# INSPIREEE

## INspirational Scripts, Personalities and Innovative Research of EEE

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K.L.N. COLLEGE OF ENGINEERING
POTTAPALAYAM – 630 612, SIVAGANGAI DISTRICT, TAMIL NADU, INDIA

# INSPIREEE

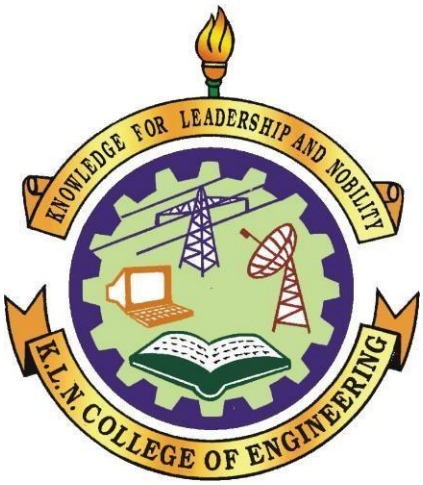
**IN**spirational **S**cripts, **P**ersonalities and **I**nnovative **R**esearch of **EEE**

***VISION***

To become a high standard of excellence in Education, Training and Research in the field of Electrical and Electronics Engineering and allied applications

***MISSION***

To Produce excellent, innovative and Nationalistic Engineers with Ethical values and to advance in the field of Electrical and Electronics Engineering and Allied Areas




K.L.N. College of Engineering

Pottapalayam – 630 612, Sivagangai District, Tamil Nadu, India

# Contents

# MESSAGE FROM HEAD OF THE DEPARTMENT

Dr.S.M.Kannan M.E., Ph.D.,MIEEE(USA),MISTE,FIE(India),
Professor & HOD / EEE,
K.L.N. College of Engineering.

In this issue, salient features of IT companies, online courses, opportunities and higher studies, question patterns of few recruiting companies are presented. These articles are highly informative and will help aspiring students. Students are encouraged to go through the article of BOAT requirement and prepare accordingly. Opportunity for apprentice training in reputed companies give good experience in core companies. Importance of Professional courses highlighted. Emerging areas such as Cloud computing, artificial intelligence, big data analytics are briefed. Article on disaster management will guide to safe guard people from some abnormal conditions.

The news letter uploaded in our College website are highly informative, students should regularly read the articles presented in it. The objective of articles presented in the news letter, to improve the students reading habit and in touch with the recent developments.

The top 10 skills required in 2020, forwarded by one of our Alumni, are listed below.

1. Complex problem solving.
2. Critical thinking.
3. Creativity.
4. People management.
5. Coordinating with others.
6. Emotional Intelligence.
7. Judgement and Decision making.
8. Service Orientation.
9. Negotiation.
10. Cognitive flexibility.

Students are expected to get maximum technical knowledge in their 4 years of Degree course. Those who are updating themselves, and proactive in nature are highly successful. Distractions in any form, will affect their study habits and will spoil their career. Plenty of job opportunities are available, but companies requirements can be met only when the students are gaining skills over the periods of study.

Examination days are ahead, students are to be very cautious in every approach, including their daily travel to college and back to home.

**Best wishes for Great future.**

# EDITORIAL CREW

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KANAKA RAJAN M D M.A PGDCA [LAB INSTRUCTOR]

# IBM (International Business Machines Corporation)

Venkatesh Kumar.J(152027/ IV Year)

**ABOUT IBM :**

(**IBM**) is an American multinational technology company headquartered in Armonk, New York, United States, with operations in over 170 countries. The company began in 1911 as the Computing-Tabulating-Recording Company (CTR) and was renamed "International Business Machines" in 1924. IBM manufactures and markets computer hardware, middleware and software, and provides hosting and consulting services in areas ranging from mainframe computers to nanotechnology. IBM is also a major research organization, holding the record for most U.S. patents generated by a business (as of 2018) for 25 consecutive years.[5] Inventions by IBM include the automated teller machine (ATM), the PC, the floppy disk, the hard disk drive, the magnetic stripe card, the relational database, the SQL programming language, the UPC barcode, and dynamic random-access memory (DRAM). The IBM mainframe, exemplified by the System/360, was the dominant computing platform during the 1960s and 1970s.

IBM has continually shifted its business mix by commoditizing markets focusing on higher-value, more profitable markets. This includes spinning off printer manufacturer Lexmark in 1991 and selling off its personal computer (ThinkPad/ThinkCentre) and x86-based server businesses to Lenovo (2005 and 2014, respectively), and acquiring companies such as PwC Consulting (2002), SPSS (2009), and The Weather Company (2016). Also in 2014, IBM announced that it would go "fabless", continuing to design semiconductors, but offloading manufacturing to Global Foundries.

**History**:

In the 1880s, technologies emerged that would ultimately form the core of International Business Machines (IBM). Julius E. Pitrap patented the computing scale in 1885;[6] Alexander Dey invented the dial recorder (1888);[7] Herman Hollerith (1860-1929) patented the Electric Tabulating Machine;[8] and Willard Bundy invented a time clock to record a worker's arrival and departure time on a paper tape in 1889.[9] On June 16, 1911, their four companies were amalgamated in New York State by Charles Ranlett Flint forming a fifth company, the Computing-Tabulating-Recording Company (CTR) based in Endicott, New York.[1][10] The five companies had 1,300 employees and offices and plants in Endicott and Binghamton, New York; Dayton, Ohio; Detroit, Michigan; Washington, D.C.; and Toronto. They manufactured machinery for sale and lease, ranging from commercial scales and industrial time recorders, meat and cheese slicers, to tabulators and punched cards. Thomas J. Watson, Sr., fired from the National Cash Register Company by John Henry Patterson, called on Flint and, in 1914, was offered a position at CTR.[11] Watson joined CTR as General Manager then, 11 months later, was made *President* when court cases relating to his time at NCR were resolved.[12]Having learned Patterson's pioneering business practices, Watson proceeded to put the stamp of NCR onto CTR's companies.[13]He implemented sales conventions, "generous sales incentives, a focus on customer service, an insistence on well-groomed, dark-suited salesmen and had an evangelical fervor for instilling company pride and loyalty in every worker".[14][15] His favorite slogan,

company's employees.[14] During Watson's first four years, revenues reached $9 million and the company's operations expanded to Europe, South America, Asia and Australia.[14] Watson never liked the clumsy hyphenated name "Computing-Tabulating-Recording Company" and on February 14, 1924 chose to replace it with the more expansive title "International Business Machines".[16] By 1933 most of the subsidiaries had been merged into one company, IBM.[17]

NACA researchers using an IBM type 704 electronic data processing machine in 1957

In 1937, IBM's tabulating equipment enabled organizations to process unprecedented amounts of data, its clients including the U.S. Government, during its first effort to maintain the employment records for 26 million people pursuant to the Social Security Act,[18] and the tracking of persecuted groups by Hitler's Third Reich,[19][20] largely through the German subsidiary Dehomag. In 1949, Thomas Watson, Sr., created IBM World Trade Corporation, a subsidiary of IBM focused on foreign operations.[21] In 1952, he stepped down after almost 40 years at the company helm, and his son Thomas Watson, Jr. was named president. In 1956, the company demonstrated the first practical example of artificial intelligence when Arthur L. Samuel of IBM's Poughkeepsie, New York, laboratory programmed an IBM 704 not merely to play checkers but "learn" from its own experience. In 1957, the FORTRAN scientific programming language was developed. In 1961, IBM developed the SABRE reservation system for American Airlines and introduced the highly successful Selectric typewriter. In 1963, IBM employees and computers helped NASA track the orbital flight of the Mercury astronauts. A year later, it moved its corporate headquarters from New York City to Armonk, New York. The latter half of the 1960s saw IBM continue its support of space exploration, participating in the 1965 Gemini flights, 1966 Saturn flights and 1969 lunar mission.

An IBM System/360 in use at the University of Michigan c. 1969.

On April 7, 1964, IBM announced the first computer system family, the IBM System/360. It spanned the complete range of commercial and scientific applications from large to small, allowing companies for the first time to upgrade to models with greater computing capability without having to rewrite their applications. It was followed by the IBM System/370 in 1970. Together the 360 and 370 made the IBM mainframe the dominant mainframe computer and the dominant computing platform in the industry throughout this period and into the early 1980s. They, and the operating systems that ran on them such as OS/VS1 and MVS, and the middleware built on top of those such as the CICS transaction processing monitor, had a near-monopoly-level hold on the computer industry and became almost synonymous with IBM products due to their market share.[22]

In 1974, IBM engineer George J. Laurer developed the Universal Product Code.[23] IBM and the World Bank first

introduced financial swaps to the public in 1981 when they entered into a swap agreement.[24] The IBM PC, originally designated IBM 5150, was introduced in 1981, and it soon became an industry standard. In 1991, IBM sold printer manufacturer Lexmark.

In 1993, IBM posted a US$8 billion loss - at the time the biggest in American corporate history.[25] Lou Gerstner was hired as CEO from RJR Nabisco to turn the company around.[26] In 2002, IBM acquired PwC consulting, and in 2003 it initiated a project to redefine company values, hosting a three-day online discussion of key business issues with 50,000 employees. The result was three values: "Dedication to every client's success", "Innovation that matters—for our company and for the world", and "Trust and personal responsibility in all relationships".[27][28]

IBM inventions: (clockwise from top-left) the hard-disk drive, DRAM, the UPC bar code, and the magnetic stripe card

In 2005, the company sold its personal computer business to Chinese technology company Lenovo[29] and, in 2009, it acquired software company SPSS Inc. Later in 2009, IBM's Blue Gene supercomputing program was awarded the National Medal of Technology and Innovation by U.S. PresidentBarack Obama. In 2011, IBM gained worldwide attention for its artificial intelligence program Watson, which was exhibited on *Jeopardy!* where it won against game-show champions Ken Jennings and Brad Rutter. The company also celebrated its 100th anniversary on the

same year on June 16. In 2012, IBM announced it has agreed to buy Kenexa, and a year later it also acquired Soft Layer Technologies, a web hosting service, in a deal worth around $2 billion.[30]

In 2014, IBM announced it would sell its x86 server division to Lenovo for $2.1 billion.[31][*better source needed*] Also that year, IBM began announcing several major partnerships with other companies, including Apple Inc.,[32][33] Twitter,[34] Facebook,[35] T encent,[36]Cisco,[37] UnderArmour,[38] Box,[39]Microsoft,[40] VMware,[41] CSC ,[42] Macy's,[43]Sesame Workshop,[44] the parent company of Sesame Street, and Salesforce.com.[45] In 2015,IBM announced two major acquisitions: Merge Healthcare for $1 billion[46] and all digital assets from The Weather Company, including Weather.com and the Weather Channel mobile app.[47][48]Also that year, IBMers created the film *A Boy and His Atom*, which was the first molecule movie to tell a story. In 2016, IBM acquired video conferencing service Ustream and formed a new cloud video unit.[49][50] In April 2016, it posted a 14-year low in quarterly sales.[51] The following month, Groupon sued IBM accusing it of patent infringement, two months after IBM accused Groupon of patent infringement in a separate lawsuit.[52]

**Headquarters and offices:**

IBM CHQ in Armonk, New York in 2014

Pangu Plaza, one of IBM's offices in Beijing, China

IBM is headquartered in Armonk, New York, a community 37 miles (60 km) north of Midtown Manhattan.[53] Its principal building, referred to as CHQ, is a 283,000-square-foot (26,300 $m^2$) glass and stone edifice on a 25-acre (10 ha) parcel amid a 432-acre former apple orchard the company purchased in the mid-1950s.[54] There are two other IBM buildings within walking distance of CHQ: the North Castle office, which previously served as IBM's headquarters; and the IBM Learning Center (ILC), a resort hotel and training center, which has 182 guest rooms, 31 meeting rooms, and various amenities.[55]

IBM operates in 174 countries as of 2016,[2] with mobility centers in smaller markets areas and major campuses in the larger ones. In New York City, IBM has several offices besides CHQ, including the IBM Watson headquarters at Astor Place in Manhattan. Outside of New York, major campuses in the United States include Austin, Texas; Research Triangle Park (Raleigh-Durham), North Carolina; Rochester, Minnesota; and Silicon Valley, California.

