

STRENGTHS

Let's re- define the world

April 2007



Student- Faculty interaction ... Is it how it is supposed to be?



Interviews

Padmashri E. Sreedharan

Padmashri M. Anandakrishnan

SOCE- Open House Discussions

Romancing with Civil Engineering- Faculty interviews

Using Mobile Phones

Civil Engineering Survey Camp

and much more...



From the HOD's desk

In Retrospect...

The concept of a magazine to be released by the Society of Civil engineers at IIT Kanpur is about four decades old. Over time, the name, content, style, intent, language, size and frequency of the magazine changed every 6-8 years. The primary human resource was the students, in the conceptualization, content development, production and distribution of the magazine. A few faculty members, even though a different set each time, were always associated. With the changing energy levels of the students, the magazine has gone through a number of fits and starts. To provide stability to the publishing of the magazine, a corpus was collected in the late 1990s in the IIT Kanpur Endowment Fund. But, even this financial guarantee failed to ensure continuity of the publication of the magazine.

Efforts like publication of the magazine are extremely valuable on academic campuses in enhancing, developing and honing the editorial skills amongst the literary-minded students, in addition to playing the role of a mirror to the past and the possible future that holds great importance for the students.

With the ever changing priorities of the generations of the student communities that pass by the institute, such efforts can be sustained only through the commitment and dedication of the faculty members. It is hoped that at least a few colleagues will find this activity worthwhile and stand behind the magazine as the rock of Gibraltar. But, a pre-requisite to the publication of the magazine is the "desire" and "positive attitude" of the SOCE student membership ...

C. V. R. Murty

From the Faculty Advisors

We are confident to claim that the Society of Civil Engineers (SOCE) has been the most vibrant group on the IITK campus over the last few years. The events have not only focused on constructive discussions and inspiring lectures but also gave an opportunity to the students to show their hidden talents or to have sheer fun in some informal events. A couple of new ideas were taken up this year in the journey of SOCE events, and it is certainly exciting to see that the organizing team was able to pursue those ideas and implement them successfully. An informal session was introduced inviting all the students to remove their inhibitions and dance together in free spirits. The experience of listening to a distinguished lecture by Dr. E. Sreedharan, MD, Delhi Metro, and interacting with him on personal basis was quite thrilling for all of us. The CIVERE'07, an amateur paper presentation contest, had focused this year on the quality of papers being included for the final presentations. This was planned by attracting more number of abstract/paper submissions and keeping the rejection rate at very high level. Although we achieved some success in our objective, it needs consistent effort over the next few years so as to get this event a mark of quality. Another idea introduced this year was to concentrate on improving the faculty-student interaction on some serious issues of common concern. This was implemented in the form of a series of Open House Discussion sessions. There are always some issues which are under constant discussion among the students and the faculty members on separate venues, and they often have completely different views on the same issues. The idea was to bring those discussions to a common platform and try to create a fair understanding of each other's perspective. These interactive sessions were able to create significant interest among the students as well as the faculty members, and we hope such events will continue to be organized in the future.

Although the events were mainly a team effort by the SOCE executive members, the responsibility of leading the events were shared by many members. We personally feel that such participatory management should always be encouraged. Besides giving the feeling of ownership to more number of students, it also reduces the work load on few students who may have to compromise with their studies otherwise. The students have always been given freedom of working in their own style and exercising new ideas. This phenomenon may lead to few compromises here and there; however, it helps the students towards building their confidence. We received great appreciation and constructive suggestions as well as uncomfotring comments over the year, and enjoyed equally all of them. We must appreciate the support and guidance provided by Prof Bithin Datta during the tenure of this SOCE team.

**Dr. Amit Prashant
Dr. Tarun Gupta**

I n d e x

HOD's Message	Page 3
From the Faculty Advisors	Page 4
Mobile Phones- Do we really know how to use them	Page 7
The "Truss" Revolution	Page 8
Biography: The legend of Alfred Wegener	Page 9
Is Stress Real	Page 12
Summer Camp @ IIT Kanpur	Page 13
My experience with Summer Camp	Page 14
My New Year Resolution	Page 15
निशा की बातें	Page 15
Cover Story: Student- Faculty Interaction... Is it how it is supposed to be	Page 16
Perspective of a UG Coordinator	Page 17
SOCE Open House Sessions	Page 18
SOCE Photos	Page 23, 26
Interview: Padmashri M. Anandakrishnan	Page 24
Interview: Padmashri E. Sreedharan	Page 25
Faculty Interviews: Romancing with Civil Engineering	Page 27
Poem: The Saturday Night	Page 32
John Skilling	Page 32
Orkut Politics, Globalization and Internet Ban	Page 33
The Sun and The Moon	Page 34
Mastering @ Web Design	Page 34
Poem: Ambition	Page 35
My ordeal in the desert	Page 35

Pseudo Dynamic Test Facility	Page 36
The city of Chandigarh	Page 36
Civil Engineering Survey Camp	Page 37
100 years ago... The Jamaica Earthquake	Page 38
Ancient Indian Architecture	Page 39
My marks just screwed up	Page 41
SOCE Diary	Page 42
CIVERE 2007 Winning Abstracts	Page 43
Department of Civil Engineering- Awards and Honors	Page 45
A few words from the editor	Page 46
STRENGTHS Team	Page 47

MOBILE PHONES: Do we really know how to use them?

Kartik Balasundaram

Mobile phone today is an indispensable service facilitating everyday life. In less than 20 years of implementation, mobile phones have gone from being a rare and expensive piece of equipment, to a low cost utility item. Mobile phones have a host of applications like internet surfing, access to real time political, financial and sports news, games and video streaming. Expressed in numbers, 20 million subscribers were added in 2004-2005 and mobile phone overtook fixed wire line connections. India has emerged as the second largest market for mobile phones. Government of India has a plan to increase the tele-density to 50% by 2010, 80% of which will be contributed by mobile phones.

A mobile phone has three components a handset, a base station and service provider. Mobile phones work on electromagnetic radio waves. The phones have a low power transceiver that transmits voice and data to the nearest cell sites. When the phones are turned on, it registers with the mobile phone exchange or switch, with its unique identifiers and will then be alerted by the mobile switch when there is an incoming telephone call. The handset constantly searches for the strongest signal being received from the surrounding base stations. Each network operator has a unique radio frequency band.

With high levels of mobile telephone penetration, a mobile culture has evolved, where the phone becomes a key social tool, and people rely on their mobile phone address book to keep in touch with their friends. Many people keep in touch using SMS, and a whole culture of "texting" has developed from this. Mobile phones help in accessing any person anytime. The significant impact is that the increased accessibility gives a psychological feeling of security and comfort. A benefit, therefore, that is frequently mentioned as a reason for

purchasing a mobile phone is its use in emergencies, where immediate contact with another party (e.g., family, emergency services) is vital. Such situations can range from major crises posed by a road accident, heart attack or threatened violence to a more mundane emergency such as being stranded after missing the last bus or train home. According to study conducted by Leung and Wei (2000), in Hong Kong, there are seven factors of gratification sought through mobile phone ownership: fashion/status, affection/sociability, relaxation, mobility, immediate access, instrumentality and reassurance. Mobile phones have become a key fashion accessory. Users decorate, customize mobile phones to reflect their personality. The sale of commercial ringtones exceeded \$2.5 billion in 2004. Camera and video phones are increasingly being used to cover breaking news. Disaster management authorities use mobile phones during emergencies and natural disasters as effective mass communication devices.

However, a serious threat to social life comes from camera and video phones. There is a possibility of photographing someone without consent. Mobile phones are increasingly being used to make pornographic videos. Mobile phone etiquette has become an important issue with mobiles ringing at funerals, meetings, weddings, movies, and plays. Users often speak at increased volume which has led to places like bookshops, libraries, movie theatres, doctor's offices, and houses of worship posting signs prohibiting the use of mobile phones, and in some places installing signal jamming equipment to prevent usage. Mobile phones are becoming common in college classrooms. Mobile phones are used for everything from playing games to planning a sudden outing. Getting phone calls make them feel better, boosting their self esteem. Not

getting calls can make them feel down or less important. They carry latest gadgets to show above the rest. Those who do not carry a phone or own an outdated piece feel left out. Academicians claim mobile phones are a source of distraction and peer pressure. They claim that mobile phones disturb teaching process. This has led to ban on mobile phones in several educational institutions. Another major problem is caused by using mobile phones while driving. A study in The New England Journal of Medicine reports that drivers who used mobile phones while driving were four times more likely to crash than those who don't, a rate equal to that for drunken driving at the 0.01 g/dL blood alcohol concentration (BAC) level.

Health impacts of mobile phones can be due to either exposure to radio waves of certain frequency or due to exposure to toxic metals present in the mobile phone components.

Exposure to radio waves is a more serious and imminent problem. Mobile phones transmit and receive waves of frequencies mainly at the 800-1800 MHz range. Part of the radio waves emitted by a mobile telephone handset is absorbed by the human head. The radio waves emitted by a GSM (GLOBAL SYSTEM FOR MOBILE COMMUNICATION) handset, can have a power of up to 2 watts. Other digital mobile technologies, such as CDMA (CODE DIVISION MULTIPLE ACCESS) have lower rates under 1 watt. The rate at which radiation is absorbed by the human body is measured by the Specific Absorption Rate (SAR), and its maximum levels for modern handsets have been set by governmental regulating agencies in many countries. In the USA, the FCC has set a SAR limit of 1.6 W/kg, averaged over a volume of 1 gram of tissue, for most parts of the body. In the EU the corresponding limit is 2

W/kg taken over a volume of 10 grams.

