Dr. AKHILESH DAS GUPTA INSTITUTE OF TECHNOLOGY & MANAGEMENT

PIXION

THE IT MAGAZINE

AUG-DEC 2019

PIXION

The IT magazine

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

-Dr. APJ Abdul Kalam

A TRIBUTE TO Dr. AKHILESH DAS GUPTA

प्रेरकः सूचकश्चैव वाचको दर्शकस्तथा ।

THERE IS NO GREATER TRIBUTE TO A GURU THAN TO MAINTAIN THE HIGH STANDARDS HE LIVED BY; DR. AKHILESH DAS GUPTA'S LEGACY IS ONE SUCH THAT WILL LIVE ON THROUGH HIS EMINENT STUDENTS AND THROUGH THE BEAUTY OF HIS CHARITABLE WORK; THERE WAS AN INTENSITY THAT HE BROUGHT TO EVERY MOVEMENT AND THOUGHT HE EXPRESSED; AN INSPIRING SOUL, A VERSATILE GENIUS, A NOBLE TEACHER WHOSE IDEAS WILL LIVE FOREVER WITH HIS CHARM.

शिक्षको बोधकश्चैव षडेते गुरवः स्मृताः ॥

OUR PATRONS

Late Babu Banarasi Das Ji
(1912-1985)

Late Dr. Akhilesh Das Gupta
(1961-2017)

Mrs. Alka Das Gupta

Mrs. Alka Das Gupta

Co-founder & Chairperson

BBD Group of Education

Innovation requires passionate explorers who propel transformation at work place. With ever changing global scenario, the key to success is responding to the complex and rapidly changing issues in the world of information technology. The Department of Information Technology of ADGITM is always in making efforts to justify these points.

We impart education that is based on consciousness and we rear a breed of young minds that are bustling with self-confidence, motivation and ever ready to take up challenges. The campus, sports and academic facilities all bear testimony to this effort. In order to promote an internationally acceptable education, our key focus has been on overall development.

The proficiency in computing technology has become essential for modern day managers, business leaders, entrepreneurs and other professionals. It is a welcome development. I look forward to PIXION 2019 setting a higher pedestal!

I wish to PIXION editorial team a grand success!

Shri Viraj Sagar Das

President

BBD Group of Education

I feel so delighted to find that the path of creativity and innovation is consistently followed by the Department of Information Technology. It always encourages its students to actively participate and compete in various competitions and events to show their abilities towards the new platforms of technology.

A great part of the magazine is the fact that it brings us a bouquet of topics which are of utmost relevance and interest to all. It is a great pleasure for me to get to know of all the activities and achievements of the Department of Information Technology of Dr. Akhilesh Das Gupta Institute of Technology & Management in the form of such an interactive read.

I convey my best wishes for the success of PIXION 2019.

Mr. S.N. Garg

Chief Executive Officer
Dr. Akhilesh Das Gupta Institute of Technology & Management

Through the guidance of trained and inspired leaders, the students are taken across the gap of their present knowledge and experience and place data level of knowledge and competence that enables them to immediately step into the high standard of efficiency required in today's world of development.

We aim to cultivate talents by closely nurturing them throughout the whole programme. We are unique in terms of our programs, academic structure and core values. Our students are our assets. We develop our students to open them up in front of global scholarly endeavour. While the whole world is running after chances, it is essential to create your own opportunity.

Prof. (Dr.) Sanjay Kumar

Director

Dr. Akhilesh Das Gupta Institute of Technology & Management

In his book On Becoming a Leader, Warren Bennis wrote,"No leader sets out to be a leader. People set out to live their lives, expressing themselves fully. When that expression is of value, they become leaders. So the point is not to become a leader. The point is to become yourself, to use yourself completely - all your skills, gifts and energies - in order to make your vision manifest. You must withhold nothing. You must, in sum, become the person you started out to be, and to enjoy the process of becoming." We at Dr. Akhilesh Das Gupta Institute of Technology & Management believe in helping students to manifest their vision completely. How do we do this? We offer a rigorous education program rooted in all forms of practice, coupled with a vast array of electives and opportunities that come from our position of being affiliated to a major university. We give you the tools to continue learning and growing long after you leave our doors; we create opportunities for internships and experiences that broaden your horizons. I take this opportunity to express the fact that every effort is made to improve the existing best services to bring out the best for the welfare of our institution and the growth of our students.

Dr. Prashant Singh

HOD

Department of Information Technology

Dr. Akhilesh Das Gupta Institute of Technology & Management

Welcome to have a view of the achievements and activities of the Department of Information Technology with the help of this semester publication of PIXION.

We are proud of our strong academic programs, which are based on theoretical and practical knowledge and match well with the requirements and demands of the industry. We have been working in the field of HCI (Human Computer Interaction) which is an emerging technology. HCI researchers observe the ways humans interact with computers, and they design technologies that let humans interact with computers in novel ways. We are committed to students by offering short term courses and pre placement training classes that foster critical and analytical thinking and build the necessary skills to succeed in the industry.

I am sure in times to come, many students from our department will make indelible mark nationally and internationally in the field of Information Technology and make us proud. Thehard-working students, a young and dynamic faculty, whose expertise spans the range of disciplines in computer science stream and a very healthy work-culture, are the basic elements that comprise the Department of Information Technology.

The ADGITM Management

Ms. Pankhuri Aggarwal
Asst. Director(HR)

Dr. Yamini S.
Principal

Mr. S. N. G
CEO

Garg

Prof. (Dr.) Sanjay Kumar
Director

Mr. Dilip Singh
Sr. DY. Director (Construction)

