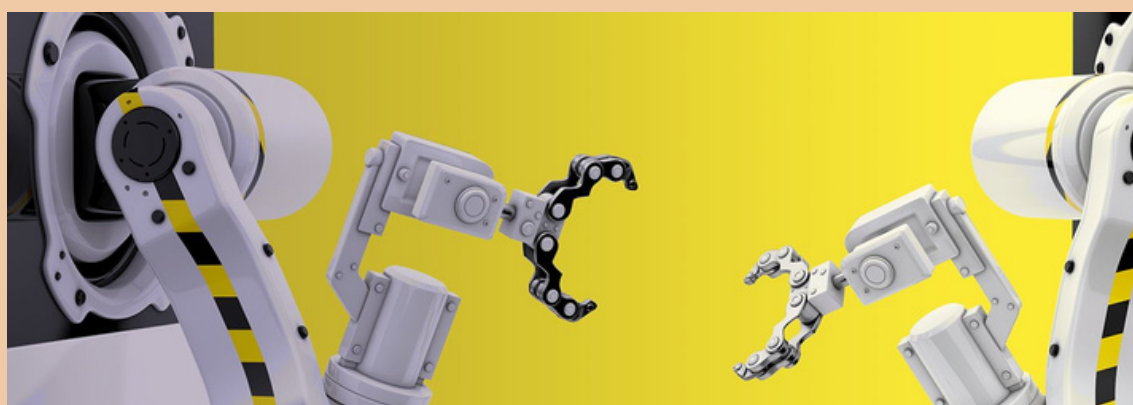
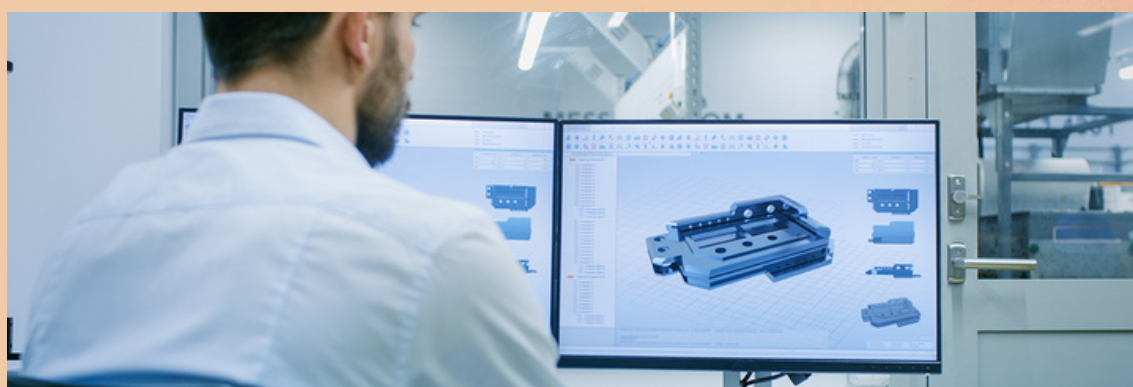
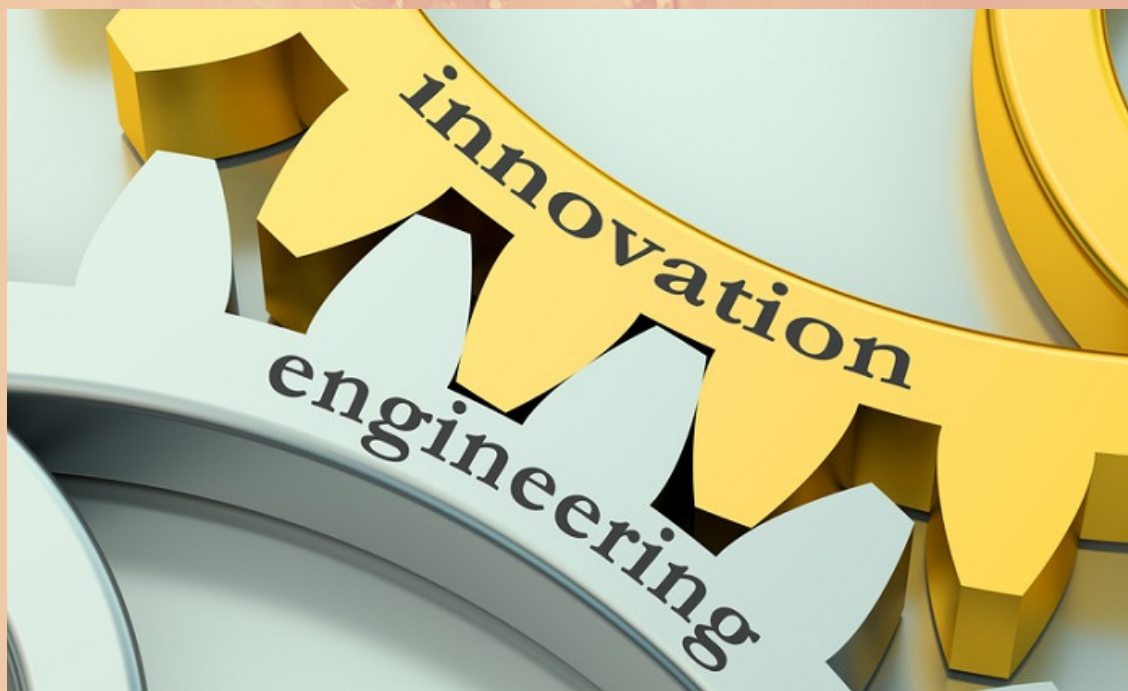


M E C H A N I C A L E

Issue 2
Session 2020-21



VISION

The department envisions to be recognized globally for its outstanding technical education and research & consultancy capabilities to ethically address the ever-changing Socio-Global issues.

MISSION

M1 To develop state-of-the-art industry aligned research facilities to provide opportunities to interpret, apply, disseminate and create knowledge.

M2 To inculcate a culture of upgrading the knowledge and skills of human resources through Self-learning, E-learning and Training activities

M3 To equip the students with academic, corporate and entrepreneurial leadership, communication skill and global awareness as required by the engineering profession and society in general.

M4 To establish an environment that encourages and builds an exemplary degree of citizenship, professional and personal integrity and ethical behavior.

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FROM THE DESK OF THE MANAGING DIRECTOR



"Work is Worship"

Dr. Om Prakash Agarwal (Managing Director)

Success is not a one-shot process. It is the result of a continuous improvement after each failure. The fear of failure needs to be captured in order for a person to learn from his failure too. It is an invaluable opportunity to rectify errors and move forward. Failure in working for a good cause is better than success in working for a wrong cause.

Over the years now, NIET has built quite a special position in the private higher education sector. With its distinctive culture, it provides a clear student-centered environment in which to explore existing technical knowledge, and gain new learning at the leading edges of technology development.

Our unique educational system ensures that you gain not just depth and breadth in your chosen area of specialization, but also a holistic set of skills that will equip you to face the real world. At every stage there will be opportunities to expand your boundaries, platforms for collaboration and learning, and recognitions for those who strive to excel. Thus, I would like each one of you to join NIET and aspire as global leaders and a successful human being.

