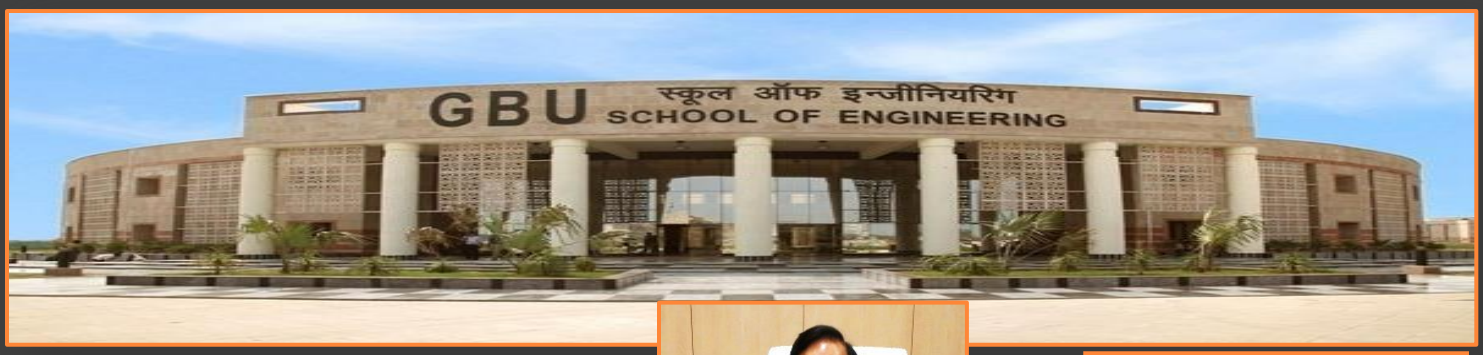
Spectrum...

a techno creative insight of SOE

Issue 7, 2014-2015



VC'S Message...

It's my pleasure to congratulate School of Engineering for continuing and improving their initiative in the form of newsletter. This time it has come up with the 7th edition of Spectrum. Spectrum is showcase of their research exertion, achievement as well as the reflection of all the creative and cultural activities happening in the School. With emphasis on the rigorous training and education of our young aspirants, we ensure experiential, pilot and inter-disciplinary learning and research in various fields of studies. Our meticulously designed curriculum and pedagogical training programmers stay focused imparting all necessary knowledge required for creating humane and rational society.

I wish the School of Engineering continues producing quality technocrats which will prove to be assets in country's development in the near future.

Dr. J.P.SHARMA
VICE CHANCELLER, GBU

Dean's Message...

It is my proud privilege to take the opportunity to release the 7th issue of 'Spectrum', 2014-15 the annual newsletter of school of Engineering. This newsletter is a channel to communicate the various technical and academic activities of the school during the academic session 2014-15. The School came in to existence in the academic session, 2010 - 11 with the beginning of Five years Integrated dual degree program (B.Tech. + M.Tech / M.B.A.) in three core branches of engineering (Civil, Mechanical & Electrical) & later on in Architecture & Regional Planning started . In successive years Masters & Doctoral Programs in different disciplines have came in to existence.

At the end of this academic session, the first batch of Engineers of Gautam Buddha University is going to pass out. As an academic community, the school is committed to the belief that expanding our knowledge of the liberal Sciences & Technologies will enable us to live better lives and to contribute more to society. Thus we are constantly trying to remain competitive, to maintain excellence in teaching to strengthen our undergraduate and graduate programs and to build the School's research agenda to increase the external partnerships & sponsors.

I hope that you will join us in our mission.

With congratulation and best wishes to all for better and bright future.

Prof. Anjana Solanki
Dean, School of Engineering

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Creative Corner

TEENAGE

Life's most lovely seven years,
That we spend without any fear.
The time when we have secrets in tons,
The time passes by eating chocolaty buns.
When we give excuse for silly-silly works,
When study gives us a lot of jerks.
The part of life
where we have to leave school,
The place where we all die to be cool.
The time when we have many joints,
Which too includes
our crucial turning joints.
When we fight with our close ones,
Then after realize who was with us when there was none.
We all murmured on the name of discussion,
There were a few left
who were not in fusion.
None of us can forget our gang's meeting,
Will life time keep those lovely greeting.
The life where we all love to croon,
Sometimes we got looks as we droon.
As this time was made just for having fun,
But on the other hand
we want to glow as sun.
The time where we all need to seek,
And try our level best.... Never to beweak.