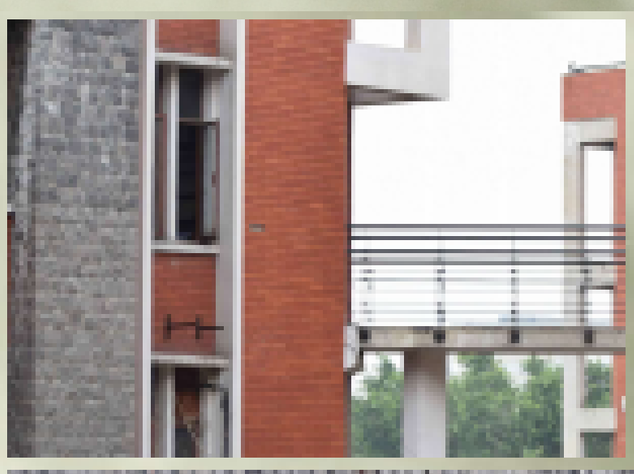
INDEX

PIXION
THE IT MAGAZINE

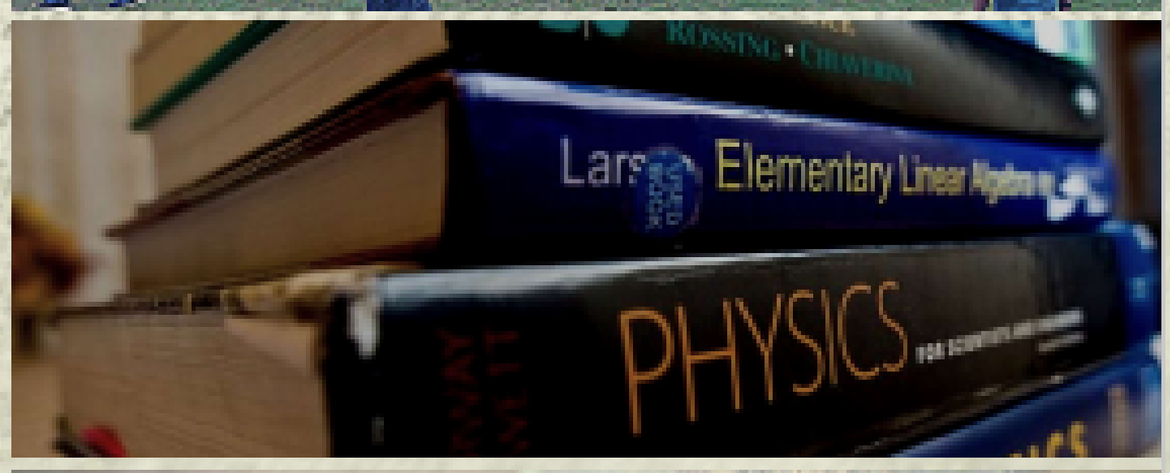
“It is the supreme art of the teacher to awaken joy in creative expression and knowledge.”

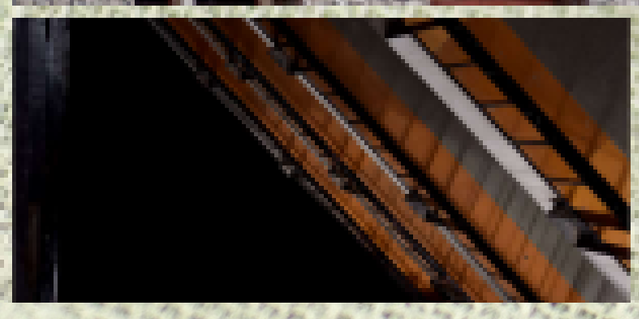
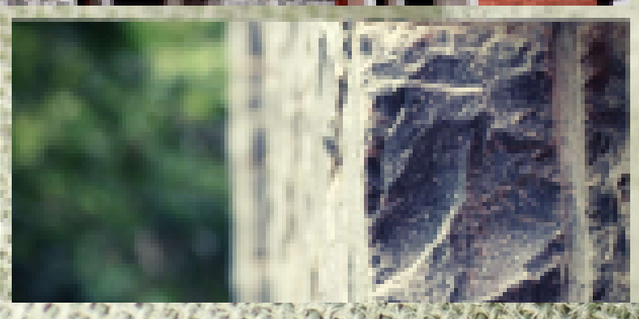
— Albert Einstein

ABOUT DEPARTMENT






"It always seems impossible until it is done."

-— Nelson Mandela

DEPARTMENT AT A GLANCE

Department of Information Technology is committed to the values of:

-Teamwork;
-Reliability;
-Professionalism & Integrity;
-Efficiency & Effectiveness;
-Innovation;
-Excellence;
-Accountability;
-Continuous Improvement & Collaboration.

Department of Information Technology, ADGITM ensures that faculty, students, and staff members have the information technology tools and infrastructure necessary to carry out the University's mission.

IT Department designs network infrastructure, installs and maintains hardware equipment and supports software environment to ensure that computers, network and internet services efficiently contribute to the learning, teaching, research, administration, and support activities for all members of the College.

The department has made rapid strides in promoting excellence in engineering education by relentless pursuit of quality in teaching and training, keeping in mind the utility of students for future assignments in industries.

The department has been achieving consistently good results. Most of the alumni have been placed in highly reputed companies in India and abroad.

Significantly, a large number of students have gone for higher studies in India and abroad.

VISION & MISSION

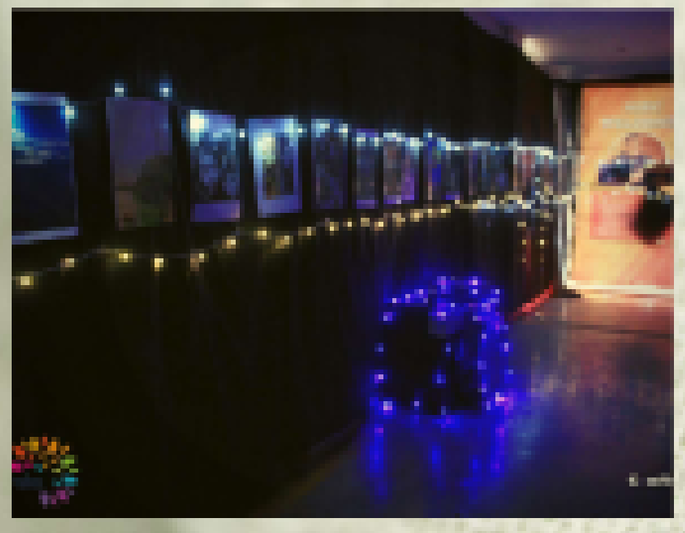
Dr. Akhilesh Das Gupta Institute of Technology & Management

