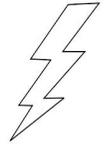




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Electrical & Electronics Engineering Department E-Magazine



Lightning strike

Engineering work is challenging

Large selection of engineering paths gives career flexibility

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- ❖ Editor- in-Chief:Mr. Rajat Singh Chandel
- ❖ Co-Editors :Ms. Neha Singh
- ❖ Technical Editor & Design: Ayushi Rai

Principal Message



Institute of Engineering and Science, IPS Academy is a leading, premium institution devoted to imparting quality engineering education since 1999. The sustained growth with constant academic brilliance achieved by IES is due to a greater commitment from management, dynamic leadership of the president, academically distinctive and experienced faculty, Disciplined students and service oriented supporting staff. The Institute is playing a key role in creating an ambiance for the creation of novel ideas, knowledge, and graduates who will be the leaders of tomorrow. The Institute is convinced that in order to achieve this objective, we will need to pursue a strategy that fosters creativity, supports interdisciplinary research and education. This will also provide the students with an understanding and appreciation not only of the process of knowledge creation, but also of the process by which technology and knowledge may be used to create wealth as well as achieve social economic goals.

I am delighted to note that the engineering graduates of this institute have been able to demonstrate their capable identities in different spheres of life and occupied prestigious positions within the country and abroad. The excellence of any institute is a measure of achievements made by the students and faculty.

Dr. Archana Keerti Chowdhary
Principal

HOD'S Message



Our Country is passing through a critical phase of growth. If you take an over view of this growth, we find that we are developing new energy dimension and electrical energy plays the most vital part in total energy context. In fact, electricity is taking the role of indispensable energy form of our daily life. Ours is the sixth largest country in terms of global energy consumption. The last decades of economic growth of our country has brought an unprecedented demand for energy. The installed electrical generating capacity of our country stands at 162366 Megawatts in 2010, and is projected to be 950000 MW by 2030. This large scale use of electrical energy will definitely demand a large team of electrical engineers to manage its use. All the same there is continuous pressure of balancing our ecology especially in context to global warming. This is forcing to ensure efficient use of electrical energy. Electronic power control is offering new tools in management of electrical energy.

Electrical and Electronics engineering together is a dedicated branch of engineering to fulfill all challenges of electrical energy futures.

Prof. B.N. Phadke

HOD

Lightning strike



Imagine devices that capture electricity from the air — much like solar cells capture sunlight — and using them to light a house or recharge an electric car. Imagine using similar panels on the rooftops of buildings to prevent lightning before it forms. Strange as it may sound, scientists already are in the early stages of developing such devices, according to a report presented at the 240th National Meeting of the American Chemical Society (ACS). "Our research could pave the way for turning electricity from the atmosphere into an alternative energy source for the future," said study leader Fernando Galembeck, Ph.D. His research may help explain a 200-year-old scientific riddle about how electricity is produced and discharged in the atmosphere. "Just as solar energy could free some households from paying electric bills, this promising new energy source could have a similar effect," he maintained.

"If we know how electricity builds up and spreads in the atmosphere, we can also prevent

death and damage caused by lightning strikes," Galembeck said, noting that lightning causes thousands of deaths and injuries worldwide and millions of dollars in property damage.

The notion of harnessing the power of electricity formed naturally has tantalized scientists for centuries. They noticed that sparks of static electricity formed as steam escaped from boilers. Workers who touched the steam even got painful electrical shocks. Famed inventor Nikola Tesla, for example, was among those who dreamed of capturing and using electricity from the air. It's the electricity formed, for instance, when water vapor collects on microscopic particles of dust and other material in the air. But until now, scientists lacked adequate knowledge about the processes involved in formation and release of electricity from water in the atmosphere, Galembeck said. He is with the University of Campinas in Campinas, SP, Brazil. Scientists once believed that water droplets in the atmosphere were electrically neutral, and remained so even after coming into contact with the electrical charges on dust particles and droplets of other liquids. But new evidence suggested that water in the atmosphere really does pick up an electrical charge. "This was clear evidence that water in the atmosphere can accumulate electrical charges and transfer them to other materials it comes into contact with," Galembeck explained. "We are calling this 'hydroelectricity,' meaning 'humidity electricity'."

In the future, he added, it may be possible to develop collectors, similar to the solar cells that collect the sunlight to produce electricity, to capture hydroelectricity and route it to homes and businesses. Just as solar cells work best in sunny areas of the world, hydroelectrically panels would work more efficiently in areas with high humidity, such as the northeastern and southeastern United States and the humid tropics.