The acute exposure to these waves can have a thermal effect leading to an increase in cellular temperature by 1 °C or more. Thermal effect of microwave radiation is caused by dielectric heating, in which any dielectric material (such as living tissue) is heated by rotations of polar molecules induced by the electromagnetic field. It has been claimed that some parts of the human head are more sensitive to damage due to increases in temperature, particularly in anatomical structures with poor vasculature, such as nerve fibers. It is not thought that this in itself is carcinogenic, but there may be tumor promotion by increased uptake of carcinogens in cells. Young children are more prone to the ill effects of radiation. In children, the brain is smaller and still developing, the skull is thinner and there is a longer exposure time to radio frequency from phones. Mobile phones have also been identified as a potential cause of reduced sperm production in men. Microwaves emitted by the phones reduce the number, mobility and quality of sperm by almost half in the heaviest users, to the point where some men may become infertile. Even a small effect on fertility could result in millions of men being rendered childless.

Another area of worry about effects on the population's health have been the radiation emitted by base stations (the antennas on the surface which communicate with the phones), because, in contrast to mobile handsets, it is emitted continuously. Due to the attenuation of power with the square of distance, field intensities drop rapidly with distance away from the base of the antenna. In order to address peoples concern certain world bodies have published reports pertaining to impact of mobile phone on human health. These reports reviews the risks of cancer, cardiovascular disease, adverse

outcomes of pregnancy and cataract formation associated with RF field exposure at work. These reports conclude that the research performed to date gives no consistent or convincing evidence of a causal relationship between RF field exposure and any adverse health effects.

Mobile phone technology is here to stay. With certain precaution one can use mobile safely. Mobile phone packs should carry a health warning. Information should be provided regarding various toxic metals present in the handset and safe disposal practice. It is essential that companies change their design to reduce toxic substances. This would enable in waste minimization instead of waste management. The designs should be aimed at improving the useful life of mobile phones and also help in safe and easy recycling. Manufacturers should provide incentives to customers to encourage recycling. Manufacturers should avoid unnecessary marketing especially it should not promote use of mobile phones among children. Base station sites must offer good signal coverage and be accessible for maintenance. Siting base stations near kindergartens, schools and playgrounds may need special consideration.

People should decide and think twice before replacing or upgrading a mobile phone. They should buy only if absolutely necessary. People should support the companies that make clean products. People should not use mobile phones while driving. People should prevent small children from using mobile phones.

To conclude, an effective system of health information and communications among scientists, governments, industry and the public should be established to raise the level of general understanding about mobile phone technology and reduce any mistrust and fears, both real and perceived.

The 'TRUSS' Revolution

T.V.N.Srinivas

The emergence of truss as a major structural form has been rapid and its impact significant. Although structures made of jointed members have been constructed throughout history, the conscious exploitation of structural advantages inherent when individual linear members are formed into triangular patterns is of relatively recent origin. Structures of this type, commonly called trusses, were built quite early. The earliest trusses were made out of timber (wood). The ancient Greeks used truss construction for their dwellings. A bridge using a form of timber truss, for example, was built across the Danube River by the Romans as early as 500 B.C. Simple trusses using relatively few members often appeared in common pitched roofs. More complex trusses were used in isolated instances. Trusses were occasionally used afterward in large public buildings such as Independence hall, Philadelphia, but again without having much impact as a structural innovation.

It was bridge builders of the early nineteenth century who first began systematically to explore and experiment with the potential of the truss. Emiland Gauthey's works provided a foundation for many subsequent theoretical works in this area. Later important contributions include Squire Whipple's classic of structural engineering, 'A Work on Bridge Building', published in 1847. The development of truss was thus fostered by a tentative but rapidly expanding body of theoretical knowledge. This contrasts with other structural forms which typically developed slowly over time in a strictly empirical way. The truss soon became a common structural form used in civil engineering structures spanning long distances. The use of trusses in buildings also increased, although more slowly due to different traditions and needs, until they became a common element in modern architecture..

The Legend of Alfred Wegener (1880-1930)

Strengths team

Alfred Wegener is a German geophysicist who, in 1915, published an expanded version of his 1912 book *The Origin of Continents and Oceans*. This revolutionary work was one of the first to suggest *continental drift* and *plate tectonics*. He suggested that a supercontinent he called *Pangaea* had existed in the past, broke up starting 200 million years ago, and that the pieces "drifted" to their present positions. He cited the fit of South America and Africa, ancient climate similarities, fossil evidence (such as the fern *Glossopteris* and *mesosaurus*), and similarity of rock structures. The American F. B. Taylor had published a rather speculative paper suggesting continental drift in 1910 which, however, had attracted relatively little attention, as had previous such suggestions by Humboldt and Fisher. The book was translated to English in 1924, when it aroused hostile criticism. The proposal remained controversial until the 1960s.

The Meteorologist Who Started a Revolution

"Utter, damned rot!" said the president of the prestigious American Philosophical Society.

"If we are to believe this hypothesis, we must forget everything we have learned in the last 70 years and start all over again," said another American scientist.

Anyone who "valued his reputation for scientific sanity" would never dare support such a theory, said a British geologist.

Thus did most in the scientific community ridicule the concept that would revolutionize the earth sciences and revile the man who dared to propose it, German meteorological pioneer and polar explorer Alfred Wegener. Science historians compare his story with the tribulations of Galileo.

Resume of a Revolutionary

Alfred Wegener was born in Berlin on November 1, 1880. He studied the natural sciences at the University of

Berlin, receiving a doctorate in astronomy in 1904. He did not pursue a career in astronomy, however, but turned instead to meteorology, where the telegraph, Atlantic cable, and wireless were fostering rapid advances in storm tracking and forecasting.

In 1905 Wegener went to work at the Royal Prussian Aeronautical Observatory near Berlin, where he used kites and balloons to study the upper atmosphere. He also flew in hot air balloons; indeed, in 1906 he and his brother Kurt broke the world endurance record by staying aloft for more than 52 hours.

Thanks to his upper-air work, Wegener was invited to join a 1906 Danish expedition to Greenland's unmapped northeast coast. He was thrilled: As a youth he had dreamed of exploring the Arctic, attracted by both the scientific and physical challenges. During this expedition Wegener became the first to use kites and tethered balloons to study the polar atmosphere.

When he returned to Germany, Wegener's Arctic research earned him a position at the small University of Marberg where, beginning in 1909, he lectured on meteorology, astronomy, and "astronomic-geographic position-fitting for explorers."

Both students and professors were impressed by the clarity of the young meteorologist's thinking, by his ability to explain difficult concepts in simple terms, and by the intuitive leaps of his nimble mind.

"With what ease he found his way through the most complicated work of the theoreticians, with what feeling for the important point!" a somewhat-awed colleague, physics professor Hans Benndorf, would later write. "He would often, after a long pause

for reflection, say 'I believe such and such' and most times he was right, as we would establish several days later after rigorous analysis."

In 1911, still only 30, Wegener collected his meteorology lectures into a book, *The Thermodynamics of the Atmosphere*, which soon became a standard text throughout Germany. After reading it, the distinguished Russian climatologist Alexander Woeikoff wrote that a new star had risen in meteorology.

In 1912, the year of his continental-drift presentations, Wegener again answered the siren call of Greenland. His four-man expedition "escaped death only by a miracle" while climbing a suddenly calving glacier on the northeast coast, then became the first to overwinter on the ice cap. The following spring, they barely survived the longest crossing of the great ice sheet ever made, traversing 750 miles of barren snow and ice rising to heights of 10,000 feet.

During these perilous adventures, Wegener collected volumes of unique scientific data. The resulting publications established him as one of the world's leading experts on polar meteorology and glaciology. According to fellow meteorologist and Greenland explorer Dr. Johannes Georgi, Wegener was the first to trace storm tracks over the ice cap.

When he returned to Marberg, Wegener resumed work on continental drift; marshaling all the scientific evidence he could find to support his theory.

"One day a man visited me whose fine features and penetrating blue-gray eyes I was unable to forget," the great German geologist Hans Cloos later recalled. "He spun out an extremely strange train of thought about the structure of the Earth and asked me

whether I would be willing to help him with geological facts and concepts."

Using this pioneering interdisciplinary approach, Wegener wrote one of the most influential and controversial books in the history of science: *The Origin of Continents and Oceans*, published in 1915. Because of the First World War, Wegener's book went unnoticed outside Germany. In 1922, however, a third (revised) edition was translated into English, French, Russian, Spanish, and Swedish, pushing Wegener's theory of continental drift to the forefront of debate in the earth sciences.

The Origin of Continents and Oceans

Wegener began by demolishing the theory that large land bridges had once connected the continents and had since sunk into the sea as part of a general cooling and contraction of the Earth. He pointed out that the continents are made of a different, less dense rock (granite) than the volcanic basalt that makes up the deep-sea floor in which Wegener proposed that the continents floated somewhat like icebergs in water. Wegener also noted that the continents move up and down to maintain equilibrium in a process called isostasy. As an example he cited the sinking of Northern Hemisphere lands under the weight of continental ice sheets in the last ice age, and their rise since the ice melted some 10,000 years ago.

Given the difference in density between continents and sea floor, plus the process of isostasy, Wegener reasoned that if continent-size land bridges had existed and somehow been forced to the ocean bottom, they would have "bobbed-up" again when the force was released. Therefore, since fossil and geological evidence clearly showed the continents were once connected, the only logical alternative was that the continents themselves had been joined and had since drifted apart.

Wegener also offered a more plausible explanation for mountain ranges. According to the cooling, contracting-Earth theory, they formed on the Earth's crust as wrinkles form on the skin of a drying apple. If this were so, however, they should be spread evenly over the Earth; instead mountain ranges occur in narrow bands, usually at the edge of a continent. Wegener said they formed when the edge of a drifting continent crumpled and folded--as when India hit Asia and formed the Himalayas.