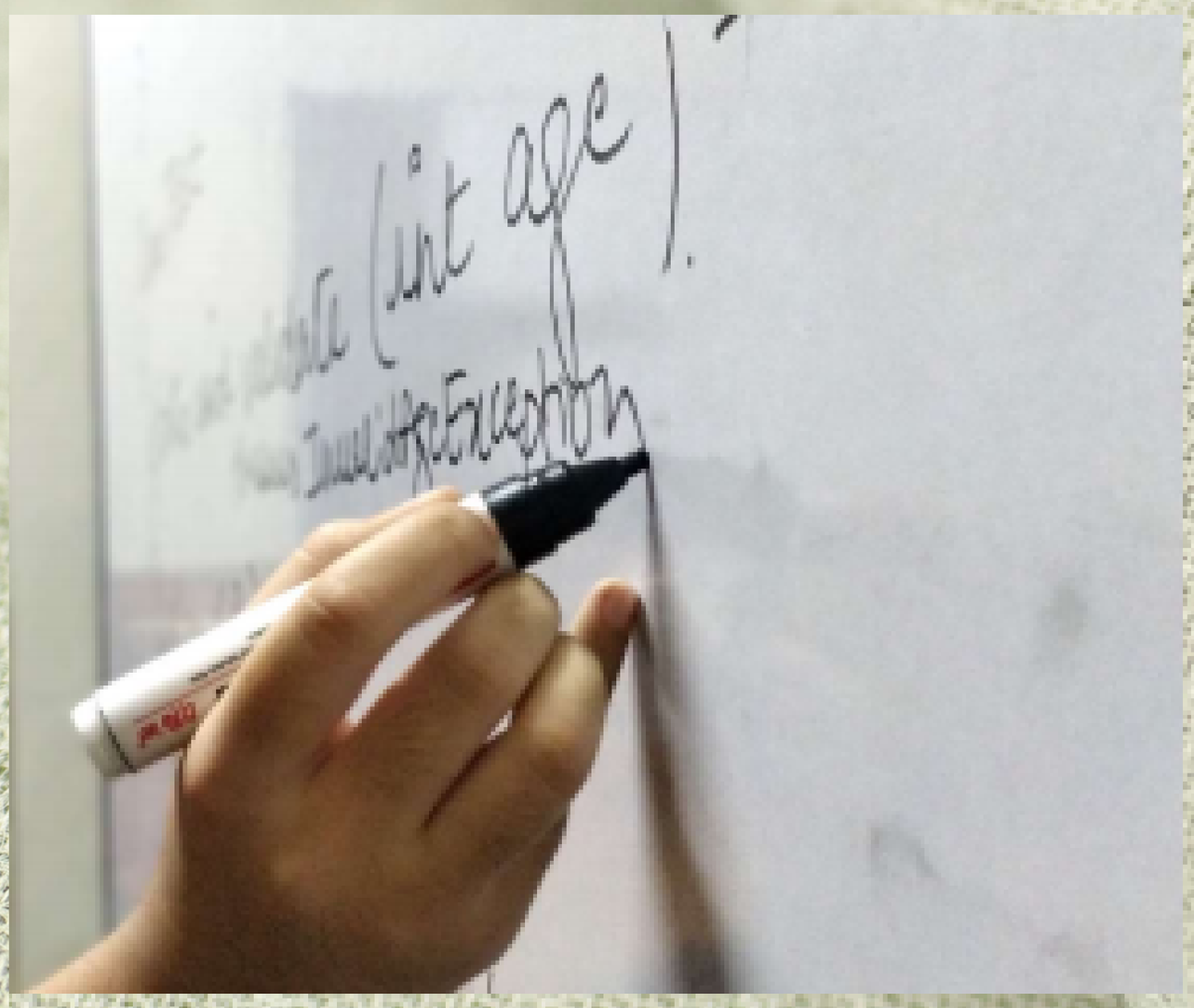
VISION	MISSION
To produce globally competent and socially responsible technocrats and entrepreneurs who can develop innovative solutions to meet the challenges of 21st century.	• To provide value-based education through multi grade teaching methodologies and modern education facilities. • To sustain an active partnership program with industry and other academic institutes with an aim to promote knowledge and resource sharing. • To conduct value-added training programme to enhance employability.

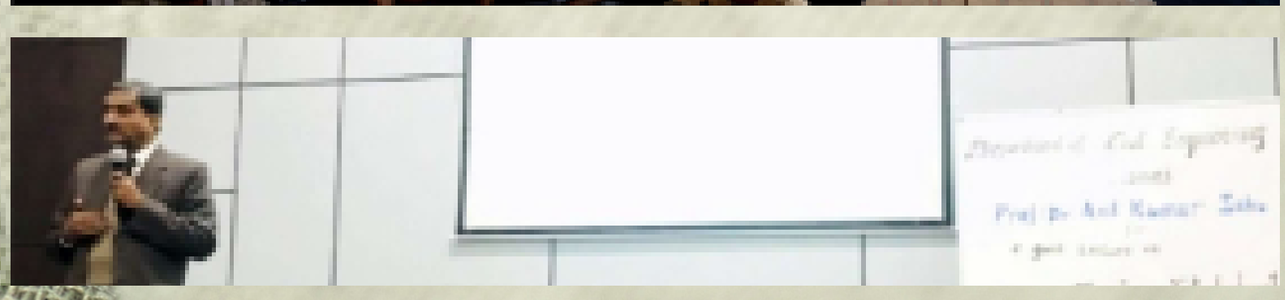
Department of Information Technology

VISION	MISSION
"To produce successful IT graduates with a strong technical background and managerial skills for promoting growth in industry and society. "	M1: To provide managerial and professional skills among the students through value added programs. M2: To provide an atmosphere where faculty and students can be engaged in continuous learning and contribute in the overall growth of the society. M3: To provide industry oriented technical environment to help students excel in diversified fields.

FACULTY SECTION







““The best way to find yourself is to lose yourself in the service of others.”

- Mahatma Gandhi

OUR MENTORS

Our faculties are renowned scholars and accomplished practitioners who are actively engaged in the academic excellence and innovative research ideas of the world.

The service of the teachers in creating personally mature, professionally equipped, independent and service oriented graduates is really worth mentioning. We strongly believe in academic excellence and do not compromise on teaching standards or discipline. These three things are the main pillars.

It has been the constant endeavor to comfort the students with all the necessary knowledge and skills. Whatever career a student may choose to take, hard work and discipline are the sure roads towards success. And the faculty of IT Department always supports students in achieving those golden ambitions and also ensure that their stay in the college is meaningful and fruitful as well.

Faculty Publications & FDPs

Dr. Prashant Singh

1. Published paper on "LBP features for classification of radiographic weld images", International Conference on Innovative Trends and Advances in Engineering and Technology (ICITAET), Shegoaon, India 2019.
2. FDP on "Image Processing and Signal Processing using Scilab", organised by NITTTR, Chandigarh from 5-9 August, 2019.

Ms. Aashita Chhabra

1. Published paper on "FITKIT Android Application", International Journal of Engineering Applied Sciences and Technology, Volume 4, Issue 4, 2019.
2. FDP on "Technical writing and research publishing using Latex (STTP)", organised by Bhartiya Vidyapeeth’s College of Engineering, New Delhi from 23-27 September, 2019.

STUDENT'S SECTION

“Do not dwell in the past, do not dream of the future, concentrate the mind on the present moment.”

-Gautam Buddha

ALUMNI SECTION

NANCY GARG
SOFTWARE ENGINEER
ALGOLABS PVT. LTD.

Started off like a muddled person, NIEC was never what I wanted, but it gave me the experiences I won't ever forget.
True friends to the mentors to the extreme exposure that lead to my clearer vision for what I want, everything helped me become a better and sorted person.
NIEC will be a big part of my venture always.

MANU NARULA
M.TECH STUDENT
USICT, GGSIPU

Starting off as an extreme introvert and shy person, ADGITM helped me transform into a more versatile and confident self.
Various societies maintained a family like presence giving space and support to grow further.
The guidance and opportunities given by the faculty in both academic and co-curricular made the college life even more fun, interesting, educative and unforgettable.

OUR RECRUITERS

DELL

Google

HCL

Infosys

FranConnect
FRANCHISING BUILT-IN™

genpact

EXL
look deeper.®

FINOIT

jaro education™
ISO 9001:2008 Certified
Blog.oureducation.in

NIIT

Motherson Sumi Systems Limited

G-CUBE

NUCLEUS SOFTWARE

naukrigulf.com
أسرع موقع للتوظيف بمولا في الخليج

sopra steria

talent assure

policybazaar.com
Compare. Buy. Save.