Atika Singh, 14/AR/004

The 'Art' of Listening

Listening is the art that requires attention over talent spirit over ego, other over self- Dean Jackson. I watch & listen I learn, I do things from what I had learn. It the convection for listening that one does procure the thoughts and ideas of others. When we speak we only describe things which we are aware of, but when we listen to other then we are acquaint with the thoughts and ideas of the other, which will be helpful in expanding our area of knowledge. Be a patience listener till the times demands but when it is need to deliver give all what you gain through your patience listening.

Shivanshu 12/IME/037

Wireless Power Transmission System

William C. Brown, the pioneer in wireless power transmission technology, has designed, developed a unit and demonstrated to show how power can be transferred through free space by microwaves. In the transmission side, the microwave power source generates microwave power and the output power is controlled by electronic control circuits. The wave guide ferrite circulator which protects the microwave source from reflected power is connected with the microwave power source through the Coax – Waveguide Adaptor. The tuner matches the impedance between the transmitting antenna and the microwave source. The attenuated signals will then be separated based on the direction of signal propagation by Directional Coupler. The transmitting antenna radiates the power uniformly through free space to the rectenna. In the receiving side, a rectenna receives the transmitted power and converts the microwave power into DC power. The impedance matching circuit and filter is provided to setting the output impedance of a signal source equal to the rectifying circuit. The rectifying circuit consists of Schottky barrier diodes converts the received microwave power into DC power. The method describe above is (microwaves using rectennas) particularly suitable for long range distances ranging kilometers. With this we can avoid the confusion and danger of having long, hazardous and tangled wiring. It gives birth to an effective, high performance technique which can efficiently transmit the power to the required area varying in distances. Common beliefs fear the effect of microwave radiation. But the studies in this domain repeatedly proves that the microwave radiation level would be never higher than the dose received while opening the microwave oven door, meaning it is slightly higher than the emissions created by cellular telephones, thus public exposure to WPT fields would also be below existing safety guidelines.

Nitin Sharma, 11/IEE/061

Pattern of Electricity Generation in India

The power sector in India is currently in the developing stage, and supports the growth of various sectors, such as infrastructure, manufacturing, commercial enterprises and railways. Therefore, it is a key enabler for India's economic growth, and has historically shown similar growth trends as compared to the economy. Currently, in addition to hydro-power, the primary fuels used for power generation in India are non-renewable, such as coal and natural gas. However, given the expected increase in future demand, the government's focus might be shifted to capacity additions using cleaner fuels, such as renewable and nuclear energy. To this effect, the Indian government has taken several initiatives, such as promoting the Renewable Purchase Obligations (RPO) scheme, allowing 100 per cent Foreign Direct Investment (FDI) through the automatic route, setting up of ultra mega power projects and encouraging joint ventures through the Public Private Partnership (PPP) route to step up private sector participation. RPOs, put simply, are the minimum percentages of the total power that electricity distribution companies and some large power consumers need to purchase from renewable energy (RE) sources. RPO creates a minimum market for renewable energy in the absence of pricing externalities of conventional power generation. In fact, the private sector is expected to contribute nearly 60 per cent of the total capacity additions planned over 2012–17. Further, the Government of India has also allowed foreign investments up to a limit of 49 per cent in power trading to aid the rapid development of the sector. The industry has tremendous scope of growth through programmes such as the Rural Electrification Program and the ultra-mega power projects, which would require huge investment. The Government's focus is now shifting towards the use of renewable energy sources, and more efficient and environment friendly supercritical technologies for thermal generation to ensure sustainable development. In fact, the power sector's future focus is expected to be on renewable energy (RE), hydro-generation and the identification of close to 22,000 MW of untapped hydro capacity.

Rushda Rais, 12/IEE/012

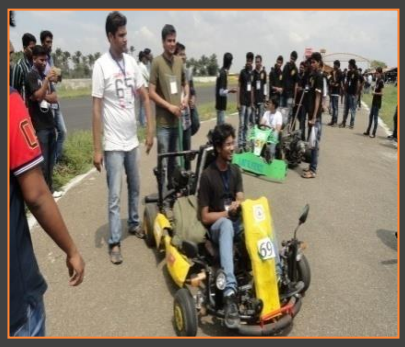
HINDI DIWAS CELEBRATION at GBU..... *"Nij Bhasha Unnati"*

To promote and rejuvenate our mother tongue Gautam Buddha University celebrated Hindi Diwas (celebrated every year on 14th September) on 15th September 2014. To commemorate the mother tongue among students various Hindi language based competitions viz. poem recitation competition, essay writing competition and debate competition were organized for university students. These competitions were held during 8th September 2014 to 10th September 2014. The students of all the schools of the university participated in these competitions with great enthusiasm and won several prizes.

