K.L.N. College of Engineering

i'Storm

Department of Information Technology

SPECIAL INTEREST GROUP

LIVE WITH TECHNOLOGY

PRINCIPAL MESSAGE

It is a matter of great pride and satisfaction for K.L.N. COLLEGE OF ENGINEERING to bring out the News Letter '**I'STORM**' Released from the Department of Information Technology. The College has made tremendous progress in all areas-academic, non-academics, capacity building relevant to staff and students. The College has achieved another milestone in getting NBA (National Board of Accreditation).I am confident that this issue of Department News Letter will send a positive signal to the staff, students and the person who are interested in the Technical education and Technology based activities. A News Letter is like a mirror which reflects the clear picture of all sorts of activities undertaken by a Department and develops writing skills among students in particular and teaching faculty in general. I congratulate the Editorial Board of this News Letter who have played wonderful role in accomplishing the task in Record time. I express my deep sense of gratitude to Dr.N.Balaji, HOD/IT under whose guidance this Technical work has been undertaken and completed within the stipulated time. Also my heartfelt Congratulations to staff members and Students for their fruitful effort. With Best Wishes.

PRINCIPAL

Dr.A.V. RAMPRASAD

THE EDITOR'S DESK

It gives me immense pleasure to note that response to this newsletter of our department **i'STORM** has been overwhelming. The wide-spectrum of articles in different sections gives me a sense of pride that our students and professors possess creative potential and original thinking in ample measures. Each article is entertaining, interesting and absorbing. I applaud the contributors for their stimulated thoughts and varied hues in articles contributed by them. Commendable job has also been done by the Editorial Board in planning for and producing the Newsletter. My congratulations to the team who took the responsibility for the arduous task most effectively. I am hopeful that this small piece of technical work shall not only develop the taste for reading among students but also develop a sense belonging to the institution as well.

H.O.D (I.T)

Dr.N.Balaji

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OUR COLLEGE :

Vision

To become a Premier Institute of National Repute by Providing Quality Education, Successful Graduation, Potential Employability and Advanced Research & Development through Academic Excellence.

Mission

To Develop and Make Students Competent Professional in the Dynamic Environment in the field of Engineering, Technology and Management by emphasizing Research, Social Concern and Ethical Values through Quality Education System.

OUR DEPARTMENT:

Vision

To emerge as a centre of excellence through innovative technical education and research in Information Technology.

Mission

To produce competent information technology professionals to face the industrial and societal challenges by imparting quality education with ethical values.

Program Educational Objectives

The Educational Objectives of Information Technology Program represents major accomplishments that we expect from our graduates to have achieved three to five years after graduation. More specifically our graduates are expected.

1. *To excel in industrial or graduate work in information technology and allied fields.*

2. *To practice their professions conforming to ethical values and environmental friendly policies.*

3. *To be able to have an exposure in emerging cutting edge technologies and adapt to ever changing technologies.*

4. *To work in international and multi – disciplinary environments.*

Program Specific Outcomes

1. *Ability to apply the fundamentals of mathematics, science, engineering, information and computing technologies to identify, analyze, design develop, test, debug and obtain solutions for complex engineering problems.*

2. *Ability to select and apply appropriate modern tools and cutting edge technologies in the field of Information and communication to meet the industrial and societal requirements with public health and safety considerations.*

3. *Ability to analyze the multidisciplinary problems and function effectively in various teams for developing innovative solutions with environmental concerns and apply ethical principles in their career.*

4. *Ability to acquire leadership and communication skills to manage projects and engage in lifelong technical learning to keep in pace with the changes in technologies.*

Program Outcome

1. ***Engineering knowledge:*** *Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.*
2. ***Problem analysis:*** *Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.*
3. ***Design/development of solutions:*** *Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.*
4. ***Conduct investigations of complex problems:*** *Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.*
5. ***Modern tool usage:*** *Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.*
6. ***The engineer and society:*** *Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.*
7. ***Environment and sustainability:*** *Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.*
8. ***Ethics:*** *Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.*
9. ***Individual and team work:*** *Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.*
10. ***Communication:*** *Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.*
11. ***Project management and finance:*** *Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.*
12. ***Life-long learning:*** *Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.*

ICON OF THE MONTH

Ronil Shah:

Usually it's the graduate engineers and working professionals who prepare for the examination to be a software developer. But here is a prodigy: Ronil Shah, a standard five student of EuroSchool in Ahmedabad, has become a software developer at the age of 10.

Shah scored 100 per cent in JAVA Standard Edition 6 Programmer Certified Professional examination conducted by the US-based Oracle University. He is one of the youngest achievers from India to receive this certificate.

Shah's success story is extraordinary for other reasons as well. He completed the 2 hour 56 minutes test in 18 minutes and cleared it in the first attempt, in the online global examination held on September 22.The boy is also one of the youngest achievers to hold such a certification and secure 100 per cent marks this year. Now, aptly called a JAVA champion, Shah started learning computers when he was just four. He first learnt basics in computers, and when he was in standard one, he developed love for animation, coral draw, C, C++ in computers.

