



Dronacharya College of Engineering

ISSUE

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Bio-Medical Engineering

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From Editor's Desk :

A college is a source of wisdom, seed-bed of character, model of discipline, training ground of democracy and nursery of great hearts, strong minds, true faith and willing hands. Hence, education has a pivotal role in harvesting available resources to contribute to the prosperity of the nation.

We at **Dronacharya College of Engineering, Gurgaon** provide a comprehensive educational life that encompasses a gamut of value added services to the students. We facilitate students to take part in co-curricular and extra - curricular activities. There is an active National Service Scheme (NSS) unit which organizes several programs related to social services. Students are encouraged to participate in inter collegiate competitions in sports, cultural events and technical paper presentation competitions. The college also organizes several Inter collegiate Sports tournaments and technical paper presentation competitions.



We also encourage faculty members through incentives and sops to acquire higher degrees, to publish text books/papers and participate in Seminar/Workshop/Conferences that are held not only within our country but also abroad.

Our Training & Placement Cell organizes a number of technical and aptitude tests (AMCAT, Wheebox & Elitmus) and also makes them competent for leading the professional world. It enables students to hone their soft skills to meet the industry needs, teaching capabilities of various faculty members. All these accomplishments and milestones were possible due to unstinted patronage by the magnanimous management, proactive support by the visionary Principal and continuous mentoring by the dedicated HODs, faculty and Staff members.

Editor, (Dr. Sunil K. Mishra)

From HOD's Desk :

We enable the students to apply their knowledge of sensitive systems into many fields of bio-medical engineering. The department of Biomedical Engineering strives for a healthy balance between theory and practice. On the educational front, the curriculum is designed with a motive to prepare students to be industrial and academic leaders who can apply biomedical science principles across a wide variety of fields.

On the research front, our outstanding faculty and students are exploring a wide range of innovative ideas in areas like Biomechanics, Medical Imaging, Biomedical Equipments, and Biochemistry.

We encourage the students and faculty to work for the fulfillment of their research endeavors. With the right mix of creative talents, use of innovative technologies and strong relationships with various industries, BME Department delivers quality methods of teaching that help students enhance their knowledge, understand the importance of being leaders in the area of their interest and provide them with an unbeatable edge to succeed in today's demanding work place and global market.



Head of Department, (Prof. (Dr.) D. P. Singh)

Project Highlights :

The following projects are some of the standard projects of the department in the year of 2011-12.

Project Title : TOTAL ARTIFICIAL HEART

Students :

- ✚ Vinay Kumar (Roll No. 11422)
- ✚ Devvrat (Roll No. 11405)
- ✚ Nidhi Gulia (Roll No. 11410)
- ✚ Jitender Singh (Roll No.11408)
- ✚ Sohil (Roll No. 11419)

Objective : This project is related to human heart which is artificial. This Model of Artificial Heart helps to survive longer and cheaper in cost.

Project Title : BLOOD PRESSURE MEASUREMENT BY USB MOUSE

Students :

- ✚ Sarika (Roll No. 11418)
- ✚ Pooja Deswal (Roll No. 11414)
- ✚ Priyanka Thakur (Roll No. 11415)
- ✚ Nitesh Kumari (Roll No. 11411)
- ✚ Anip Ghangas (Roll No. 11403)
- ✚ Vishal Adhana (Roll No. 11423)

Objective : To develop a device to measure the blood pressure of the patients by using a computer optical mouse to perform the task in easy and efficient way.



Finger type blood pressure measurement with mouse

Project Title : WIRELESS ELECTRODE ECG SYSTEM

Students :

- ▣ Aakriti Singh Chauhan (Roll No. 11402)
- ▣ Aditya Sharma (Roll No. 11401)
- ▣ Nitin Pasricha (Roll No. 11413)
- ▣ Tarun Gupta (Roll No. 11421)

Objective : To develop a small wireless electrode ECG system to make the patient more mobile without losing the reliability of the ECG sensor at low cost.



Wireless Electrode ECG

Project Title : ERROR DETECTOR FOR BIO-MEDICAL EQUIPMENTS

Students :

- ▣ Vinay Kumar (Roll No. 11422)
- ▣ Diksha (Roll No. 11406)
- ▣ Nitin Kumar (Roll No. 11412)
- ▣ Rakesh Kumar (Roll No. 11417)
- ▣ Devvrat (Roll No. 11405)

Objective : This project idea is related to detect the error in the biomedical equipments with the help of software.

