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Dronacharya College of Engineering

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Bio - Medical Engineering

In This Issue....

From Editor's Desk :

Engineers are the backbone for the progress and development of a Nation wherein Quality Education has become crucial necessity for the survival of its economy. Today, the world has become a global village with no boundaries. So, engineers of the new millennium will have to be result - oriented to face the challenges and utilize the opportunities put forth by globalization of Industries.

We at ***Dronacharya College of Engineering (DCE), Gurgaon*** believe that the nation needs not only engineers and professionals but virtuous and competent youth also. We also impart integrity of character and discipline to students, to become a good citizen capable of utilizing their talent for the development of our Nation and Society.

I am proud to share that the ***Visionary and Magnanimous Management*** of ***DCE*** has proper vision and its execution on imparting modern Engineering education with the introduction of a number of technologies, teaching - learning aids etc. This college is a pioneering Engineering institution which provides ***excellent facilities, infrastructure in theory and practical; in academia and industry along with N.S.S. (National Service Scheme), Sports and classes for Personality Development.***

At ***DCE***, we create a student - centered learning environment with close student - faculty interaction, constant participation of the industry and also organize ***Group Discussions, Debates, and Technical Quizzes*** for their overall development. We put more stress on ***Placement, Technical Projects, Research & Development, and other practical aspects of Engineering, Science and Technology***. Our faculty has prestigious academic credentials coupled with an intense dedication to the teaching - learning profession. They are renowned as outstanding educators and are ever willing to invest their time and energy to ensure the students confidently and successfully cope with their studies.

Our college stays abreast of new developments in technologies and learning system so as to give our students, knowledge and attributes they need to succeed in a global work environment. We, at DCE, strive to develop graduates who are prepared for the future, ready for the changing needs of the workplace and trained for a life of an ongoing learning and professional success.

Dronacharya College of Engineering, Gurgaon is a place where learning is not just series of instructions but a passion, which goes beyond books; beyond instructions and beyond learning horizons. We are grateful to our ***Principal Prof. (Dr.) B. M. K. Prasad*** for their unflinching and unwavering support in making students' career brighter and useful.

Editor, (Dr. Sunil K. Mishra)

From HOD's Desk :

Biomedical Engineering is a discipline that integrates engineering principles and the study of the life sciences and medicines. Students in biomedical engineering develop engineering strategies to effectively solve challenging problems in medicine and biology.

We at Deptt. Of Biomedical Engineering are committed to build an innovative entrepreneurship environment and healthcare focused on academic curriculum to meet the demands and requirements of the ever - changing global economy that influences health care technology, management and delivery.

The biomedical engineering curriculum provides for the development of design skills in technical projects. The Department offers an opportunity for students to participate in ground-breaking research in different fields of Biomedical Engineering like Sensing and Imaging, Optics, Biomechanics, and Biomaterials etc. Our outstanding faculty has strong collaborations with both medical, engineering and veterinary fields, as well as various other departments.

The department of Bio-medical Engineering follows the pragmatic approach of teaching-learning process. We craft teaching methodology very carefully to give the best knowledge to the students keeping in mind the grasping power and the understanding level of different classes.

We hope to soar higher and higher with our deep - rooted conviction in honest hard work, quality education and ability of our Dronacharyans.

I, on behalf of Dronacharya fraternity, wish a grand success to all aspirants who join us because of our quality, discipline and approach in technical education that really makes a difference!

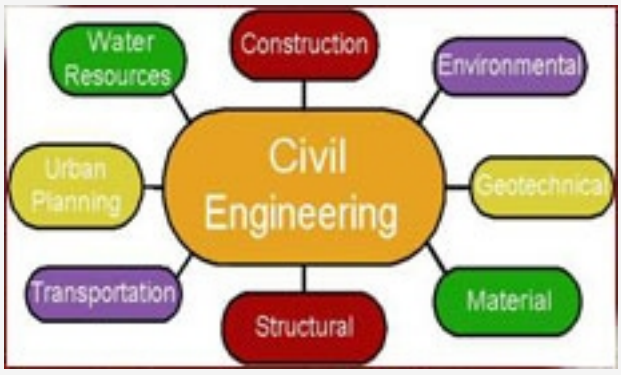
Head of Department, (Prof. (Dr.) D. P. Singh)

New Streams :

In addition to Computer Science & Engineering, Electronics & Communication Engineering, Information Technology, Mechanical Engineering and Bio - medical Engineering, we have now introduced another two branches i.e. Civil Engineering and Electronics & Computer Engineering from Session 2011 - 12.