The certification course recognizes Shah as a software developer. The JAVA certification is usually undertaken by software professionals working in the field of engineering or Information Technology. Shah's fascination for programming and coding is evident as he is one of the only three 10-year-olds at his local training academy Royal Technosoft private limited institution. "His thinking and analytical skills are as developed as that of an engineer or any other software professional," Ronil's father Biren Shah told.

Ronil after learning C++ started learning JAVA in his computer institute. "He wants to learn about robotics now and if he learns well, we will take him for robotics exam in Mumbai next year as well," the senior Shah said. Ronil Shah, said, love for computers and constant practice helped him crack the difficult exam. "I developed so much love for computers that I started learning animation, coding programming after standard 1. I took holiday to practice for JAVA standard edition 6 program exam. I used to reach my computer institute to practice at11.30am and come home by 6pm. That is how I managed to complete my online exam in 18 minutes."

He said most of those who appeared for the online exam along with him were older. "I am happy with my achievements and I wish to learn more about robotics, advance JAVA, iPhone and android etc."

- P.B.Sheela Rani (2nd year)

WATER RESOURCES MANAGEMENT & DEVELOPMENT USING GIS AND REMOTE SENSING TECHNIQUES:

A detailed study of the surface and sub-surface water for integrating the entire surface and sub-surface data manually requires huge manpower and time. By adopting a Geographical Information System (GIS) platform, the result obtained will be faster and more accurate. Till recently, ground water assessment was based on laboratory investigation, but with the advent of Satellite Technology and GIS, it has become very easy and fast to integrate various databases. Remote Sensing, with its advantages of spatial, spectral and temporal availability of data covering

large and inaccessible areas within short time, has become a very effective tool in assessing, monitoring and conserving groundwater resources. Satellite data provides quick and useful baseline information on the parameters controlling the occurrence and movement of groundwater such as geology/lithology, structure/lineaments geomorphology, soils, land use/land cover and hydrological parameters etc. These parameters have to be integrated to assess groundwater. However, the conventional techniques have the limitation to study these parameters together because of the non-availability of data, integration tools and modeling techniques.

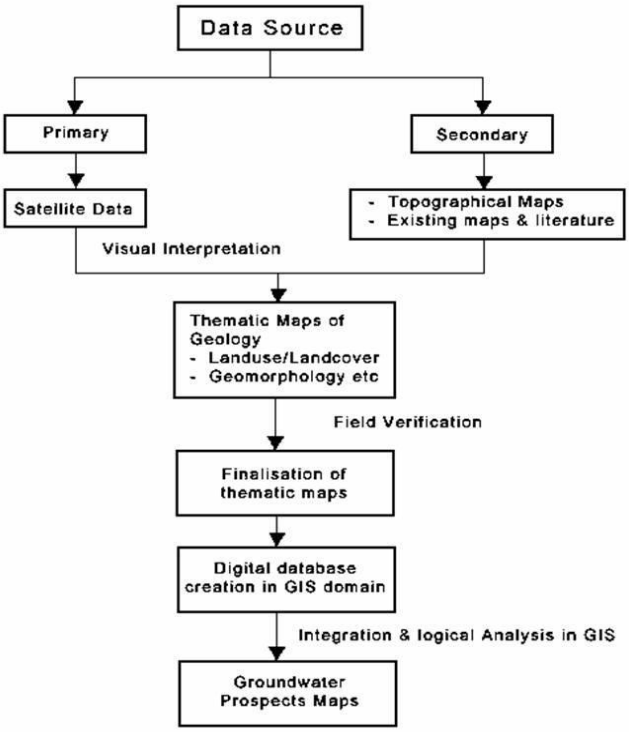
Visual interpretation has been the main tool for evaluation of groundwater prospective zones for over two decades. It has been found that remote sensing, besides helping in targeting potential zones for groundwater exploration, provides inputs towards estimation of the total groundwater resources in an area, the selection of appropriate sites for artificial recharge and the depth of the weathering area. By combining the remote sensing information with adequate field data, particularly well inventory and yield data, it is possible to arrive at prognostic models to predict the ranges of depth, the yield, the success rate and the types of wells suitable to various terrains under different hydrogeological domains.

Watershed analysis:

In most of the integrated watershed development programs, groundwater development is becoming one of the central elements for poverty alleviation. In rain fed areas, most of the water requirement is met by the groundwater. This has resulted in exploitation of the aquifers as these are not recharged. Hence, groundwater recharge and management in a watershed is an essential aspect of balanced and harmonious resource utilization. It is a need based scientific strategy and begins with the assessment of:

1. Area specific additional needs of groundwater for various activities.
2. Water availability in different locations and seasons in a micro-watershed.

The basic requirement for watershed analysis is the DEM (Digital Elevation Model). For watershed analysis Arc Hydro tools can be used.