MESSAGE FROM ADDITIONAL MANAGING DIRECTOR



"Education is the most powerful weapon which you can use to change the world" - Nelson Mandela

Dr. Neema Agarwal

In the course of last 20 years many technical & management institutes have sprung up all over the country. Graduates passing out every year are highly optimistic, that technical courses ensure a rewarding career.

The economic, corporate and social environments are undergoing radical changes. To survive, manage and excel in this dynamically changing atmosphere; it demands engagement of professionals who are well informed, competent, courageous and versatile.

Beyond the academics, the curriculum at NIET is strongly linked with several recent themes like latest technologies needed by organizations, soft skills, communication, among others. Our approach has resulted in programs of study relevant to the leadership trends and challenges of tomorrow. Classroom learning is made interesting by highly qualified and experienced faculty through interactions, presentations, role plays, case studies and out bound learning programs. This is further reinforced by practical learning through Industrial visits and summer training. Students regularly undergo personality development and grooming sessions that leads to both extrinsic and intrinsic confidence boosting and prepares them for the corporate world. We appreciate your interest and want you to know that we are here to bring you a leading edge technical education.

FROM THE DESK OF EXECUTIVE VICE PRESIDENT



Mr. Raman Batra

This new generation is an interesting one. Most of them were born into a world where technology has always been at the forefront. These students rely on Google, texting, social media and Wi-Fi, and they view email - not letter writing - as a formal form of communication.

NIET has been helping students write their own stories since its inception. Committed to providing the best jobs by creating life-changing educational opportunities and collaborative learning environments, we have stayed at the forefront of innovation in higher education, providing the tools our students need to make them industry ready from day one and make an impact in the world.

NIET has a Pyramid Finishing School, which provides training to the students according to the industry requirements giving the individual student a 360 degree in employability skills. The Institute has also made tie-ups with MNCs like Microsoft, Oracle, KPMG, ICICI Direct, Prometric and Pearson. These tie-ups not only promise to enhance student employability by manifold, but also take the lead in encouraging 'innovative' learning like never before. Taking the league forward, we have established various innovation labs to provide students hands-on experience in various modern-day technologies. We impart experiential learning and thereby progressively enhance the competencies of our teaching staff and our students.

I, thus, invite you to join our movement to create Corporate Citizens who become role models, wherever they go, for developing their professional career. I promise you a challenging academic experience, with an international flavor, which will truly transform your lives.

MESSAGE FROM THE DIRECTOR



Prof. (Dr.) Vinod M. Kapse

Welcome you to the Noida Institute of Engineering & Technology, Gr. Noida. Ever Since its inception in 2001 our endeavor at NIET has been to provide excellent quality of education and training to young minds aspiring to become engineers, managers, pharmacists and technocrats.

In order to achieve this goal we have established an infrastructure that composes with the bests in the world. Our faculty members are highly talented and qualified. Additionally, we invite the finest minds from the industry and academia as guest lecturers. With the help of a very supportive staff we ensure a healthy learning atmosphere for our students.

We motivate our students to dream big and guarantee that we include the right spirit and the necessary talent to realize their objective. We also continuously strive to instill ethical values in our wards so that they become responsible citizen of tomorrow.

NIET has always stood for quality and excellence and we make every effort to constantly reminiscent and improve ourselves. These efforts have been recognized, appreciated and awarded by prestigious educational bodies both in India and abroad.

I wish you the very best as you choose to become a part of this exciting and vibrant learning community.

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From the pen of the Chief Editor



Prof. (Dr) Chandan Kumar, HOD, Mechanical Department

What is The Need of Studying Material Science

Why does someone study material science? What is the need to study the properties of materials? Many scientists and engineers study material science. The engineers whether they belong to any stream i.e. mechanical, civil, electrical or electronics, are very much interested in the materials and their properties. Why?

It is quite evident that persons of all of the engineering fields require an understanding of the properties of the materials. A mechanical engineer may have to design gear with specific material properties. A civil engineer may have to construct a strong building. Or electronics engineers may have to fabricate an integrated circuit. In all of these examples, it is quite essential to have read the properties of materials.

Many times, a material scientist or engineer has to select the right material among the other materials. He has to explore various aspects of the suitable material and to decide critically what to select. First of all in-service condition must be decided because it will determine the properties required for the material. One of the worth noting things is that it is quite difficult to obtain the ideal or exact material properties. Some compromise has always to be done.

Another criterion which compels the engineers to study material science is that most of the material deteriorate with time due to various environmental factors. In order to apply some prevention methods of deterioration, it is very important to study material science.

The Basics of Maintenance in General Aviation

Aircraft maintenance is the performance of tasks required to ensure the continuing air worthiness of an aircraft or aircraft parts. The term maintenance means the inspection, overhaul, repair, upkeep and preservation of an aircraft and engine, including the spare parts. The owner/operator is responsible for the proper maintenance of his aircraft and engine.

The Directorate General of Civil Aviation (DGCA) is the regulatory body in the field of Civil Aviation in the country. This is primarily responsible for regulation of air transport services in India and for enforcement of civil air regulations, air safety and airworthiness standards.

Daily and Preflight Inspection (DSS, TRS, LFS)

The owner or operator may conduct a daily inspection, if so desired, but the pilot must perform a satisfactory preflight inspection before flight in order to determine that the aircraft is airworthy. The Federal Aviation Regulation requires a presentation showing the current status of applicable airworthiness directives, including the method of compliance, and the signature and certificate number of the mechanic or repair agency who complied with the AD (Airworthiness Directive).

It is the aircraft owner or operator's mandatory responsibility to assure compliance with all pertinent AD notes. Although maintenance requirements will vary for different types of aircraft, the FAA (Federal Aviation Administration; a governmental body of the United States) states that experience shows most aircraft will need some type of preventive maintenance after every 25 hours of flying time and minor maintenance at least every 100 hours.

100-Hour Inspection/ Annual Inspection

An aircraft used to carry passengers for hire, or for flight instruction for hire, must be inspected within each 100 hours of time in service by a certified A&P mechanic (an aircraft maintenance technician refers to an individual who holds an Airframe and/or Power Plant certificate), an appropriately rated certificated repair station or the manufacturer. The annual inspection is acceptable as a 100-hour inspection, but the reverse is not true. This inspection must be performed within the preceding 12 calendar months.



Dr. S. L. Verma
Professor, ME
Ex. IAF

Manufacturer's Service Bulletins

The FAA states that whenever an aircraft or engine manufacturer determines, through service experience, that its product may be improved by some modification, or that the service life of its product may be extended by some particular maintenance or repair, that manufacturer may issue a service bulletin. The latter will tell what the trouble is and how to remedy it. The service bulletin is mandatory because it supplements the manufacturer's maintenance manual that is required by FARs (Federal Aviation Regulations). The service bulletin usually addresses those items that affect safety of flight. The overhaul manual and all applicable service bulletins and service instructions, used in conjunction with the appropriate operator's manuals, constitute the engine maintenance manual required by the FAA / FAR.

In addition to service bulletins, the service instructions and service letters are also published. A service instruction is product information that also becomes a part of the manufacturer maintenance manual, and therefore compliance with these publications by owners and operators is required. Certain modifications are carried in order to improve the existing performance or remedial action for a repeatedly occurring fault as a onetime solution. The modifications may be requiring the fitment of some new device or equipment which necessitates a detailed study of the structure. The author is credited to carry out several modifications, prominent of which is fitment of US origin weather radar on a Russian origin VIP Helicopter. The detailed blue prints of the structure were prepared by HAL. Here as a golden thumb rule, no cut or drilling is allowed in primary or secondary structure without the permission of the Designer.