Students Activities : INNOVATIVE THINKING

Two teams; Team Tivrayaan and Team Amogh, from Gautam Buddha University, consisting of Mechanical, Electronics & Electrical Engineering stream students participated in **N**ational **G**o-**K**art **C**hampionship organized by Indian Society Of New Era Engineers. More than 150 teams from various universities/colleges across the country took part in the competition. The challenge was to design and fabricate a Go-Kart powered by engine. Both the teams cleared the virtual round of the event which was held at Indore, Madhya Pradesh and successfully qualified for the dynamic round of the event which was to be held at Coimbatore, Tamil Nadu. The teams successfully represented Gautam Buddha University at Kari Motor Speedway, Coimbatore, Tamil Nadu for finals.

Unique about Amogh & Tivrayaan: Amogh had a chassis which can be folded from its mid while team Tivrayaan designed a kart with adjustable steering and seat with fire resistance features.



TEAM AMOGH

TEAM TIVRAYAAN

Awards & Partaking.....

1. Akashdeep Verma (Integrated M. Tech. I&C) received Dr. J K Pal Award from IEEE-Delhi Section to perform outstanding work for IEEE-GBU Student Branch for the year 2014.
2. Monika Singh (M. Tech. PS) received Outstanding Volunteer Award from IEEE-Delhi Section to perform outstanding work IEEE-GBU Student Branch for the year 2014.
3. Aashay B Raut (Integrated M. Tech. I&C) and Rishu Srivastava (Electrical Engineering I yr received Women- In- Engineering Volunteer Award from IEEE-Delhi Section for their exemplary contribution for the year 2014 .
4. First year Mechanical Engineering students won the zonal winner award in the Quadcopter challenge organized by IIT Delhi at Gautam Buddha University
5. Akashdeep, Nikhil, Shivam, Aniket (The Team Speed Cruisers) of Electrical Engineering participated in 'Combat Nautica' and 'Vortex Maze Solver competitions held at IIT Bombay from 2-4 January 2015.
6. Two Teams of SOE participated in Eco-Kart 2015. Both the teams have cleared the virtual phase and setup for the Dynamic Phase.
7. Mechanical Engineering Department students organized a 3 days Workshop on Solid works and Ansys from 8th to 10th Sept.,2014

Samridhi receiving appreciation to be a part of organizing team of TISP Workshop by Prof Mini S Thomas (Chair IEEE Delhi Section)

Mechanical Making...

III year Mechanical Engineering students fabricated experimental step ups which can demonstrate experiments of Mechanical vibration under the guidance of **Dr. R.K. Mishra.**

Six students; **Ankur Gautam, Amit Kumar, Himanshu Singh, Avneesh Kumar, Kapil Kumar, Manoj K Dayal, Manoj Rana** of **M.Tech Industrial Engineering** prepared a device called vacuum furnace which can heat materials, typically metals to very high temperatures and carry out processes such as brazing, sintering and heat treatment with high consistency and low contamination. This project is prepared under the guidance of **Dr. Satpal Sharma.**

SPORTSPERSON OF SOE...

TAKING GBU TO NATIONAL LEVEL

Showing the potential in every field, School of Engineering students excel in sports which promotes multidimensional growth of the students. Shubham Rahi, Ravi Rohan and Ravi Kumar Kumar represented college team that won intra-college cricket tournament held at Vishveswarya College of Engineering. They also represented GBU at various competitions held at Sharda University, Jaypee University, Noida International University etc. Ravi Roshan, student of Mechanical Engineering second year is currently playing for Madhya Pradesh under-23 team. Shubham Rahi, student of Civil Engineering played for Uttar Pradesh under 16 and under 19 teams and has represented their state teams in various tournaments.

SCHOOL OF ENGINEERING RESEARCH SPECTRUM

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IEEE-GBU ORGANIZED ENGINEERS DAY

In the memory of "Sir Mokshagundam Visvesvaraya" on 15th September 2014 Engineer's Day was organized. Under this event various competitions viz. essay writing, debate, poster making and GD was held to enhahce the students nimbleness. These competitions were held during 11th September 2014 to 13th September 2014.

