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# TECHNIQA

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## Editorial Board

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## The Editor's Desk



Delhi Technical Campus is one of the Engineering colleges, which have been progressing at an exponential rate since its inception in 2013. Many noteworthy achievements have been recorded since then. These merits and credits have seldom been known to the public and the authority due to the lack of showcasing or projecting through a medium.

It gives me a great opportunity to present the first issue of, **TECHNIQA**, a bi-monthly newsletter of the Department of Engineering, Delhi Technical Campus. This newsletter, as a measure of improvement, would be a snapshot of the various activities and advancements for all associated with the school of engineering. Further, this newsletter will serve to strengthen awareness, and to initiate intense interaction and integration among all of us having different engineering disciplines.

In this fast changing world, **TECHNIQA** will also provide a well guided platform to our students to identify their innate potential and inscribe the thoughts through technical writing and proceedings. However, with continued emphasis on theoretical and practical lessons, the faculty members from different engineering fields have aimed to promote a podium to create several interdisciplinary activities leading to reputed national and international publications.

As said by SWAMI VIVEKANANDA "Knowledge exists, man only discovers it", so let's pray and work hard towards the discovery of more innovative attempts using the stage of **TECHNIQA**.

**Dr. Trina Som**

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***Smt. Kiran Sahni***

*Chairperson*

***Delhi Technical Campus***

It is indeed a matter of great pride and pleasure that our institute newsletter is not only growing and flourishing day by day, but expanding itself in other branches also. The School of Management has already taken initiatives and released a bi-monthly newsletter with a very vibrant ceremonial note. Similarly, this newsletter from engineering shall voice the cultural and academic events of all engineering branches.

With academic and curricular events like industry visits, expert lectures, projects, internships, special talks and cultural events, the students of engineering are exploring new horizons of learning. The engineering students have always achieved distinctions in university and brought laurels for the institute. Such a vast parade of learning needs a special recognition and celebration. Hence, a separate journalism is encouraged to encompass the wide variety of accomplishments.

I congratulate the students and faculty of the Editorial Board for the very innovative idea of a newsletter 'Techniq'. This will provide a great platform for sharing the innovative ideas among different engineering branches. I am sure that the team shall encapsulate the events brilliantly through each edition.



***Hon'ble Justice Bhanwar Singh***  
(Former High Court Judge)  
***Director General, Delhi Technical Campus***

***"The future belongs to those who believe in the beauty of dreams"***

*- Eleanor Roosevelt*

In this constantly changing society the young minds are pitted with drastic changes in their environment. In these formative years they need a genial, tranquil and natural learning environment. With the ever increasing demand of competition, fast changing values and increasing love for materialistic life it has become difficult for individuals to preserve their values. We inculcate values of love, culture and knowledge through education that enables young minds to adjust and adapt to the emerging society of multicultural thoughts, beliefs and ideologies. It imbues them with the courage that kindles optimism and will power not to give up during adversities. This Newsletter "Techniqa" is a platform that reaches the inner recesses of students' mind and offers them ample opportunities to showcase their novel ideas. I congratulate the Editorial Board in bringing out the first edition of this bright spectacle before us.

I would like to sum up by saying that sky is not the limit for those who have firm determination; there are footprints even on the moon. For us this journey of excellence will never be over as this journey itself is a destination.



***Dr. Rakesh Sharma***  
**CEO**  
***Delhi Technical Campus***

It gives me immense pleasure to pen my thoughts about '**Techniqa**', bi-monthly newsletter of the Department of Engineering, Delhi Technical Campus. This Newsletter is a podium which could be aptly used for recording memories and innovative inscriptions. Moreover, It will also endorse greater communication among interdisciplinary fields, faculty members and students. With the aim to empowerment our students through education in their chosen fields , Delhi Technical Campus are capable of providing conducive environment and proper support along with appropriate guidance, thus showing the path to achieve excellence in their respective fields I congratulate all the departments of engineering for their idea to bring out this bi-monthly Newsletter '**Techniqa**'. I am proud of being associated with such a wonderful talent of students and an institution dedicated to their well-being.