1. Civil Engineering :

Civil engineering is the broadest of the engineering fields. Civil engineering focuses on the infrastructure of the world which include ***Water works, Sewers, Dams, Power Plants, Transmission Towers / Lines, Railroads, Highways, Bridges, Tunnels, Irrigation Canals, River Navigation, Shipping Canals, Traffic Control, Mass Transit, Airport Runways, Terminals, Industrial Plant Buildings, Skyscrapers***, etc. Among the important subdivisions of the field are ***construction engineering, irrigation engineering, transportation engineering, soils and foundation engineering, geodetic engineering, hydraulic engineering, and coastal and ocean engineering.***



Civil engineers build the world's infrastructure. Life without the many contributions of civil engineers to the public's health, safety and standard of living. Only by exploring civil engineering's influence in shaping the world we know today, can we creatively envision the progress of our tomorrows.

2. Electronics & Computer Engineering :

Electronics & Computer Engineering provides an integration of electronics and computer technology. The Subject incorporates a unique mix of skills in Electronic, Network and Computer Engineering, Interactive Systems, Computer Science, Software Engineering, and Business Systems, making it well placed to both develop and exploit the emerging technologies that will play a key role in defining the way society uses technology well into this century.

Project Highlights :

The following projects are the best projects of the department in the year of 2010-11.

S. No	Name of Student's	Roll No	Project Topic	Abstract
1.	Shivika Awal	10435	Automated Wheel Chair	Production of suitable Automated wheelchair devices has been of great interest in research and development area, to aid in mobility of severely disabled persons who find it difficult or even impossible to use traditional powered wheelchairs independently. The objective of this project is to design a power wheelchair with a novel control system for the persons with disabilities having head and neck mobility. The control system translates the position of the user's head into speed and directional control of the wheelchair. Head movement was measured using four switches contained in a headband that is placed on the lower portion of the head that is near the neck. The control system included a standby mode that was activated by pressing the head back against the headrest, which activates the braking system while deactivating the drive train, allowing for manual control of the wheelchair via a rear support system.
2.	Kanika	10414		
3.	Sahil Chaudhary	10430		
4.	Utsav Jaiswal	10437		
5.	Maneesh	10416	Wireless Photoplethysmograph	Photoplethysmography (PPG) is a simple and low - cost optical technique that can be used to detect blood volume changes in the microvascular bed of tissue. The PPG waveform comprises a pulsatile ('AC') physiological waveform attributed to cardiac synchronous changes in the blood volume with each heart beat, and is superimposed on a slowly varying ('DC') baseline with various lower frequency components attributed to respiration, sympathetic nervous system activity and thermoregulation.
6.	Rahul Tiwari	10426		
7.	Harshit Tripathi	10410		
8.	Harish	10409		
9.	Maneesh	10416	Nariyantra	The use of pulse diagnosis to detect disease and organ at distress by feeling the palpations of radial artery is popular throughout the world. The project is derived from the idea of "NADI YANTRA", which uses a BIOMEMS based pressure sensor to capture the signals from radial artery. The work presents the design, development and evaluation of generic system for acquisition of arterial variable (blood pressure, blood volume, heart rate), and using mobile devices, a concept of m-health. It comprises an acquisition system through equipment audio input and digital output, a processing application developed in JAVA.
10.	Rahul Tiwari	10426		
11.	Harish	10409		
12.	Preeti Yadav	10424		
13.	Manisha Dhiman	10418		