Preventive Maintenance

Preventive maintenance means simple or minor preservation operations and the replacement of small standard parts not involving complex assembly operations. The holder of a pilot certificate issued under FAR 61 may perform preventive maintenance on any aircraft owned or operated by the pilot that is not used in air carrier service or air taxi. All other maintenance, repairs, rebuilding or alternations must be performed by persons authorized to do so by the FAA.

Except as noted under "Preventive Maintenance," all repairs and alterations are classed as either Major or Minor. Major repairs or alterations must be approved and returned to service by an appropriately rated certified repair facility, an A&P mechanic holding an Inspection Authorization or a representative of the FAA. Minor repairs and alterations may be returned to service by an appropriately rated certified A&P mechanic or repair facility.

Progressive Maintenance

This is a continuous maintenance program whereby the required FAA and manufacturer inspections are accomplished during the most convenient time, while keeping the aircraft in a state of continuous airworthiness. Several General Aviation airframe manufacturers have established sound Progressive Maintenance programs with FAA approval. Owners and operators are reminded that certain FAA requirements must be met before a Progressive Maintenance program can be used. These requirements are contained in the Federal Aviation Regulations. The Progressive Maintenance program has had more appeal where planes for hire are involved (i.e., commuter, air taxi, flight instruction), rather than those privately owned.

Aircraft Flight Test After Repair or Alteration

The FAA reminds us that whenever a repair or alteration has been made to your aircraft or engine, the person authorized to return the aircraft to service should decide if the flight characteristics have changed or if operation in flight has been substantially affected. If the decision is affirmative, the aircraft must be flight tested before it may be used to carry passengers in accordance with FAR. The test pilot must make an operational check of the maintenance performed and log the flight and findings in the aircraft records.



Importance, applications and future scope of PTC Creo

Now more than ever, product design & manufacturing teams are expected to create products more efficiently & cost effectively, without sacrificing innovation or quality. Fortunately, Creo delivers the most scalable range of 3D CAD product development packages & tools in today's market. Its variety of specific features, capabilities, & tools help engineers imagine, design, & create your products better. Take your products from concept to digital prototype efficiently, precisely and intuitively with Creo—on the cutting edge of CAD for more than 30 years.



Mr. Aditya Devol
Astt. Professor, ME

PTC's developers created Creo Parametric as a sound foundation software that allows its users the ability to expand deeper functionality with each component. As your products become more complex in its engineering, Creo offers expanded capabilities to meet your requirements. Every product isn't made equal, and your 3D CAD solution shouldn't be either. Explore Creo's capabilities that mold to your unique craft.

Applications of PTC Creo are as following:

1. Augmented Reality (AR)

Augmented reality, generated from 3D CAD design models, has uses across the entire product development and deployment process. Engineering organizations include CAD augmented reality in the following areas:

- Design reviews
- Manufacturing and assembly
- Sales
- Product interfaces.

2. Real-Time Simulation

When designers perform their own analysis, they reduce time-to-market and create better products. Creo Simulation Live unifies the design and analysis environment, resulting in a seamless product development flow.



3. Artificial Intelligence and Machine Learning Come to CAD

We see machine learning and artificial intelligence in many facets of our day-to-day world, like internet search, voice and image recognition, smart speakers, self-driving cars, and social media. Machine learning analyzes data sets and uses code to learn from that data. It is already being used in engineering in areas like virtual manufacturing, predictive maintenance, and our focus here: Generative design and topology optimization.

In the future, machine learning will be applied to other areas of design engineering including

- Fastener location and selection
- Routing of cable harnesses and piping systems
- Mechanism design

Since generative design and topology optimization are especially good at creating organic-looking, untraditional aesthetic structures, it lends itself best to the next item on this list:

4. Additive Manufacturing

Product development organizations have already benefitted from additive manufacturing with:

- Faster prototyping
- More complex geometry that can't be built via traditional subtractive manufacturing methods
- Reduced numbers of components and fasteners, corresponding to lower assembly time
- Capability to rework worn field parts

Additive manufacturing aligned with generative CAD design represents a new synthesis of hardware and software for CAD.

In future PTC may include some features in PTC Creo:

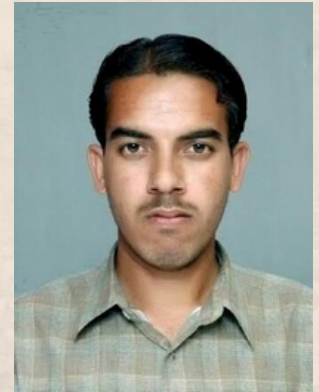
Generative design is going to incorporate frustrum into Creo for coming up with different potential solutions for design problems. You can specify whether it's going to be used for traditional subtractive manufacturing methods like mold design or CNC machining or additive manufacturing and resulting solution can generate one or more components.

Creo simulation live is going to bring a lot of enhancements including fluid analysis, linear contacts, transint thermal analysis and component isolation in order to analyse a few components in an assembly.

Introduction to Digital-Signage Technology

Digital signage can double audience information retention and provides endless possibilities for all industries. This article takes an in-depth look at the technology, what's coming, and how to consider it for implementation.

Restaurant menus, airports, hospitals, businesses: Communication via digital screen is all around us—and the technology is only getting smarter. Not only that, but the advantages of digital signage over traditional signage include improved ROI, flexibility, and data collection.

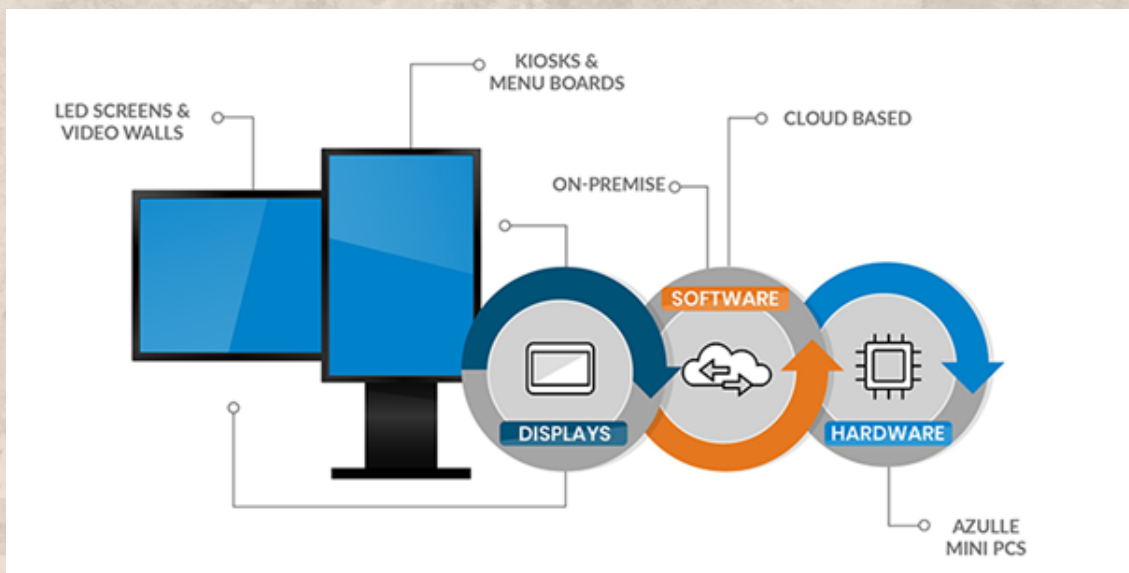


Mr. Shyamlal Sharma
Astit. Professor, ME

This robust technology has a bright future ahead—haptic technology, AI, holographic screens, and most importantly, cheaper technology for broader deployment. Digital signage can now be configured to fit the needs of any space, and this freedom allows companies to create custom and unique digital signage that fits anywhere. Companies should plan to get ahead of deployment today to take advantage as the new technology advances become pervasive and while it's offered more affordably.