# Retro-spectrum

## Department of Computer Science & Engineering

The Department of Computer Engineering, Delhi Technical campus, Greater Noida, organized a One day workshop on “Software Testing” on **August 18, 2017** for the students of computer engineering. More than 100 students participated in the workshop. The objectives of this workshop were to guide the students and faculty members about the testing tools and mind-set required for Software Testing in IT industries. It also helped the participants in understanding Software Testing from IT industry point of view.

CSE department further, organized a Cyber Security Seminar on 6th september 2017. Mr. Rahul Sharma, Inspector, UP Police Cyber Crime Branch, was invited as speaker for the Seminar. A technical quiz was also conducted by CSE 3rd year club (DOTSLASH). on 11th Sep 2017, where Aarushi Bhatia, and Vanshikha Garg hold 1st, 2nd position respectively. Ms. Nikitahs participated in one week Faculty Development program on **MOBILE APP DEVELOPMENT** conducted by ICT Academy

which was held at Delhi Technological University, Delhi. A seminar on ERA OF DIGITIZATION has been organized by department of CSE and Architecture on 10th October 2017. The distinguished speakers were Ms. Vainu Gupta (Co-founder & Head of Innovation & Operations of Vikalp Solutions), Mr. Kingshuk Datta (Founder & Principal Architect, Shida Architecture, Co-founder, CyA-N & Praudo GEEK.) and Mr. Nitin Pandit Achievements Nitin Pandit is Microsoft certified Most Valued Professional (Microsoft MVP).



## Department of Electronics & Communication Engineering

On 31.08.2017, Department of ECE organized a seminar in collaboration with Huawei Technologies Gurugram and Indo Vision Services Private Limited New Delhi. Resource person was Mr Rahul Kumar, Senior RF Engineer, Indo Vision Pvt Ltd., Huawei Telecommunication Gurugram.. In addition to that, on 4th September, 2017 Department of ECE conducted an Industrial visit to Huawei Telecommunication, Gurugram for ECE II year students under the supervision of Mr. Ankaj Gupta (Assistant Professor, ECE) & Ms. Megha Kumar (Assistant Professor CSE). In this industrial visit, students visited and learned about labs on 4G architecture, cloud computing, MSC and VLR. Overall it was a good learning experience for all and it will help the students in bridging the industry-institute gap. In a series of expert lecture, Department Of Electronics and Communication, has also organized a lecture by Dr. Tarun Kumar Rawat of University of Delhi (NSIT) on 14th September, 2017. The topic of the lecture was 'Random Variable and Random Process'. Under the supervision of Dr. Urvashi Singh 3rd year and final year students of ECE department have successfully delivered seminar on various topics in the area of microprocessors, microcontrollers and embedded systems etc on 4th Oct 2017. Dr. Kumar Gautam,

Asso. Professor, Department of ECE, awarded PhD degree on 'Study & Implementation of Quantum Gates using Schrodinger Dynamics' from NSIT (University of Delhi) New Delhi.



## Department of Electrical & Electronics Engineering

Department of Electrical & Electronics Engineering, organized an expert lecture on the topic “Building Blocks in Analogue Circuits” on 24th August, 2017. The expert lecture was delivered by a distinguished teacher, Prof. Mukul Sarkar, Associate professor, department of electrical engineering, IIT Delhi, who graced the event with his expertise in both teaching and industrial field of electronic circuits. The students were offered with a sound knowledge, regarding the basics of design of analogue circuits, thereby preparing them with a skill to construct and analyze various complicated circuits in analogue electronics.

Department of Electrical & Electronics Engineering, also organized an expert lecture on the topic “Recent trends in Electric drives” on 22nd August, 2017 by Dr. Bhavnesh Kumar, Asst. Prof., NSIT, New Delhi. The speaker edified the students with a vivid and innovative scope on 'recent trends in electric drives' through his enriched talk.

Second and third year students of Electrical and Electronic department attended a skill development program on Electrical Solar Vehicle from 13th to 15th October, 2017. The Program was scheduled at Arya Engineering College, Jaipur, which included theoretical as well as practical knowledge regarding design and implementation of

electrical vehicles. Among 80 participants from different well reputed government colleges, our students held a position of AIR:15., in the exam conducted by distinguished faculty members and leaders from ISIE and ESVC. It was altogether a very educative training program, which helped our students to get a platform for their future job or private enterprise.