S. No	Name of Student's	Roll No	Project Topic	Abstract
14.	Subhransh Pandey	10435	E-Nurse	The e-Nurse system is a flexible, portable unit that is worn or carried by the patient who is needed to be monitored. It will take care of them wherever they (patient) are in the hospital premises. It will provide a priority level among all the patients, so that hospital staff could take immediate action. The project is Cheaper in cost and also commercially viable, which will increase its popularity in all class. Unique ID will be provided for each patient and continuous updation of diagnosis will be done after every 10 minutes for every individual. This system will bring a peace of mind to every patient because they will be attended by any one if they needed, and peaceful atmosphere to work and manage the hospital. It can be implemented in drug delivery and better therapy by telemedicine. So e-Nurse is not only a instrument, it's a program which will show better future prospects with power to change the existing face of medical scenario.
15.	Jyotsna Dev	10412		
16.	Kanchan Bansal	10413		
17.	Jyoti Yadav	10411		
18.	Shobha Saini	10434	IRIS Recognition	IRIS RECOGNITION is regarded as the most reliable and accurate biometric identification system available as two irides are never similar. A key advantage of iris recognition is its stability, or template longevity, as, barring trauma, a single enrollment can last a lifetime. It allows high speed also for large population, just look into a camera for a few seconds. The Iris is stable for each individual through his or her life and do not change with age. Further iris recognition can be used in national border controls, cell phone and other wireless - device - based authentication, secure access to bank accounts at cash machines, premises access control (home, office, laboratory, etc)etc entitlements and benefits authorization forensics; birth certificates; tracing missing or wanted persons, credit - card authentication, automobile ignition and unlocking; anti - theft devices, anti - terrorism (e.g. security screening at airports), secure financial transactions (electronic commerce, banking) etc.
19.	Abhishek Gupta	10401		
20.	Sumit Saini	10940		
21.	Rishab Sharma	10429		

Projects Undertaken :

"100mA X-Ray Machine" (Funded by Department of Science and Technology, New Delhi) :

Project Guide :

- Ms. Meenakshi Yadav

Team Members :

- Jyotsana Dev (Roll No. 10412)
- Subhransh Pandey (Roll No. 10436)

Key - Features :

100mA X - ray machine comprises tube head assembly and console assembly. This machine is highly developed diagnostic technique. It has a wide application in industrial area.

Objectives :

Fabrication of 100mA X-ray machine with automatic variable selection with specially designed circuit to protect x-ray tube perforation and precise exposure control for safe application. Besides this, the machine is designed absolutely portable and economic that makes it applicable for urban as well as rural places.

Economical, almost 50% of the cost of the current machines in the market, without compromising the quality, Most powerful, compact and light weight true portable unit, Self contained Tube Unit with full wave rectified HT generator and stationary Anode tube, Consumes less power, Calibrated exposure with accuracy & precision, Rural areas can afford it easily so it is a step towards India's rural area healthcare industry, Specially designed circuit to prevent x-ray tube from puncture, Automatic selection of various parameters by the single unit, Protection against power supply voltage spike, High quality radiographic image, Long life.

Benefits :

Full digital control selection method with manual (in case of problem), Automatic selection of line voltage with Kvp and timer selection with mA., Input power : 190 V - 260 V, 15 Amp domestic power line, can be work on 170 voltage supply, ***Use of multiple selector switch with more numbers of displacements and makes it better than the others having relay circuit,*** These entire features with lower price and better performance, makes it unbeatable in its range.

Higher Studies :

Many students also opt for higher education, pursuing Masters/PhD or MBA in various institutes of India and abroad. Given below is the list of few students that have been placed in reputed institutions:-

S. No	Roll No	Name	Institution
1.	10401	Abhishek Gupta	BMA Symbiosis Pune (Health care Management)
2.	10415	Madhurima Gupta	IIITM Gwalior, MBA, Tech. Management
3.	10438	Vaibhav Gaur	Jamia Islamia, MBA Marketing

Seminar/Workshop/Conference :