Guest of Honor: Prof. Shiban K. Koul (Dy Director IIT Delhi)

Prof. Shiban K. Koul (Dy. Director-IIT Delhi), Dr. J.P.Sharma (Hon'ble Vice Chancellor and Mr. Pushyapati Saxena Ex. Registrar and his administrative team also graced the occasion with their presence In the valedictory ceremony. Guest of Honor Prof. Shiban K. Koul described technological facts and discussed the mindset of today's students and faculty members. He described how the technical society of our country is lagging behind the other countries and how we can compete with the world and technological and professional challenges. He inspired all the students and motivated all faculty members to do something extra ordinary. His lecture made an exceptional mark in terms of inspiration and direction. Honorable Vice Chancellor also addressed the gathering with his motivating words.

Prof. Shiban Koul, Hon' ble Vice Chancellor giving prizes to the winner(s)/ Judges and volunteers

Organizing team along with Guest of honour Prof. Shiban K Koul and Hon'ble Vice Chancellor Dr. J.P Sharma

ECO DESIGN FAIR'14 *"The Creative Art Workshop"*

Visit of Architect of Gautam Buddha University Ar. Dikshu Kukreja at Eco Design Fair

An inter-college architecture event; organized by the Department of Architecture & Planning, for recapitulation of forgotten art form and exposing modern architecture through several formal and informal events. The aim was to learn that the daily waste that we throw can be utilized to make a unique art piece and can be used for something good and environment friendly. This was a three days event which had three different and exciting events for each day. The events were: Designing Urbanscape, Best out of waste, Buddha Iconic. The event was followed by workshop from various famous architects from "INDIAN INSTITUTE OF ARCHITECTS" & "HOUSING AND DEVELOPMENT COMPANY (HUDCO) DELHI."

Students of Architecture with Dean Architecture, University of East London and Ar. Nirmita Mehrotra at GBU, March 27,2015.

IEEE DAY – *Emphasis today for a better tomorrow*

On the occasion of IEEE Day (October 7, 2014), the IEEE-GBU Student Branch has hosted its celebration. Several competitions were organized on 9th & 10th October, 2014. Not only the students of GBU but the students from the other universities also participated in these competitions with a great enthusiasm.

The closing ceremony of the event was done by Tree Plantation drive. 50 saplings were planted by GBU family including Dr. J P Sharma Honorable Vice Chancellor, Prof Anuradha, Dr. Anjana Solanki, Dr. Indu Uprety, Dr. Shabana Urooj and GBU students.

"Event Limelight to commemorate Swach Bharat Abhiyaan by cleaning the E-Waste"

Mr. Daman Dev Sood (IEEE Ambassador of India), Prof. K. Subramanian (Vice Chair IEEE Delhi Section) were the orators and Dr. J.P. Sharma (Vice Chancellor- Gautam Buddha University) was the chief guest of the program. All the respected deans and the faculty members were present there to grace the occasion. Taking the event to a next level, Prof. K. Subramanian delivered a lecture, "Leveraging technology for a better tomorrow" and emphasized how the technology is playing role for the development and advancement today. Proceeding further, Mr. Daman Dev Sood gave a lecture on E-Waste Management. He told about what E-Waste is and how it can be harmful for our planet and the affect the life on the planet and hence focused on Swach Bharat Abhiyaan by cleaning the E-Waste.

Tree Plantation drive: Step towards the Sustainable Development by young engineers

EXPERT TALK... *BY Prof. Akhtar Kalam of Victoria University Australia*

"RESEARCH, INDUSTRY COLLABORATION AND SHARING EXPERIENCE"

On 30th January 2015 IEEE-GBU SB organized an expert lecture by an Australian Professor. The topic of the talk was "Research, Industrial Collaboration and Sharing Experience". Prof Kalam shared his knowledge and experience in the field of Power Systems and related areas. He also talked about the importance and benefits of membership of professional bodies' viz. IEEE and IETE etc.

More than 300 students and around 50 faculty members grabbed the benefit of attending the scintillating lecture. It was an interactive session and students of GB University enthusiastically participated in the activity. The students asked many queries regarding their final project selection and industry collaboration, which shows the curiosity and eagerness of Gautam Buddha university students.