## Department of Mechanical and Automation Engineering

Department of Mechanical & Automation Engineering, organized a Seminar by the Society of Automotive Engineers (SAE), DTC chapter on “Multiple Opportunities after B.Tech”, on 30-08-2017. Mr. S.M. Garg, a research scholar at DTU Delhi, was the speaker in the seminar. The talk emphasized on gaining achievement and success on core subjects of B.Tech. In Addition, guest lectures were conducted by department of Mechanical and automation engineering, on 'Mechanisms for Automation' and 'Engineering drawing and engineering Mechanics' by Dr. Rasheed Ahmed Khan on 6th October and 27th October 2017 respectively. A team of 15 students from Department of MAE, were selected to participate in Efficycle Event held at Lovely Professional University, Jalandhar from 1 November to 5 November 2017. The event was organized by SAE India. Two distinguished faculty members also published technical papers in international conferences. The publications were namely, “Selection model for material handling equipment's used in flexible manufacturing system”, by Radhakant Mishra, Asstt. Prof. in Deptt. of MAE in DTC, and “Investigation of Issues in



designing and development of an overhead bike”, Vikas Singh, Radha Kant, Karan Dwivedi, Kailash Singh, Deptt. of MAE in DTC.



## Department of Civil Engineering

According to the IPU curriculum, a Software Training course is to be organized for students of third year. The Department of Civil Engineering organized certified STAAD PRO Software Training Course for III year students from August 18, 2017 to September 30, 2017 (50 hrs course) under Mr. Amit Tiwari, Mr. Sandeep Pal and Mr. Vineesh Kumar of Lelogix Design Center under the supervision of faculty members i.e. Mr. Ankit Sahay and Mr. Sugandh Singh. Out of 62 students, 59 students enrolled for the course. To keep the students updated with the recent advancements in the field of Civil Engineering, this particular course was introduced to the students. This course includes the learning of not only all the commands but also updates made in the STAAD PRO software recently. This course will benefit the students in two ways. Firstly, it will enhance the student's abilities to plan and make appropriate design of building and secondly, it will fulfill the need of the academic work. This course is entirely different from theoretical Structural Analysis.

Further, an Industrial Site Visit to “Ecotech 3, Toy City, Udhyog Kendra” – an under construction building in Greater Noida, U.P, was carried out by successfully by the

Department of Civil Engineering on 30th August, 2017. All the second year students along with the team of Faculty Members and Lab Technicians reached the site by the college bus. The purpose of this visit was to help the students understand the real life aspects of construction work and preventive measures taken at the site. The Site Engineers, Mr. Harindar Phogat and Mr. Sudhir and Supervisors of the project escorted the students to the construction site and shared their views and knowledge with them. They also encouraged the enthusiasm of the students while clearing the doubts of the students related to construction work. Faculty members helped to relate the field work with the theoretical aspects of the course work.



## Department of Applied Science

To meet the objectives, the Applied Science department pays special emphasis on teaching and hands on practical work to every student. The excellent infrastructure, experienced faculty members are dedicated to strengthen effective teaching learning process ensuring quality education.

In the present semester, different events/industrial visit and general lectures for the benefits of the students, have been conducted. In these events the students participated in a large number under proper guidance of faculty and made it successful. The brief details of the events held at the college were as follows;

In the month of August, 2017 an informative lecture on the “General Laws” was taken by Hon'ble Justice Bhanwar Singh. The points discussed in the lecture are very important in the life of every students and also emphasis was put on the discipline which must be adhered with every person to be successful in life. An Industrial visit was conducted for the B.Tech first year students at the “Yakult Factory” located in Sonapat in the month of September, 2017. In this visit students from the college were accompanied by the teachers and at that factory the students had an interactive session with the qualified and experienced staff through which they had gained a lot of knowledge about the importance of engineering and the related technology at the factory.

# Articles

## Role of Internet of Things in Developing Smart Cities: Challenges in India

UPASNA JOSHI

Assistant Professor (CSE)

*The Internet of Things represents an evolution in which objects are capable of interacting with other objects. Hospitals can monitor and regulate pacemakers long distance, factories can automatically address production line issues and hotels can adjust temperature and lighting according to a guest's preferences, to name just a few examples.” – IBM*

The uses of internet include but not limited to usage of search engines which will help you to collect data from all over the world, usage of email and other instant message services which are giving flexibility of sharing information among groups within seconds, usage of internet in shopping via online shopping carts helped both clients and customers. Flashback to 2014 and India's now Prime Minister Sh. Narendra Modi was the talk of the country, thanks to the holographic technology he deployed to address his rallies. With that one event it was clear that a connected India will be on top of his manifesto. Not surprisingly today he is talking about collaborating public and private enterprises to create smart cities across India.