IBM's real estate holdings are varied and globally diverse. Towers occupied by IBM include 1250 René-Lévesque (Montreal, Canada), Tour Descartes (Paris, France), and One Atlantic Center (Atlanta, Georgia, USA). In Beijing, China, IBM occupies Pangu Plaza, which is the city's seventh tallest building and overlooks Beijing National Stadium ("Bird's Nest"), which was home to the 2008 Summer Olympics. Other notable buildings include the IBM Rome Software Lab (Rome, Italy), the Hursley House (Winchester, UK), 330

North Wabash (Chicago, Illinois, United States), the Cambridge Scientific Center (Cambridge, Massachusetts, United States), the IBM Toronto Software Lab (Toronto, Canada), the IBM Building, Johannesburg (Johannesburg, South Africa), the IBM Building (Seattle) (Seattle, Washington, United States), the IBM Hakozaki Facility (Tokyo, Japan), the IBM Yamato Facility (Yamato, Japan), and the IBM Canada Head Office Building (Ontario, Canada). Defunct IBM campuses include the IBM Somers Office Complex (Somers, New York). The company's contributions to industrial architecture and design include works by Eero Saarinen, Ludwig Mies van der Rohe and I.M. Pei. Van der Rohe's building in Chicago, the original center of the company's research division post-World War II, was recognized with the 1990 Honor Award from the National Building Museum.[56] IBM was recognized as one of the Top 20 Best Workplaces for Commuters by the United States Environmental Protection Agency (EPA) in 2005, which recognized Fortune 500 companies that provided employees with excellent commuter benefits to help reduce traffic and air pollution.[57] In 2004, concerns were raised related to IBM's contribution in its early days to pollution in its original location in Endicott, New York.[58][59]


InterConnect, IBM's annual conference on cloud computing and mobile technologies


Blue Gene was awarded the National Medal of Technology and Innovation in 2009.

IBM has a large and diverse portfolio of products and services. As of 2016, these offerings fall into the categories of cloud computing, cognitive computing, commerce, data and analytics, Internet of Things (IoT),[60]IT infrastructure, mobile, and security.[61] IBM Cloud includes infrastructure as a service (IaaS), software as a service (SaaS) and platform as a service (PaaS) offered through public, private and hybrid cloud delivery models. For instance, the IBM Bluemix PaaS enables developers to quickly create complex websites on a pay-as-you-go model. IBM SoftLayer is a dedicated server, managed hosting and cloud computing provider, which in 2011 reported hosting more than 81,000 servers for more than 26,000 customers.[62]IBM also provides Cloud Data Encryption Services (ICDES), using cryptographic splitting tosecure customer data.[63]

IBM also hosts the industry-wide cloud computing and mobile technologies conference InterConnect each year.[64] Hardware designed by IBM for these categories include IBM's POWER microprocessors, which are employed inside many console gaming systems, including Xbox 360,[65] PlayStation 3, and Nintendo's Wii U.[66][67] IBM Secure Blue is encryption hardware that can be built into microprocessors,[68] and in 2014, the company revealed it was investing $3 billion over the following five years to design a neural chip that mimics the human brain, with 10 billion neurons and 100 trillion synapses, but that uses just 1 kilowatt of power.[69] In 2016, the company launched all-flash arrays designed for small and midsized companies, which includes software for data compression, provisioning, and snapshots across various systems.[70] IT outsourcing also represents a major service provided by IBM, with more than 40 data centers worldwide.[71] alphaWorks is IBM's source for emerging software technologies, and SPSS is a software package used for statistical analysis. IBM's Kenexa suite provides employment and retention solutio ns, and includes the BrassRing, an applicant tracking system used by thousands of companies for recruiting.[72] IBM also owns The Weather Company, which provides weather forecasting and includes weather.com and Weather Underground.

Smarter Planet is an initiative that seeks to achieve economic growth, near-term efficiency, sustainable development, and societal progress,[73][74] targeting opportunities such as smart grids,[75] water management systems,[76] solutions to traffic congestion,[77] and greener buildings.[78]

Services provisions include Redbooks, which are publicly available online books about best practices with IBM products, and developerWorks, a website for software developers and IT professionals with how-to articles and tutorials, as well as software downloads, code samples, discussion forums, podcasts, blogs, wikis, and other resources for developers and technical professionals.[79] IBM Watson is a technology platform that uses natural language processing and machine learning to reveal insights from large amounts of unstructured data.[80] Watson was debuted in 2011 on the American game-show *Jeopardy!*, where it competed against champions Ken Jennings and Brad Rutter in a three-game tournament and won. Watson has since been applied to business, healthcare, developers, and universities. For example, IBM has partnered with Memorial Sloan Kettering Cancer Center to assist with considering treatment options for oncology patients and for doing melanoma screenings.[81] Also, several companies have begun using Watson for call centers, either replacing or assisting customer service agents.[82]

Apply for the appropriate position and wait for their call/mail.
If you are eligible then you'll be informed via mail having the details of the interview process and other details.
Many websites have the interview experiences of candidates which are really helpful

# About IBM

N.ISWARIYA IV Year

# IBMers value

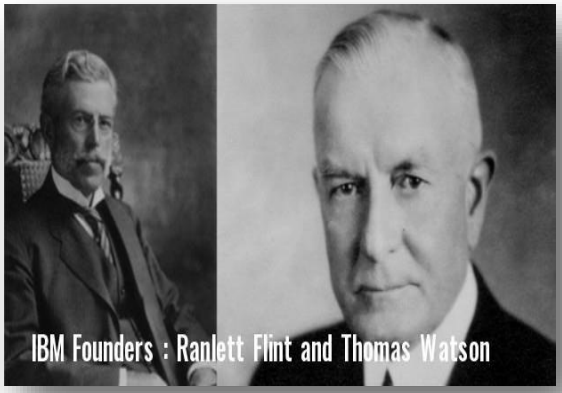
Dedication to every client's success. Innovation that matters—for our company and the world. Trust and personal responsibility in all relationships.

**A constant state of innovation**

*"Digital is the wires, but digital intelligence, or artificial intelligence as some people call it, is about much more than that. This next decade is about how you combine those and become a cognitive business. It's the dawn of a new era."*

IBM, is an analyst meeting held at Bangalore on 6 June 2005 stated that IBM's India plans are for the long term & committed to invest $6 billion in the next three years in India,triple the amount invested in the three years preceding the meeting. IBM worldwide expects its revenues to be around $120 billion by 2010, of which nearly $86 billion (68%) would come from IBM Global Services alone, with an estimate of about

200,000 employees. IBM India would account for 90,000 of these. Roughly translated, IBM's Indian employees would generate $35 billion of IBM's revenues in 2010. IBM Global Services (now split to Business Services & Technical Services) was called the **"jewel in the IBM crown"** by the Aberdeen group in 2003.




With over 435,000 employees all over the globe, IBM is ranked as the second largest firms according to Fortune. It has over 12 research labs spread worldwide that set the record of most numbers of patents, 20 years in a row. IBM has many awards and honors under its name. In terms of revenue, capitalization, market assessment and employees - IBM stands at par amongst other remotely competitive companies. Forbes, Fortune 500, Newsweek etc. has honored IBM in recognition of its service to its customer and market assessment.

IBM's instinctive style of process development and unified organizational

culture has been laid by its ex-CEO, Thomas J Watson. Watson led IBM from 1914 to 1956. During his tenure, Watson laid the firm foundation of IBM as one the strongest and the most innovative technological firm of its time. This is reflective in IBM's product and customer services. Watson died in 1956, being honored as one of the most influential and greatest salesman of his time.

**Conclusion**

IBM has proved that they are relevant to the world of the future. This after many saw them as an artifact of the past. Now, their task is to lead. They feel that there wouldn't be anything that would be nearly as much fun. If you love business - as they do - you would want to where the action is, where the marketplace is most dynamic, where the issues are the most urgent, where team creativity is at it's most intense. The most important development in the global economy at the dawn of the 21st century is going on right now, and IBM is at it's epicenter. This large, resourceful and vitally important company is truly coming into its own. They wouldn't want to be anywhere else.

# ABOUT IBM

R.DEVADHARSHINI IIIrd Year

**INTRODUCTION:**

International Business Machines Corporation is an American multinational technology company headquartered in Armonk, New York, United States, with operations in over 170 countries. The company began in 1911 as the Computing-Tabulating-Recording Company and was renamed "International Business Machines" in 1924.

**A constant state of innovation**

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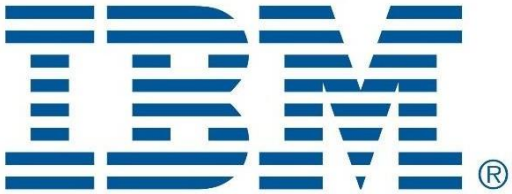


IBM, frequently referred to as "Big Blue," got its start in hardware and prospered in that business for decades, becoming the top supplier of mainframe computers. Over the years, the company shifted its focus from hardware to software and services. By the 2010s, IBM further modified its business mix to emphasize such fields as cloud-based services and cognitive computing. IBM Watson, a cognitive system, has become the company's high-visibility offering in the latter technology segment.