What is Digital Signage?

Digital signage consists of three basic components: display, software, and hardware. The displays can consist of LCD screens, electronic billboards, menu boards, projection screens, video walls, kiosks, and many more—this is where consumers will be viewing the content

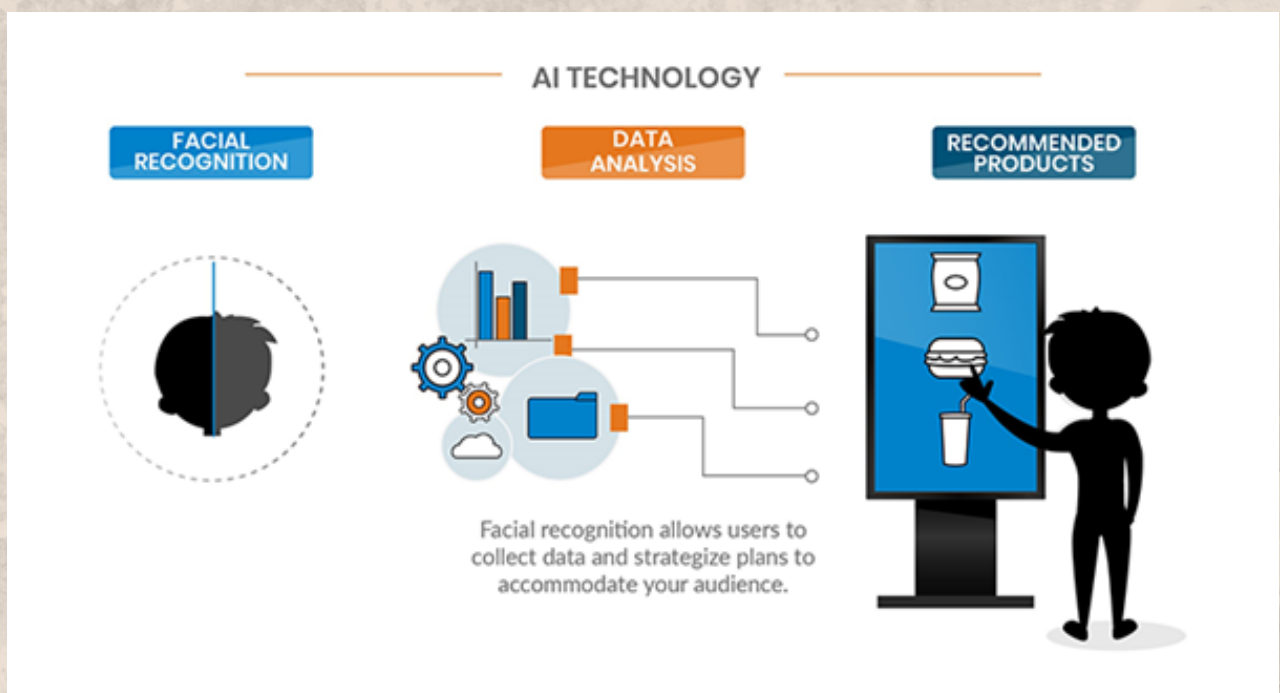


Digital-signage software, also known as a content management system (CMS), is used to create, manage, and deploy the content shown on the displays. CMS software allows businesses to schedule, customize, and even use video-editing software for their content. If the software being used is web-based, content can be created and changed remotely. The last component is the hardware, which is responsible for distributing and displaying the content. With the right hardware, content will playback seamlessly and uninterrupted.

The Future of Digital Signage

The digital-signage industry is growing rapidly as technology advances. Certain trends that are expected to be seen this year include thinner screens with much higher resolutions and an increase of content being more responsive and automated, such as displays attuning to the weather or holographic screens.

The integration of AI technology in digital signage adds a new dimension of personalized experiences, such as use of facial recognition and collecting data to help better strategize plans to accommodate their audience. Using data analytics is what really will make the investment worth it. McDonald's recently acquired Israeli start up Dynamic Yield Ltd. to show food tailored by factors as time of day, weather, current restaurant traffic and trending menu items. It will also allow the chain to instantly suggest and display additional items to customers based on their current selections.



Time: An Unsolved Mystery

Have you ever thought exactly what time is ? All of us use the word “time” again and again in our conversation such as “time is less, time is going on very fast, we have time” and so on. It is not the fact that we don’t know anything about time. Time is something that everyone is quite familiar with. 60 seconds is one minute. 60 minutes is one hour. 24 hours is one day and so on. This is known as linear time and something that everyone is familiar with. But consider this if someone came up to you on the street and asked you to draw time. What would you draw?



Mr. Vikash Chauhan
Astt. Professor, ME

You might draw a clock or watch ticking every second or you might draw a calendar representing days which pass over continuously. But all those drawings would be physical representations of passing of time. Those drawings would just scrap the surface of the enigma that is time, something that seemingly runs our lives and unavoidable. Even then it can’t be explained by even the smartest people on Earth. So can we try to explain what is time? Can we prove the time even exists?

Aristotle, about 2500 years ago, the great thinker and philosopher one said that time is the most unknown of all unknown things. Even today his saying is perfectly true. If you go on Google and type in what is time, you will find that it explains time as a dimension, most precisely forth dimension. Another three dimensions are relevant to space. It is true to some extend because if we have to catch a train which comes on particular place i.e. railway station, we will also have to associate that place with time, the time on which we must have to reach the station to catch the train. However, there is a flaw in that definition of time. It leaves too many doors unopened because time is also a measurement. For example Christmas is celebrated on 25 December which is passed many months ago and also will come after some months later. If I say that 25 December will come after 2 kilometres later, most probably, people will look at me thinking that I am crazy.

With special dimensions, the 3-Dimensional world that we live in, it is very easy to go back and forth between places because these things are absolutely fixed in space.

If I went to market to buy some groceries and I forgot soap, I could easily go back and buy soap. However, the time that it took to do that is unable to be retrieved. It is lost forever into the past. An object placed in 3-Dimensional space will stay there almost forever if no factors are available to disturb that. If I place a book on the table, it will just stay there but that book still falls victim to time. We can suppose time is like an arrow. It moves in one direction forward. Scientists and researchers called this the arrow of time.