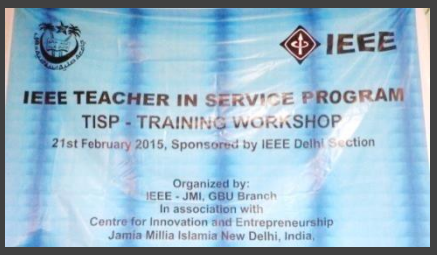
A warm welcome by Mr. Anurag Dixit to the Guest Of Honour

Scintillating talk by Prof Akhtar Kalam of Victoria University Australia at GBU

National Creativity Aptitude Test

SoE conducted National Creativity Aptitude Test (NCAT 2015). Seven students of GBU qualified first round of NCAT with very high percentiles. The students names are Rohan, Akhil, Shaina, Mukul, Apoorv, Tushar, Ravindra.

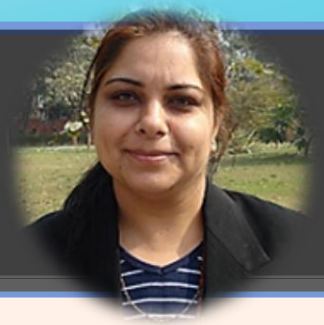
Teacher in Service Program (TISP) training workshop "A target on Future Engineers"



Teacher In Service Program (TISP) Training Workshop was sponsored by IEEE Delhi Section in association with Center for Innovation and Entrepreneurship at Jamia Miliia Islamia (A Central University). It was organized by Gautam Buddha University IEEE Student Branch on 21st Feb' 2015. This workshop provided a platform to learn the new methodologies and exposure to teach the High School students. This workshop is being conducted to train the trainers to enhance their knowledge and expand their abilities towards better academic and technical development of students.

An Architect's Perspective

by Ar. Nirmita Mehrotra



Αρχιτεχτυρε : Τηε Μακινγ οφ Μεταπορ

To understand design process of built environment Barie Barington (2012) from Yale University used concepts of metaphors which formulate a language of the individual building to show its connections to cultures, people & the functions it performs. In this way metaphor is the key to the design and enjoyment of the built environment. Metaphor allows us to understand a relatively abstract or inherently unstructured subject matter in terms of more concrete answers. Metaphor is transferring, bridging and carrying-over, where transfer can bridge anything to anything and has consequences. One of the conditions to enjoyment ultimately depends on the assent of users, audience, inhabitants, etc. Assent is based on users' acceptance of the design and often involves making the work one's own. Unique Attributes, personalization and authentication are required for a metaphor to live. Metaphor is shown to be a tool used by designers, architects, and users as well as a medium which operates between creators and readers. It explains the tracks of the built metaphor as technical, conceptual, practical and artistic.

The role of design is described in the aesthetic of metaphors in light of art, common sense and practicality and its usefulness in social, business, professional planning and in shaping society. The whole of the architectural metaphor is structured in such a way as to clarify, orient and provide reification of all the design parameters into a highly structured work. It is a work which homogenizes all these diverse disjointed systems and operations into a well working machine. Very often the metaphor is not necessarily homogeneous but it is perceived as coherent, coordinated and complete; to make aesthetics commonplace of the metaphor.

Design is almost instinctive as we try to take control and rectify a situation. The very act of noticing a need is the first step and looking for remedies follows. Regardless of the details, the overall concept is "transferred "from one to the other, irrespective of sub-dominant and tertiary design elements." The science of the strength of materials, mathematics, structures, indeterminate beams, truss design, mechanical systems, electricity, lighting, etc. are each understood metaphorically and their precepts applied metaphorically.

In confirmation to common-sense experience with most of the buildings of different cultural context beauty is referred as well made, and well made is often comprising something of beauty. Even the lowest budget and least expensive project can be exquisite when beautifully designed. In either case the user reads the metaphor. There is a public and private face to a design and metaphor. An architectural work establishes its own vocabulary which once comprehended become the way in which we experience the work, sometimes find its discrepancies and fitness and seek elements of order. We judge the work on the basis of consistency, integrity and aesthetics. Buildings which do not have these characteristics do not work as metaphors.