**IBM IN INDIA**

IBM India Private Limited is the Indian subsidiary of IBM.[3] It has facilities in Bengaluru, Ahmedabad, Delhi, Kolkata, Mumbai, Chennai, Pune, Gurgaon, Noida, Bhuvaneshwar, Coimbatore, Visakhapatnam and Hyderabad.

Between 2003 and 2007, IBM's head count in India has grown by almost 800%, from 9,000 in 2003[4] to nearly 74,000 in 2007.[5] Since 2006, IBM has been the multinational with the largest number of employees in India.[6] IBM is very secretive about the geographic distribution of its employees. By most estimates, it has close to a third of its 430,000 employees (~ 1,00000) in India, and it likely has more employees there than in the US.

IBM India is also the biggest domestic IT player in the country, replacing HCL Technologies[citation needed]. It's worthwhile to mention that Airtel, India's largest private telecom company which had chosen IBM as its strategic partner for outsourcing its entire network & IT backbone
– a deal worth about $750 million initially, has decided to renew it for another five years, reducing the order by more than half the size of the one that expired at the end of March

**CURRENT ACTIVITES:**

IBM India has now grown to an extent where it poses a stiff challenge to homegrown Software companies of India in IT global delivery and manpower attraction/retention. It now operates the following business lines from India which contributes to worldwide IBM in a global delivery framework: India Software Labs (ISL), India Research Lab (IRL), Linux Technology Center, Global Business Services(GBS), Global Technology Services (GTS) formerly known as ITD-GD (Information Technology Delivery – Global Delivery), Global Business Solutions Center (GBSC), Sales & Distribution (S&D), Integrated Technology Services (ITS).

**Growth and future initiatives:**

IBM, in an analyst meeting held at Bangalore on 6 June 2005 stated that IBM's India plans are for the long term & committed to invest

$6 billion in the next three years in India, triple the amount invested in the three years preceding the meeting.[6]

| Year | Employees |
|---|---|
| 2000 | 5001 |
| 2003 | 9,000 |
| 2004 | 23,010 |
| 2005 | 38,500 |
| 2006 | 53,000 |
| 2007 | 74,000 |
| 2008 | 94,000 |
| 2009 | 112,900 |

IBM worldwide expects it revenues to be around $120 billion by 2010, o which nearly $86 billion (68%) would come fro IBM Global Service alone, with an estimate o about 200,000 employees IBM India would account for 90,000 of these Roughly translated, IBM's Indian employees would generate $35 billion o IBM's revenues

in 2010.[8]

**Country manager:**

The head of IBM India is called a country manager. These people have headed IBM India during its history in the country.

- 1966–1976 – Alec Taylor
- 1976–1978 – T Brian Finn
- 1992–1994 – Michael Klein
- 1994–1996 – John R. Whiting
- 1996–1998 – Ravi Marwaha
- 1998–2000 – Ranjit Limaye
- 2001–2004 – Abraham Thomas, currently in IBM Singapore
- 2004–2012 – Shanker Annaswamy
- 2012–2016 – Vanitha Narayanan
- 2017- Present – Karan Bajwa

# NPTEL COURSE

ARAVIND.A (162046/III year)

NPTEL is an acronym for National Programme on Technology Enhanced Learning which is an initiative by seven Indian Institutes of Technology (IIT Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras and Roorkee) and Indian Institute of Science (IISc) for creating course contents in engineering and science. NPTEL as a project originated from many deliberations between IITs, Indian Institutes of Management (IIMs) and Carnegie Mellon University (CMU) during the years 1999-2003.

A proposal was jointly put forward by five IITs (Bombay, Delhi, Kanpur, Kharagpur and Madras) and IISc for creating contents for 100 courses as web based supplements and 100 complete video courses, for forty hours of duration per course. Web supplements were expected to cover materials that could be delivered in approximately forty hours. Five engineering branches (Civil, Computer Science, Electrical, Electronics and Communication and Mechanical) and core science program that all engineering students are required to take in their undergraduate engineering program in India were chosen initially. Contents for the above courses were based on the model curriculum suggested by All India Council for Technical Education (AICTE) and the syllabi of major affiliating Universities in India.

The copyrights are owned jointly by the MHRD, IITs/IISc and the faculty. MHRD has encouraged faculty to convert their electronic content to text books in various engineering and science subjects (which will not affect what is freely available). The rest of the issues are being studied carefully at present. Barring a few courses, the rest of the materials are likely to be distributed under a Creative Commons license in the future.

A large number of students who are unable to attend scholarly institutions, through NPTEL will have access to quality content from them. Joining/registering for an NPTEL online course is free. The videos and associated study material may also be downloaded for free. Learning from the course, submitting assignments, participating in the discussion forum is free. To write the final exam, you need to pay a nominal fee.

There is no specific eligibility criterion for any of the NPTEL online courses. The faculty of a particular course may recommend some basic knowledge of certain topics for a person to fully grasp the contents of a course. Anyone 13 years and above may join an online course. NOC stands for NPTEL Online Certification. NPTEL has started offering online certification courses through its portal https://onlinecourses.nptel.ac.in. There are 20 hour as well as 40 hour courses offered twice a year.

Depending upon the demand of students and logistics, NPTEL may offer the course again. Once the exam fee is paid, arrangements will be made for you to take the exam. Once you have registered for an exam, refunds will not be done

# TECHNICAL ARTICLE ON NPTEL

S.Y.KRITHIKA III Year

NPTEL courses are a great way to gain theoretical insight into a topic because the content of these courses are great. If you are interested in any topic, I would definitely recommend NPTEL because these are made by highly experienced professors of IIT's. On an average there are 2 hours of course material per week and an assignment at the end. So the load is just about right. If you want certification, you need to pay Rs 1000 and score greater than 40% marks in assignment + exam. Is certificate valued? Well, I see it this way. When you pay for something, you value it more. Applying for certification results in more efforts from your side. In turn, you develop your understanding much better. NPTEL project is a funded one from MHRD, Government of India. In 2003, NPTEL was initiated by MHRD (Ministry of Human Resource Development) as Distance Education Engineering Program. Many Indian students are currently benefited out of this. Forget students, you would be surprised to know, many lecturers and professors from private colleges register on NPTEL for online certification of some courses. Some go through this video lectures and understand the concepts and topics of subjects.

Even IIT students do regularly visit this site and learn these subjects. As far as content is concerned, it is same as what is taught in IIT class. However, NPTEL lectures contains material more than what is taught in class, but not less than that.

Assignments is different. In regular classes, assignments are tough than what you get here. Same is with examination.

Thus learning from NPTEL obviously broadens your theoretical and practical problems skills & concepts. You learn and understand the subjects in depth. You get a feel of a concept. You get interest in the subject. You understand the way to look at any practical problem, which is important.

# SIEMENS

**D.AMALA REENA IIIrd Year**

This edition of this Article is prepared for the convenience of English-speaking readers, is a translation of the German original. For purposes of interpretation the German text shall be authoritative and final.

## GENERAL PROVISIONS:

Siemens (the "Company"), formed as a partnership under the name Siemens & Halske in 1847, reorganized as a limited partnership in 1889 and again as a stock corporation in 1897, has its registered offices in Berlin and Munich.

1. The object of the Company is to develop, manufacture, supply, operate, distribute and trade in products, systems, facilities and solutions and to render services, as well as research and development, in particular in the areas of industry, energy, healthcare and infrastructure, including its traditional fields of electrical engineering, electronics, precision mechanics and mechanical engineering, as well as adjacent fields of activity.
2. The Company can operate in these and other areas in all information technology fields (including electronic data processing and transfer, software, platforms and self-learning systems) and render related services. Moreover, the Company can operate in the financial sector in particular through consolidated subsidiariesor associated companies (including banks and reinsurance companies) and participate directly or indirectly in enterprises and companies of any type, also to manage its own assets.
3. The Company can set up associated companies, acquire participating interests and change them
4. structurally, bring them under uniform control or may limit itself to managing the participating interest, self-participating interests and also conclude enterprise and cooperation agreements of any kind.
5. In the event of liquidation, dissolution or winding up of the Company, all corporate assets shall be distributed to all shareholders in proportion to the ownership in the capital stock held by them.

## CONSTITUTION AND ADMINISTRATION OF THE COMPANY

The governing bodies of the Company are:

- The Managing Board,
- The Supervisory Board,
- The Shareholders' Meeting.

## MANAGING BOARD:

1. The Managing Board shall consist of more than one member. The Supervisory Board shall determine the number of members of the Managing Board.
2. The Supervisory Board shall be empowered to appoint the members of the

Managing Board, to enter into contracts for their employment, and to revoke their appointment. It shall also determine the assignment of functions to the various members of the Managing Board.

3. The Company shall be legally represented by two members of the Managing Board, or by one member of the Managing Board jointly with a Prokurist1. Otherwise the Company shall be represented by Prokurists or other duly authorized signatories to the extent authorized by the Managing Board.

**SUPERVISORY BOARD:**

1. The Supervisory Board shall have twenty members, ten elected by the Shareholders' Meeting, and ten elected in accordance with the provisions of the German Codetermination Act.
2. The Supervisory Board shall elect from among its members a Chairman and a First Deputy Chairman in accordance with the provisions of the German Codetermination Act and, additionally, a Second Deputy Chairman.

**SHAREHOLDERS' MEETING:**

1. An Annual Shareholders' Meeting shall be held within the first eight months of each fiscal year.
2. The Shareholders' Meeting shall be called by the Managing Board or the Supervisory Board.

**ANNUAL FINANCIAL STATEMENTS**

1. The Managing Board shall prepare the annual financial statements and the management report as well as the consolidated financial statements and the group management report for the past fiscal year and submit them to the auditors.
2. Immediately after they have been prepared the Managing Board must submit said documents to the Supervisory Board together with the proposal for the appropriation of net income available for distribution which the Managing Board wishes to recommend to the Shareholders' Meeting.

**REQUIRMENTS:**

1. Bachelor degree or higher in Engineering for Civil, Electrical, Mechanical, or other related fields.
2. 5 years' experience in railway business or project management.
3. Understanding of project sequence requirements.
4. Good command in English.
5. Strong analysis skills.
6. Strong team player and able to properly work in multi-cultural

# BOAT (Board Of Apprentice training)

BILL JOSHUA SWAMIDOSS . D(162038)

Introduction:

An apprenticeship is a system of training a new generation of practitioners of a trade or profession with on-the-job training and often some accompanying study (classroom work and reading). Apprenticeship gives a license of practice . Most of their training is done while working for an employer who helps the apprentices learn their trade or profession, in exchange for their continued labor for an agreed period after they have achieved measurable competencies.