SONY

ZYCUS™
PROCURE PERFORMANCE

EVENTS SECTION

“Do one thing at a time, and while doing it put your whole soul into it to the exclusion of all else.”

– Swami Vivekananda

FDP on Digital Signal Processing and Image Processing using SCILAB

It was organized by Department of Educational Television Centre, NITTTR, Chandigarh from 5th August - 9th August, 2019.
The Coordinator from NITTTR was Dr. Maitreyee Dutta.
The topics covered under FDP were Scilab overview and basic commands, Digital Signal Processing, DSP Toolbox in Scilab, Linear, circular conv, correlation, Time domain and frequency response in Scilab,
Image Enhancement techniques, Scilab Programming, OpenCV, etc.
It included practice sessions as well.
It was attended by the faculty of
IT department and other departments as well.

Expert lecture on
Data Science and Machine Learning

Dated: 26th August, 2019

Venue: Department of Information Technology, Dr. Akhilesh Das Gupta Institute of Technology & Management, Delhi

Objectives: To counsel the students in the field of Data Science and Machine Learning.
Delegates: Ms.Mansi, Data Scientist from IBM.

Highlights of the lecture:

- **Introduction to Data Science and Machine Learning.**
- **Use of Data Science and Machine learning in today's generation.**
- **Scope and applications of Data Science and Machine learning.**
- **How data is managed and can be used to predict future outcomes.**
- **Job and business opportunities in this field.**
- **Languages need to be learned.**
- **Importance of Artificial intelligence.**

Outcomes of the Lecture:

Students found it quite informative. It guided the students about the job opportunities in the field of Data Science and Machine learning. It also provided the information regarding the changing scenarios in the industry.

Beneficiaries:

B. Tech Information Technology, Second Year students (S9, S10 and S19)

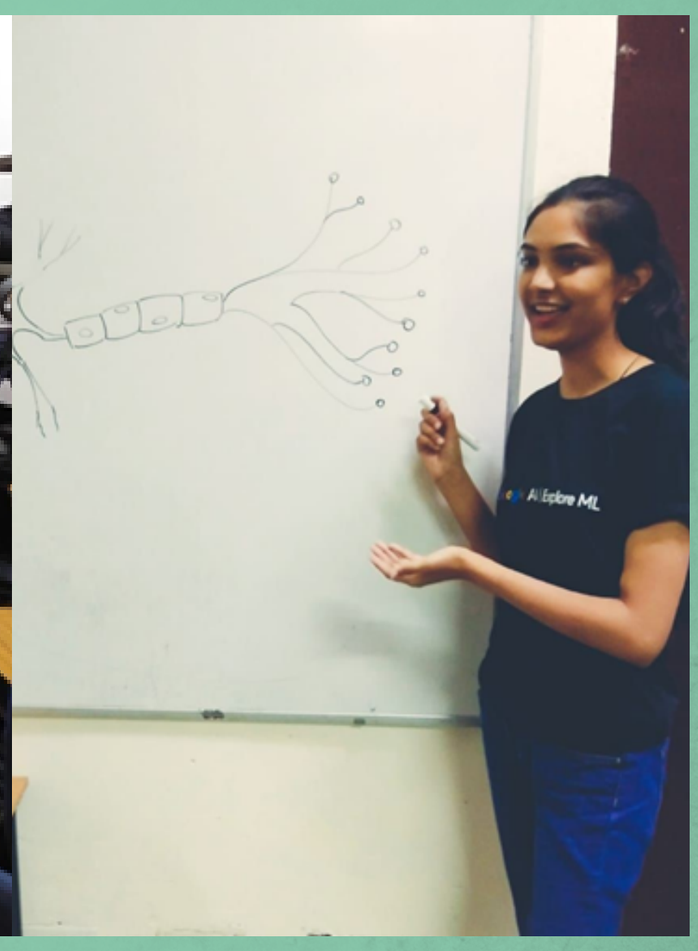
Orientation Program for First Year Students of IT department

An orientation program was organized by IT department on 28th August, 2019 and 30th August 2019 for the first year students of IT department.

On 28th August, 2019, orientation program was conducted for the I section (First Shift) students.
On 30th August, 2019, orientation program was conducted for the S section (Second Shift) students.

- **Highlights of the department were presented by Mr. Ankit Agarwal (DI) and Dr. Preety Verma Dhaka on 28th August, 2019 and 30th August, 2019 respectively.**
- **It was followed by an interactive session by Satyam Tyagi and Naman Sharma (T10 students).**
- **Next session was taken by Aman Malhotra and Lakshay Rawat (T9 students).**
- **The event was concluded by giving vote of thanks by Dr. Prashant Singh, HOD, IT and Ms. Ashu Jain & Ms. Charul Dewan (Event Coordinators).**

Workshop on Machine Learning



Dated: 6th and 9th September

Venue: Lab 2 & 3, Department of Information Technology, Dr. Akhilesh Das Gupta Institute of Technology & Management, Delhi

Objectives: ML workshop aims to expand access to Machine Learning by providing college students opportunity to build relevant and meaningful skills. These workshops are in-person, live sessions where students learn theoretical concepts and hands-on exercises.

Student Facilitator: Ms. Himanshi Jindgar (T10)
Volunteer: Ms. Taru Jain (T10)

Overview of the workshop

- **Curriculum consists of 3 tracks: Beginner, Intermediate, advanced.**
- **Theoretical principles review.**
- **Hands-on activities (practical experience)**

Outcomes of the Lecture:

Students who participated in this program:

- **Acquired foundational Machine Learning knowledge.**
- **Built a network of like-minded, passionate students excited about applications of ML.**
- **Received an end of course participation certificate.**

Beneficiaries:

B. Tech Information Technology, Second Year students (S9, S10 and S19)

Skill Development Programme for the students of Govt. Sarvodaya Bal Vidyalaya, GautamPuri