Sequence of work to be carried out:

1. District level resource mapping creation using 1: 50,000 Survey of India sheets.
2. Digital satellite data for two seasons (i.e. Rabi and Kharif cropping seasons) for land cover mapping and updating the information/data.
3. Digital Image processing of satellite data using standard software packages (which includes data merging, enhancement of relevant features, digital classification and conversion to thematic maps) which brings the processed data into GIS environment for water resource mapping from satellite imagery.
4. By combining the remote sensing information with adequate field data, based on the status of water resources development and irrigated areas (through remote sensing), artificial recharge structures such as check dams, nala bunds

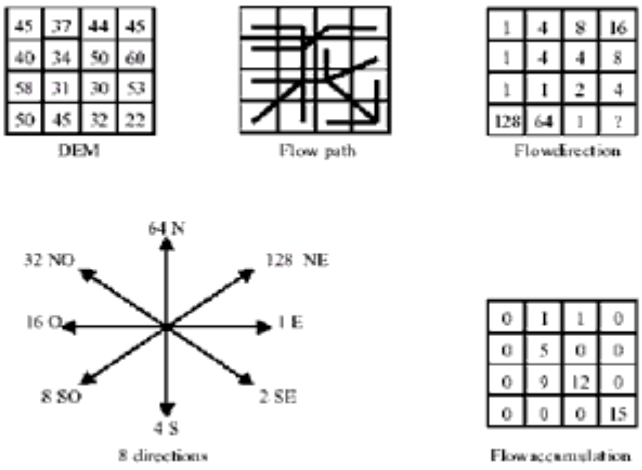
etc. are recommended upstream of irrigated areas to recharge downstream areas so as to augment groundwater resources.

The satellite images are geo referenced. By mapping, geometric distortions of the image are removed and they are changed to spatial database coordinate system. Digital enhancement techniques can be used to improve the features such as sharpness and contrast for simple interpretation along with visual interpretation techniques.

Arc hydro software is used to represent data from hydrology and hydrography. This creates a basis for deeper understanding of surfaces water systems. The Arc Hydro tools are a set of utilities developed on top of the Arc Hydro data model. They operate in the ArcGIS environment. Some of the functions require the Spatial and 3D Analyst extensions. Two major functions, which have been used in the creation of database for watershed analysis purpose, are 'Terrain Pre-processing' and 'Watershed Processing'.

Terrain Pre-processing:

The purpose of terrain pre-processing is to perform an initial analysis of the terrain and to prepare the dataset for further processing. A Digital Elevation Model (DEM) of the study area is used as input for terrain pre-processing.



The following functions, in order, are involved in terrain pre-processing:

1. Watershed processing
2. Groundwater Exploration
3. Existing data acquisition
4. Data Integration.

- **C.V.Shanthi (2nd year)**

BLUESNARFING

Bluetooth has holes in its implementation and in its marketing, and the sooner its cavities are filled, the sooner it can realize its sizable potential. Today the numbers of Bluetooth devices are vulnerable to "bluesnarfing", in which data can be stolen from a phone without the owner's knowledge. Bluetooth that lets an attacker download all contact details along with other information from a vulnerable phone, while leaving no trace of the attack.

Now companies are aware of "security issues" relating to Bluetooth a device that "makes it possible to download and modify phone book, calendar and other information on the phone without the owner's knowledge or consent, if Bluetooth is turned on. "The bluesnarf attack takes advantage of gaps in the way that certain phones implement Bluetooth's security model, enabling malicious parties to lift data stored on the phones without detection.

Firstly, confidential data can be obtained, anonymously, and without the owner's knowledge or consent, from some bluetooth enabled mobile phones. This data includes, at least, the entire phonebook and calendar, and the phone's IMEI.

Secondly, it has been found that the complete memory contents of some mobile phones can be accessed by a previously trusted ("paired") device that has since been removed from the trusted list. This data includes not only the phonebook and calendar, but media files such as pictures and text messages. In essence, the entire device can be "backed up" to an attacker's own system.

Thirdly, access can be gained to the AT command set of the device, giving full access to the higher level commands and channels, such as data, voice and messaging. This third vulnerability was identified by Martin Herfurt, and they have since

started working together on finding additional possible exploits resulting from this vulnerability.

Finally, the current trend for "Bluejacking" is promoting an environment which puts consumer devices at greater risk from the above attacks.

Vulnerabilities:

Bluetooth is a relatively complicated protocol that accomplishes a fairly unglamorous task. The Bluetooth security model is complex. It lets users set devices to be discoverable to other Bluetooth units; it provides for device pairings with PIN authentication; and it manages ongoing trust relationships between devices. Mobile phones have rather limited user-interface possibilities, particularly as they relentlessly continue to shrink in size. Because of this, implementing Bluetooth security well on handsets requires quite a bit of cleverness. While the potential for security vulnerabilities is certainly worrisome, it's not the biggest barrier to wider Bluetooth-enabled handset adoption.