The National Apprenticeship Training Scheme in India is a one year program equipping technically qualified youth with practical knowledge and skills required in their field of work.. Trained Managers with well developed training modules ensure that Apprentices learn the job quickly and competently. During the period of apprenticeship, the apprentices are paid a stipend amount, 50% of which is reimbursable to the employer from Government of India. At the end of the training period the apprentices are issued a Certificate of Proficiency by Government of India which can be registered at all employment exchanges across India as valid employment experience. The apprentices are placed for training at Central, State and Private organizations which have excellent training facilities. National Apprenticeship Training Scheme is one of the flagship program of Government of India for Skilling India.

**BOAT :**

In pursuance of the recommendations of the Scientific Manpower Committee made about five decades ago, the erstwhile Ministry of Education, Government of India, initiated a `Practical Training Stipendiary Scheme' with the object of providing Practical Training to the fresh Engineering Graduates and Diploma Holders in Engineering. This scheme was directly administered by the Ministry of Education, Government of India at New Delhi, initially under this scheme, the industries/establishments, which took part on a voluntary basis, were requested to share the cost of stipend payable to the Apprentices equally. As the response from the Industries/establishments to the scheme was quite encouraging and the demand for training from the needy candidates was equally increasing, the scheme was decentralized for administration of the same to its Four Regional Offices. As the demand for training increased quite alarmingly the Government of India set up four Regional Boards of Apprenticeship/Practical Training at Chennai, Kanpur, Mumbai and Kolkata in the year 1969, as "Autonomous Bodies" having representations from the Industrial Associations and organizations, state Governments and other professional bodies. Thus the administration of the scheme was vested with these Boards with the sole object of functioning independently to provide apprenticeship training to the fresh Engineering Graduates/Technician apprentices under the provisions of the Apprentices Act, 1961 amended in 1973. The Act has once again amended in 1986 to bring the products of 10 +2 Vocational / Junior Colleges / Intermediate pass out students under the provisions of the Apprentices Act. The new category of apprentices are termed as Technician (Vocational) Apprentices.

These four Regional Boards are authorized agencies to implement the national scheme of apprenticeship training in their respective regions.

Eligibility

Graduate Apprentices:

- A degree in engineering or technology granted by a statutory university.
- A degree in engineering or technology granted by an institution empowered to grant such degree by an Act of Parliament.
- Graduate examination of professional bodies recognized by the Central Government as equivalent to a degree.
- A sandwich course student who is undergoing training in order that he may hold a degree .

Also :

- Candidate should not have undergone Apprenticeship Training elsewhere.
- Candidate should not have work experience of one year or more.
- Candidate should not have completed three years after passing of the qualifying examination

Student enrolment:

The National Apprenticeship Training Scheme (NATS) portal allows stakeholders to gain detailed information on the Apprenticeship Training Scheme (ATS), and access services provided by the Board of Apprenticeship and Training (BOAT)/Board of Practical Training (BOPT). The stakeholders such as Technical Institutions, Establishments (Central, State, and Private Sector), Candidates and Employees of BOAT/BOPT can use the portal as described below:

- **Technical Institutions** can upload information about their students and view the details related to their selection, sponsorship and placement status in different industries or establishments. They can also view details of available training slots based on subject, branch and fields.

• **Establishments** can view information on how to enroll apprentices for the training scheme, receive notifications for new training positions and recruit apprentices, manage various reports posted to BOAT/BOPT, and submit apprenticeships, contracts, and claims.

• **Employees** of BOAT/BOPT can use the portal to send a list of candidates to industries or establishments for apprenticeship training, issue Registration Numbers and certificates, display list of industries with vacancies for apprenticeship training, view details on claims reimbursement, and send all correspondence related to NATS.

• **Candidates** can use the portal to enroll for the Apprenticeship Training, receive information on available Apprenticeship vacancies and their benefits, employment news, interview tips,

and view information related to their reports and certificates

**conclusion:**

Additionally Technical Apprentices and Technical (vocational) Apprentices are also eligible to enroll and login. We should use such opportunities, to improve our skill and also to gain the working experience from trained employees.

- Enrolment can be done in the following (NATS)website**:**
  **[portal.mhrdnats.gov.in]**

# GRADUATE APTITUDE TEST IN ENGINEERING

**A.Azhagumari(152019/IV Year)**

The **Graduate Aptitude Test in Engineering** (**GATE**) is an examination that primarily tests the comprehensive understanding of various undergraduate subjects in engineering and science. GATE is conducted jointly by the Indian Institute of Science and seven Indian Institutes of Technologies at Roorkee, Delhi, Guwahati, Kanpur, Kharagpur, Chennai (Madras) and Bombay on behalf of the National Coordination Board – GATE, Department of Higher Education, Ministry of Human Resources Development (MHRD), Government of India.

The GATE score of a candidate reflects the relative performance level of a candidate. The score is used for admissions to various post-graduate education programs (e.g. Master of Engineering, Master of Technology, Doctor of Philosophy) in Indian higher education institutes, with financial assistance provided by MHRD and other government agencies. Recently, GATE scores are also being used by several Indian public sector undertakings (i.e., government-owned companies) for recruiting graduate engineers in entry-level positions. It is one of the most competitive examinations in India. GATE is also recognized by various institutes outside India, such as Nanyang Technological University in Singapore

The following students are eligible to take GATE:

- Bachelor's degree holders in Engineering / Technology / Architecture (4 years after 10+2/ Post-B.Sc./ Post-Diploma) and those who are in the final year of such programs.
- Master's degree holders in any branch of Science/Mathematics/Statistics/Computer Applications or equivalent and those who are in the final year of such programs.
- Candidates in the second or higher year of Four-year integrated master's degree programs (Post-B.Sc.) in Engineering / Technology.
- Candidates in the fourth or higher year of Five-year integrated master's degree programs or Dual Degree programs in Engineering / Technology.
- Candidates with qualifications obtained through examinations conducted by professional societies recognized by UPSC/AICTE (e.g. AMIE by iE(i), AMICE(i) by the institute of Civil Engineers (India)-iCE(i)) as equivalent to B.E./B.Tech.
- Those who have completed section A or equivalent of such professional courses are also eligible.
- There is no age limit criterion defied by the exam conducting authority to appear in GATE

Public sector undertakings (PSUs) in India, for long, have had troubles conducting their recruitment processes with more than 100,000 students taking the exams for less than 1000 jobs (a selection rate of less than 1%). After sensing the exponential rise in the number of engineering graduates in India who wish to get a PSU job, the PSUs have decided that a GATE score shall be the primary criteria for initial shortlisting. This change was the primary cause for the rapid increase in applicants for GATE 2012.

Indian Oil Corporation was the first PSU which successfully tested out this system and was followed two years later by National Thermal Power Corporation, Bharat Heavy Electricals, Bharat Electronics & Power Grid Corporation of India.

Usually these companies release their recruitment notifications right after GATE notification, indicating that candidates have to take GATE to be considered for a job in their organizations.

Unlike undergraduate admissions in India, candidates must apply individually to each institute after the institute has published its M.Tech. notification (usually in the month of March). There is no separate counselling held.

Some institutions specify GATE qualification as mandatory even for admission of self-financing students to postgraduate programs. GATE qualified candidates are also eligible for the award of Junior Research Fellowship in CSIR Laboratories and CSIR sponsored projects. Top rank holders in some GATE papers are entitled to apply for "Shyama Prasad Mukherjee Fellowship" awarded by CSIR. Some government organizations prescribe GATE qualification as a requirement for applying to the post of a Scientist/Engineer.

In recent years, various academicians have recognized GATE as being one of the toughest exams in its category. Some non-Indian universities like the National University of Singapore, Nanyang Technological University in Singapore and some technical universities in Germany also identify GATE score as a parameter for judging the quality of the candidates for admission into their Masters and Ph.D. programs. Some management institutes like NITIE, Mumbai offer admission to Post Graduate Diploma in Industrial Engineering on the basis of GATE score.

The fellowship amount is ₹25,000 (US$360) per month plus HRA (house rent allowance). In addition, contingency grant

of ₹20,000 (US$290) per annum (calculated on pro-rata basis for fraction of a year) is also provided.

# PROFESSIONAL COURSES vs OTHER FORM OF EDUCATION

**ANUJ ALDRINE G.V (162065/ III Year)**

Sixty-one percent of employers claim the skills needed for their positions have evolved, requiring a higher base level of education. What's more, 18 percent of jobs will prefer or require a master's degree by 2022.

When deciding whether to pursue your advanced degree, it's important to consider whether you want to earn a professional or academic degree. Each has its own benefits and may be relevant to you depending on your profession.

Below are the key similarities and differences when deciding between a professional and academic degree.

**Professional qualification**

Professional qualification refers to the degrees that individuals earn from a college or university that give a chance to earn their living in a profession. For example, the degree of M.D is enough for a doctor to land in a job and enter a profession that normally earns bread and butter for the person for the rest of his life. A student completing his MBA becomes eligible to enter the administrative world in many industries while a degree in law ensures a lifelong profession for the person.

**Educational qualification**

If you are looking for a job, your resume is incomplete without mention of your educational qualifications, also called academic qualifications. Even in the social world, the kind of respect a man or woman gets from others is often heavily dependent upon the degrees he/she has earned in college studies. The higher the academic qualifications, the better are the prospects of a person to achieve success in life. Better equipped persons grab more opportunities in life than persons who have lower levels of academic qualifications.

**What Can You Do with a Professional Degree?**

There are several different types of professional degrees, including:

**JD:** A Doctor is a professional degree for law. Lawyers can specialize within administrative, constitutional, criminal, or other forms of law. Lawyers can expect to earn a median salary of $118,160, with employment projected to grow six percent by 2024.

**MD:** A Doctor of Medicine is awarded to those who want to pursue fields within medicine or surgery. Those who receive an MD typically earn a lucrative salary, which varies depending on the specialization. Average earnings include:

- **Primary Care Physician:** $195,161
- **Ophthalmologist:** $277,509
- **Dermatologist:** $293,610
- **Pediatric Surgeon:** $261,590
- **Anesthesiologist:** $294,811
- **General Surgeon:** $369,866

**EdD**: A Doctor of Education combines exploratory research with comprehensive coursework for educators and professionals who want to direct and implement change at their organizations. Careers include:

- **Postsecondary Education Administrator:** $90,760
- **Elementary and Secondary School Education Administrator:** $95,390
- **Instructional Coordinator:** $62,460

**PharmD:** The Doctor of Pharmacy provides opportunities in research, teaching, clinical practice, and other areas within pharmacy. Graduates with this degree typically become:

- **Pharmacists:** $125,191
- **Pharmacy Directors:** $163,927
- **Clinical Managers:** $95,834

**What Can You Do with an Academic Graduate Degree?**

There are various academic graduate degrees you can earn to enhance your career. They include:

**Nursing:** Nurses assess patients' health, manage patient care, and advise health management and prevention. A master's degree in nursing helps students become clinical nurse leaders, nursing administrators, or nurse practitioners. Nurses make $68,450 per year on average, according to the Bureau of Labor Statistics, and there are more than 2.7 million nursing jobs available today.