The Internet of Things (IoT) is gaining popularity, as customers are increasingly demanding data-driven solutions that deliver better insight on operations and equipment to direct changes for corporate goals. Employees and customers have become reliant on devices and access to real-time data for productivity, convenience, and sustainability. The result is a new kind of upward pressure on commercial building owners to invest in intelligent building technologies. In addition, hardware prices are dropping while storage and computing power are increasing via cloud computing, which furthers IoT market growth. IDC estimates Internet of Things (IoT) market to grow to \$8.9 trillion with over 212 billion connected things by 2020. The no. of connected devices surpassed total world population in year 2005 and it is estimated that no. of devices will be around 50 billion which is about 7 times of the world population at that time. From the simplest day to day activities to the most complex human emotions, IoT will impact it.

There are several application domains which will be impacted by the emerging Internet of Things. The applications can be classified based on the type of network availability, coverage, scale, heterogeneity, repeatability, user involvement and impact. There is a huge crossover in applications and the use of data between domains. For instance, the Personal and Home IoT produces electricity usage data in the house and makes it available to the electricity (utility) company which can in turn optimize the supply and demand in the Utility IoT. The internet enables sharing of data between different service providers in a seamless manner creating multiple business opportunities.



The objective of a Smart City would be to use technology to offer services that are intelligent, advanced, affordable and accessible. Let's look at what this could mean in resolving the top 5 concerns India is facing today.

### I. IoT Solution for Waste Management for Smart Cities

Today, most cities have bins strategically placed so they are accessible by homes. However this has led to the next issue of piling up of garbage leading to stench, pests and filth. How can IoT solutions resolve this problem? Imagine smart bins placed at street corners. These bins are developed to act as trash compactors with in-built sensors. So as you dump trash



into them they will compact them to take in probably 4 times more waste and additionally give out signals to the waste management system when the bins are nearing full to schedule for pickups. The multiple benefits this can have increased waste load, eliminate overflows, efficient logistics planning and increased cleanliness.

## **II. IoT Solution for Traffic Management for Smart Cities**

Traffic management is one of the biggest challenges that IoT can help manage. With IoT Solutions, traffic management can go to a completely different level, being more predictive, dynamic, intelligent and secure. Especially for a country like India, where every city operates as a country by itself, an IoT driven traffic management can be customized to the advantage of the lifestyle of that city.

## **III. IoT Solution for Smarter Energy Utilization for Smart Cities**

Considering that cities worldwide contribute to 80% of CO2 emissions, better environment systems needs to be at the core of any Smart City development. Taking a cue from Paris that has taken the initiative to reduce greenhouse emissions and energy consumption by 30% before 2020, India needs to build in smart solutions to make its' cities more energy efficient and sustainable. IoT technology embeds at its' core the ability to work with a city to improve its air quality, reduce its water wastage and increase power generation. Now we all know that these three elements are important to function on a day-to-day basis. With smart city the day will not be far when you can actually wake up get updates on key energy metrics from inside your house and office. Overall IoT tracking solutions can help cities maintain more efficient water supply, receive service alerts and track the consumption trends. Adding to that, with better solutions for sewage management I think the overall quality of life will be at an improved level.

## **IV. IoT Solution for Public Safety for Smart Cities**

An IoT enabled city will be like the constant pair of eyes that can help individuals, communities and government keep a friendly safety watch on people. Smart video surveillance for public monitoring, hovering drones acting as alarm sensors, rapid action team dispatch technology and a dynamic security system can all work together to make cities safer and traceable. IoT enabled security system could be the eyes and ears that authorities needs in order to be more efficient and agile. With IoT huge clouds of data can be accessed dynamically and tracked with single clicks.