."These are fascinating ideas that new studies by ourselves and by other scientific teams suggest are now possible," Galembeck said. "We certainly have a long way to go. But the benefits in the long range of harnessing hygro electricity could be substantial."National Council for Scientific and Technological Development and The State of São Paulo Research Foundation funded the study.

Prachi Sharma

EX IV Year

Where's the Action?

Electrical engineering covers a wide range of areas in the high-tech sector. "A lot of the areas which are coming up [require a knowledge of] other fields," Katehi says, referring to the more interdisciplinary shape electrical engineering will take in the future. Take for example, biomedical engineering. Bruce Wooley, chairman of the Department of Electrical Engineering and a professor of electrical engineering at Berkeley, hints at the possibilities that lie before electrical engineers in biology, trying to understand the body as a system. "The core of electrical engineering is the ability to process signals and information," he says. "Extending that signal processing into other domains will be characteristic [of the future]." Another example is nanotechnology, manipulating and replicating materials on a molecular scale, which requires the pooled resources of chemists and electrical engineers. And there will be plenty of opportunities and expansion in electrical engineering itself. Wireless continues to be a buzzword for the telecommunications industry, and with optical networks stretching across the country and around the world, the industry shows little sign of slowing. "We're seeing a situation beginning to develop now where many of the large,

established high-tech firms are building important market niches in the telecommunications area," Albertson says. "That is going to be a very important growth trend as we move more into this decade." Many expect optics (the use of thin strands of glass to carry information by lasers) and photonics (capturing photonic energy to transmit information by light), both important facets of telecommunications technology, to thrive in the years to come. Says Steadman, who is also head of the Department of Electrical and Computer Engineering at the University of Wyoming, "We will hopefully see the development of true optical switching and optical repeating, so that bandwidths can be maintained over larger distances and with large networks."

Aishwarya Sinha

EX III Year

Large selection of engineering paths gives career flexibility

Entering an engineering program opens the door to multiple branches of engineering. Many schools require the student to complete a general first-year curriculum (math, science, English, and computer skills) before moving forward in an engineering specialty. This allows the student to explore and firm up his or her engineering interest. A typical college may have the following engineering majors: aeronautics and astronautics, agricultural, biological and food processing, biomedical, chemical, civil, computer, construction, electrical, environmental and ecological, materials, mechanical, and nuclear.

Nupur Rawat

EX III Year

Engineering work is challenging.



Engineers work in a professional environment where there is an opportunity to learn and grow through on-the-job and formal training using the most up-to-date technologies. There will never be a shortage of new challenges, as engineers are constantly faced with having to adapt solutions and change technology to move with the trends and needs.

Based on the above reasons, if any young person has strong STEM aptitudes, has completed the STEM coursework, and has a desire to work in problem solving and help the world, entering the engineering program is the right choice as a means to a better life economically, job satisfaction, and a good career.

Ashumendra Singh Chandel

EX IV Year

Education Today

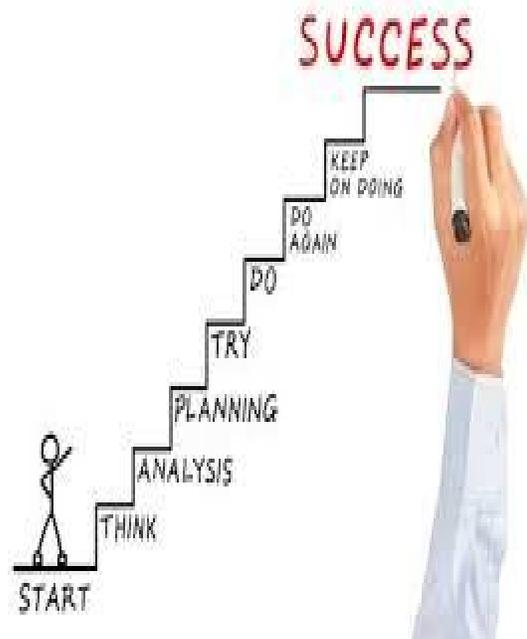
Education is good, education is great
It's just the teachers I terribly hate.
In the education department something is wrong,
The teachers unqualified, the lessons too long
For twelve years we "study"
From the blackboard to copy
And one examination
To spill out some information Somewhere in

the government fat people decide,
About subjects students like and what is exciting.
The brain of a student is not a Swiss cheese,
So talk to us first, talk to us please.
The old education system is not good,
Something must be done or else we're doomed.
The whole education system is messed up
Between pupils and teachers there is enormous gap.
So fat inspectors, wherever you are Listen to us students, we are not so far.
We got something to say, better hear our voices,
Or else tomorrow you'll count the losses.

Vikas Verma

EX III Year

SUCCESS GRAPH



Harsh Gujrati

EX IV Year