Workshop on "TEACHING ENGINEERING using MATLAB & SIMULINK" :-

Four faculty members ***Mrs. Swati Jha, Prof. Vinay Nassa, Mr. Patnaik, and Mrs. Seema Das*** from ***ECE department*** attended three days workshop from 5 - 7 July 2011 on ***"Teaching Engineering using MATLAB & SIMULINK"*** at Jaipur Engineering College and Research Centre, Jaipur. This workshop was the outcome of the initiative taken by ***"The Indo US Collaboration for Engineering Education (IUCEE)".*** The mentor of workshop was ***Mr. Pradeep Nanjappa, Senior Technical Evangelist, Mathworks India Pvt. Ltd.*** who had a rich experience in training and content development on various applications of MATLAB. Mr. Pradeep Nanjappa, Senior Technical Evangelist, Mathworks India Pvt. Ltd. introduced the concepts of MATLAB programming tool in students' projects development environment and industrial applications. Mr. Ajit Kumar, Assistant Professor, ECE, also attended on the same theme i.e. "***Teaching Engineering using MATLAB & SIMULINK***" at ***R.V. College of Engineering, Bangalore*** on ***12th July to 14th July 2011.***

Research and Publications :

To keep the pace with achievements in technology, the faculty and students are groomed through attending seminars, conferences and publishing research papers. Research is the result of advancing knowledge created in the past.

Our students and faculty members contributed the following research papers in Dronacharya Research Journal, ISSN No. 0975-3389, Volume III Issue I (Jan - June 2011):

- ***ROLE OF NANOMATERIALS IN HYDROGEN STORAGE :*** Ms. Meenakshi Yadav and Ms. Amninder Kaur
- ***RECENT ADVANCES IN NANOTECHNOLOGY FOR CANCER TREATMENT*** **:** Ms. Meenakshi Yadav and Mr. Nitin Pasricha
- ***APPLICATION OF NANOTECHNOLOGY TO HUMAN HEALTH : BOON IN BIOMEDICAL SCIENCES*** **:** Tanu Rawal and Akriti Singh Chauhan
- ***DNA FINGERPRINTING - A VALID TECHNIQUE TO TEST GENETIC PROFILES*** **:** Dr. Sheetal Yadav and Dr. Dharam Pal Singh

Placements :

No wonder, DCE Gurgaon, is visited by large number of highly reputed, renowned industries and corporate for campus placements. For us, in DCE, the faith reposed by the industries in our graduates is a matter of high value and is a continued source of encouragement. This continues to inspire our student community to set high goals for their professional life. Given below is the list of few students that have been placed in reputed industries:-

S. No	Name	Roll No	Industries
1.	Ashish Parmar	10405	Trivitron
2.	Raghuwar Dayal	10425	Batra Hospital
3.	Shubhransh Pandey	10436	Diagast
4.	Sumit Saini	10940	BLK Hospital, Rajender Nagar
5.	Vaibhav Gaur	10438	Fortis vasantkunj, Masi Hospital, Pitampura
6.	Harshit Tripathi	10410	CHC Meditech
7.	Kanika Malhotra	10414	Shakti Enterprises
8.	Maneesh	10416	Medsource Ozone
9.	Rahul Tiwari	10426	Hospimediea Institute
10.	Sahil Choudhary	10430	Medsource Ozone
11.	Sameer Kumawat	10431	Medsource Ozone
12.	Utsav Jaiswal	10437	Emergent Meditech
13.	Bhawna Khurana	10406	Accord Health Care

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.

Student's Speak :

Perfection is not the offspring of luck, it comes with repeated attempts because nothing worthwhile was ever accomplished without the willingness to start, the enthusiasm to continue and determination to complete; thus the success is not the act and it is this positive spirit of perseverance, dedication and sincerity which is the common denominator among the staff and students of BME Department. The interaction between the teachers and students help us to interact beyond the lectures. The intellectual staff pushes for the overall personality development of each and every student. We hope that the Department will always come with flying colors in future too.

Aditya Sharma (Roll No. 11401)

"Total commitment is not just hard work, it is total involvement."

These words instantly make me relate to my College DCE, Gurgaon. The management, the staff and students are always working towards the common goal to uphold the values and education standard of this esteemed institution with total commitment.

Akriti Singh Chauhan (Roll No. 11402)

Dronacharya Group of Institution is a visionary organization quality higher education since day one. Created with the intention of raising human ware excellence, it desires to go ahead of its agenda to constantly raise the benchmark. At DCE, which has eminent educationists, professionals, dedicated and experienced faculty, the courses are designed in such a way that they will be useful for all ranks of students, beginners, average and advanced. Prof. (Dr.) D. P. Singh, Head of BME Department always guides us to choose the right and apt path.

Pooja Deswal (Roll No. 11414)