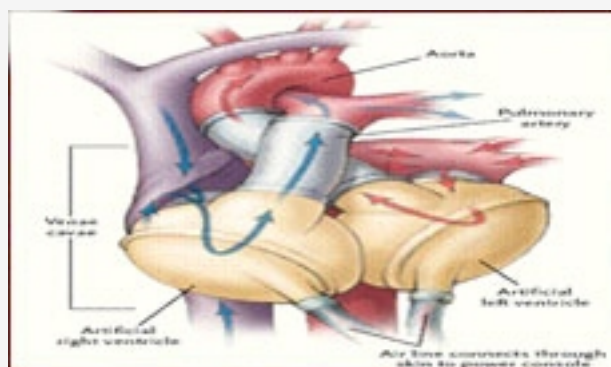


Error detector for biomedical equipments

Projects Undertaken :

VELTECH RANGARAJAN DR. SAGUNTHALA A&D INSTITUTE OF SCIENCE AND TECHNOLOGY, TAMILNADU

Designed to explore the International Project Exhibition and Competition with the participants from all over the world. The purpose of this conference is to present existing technological knowledge and stimulate discussion on future possibilities and developments.



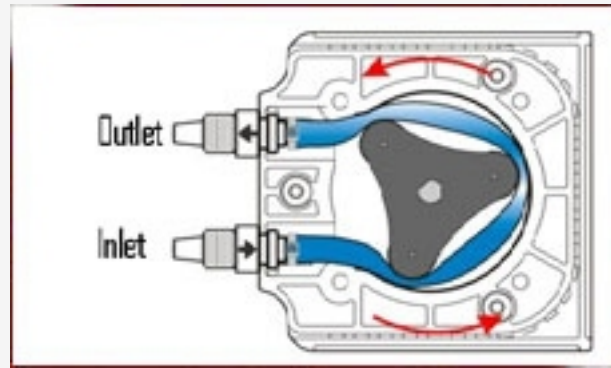
This image displays the CardioWest TAH-t implanted in to the area once occupied by the patient's dying heart

Total Artificial Heart (Approved for Funding by Department of Science and Technology, New Delhi)

Guide : Dr. Sheetal Yadav

Team Members

- ✚ Vinay Kumar (Roll No.11422)
- ✚ Devvrat (Roll No. 11404)
- ✚ Nidhi Gulia (Roll No. 11410)
- ✚ Jitender Singh (Roll No. 11408)
- ✚ Sohil (Roll No. 11419)



This image is of Pressure pump of Total Artificial Heart whose value is 100 mm of Hg.

Total artificial heart (TAH) device as a bridge to heart transplantation (BTT), and related physical therapy management, while comparisons to left ventricular assist devices (LVAD) are made. The project aims at developing a Total Artificial Heart and replacing it with the heart during heart failure. The Syn Cardia Cardio West Temporary TAH System is the only TAH approved by the Food and Drug Administration (FDA), Health Canada and Consultants Europe (CE) for BTT. Cardio West implantation involves cardiectomy thus avoiding pulmonary hypertension, right heart failure, inotropic or anti-arrhythmic agents, myocardial and valve related problems. Cardio West has a fixed beat rate and cardiac output is dependent upon venous return and preload. Both TAH and LVADs are adaptive with exercise, increasing cardiac output during activities, allowing for conditioning to occur peripherally. Left ventricular assist devices have portable drivers permitting discharge home, while the Cardio West's large driver console necessitates inpatient therapy. Exercise progression, positioning, and monitoring of exercise intolerance are similar with LVAD and TAH. Ventricular fill volumes in TAH dictate cardiac output and require close attention. Cardiectomy in TAH prevents electrocardiography, telemetry, and native pulse rate monitoring.

Key Words : Artificial heart, Heart failure, Physical therapy

Applications : The total artificial heart can easily to implant when heart of the patient is not functioning well. This is an advance artificial heart in which blood pressure data also saved & can checked easily even by person also. Its whole function is depending on the programmable chip which functions very well in all environmental condition. Patient, who uses artificial heart didn't have any type of restrictions on work and food.