## **V. IoT Solution for Smarter Communication for Smart Cities**

2G, 3G, 4G, 5G and the saga continues! It is all about staying connected. India is still a long way off in becoming 100% connected. However this cannot be the case with smart cities. With everyone on a constant move, working across multiple platforms and interacting through the globe, connectivity is the lifeline that a Smart City will need to address. In India Internet has finally penetrated the rural areas and with the recent demonetization it became essential for the daily man to connect to a network. Beyond cloud backups and internet-connected devices, it is internet-connected services that will run smart cities. With connectivity arises the need for security and efficiency. People are not satisfied with just being connected. The Internet is now teaching them what architecture will keep them secure and give higher performance, leading to service providers educating their consumers on networks and their capabilities. The competition landscape for connectivity solutions is broadening, with innumerable players entering to win market share. It is now critical for the Government to step in to standardize and stabilize the services across the country.

Many cities around the globe are joining the Smart City bandwagon! With the initial focus being on energy efficiency, public safety, and sustainability the cities will soon graduate to build solutions around health, education, and system integration spanning all sectors.

The ideal city of the future will combine wireless connectivity with the traditional concepts of community and shared space.

## Connecting the Artificial Dots

**VAIBHAV BHARDWAJ**  
B.Tech, Final Year (ECE)

Electronics and Communication Engineering have come a long way from telegraph of 19th century to IOT of 21st.

The ability to communicate with people have remarkably improved from the time when Guglielmo Marconi first communicated across English Channel via radio, that was in 1897 .

Today, E.C.E. has incorporated itself in every field of our lives. And this amalgamation has been so finely tuned that now it is difficult to differentiate. Latest integration could be seen in Internet of Things (IOT), where everything is connected to everything or Artificial Intelligence (A.I.), where a machine is intelligent enough to learn from present.

Artificial Intelligence is presently the boom box of technological world, and every sector is in deep study towards it. A.I. is treated as a hot rod and every Firm wants its name engraved on it. Facebook, who entered with FAIR (Facebook AI Research) in the market initially stuck in a pit or two but now have developed a stable machine. Similarly, Samsung with Bixby, firm being a Smartphone giant didn't wanted to lag behind its competitors as Google AI and Apple AI already have their roots in the soil.

AI backbone could be related with a human brain. Humans develop connections in their brain and save events as memory; similarly AI works on Neural Network, where each data, each event is saved in multi-folds and multiple-networks thus creating a self learning machine.

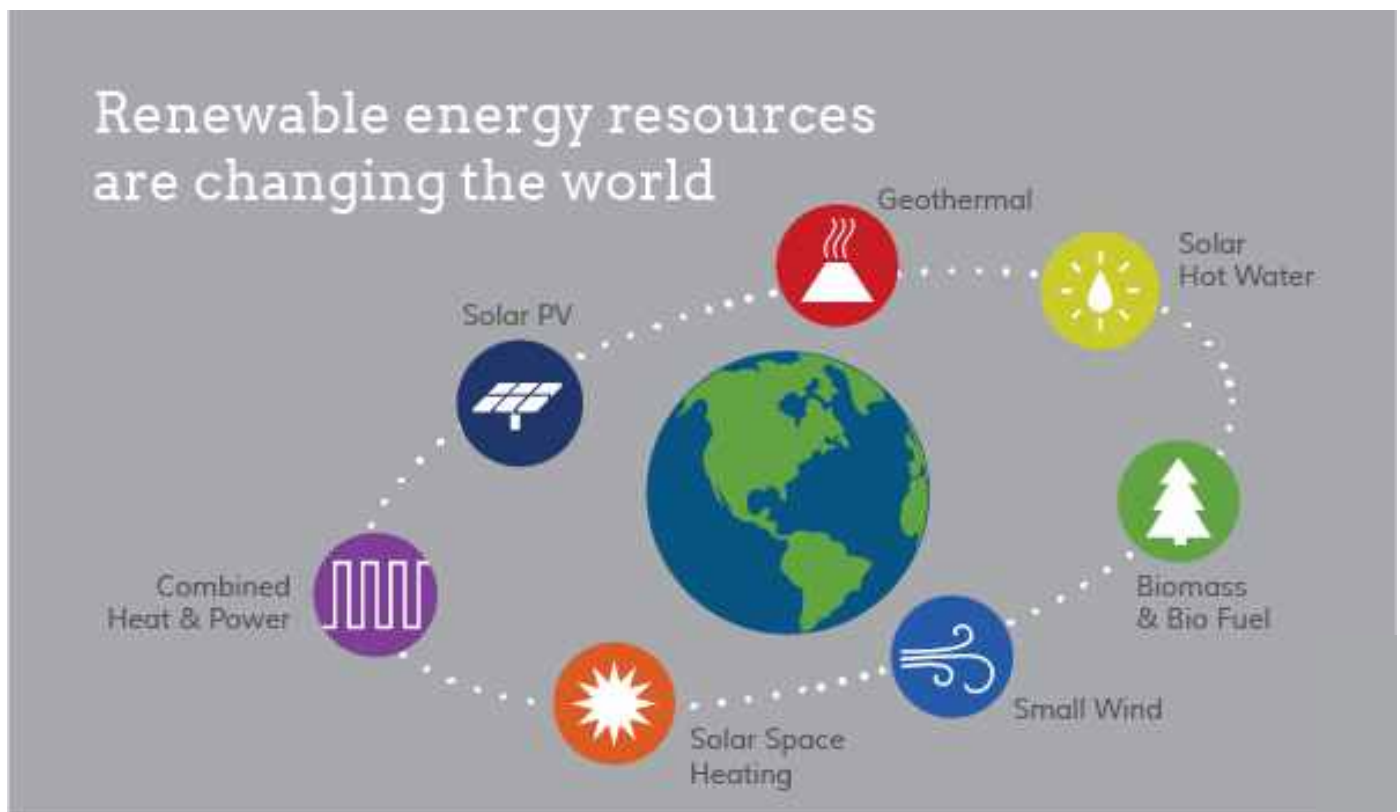
This war on the development of AI will continue to grow till a stable and most adaptable AI is created .But, surely considering this development as a edge of technical board will not be an accurate saying as more advancements are yet to come which presently we can't even think of but are definitely there in times ahead.