**Computer Science:** A graduate degree in computer science can prepare students for a variety of careers through their study of computers and computational systems. Areas of specialization include software engineering, mobile computing, programming languages, user experience and user interface design, and computing theory. Depending on specialization, you could become a:

- **Senior Systems Engineer:** $94,761
- **Software Developer:** $85,000
- **Software Engineer:** $95,195
- **Full Stack Developer:** $110,699

**Information Systems:** An information systems degree prepares students for careers in information technology (IT) through their studies in network technology, databases, and computer security. This helps them solve organizational problems and support business operations and management. Employment of information technology professions is projected to grow 12 percent—much faster than most occupations. Careers include:

- **IT Manager:** $135,800
- **Information Security Analyst:** $92,600
- **Systems Administrator:** $79,700

**Figuring Out Your Next Move**

When taking the next step toward earning your academic or professional degree, figure out what prerequisites you need prior to applying, including what exams you need to take, such as the GRE or MCAT.

Lastly, keep in mind that your decision should be based on the value you want from your degree, whether it's to specialize in a particular field, gain more knowledge, increase your earnings, or advance into a leadership position. Make sure to take the time to evaluate your current and future career plans, and conduct the necessary research within your field to determine your best option moving forward.

# TANCET 2018

MuthuMeenakshi III Year

Tamil Nadu Common Entrance Test (TANCET) is a state level examination, conducted by Anna University for admissions to MTech/ MArch/ MPlan/ ME/MBA and MCA, in different colleges in Tamil Nadu. The exam is usually conducted in the month of June every year. The Government of Tamil Nadu have authorized Anna University for conducting the exam on behalf of the Government. The online registration for TANCET commonly begins in between March and April.

| **Exam Name** | **TANCET (Tamil Nadu Common Entrance Test) 2018** |
|---|---|
| Exam for Course Level | PG level |
| Mode | Offline only |
| Test Duration | 120 Minutes |
| No. of Test Cities | 15 *cities* in Tamil Nadu |
| Courses Offered | Multiple – MTech/ ME/MArch/ MPlan/ MBA/MCA |
| Registration Dates | April (date to be announced for 2019) |
| Exam Date | May (date to be announced for 2019) |
| Exam Helpdesk No. | 044 - 2235 8314 |
| Exam Website & Email | https://www.annauniv.edu/tancet2018/ (To be updated for 2019)<br><br>tancetenq@annauniv.edu |

**TANCET 2018 for admissions to ME/MTech/MArch/MPlan and MBA was held on May 19 while the exam for MCA was conducted on May 20.**

- MCA exam will be held in Forenoon session from 10:00 am to 12 noon
- MBA exam will be held in Afternoon session from 2:30 pm to 4:30 pm
- MTech/ MArch/ MPlan/ ME exam will be held in Forenoon session from 10:00 am to 12 noon

TANCET scores are accepted by University Departments, University Colleges of Engineering, Regional Centres of Anna University, Government and Government Aided Engineering Colleges, Arts & Science Colleges and Self-financing Colleges (Engineering, Arts & Science Colleges including stand-alone Institutions) in Tamil Nadu. Some universities and self- financing engineering colleges also accept TANCET scores.

**TANCET 2018 Eligibility**

To apply for TANCET 2018 successfully, it is important that candidates fulfills the eligibility criteria for the exam, only then he/she will be allowed to appear for the entrance test. Following is the eligibility criteria for TANCET:

1. Appearing candidates should have a recognised Bachelor's degree or equivalent in the relevant field with atleast 50 % (45 % in the case of candidates belonging to reserved category) in the qualifying degree examination.

2. He/she should have either of the following Bachelor's degree- B.E. / B.Tech. / B.Arch/ B.Pharm.

3. Candidates with a Master's Degree in the relevant branch of Science / Arts, which are prescribed, too can apply for TANCET.

4. Students with 10+2 + AMIE* (or) 10+3 years diploma (awarded by the State Board of Technical Education) + AMIE.* are eligible to appear for the entrance examination.

5. Candidates in their final semester / year of the said qualifying degree course except courses offered by Professional Institution's (like AMIE) during April/May, too can apply for TANCET.

6. Any decision on the eligibility criteria for admission to colleges in Tamil Nadu, through TANCET, completely depends on authority offering the courses. Please note that other State Candidates can also appear for the entrance test, however, the eligibility conditions is TANCET 2018 Process. The TANCET application form is common for all entrance tests (MCA/MBA/ME/MTech/MArch/MPlan). C andidates who want to apply to more than one programme, can do so by paying additional Rs 500 ( Rs 250 for SC/SCA/ST candidates belonging to Tamil Nadu) for each programme.

**Application Process**

TANCET application forms are accepted in online mode only.

**STEP 1: Application process**

Candidates can register for TANCET 2018 by logging on to the official website. The filled in downloaded application along with the required demand draft and photocopies of certificates need to be sent to The Secretary, TANCET, Centre for Entrance Examinations, Anna University, Chennai – 600 025. Demand Drafts should be drawn in favour of 'The Secretary, TANCET, Anna University, Chennai' payable at Chennai, obtained from any Nationalised bank.

**STEP 2: Admit card**

After registration process is completed, admit cards will be issued to candidates whose applications shall have been accepted. The candidates will be required to download their respective admit cards from the official website as the same will not be sent via post.

**STEP 3: TANCET exam**

TANCET will be held in the month of March. The question paper will consist MCQs from Data Sufficiency, QA, English and Business Situations. The pen and paper mode exam will be of two hours.

**STEP 4: Result and College Admission**

TANCET result will be announced on the scheduled date. The candidates can download their scorecards from the official website and seek admission to any of the colleges of their choice, accepting TANCET scores.

**Test Fees**

The test fees is Rs 500 (Rs 250 for SC/SCA/ST candidates belonging to Tamil Nadu).

**Download Hall Ticket & Mark Sheet**

1. As soon as the registration is confirmed, the candidates will receive the Application Number assigned in the Hall Ticket.
2. This number should be entered at the appropriate place in the admission application form at a later stage. Please note that the candidates shall download the hall tickets from official website of Anna University.
3. Candidates must produce the Hall Ticket at the time of Entrance Test and during the counselling process.
4. Mark sheets too can downloaded from the website by the candidates, but within 10 days from the date of results declaration. Candidates must present the mark sheet at the time of admission.
5. If a candidate loses his/her Mark Sheet or Hall Letter, a duplicate mark sheet can be obtained on payment of Rs.100/- in the form of a Demand Draft, with a written request to The Secretary, TANCET, Anna University, Chennai – 600 025.

TANCET Syllabus 2018

**TANCET 2018 Syllabus**

**Part- I Engineering Mathematics (Common to all candidates)**

**Determinants and Matrices:** Solving system of equations – Rank of the Matrix – Eigen values and Eigen vectors – Reduction of quadratic form to canonical form.

**Calculus and Differential Equations:** Partial derivatives – Jacobian's – Taylor's expansion – Maxima and Minima. Linear ordinary differential equations with constant coefficients – Simultaneous first order linear equations with constant coefficients. Formation of partial differential equation (PDE) – Solution of first order PDE – Solution of linear higher order PDE with constant coefficients.

**Vector Calculus:** Double and triple integrations and their applications – Gradient, Divergence, Curl and Laplacian – Green's, Gauss divergence and Stroke's theorem.

**Functions of Complex Variables and Complex Integration:** Analytic functions – Conformal Mapping – Bilinear transformation – Cauchy's integral theorem and integral formula – Taylor and Laurent Series – Singularities – Residues – Residue theorem and its applications.

**Transforms:** Laplace Transform – Inverse transforms – Application to solution of linear ordinary differential equations with constant coefficients. Fourier integral theorem –

Fourier transform pair – Sine and Cosine transforms. - Transform – Inverse Z– transform – Solution of difference equations using Z– transform.

**Numerical Methods:** Solution of linear system by direct and iterative methods – Interpolation and approximation – Numerical Differentiation and Integration – Solving Ordinary Differential Equations.

**Applied Probability:** Probability and Random variables – Standard Discrete and Continuous distribution – Moments – Moment generating function and their properties. Two-Dimensional Random Variables – Covariance – Correlation and Regression.

**Part- II Basic Engineering and Sciences (Common to all candidates)**

**Applied Mechanics:** Law of Mechanics – Lame's theorem – Forces, Moments and Couples – Displacement, velocity and Acceleration – Friction – Moment of Inertia.

**Mechanical Engineering:** Laws of thermodynamics – Open and closed systems – Equation of state – Heat and Work.

**Physics:** Sound – Latices – Ultrasonic flaw detector – X-ray radiography – Interference Fringes – Planck's quantum theory – Laser and Fibre Optics.

**Material Science:** Fracture – Magnetic and Dielectric materials – Conductor and Semi conductor materials – Ceramic and Super conductor materials.

**Civil Engineering:** Fluid Statics and Dynamics – Boundary Layer – Pumps and Turbines – Environmental Pollution.

**Electrical Engineering:** Ohm's law – Kirchoff's law – A.C. circuits – D.C. machines – Transformers – Synchronous machines – Instrumentation.

**Computers:** Computer organization – Architecture – Arrays – Pointers – User defined function – C program.

**Chemistry:** Adsorption – Chromatography– Chemical kinetics – Electrochemistry – Spectroscopy – Fuels and Combustion.

**Part- III**
**Electrical and Electronics Engineering (EEE):**

**Electrical Circuits and Fields:** KCL, KVL, Nodal & Mesh analysis, transient response of D.C and A.C networks; sinusoidal steady-state analysis; resonance in electrical circuits; concepts of ideal voltage and current sources, network theorems, driving point admittance and transfer functions of two port network, three phase circuits; Fourier series and its application; Gauss theorem, electric field intensity and potential due to point, line plane and spherical charge distribution, dielectric, capacitance calculations for simple configurations; Ampere's and Biot-Savart' law, inductance calculations for simple configurations.

**Electrical Machines:** Single phase transformer – equivalent circuit, phasor diagram, tests, regulation and efficiency; three phase transformer –connections; auto transformer; principles of energy conversion, windings of rotating machines; D.C generators and motors-characteristics, starting and speed control, armature reaction and communication: three phase induction motors-performance characteristics, starting and speed control; single-phase induction motors; synchronous generators – performance, regulation; synchronous motors – starting characteristics, applications, synchronous condensers; fractional horsepower motors: permanent magnet and stepper motors.