The SNARF attack:

It is possible, on some makes of device, to connect to the device without alerting the owner of the target device of the request, and gain access to restricted portions of the stored data therein, including the entire phonebook, calendar, real time clock, business card, properties, change log, IMEI. This is normally only possible if the device is in "discoverable" or "visible" mode, but there are tools available on the Internet that allow even this safety net to be bypassed.

Unlike bluejacking, which is where users can send a message to Bluetooth phones without authorization, this latest discovery for the wireless-data standard allows data, such as telephone numbers and diary entries, stored in a vulnerable device to be stolen by the attacker. The new exploit is called bluesnarfing. The bluesnarf attack would not only be possible, but it would also allow the attacker's Bluetooth device to "read the data on the attacked device and also send SMS messages and browse the Web via it."

The BACKDOOR attack:

The backdoor attack involves establishing a trust relationship through the "pairing" mechanism, but ensuring that it no longer appears in the target's register of paired devices. In this way, unless the owner is actually observing their device at the precise moment a connection is established, they are unlikely to notice anything untoward, and the attacker may be free to continue to use any resource that a trusted relationship with that device grants access to. This means that not only can data be retrieved from the phone, but other services, such as modems or Internet, WAP and GPRS gateways may be accessed without the owner's knowledge or consent. Indications are that once the backdoor is installed, the above SNARF attack will function on devices that previously denied access, and without the restrictions of a plain SNARF attack, so we strongly suspect that the other services will prove to be available also.

The BLUEBUG attack:

The bluebug attack creates a serial profile connection to the device, thereby giving full access to the AT command set, which can then be exploited using standard off the shelf tools, such as PPP for networking and gnokii for messaging, contact management, diverts and initiating calls. With this facility, it is possible to use the phone to initiate calls to premium rate numbers send sms messages, read sms messages, connect to data services such as the Internet, and even monitor conversations in the vicinity of the phone. This latter is done via a voice call over the GSM network, so the listening post can be anywhere in the world. Bluetooth access is only required for a few seconds in order to set up the call. Call forwarding diverts can be set up, allowing the owner's incoming calls to be intercepted, either to provide a channel for calls to more expensive destinations, or for identity theft by impersonation of the victim.

Bluejacking:

"Bluejacking" has recently come to the fore in the consumer arena, and is becoming a

popular mechanism for exchanging anonymous messages in public places. The technique involves abusing the bluetooth "pairing" protocol, the system by which bluetooth devices authenticate each other, to pass a message during the initial "handshake" phase. This is possible because the "name" of the initiating bluetooth device is displayed on the target device as part of the handshake exchange, and, as the protocol allows a large user defined name field - up to 248 characters - the field itself can be used to pass the message.

The problem lies in the fact that the protocol being abused is designed for information exchange. The ability to interface with other devices and exchange, update and synchronize data, is the raison d'être of bluetooth. The bluejacking technique is using the first part of a process that allows that exchange to take place, and is therefore open to further abuse if the handshake completes and the "bluejacker" successfully pairs with the target device. If such an event occurs, then all data on the target device becomes available to the initiator, including such things as phone books, calendars, pictures and text messages.

- P.U.Vishali (2nd year)

SECURITY CHALLENGES IN CLOUD COMPUTING

Security is one of the largest concerns for the adoption of Cloud Computing. We outline seven risks a Cloud user should raise with vendors before committing.

Privacy:

Today, security and privacy may represent the biggest risks to moving services to external clouds. The advantages of cloud computing—flexibility, easy-to-use service abstractions, and shared infrastructure—also introduce the concern that people may use cloud computing in a way that puts the information and intellectual property at risk.

Consumers:

- Read the Terms of Service before placing any information in the cloud. If you don't understand the Terms of Service, consider using a different cloud provider.
- Don't put anything in the cloud you would not want the government or a private litigant to see.
- Pay close attention if the cloud provider reserves rights to use, disclose, or make public your information.

Business or Government:

- Beware of "ad hoc" cloud computing. Any organization should have standardized rules in place telling employees when and if they may utilize cloud computing and for what data.
- Don't put anything in the cloud you wouldn't want a competitor, your government, or another government to see.
- Read the Terms of Service. Then read the Terms of Service again. Make sure that you are not violating any law or policy, by putting data in the cloud, and think twice before putting any consumer data in the cloud.
- Consult with your technical, security or corporate governance advisors about the advisability of putting data in the cloud.

Data security:

- Customers should gain as much information as possible about the likely third parties that may potentially access the data in order to ensure that they are fulfilling their obligations as data controller. The nature of cloud computing means that many third parties may access the data across a number of jurisdictions.
- Customers should obtain warranties from the service provider as to the treatment of personal data processed within the cloud.
- Customers should seek an independent security audit of the service provider and ensure adequate ongoing audit rights.

