

The earth is leading to the final crisis. The consumption rate of fuel is increasing in proportion with the growth of population and the higher standard of life. The limited reserve of fossil fuel is depleting at high rate so it is very much required to conserve the fuel.

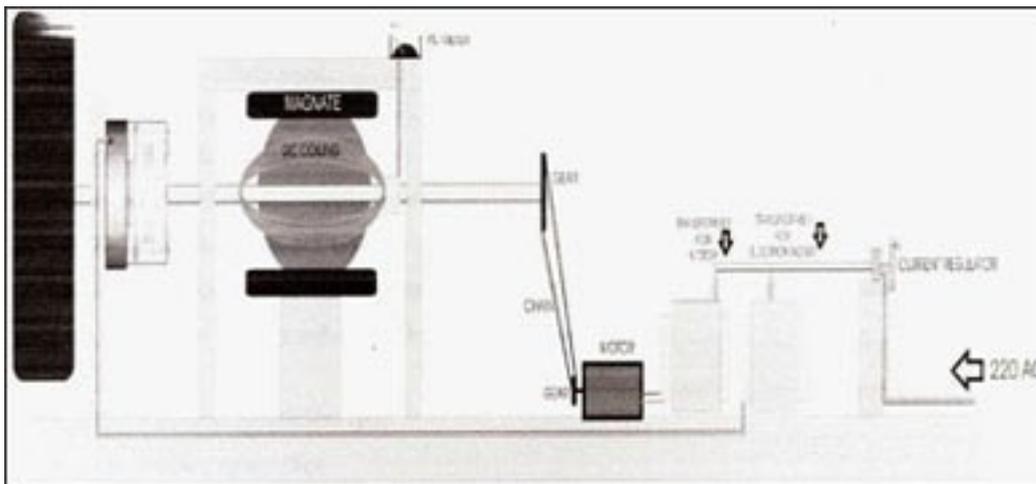
The shortage of petroleum fuel and the realization of gaseous fuels cheaper and more efficient than petroleum fuel has lead to attention on the multifuel engine technology.

The recent concern about atmospheric pollution due to vehicular exhaust emission can be solved significantly and at a considerably fast rate by using multifuel engine technology.

With these considerations multifuel engine technology was adopted for analysis and detailed study. In the engine diesel + hydrogen or CNG gas was used. In this technology 75% of energy is obtained from hydrogen or CNG and only 25% energy from diesel. As a result of this the exhaust emission of vehicle was cut- down significantly by increasing the efficiency of the engine. The result obtained in the test can be summarized as under :-

- It has high compression ratio and high thermal efficiency.
- Fuel consumption has been found low at full load and the lowest at idling and at part-load.
- Very low exhaust temperature.
- Multifuel engine exhaust has lowest of CO, NO and unburnt hydrocarbons.
- Torque obtained is much higher.
- Running cost is found medium.

So by using multifuel engine technology the problem of pollution, which is of utmost concern for mankind today, can be reduced drastically and economically.



Team Members

Mech VIII Semester

1. Ram Pravesh Yadav (5245)
2. Rinku Yadav (5247)
3. Ujjwal Saini (5523)
4. Mahesh Chand (5524)

TO FABRICATE A DIE USING CNC EDM MACHINES :

A project of fabricating Blanking Die Assembly was carried out successfully. Die Assembly consists of the following parts :-

Punch, Punch holder, Punch plate, Die, Die plate, Guide plate and Dowel pin

■ **Punch:** It forces the sheet strip down and may pierce it to draw it. A hard wear resistant metal is required to be taken and finally ground to a predetermined size. Die steel was selected for punch

■ **Die:** Die steel, a hard and wear resistant material, was selected for it. It was finished ground to exact size, close tolerance and nicely bedded in the slots in order to avoid the high stresses and also to eliminate slackness developed with the shock condition. Other parts were also developed with suitable material.

The advantages of the process were found that the high relative tolerance between die and punch was easily achieved with simple part programming. Even a complicated and intricate shape can be efficiently machined by a semi - skilled operator.