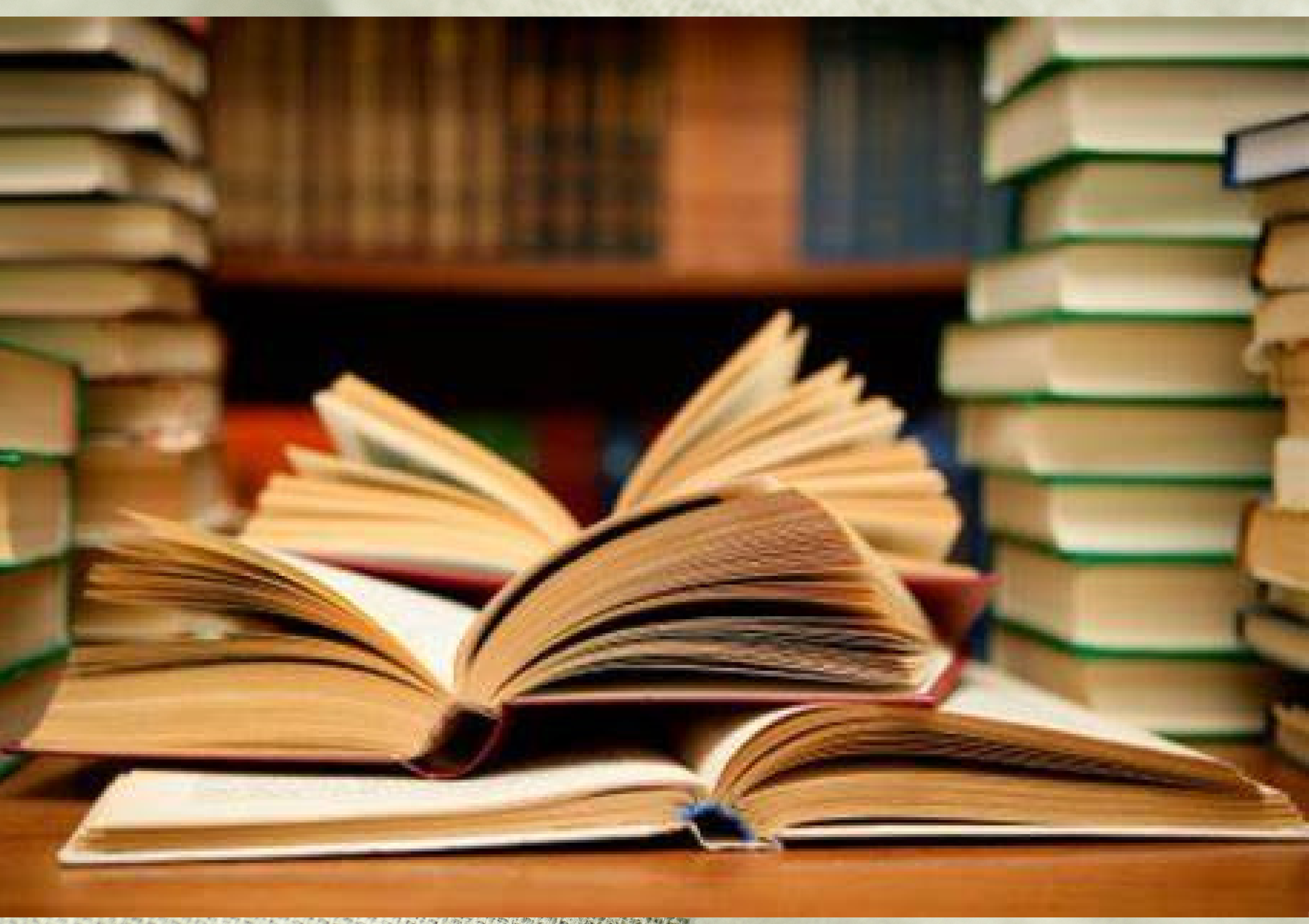
Dated: 22nd October, 2019

Venue: Department of Information Technology, Dr. Akhilesh Das Gupta Institute of Technology & Management, Delhi.

Details of the Event:

- **Students of Govt. Sarvodaya Bal Vidyalaya, GautamPuri came to ADGITM college for Skill Development Programme.**
- **It is as per scheme (Skill India Mission) under which NSQF project is being run and school has arranged an Industrial Visit for 10th class students.**
- **50 students participated in the event and this was organized by IT Department.**
- **The topic of the programme was "Introduction to Computer Hardware and Software".**
- **The session was taken by Dr. Prashant Singh (HOD, IT) and Mr. Devender Banga (Asst. Prof., IT), followed by the demonstration taken by Mr. Ved Prakash and Ms. Veena (Lab Technicians, IT)**

TECHNICAL ARTICLES



“A change is brought about because ordinary people do extraordinary things.”

-Barack Obama

Internet of things: a new way of changing world

Internet of things popularly known as IoT is an emerging platform that has changed the way of the living world. In previous times we used to hear that the internet paved the way for communication among humans that's why it was also called the internet of humans. Like in today's covid era while we are at home we can connect with our friends through millions of online social platforms like Facebook, WhatsApp, and many more. This is the internet of humans while talking about IoT as the name suggests internet of things means an innovative approach that enables communication among various electronic devices through sensors present in it. It uses many advanced technologies to facilitate communication among various devices. Talking about how it works all IoT devices have built-in sensors these sensors collect the information of the devices and the information collected via these devices is sent to a common IoT platform. These IoT platforms have built-in computer processors that act on the data collected by the IoT devices. The imported data is then used to perform a task that fulfills the needs of people. Taking a practical life example so that the idea will become more clear suppose a person Ram is a heart patient now he is at home suppose he has a band in his wrist this band is IOT compatible means it monitors each and every activity of ram now is suppose Ram feels at certain point that he is experiencing any problem in his body and let's say it's a heart attack then that wrist band will collect all the information and will share it with the nearest hospital then the doctors and hospital staff will come to know about the exact problem they will arrange the ambulance and the moment Ram will reach the hospital the hospital staff will be already aware that Ram is having a heart attack so they will begin treatment accordingly without wasting any time which may end up saving his life now comparing with other scenario where he was just at home but with no band or any other IOT compatible device now if he experience any sensation of heart attack his family members will come to know ,they will call for ambulance and then hospital staff will take time to diagnose which will consume a lot of time . This is where IoT has an edge over other devices. Every device communicates but that depends upon certain factors like distance between the devices like in the above example the wrist band in the ram's hand will send his information to the nearest hospital. Some IoT devices only send messages whereas many IoT devices both send and receive. Not only in emergencies but IoT has a lot of advantages in day-to-day life and many more areas like in farming, the sensors can collect information on rainfall humidity or soil content that would help in better farming. Including business cyber securities, these were some of the major areas where IoT is used. If I will be applied in many more areas then it will be more beneficial to the world in the upcoming future.

Ms. SHIMPY GOYAL
A.P. (IT DEPARTMENT)

IoT and Its Layered Design

Internet of Things (IoT) is an ecosystem of connected physical devices that are web-enabled. IoT imagines a future wherein advanced physical elements can be connected, by suitable methods of information and communication technologies, to empower an entirely different class of utilizations and administrations. The machine-to-machine (M2M) communication emerged the concept of IoT i.e. the communication among machines without human intervention. IoT is a network of sensors and millions of smart devices that connect systems, people, and other applications to share and collect information. M2M offers a connectivity that enables IoT. With just a limited degree of programmability and customizability, IoT systems link together highly specialized devices designed for specific purposes. We can use a term called cyber-physical systems for IoT unlike just purely cyber systems; the sensors embedded are also collecting the information from the physical world.

To connect the digital world from the physical world, IoT is equipped with a plethora of sensors and actuators. The layered architecture of IoT consists of three main layers such as the Sensing layer which consists of sensors for collecting information, Network layer where devices are connected through different standards like IPv6LoWPAN, ZigBee0, RFID, 4G/5G, and so forth. The application layer of IoT provides services to users. The concept of IoT also introduced different applications that make the physical world smarter includes smart homes, smart agriculture, and smart vehicles, smart parking, etc. Some industry analysts have surveyed it, that at present, around 8 billion devices are connected to the network and this estimate is going to increase up to 25 billion by 2020. Over the next few years, more IoT devices were found embedded in different real time- based applications. Which create the need for Real-Time synchronization for future smart IoT application? The clocks on IoT devices are much more important than we think. An IoT device adjusts its internal clock to align with the clocks of other devices in a network for communication, shows the importance of real-time synchronization between all the IoT devices at the center of many of today's IoT challenges.