- Customers should aim to set out their own security policy surrounding data and have the service provider agree to that where possible.

Location of the data:

Customers will need to be aware that local laws may apply to the data held on servers within the cloud. Without knowing the authority where the data may be sent, it will be difficult to do this. In practice, unless the service provider will commit to using a specific geographic region, the customer will take some risk.

Recovery:

It is important that the Cloud provider has an efficient replication and recovery mechanism to restore data if a disaster occurs. Cloud services are especially difficult to investigate, if this is important for a customer, then such support needs to be ensured with a contractual commitment.

Long-term viability:

Your data should be viable even the Cloud provider is acquired by another company.

- B.Sathyajothi (2nd year)

PROJECT SUMMARY

Gesture Control Using Co-ordinate Mapping Methodology:

As we started to produce fire from the old age, now we are even capable of making our own facilitated world. Being a part to that we started make use hand gestures .We are all familiar with that too, because humans usually uses the hand gestures to convey their messages effectively. In our date-to-date life gestures plays an vital role, each and every persons can do it, so it won't be a difficult one to do, that's why we planned to make use of .Now INTERNET OF THINGS is one of the hot topic, peoples wants to control each everything of this world through their die-heart companion MOBILE PHONE .As the seconds are dropping frequently technology developers are involved to enhance the concept of IOT they redefined the term INTERNET OF THINGS into INTERNET OF EVERTHING (IOE), in which they are trying to get the raw data from a real world objects rather than getting it from the users ,for example using IOE we can interact with a tree. Simply making use of everything in our environment to create a fully facilitated modern world, while peoples are engaged in making use of every real world entity, why we can't make use of our hands? Controlling our surrounding environment with our hands itself will feel awesome. Thus we are tends to control the fans, lights and other such electrical instruments, because we can modify the accessibility of every electronic things to the core. But it's too hard to control the electrical things through our hands.

The whole concept is about controlling the electrical things through the hand gestures, thus we can able access any of electrical machines wirelessly by simply drawing the hand gestures in air itself. Hence it won't be needed to having connected to Internet or even any mobile devices.

- -M.R.Arun Kumar
S.Amal Leo
(3rd year)

MICROSOFT HOLOLENS

Microsoft HoloLens is the first holographic computer running Windows 10. It is completely untethered–no wires, phones, or connection to a PC needed. It allows you to pin holograms in your physical environment and provides a new way to see your world. Its features see-through, holographic, high-definition lenses and spatial sound so you can see and hear holograms in the world around you. Complete with advanced sensors and a new Holographic Processing Unit (HPU) that understands the world around you, it is able to run without any wires while processing terabytes of data from the sensors in real-time. It is a sleek, flashy headset with transparent lenses. You can see the world around you, but suddenly that world is transformed with 3dimensional objects floating in midair, virtual screens on the

wall and your living room covered in virtual characters running amok. Microsoft HoloLens is not actually producing 3 dimensional images that everyone can see. Microsoft goggles show images only the wearer can see. Everyone else will just think you're wearing goofy-looking glasses. The head piece tracks eye movements, then let wearers use a simple finger flick to interact with whatever they focus on. Replacing a light switch became a collaborative effort, as one individual with a tablet computer guided the job, overlaying arrows or notes that floated in the air. The room was then converted into an extension of the building-block themed game Minecraft, with castles on floors and table tops. With voice commands and taps of the finger, a wearer built or destroyed, and sometimes vanquished zombies. The Microsoft headgear even became a tool for designing virtual toys then made real using a 3D printer. HoloLens also promises scintillating integration with video games, and Microsoft has a broad and devoted fan base for Xbox consoles. The holograms you'll see with Microsoft HoloLens can appear life-like, and can move, be shaped, and change according to interaction with you or the physical environment in which they are visible. There isn't a screen to touch or a mouse to click. Use gestures to create, shape, and size holograms. Use your gaze to navigate and explore. Use your voice to communicate with your apps. Microsoft HoloLens understands your movements, gaze, and voice, enabling you to interact with content and information naturally. Using holograms, you can pin your digital content, such as apps, information, and even multi-dimensional videos, in the physical space around you, so you can interact with them in the same ways that you interact with physical objects.

R.Sivashankari (3rd year)

TREATING TUMOR WITH NANOPARTICLES

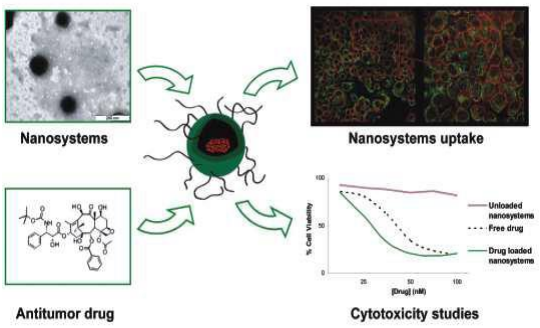
Brain Tumor Diagnosis:

It is through a combination of symptoms and evaluation of neurological functions. . A neurological exam is usually the first test given when a patient complains of symptoms that suggest a brain tumor. The exam includes checking eye movements, hearing, sensation, and muscle movement, sense of smell, and balance and coordination. The physician will also test mental state and memory. Magnetic resonance imaging (MRI) is the gold standard for diagnosing a brain tumor. It provides pictures from various angles that can enable doctors to construct a three-dimensional image of the tumor. Computed Tomography is useful in certain situations inject the patient with an iodine dye, called contrast material, to make it easier to see abnormal tissues. A CT scan helps locate the tumor and can sometimes help determine its type. It can also help detect swelling, bleeding, and associated conditions. In addition, computed tomography is used to check the effectiveness of treatments and watch for tumor recurrence. Positron Emission Tomography. Positron emission tomography (PET) provides a picture of the brain's activity rather than its structure by tracking substances that have been labeled with a radioactive tracer. Lumbar Puncture (Spinal Tap). A lumbar puncture is used to obtain a sample of spinal fluid, which is examined for the presence of tumor cells. A CT scan or MRI should generally be performed before a lumbar procedure to be sure that the procedure will be safe. A biopsy is a surgical procedure in which a small sample of tissue is taken from the suspected tumor and examined under a microscope for malignancy. The results of the biopsy also provide information on the cancer cell type.

Nano medicine:

Nano medicine drugs releases agents that slow tumor growth directly into cancer cells without affecting normal cells. The drug is non-toxic, non-immunogenic, and biodegradable. Using this approach, it is possible to block several unique cancer markers that aid tumor growth for each patient at the same time, which can greatly increase the effectiveness of fighting brain cancer. Compared to chemotherapy, the drug and delivery method is more effective, increases the maximum dose that can be used, decreases toxicity and

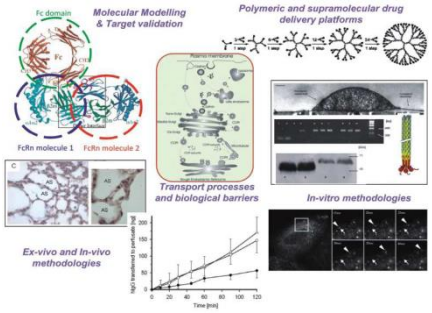
immunogenic, and enhances the ability to target cancer cells specifically.



Using the new delivery methods it allows anti-cancer agents to accumulate directly in solid tumors, which can aid in fighting multi-drug resistant cells.

Nanoparticle Targeting:

By applying a vast and diverse array of nanoparticles, whose design derives from the engineering, chemistry, and medicine fields, to molecular imaging and targeted therapy, cancer nanotechnology promises solutions to several of the current obstacles facing cancer therapies. Nanoparticles have a mesoscopic size range of 5 to 200 nm, allowing their unique interaction with biological systems at the molecular level. As a result of their material composition, nanoparticles are capable of self-assembly and maintaining stability and specificity, which are crucial to drug encapsulation and biocompatibility. Targeting drugs to particular organs or tissues, such as a cancer tumor, is one way to achieve some specificity of action. For example, an immune toxin molecule is an engineered hybrid of functional protein modules fabricated from two different types of proteins: a toxin and an antibody. Toxin proteins are normally produced and released by infectious bacteria. The protein binds to the surface of a host cell, penetrates it, and kills it. Toxin molecules are so potent that just a few of them can kill a cell. Antibodies are proteins produced by the immune system to recognize and bind to specific foreign materials. An immune toxin molecule is made by fusing a part of the gene encoding a toxin with a part of the gene encoding an antibody that recognizes surface features on cancer cells. This creates a novel gene that can be used to express a new synthetic protein molecule. This new molecule will bind only to a cancer cell (via a module from the antibody protein), then penetrate it and kill it (via modules from the toxin protein). The first experiments with mice showed that these engineered proteins successfully eliminated certain tumors. Enzyme-activated drugs first developed in the 1980s. For instance, an antibody-directed enzyme-triggered prodrug cancer therapy is being developed by researchers this targeted drug molecule turns lethal only when it reaches cancer cells while remaining harmless inside healthy cells.



Active Targeting:

The polymeric nanoparticles that have been tested clinically so far have mostly lacked a targeting moiety and instead rely mainly on the EPR effect of tumors, the tumor microenvironment, and tumor angiogenesis to promote some tumor-selective delivery of nanoparticles to tumor tissues. However, these drug delivery systems using a binary structure conjugate inevitably have intrinsic limitations to the degree of targeting specificity they can achieve.An alternative strategy to overcome the limitations of passive targeting to conjugate a targeting ligand or an antibody to nanoparticles. By incorporating a targeting molecule that specifically binds an antigen or receptor that is either uniquely expressed or over expressed on the tumor cell surface, the ligand-targeted approach is expected to selectively deliver drugs to tumor tissues with greater efficiency. Such targeted nanoparticles may constitute the next generation of polymeric nanoparticle drug delivery systems. Example “One of the, HPMA copolymer-DOX-galactosamine (PK2, FCE28069), has progressed to a clinical trial. In this nanoparticle, galactosamine moieties bind to the

asialoglycoprotein receptor on hepatocytes. In a Phase I/II study, this targeted nanoparticle showed 12- to 50-fold greater accumulation than the free DOX in hepatocellular carcinoma tissue. Antitumor activity was observed in patients with primary hepatocellular carcinoma in this study. These promising early clinical results suggest the potential of targeted polymeric nanoparticles as anticancer drug delivery systems". Such negative outcomes underline the importance of polymer-drug design.