If you one day woke up and found yourself floating in the middle of empty space, would you be able to tell which way is up, down, left or right? Probably not. However time is a much simpler phenomenon. Our perception easily tells that time comes from the past originating at the Big-Bang where our history lies and is fixed throughout the present where we are essentially prisoners of towards the unknown and turbulent future. We can remember things from the past like how I can tell you that this morning I went to the shop, bought things and the forget to buy soap. But at the same time I can't tell you what I ate for breakfast next Thursday because it hasn't happened yet. The arrow of time originated at the Big-Bang and has been moving forward ever since. We used the second law of thermodynamics to represent this. It is known as entropy. Think of entropy as a measure of disorder in the universe. At the Big Bang, all the matter in the universe was compacted into infinitely small point. This is considered a very low entropy situation, a very orderly situation. It was similar to stuffing every sock that is ever kept into one drawer. In that situation, you know with absolute certainty where your socks would be.

Ever since the Big-Bang, all the matter in the universe has been expanding away from each other making the universe a higher entropy system. Because of entropy and because of the arrow of time, we have galaxies, stars, planets and even life. Entropy is the reason that you can tell the difference between the past and the future. It explains why every human is born and then lives and then dies, always in that order. If there were no entropy, if there were no change in the universe, you wouldn't be able to tell the difference between year 2018 and year 1 million. No matter what you do, time moves forward and doesn't stop for anyone or anything. At least on the macro scale, see the arrow of time works and is extremely noticeable on large scales. But on the quantum level, time operates differently. Take the situation where you woke up in the middle of space. There, you have no idea which way up, down left and right. It's very unique situation that only applies in the vastness of empty space. But if you come back to Earth, it's very easy for you to orient yourself. The arrow of time works in a similar way.

Why time and entropy are so important? Because they govern our life and the universe. The fact that the entropy is increasing is well-known. It's the reason why life today is the way that it is. Each previous day had entropy lower than the present before Big Bang, when the whole matter of the universe was concentrated at a point, the entropy was at its lowest level. After Big Bang it has been continuously increasing. With entropy, time has also been going forward in a single direction. But all of these are on macroscopic level.

In physics, the general relativity theory of Einstein suggests that time can go backward as well as forward. But going in past presents many paradoxical situation which hinders the possibility of that. However scientists are trying to prove that it is possible. May be someone will prove it. Who knows! On the other hand, going in future is very much possible mathematically or even logically. Einstein's equations clearly prove that at a speed equivalent to the speed of light, time become slower for the person which acquires this speed. It means that person enters the future of other persons which are not moving at that speed.

So exactly what is time? Something which provides a perception of changes surrounding us, which tell us that time is passing. So again time! What a conundrum! Let's think about it deeply.



Thin coating on condensers could make power plants more efficient

Most of the world's electricity-producing power plants, whether powered by coal, natural gas, or nuclear fission make electricity by generating steam that turns a turbine. That steam then is condensed back to water, and the cycle begins again. But the condensers that collect the steam are quite inefficient, and improving them could make a big difference in overall power plant efficiency. Now, a team of researchers at MIT has developed a way of coating these condenser surfaces with a layer of graphene, just one atom thick, and found that this can improve the rate of heat transfer by a factor of four — and potentially even more than that, with further work.



Mr. Raman Kumar
Astt. Professor, ME

The findings are reported in the journal Nano Letters by MIT graduate student Daniel Preston, professors Evelyn Wang and Jing Kong, and two others. The improvement in condenser heat transfer, which is just one step in the power-production cycle, could lead to an overall improvement in power plant efficiency of 2 to 3 percent based on figures from the Electric Power Research Institute, Preston says — enough to make a significant dent in global carbon emissions, since such plants represent the vast majority of the world's electricity generation. "That translates into millions of dollars per power plant per year," he explains.

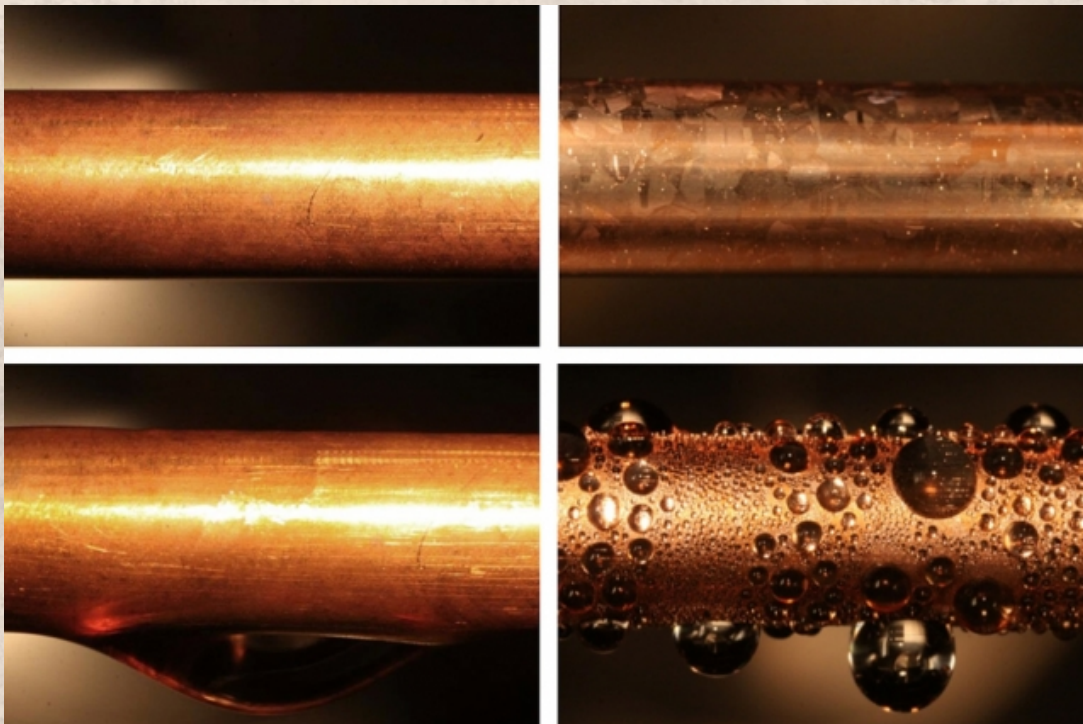
There are two basic ways in which the condensers — which may take the form of coiled metal tubes, often made of copper — interact with the flow of steam. In some cases, the steam condenses to form a thin sheet of water that coats the surface; in others it forms water droplets that are pulled from the surface by gravity. When the steam forms a film, Preston explains, that impedes heat transfer — and thus reduces the efficiency — of condensation. So the goal of much research has been to enhance droplet formation on these surfaces by making them water-repelling.

Often this has been accomplished using polymer coatings, but these tend to degrade rapidly in the high heat and humidity of a power plant. And when the coatings are made thicker to reduce that degradation, the coatings themselves impede heat transfer. "We thought graphene could be useful," Preston says, "since we know it is hydrophobic by nature." So he and his colleagues decided to test both graphene's ability to shed water, and its durability, under typical power plant conditions — an environment of pure water vapor at 100 degrees Celsius.

They found that the single-atom-thick coating of graphene did indeed improve heat transfer fourfold compared with surfaces where the condensate forms sheets of water, such as bare metals. Further calculations showed that optimizing temperature differences could boost this improvement to 5 to 7 times. The researchers also showed that after two full weeks under such conditions, there was no measurable degradation in the graphene's performance.