# Renewable Energy: A Sustainable Development

**TRINA SOM**  
Associate Professor  
(EEE)

The concerns towards global warming and depleting oil/gas reserves have made it unavoidable to seek power from renewable energy resources. This leads to an era of renewable resources and alternative energy generation. Electricity from solar, wind, hydropower and other renewable resources are on the verge of standardization. Renewable Energy uses energy resources and technologies that are “clean” or “green” as they produce few if any pollutants. Renewable energy technologies turn these fuels into usable forms of energy, most often electricity, but also heat, chemicals, or mechanical power. Though China is the single largest developer of renewable power over the past eight years, other developing countries are also emerging with installation of most modern devices in exploiting renewable energy resources. As of 2015, renewable energy provided an estimated 19.3% of global final energy consumption, which continued in 2016, leading to the growth in both capacity and production. In the first nine months of 2015, 62 percent of new electricity in the United States came from alternative energy resources, out of which, almost 15 percent came from solar power. However, in 2016, renewable energy spread to a growing number of developing and important markets with emerging economy. Though the development of renewable energy projects continued in 2016, but the pace of growth in some countries are still low. The year 2016 saw several developments and ongoing trends that all have a bearing on renewable energy, including the continuation of comparatively low global fossil fuel prices; and a continued increase in attention to energy storage. Apart from providing access to more than 1 billion people, those who are without electricity, in rural areas far from the centralized grid, the renewable energy also offers ample opportunities to job seekers. The renewable energy sector employed 9.8 million people in 2016, crafting an increase of 1.1% over 2015. By technology, solar PV and bio-fuels provided the largest numbers of jobs. Employment shifted further towards Asia, which accounted for 62% of all renewable energy jobs by China. A number of governments implemented new renewable energy targets, and several cities established new commitments to 100% renewable energy. Year 2017 has predominantly focused in carrying the global energy transition with new additions of installed renewable energy capacity, resulting in rapidly decreasing energy costs along with economic growth and environmental sustainability.





# Welding Technology: Health & Environment hazards

**NITESH KUMAR AGRHARI**  
Assistant Professor  
(MAE)

Welding process is the heart of all production and manufacturing process. Without welding technology no company can produce finished products. Welding and its operations create a great transformation in various fields like Health care equipments, Submarine assembly. Aircraft, Automobiles industries, aerospace, manufacture of shipyards, civil engineering structures, mining industry transportation means, petrochemical industry etc. In other words, engineering sciences and advanced industries of countries will be paralyzed without welding operations.