He also noted that when you fit Africa and South America together, mountain ranges (and coal deposits) run uninterrupted across both continents, writing:

It is just as if we were to refit the torn pieces of a newspaper by matching their edges and then check whether the lines of print ran smoothly across. If they do, there is nothing left but to conclude that the pieces were in fact joined in this way.

By his third edition (1922), Wegener was citing geological evidence that some 300 million years ago all the continents had been joined in a supercontinent stretching from pole to pole. He called it Pangaea (all lands), and said it began to break up about 200 million years ago, when the continents started moving to their current positions.

Perhaps the best summary of Wegener's revolutionary theory was provided by countryman Hans Cloos: "It placed an easily comprehensible, tremendously exciting structure of ideas upon a solid foundation. It released the continents from the Earth's core and transformed them into icebergs of gneiss (granite) on a sea of basalt. It let them float and drift, break apart and converge. Where they broke away, cracks, rifts, trenches remain; where they collided, ranges of folded mountains appear."

Except for a few converts, and those like Cloos who couldn't accept the concept but was clearly fascinated by it, the international geological community's reaction to Wegener's theory was militantly hostile. American geologist Frank Taylor had published a similar theory in 1910, but most of his colleagues had simply ignored it. Wegener's more cogent and comprehensive work, however, was impossible to ignore and ignited a firestorm of rage and rancor. Moreover, most of the blistering attacks were aimed at Wegener himself, an outsider who seemed to be attacking the very foundations of geology.

Vindication of a Visionary

Despite general rejection, Wegener's compelling concept continued to attract a few advocates over the next several decades. Then, beginning in the mid-1950s, a series of confirming discoveries in paleomagnetism and oceanography finally convinced most scientists that continents do indeed move. Moreover, as Wegener had predicted, the movement is part of a grand scale process that causes mountain-building, earthquakes, volcanic eruptions, sea-level fluctuations, and apparent polar wandering as it rearranges Earth's geography.

Geologists call the process "plate tectonics," after the large moving plates that form the planet's outer shell. These plates carry both continents and sea floor, but unlike the sea floor, the less-dense, buoyant continents resist subduction into the mantle. Thus, despite significant differences in detail, Alfred Wegener was right in most of his major concepts. Plate tectonics also confirms the accuracy of many of his paleogeographic reconstructions.

Ironically, though the lack of a credible driving force was the main objection to Wegener's theory, plate tectonics has been almost universally accepted despite the absence of

scientific consensus as to its cause. Convection currents in the molten favorite candidates; Wegener discussed this possibility in his 1929 revision.

The Obligation to Be a Hero

Wegener returned to his beloved Greenland in the spring of 1930 as the leader of 21 other scientists and technicians. They were to systematically study the great ice cap and its climate. To carry out this ambitious program, Wegener planned to establish three observation posts at latitude 71 degrees N, one on the western edge of the ice, one on the eastern edge, and one at mid-ice.

From the beginning, things went badly. Though the main party arrived in western Greenland on April 15, harbor ice hung on stubbornly until June 17, when they were finally able to land their 98 tons of supplies at the base of the ice cap. They were already 38 days behind schedule when they began to move up onto the ice cap to set up the western camp.

On July 15, a small party headed inland, establishing the mid-ice camp, "Eismitte," on July 30. It was 250 miles inland at an elevation of 9,850 feet. (The eastern station was established later by a separate party that landed on the east coast). Because of unusually frequent bad weather, only a fraction of the supplies meteorologist Georgi and glaciologist Ernest Sorge would need for the harsh Greenland winter reached Eismitte in the next month and a half. Even the hut they were to live in and their radio transmitter didn't get through.

Wegener had earlier written his brother Kurt of the polar explorer's "obligation to be a hero." This was doubly true for an expedition leader, so on September 21 Wegener himself led a 15-dogsled run to relieve Eismitte. He was accompanied by fellow meteorologist Fritz Lowe and 13 Greenlanders. Because of poor snow conditions and bad weather,

magma of the upper mantle are the

however, they covered only 38.5 miles the first seven days. Wegener wrote, it was now "a matter of life and death" for his friends at Eismitte.

As the relief party continued to struggle eastward, all but one of the Greenlanders gave up and returned to the base camp. Wegener and his two remaining companions finally reached Eismitte on October 30, after traveling 40 days. For the last five days temperatures had averaged -58 degrees F and a constant, frigid wind had blown in their faces.

At Eismitte, the travelers were delighted to find that Georgi and Sorge had been able to dig an ice cave for shelter; moreover, they thought they could stretch their supplies through the winter. The heroic rescue run had been unnecessary, but there had been no way to let Wegener know.

Fritz Lowe was exhausted and his feet and fingers were badly frostbitten. Wegener, on the other hand, "looked as fresh, happy and fit as if he had just been for a walk," marveled Ernst Sorge. "He was fired with enthusiasm and ready to tackle anything." Rasmus Villumsen, the 22-year-old Greenlander who had accompanied them, was also in good shape.

Two days later, on November 1, the group gaily celebrated Wegener's 50th birthday. Then, because supplies were short and Fritz Lowe had to stay to recuperate, Wegener and Rasmus Villumsen, the wind now at their backs, set off confidently for the coast. Their friends would never see them alive again.

When Wegener, Lowe, and Villumsen failed to return, those at the base camp assumed they had decided to overwinter at Eismitte. When April came with no word, however, they sent out a search party to make sure. Some 118 miles inland the searchers came upon a pair of skis stuck upright

in the snow, with a broken ski pole lying between them. They dug around, but found only an empty box. Puzzled, they went on to Eismitte, but when they heard Wegener and Villumsen had left six months before, they hurried back to make a more thorough search.

On May 12, 1931, they found Wegener's body. It was fully dressed and lying on a reindeer skin and sleeping bag stitched into two sleeping bag covers. Wegener's eyes were open, and the expression on his face was calm and peaceful, almost smiling.

Apparently he died while lying in his tent. His friends thought Wegener probably suffered a heart attack brought on by the tremendous exertion of trying to keep up with the dogsled on skis over rough terrain. Rasmus Villumsen obviously buried Wegener with great care and respect, and then presumably pressed on for the base camp, only to disappear into the white wilderness. Though a long, exhaustive search was made, the faithful Greenlander's body was never found.

Wegener's friends left his body as they found it and built an ice-block mausoleum over it. Later they erected a 20-foot iron cross to mark the site. All have long since vanished beneath the snow, inevitably to become part of the great glacier itself. It is a most fitting resting place for this remarkable man who devoted so much of his life to the study of that remnant of the last ice age and whose vision of moving continents provided the key to the mysteries of more ancient glacial epochs.

IS STRESS REAL?

Varun Singla

A small child, after returning from his school and hearing his teacher say, "These days, even young students are facing stress..", out of curiosity, asked his father, a scientist at ABC university, "Father, what is stress?" The father replied, "Stress is the force acting per unit area." Well, that was the father's simple version of the word 'stress' to a child, but this article is about 'stress' we all experience in our lives every now and then. The dictionary meaning of the word 'stress' is - a specific response by the body to a stimulus, as fear or pain that disturbs or interferes with the normal physiological equilibrium of an organism. Wow! The meaning of the word 'stress' itself is too complicated, what to say of curbing it! But, the good part of the story is that it is really not impossible to eliminate stress from our lives.

This article won't give you steps, methods, etc, etc....on how to beat stress, but will lead you to a 'Universal Truth' to transcend 'stress' and live a life full of peace and joy- A spiritual conclusion about the real governance of our lives.

From the view point of students, we tend to be overwhelmed by the challenges in front of us. Some of us feel stressed due to academic load we have to face the; some due to the financial crisis; and some due to various personal reasons. Under these circumstances, we are inclined to sacrifice all our enjoyments, thinking that it is natural and necessary to do so to handle the situation which we think is supposedly to be a 'stressful situation'. Then we attempt to 'tackle' each of the problems, individually or

collectively, using 'human effort'. Sometimes we succeed and at other times we fail. But one thing is sure that our technique(s) of handling a particular situation may not prove equally effective in some other situation. Also, a particular technique may work only temporarily and after some time we may find ourselves confronting the same problem all over again. Naturally the questions arise, "Was there a flaw in our tactics? Is there a better way of doing the things, which might lead to more permanent solutions?" The question more importantly for us to answer is, "Is there really something called 'stress' or is 'stress' real?"

We feel 'stressed' when we find that things are getting out of 'our' control. But, is it really 'us' who have control over the situation? Let's have a look at the planets in our solar system. We observe that the motion of planets is not being controlled by 'us', but still we wonder how everything goes so meticulously, so harmoniously, so effortlessly and so eternally! The fact is that 'a power' beyond 'our' imagination and control governs the system of movement of planets effortlessly. Let's understand that the same omni-potent, omni-present, omni-science, power, which is the only cause, creator and governor, controls everything in the universe. We feel helpless when we try to take every situation in our own hands and not rely on that eternal 'power' which we may call as 'God' and try to give 'stress' more reality. Whereas all we must need to do under any situation is to know that God is the only power and reality, who is capable of handling any situation harmoniously,

without any discord. God loves us and never wants us to be in any trouble, facing a 'stressful situation' for instance. A lack of understanding of this basic 'Universal Truth' is itself a form of an uncertainty in our lives what we might call 'stress'. We must have complete understanding of him (God) and his nature. Then and only then we know that He has made us proficient enough to confront any situation in the life.

Having said that it would be incorrect not to trust Him (God) in every situation, it will be equally incorrect not to do our duty, not to labor, sit back and relax, thinking that God will take care of the situation! Our job is to do our best under any situation, using the divine intelligence given to us by our Maker (God), and leave the rest to Him. When we do this, we will feel peace and tranquility within. We can always reassure ourselves that God will send us the right ideas at the right time to handle any situation. Some of us may not realize that all the right ideas come from God, but they actually these do come from that all-intelligent source. We only need to first hear and accept these ideas before finally applying these ideas to a particular situation we are confronting with.