By comparison, similar tests using a common water-repelling coating showed that the coating began to degrade within just three hours, Preston says, and failed completely within 12 hours. Because the process used to coat the graphene on the copper surface — called chemical vapor deposition — has been tested extensively, the new method could be ready for testing under real-world conditions “in as little as a year,” Preston says. And the process should be easily scalable to power plant-sized condenser coils.

“This work is extremely significant because, to my knowledge, it is the first report of durable dropwise condensation with a single-layer surface coating,” says Jonathan Boreyko, an assistant professor of biomedical engineering and mechanics at Virginia Tech who has studied condensation on superhydrophobic surface. “These findings are somewhat surprising and very exciting.”



An uncoated copper condenser tube (top left) is shown next to a similar tube coated with graphene (top right). When exposed to water vapor at 100 degrees Celsius, the uncoated tube produces an inefficient water film (bottom left), while the coated shows the more desirable dropwise condensation (bottom right).

Introduction to 3D Printing

This is a small advanced step from depositing ink on paper to putting down layers of material until the layers add up to form an object. The material could be Plastic, Metal, Food, Sand etc. as per the materials and their forms the setup being developed and continue to evolve new methods to improve process, efficiency, quality, strength as well as broad applications in various areas.

In current Industrial scenario there is dependency on conventional methods which is slowly shifting towards emerging technologies and which will change the way of product development and will consist lot of freedom and scopes for settling manufacturing units within metro cities as well as the availability of all those units would be closer as the grocery stores, which would reduce the transportation and time involve in that.



Mr. Raj Kumar
Asstt. Professor, ME

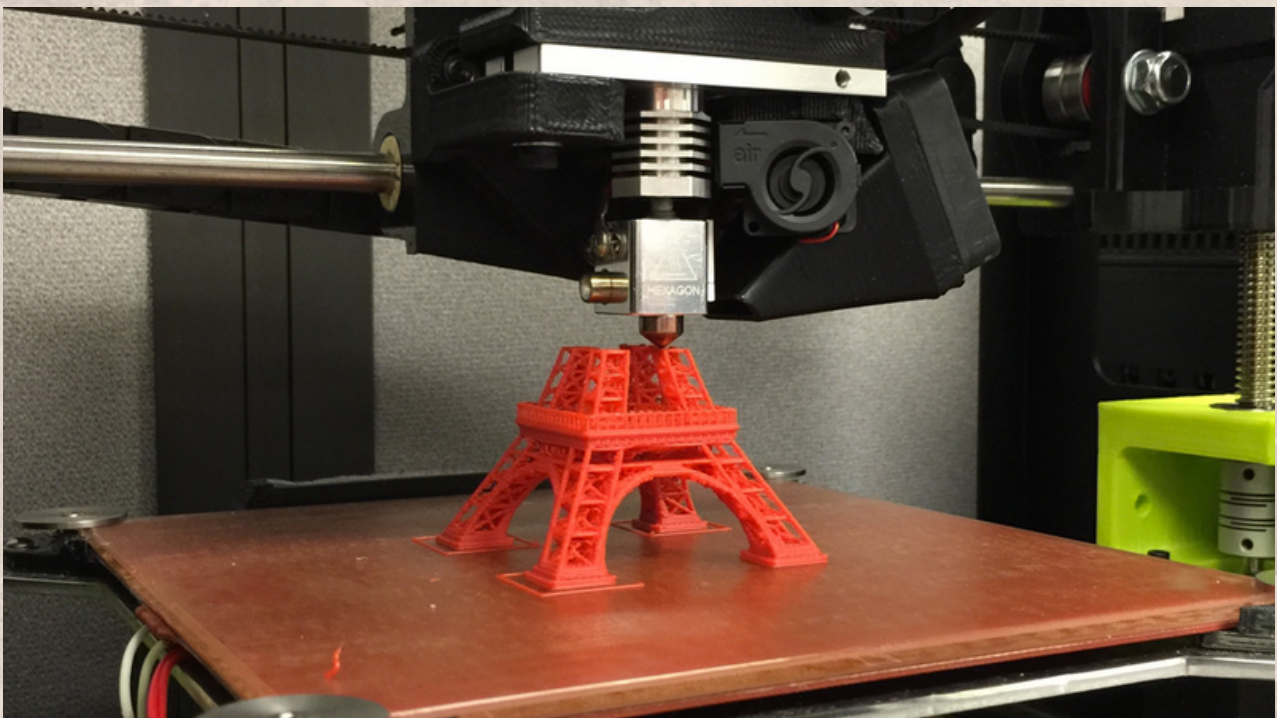
Along with that there is the field where the 3D Printing has already made its position, this field is Medical, Aerospace, and Marine etc., and if we understand the advantages of technology then we can easily state that the fields where the customization as well as single or limited quantity production is required there the use of such technology could be worth as well as efficient. Let us take an example, in marine field the ship travels across oceans for long duration and the maintenance as well as repairing of malfunctioned components during the voyage requires spares, and spares could be uncertain and could be anything and in order to address the issues, crew requires some inventories with them, which reserves their space and resulting some dead loads. By implementation of 3D Printer on board, all they would require to have soft files or 3d design of spares with raw material. In this way the process could make system efficient and convenient.

In order to maintain equilibrium in economy and businesses around world, all countries need to focus on the emerging technology globally. In this regards most of MNCs are investing and acquiring in those companies which are in 3D Printing.

Every develop country is switching towards green manufacturing, 3D Printing is one among green manufacturing process and they outsource their conventional tasks from under developed countries and lot of processes did get successful transformation to 3D Printing which could further transform more and this could be a threat for under develop countries in fear of lose their business from developed countries.

There are not only the good things with the technology; there are limitations and drawbacks in technology. The major drawback with the engineering applications is rate of production which is not easy to compete with the traditional as well as advanced alternative technology. The technology is slower than most of alternative technologies and the material and applications are far too limited for end used products. As the technology is not well mature so the initial, running and maintenance costs are very high, the processing of material is expensive and so the material is expensive. There is no data base available for the reliability test of machines and as the technology is evolving day by day, so the chance of obsolescence of older becomes high.

But the fact is that, there are many applications which can only be address by 3D Printing, apart from that the technology has lot of potential within it. Soon there are possibilities that we will see 3D Printing will hold the entire globe with its wide range of applications and would becom solution for various unsolved problems.



Human Values and Its Relevance in Technical Education

In the course of their work life engineers and technologists are involved in various development activities to serve the society. With the galloping rise in population the world over the service of technocrats to the human race is becoming more and more important. It is desirable that engineers develop a good and practical sense of human values so that they can fruitfully contribute to the societal development. The article gives an overview of human values in the Indian society and highlights the need to incorporate these aspects in the curriculum of our technical education.



Mr. Pulkit Srivastava
Astt. Professor, ME

The world is going through a rapid transition. Globalization is a process which is bringing the world closer economically. However, there is also increasing deprivation and conflicts within societies. Globalization is also resulting in several conflict points around the world. The issue of climate change and damage to nature is also staring at us in the face!

India is both a beneficiary and a victim of the effects of globalization. India is developing rapidly, but unless we are careful this development can come at the cost of lack of regard for families and the underprivileged. There is also a disregard for an ethical society; as a result one sees rampant corruption in life.