Welding is defined as the process of joining of two similar or dissimilar metals with the help of heat and with or without use of pressure. During this process, base metal starts melting which produces fumes (created at the high temperatures) produced by an arc or flame which contacts the materials.

Welding and its operations are also responsible for creating Air pollution across the globe. During this process, physical and chemical processes such as evaporation, condensation, and oxidation occur. The main hazards related to welding include electricity, radiation, heat, flames, fire, explosion, noise, welding fumes, fuel gases etc. This results in pollutants which can be formed from flux materials, base materials, inert gases, impurities, surrounding air etc.

Depending on the process and the materials, pollutants are basically classified into particulate and gaseous pollutant. Particulate pollutants are Iron-oxide, Fluoride, Nickel oxide and Thorium oxide are produced during process. When flux layer is coated on the electrodes and due to high temperature flux starts melting and it produces Fluorides. When additives are added in the base metal or work pieces then it produces iron oxide. Gaseous pollutants are Carbon monoxide, Nitrogen dioxide, ozone and many more toxic gases which are produced during various gas welding processes like Oxy-acetylene gas welding, Air-acetylene gas welding etc.

Most workers who work in automobile industries, petrochemical, ship building & steel industries etc. suffer from some kind of respiratory illness like chronic respiratory or pulmonary infections. Prolonged use of a welding helmet can cause strain on the neck. Direct visuals of weld bead may cause permanent or partial loss of visions. Some metals like chromium and cobalt present in alloy metals can cause irritation and allergic impacts on the skin and if all these metals are absorbed by the skin may lead to cancer.

To avoid above side effects caused by welding, it is necessary to monitor the welding emissions by eliminating or minimizing the risks using standard equipments and procedures and only certified welders should be allowed to work on standard welding machines to meet environmental requirements which are recommended by Indian welding society (IWI). Standard welding & safety equipments should be provided to the welders. If the welding is being performed indoor then proper ventilation should be installed.

Government and various organizations are also making efforts to reduce the risk of air pollution caused by industrial activities like welding by making strong guidelines and environmental laws.