The Layered Design

IoT architecture varies from application to application, based on the area of application which we intend to build. IoT platform majorly uses four main components like sensors/actuators, devices, gateway, and cloud, over which architecture is framed. The integration of these components makes the layered design of IoT with sensing, gateway, and middleware, and application layer discussed below.

(i) Sensing Layer or a hardware layer consists of sensors, actuators, RFID tags, edge processors, etc. such kinds of embedded devices for sensing and information collection of the physical world. The smart objects or other physical parameters of the physical environment are identified by the hardware devices of this layer.

(ii) Gateway Layer data received from the above layers are handled at this layer. It routes the information and also enables communication among cross platforms.

(iii) Middleware layer is an interface between the application and the hardware layer. Due to the heterogeneity of 'Things' and lack of standards, it plays a key role and provides communication between applications. It is also responsible for data and device management, semantic examination, data filtering, access control, the discovery of data like object naming services, and electronic product code data administration.

(iv) Application Layer is the topmost layer that enables the interaction between users and applications. This layer is used to provide a user interface for using IoT smart applications such as agriculture, road monitoring, pollution monitoring, healthcare, retail, public safety, smart home, etc. With the expanding development of RFID innovation, various applications are advancing which will be under the umbrella of IoT.

The implementation of IoT platforms to make things smart needs several technologies and protocols. The technologies and protocols used by different layers make the IoT devices communicate with each other. The next section gives a brief overview of IoT layers protocol and technologies used.

Ms. Monica
A.P. (IT DEPARTMENT)

IOT

Introduction
Internet of Things (IoT) has changed the traditional way of living into a high-tech lifestyle. Smart cities, smart homes, pollution control, energy-saving, smart transportation, smart industries are such transformations due to IoT.

The Internet of Things (IoT) is an emerging model that enables the communication between electronic devices and sensors through the internet to make smoother our lives. Internet of things is the connection of interrelated computing devices embedded with software, sensors, and electronics over a network to collaborate, transfer and collect data. If we take examples of our mobile phones, there are features like GPS tracking, face detection, adaptive brightness, voice detection, and many more, when they come together by interaction; they make a better system to anything which they tend to provide. In our homes, all the things like AC, locks, lights, etc can be managed on the same platform that is our mobile phone through the internet. Internet of things is the major technology these days that can help all the other technologies to reach their complete potential.
A great transformation can be observed in daily routine life along with the increasing involvement of IoT devices and technology. One such development of IoT is the concept of Smart Home Systems (SHS) and appliances that consist of internet-based devices, automation systems for homes, and reliable energy management systems. Another important feature of our life is transportation. IoT has brought up some new advancements to make it more efficient, comfortable, and reliable. Intelligent sensors, drone devices are now controlling the traffic at different signalized intersections across major cities. IoT has a lot of scopes both in terms of technology enhancement and facilitating humankind.
IoT has also shown its importance and potential in the economic and industrial growth of a developing region. Also, in the trade and stock exchange market, it is being considered as a revolutionary step.
Security of data and information is an important concern and highly desirable, which is a major challenging issue to deal with. Internet is the largest source of security threats and cyber-attacks have opened various doors for hackers and made the data and information insecure. IoT is committed to providing the best possible solutions to deal with security issues of data and information. Hence, the most important concern of IoT in trade and the economy is security.

The IoT architecture consists of five important layers that define all the purposes of IoT systems. These layers are the perception layer, network layer, middleware layer, application layer, business layer. At the bottom of IoT architecture, a perception layer exists that consists of physical devices i.e. sensors, RFID chips, barcodes, etc., and other physical objects connected in an IoT network. These devices collect information to bring it to the network layer. The network layer works as a transmission medium to deliver the information from the perception layer to the information processing system. This transmission of information may use any wired/wireless medium along with 3G/4G, Wi-Fi, Bluetooth, etc. The next level layer is known as the middleware layer. The main task of this layer is to process the information received from the network layer and make decisions based on the results achieved from ubiquitous computing. Next, this processed information is used by the application layer for global device management. On the top of the architecture, there is a business layer that controls the overall IoT system, its applications, and services. The business layer visualizes the information and statistics received from the application layer and further uses this knowledge to plan future targets and strategies.

Benefits of the Internet of things-

IoT is expanding the interdependence of people to interact and contribute, which makes it important for the existing technology in various sectors of e-government and society like healthcare, transportation, home appliances, agriculture, industrial applications, and military applications so on. The major benefits of IoT are given as follows:

1 . Efficient resource utilization-IoT can significantly improve the efficient use of smart devices and advance the harmony between artificial intelligence and the environment.

2 Minimizing human effort and time -The Internet of Things (IoT) assumes a significant role in reducing human effort. It jumps forward taking the advantage of most recent remote devices and correspondence technologies. Various applications of IoT are smart homes, smart business, security, and surveillances used for various purposes. IoT has made life simpler for both the users and the application engineers from various perspectives. With such a great amount of intelligence of the internet with the devices, innovation has been able to deal with the various task easily.

3 Development of AI through IoT- Artificial intelligence is the technology at which a framework can finish a lot of assignments or learn from data in a manner that appears to be intelligent. In this way, when artificial intelligence consciousness is added to the internet of things it implies that those devices can break down information and settle on choices and follow up on that information without contribution by people. Robots and automatic vehicles are examples of IoT. These IoT devices have sensors for gathering the data and decide an AI platform. AI technology trained the model to take the appropriate action.

4 Improved security- The greatest concern around the Internet of Things (IoT) is ensuring that systems and the information and devices associated with them are secure. Therefore, giving IoT security turns into a huge test while protecting devices from destructive assaults and unapproved access

Conclusion
Recent advancements in IoT have drawn the attention of researchers and developers worldwide. IoT developers and researchers are working together to extend the technology on a large scale and to benefit society to the highest possible level. Improvements are possible only if consider the various issues and shortcomings in the present technical approaches. Hence, there is the importance of big data analytics which can provide accurate decisions that could be utilized to develop an improved IoT system.