Whatever has been said in this article is demonstrable and has been demonstrated by thousands and millions of people across the globe. Why don't you become one of them and experience God's blessing in your lives and live a life 'stress-free'!!!

"Every building is a snapshot of a particular time and place- the raw materials that were on hand, how far the builder's technology had progressed and the aspirations of its creators. But architecture also makes a powerful statement about the unique culture it reflects, whether the elegant simplicity of a glass bungalow or the dramatic complexity of a chrome sky scraper. One whispers, the other shouts, but both are enduring reminders of cultural identity."

-Todd Gipstein

Summer Camp 2006 @ IIT Kanpur

Scaling Heights with Civil Engineering

To counteract the downward spiral that Civil Engineering seemed to be caught in, a germ of an idea struggled for expression in the minds of Dr. Sudhir K Jain, Professor at IIT-K and Prof. Mahesh Tandon, Managing Director, Tandon Consultancies Private Limited. They were painfully aware that at the undergraduate level, students take up courses in Civil Engineering as a part of the daily curriculum, without appreciating its intrinsic value. Even at the end of 4 years, they remain uninformed about the diverse fields of Civil Engineering, and lay themselves open to the lure of other seemingly more lucrative professions. It was felt then that an effort should be made to help the student take an informed decision on their choice of career. Their interactive discussions led to the conceptualization of the first Summer Camp in 2001 for the students of Civil Engineering at the undergraduate level and their consistent effort has led to sixth successful Summer Camp this year.

Fifty five students from reputed engineering colleges across the country were selected for the 6th consecutive Summer Camp from 7th June 2006 to 4th July 2006. Each day of the 28 days of the Camp was planned for a variety of academic and physical activities keeping in mind the holistic development of the participants.

A typical day began at 6:00 AM with morning exercises under the professional guidance of Major Raman and Major Akash. The pre-

Another activity of the Summer Camp was a week-long trip to Delhi. The mornings were devoted to lectures by professional and academics, while the afternoons were spent on visiting ongoing construction sites, and laboratories at IIT Delhi. Mr. Alok Pande (TCPL) discussed the design details of Khalsa Heritage and Lotus Temple. Mr. Shishir Bansal (Executive

lunch session was dedicated to interesting videos on construction of world famous structures, interactive lectures and project presentations by the participants. These sessions included lectures from eminent personalities in civil engineering practice and IITK faculty. The IITK faculty delivered a series of lectures wherein they introduced the various disciplines of civil engineering which further showcased the current needs and challenges to build our nation. The faculty and visitors to the campus interacted freely with the participants in the lunch breaks. The afternoon session included Civil Engineering Games, quizzes and small lab projects at a competitive level geared to test presence of mind, common sense and knowledge of civil engineering. The evening was dedicated to sports where competitions were organized in a variety of tournaments. Cultural activities and light entertainment followed dinner, ending around 10:30 PM.

The Camp was kick-started by two lectures namely "Dig Deep to Fly High" by Mrs. Ranjana Tandon (TCPL) and "Choosing a career" by Dr. S. K. Jain (IITK). They served as an eye opener for the students, who realized the importance of self-actualization and the value of informed decision-making in selecting their career. Shri A. P. Bahadur (Ministry of SRTH) discussed the safety in road design and intelligent transport systems. Mr. Pradeep Dutta (Z-Tech, India) showcased the

Engineer, DTTDC) spoke on the innovations brought into the construction of underpass at Madhuban Chowk. Mr. A. K. Sharma (Director, CPWD, New Delhi) discussed the deterioration of concrete in urban constructions. Mr. A. Chakraborty (Director General, CPWD, New Delhi) spoke on the concept of urban transportation with

applications of Geosynthetics in the modern world. Mr. Jose Kurian, (Chief Engineer, DTTDC) spoke on the planning, design and construction of Wazirabad cable stayed bridge.

An open house seminar titled "The importance of Post-graduation in Civil Engineering" was organised during the camp, which concluded with a note that post-graduate study does not only improves thinking process for gaining in-depth knowledge in a subject but also gives training of focusing the mind to quality work. Hence, it is essential for sustainable growth in civil engineering career. A personality development workshop was conducted by Ms. Rashmi Dutt for a period of two days and the students learnt the value of effective communication skills and attitudes in a professional environment.

Apart from technical lectures and presentations by visiting luminaries and IIT Kanpur faculty, a series of "Popular Lectures" were organized. The first lecture by Dr. N. K. Sharma, gave an insight to the students about how they could come out of their shells and improve upon their performance and their surroundings. Dr. CVR Murty delivered a lecture on the traditional methods of bringing up a child pointing out its shortcomings. Dr. A. K. Mallik talked about the Exciting Prime numbers and Dr. H.C. Verma demonstrated interesting and simple physics experiments to break the traditional myths that continue in the science text-books.

reference to Commonwealth Games 2010 infrastructure. Another highlight of the week was the visit to Delhi Metro Rail Corporation site followed by an inspiring lecture by Dr. E. Sreedharan, the man behind the DMRC project. A general observation after the Delhi visit was that the participants of the Summer Camp acted more responsibly, bonded more

easily and interacted more professionally.

Based on the overall performance of the candidates in various events, two best campers were selected, viz. Miss Divya Bajaj from School of Building Science and Technology, CEPT University and Mr. Saurabh Tripathi from BIET Jhansi.

The camp was largely helped by a team of 24 volunteers (PG students from IITK) who took care of many day to day activities which included managing the team and organization of various sessions. As a by-product of the summer camp, the organizing team gained vastly in terms of team

spirit, and matured as individuals. Dr. Ajanta Sachan, who also helped in coordinating the event, observed that such an event can also help the new camp coordinators in many ways to grow in their career. Srikanth a volunteer in the camp considered himself as a student in the camp. Ravi, who was in-charge of the cultural sessions, said that the camp taught him to take the lead and make many decisions. Dr. Amit Prashant (IITK) and Mrs Ranjana Tandon (TCPL), the camp coordinators, feel warm and thankful to many people who contributed in various forms for successful completion of Summer Camp 2006.

Hosts:

Indian Institute of Technology
Kanpur

Tandon Consultants Pvt. Ltd., New
Delhi

Sponsors:

Indian National Academy of
Engineering, New Delhi

Co-sponsors:

Larsen and Toubro Limited, Chennai
Tata Tiscon, Kanpur
SIKA (India) Pvt Ltd.
MC-Bauchemic (India) Pvt Ltd
Z-Tech (India) Private Ltd.
Delhi Metro Rail Corporation

My Experience with SUMMER CAMP-06

Pramod Chandra Tewari

I could not resist myself from sharing my feeling and attachment with Summer Camp-06 and came to keyboard for penning down my experiences. At a first glance, Summer Camp is the life transforming experience as appraised by most of the participants whom I am in touch till date. The transformation is in terms of getting a vision and keen interest towards research work and applied civil engineering rather to have a series of lecture classes and solving numerical problems of subjects in their respective institutes. The camp provides a wonderful opportunity to peers towards the possible career options through the lecture series delivered by our esteem faculty members and the distinguished personalities from the industry and the government organizations and having an industrial tour of seven days.

In Summer Camp-06, I was entrusted with the responsibility of Event Management and Hospitality. The responsibility was to make the stay of participants at IIT comfortable and bestow them with life long memories. The accommodation was arranged at

Hall of Residence-5 for boys and the Girls Hotel for girls. Participants were representing all parts of nation so maintaining balance in the varieties of food stuff was also of prime concern. Major issue was to acclimatize the participants with the hot and humid climate of Kanpur. Some of them got sick and timely consultation with doctor was of utmost urgency.

Involvement in extracurricular activities provides the chance to implement and even to develop the interpersonal skills. According to Dr. E. Sreedharan (MD, DMRC, New Delhi) the ingredients of interpersonal skills which are required to succeed in any sphere of life are *Integrity, Professional Competence, Punctuality, Robust Health, Communication Skills and Sterling Character*. Participation in such events provides the platform from where one can enrich the above mentioned elements related to team work and leadership traits by learning and making mistakes. *They rightly said today's learning from mistakes brings tomorrow's rewards.* In a nutshell it allows a smooth transition from academics to the new job conditions or in other words one can easily adapt

to the new work environment. Not only for the new job environment, but at every walk of life, we have to deal with new challenges, face difficult situations and still one has to keep his composure and emerge out as a victor. All these traits make us more competent in such a competitive era.

Personally, I acknowledge that this summer camp has boosted me up a step forward in confidence level at both technical and personal fronts. As a student coordinator, we had responsibilities to manage a 30 days spanned camp comprised of coordination among other coordinators, interaction with competent authority to finalize the events, managing the 7 days industrial tour etc under the guidance of faculty coordinator. Lectures delivered by DMRC managing Director E. Sreedharan, eminent leaders from industry like Mr. Mahesh Tandon, many other executives and the esteem faculty members infused many new aspects of Civil Engineering. Besides these talks, the personality development workshop conducted by Ms Rashmi Datta was simply superb. We all

volunteers enjoyed those stoffs with the same spirit as that of the participants. The Summer Camp'06 attributed a lot to the best moments and the sweet memories I am carrying from IIT for life time. The zeal and passion of our team work made us closer than ever before. We emotionally got attached with the participants and vice versa which

reflects from the facts that we shared and enjoyed every moments of joy and sorrow of participants' as our own with the sense of belongingness and of course from tears at the time of their departure. We are in touch with most of the participants via telecom and e-mails which I feel, are itself a token of appreciation for small contribution made by our team for

smooth and successful functioning of the camp activities. Finally I conclude with the remark that the prior mentioned ingredients to develop ones' inter personal skills are well included in summer camp activities to feel it and infused in themselves both as a participant and as a coordinator.