The drive for garnering physical facilities has become the sole goal of the young people, who are driven by their parents and peers to work within a competitive paradigm. The result is an intense pressure on young people to perform at the cost of everything else, whereby the very purpose of life and living itself tend to get neglected. There is greater strife in family wherein relationships are weakening.

Thus, Value education is particularly important for students in professional and technical courses like Engineering, Management, Medicine, Law etc both in Under-graduate and Post-graduate levels. It is important to understand in the wider social and human context the impact of their chosen profession on the society at large. Creation of value concept in the appropriate climate will encourage emergence of good human beings, a band of worthy as well as socially responsible professionals and will eventually lead to the creation of a good society.

Future Scope of SAP-MM

SAP MM is the short form for SAP Material Management system. The roles of SAP MM in a business process are as follows – A business process in SAP is termed as a “module”. SAP MM is a part of logistics functions and it helps in managing the procurement activities of an organization.

SAP MM is having a very good future. The SAP technology is going to stay in the market for at least the next 30 years at the current state and it is still growing. Among the different modules, It is the functional modules like MM, SD etc which are in great demand.



Mrs. Nisha Yadav
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MM module is in use in most of the SAP projects as material is one of the basic needs of most of the businesses using SAP. You can learn some more functional modules like SD, QM or technical modules like ABAP, Basis etc to add to your market value. Techno functional consultants are among the highest paid in SAP industry. So, SAP MM is having a very good future scope.

SAP MM future depends on how you look at it, from a job perspective if you are a new to SAP and trying to get in, it might not be the right module as there are enough experienced people in the market. For new starters I'd suggest to pick something that's in demand such as Ariba, or mix the learning with SRM. MM in itself will stay but there are enough experienced people and will stand out. With Fiori and new UX, MM consultants will accommodate to these new changes and should follow the new trends.

For companies, MM will still be one of the primary and core modules. Sap mm will not exist as it is with sap moving from ecc to SAP S4 HANA. Still, materials management and all other functions will be the same, at least in the background.

If you are thinking from job perspective, as a fresher you should get a good grasp of the topic in about 2 years post which you can try to expand your knowledge to other related modules such as WM/EWM.

The Neutrino

Neutrino is the fundamental particle which few people know. Fundamental particles are the smallest and basic unit to build any things in the universe. Even all the forces and phenomenon is happens behind these fundamental particles. Most of the times when we talk about fundamental particle we only think about electron, proton, neutron, but in reality except from electron, proton, and neutron some of them particles or their combination are also a fundamental particles. A neutrino is in a category of fermions. It interacts only with the presence of weak subatomic force and gravity. The name neutrino is fall because it is electrically neutral and the rest mass is so small that it was long thought to be zero. It is much small than the other known elementary particles. It is also known as ghost particle. In the introductory part we are only focused on its history and some fundamental properties.

FUNDAMENTAL PARTICLES: -

It is basic building block of anything in the universe. Basically it is smallest and simplest in structure. It is divided into two parts:-

1. FERMIONS

2. BOSONS

FERMIONS:- It creates all the matter in the universe.

BOSONS: - Bosons are the force carrier in the universe.

PROPERTIES: -

Neutrinos are under a leptons category. It is found in three state electron neutrino, muon neutrino and tau neutrino. In the three state neutrinos can change simultaneously. It means electron neutrino change into tau neutrino or a muon neutrino and vice-versa.

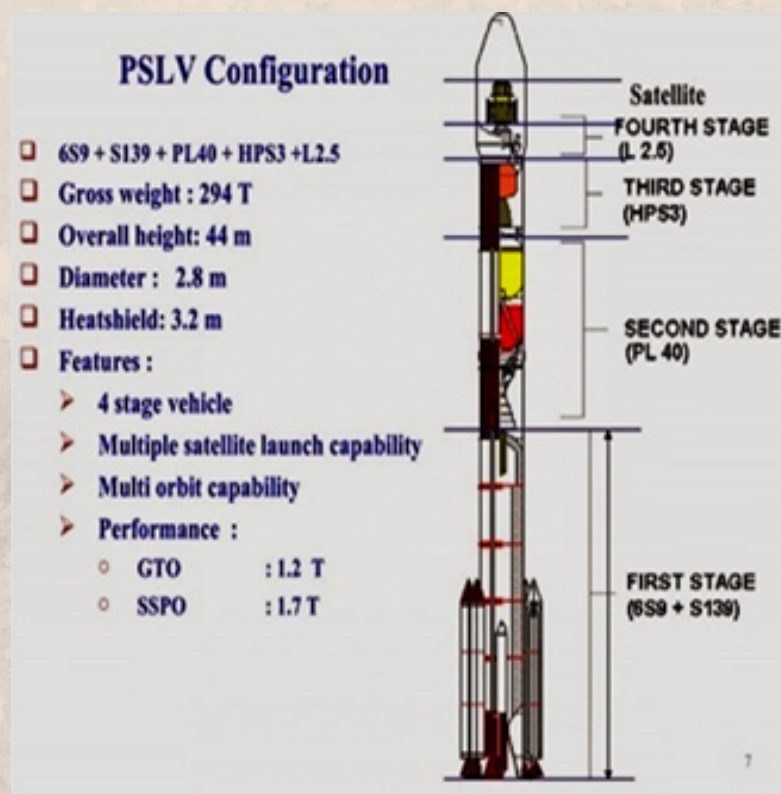
- They are electrical neutral and interact only with weak forces.
- It exists in a three different state so it called flavours.
- They are nearly mass less particle. It has very less mass as compare to fermions.
- It almost penetrates any things in the universe.

POLAR SATELLITE LAUNCH VEHICLE

The polar Satellite Launch Vehicle is an expendable launch system developed to allow India to launch its Indian Remote Sensing (IRS) satellites into sun synchronous orbits. In April 2008, it successfully launched 10 satellites at once, breaking a world record held by Russia. On 9 September 2012 the PSLV flew its 21th consecutive successful launch mission. As of February 2013 the PSLV has made 23 launches with 21 successful, one failure and one partial failure.

Development

1. PSLV has been designed and developed at Vikram Sarabhai Space Centre (VSSC).
2. The internal systems are developed by ISRO Internal System Unit (ISU).
3. The liquid propulsion stages for the second and fourth stages of PSLV as well as the reaction control system are developed by the Liquid Propulsion Systems Centre (LPSC).



Successful Launches with PSLV-

- PSLV successfully launched EMISAT and 28 international satellites.
- On 15 February 2017 successfully deploying 104 satellites in sun synchronous orbit.

- Pranay Rudra Paul (2nd Year, ME)

Solar Power Generation

Solar Power is the conversion of energy from sunlight into electricity, either directly using photo-voltaic (PV), indirectly using concentrated solar power, or a combination. Concentrated solar power systems use lenses or mirrors & tracking systems to focus a large area of sunlight into a small beam. Photovoltaic cells convert light into an electric current using the photovoltaic effect.

We can produce electricity from the sun in two ways:

Photovoltaic Electricity – This method uses photovoltaic cells that absorb the direct sunlight just like the solar cells you see on some calculators.