Production and assembly of complete die by using CNC EDM Machining takes less time and proves cost effective.

Team Members

Mech VIII Semester

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DESIGN AND FABRICATION OF ELECTROMAGNETIC BRAKE :

Electromagnetic Brakes are important supplementary Retardation equipment in addition to the regular frictionbrakes. These are used in heavy vehicles viz. buses, trucks under conditions such as reducing speed on motor ways and trunk roads and braking for prolonged periods during down slope operations. In Electro Magnetic braking system for providing braking force against the brake shoes electromagnets are used by these brakes. A semi stationary electromagnetic and an armature disc revolving with the wheel is contained in each wheel. Usually a battery current is used to operate the electromagnet to vary the amount of braking action to the brake drums. A controller is provided in the driver's compartment and current will start flowing through the electromagnet when the brakes are applied. There is no magnetic attraction and no current between the armature disc and electromagnet in the wheel flow when the brakes are not being applied. The magnetic field causing magnetic attraction between the semi-stationary electromagnet and the rotating armature disc is caused due to application of the brakes. This results in forcing the electromagnet to shift through a limited arc in the direction of the wheel rotation. The braking effect produced depends upon the intensity and the amount of current flowing through the electromagnet. Certain advantages of the Electro Magnetic braking system are as follows. Being electrically operated there is very less time lag between the pressing of the brake pedal and application of brakes at wheel as compared to the other system and also it offers much simplified connection. This system is not very costly compared to the other braking system. In this braking system all the wheel brakes are forced to act together without any consideration to their individual adjustments. Thus it reduces the chances of accidents. Further research could be performed to evaluate parameters for static model analytically, and implementing electromagnetic brakes in an antilock braking system.



Team Members Mech VIII Semester

1. Kunal Sen (5262)
2. Sunil Goel (5263)
3. Harsh Verma (5265)
4. Vipul Gupta (5266)
5. Bhawani Shanker (5522)
6. Vikas Kumar (5527)

Student's Viewpoint About The Department :

It gives me immense pleasure to be a part of the Mechanical Engineering branch. In this Department three dimensional teaching is imparted ie. Knowledge, Projection and Rapport by the Faculty which form to assess teaching excellence. The Faculty always extends their assistance to the students as and when required. All the labs of this Department are well-equipped and the Faculty and staff members are very particular to get practical job completed by students on the same day. Faculty also trains us for value addition attributes such as English speaking Personality Development , Motivation and Communication Skills, Attitude, Behaviors and Confidence Building etc which help us to improve our personality to enable us to get good placement in a professional organization.

I salute our respected teachers and take a pride to be associated with them for making our career to serve the nation.

Sameer Khanna Email: sameerkhanna1185@yahoo.co.in Ph:9873346657



"Every drop fills the ocean, every wave makes the sea"

I take this opportunity to express my gratitude to be the student of Mech. Engg. Department where I have gained and developed my professional qualification. In my view HOD, Faculty and Staff Members are very hard working, sincere, disciplined and dedicated towards conducting Lectures, Practical, Seminars and Project Classes. They help us to solve, guide and counsel over our day to day problems. In fact, they are really our Gurus who have built our career and character. I feel very proud to be a student of the Mech. Engg. Branch of Dronacharya College of Engineering.

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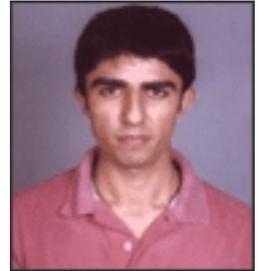


"Ignited young minds are a powerful resource. This resource is mightier than any other resource on the earth, in the sky and under the sea."

Dronacharya College of Engineering is one of the prestigious institutions in Haryana and its Department of Mechanical Engg. has produced technocrats who have proved their worth. The faculty not only impart theoretical and experimental knowledge but also groom us for personality development communication, motivation, speaking power and group discussion which has helped me to develop and achieve a job with M/s Satyam Computers Ltd.

I am really very happy to be associated with the Department and the College .

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Faculties of Mechanical Engineering Department :