My New Year Resolution

Rohit Maheshwari

New Year resolution is a commitment that an individual makes to himself, and to keep to the resolution often involves a lifestyle change. For me, New Year's Eve has always been a time to look forward to what the coming year has in store.

I follow important rules while making a resolution: to be realistic at that point of time. This year my resolutions are to be optimistic. The world belongs to the optimistic. Stop comparing you with others, comparison should be relativistic.

Compete with yourself and you will automatically find yourself on top of this world.

Most Important resolution is not to repeat mistakes what I committed in last semester, to work upon my weaknesses and try my level best to make them my strengths. Not to bunk any more classes and tutorials (esp. mathematics) and to achieve a good SPI, this semester.

Academics is just a part of life at IITK and I will try not to make it bigger than life, by taking part in various

events that are held over here and to avail the facility given to us. That is, precisely, to make optimum use of time that I have here.

Looking back, I realize that I managed to accomplish some of my resolutions and many more were broken shortly after they were set. Finally, with many resolutions not satisfying and gratifying this year, I have resolved not to make any more resolutions---Oops! Here I go again...

निशा की बातें

-शुद्धशील घोष 'निशा'

सूनी सड़के और चॉदनी रातें
निशा से होती है निशा की बातें

पौ फटी,
हुई सुबह,
हुई बरसातें
हाथ में टूथब्रश
केशराशी अस्तव्यस्त
ऐसे में ही होती है
अकसर मुलाकातें
निशा से होती है निशा की बातें

चले पहन बरसाती,
और हाथ में छाता
चप्पलें रबड़ की,

उफ हाय चला भी नहीं जाता
पर फिर भी सर रख
बस की खिड़की पर
होती है बातें,
निशा से होती है निशा की बातें

एक समुन्दर पन्नों का
आखों के सामने,
चाय की चुस्कियाँ
पन्नों पर कलम
लगता है नाचने
पर ऐसे में भी
आमने सामने शायद
होती है बातें
निशा से होती है निशा की बातें

फिर हुई शाम
जब चले घर की ओर
फिर वही बस
वही खिड़की
और वहीं पर
होती है मुलाकातें,
निशा से होती है निशा की बातें

अभी है रात
है सूनी सड़के और चॉदनी रातें
पर अभी भी
निशा से होती है निशा की बातें॥

Cover Story...

Student-faculty interaction...Is it how it is supposed to be?

T.V.N. Srinivas

The title says it all. We are in a situation where we need to talk about *how to talk* or much worse, whether or not to talk! Yes, this is all about the deteriorating levels of interaction between faculties and students. Mutual interaction is not given due importance in the present scenario. Gone are those days when faculties and students used to be friends and carry on the work together. Gone are those days when both used to go to restaurants in cars and bikes. This is definitely effecting the quality and quantity of research in the Institute in general and the Department in particular. The situation is much worse in the Undergraduates who are considered to be *useless* by some of the faculty members.

The first ones to be blamed in this regard are students. This fact is accepted even by the student community. Students are confined either to the lecture hall complex or their hostels and faculties are confined either to lecture hall complex or their office rooms (during working hours). So, the only intersection point is the 'lecture hall complex,' which unfortunately, due to some reasons, becomes just another boring classroom session in most cases. An instructor here, to the student, is just another teacher who does not make any difference to him other than perhaps providing him with a project in his summer break, of course with a probability of not more than the Halley's Comet visiting the earth. Most of the students today are either not interested in interacting with professors or do not find time (yes, they really do not!)! "Students are also busy with their routine and non routines," they say. Some students do not even know the names of professors in the department. Much worse, some of them do not find it important to talk to the faculty as they

say that they are mature enough to help themselves.

Students, when faced with any troubles, approach their seniors but not the much experienced faculty members who are almost always ready to help them. But who are those seniors? They are no different from the juniors except for that they are a bit more experienced in terms of how *not* to deal with a situation. Students discuss their problems among themselves and sometimes even find their solutions but again, these things do never go to faculties. For an example, many faculty members

invite them to their houses and also recommend them to talk to their family members to get to know in detail about how to choose a career. But exceptions always exist. This may be a faculty member himself or a 'nice' member in a bad mood.

Some students have mentioned in one of the group discussions that, some faculties, when approached for discussions regarding academics/personal issues, find many ways to shun them off! Some say "I am going out tomorrow. So I have a lot of work to do today" or "Regarding this issue, you may approach a much experienced professor in our department" or as simple as that "I am busy!" What students say after experiencing this is that they feel extremely frustrated as it already needed them a lot of courage to approach a professor and then they are shown the door. Some faculties may be so sarcastic in their words that students usually face a 'starting problem' in dealing with them. One of the students said "Un Sir ke paas jaane me dar lagta hai!" Though once they get 'used' to them they find them very friendly and helpful.

Some faculty members are so friendly that they even offer their students with coffee and snacks.

frame their course grading system based on attendance too. Why should there be a problem of attendance when the student and the instructor know each other quite well and the student does not want to bunk the classes? Such issues are never raised by the departmental UG/ PG committees. The efforts made by SOCE also get fulfilled only partially as only gets a 'decent' participation from both the sides.

Now let the faculty members be looked upon. Whatever they are, however they 'behave' with the students, the only thing which matters here is how they are looked upon by the students. The good news is, most of the faculty members are nice and enthusiastic enough to help a student in need. In fact, some are so friendly that they offer the students with coffee and snacks. Some even

Let us move on to the scenario in lectures. How many instructors put a compulsory attendance rule in their courses or have some weightage to attendance in their grading system? Here one point should be noticed-attendance is different from participation in the classes. How many exactly know why students bunk the classes. When asked the same to a few students, every one of them, without exception replied that either the instructor presents the material in an extremely boring way or that they are made to feel that the particular course is useless for them. But No! At the same time, a student who knows the instructor of a course

personally regularly goes to his lectures. How many can deny this?

Faculty here is so qualified that some of them, sometimes get to feel that students got through JEE or not so qualified before them. Some of them quote their experiences with the students during their projects in summers. They argue that students are not motivated in doing work and producing quality research. But how many of such projects have been assigned to the students judging them purely on the basis of their CPI and not through their interest? Of course CPI is an important criteria and no one can deny that. But is it the only criteria. A small survey conducted two years back reveals that most of such failed projects are a result of judging the students on the basis of CPI. One of the professor once even said "I have seen many students having a grade above 8.0 or even 9.0 and still have absolutely empty brains. Why would I like to work with such students in IIT when I could get them in any local college?" Is he wrong? Is it not the interest and insight of the student which matters the most in taking such projects/internships? One of the faculty member once said "I have known a batch in which only two students were worth teaching and talking to. Rest were simply useless." Is it how the attitude supposed to be?

We can find those golden old days of nice interaction when it reaches its peak during the hall events like the corresponding Diwali celebrations or Hall days when faculty members are invited by the students to join their celebrations. Though this may have several different intentions behind it, this brings out a new ray of hope that the interaction levels have not yet been completely deteriorated.

The role of SOCE

The Society Of Civil Engineers tries to play an active role in improving the Faculty- Student interaction in the department. This is done through a series of both cultural (freshers,

farewell, cricket matches, dance parties, dinners etc) and intellectual (quiz, open house discussions, CIVERE etc) events. Though such events are organized with extreme levels of enthusiasm among students and faculties, the 'level' of actual participation has been reasonably low from both the sides. Students are so busy with their academics, net surfing, movies and other time wasting activities and faculties with their research, conferences, consultancies, family responsibilities that they, unfortunately, do not find time to participate in the events.

Though several attempts from both the sides of faculties and students are going on, there is a lot still left to do in this direction. A good interaction always helps in attaining prosperity.

(inputs: Dr. Amit Prashant, Raushan Kumar Singh, Vaibhav Singhal, Ankit Sachan, Ashish Singh, Varun Singla, Ravi Goyal, Abhinav Gupta and many others)

Perspective of UG Coordinator...

Raushan K Singh

As the SOCE UG Coordinator, I enjoyed my responsibilities to motivate and help people in organizing various events in the Department of Civil Engineering at IIT Kanpur. I tried my best to make each event of SOCE a success. But still, I feel that it would have been much better if the participation of the members were more encouraging.

In fact, the biggest challenge of every event was to attract a healthy attendance. Here, I would like to cite that the purpose of SOCE includes providing opportunities where Students and Faculty members can interact on a common platform. In the events of SOCE, this interaction should just happen but now what is being observed is that due to the poor participation from both the ends, things are not working out. So this year we planned other way round and arranged certain events specially to

increase the Interaction. The Open House Discussions were part of this strategy where we tried to discuss and solve various issues together.

You can always ask: What is the need of this Interaction? Then if you notice what happens in most of the cases is that if we are not happy with certain issues of the Department or Institute, we just discuss it with our batch mates or wing mates and develop our perspective. But we occasionally try to discuss those fair or unfair matters with any faculty member and in this way, the other side of the coin remains unexplored. The same thing must be happening with faculty members.

They might remain unaware about the Student's view and some matters are taken for granted.

This was just one point in the necessity of the Interaction. There are numerous issues related to our career which requires some expert opinion which can be provided by our Faculty Members. So I would like to take this opportunity to urge you to show healthy participation in the events of SOCE so that the basic purpose of Faculty Student Interaction is automatically served. We should lead by example so that the other departments follow our initiatives like always.

Finally I would like to thank all the Faculty Members, SOCE Team members and volunteers for their best possible help and support in the proper functioning of SOCE. I would also like to thank my batch mates and seniors for always being there to help me in all SOCE affairs. And I wish all the best to the incoming team of SOCE for carrying forward the hard work and move ahead.