**Power Systems:** Electric power generation – thermal, hydro, nuclear; transmission line parameters; steady –state performance of

overhead transmission lines and cables and surge propagation; distribution system, insulators , bundle conductors, corona and radio interferences effects; per-unit quantities; bus admittance and impedance matrices; load flow; voltage control and power factor correction; economic operation; symmetrical components, analysis of symmetrical and unsymmetrical faults; principle of over current, differential and distance protections; concepts and solid state relays and digital protection; circuit breakers; principles of system stability –swing curves and equal area criterion; HVDC system – Principle of operation, control and design consideration, HVDC circuit breaking; FACTS - Reactive power control, Uncompensated transmission line, Series compensation, SVC, thyristor control, series capacitor, static synchronous compensator, UPFC and applications.

**Control Systems:** Principles of feedback; transfer function; block diagram; steady – state errors; stability-Routh and Nyquist criteria; Bode plots; compensation; root loci; elementarystate variable formulation; state transition matrix and response for Linear time Invariant systems.

**Power Electronics and Drives:** Semiconductor power devices-diodes, transistors, thyristors, triacs, GTO, MOSFETs and IGBTs-static characteristic and principles of operation; triggering circuits; phase control rectifiers; bridge converters-fully controlled and half controlled; principles of choppers and inverters, basic concepts of adjustable speed dc and ac drives.

**Microprocessor and Microcontrollers:** Microprocessor : General 8 bit microprocessor Architecture- 8085, 8086 processor – Architecture, Memory, I/O interfacing, Instruction set, Addressing modes, Timing diagram & delays, Machine cycles, Interrupts, counters, Assembly language programming. Microcontrollers: 8 bit microcontroller -8051 architecture, bus configuration, Instruction sets, programming & applications.

**Digital Signal Processing:** Analog signals - sampling & Aliasing- Discrete time signals & systems – LTI systems – Convolution sum-Difference equation representation-Z Transform & its Inverse – Discrete Fourier series & Fourier transform- Radix 2 FFT – Decimation in me and frequency – Inverse DFT using FFT – Analog Butterworth & Chebyshev filter design –IIR & FIR filter design and Realization.

**High Voltage Engineering:** Causes of overvoltages and its effects on power system – Lightning, switching surges and temporary overvoltages – concepts of reflections and refraction of travelling waves. Dielectric breakdown- Gaseous breakdown – Vacuum breakdown, Corona discharges – Generation of high voltage, High current and its measurements – DC, AC, impulse voltages and 17 currents; High Resistance with series ammeter – Dividers, Resistance, Capacitance and Mixed dividers – Peak Voltmeter , CVT, Electrostatic Voltmeters – Sphere Gaps – High current shunts; High voltage testing of electrical power apparatus as per International and Indian standards – Insulation Coordination.

# QUESTION PATTERN FOR VURAM TECHNOLOGY

SOWMIYA.S 152022 IV Year

## ABOUT THE COMPANY:

Vuram is an innovative initiative in providing top class technology services to companies across the globe. They specialize in providing process consulting services to companies looking to optimize their operating efficiency and streamline their operations. Their services include analysis, design and implementation of software solutions using various process tools (modelling , simulation and execution) to help companies achieve better productivity, higher efficiency and most importantly provide their employees with the right tools to get their job done better.

Specialties: Business Process Management, Process Application Development, Modeling and Simulation

| Section Name | Time Duration | No Of Questions | Marks |
|---|---|---|---|
| Aptitude and verbal | N/A | 50 | 1 |
| Technical | N/A | 10 | 1 |
| Programming | N/A | 2 | 20 |
| Essay | N/A | 1 | 5 |
| Total | 90 | 63 | |

Vuram Interview selection process involves the following rounds.

- Written Test
  1. Aptitude, Verbal test
  2. Program test
  3. Essay writing round
- Technical Interview
- Hr Interview

**Programming Questions**

- difference between get n post method
- String reverse and string concatenation program without using inbuilt functions.
- Fibonacci series , pattern printing etc
- Find the square of the number with out using inbuild function
- Print right angle triangle
- Convert decimal to the whole integer without type def concept
- Array
- String
- Multiplication without using *****
- Pattern printing
- Add the even number's in an array and display it
- Program for:
  Input=Banana
  Output=Ban

HR Question:
. HR basic questions, In both Tech rounds they expect logical, analytical and problem solving type questions.
Such as, Difference between C,C++Java and basics of C and C++.

# ABOUT CLOUD COMPUTING

K.MathuMetha IV YEAR

## INTRODUCTION:

Cloud computing is Internet-based utility computing, basically shared resources, software and information that are used by end-users hosted on virtual servers. Some people term anything beyond a companies or user's personal firewall to be in cloud. Personal computing has evolved in three phases. The first phase was where the data and application was stored on a local desktop. The second phase is where the applications reside on a local server and utility software on the desktop along with the internet to provide valuable information. The third phase is where most of the data and software will reside somewhere on the internet. Cloud providers typically use a "pay-as-you-go" model, which can lead to unexpected operating expenses if administrators are not familiarized with cloud-pricing models. Google Apps, Face book ,Gmail and Salesforce.com are example of cloud computing.

## SERVICE MODELS:

The following companies are some that have developed platforms that allow end users to accept applications centralized servers using the internet .Next to each company is the name of their platforms.1)Google(GOOG) –Apps Engine 2)Amazon.com(AMZAN)-EC2 3)Microsoft(MFST)-Windows Live etc. "Infrastructure as a service" refers to online services that provide high-level APIs used to dereference various low-level details of underlying network infrastructure like physical computing resources, location, data partitioning, scaling, security, backup etc. A hypervisor, such as Oracle Virtual BOX, Oracle VMLXD, runs the virtual machines as guests.

### PLATFORM AS A SERVICE:

In this models, cloud providers deliver a computing platform typically including operating system, programming-language execution environment, database, and web server. Application developers can develop and run their software solutions on a cloud platform without the cost and complexity of buying and managing the underlying hardware and software layers.

### SOFTWARE AS A SERVICE:

In this model, users gain access to application software and databases. Cloud providers manage the infrastructure and platforms that run the applications. SaaS is sometimes referred to as "on-demand software" and is usually priced on a pay-per-use basis or using a subscription fee. In this model, cloud providers install and operate application software in the cloud and cloud users access the software from cloud clients. Cloud users do not manage the cloud infrastructure and platform where the application runs. This eliminates the need to install and run the application on the cloud user's own computers, which simplifies maintenance and support.

### MOBILE "BACKEND" AS A SERVICE:

This model, also known as **backend as a service (BaaS)**, web app and mobile app developers are provided with a way to link their applications to cloud storage and cloud computing services with application programming interfaces (APIs) exposed to their applications and custom software

development kits (SDKs).. This is a relatively recent model in cloud computing, There are 3 types of deployment they are 1)private 2)public 3)hybrid

.

**PRIVATE:** Private cloud is cloud infrastructure operated solely for a single organization, whether managed internally or by a third-party, and hosted either internally or externally. It can improve business, but every step in the project raises security issues that must be addressed to prevent serious vulnerabilities. They have a significant physical footprint, requiring allocations of space, hardware, and environmental controls.

**PUBLIC:** Public cloud services may be free. Technically there is no difference between private and public. Generally, public cloud service providers like Amazon Web Services (AWS), Oracle, Microsoft and Google own and operate the infrastructure at their data center and access is generally via the Internet. AWS, Oracle, Microsoft, and Google also offer direct connect services called "AWS Direct Connect", "Oracle Fast Connect" such connections require customers to purchase

**HYBRID**: A hybrid cloud is an integrated cloud service utilising both private and public clouds to perform distinct functions within the same organisation. Its storage is an approach to managing storage that uses both local and off-site resources. Hybrid cloud stor**age** is often used to supplement internal data storage with public cloud storage**.**

**CONCLUSION:**

Cloud computing is changing the way IT departments buy IT. Businesses have a range of paths to the cloud, including infrastructure, platforms and applications that are available from cloud providers as online services. However, there are lot of research and investment in the area by the information technology giants like Microsoft, Google, IBM, Cisco in this area and the day is not far when the cloud will widespread adopted and all the security and privacy issues will be handled.

# ABOUT IITs

GAYATHRI A M IIIrd Year

**HISTORY:**

The history of the Indian Institutes of Technology system dates back to 1946, when sir Jogendra Singh of the vicery's executive council setup a committee whose task was to consider the creation of the higher Technical Institution for post war industrial development in India. The 22 member committee, headed by Nalini Ranjan Sarkar, recommended the establishment of these institutions in various parts of India, with affiliated secondary institutions .

First prime minister of India, Pandit Jawaharalal Nehru pioneered establishing of the Indian Institutes of Technology to provide trained technical personnel of international class to the nation who whould act as leaders in technology for the newly born independent India. The institutions were to be designed with the necessary dynamism, flexibility of organization and capacity to adapt in the light of expanding knowledge and changes in the socio-economic requirements of modern society. In the first cinvocation address of Indian Institute of Technology Kharagpur in 1956 said

"Here in the place of that Hijli Detention camp stands the fine monument of India, representing India's urges, India's Future in the making. This picture seems to me Symbolical of the changes That are coming to India"

In May 1950,the first in the series was established in kharagpur at the site of the Hijli Detention camp, where the british has incascerated political prisoners, the institution was named the 'Indian Institute of Technology' before its formal inauguration on August 18, 1951. After few dacade the number of institutions was increased gradually. At present there are about sixteen Indian Institution of Technology are there in India. Over ten institutions were established after the year 2004.

During the early years, the Indian Institute of Technology benefited in varying degrees from material assistance and academic cooperation from developed countries –IIT Bombay from the Soviet Union, IIT Madras from Germany, IIT Kanpur from the United States, and IIT Delhi from the United Kingdom. Over the years IITs have created world class educational platforms dynamically sustained through internationally recognized research based on excellent infrastructural facilities.

**EDUCATION:**

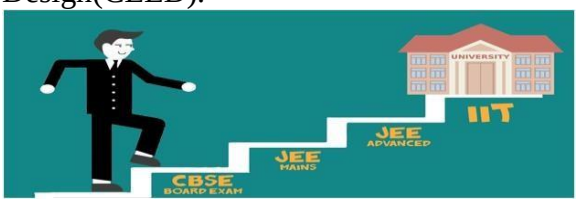
The Indian Institution of Technology mainly offer undergraduate, postgraduate and PhD programmes in various branches of engineering and science disciplines, they also have humanities and social science departments. Students are admitted into these programmes on the basis of a national level entrance examination "Indian Institution of Technology – Joint Entrance Examination (IIT-JEE)".This entrance examination is separated into two exams, they are "JEE main and JEE advanced". The JEE main and JEE advanced are considered to be toughest exams in the world. Gender imbalance is said to be out of the total admitted candidates around 92% are males, only 8% are females.