The relevance of studying the metaphorical basis of architecture is to provide practitioners, owners, and mainly architects who shape the built environment that they have a somber and serious responsibility to fill our world with meaning and significance. One of the keys to accessing the built environment is by ability to "appreciate" (i.e. to value and attach importance to a thing because of its worth) the street, its geometry, limits and linearity. It was in recognition of the responsibility of the relationship between design and users as between the properties of materials, that Frank Lloyd Wright separated from the architecture of Louis Sullivan and what spurred the collective work of the Bauhaus in Germany, that is to express the truth about the building systems, materials, open life styles, use of light and air and bringing nature into the buildings environment. As in city planning where the geometry of urban blocks and the location of building masses that reflect one another is a scheme to sharply define the volume and mass of the block and experience of city streets. In New York City the grid and the insistence that buildings reflect its geometry is a metaphor of city-wide proportions. The streets are defined by the 90 degree angles, planes and the tightness of the cubes and rectangles to the city plan. In this way, the metaphor of the overall and the each building design, no matter of its location, its appropriateness or the zoning formulas, flow from one to another. Thus for architects metaphors are important in order to communicate ideas and concepts that forms and shapes the built environment, and make one building better than the next . Elements or the whole metaphor can be referents when the design metaphor is cast into language and in architecture that language is ultimately the building.

9 Study Hacks…

Cut the music: Listening to music while studying hinders the brain from full concentration. If you absolutely need a constant soundtrack, listen to instrumental pieces like classical or jazz.

Chew gum: Chewing gum while studying helps boost mental performance. Just make sure it's sugar-free so you don't get cavities!

Turn on the lights: Bright lights increase learning and ward off depression (which we're all prone to during finals). Study outside if you can and definitely avoid dim study spaces.

Take a caffeine nap: If you find yourself requiring a midday boost, drink a caffeinated beverage right before you take a nap. It takes caffeine about 15 minutes to kick in, so your body will wake you up naturally (but set an alarm just in case). This way you won't oversleep and you'll be twice as alert when you wake up. *But don't over-caffeinate*:

Take frequent, short breaks: You'll work more efficiently if you have something to look forward to. Use the Pompadour method: for every 25 minutes of studying, take a five minute break.

Vary your study locations: Changing up where you study increases information retention. So don't become a library-zombie. Hit up a coffee shop, a common area, a park, or a friend's place to get your study on.

Evoke your own emotions: If you can relate a strong emotion to your subject matter, you are more likely to remember it. So get mad at calculus! Fall in love with literature! The stronger the emotion, the more likely you are to remember it.

Meditate: Meditation increases mindfulness and eliminates off-topic thoughts. It can also lower stress, which is helpful during finals or anytime.

Avoid technology at all costs: The hardest hack to handle. If you have no self-control, rely on online apps that block your social media for a specified amount of time.

Swati Sharma 12/ICE/034

Dream to win…

One of the pronounced fear of human kind is the fear to lose. But what people do forget is that before you are gonna win, you have to believe that you can win. Loosing is just a small step, taking you more closer to your dream and adding sheer experience to you. So, if you have your mind crammed with all the folly thoughts that you can not do this or you cannot achieve this , just say this line to your inner self 'yes, its my dream and I'm gonna give my every single breathe to achieve it'. Life is gonna hit you as hard as possible but all you can do is stay there or you can fight your way back and make your way to your dream.One of the line of unknown writer has always been my favourite: "life is not about how hard you can hit, its about how hard you can get hit and keep moving forward. That's how winning is done. But to achieve your dream, you have to take a hit."

Tushar Srivastav 12/IME/024

SEMINAR on Biomedical Signal Processing

A Seminar on Bio-Medical Signal Processing was organized in Electrical Engineering Department on 25th March 2015 by IEEE Student Branch. The speakers were from AD Instruments and talked about the bio-medical signal acquisition, processing and analysis. Students of EED especially Instrumentation & Control enthusiastically attended the seminar

Editorial Note

Change is an amusing prerequisite. Often times disguised amid the mundane, a figurative diamond buried in the rough, change can overwhelm us, weave itself into our fibers and alter everything we know to be true. We had a standard and we tried to ascent the same. As a newsletter it's our job to stand vigil over change. We try to keep our eyes and ears sharp for the subtle whispers of evolution, bottle it up and send it out to you to digest. Lot of changes happened and lot more are yet to happen. We are ready to accommodate the upcoming challenges. In the coming weeks we and our fellows will be busy preparing for the semester examinations. We wish them all the best. Happy reading.....

In the words of Charles Darwin

"It is not the strongest of the species that survive, nor the most intelligent, but the most responsive to the change."