/Raushan K. Singh
UG Coordinator, SOCE



Panel Members

Students

Amritanshu Shrivastava
Anand Hingway
Kaustubh Dasgupta
Mayank Jain
Pramod Tewari
Pushan Chatterjee
Sukrit Goel
Sumant Singh

Moderators

Faculty
Amit Prashant
Tarun Gupta

Students
Anand Hingway
Suddhasheel Ghosh
Suresh A. Kartha

Summary Written By:

Anirban Dhar, Heman Kaushik, Kaustubh Dasgupta

Years of research in higher education supports the fact that student-faculty interaction is positively associated with several aspects of student success, for example, academic performance, persistence to graduation, personal and intellectual development, educational aspirations, satisfaction with faculty and department, career prospects, curriculum development, etc. The interaction has been identified as one of the primary sources influencing the attitudes, interests, and values of students, and plays an important role in the learning environment. Therefore, a better interaction between students and faculty is necessary for overall development of any educational institute. In order to develop a good interaction between students and faculty of Civil Engineering Department of IITK, Society of Civil Engineers (SOCE) decided to conduct a series of Open House Discussions. First two discussions were held in the month of September 2006 and October 2006 with “academic system at IITK” and “thesis/BTP delays in the department” as core issues. The third discussion on “Career prospects and curriculum development” took place in January 2007. The discussions were attended by several students and faculty members in the department, and fruitful discussions took place on several related topics. The fact that even some faculty members could not control their emotions during these passionate discussions stresses the need for conducting more such sessions in future.

SOCE take this opportunity to thank all the faculty members and students of Civil Engineering Department to make this event a big success. Thanks are also due to all other persons who helped in one way or the other during conduction of these discussions. Summary of discussions held during these meetings are appended herewith with a hope that these will help the higher authorities and policy makers in taking decisions for the overall development of our department.

Proceedings of First Open House Discussion on 24 September 2006 at L-15 (4:30-6:00 pm)

Faculty Panel Members:

Animesh Das
Ashwini Kumar
Bithin Datta
C.V.R. Murty

One of the major concerns raised by students time and again is the different academic system adopted in IITK, especially, the grading system, as compared to other IITs. This was the primary topic of discussion during the first open house. The major points discussed in the meeting were:

1. Uniform Grading Policy

It was debated from the students' side that why could not there be a uniform grading policy for all IITs. It was argued that the present grading policy at IITK is significantly *harsher* as compared to that in other IITs, and therefore, during job placements (or while applying for higher studies) equal quality students from other IITs tend to get an unfair advantage because of higher grades. A uniform grading policy would be helpful for students to project themselves in a more realistic way.

However, the faculty members debated the practicality of having a uniform grading system at all the IITs. The reason given was that it is not practical to control the grading policy adopted by different faculty members at different places. Also, there were issues of how do we ensure that such a uniform grading policy is being implemented at different places. The faculty members opined that the grading system had been already put to review and it may not be advisable to change the grading system already adopted by IITK. The faculty members also opined that having a so called *harsher* grading system at IITK will not spoil the chances of students in getting into better job placements or higher

ranked technical institutions. Grades after all are not the only thing that matters; they reflect the performance of students in a course.

At this point of time, an idea about having a *Rule Book* for grading system was floated by a panel member, and the idea was overwhelmingly welcomed by the house. It is therefore recommended to put this idea of having a rule book for grading in the agenda of DPGC/Departmental meetings for feasibility study. It was apprehended that implementation of rule book may cause the system to lose its flexibility.

2. Pros and Cons of Relative Grading System

The advantages and disadvantages of having a relative grading system were debated. Like any system, the relative grading system also has its own pros and cons. From the students' perspective, one of the biggest disadvantages of the relative grading system is lack of transparency and consistency while allocating relative grades. On the other hand, the primary concern raised by the faculty members was that the overall performance of students is going down because of relative grading system, because sometimes students collude in scoring lesser marks to get better grades.

However, faculty members commented that relative grading system has achieved success in most parts of the world, and it is the way to go at IITK because there are several concerns in the absolute grading system also. For example, if an absolute grading system is brought into picture, the students may lose out on not being able to perform up to the expectations of the teacher. Therefore, the house encouraged faculty members to adopt a practice in which the grading policy that will be adopted in the course and expectations from students in the course are

announced at the beginning of the semester. It was argued that students regular in class, will always get an advantage of the relative grading system, because teachers recognize them and they are "given an upward push" while deciding the borderline cases.

Some faculty members raised concerns over the nomenclature adopted in the present relative grading system. For example, if "A = 10 points" is *Excellent*, "B = 8 points" is *Good*, and "C = 6 points" is *Fair*, how can the institute terminate a graduate student who has scored 6 points (SPI). The house agreed that there is an urgent need to further review the grading system adopted at IITK. The matter is recommended to be discussed further in DPGC/Departmental meetings.

3. Need for Having an Examination for Evaluating Students' Performance

A few panel members debated the need for having an examination to judge the caliber and understanding of students in a particular course. It was unanimously agreed that there is no other alternative system in place to judge the students' performance in a particular course.

4. Training of Teachers

It was debated from student body that teaching skills of all the faculty members differ significantly; the skills also depend upon the courses being taught and also upon the interest shown by the students. In order to improve the overall teaching standards, the house unanimously recommended that faculty members may be made aware of new trends in teaching styles; it was also recommended to have more informal discussions between students and faculty outside the class room.

With this the first open house discussion concluded with vote of

thanks to the organizers, panel members, and contributors.

Proceedings of Second Open House Discussion on 28 October 2006 at L-15 (4:30-7:00 pm)

Faculty Panel Members

Bharat Lohani

Mukesh Sharma

Partha Chakraborty

Rajesh Srivastava

The second Open House Discussion concerned the delays in (a) theses of Ph.D. and M.Tech. students, and (b) B.Tech. Projects. Major points discussed in the meeting are summarized below:

Delay in PhD Thesis

1. Intelligence and Motivation Level of Students

Concerns were raised from the student body on considerable delay in thesis work of students admitted through a proper admission procedure, which should guarantee sufficient intelligence level. Considering a reasonably flawless admission procedure for PhD program, are students not sincere and motivated enough to take up research seriously? For a student satisfying all these parameters, still there might be non-thesis assignments, e.g., Teaching Assistantship work, Industrial or Research project work etc., causing the delay in regular thesis schedule of the student.

Faculty members assured that average intelligence level of selected students is good enough for carrying out research work. However, the student must be sincere, self-motivated, and focused in doing research on the chosen topic, and these qualities are absent in many cases. Thesis supervisor should only provide the necessary technical and nontechnical guidance as and when required. A PhD student must realise that the thesis is his/her OWN work and

he/she has to work towards bringing it to fruition. Faculty members also emphasised that if TA work grossly exceeds the stipulated average time of *8 hours* per week or Project work consumes a lot of time on the part of student, the student should talk to the concerned TA advisor, Project investigator, or Convener DPGC directly for sorting out the issue. Both students and faculty members agreed that monitoring of individual time spent by each student in these assignments is not possible on the part of Department. However, TA work offers the student a chance to learn the subject and doing challenging research projects help in training of students in taking up research work on his own.

2. Parity in Comprehensive Examination

The issue of parity in the conduct of Comprehensive Examination was raised by the students. Currently, the number of subjects on which the written and *viva voce* parts of the Examination are conducted, differs significantly among the different specializations in the Department. This leads to differences in preparation time for the examination and gets reflected in the overall thesis completion time among students of different specializations. It was agreed that an absolute parity in the number of subjects and the qualifying criteria in the subject groups may not be possible. However, a formal Departmental policy can be formulated to bring parity among the specializations. The House was informed that a Review Committee for the Departmental Postgraduate programs has been formed and it will look into the policy of Comprehensive Examination.

3. Research Problem and its Evaluation

Another issue of concern was the possible influence of research problem on delay in thesis

completion. Faculty members and students unanimously agreed that PhD thesis involved exploration of new research areas, and the scope of work needs to be tuned according to the progress of work. Another suggestion was that evaluation of thesis progress at regular intervals of time will help in removing the possible constraints and other reasons of delay in accomplishing thesis objectives. Panel members also agreed that continuous evaluation system, officially existent in the Departmental policy, should be strictly enforced in all specializations.

4. Expectation from Students

Students were apprehensive that non-completion of thesis within a reasonable time-frame may be due to students not meeting the expectations of thesis supervisors. This becomes an issue of concern particularly when a large variation in thesis completion periods (*3-8 years*) is observed among the specializations. Faculty members clarified that the ability of a student to make a breakthrough in thesis work, aided with some luck, is the genuine reason behind the quick completion of thesis. The nature of thesis problem was also identified as one of the major factors behind this. Panel members also emphasised that quick completion of thesis has no correlation with low quality research work. True research work cannot be time-bound; however, it was agreed and reiterated once more that both student and thesis supervisor are responsible for ensuring completion of thesis within a reasonable time-frame.

5. Extension of Full Scholarship

One of the issues raised in the House was the extension of full scholarship after 5 years. Currently, the PhD students' stipend of Rs. 10,000/- per month at the end of 5 years is reduced to Rs. 5,000/- per month and this is continued for

another year. On the ground of genuine technical reasons for delay, the balance amount of Rs. 5,000/- per month can be provided to the concerned student. All the faculty members agreed that the proposal is a viable one, and for genuine reasons behind delay in thesis schedule, the Department can review the situation and provide additional Rs. 5,000/- per month to the concerned student. The matter is further recommended for discussion in DPGC/Departmental meetings. The Review Committee for Departmental Postgraduate programs can possibly look into and recommend the same officially.