There is a reason why the JEE is considered one of the toughest examinations in India, if

not the world. The difficulty level of the papers in the exam is not the only reason through. The Sheer competitiveness of the exam owing to a massive applicants gave JEE Main; the first phase of the next exam – JEE advanced. That's qualifying rate of 18%, roughly equaling one in six candidates.

The Indian Institutes of Technology(IITs) are autonomous public institutes of higher education, located in India . As of 2018, the total number of seats for undergraduate programmes in all 23 IITs is 11,279.

M.Tech and MS admissions are done on the basis of Graduate Aptitude Test in Engineering (GATE). IITs also award other graduate degrees such as M.Sc in Maths , Physics and Chemistry, MBA, etc. Admission to these programs of IITs is done through Common Admission Test (CAT), Joint Admission Test for M.Sc(JAM)and Common Entrance Examination for Design(CEED).




The IITs receive comparatively higher grants than other engineering colleges in India. the total government funding to most other engineering colleges is around Rs.10-20 crores per year. The amount varies between Rs.90-130 crores per year for each IIT. Other sources of funds include student fees and research funding from industry and contributions from the aluminis. The cost borne by undergraduate students is around Rs.180,000 per annum.

FEW FACTS ABOUT IITs:

There are many underlying facts about IIT-Indian Institute of Technology that might be interesting.

1. This fact about IIT Roorkee is surely a great one. It is said that this campus has the highest internet speed in India.
2. IIT Kharagput let alone occupies an area of 85 SqKm which is equal to the area of vatian city and Monaco take into account thrice.
3. It is believed IIT Kanpur has its own airstrip for Aeronautical Engineering students.
4. Some of notes alumni from IIT Delhi includes Kiran Bedi, Chetan Bhagat, Sachin Bansal and Binny Bansal. The owner of flipkart Sachin and Binny Bansal, every year hire engineers from IIT to work for them.
5. The very first batch that commenced in IIT consisted only of boys. In the year 1981 a women metallurgist in Indian history graduated from IIT. And ironically in the very same year a girl was admitted in mechanical engineering at IIT Bombay for the first time.
6. IIT madras has the high numbers of students across any IIT, it has registered over 6380 out 8000 students as regular attendees at its mess in the morning which is by far the largest percentage of any college population in India to attend a breakfast as an event.
7. Shaastra is an annual festival in IIT Madras, but what makes it unique is the fact that it is the only student festival to be ISO 90012000 certified.
8. In 1975, IIT Bombay started its annual cultural festival 'Mood Indigo'. Which is deemed as Asia's largest cultural festival.

# HIGHER STUDIES IN ABROAD

JAFFRIN BANU . J IV Year

This is one of the question which almost every other student should have in their mind when they are planning for MS in US, but unfortunately very less of us are able to analyze it. We hardly think about it. Here I am going to brief about the job opportunities in India and abroad after doing ms .Job Opportunities in India after doing MS in US differs from person to person. It depends on many parameters. Firstly, Experience for example : If you are coming back with 2-3 years of experience in some good company, then you have a fair chance of getting good offers in India as well. But, don't expect that you will be paid heavily, you will still be paid with Indian standards only. Unfortunately, you will be considered as a Fresher with M.Tech Degree holder in India. Secondly Specialization ,If you are coming back with MS in CS you can easily get a job, as there are lot of IT companies. If you are coming with MS in Electrical Engineering, you again have to put lot of efforts to get an job in Core, Product based companies. These companies don't have a large base in India. Like India we have some of the top ranked universities there**.** It is very important From which University you have done your Graduation or PhD is an question which is asked across the World .Better the University, better chances you have. Anything less than Top 30-40 will not change things much. So, better choose your university wisely. If you have prior experience in India before going for MS, then you will be in better situation. You will certainly get a job if you are good. No matter whether you have experience or not, from which background/field you are, whether you are from top ranked University or not. What matters the most is your skills. Remember, there is huge difference between Indian & American Education system. You will certainly be in better position as far as Quality of Education & Exposure you will get after MS in US as compared to any other M.Tech or M.E. from India. So, I would recommend everyone to go ahead & plan for MS. There are various scholarship exams to study abroad. Given the population and the competition that prevails in our country, these exams are for the purpose of screening the candidates. Deserving candidates get the scholarships. These exams are, naturally, very competitive. The exams are conducted worldwide in order to provide opportunities to the best students to study abroad. Some of the mandatory scholarships exams to study abroad, for Indian students, are as follows:

**GRE** – Graduate Record Examination is a standardized test that is an admission requirement for many graduate schools in US and other countries.

**TOEFL** – Test of English as Foreign Language is designed to check the proficiency of the English language of students belonging to non-English countries.

**IELTS** – International English Language Testing System is an international standard exam for testing the proficiency of English language of the non-native English language speakers. It is one of the most important exams for acquiring admissions abroad.

There are various government and private organizations, and universities that offer international scholarships for Indian students who wish to pursue graduate,

postgraduate and doctoral programmes in USA. Given below is a list of international scholarships as follows

- **Stanford Reliance Dhirubhai fellowship**
- **USIEF Scholarships**
- **The India Trust Fellowship**
- **Akhtarali H. Tobaccowala Fellowship**
- **Fulbright-Nehru Fellowships**

Let me list you ***top universities for doing MS in Electrical.***

# ARTIFICIAL INTELLIGENCE IN MEDICAL FIELD

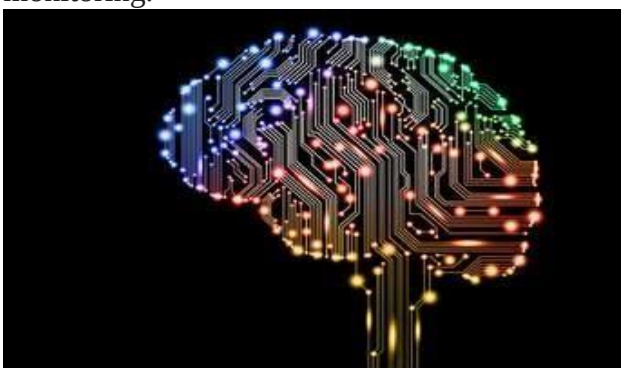
V.Kaviya (152065) IV YEAR

Introduction:

Artificial intelligence (AI)**,** the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past experience. It is an area of computer science that emphasizes the creation of intelligent machines that work and react like humans. Some of the activities computers with artificial intelligence are designed for Speech recognition, learning, Planning and Problem solving.

Artificial Intelligence in Health Care:

Artificial intelligence aims to mimic human cognitive functions. It is bringing a paradigm shift to healthcare, powered by increasing availability of healthcare data and rapid progress of analytics techniques. We survey the current status of AI applications in healthcare and discuss its future. AI can be applied to various types of healthcare data (structured and unstructured). Popular AI techniques include machine learning methods for structured data, such as the classical support vector machine and neural network, and the modern deep learning, as well as natural language processing for unstructured data. Artificial intelligence in healthcare is the use of algorithm and software to approximate human cognition in the analysis of complex medical data. Specifically, AI is the ability for computer algorithms to approximate conclusions without direct human input. The primary aim of health-related AI applications is to analyze relationships between prevention or treatment techniques and patient outcomes. AI programs have been developed and applied to practices such as diagnosis processes , treatment protocol development, drug development, personalized ,and patient monitoring.



Applications of AI in Medical Field:

AI systems have been created to analyze data , notes and reports from a patient's file, external research, and clinical expertise to help select the correct, individually customized treatment path. Wearable health trackers – like those from FitBit , Apple, Garmin and others – monitors heart rate and activity levels. They can send alerts to the user to get more exercise and can share this information to doctors (and AI systems) for additional data points on the needs and habits of patients. The most popular use of artificial intelligence in healthcare is in IBM's smart cloud, where Watson lives. The Watson platform has been used in a number of disciplines within healthcare including with payers, oncology and patient risk assessment. AI applications focus on first converting the unstructured text to machine-understandable E M R .


Artificial Intelligence and medicine:

Many companies are aware that artificial intelligence is the future of medicine and are marketing surprising and futuristic applications.

From startups to large corporations, companies often have the ability to predict the future and get one step ahead of it. They know very well that the twenty-first century has great expectations from artificial intelligence in every sector, including medicine. Artificial intelligence has already brought many transformations to the health system and has more on the way. Doctors will be assisted even more in gathering, analyzing and organizing clinical data, performing early diagnosis, planning treatments and finding better solutions for patients. Robot doctors and medical record management software are already being used on a regular basis and, more recently, vanguard projects have been launched and cutting-edge products have been placed on the market.

The diagnosis of cancer, heart failure, diabetes and adverse reactions to medicines are just some of the health sectors large IT companies have been investing more in as a result of progress made in artificial intelligence.IBM is also active in the field of healthcare with the Watson system, which has become an established unit in hospital wards as it seems to be able to diagnose heart failure two years earlier than more traditional methods.

Conclusion:

Artificial Intelligence is maturing science which have applications in different fields including medicinal services framework. Advance of counterfeit consciousness has diminished the human endeavours and at last prompts to simple and quick, practical finding of different frightful ailments. Manmade brainpower is likewise useful to watch out for the everyday schedule life. The essential part of Artificial Intelligence in patient care is quiet finding and picture examination, the future holds incredible potential for applying AI to enhance numerous parts of the patient care handle. Incredible difficulties stay because of the wellbeing information's size and intricacy; however, the AI people group is well on its approach to meeting these difficulties by growing new example recognition methods, adaptable calculations, and novel methodologies that utilization enormous amounts of wellbeing information to answer general inquiries.

# DISASTER MANAGEMENT ON PREVENTION OF KERALA LIKE FLOOD

C.ABARNA (152077) IV Year

The floods did not discriminate between people and property. Kerala was one of four other districts in the country with rains more severe than predicted in 2018. At last count, 357 people lost their lives, and the floods destroyed roughly 906400 hectares worth of crops. The cost to the state and its people stands at a staggering RS 19,512crore. Kerala has been hit with heavy rains, which have resulted in a number of landslides and even flooding in certain districts. Life in many districts has come to a standstill with many low-lying areas flooded under rainwater.


Flood water contains sewage and pathogens that may cause water-borne diseases. It is highly advised to clean and disinfect anything that has been in contact with the flood water. Thorough cleaning of one's surroundings with chlorine disinfectants is also highly recommended. Wear covered footwear, and treat any cuts- even the smallest of scratches- with antiseptic.