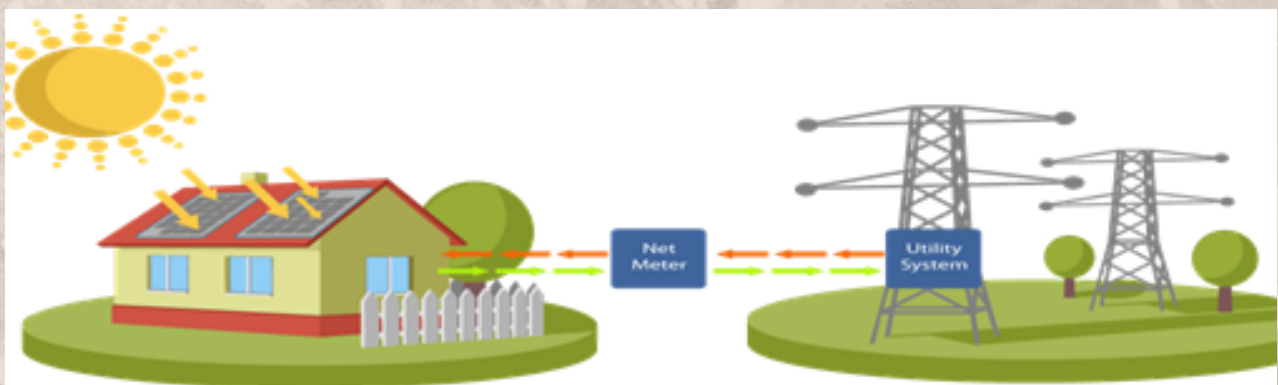
Solar-Thermal Electricity – This also uses a solar collector: it has a mirrored surface that reflects the sunlight onto a receiver that heats up a liquid. This heated liquid is used to make steam that produces electricity.

Photovoltaic solar plants working:

1. As light hits the solar panels (Modules), the solar radiation is converted into direct current (DC).
2. The direct current flows from the panels and is converted in to alternating current (AC) used by local electric utilities.
3. Finally the electricity travels through transformers and voltage is boosted for delivery onto transmission lines so local electric utilities can distribute electricity to homes and businesses.

Solar-Thermal plants working

1. Solar collectors capture and concentrate sunlight to heat synthetic oil, which then heats water to create steam.
2. The steam is piped to an on site turbine-generator to produce electricity, which is then transmitted over power lines. On cloudy days, the plant has a supplementary natural gas boiler.
3. The plant can burn natural gas to heat the water, creating steam to generate electricity.



Nano-Technology

Nanotechnology literally means any technology on a nanoscale that has applications in the real world. Nanotechnology encompasses the production and application of physical, chemical, and biological systems at scales ranging from individual atoms or molecules to submicron dimensions, as well as the integration of the resulting nanostructures into larger systems. Nanotechnology is likely to have a profound impact on our economy and society in the early 21st century, comparable to that of semiconductor technology, information technology, or cellular and molecular biology. Science and technology research in nanotechnology promises breakthroughs in areas such as materials and manufacturing, nanoelectronics, medicine and healthcare, energy, biotechnology, information technology, and national security. It is widely felt that nanotechnology will be the next Industrial Revolution.

Nanometer-scale features are mainly built up from their elemental constituents. Examples include chemical synthesis, spontaneous self-assembly of molecular clusters (molecular self-assembly) from simple reagents in solution, biological molecules (e.g., DNA) used as building blocks for production of three-dimensional nanostructures, and quantum dots (nanocrystals) of arbitrary diameter (about $10-10^5$ atoms). The definition of a nanoparticle is an aggregate of atoms bonded together with a radius between 1 and 100 nm. It typically consists of $10-10^5$ atoms. Micro- and nanosystem components are fabricated using top-down lithographic and nonlithographic fabrication techniques and range in size from micro- to nanometers. The nanotechnology field, in addition to the fabrication of nanosystems, provides Introduction 2 Introduction impetus for the development of experimental and computational tools.

- Yash Agarwal, 2nd Year ME



Electric Vehicle (EV) Technology

An electric vehicle, also called an EV, uses one or more electric motors or traction motors for propulsion. An electric vehicle may be powered through a collector system by electricity from off-vehicle sources, or may be self-contained with a battery, solar panels or an electric generator to convert fuel to electricity.

EVs include, but are not limited to, road and rail vehicles, surface and underwater vessels, electric aircraft and electric spacecraft. EVs first came into existence in the mid-19th century, when electricity was among the preferred methods for motor vehicle propulsion, providing a level of comfort and ease of operation that could not be achieved by the gasoline cars of the time. Modern internal combustion engines have been the dominant propulsion method for motor vehicles for almost 100 years, but electric power has remained commonplace in other vehicle types, such as trains and smaller vehicles of all types.

Commonly, the term EV is used to refer to an electric car. In the 21st century, EVs saw a resurgence due to technological developments, and an increased focus on renewable energy. A great deal of demand for electric vehicles developed and a small core of do-it-yourself (DIY) engineers began sharing technical details for doing electric vehicle conversions. Government incentives to increase adoptions were introduced, including in the United States and the European Union.

Electric vehicles are expected to increase from 2% of global share in 2016 to 22% in 2030.

-Harshit Gajjar, 2nd Year ME



FELICITATION BY AKTU, LUCKNOW ON TEACHERS DAY CELEBRATIONS



OUR TOP RECRUITERS OF 2019

COMPANY NAME	PACKAGE LPA	STUDENTS PLACED	COMPANY NAME	PACKAGE LPA	STUDENTS PLACED
Think & Learn (Byju's)	9.00	1	Micromatic Machine Tools Private Limited	3.00	2
JBM Ltd.	2.40	19	Reservoir Financial	4.02	8
TCS (Ninja)	3.36	2	Consult Add	4.00	2
HR Polycoats Pvt. Ltd.	3.00	1	Savantis	2.22	5
Publicis Media	2.65	3	Shriram Transport Finance	2.44	7
Capital Via	3.03	4	Continental Engines Pvt. Ltd.	2.04	2
Tetrahedron Manufacturing Services Pvt. Ltd	2.25	8	Madhus Garage Equipments	3.00	2
Zycus Infotech	4.00	1	VIVO India Pvt. Ltd.	3.60	4
Just Dial Ltd.	3.08	2	MAKINO AUTO INDUSTRIES PVT LTD	2.22	2
ConsultAdd	3.40	6	HR Polycoats Pvt. Ltd.	1.80	18
Centilytics	3.40	2	Hindustan National Glass	3.20	3
Advanced Bolting Solutions Pvt. Ltd.	2.00	3	Vedantu	12.00	1
TATA Motors	2.00	16	Tata Power solar Systems Ltd.	2.97	1
Cloud shope Technologies Pvt. Ltd.	4.20	2	SKH Group	3.36	1
Chegg	3.60	12	Oppo Mobiles	2.40	5
Linkhouse Buildwell Pvt. Ltd.	3.50	7	Capgemini (SAPMM)	3.80	2
Amazon	2.74	2	TCS(SAP)	3.80	11
Future Generali	3.08	2	TCS	3.56	10
Switzer Process Instruments Pvt Ltd	3.60	4	Vedantu	3.54	29
Functionize Software Pvt Ltd	2.16	3	Cognizant	3.50	1
Acadecraft	3.50	4	Vivo Mobile India Pvt.Ltd	3.60	16

*" One machine can do the
work of fifty ordinary men.
No machine can do the
work of one extraordinary
man. "* - Elbert Hubbard



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