Issues concerning M.Tech. Program

1. Selection of Thesis Supervisor

The major issue discussed in the House was that allocation procedure of M.Tech. thesis supervisor is still not well defined in the Departmental guidelines. Students were apprehensive that crude procedures adopted may lead to discouraging situation for students as well as faculty. The panelists agreed that the allocation process is not a flawless one. At the same time, faculty members emphasised that notwithstanding loopholes in allocation procedure, Masters program is intended to train the student towards becoming a researcher. Thus, allocation procedure should not be an issue of major concern; however, an alternative procedure was needed to be developed.

2. Delay in Thesis Completion

One of the panelists raised the issue of continuous evaluation procedure during thesis work to reduce the delay in completion. Instead of a single mid-term presentation, as present currently, three intermediate presentations can be arranged after every three months, culminating in thesis defence at the end of one year. Thus, the progress of work can be monitored in a better and effective

manner. Another suggestion was to make the student work hard during the initial two-three months, put the work in the right track and then monitor the progress. Although both the issues were discussed by panelists, no concrete proposal came up regarding the two issues.

Issues concerning B.Tech. Program

Faculty members unanimously voiced their concern that undergraduate project is being grossly ignored by the students, resulting in poor quality of work over the years. Although the B.Tech. project is officially recognized as a zero-credit course, the deteriorating quality of work might result in failing the student and repeat the course. Panelists urged the students to understand the importance of B.Tech. project and try to produce a respectable work.

With this the second open house discussion concluded with vote of thanks to the organizers, panel members, and contributors.

Proceedings of Third Open House Discussion on 20 Jan, 2007 at L-15 (4:00-6:00pm)

Faculty Panel Members

Pranab Mahapatra

Durgesh C. Rai

Ramesh P. Singh

Vinod Tare

The third Open House Discussion concerned the curriculum and career prospects of B.Tech., M.Tech., and Ph.D. students. The issue of industry-oriented curriculum covered two aspects, namely (a) changes in the coursework, and (b) changes in project/thesis work. Major points discussed in the meeting are summarized below:

1. Industrial Training in UG Program

In the current UG program, students are exposed to the realities of Civil Engineering industry only during summer internship at the

end of sixth semester. The student body was concerned (a) whether two months of internship is sufficient for getting adequate industrial exposure, and (b) whether the summer internship is really effective as a learning experience.

Panelists discussed about the purpose of industrial training; many a time, the technical quality of industrial training is overlooked for the sake of hefty stipends earned by the students. Instead of blindly going abroad for internships, good industrial exposure can also be obtained by arranging technical visits to a few major projects in the country. Although going abroad for internships can be an eye-opener with regard to the quality of training in a particular engineering firm, still careful selection needs to be done before finalizing the internships. One of the suggestions was that initially every student should spend some time with some Indian firm to get an overview of the Indian industrial scenario; after that period, the student should decide whether to continue internship with that firm or shift somewhere else.

One of the concerns from the student side was the lack of parity on availability of stipends during internship. The House agreed that the emphasis of internship program should be on value addition rather than availability of handsome stipends. Also, quality of assigned work during internship program depends on the industrial firm. Thus, optimum selection of industrial firms on the basis of quality training and stipend may not be possible for every student for the internship program.

One of the serious issues was monitoring the internship program. Due to lack of motivation in the assigned technical work, students tend to spend time more on other

activities. This may be due to lack of interest shown on the part of the industrial firm also. To make the internship program more effective, it was suggested that every faculty member should mentor a few students before the beginning of internship, and then continuously monitor the progress during that period. One of the panelists was also of the opinion that students should be allowed to carry out research work with any faculty member of the Department during internship. Also, the possibility of starting exchange programs with other universities for summer research programs can be explored for UG students.

2. Elective Courses

Since industry-academia interaction helps in more industrial exposure for undergraduate and postgraduate students, student body raised the possibility of more specialized elective courses being offered in the final year of the programs. These specialized elective courses will have eminent people from industry as visiting faculty members with arrangement of series of lectures, along with necessary industrial tours. This may give a good exposure and orientation of the students who are going to join a specific industry after graduation.

The panelists and the House unanimously agreed that demands and needs of industries always keep changing with time. Since, undergraduate engineering courses are tailored to teach the students the minimum basics of all subjects, continuous modification of curriculum is not feasible. Thus, instead of floating elective courses involving people from industry, seminar series can always be arranged for the students. This should evoke more interest among students. Although panelists suggested that more elective courses be offered for final year

students, the major identified constraints were lack of interest among students and scheduling of extra classes in the undergraduate course time-table. Thus, a trade-off is needed between the number of offered elective courses and the minimum number of compulsory courses. The House unanimously agreed that creating a course-structure, satisfying students' interests and solving all the logistics problems, is really a challenge and no unique solution is possible. The issue needs further discussions at the appropriate Departmental meeting.

3. Industry Based BTP/Thesis

Students floated an idea about doing B.Tech. projects and M.Tech./Ph.D. theses in those areas, which are directly related to some industrial projects. Such a practice would enhance the industry-academia interaction, and eventually help in better placements of the students. Faculty members informed the house that debate is already going on in DUGC meetings for industry based BTPs. However, in industries generally routine type of work is carried out and that cannot always be taken over as an M.Tech, or Ph.D. thesis. The house unanimously agreed upon that if there is a competent and good project requiring research, then that can be converted into a BTP or a PG thesis.

4. Temporary Position for Ph.D. Students after Thesis Submission

At IIT Kanpur, theses of Ph.D. students are sent out for review, and it generally takes 3 to 5 months (sometimes more) for the reports to arrive and further to defend the thesis based on availability of the examiners. Students suggested that the institute authorities may exchange interested students with similar students from other IITs/NITs and offer them a temporary position equivalent to

Lecturer. This will be of tremendous benefit to those students who want to pursue their careers in academics. The House welcomed the suggestion but also identified practical difficulties with such a procedure, for example, it may not be possible for all such students to spend one semester teaching at some other institute, particularly if the review reports arrive in between. Also, from institute's point of view it would be difficult to assign full teaching load to a student. One suggestion was to make it mandatory for all the Ph.D. students to teach/engage one full course/Lab before graduating. The House agreed that with the increasing number of students, such an initiative must be taken to reduce the teaching load on regular faculty members. This important issue may further be discussed in Departmental meetings.

With this the third open house discussion concluded with vote of thanks to the organizers, panel members, and contributors and with a hope that next round of open house discussions will soon take place.

Articles for STRENGTHS

All those interested can send in their articles/ poems/ arts etc for the next edition of Strengths at

strengths.soce@gmail.com

STRENGTHS Team



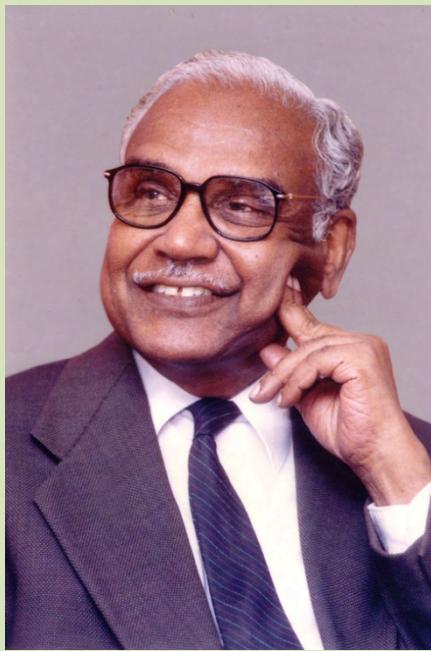
SOCE presents Open Quiz

" Open for **all** departments
" Any number of groups can participate
" No Civil Engineering technical knowledge required
" Just contain **atleast one person** from Civil Engineering De
Date: 27th Oct
Venue:
Time:



An interview with a Missionary- Padmashri M. Anandakrishnan

Mayank Jain, Sudhasheel Ghosh, T.V.N.Srinivas



Padmashri M. Anandakrishnan has been recently appointed as the Chairman, Board of Governors, Indian Institute of Technology Kanpur. Prof. Anandakrishnan is a distinguished educationist. He was a Senior Professor and Head of Dept. of Civil Engineering at IIT Kanpur during the period of March 1963 to May 1974. He was the Science Counselor, Embassy of India, Washington D.C., USA from June 1974 to April 1978. He served at United Nations Centre for Science and Technology for Development (UNCSTD) in different positions as Deputy Director, Senior Officer, Chief of New Technologies Section and Secretary of the Advisory Committee on Science & Technology for Development. He was also the Vice-Chancellor of Anna University, Chennai.

Prof. Anandakrishnan was conferred with 'Padmashri' in 2002. He received the Distinguished

Leadership Award from the University of Minnesota, USA in 2003. He was awarded the highest national scientific honor for contributions to the promotion of international co-operation in Science and Technology by the President of the Republic of Brazil, in 1996.

STR: How did you enter into the field of Administration? How did your 12 years experience in IIT Kanpur help it?

Anandakrishnan: Administrating is a skill. Not all can ably handle it. Some students have multiple talents. I mean, they are talented both in their routines as well as in administrative skills. Methods must be evolved and adapted to identify and hone such skills.

Regarding such skills, when compared to the others, generally people having a good academic background are proved to be better. They have something I term as Non-Linear Thinking, i.e. they can handle situations quickly, analyze them, find faults in them and are generally more flexible.

STR: Why do people say Civil Engineering is a great and vast department? How did Civil Engineering help you professionally?

Anandakrishnan: I wanted to work directly with society and IIT Kanpur gave me that experience.