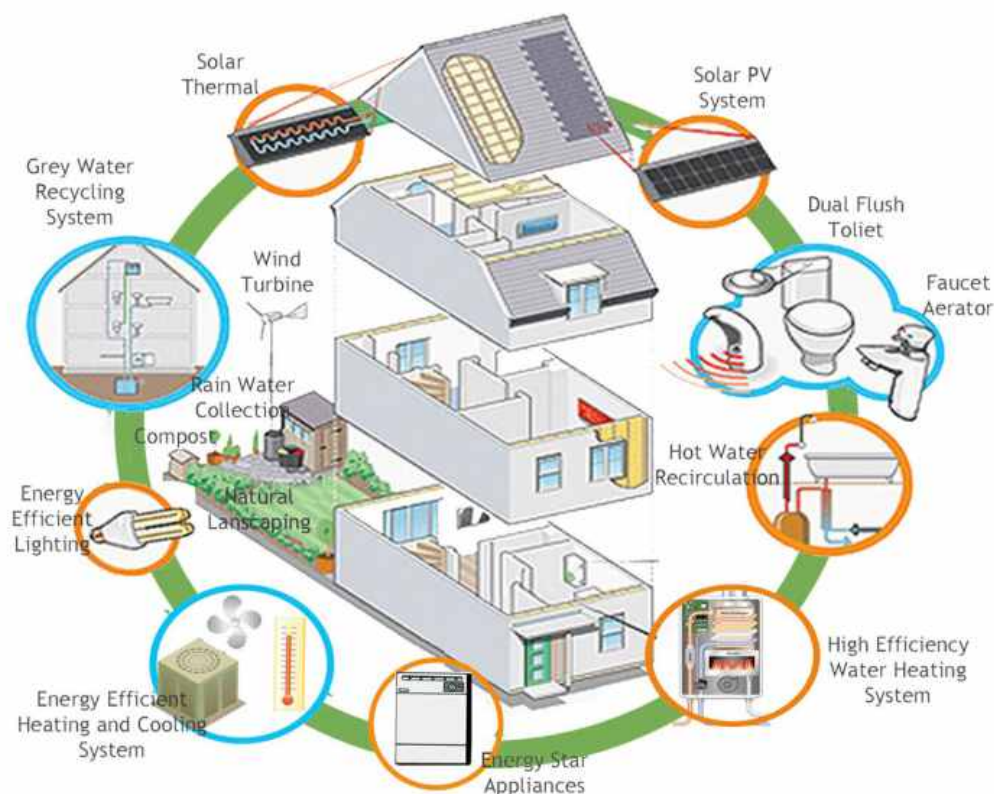


# Energy Efficient Building

**YOGITA KUSHWAHA**  
Assistant Professor  
(CVE)

Energy conservation is something we as Indians don't take seriously. Most of our daily use energy comes from non-renewable resources like - coal. If we continue using these resources at this rate then they will get extinct in near future. Therefore there is more stress on using renewable sources of energy like – wind, solar energy etc. In developing countries like India there is very little margin between existing power supply and electricity demand. This maybe is because of over dependence on petroleum and coal for the electricity generation. Although renewable sources of electricity such as hydro, wind or solar energy provide electricity at a much lower cost but they are complex and take much longer to implement. As we spent more than 90% of our time in buildings i.e. either in offices or buildings therefore these accounts for a significant percentage of total energy consumption. This percentage depends greatly on the degree of electrification, the level of urbanization, as well as national and local policies to promote efficiency. Energy in a building is used for different purposes such as heating, cooling, air-conditioning, ventilation, lighting etc. Energy loss in these activities should be minimal, so that the building's energy efficiency can be increased. The main benefit from measures to improve energy efficiency buildings is lower energy costs but there are usually other benefits to be considered too such as –prevention of natural non-renewable resources, less pollution, less operation & maintenance cost, increase in building life etc.

There are different measures which contribute in a building's efficiency such as- shape of building so that maximum natural daylight can be used, airtight building will reduce heat and air movement and be quieter & cleaner, use of cross ventilation etc. Therefore the building efficiency is very important as it not only help in reducing the electricity cost but also contribute in increasing the life of building.



# The Corporate Demand: Techno-Managers

**RAVI KANT SWAMI**  
Professor (SoM)



Anybody in his mid-40s like me can clearly recall the early 80s when engineering colleges had only Civil, Mechanical & Electrical departments. Disciplines like Electronics & Computer Science were still to start. One could complete Bachelors in Engineering and immediately join a Government job. These government jobs were with the State owned Public Works Departments, Electricity Boards, Irrigation departments, BHEL, HMT, Indian Oil, etc.

The results of the post-independence Socialist economy started becoming clear in the 80s and the disadvantages of the public sector became obvious. The remedy was an overhaul of the economy. And then the country started its journey on the path of Liberalization, Privatization & Globalization which meant expansion of the private sector and shrinking of the Government sector.

During the late 80s, The US computer revolution had started spreading throughout the world and Branches like Electronics & Computer-Science started being preferred over the traditional ones. Jobs in the private sector replaced the government sector jobs. Today, the scenario is that majority of the engineering graduates want to join the corporate and that too after a Post Graduation in Management. Be it marketing or finance or Human Resources or International Business, a Management degree after B.Tech. is the most preferred choice.

There are solid reasons for this. Engineers cannot succeed unless they have a clear picture of the business applications of the products they are designing. Be it banking software or a mobile or an electrical gadget, they should understand the business applications of the products and services produced. A clear idea is required about the revenue models. Engineering + Management has become an all-time golden combination.

When engineers rise in the echelons of corporate hierarchy, it is felt that they lack the strategic business acumen required for the higher positions. For achieving success as a General Manager or COO, the skills required are imparted by a management course and data corroborates this. A recent study of CEOs by Randstad, a global recruitment firm, indicated that the combination of an engineering undergraduate degree with an MBA is the most common path to senior positions in the corporate. Specifically, 45% of Indian CEOs surveyed had an engineering undergraduate degree. Of those engineers, 78% had gone on to a postgraduate degree. And of those, 64% chose an MBA.

I close the write-up for this opening issue by stating that, be it Ratan Tata or Mukesh Ambani or Satya Nadella or Sundar Pichai, all belong to the “techno-manager” category.