Training :

Practical Training is a very important component of the curriculum meant for the students. As a part of the curriculum, arrangements are made for the students to undergo practical training during winter and summer vacations in Multinational/Private/Public Sector Undertakings/Government Department, Hospitals and the Laboratories. Some of the prominent organizations in which DCE Students have completed Internships include BPL, AIIMS, Artemis Hospital, Medanta Hospital, Batra Hospital, BLK Hospital, Fortis etc.

On Campus Placement :

Dronacharya College of Engineering, Gurgaon has become the most preferred choice for the campus placement by all leading organizations and MNC's. Training & Placement Cell of **Dronacharya College of Engineering, Gurgaon** arranged a campus placement drive with two MNC's - **Microsoft Corporation India and Monnet Ispat & Energy Group** - for final year students of CSE, IT and ME respectively on **5 February 2012**. The Cell at DCE, Gurgaon makes efforts to send most of the students for in-plant training to enhance their technical ability and gain exposure to the practical world. It also enhances the soft-skill capability of the students through regular training programs.

3rd Vision 2012 at Rajasthan : A Mega Trade Fair :

Dronacharya College of Engineering, Gurgaon participated in a three-day mega trade fair from **15-17 January, 2012** at **3rd Vision 2012** at Rajasthan organized by **Friendz Exhibitions & Promotions Pvt Limited**. The objective of this event was to highlight and help in popularizing Science, Engineering and Technology among the masses to create awareness for the sustainable growth of the country and mankind in general. In this National-Level event a large number of Institutions, Business organizations and industries also participated for the publicity and promotion of various technologies in the interest of community and nation as a whole.

In this Mega Trade Fair, our students demonstrated four projects like

- ✦ Development of User Identification Code of a Car
- ✦ Electronic Eye with a Dial Up
- ✦ Weather Canvas System
- ✦ Design and Fabrication of a hybrid Chimney for power generation.

In this three - day mega event, three faculty members i.e. **Mr. Rajesh Arora, Mr. Surender Dhaka** and **Mr. Yogender** also attended to boost up the morale of Dronacharyans.

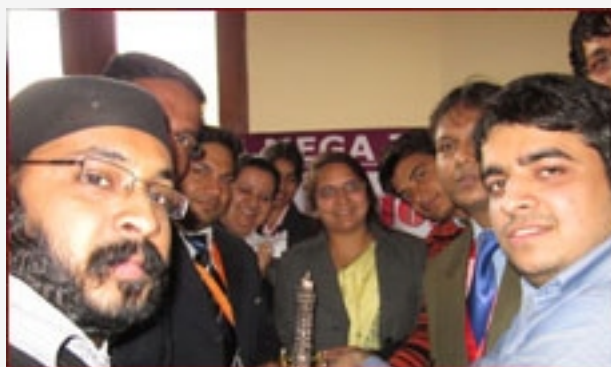
On 17 January 2012, Mrs. Jyoti Khandelwal, Mayor Jaipur conferred an "Award of Excellence" to the projects demonstrated by our students.



Students of DCE, Gurgaon demonstrating a project Design and fabrication of a Hybrid Chimney for Power Generation



Prof. B. L. Sharma, Vice-Chancellor, University of Rajasthan, paying attention on a project designed for Heart Beat Monitoring.



A group of Students & faculty members of DCE, Gurgaon receiving a memento from Ms. Jyoti Khandelwal, Mayor of Jaipur

Student's View Point :

It gives me immense pleasure to be a part of this College. The University results are heartening. There had been 100% placement of the students of Biomedical Engineering department last year. The faculty always encourages us to do the work efficiently with a cooperative spirit. They are updating their knowledge and qualifications.



Anip (Roll No. 11403)

Dronacharya College of Engineering is an institute which defines and continues to update methods of engineering in India. It provides its students with modern education facilities while retaining traditional values as well as using its strong industrial contacts to mould young, talented individuals who can complete in the global arena.

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



Pooja Khar (Roll No. 11415)

Dronacharya College of Engineering is a college where healthy environment is created, individual creativity and originality of expression is allowed to blossom, culture, tradition and value are presented and change is energized to nurture wholesome personality. Our college differentiates itself from others by providing scholarships to the meritorious and financial weak students.



Nitesh Kumari (Roll No. 11411)