Drug delivery using nanoparticles:

Nano medicine drug delivery focuses on maximizing bioavailability both at specific places in the body and over a period of time. For therapeutic applications, drugs can either be integrated in the matrix of the particle or attached to the particle surface. A drug targeting system should be able to control the fate of a drug entering the biological environment. Nano systems with different compositions and biological properties have been extensively investigated for drug and gene delivery applications [1-5]. An effective approach for achieving efficient drug delivery would be to rationally develop Nano systems based on the understanding of their interactions with the biological environment, target cell population, target cell-surface receptors [6], changes in cell receptors that occur with progression of disease, mechanism and site of drug action, drug retention, multiple drug administration, molecular mechanisms, and pathobiology of the disease under consideration. It is also important to understand the barriers to drug such as stability of therapeutic agents in the living cell environment. Reduced drug efficacy could be due to instability of drug inside the cell, unavailability due to multiple targeting or chemical properties of delivering molecules, alterations in genetic makeup of cell-surface receptors, over-expression of efflux pumps, changes in signaling pathways with the progression of disease, or drug degradation. For instance, excessive DNA methylation with the progression of cancer causes failure of several anti-neoplastic agents like doxorubicin and cisplatin. Better understanding of the mechanism of uptake, intracellular trafficking, retention, and protection from degradation inside a cell are required for enhancing efficacy of the encapsulated therapeutic agent.

Colloidal drug delivery systems such as liposomes and niosomes have distinct advantages over conventional dosage forms. These systems can act as drug reservoirs and provide controlled release of the active substance. In addition, modification of their composition or surface can allow targeting. Niosomes are non-ionic surfactant based vesicles that had been developed as alternative controlled drug delivery systems to liposome's in order to overcome the problems associated with sterilization, large-scale production and stability. The first noisome formulations were developed and patented by L'Oreal in 1975.They are liposome-like vesicles formed from the hydrated mixtures of cholesterol, charge inducing substance, and nonionic surfactants such as monoalkyl ordialkyl polyoxyethylene ether. Thermodynamically stable vesicles form only in the presence of proper mixtures of surfactants and charge inducing agents. Niosomes can entrap hydrophilic drugs and other bioactives upon encapsulation or hydrophobic material by partitioning of these molecules into hydrophobic domains. These vesicles can be formulated either unilamellar or multilamellar in structure.

-V.Yuvasri (2nd year)

STUDENT'S CORNER

Time and distance:

1.A person crosses a 600 m long street in 5 minutes. What is his speed in km per hour?

1. 3.6
2. 7.2
3. 8.4
4. 10

Answer: Option 2

Explanation:

Speed= (600/60 X 50) m/sec = 2 m/sec

Converting m/sec into km/hr = (2 X 18/5)
= 7.2km/hr

2.An aero plane covers a certain distance at a speed of 240 kmph in 5 hours. To cover the same distance in 1 2/3 hours, it must travel at a speed of:

1. 300 kmph
2. 360 kmph
3. 600 kmph
4. 720 kmph

Answer: Option 4

Explanation:

Distance = (240 x 5) = 1200 km.

Speed = Distance/Time

Speed = 1200/ (5/3) km/hr.

Required speed = (1200 X 3/5) = 720 kmph

3.If a person walks at 14 km/hr instead of 10 km/hr, he would have walked 20 km more. The actual distance travelled by him is:

1. 50 km
2. 56 km
3. 70 km
4. 80 km

Answer: Option 1

Explanation:

Let the actual distance travelled be x km.

Then X/10 = X+20/14

14x = 10x + 200

4x = 200

x = 50 km

4.A train can travel 50% faster than a car. Both start from point A at the same time and reach point B 75 kms away from A at the same time. On the way, however, the train lost about 12.5 minutes while stopping at the stations. The speed of the car is

1. 100 kmph
2. 110 kmph
3. 120 kmph
4. 130 kmph

Answer: Option 3

Explanation:

Let speed of the car be x kmph.

Then, speed of the train = 150x/100 = (3x/2)kmph

75/x -75/(3/2)x = 125/(10 X 60)

75/x – 50/x = 5/24

X= (25 X 24)/5 = 120 kmph

5. Excluding stoppages, the speed of a bus is 54 kmph and including stoppages, it is 45 kmph. For how many minutes does the bus stop per hour?