Ms. Priyanka
A.P. (IT DEPARTMENT)

Internet of things

Internet of things(IoT) refers to connecting billions of devices with the Internet to collect, share and analyze data. The number of IoT devices will increase thrice from 8.74 billion in 2020 to more than 30.9 billion devices by 2025. These devices are the core component of smart appliances. We can easily control lights, appliances such as TV, refrigerator, oven with our smartphones. Companies install transmitters in devices so that they can easily collect data and improve their services according to customer requirements. It will help them to know the lifespan of the project so that they can replace it before it can damage the product. From small bulbs to jets to send signals to the base station, IoT plays an important role. Autonomous cars are the hot areas where industries are competing with each other to provide customers a comfortable and safe traveling experience. IoT uses the Internet Protocol(IP) to communicate through the internet in real-time, which is more effective and reliable. It makes the system synchronize with the real environment with the help of sensors like Infrared sensors, optical sensors, thermal sensors, and many others. Starting of sprinklers are controlled by humidity sensor, closing of doors by the infrared sensor, balancing of things by gyro sensors and fire alarm by thermal one. As we are growing fast in the field of IoT, this makes a corner for hackers to extract sensitive information through various methods such as Man in the Middle attack(MITM), using hidden backdoors installed by enterprises, brute-forcing weak passwords, and exploiting debugging services. Cyberattacks have become so popular that we must ensure secures methods to protect the information. Devices are becoming smart, we must upgrade our old connections by using stronger encryption such as WPA Or WPA2 and adding firewalls to devices. The Internet of Things will continue to open up opportunities for new online threats. But we must be secure and safe to tackle these problems. We can secure the routers by adding mac addresses. The router acts as a front warrior to prevent these attacks and help us from exploiting our systems. So, keep upgrading the router’s firmware from time to time.

PRAVEEN CHAUDHARY
IT DEPT.

Internet of Things : The future of technology

The notion of linking any gadget to the Internet and other linked devices is known as the Internet of Things. The Internet of Items (IoT) is a massive network of interconnected things and people that all gather and exchange data on how they are utilized and the world around them. That includes a wide range of objects of all shapes and sizes, from smart microwaves that cook your food for the exact amount of time you specify, to self-driving cars with complex sensors that detect objects in their path, to wearable fitness devices that track your heart rate and footsteps, then use that data to endorse exercise plans tailored to you. This is a new paradigm that has shifted people's lifestyles from conventional to high-tech. Smart cities, smart homes, pollution management, energy conservation, smart transportation, and smart industries are examples of IoT-driven changes. Many important research studies and investigations have been conducted to improve technology via IoT. However, to realize the full potential of IoT, several problems and concerns must be solved. These concerns and challenges must be examined from a variety of perspectives, including applications, challenges, enabling technologies, social and environmental consequences, and so on. In many respects, the Internet of Things is fantastic. However, technology has not yet developed, and it is not completely safe. Manufacturing standards, update management, physical hardening, and user knowledge and awareness are just a few of the IoT security problems that must be solved by the whole IoT environment, from manufacturers to users. However, these issues aren't substantial enough to make us reconsider utilizing IoT. Further in some sense, the IoT is a series of creeks and rivers that feed into an ocean of big data. The technologies developed for big data and analytics can help manage the deluge of data coming in from IoT devices. Enterprises and organizations may utilize platforms, software, and apps developed by IoT-focused developers to manage their IoT devices and the data they create. The Internet of Things and big data have a strong link that will continue to grow as technology develops. Companies that want to leverage the potential of data should think carefully about the devices they use and the sorts of data they gather. Making an effort upfront to collect only meaningful, applicable data—and developing internal tools to analyze it in sector-specific ways—will make the analytics process much easier.

ARYAN SRIVASTAVA
IT DEPT.

Internet of Things (IoT)

It refers to the devices that are connected to the Internet so that they can communicate by collecting and sharing data to facilitate our lives. Devices connected to IoT can improve how we work or live. The combination of smart devices and the Internet is used to provide an innovative solution to the challenges faced in industries around the world.

In today's world IoT has had a significant effect. The IoT transfers data from sensors and devices around the world. Many industries and institutions use IoT to understand customer need in real-time, it helps in improving the system in real-time and also streamlines the process of improvement.

IoT is being used extensively in different sectors such as Retail where it records IoT data from the store and digital channels and applies analytics for real-time and understand behavior patterns and preferences.

In Manufacturing IoT connects all phases from production – supply chain – delivery. An advanced sensor of IoT is used for data analysis and predictive modeling so that performance can maximize and enhance customer satisfaction.

In Health care, it is used for continuous monitoring of patient habits and helps in diagnosing in a precise manner.

IoT has three main parts-

THINGS

It can be described as machines or other IoT devices that use embedded sensors to collect data.

NETWORKS

It is used to connect the devices(usually wireless).

SYSTEMS

It helps in streaming analytics process data, cleaning it, taking action if needed.

With all the devices collecting data using sensors and sharing it, there comes a huge risk of privacy as it observes our daily pattern. This data can be sold by a company which can harm customers in many ways such as cyber-attack etc.

With the increase in research and development, the price of sensors and communication continues to drop. So we can see more number of connected devices, as a result, our living and working environment will be filled with smart devices.

PIYUSH RAJ
IT DEPT.

EDITORIAL'S BOARD

EDITOR-IN-CHIEF

DR. PREETY VERMA DHAKA

(Associate Professer, ADGITM)

Over the last four months, the Department of Information Technology witnesses plenty of amazing news, events, and activities. In this edition, you will have the opportunity to know the departmental achievements, events, and activities. With this magazine, my team and I have tried to curate the best possible content inline all the technological advancements and how we as an Institution are trying to incorporate all the components in the day-to-day lives of not just the students but also the faculty and every person associated with us. With each page, we have tried to bring the most informative and helpful information to our readers.

To help the readers, we have also focused on one particular theme –the Internet of Things (IoT). IoT is an emerging platform that has changed the way of a living world. It is an ecosystem of connected physical devices that are web-enabled. IoT imagines a future wherein advanced physical elements can be connected, by suitable methods of information and communication technologies, to empower an entirely different class of utilizations and administrations. The theme was perfect in the sense that it is one of the most recent trends in the field of Technology.

With every page, every article, every message, and every picture we have tried to explore the intricacies of cloud computing. Thus, I hope that this theme makes sense and gives our readers a sense of encouragement and satisfaction.

Each page is the result of the hard work of the editorial team and I truly hope that you enjoy it as much as we enjoyed designing it for you!