Access to clean drinking water becomes a primary concern during such times. Usually following rains, we tend to see a lot of cases of acute diarrheal diseases and other such gastric issues. Often times these are the result of contaminated drinking water sources. It has recommended to use boiled water before for cooking or consumption of any kind. An alternative option would be to stock up on water bottles. It has also been suggested that people keep some basic emergency supplies as well.

The Centers for Disease Control and Prevention list some of the things which should be kept in an emergency situation, including torch lights, candles, sanitary napkins and mosquito repellants. It also suggests having a basic first aid kit handy, consisting of antibiotic ointments, bandages and gauze pads at the least. A stock of electrolyte powder can also be kept to ensure that everyone stays well hydrated. In flood situations there is a lot of flowing water and there tend to be sharp objects like broken wood and glass that cause injuries and accidents is an another big threat. Wash your hands with clean water and soap as many times as you can- before and after cooking and eating, after using the toilet, before and after caring for the ill, after clearing garbage, etc.

While facing a flood situation, avoid wading through the flowing water, unless it is really necessary. Do not go out alone, take 2-3 people with you that may help in case of a sudden emergency. Do not take children with you. If you are forced to cross a flooded place, find a long stick to check the ground surface as you walk. Never drive into flooded areas. If floodwaters rise around your car, abandon the car and try moving to higher grounds. Steer clear of electric poles and broken wires, and do not park your vehicles near trees close to electric power lines. Avoid using any electrical appliances or switches until a licensed electrician has checked them- even the appliances that seemingly look okay may be damaged, increasing the risk for electric shock.

Do not touch a dead body- be it human or animal- with your bare hands. Wear a mask, or tie a towel around the mouth and nose, thick gloves are also recommended. Go inside only after opening the windows to let the fresh air inside- don't stay long if there is a foul smell. Keep the main power switch off, and do not use any candles or smoke cigarettes- there may be a gas leak in the house. Make sure the LPG cylinders are off as well. Be on the lookout for reptiles like snakes and crocodiles that may have taken shelter inside cupboards, under the bed or even the attic.

# DISASTER MANAGEMENT:
# VIEWS ON EFFECTIVE RELEIF MEASURES

N.PRIYADHARSHAN (152076) IV Year

India has been traditionally vulnerable to natural disasters on account ofits unique geo-climatic conditions. Floods, droughts, cyclones, earthquakes and landslides have been a recurrent phenomena. About 60% of the landmass is prone to earthquakes of various intensities; over 40 million hectares is prone ; about 8% of the total area is prone to cyclones and 68% of the area issusceptible to drought. In the decade 1990-2000, an average of about 4344people lost their lives and about 30 million people were affectedby disasters every year. The loss in terms of private, community and public assets has been astronomical.At the global level, there has been considerable concern over natural disasters. Even as substantial scientific and material progress is made, the loss oflives and property due to disasters has not decreased. In fact, the human toll and economic losses have mounted. It was in this background that the United Nations General Assembly, in 1989, declared the decade 1990-2000 as the International Decade for Natural Disaster Reduction with the objective to reduceloss of lives and property and restrict socio-economic damage through concerted international action, specially in developing countries.1.3 The super cyclone in Orissa in October, 1999 and the Bhuj earthquake inGujarat in January, 2001 underscored the need to adopt a multi dimensionalendeavour involving diverse scientific, engineering, financial and social processes; the need to adopt multi disciplinary and multi sectoral approach and incorporation of risk reduction in the developmental plans and strategies.

## .CYCLONE FORECASTING

Tropical Cyclones are intense low pressure systems which develop overwarm sea. They are capable of causing immense damage due to strong winds,heavy rains and storm surges. The frequency of the TC in the Bay of Bengal is4 to 5 times more than in the Arabian Sea. About 35% of initial disturbances in the north Indian ocean reach TC stage of which 45% become severe.3.2 Indian Meteorological Department (IMD) is mandated to monitor and give warnings regarding Tropical Cyclone (TC). Monitoring process has been revolutionized by the advent of remote sensing techniques. A TC intensity analysis and forecast scheme has been worked out using satellite imageinterpretation techniques which facilitate forecasting of storm surges.

## FLOOD FORECASTING

3.17 Flooding is caused by the inadequatecapacity within the banks of the riversto contain the high flow brought down from the upper catchments due to heavyrainfall. It is also caused by accumulation of water resulting from heavy spells ofrainfall over areas, which have got poor drainage characteristics

## DISASTER PREVENTION AND MITIGATION

The Yokohama message emanating from the international decade fornatural disaster reduction in May, 1994 underlined the need for an emphatic shiftin the strategy for disaster mitigation. It was inter alia stressed

that disasterprevention, mitigation, preparedness and relief are four elements which contributeto and gain, from the implementation of the sustainable development policies.These elements alongwith environmental protection and sustainable development,are closely inter related. Therefore, nations should incorporate them in their development plans and ensure efficient follow up measures at the community sub-regional, regional, national and international levels. The Yokohama Strategy also emphasized that disaster prevention, mitigation and preparedness are better than disaster response in achieving the goals and objectives of . Disaster response alone is not sufficient as it yields only temporary results at a very high cost. Prevention and mitigation contribute to lasting improvement in safety and are essential to integrated disaster management.

**PREPAREDNESS**

5.1 Mitigation and preparedness measures go hand in hand for vulnerability reduction and rapid professional response to disasters. The Bhuj earthquake inJanuary, 2001 brought out several inadequacies in the system. The search and rescue teams had not been trained professionally; specialized dog squad to lookfor live bodies under the debris were not available; and there was no centralizedresource inventory for emergency response. Although army played a pivotal role

in search and rescue and also set up their hospital after the collapse ofGovernment hospital at Bhuj, the need for fully equipped mobile hospitals withtrained personnel was felt acutely. Despite these constraints, the response was fairly well organized. However, had these constraints been taken care of beforehand, the response would have been even more professional and rapid which mayhave reduced the loss of lives. Specialist search and rescue teams from othercountries did reach Bhuj. However, precious time was lost and even with thesespecialist teams it was not possible to cover all severely affected areas as quicklyas the Government would have desired. It was, therefore, decided that weshould remove these inadequacies and be in a stage of preparedness at all times.

## CONCLUSION

Disaster Management has to be a multi- disciplinary and pro-active approach. Besides various measures for putting in place institutional and policy framework, disaster prevention, mitigation and preparedness enunciated in this paper and initiatives being taken by the Central and State Governments, the community, civil society organisation and media also have a key role to play inachieving our goal of moving together, towards a safer India. The message beingput across is that, in order to move towards safer and sustainable nationaldevelopment, development projects should be sensitive towards disaster mitigation.

# Electrical Vehicles Challengers Economical Reforms

S.L.OMNATH(152033)

**Needs for Economical reforms:**

The year 2018 will be remembered as a significant one for defining India's mobility architecture. From big ticket announcements on the marque Ahmedabad-Mumbai high-speed rail project to Hyperloop, India has seized its moment in the sun to announce big plans for finding next generation transportation solutions.

But nothing has caught the imagination of the industry and policy makers quite like the government's ambitious plans for a mass scale shift to electric vehicles (EVs) by 2030 so that all vehicles on Indian roads by then—personal and commercial—will be powered by electricity. While the transformative push for electric vehicles has become a cause célèbre for India and the world, it presents challenges along with opportunities.

With Volvo's July announcement that it would phase out the internal combustion engine and manufacture only electric or hybrid vehicles by 2019, many believe India's EV moment has arrived. It won't be long before major automakers in India follow Sweden-based Volvo's lead in phasing out internal combustion engines and electrifying their line-ups to meet the 2030 deadline.

**EVs as a storage**

The fates of solar power and electrical vehicles in India are likely to be closely interlinked, given that EVs have batteries that can offer a storage solution to India's clean energy push.

Solar power generated during the day needs to be stored in batteries. The storage capability of EV batteries could help with grid balancing, complementing the National Democratic Alliance government's push for solarpower.

With lithium battery prices having nose dived from $600 per kilowatt-hour (kWh) in 2012 to $250 per kWh in 2017, the solution is becoming economically viable. The EV industry is betting on a further drop to $100 per kWh by 2024.

"Another related emerging technology is of electric vehicles that can also double up as a storage device. Suitable application of time-of- the-day tariff mechanisms will be applied to encourage EVs to store-up renewable energy when it is available in excess of demand," according to India's draft national energy policy.

*With plans of reducing the cost of charging stations by half* to around Rs1 lakh each, comparisons are been made to the yellow coloured public call office booths which took telephony to India's remote corners in the eighties and nineties.

"By and large, we see electricity emerging as the primary source of energy," said power and new and renewable energy minister Raj Kumar Singh last month at a conference. "When we were discussing mobility, somebody was telling me that electric mobility is

more efficient than mobility by petrol or diesel. The only thing which is required is for the prices of the battery storage system to come down. So, that is a future which I see that gradually we will move towards electric mobility. Now, that will require investments in storage systems (and) in electric vehicle manufacturing," Singh added.

**Close of oil in INDIA:**

Policy think-tank Niti Aayog has recommended offering fiscal incentives to EV manufacturers and discouraging privately-owned petrol- and diesel-fuelled vehicles. These are potentially far-reaching moves for India's mobility, energy and environment needs and could spell the end of the internal combustion engine as we know it.

India's policy mandarins have also thrown their weight behind EVs, impressed by their 20 moving parts as against 2,000 in traditional petrol or dieselvehicles.

The draft national energy policy states: "EVs are an area of huge interest to India as it holds the potential of reducing the demand for liquid fuel."

"The advent of EVs will have helped curb a rise in share of oil and environment friendly gas would substitute oil in many uses," it adds

**India's plan**

State-run firm Energy Efficiency Services Ltd (EESL) has been tasked with the job of triggering early adoption of electric vehicles. The newly-created firm, which made a name for itself by reducing the price of LED lights for home lighting by 86%, floated a tender for procuring 10,000 electric cars, the largest such procurement in the world.

Tata Motors Ltd won the EESL contract, with Mahindra and Mahindra Ltd matching its bid and winning 30% of the order.

"There is a need to kick-start the market and that is what we have done with this 10,000 vehicles tender. It's a trigger in many ways," EESL managing director Saurabh Kumar said in an interview before the EV bid results weredeclared.

The vehicles will be procured at a per-unit price of Rs11.2 lakh with the aim of laying the foundation for a mass shift to EVs by 2030.

EESL's business model is to make these vehicles available on lease to the government and its agencies for around Rs45,000 per month, which is Rs5,000 less than what is currently paid for petrol and diesel cars.

Sending a clear signal that India is firmly moving towards electric vehicles, the goods and services tax (GST) Council has set a tax rate of 12% for electric vehicles, compared with 28% plus cess for petrol and diesel cars and hybrid vehicles.

KLNCE/EEE/INSPIREEE/2018/45