1. 9
2. 10
3. 12
4. 20

Answer: Option 2

Explanation:

Due to stoppages, it covers 9 km less.

Time taken to cover 9 km = (9/54 X 60) = 10 mins

STUDENT'S ACHIEVEMENTS AND AWARDS

Name of the student, semester/sec	Details of the event participated, college	Awards
Amal Leo S Arun Kumar M.R Giridharan S V/A	Innovative Project Contest-Gestures Control using Co-ordinate mapping methodology K.L.N.College of Engineering	I Prize Cash award Rs.5000/-
M.M.RajKaml L.B.Vignesh B.Ramanathan V/B	Innovative Project Contest-Automatic Railway Gate Control System K.L.N.College of Engineering	II Prize Cash Award Rs.3000/-
Amal Leo S Arun Kumar M.R Giridharan S V/A	Gestures Control using Co-ordinate mapping methodology Sri Narayana Guru Institute of Technology, Kerala	II Prize Cash Award Rs.3000/-
M.Ilakkiya V/A	State Level Technical Symposium-Connexions Velammal College of Engineering and technology	I Prize
G.Sivakaran V/B	Treasure Hunt-Renganayagi VaratharajanCollege of Engineering	First Prize
B.Ramanathan V/B	Treasure Hunt-Renganayagi Varatharajan College of Engineering	First Prize
M.B.Arun Kumar S.Giridharan V/A	Paper Presentation-Graphics and Multimedia-KLNCE	First Prize
B.Shanmuga Priya k.Sivashankari V/B	Paper Presentation-Web apps-KLNCE	First Prize
G.Sivakaran K.Sophiya V/B	Paper Presentation-Internet of Things-KLNCE	Second Prize
T.Gayathri L.Maheema V/A	Paper Presentation-Web apps-KLNCE	Second Prize
M.Deepika M.G.Aarthy III/A	Paper Presentation-Cloud Computing-KLNCE	Third Prize
S.Amal Leo S.S.Atchuthan V/A	Paper Presentation-Big Data-KLNCE	Third Prize

B.Nisha V/B	Paper Presentation-Big Data-KLNCE	Consolidation Prize
T.S.Azithlal P.Kamalesh Jain III/A	Paper Presentation-Cloud Computing-KLNCE	Consolidation Prize

PLACEMENT DETAILS

TCS Placement (2012-2016 Batch)

	AMRITHA.T.R (125003)
	MONICA MAI.O.S.L (125010)
	SANJEEV RAM.N (125011)
	AARTHY.S.S (125012)

	RASHMI.S (125021)
	AARTHY.R (125031)
	RUBINI.R.M (125103)
	PRIYADHARSHINI.R (125008)
	RASHMI.J.K (125027)
	SWETHA SERMAKKANI. (125018)
	VIGNESH.R (125033)

IBM Placement (2012-2016 Batch)

	E.Gayathri (125038)
	C.V.Priyadarshini (125107)
	M.Radha (125025)

BULLETINS

Project Contest:

Our department third year students M.R.Arun Kumar and S.Amal Leo won second prize in a project contest conducted at Sri Narayana Guru Institute of Technology, Kerala on the topic Gestures Control using Co-ordinate mapping methodology.

Project for the department:

Our department final year students S. Siva Kumar, S.Vishnu Prasad, M.Sundar, R.Vairamuthu developed a project for "Automated calculation of PO attainment".

J2EE Programming Guest Lecture:

A class on J2EE was conducted for third year and final year students from 18.8.15 to 22.8.15 by Mr.Rajendran, CEO of Silicon Software Service.

Seminar on wireless networks:

A seminar on wireless networks was conducted on 1.9.15 for third year students by Kalvi institute of technology and research.

CCNA course:

On 14.9.15 CCNA course for M.E first year and second year students was conducted by Kalvi institute of technology and research.

Angular JSS class:

On 19.9.15, a class on angular JS was conducted for TFSD students by Sivachandran, alumnus of KLNCE, 2015 batch.

ADC Seminar:

A seminar on analog and digital communication was conducted for second year students on 28.9.15 by Mrs.Bhuvaneshwari ASP/CS.

Paper Presentation:

On 30.9.15 our department conducted a paper presentation completion in the name CLUSITER'15 on the topic "Emerging trends in IT". The jury consisted of our department senior faculties.

Seminar on Engineering Graphics:

A seminar on engineering graphics was conducted for first year students on 09.10.15 by resource person from Anna University.

Expert talk on information security:

An expert talk on information security was conducted for the toppers of all the four years by Er.R.P.Dyana Kumar, alumnus of KLNCE on 09.10.15

Workshop on C programming:

A workshop on C programming was conducted for first year students on 27.10.15 by APTECH.

Suggestions and Feedback Contact:
klnceitsig@gmail.com