Regards,

Dr. Preety Verma Dhaka,

Editor-in-Chief

CONTENT COMMITTEE

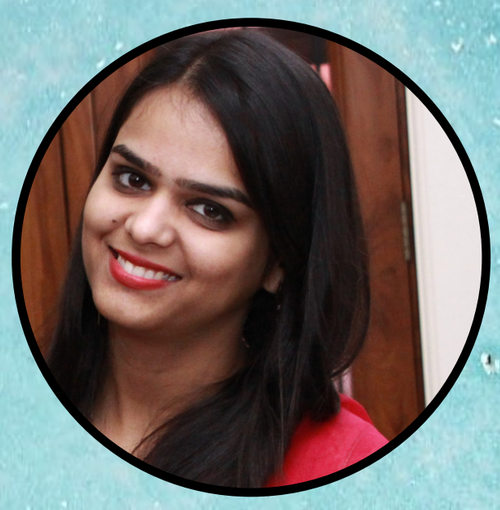
Ms. ARUSHI GUPTA
(Assistant Professor)

RADHIKA BHATIA
(Student)

SAGAR BILWAL
(Student)

SARTHAK RASTOGI
(Student)

GRAPHICS DESIGNERS



Ms. SAIJAL GUPTA
(Assistant Professor)

SWATEJ AGGARWAL
(Student)

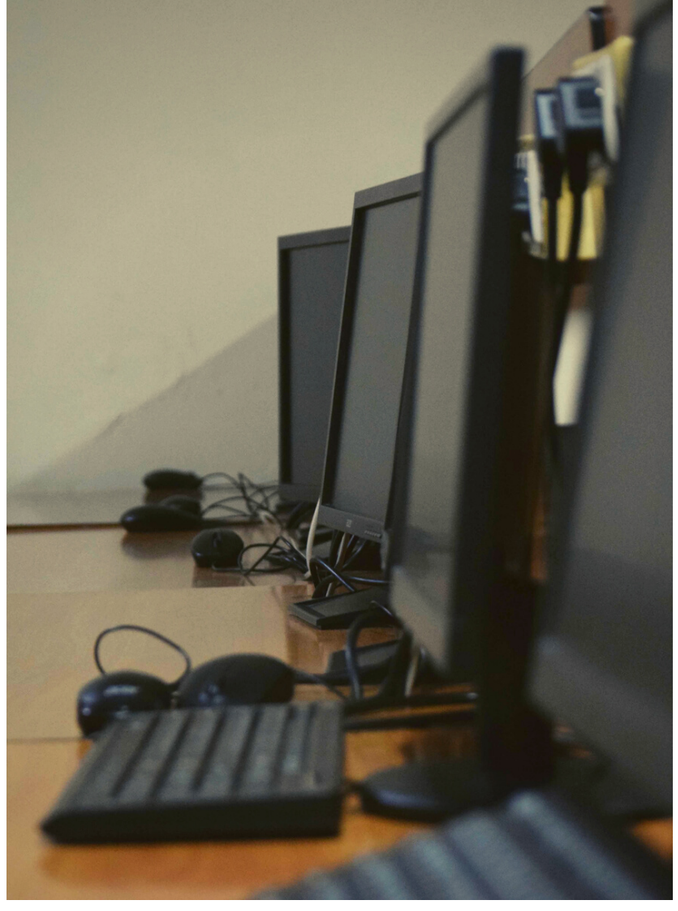
UTKARSH DUBEY
(Student)

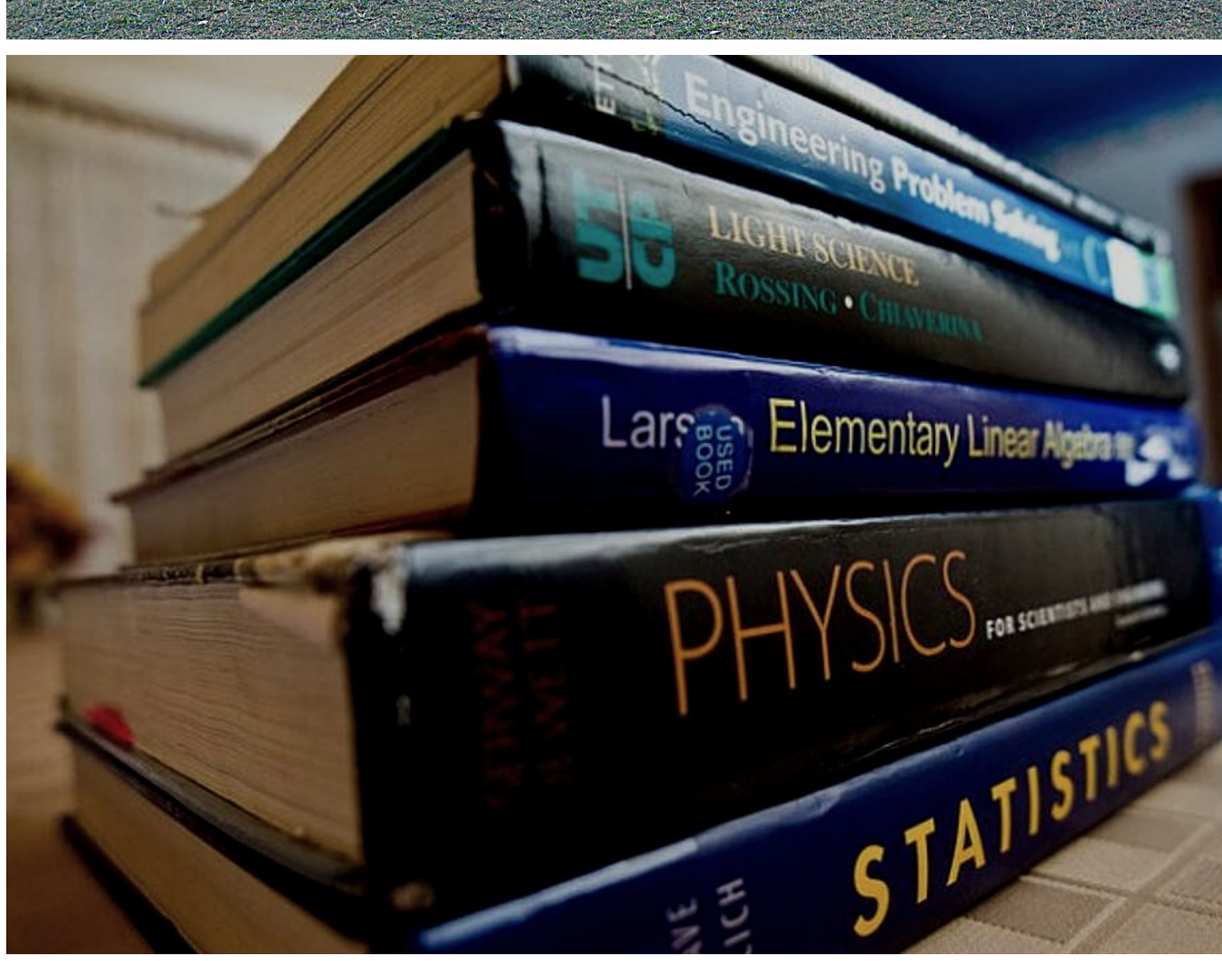
SUMANT BANSAL
(Student)

PROOF-READING & PRINTING COMMITTEE

PRANJAL MUNJAL
(Student)

PRAVEEN CHAUDHARY
(Student)




Engineering Problem Solving
LIGHT SCIENCE
ROSSING • CHIAVERINA
Elementary Linear Algebra
USED BOOK
PHYSICS
STATISTICS

PIXION

THE IT MAGAZINE

"If you want to shine like a
sun, first burn like a sun"

-APJ Abdul Kalam

Dr. AKHILESH DAS GUPTA INSTITUTE OF TECHNOLOGY & MANAGEMENT

(Formerly Northern India Engineering College)
FC-26, Shastri Park, New Delhi - 110053
Ph: +91(11) 49905900-99, 32526261-64, 22854321