Civil Engineering is an all pervasive discipline. Many people do not realize this. As a result, for an instance, when I was a professor and Head of the department, some assistant professor who would come from mechanical engineering could take a course in system dynamics. A physics professor would take a course in

Thermodynamics or a metallurgy professor would take a course in material dynamics and I would be a tutor in those courses where I learnt with the students and help them because I am a little more mature than students and I can be more helpful in tutoring. So, this cross disciplinary exposure, which was a big capital that I felt, when I became Science Counselor in the embassy of India, I had to deal with Agriculture Science, Nuclear, Health sciences, Space programs, I had to sign the agreements for the SITE program (Satellite Instruction Television Equipment), NRSA (National Remote Sensing Agency) etc. But, coming from Civil Engineering and the exposure which IIT Kanpur gave me, gave me that degree of confidence which even today I am able to exercise. I could talk confidently to the electronics people regarding the Stratostrophic wireless communication from Nainital in 70s. From Civil Engineering, we were involved in the design of that tower, analyzing it for various wind forces, vibrations etc. Our department- I and Prof. Kameshwara Rao, were involved in SriHarikota rocket testing work. I was involved in the design of airports etc too! So, many a times, you can find Civil Engineering being an all purpose discipline.

STR: Your message to our students

Anandakrishnan: Be sincere, be hard working and learn from every day of your life, learn from failures. There is no substitute to hard work.

Thank you Sir, for your valuable time and effort. This will definitely inspire and motivate our students.

An Interview with Inspiration- Padmashri E. Shreedharan

Mayank Jain, Raushan Kumar Singh, T.V.N.Srinivas



Padmashri E. Sreedharan, is regarded as one of those few engineering gems India has ever given to this world. After holding a number of important assignments with Indian Railways, on retirement in June 1990, Mr. Sreedharan was put in charge of the prestigious Konkan Railway as its Chairman and Managing Director. On completion of the Konkan Railway Project, he joined the Delhi Metro Rail Corporation Ltd on November 5, 1997 as its first Managing Director. He received many awards and honors in his life among which some important ones being the Best Design Engineer Award, 1999 given by the Institution of Engineers, India and Padmashri Award in 2001 for Nation Building. He was also honored with France's highest honor – Chevalier de l'Ordre National de la Legion d' Honour i.e. Knight of the Legion of Honor on 22nd November, 2005 in New Delhi.

STR: What made you take Civil Engineering as a profession and then continue as a manager?

Sreedharan: Civil Engineering as a profession is evergreen, full of opportunities and challenges. There is a terrible shortage of good Civil Engineers in the society. Actually any civil engineer would start his profession as an engineer and ends as a manager. This is an automatic transition and he is not responsible for this! These are the skills you gain through experience.

STR: Something about your initial days after graduation...

Sreedharan: During my time, there were only four engineering colleges in the whole of Madras presidency

B.Tech level courses are not enough for the students to become successful these days. Courses like your D0 (CE100) should be included in the curriculum along with some credits. You should stick to engineering services. I would never suggest any engineering student to go towards Civil services or Management.

STR: Something about DMRC...

Sreedharan: DMRC stands as a role model to various engineering projects in the country. Work here finishes before specified time and within estimated budget and with maximum accuracy. Public safety is the main motto here. An excellent work culture is maintained here.

We have reverse clocks in our offices which remind us of the time 'left' to finish our work. The noble work culture of DMRC can be extended to other sectors too to improve the situation there. Proper regulatory mechanisms should be developed and private sector organizations should be included in the work. We suggested the same to the Andhra Pradesh Government regarding the metro there in Hyderabad.

STR: And finally, your message to the today's youth...

Sreedharan: Develop a good character- honesty, punctuality, never speak ill of others, and try being the best. That would bring you all you need in your life. I wish you a very good luck for your future.

Thank you very much Sir for your wishes and wise words.

You are supposed to do what you are supposed to do and a little bit extra!

(Tamil Nadu, Kerala and most of Andhra). We were in high demand and did not even need to apply for any postings. Posts were offered to us by the government. But I did not want to join any of them as I was interested to join Railways. This was because of one of my professors who inspired me. He used to guide us and direct us towards making the society better. I took teaching for a while until it helped me pass my railways exam.

STR: What changes do we need to bring into the curriculum to make it solution oriented?

Sreedharan: Most of the companies these days have their own training programs and the people who have even a minute prior knowledge in those areas have an upper hand.



Faculty Interviews

Romancing with Civil Engineering

Here we present the faculty views and current trends upon the various specializations in Civil Engineering. The intention of this effort is to put before the students the opportunities before them and the actual need of the corresponding specialization. A team of professors were interviewed by the STRENGTHS team comprising of Abhinav Gupta, Ravi Goyal, Sahil Singhal, Srinivas and Varun Singla.

Engineering Geosciences

Dr. Rajiv Sinha

STR: How did geologic studies enter into our academic system?

RSi: The Geosciences initially evolved to facilitate resource exploitation. It gradually encompassed other aspects of the Earth including the earth's environment and the impact of resource exploitation on the environment. The Indian Sub continent is geologically very diverse and also very rich in terms of mineral resources. Further, we also have a diverse geomorphological settings ranging from large rivers, deltas, deserts, and glaciers to a vast expanse of oceans surrounding the country. The sub-continent is widely seen as a complex but interesting 'geological laboratory' by the global community.

STR: Do you think there is a need of a separate Earth and Atmospheric Sciences in IIT Kanpur as it is present in many other universities/IIT's.

RSi: Although there are a large number of geosciences departments across the country, the teaching in earth sciences has taken a nose dive in recent years. The main reason for this is that most university departments across the country have not geared up to fulfill the present needs of the society. Among the IITs, IITB, IITKgp and IITR have full-fledged departments for the last 20 years or so. They have been running the geosciences programme which has

not been modernized. There are new challenges now in the area of geosciences, for example, climate change, natural hazards and resource management which need a thorough understanding of the planet earth. The entire perspective of geosciences has changed today and we need to have new programmes which can address the new problems and integrate the different components of the earth's system namely, land, ocean and atmosphere. The IITK could offer an ideal avenue to initiate such a programme for a variety of reasons. There are no good geosciences departments in the region and a new department at this prestigious institute would attract a large number of students. The IITK Kanpur can offer a perfect blend of fundamental geosciences and the modern tools including remote sensing, GIS and computational methods for which we already have excellent expertise. A new programme can be started on a perfectly clean slate with no baggage at all and is likely to emerge as a unique world-class programme.

STR: Where do we stand in terms of global advances in this field?

RSi: As I said before, India offers a unique opportunity to study various aspects of geosciences which have attracted enormous amount of international attraction over the years. However, due to a lack of appropriate

manpower and inadequate resources, the scientific advances by the Indian geoscientists has not been as significant as it should have been. The geosciences research has lately become highly quantitative and this requires high-end analytical facilities. Very few institutions, including IIT's, have been able to procure such facilities although things are changing now. The IIT Kanpur has many of the facilities required to carry out climate related research and natural hazards studies. We have executed some very large projects on river response to climate change and atmospheric chemistry which have been recognized internationally.

STR: How are the career opportunities in this field?

RSi: There has been a slight job crunch in geosciences since the downfall of the mining industries and a brief lull in the petroleum sector. However, things are looking good once again. The energy sector is on a boom and newer strategies for resource management using modern tools such as remote sensing, GIS and sub-surface investigations require well-trained geoscientists across the country and abroad. The infrastructure industry is also reinventing itself and would surely require a large number of geoscientists.

STR: What is the importance of environmental engineering to society?

TG: Everyone needs to know its importance because without it, it is impossible to survive in today's modern world. Environmental pollution has been a major problem keeping in view of the growing Indian economy which has led to an increase in jobs and migration of huge population to urban sector but that has led to damage the environment by increasing the burden on existing urban resources. The river Ganga for example has come under the list of the top ten polluted rivers which is not only of religious importance but also a source of livelihood for a lot many people. These days people do not take things in the right perspective, technology needs to be designed so as to stop further degradation of the environment. In India if we see the air pollution has crossed the WHO limits which is highly alarming. Methods need to be found for safe disposal of waste. Methods other than burning of Biomass need to be found. Use of the Sun as source of energy should be highlighted as we have space as well technology of solar panels to harness this valuable source of energy for a more sustainable environment. And what better place than the IITK campus itself to start using the non-conventional sources of energy on a mass scale using indigenous technologies.

STR: What are the Global advances in this field?

TG: Studies are being carried across the globe on subjects like aerosol circulation, study of monsoon patterns, ozone layer depletion, polar ice changing and melting, El Nino effects on the global environment, changes in the polar and marine ecosystem and related patterns etc. Campaigns are on to determine accurately the optical properties of

column aerosol which may provide the true effects from aerosols. NASA is also taking advances with satellites, meteorological cloud modeling, study of health effects from accidents involving nano particles, future human health consequences of mass use of nanoparticles on human health in combination with the health effects of existing nanoparticles from various combustion sources (mobile and stationary) need to be fully assessed and several studies are ongoing, as still safer ways are needed to find to dispose off these nano particles after they complete their lifetime.

STR: What is the position of India?

TG: Lots of steps are being taken in the automobile industry like implementation of automobile standards in line of the Euro standards for vehicles. But overall India is 5 yrs lagging behind in implementing the latest pro-environmental policies. Methods are being devised in the country for safe lead disposal and even vehicles on CNG have also been implemented in many cities which has helped in checking pollution.

STR: Sir, like you did your PhD from Harvard, what differences you see here and there?

TG: In US the existing technology has been successful in controlling the pollution to a large extent. But here the coarse particles are a big problem due to dry conditions and lot of unpaved space/roads. Even the soil is like that which acts like a reservoir for a variety of pollutants and thus people are easily exposed to pollutants. The finer type of pollutants effect the inner lungs and the bigger type affect the upper parts of our respiratory system and thus increase the dangers of tuberculosis. In India we have congested traffic, heavily over burned and crowded public transportation system so even

if one person has some contagious disease it can easily be transferred to all fellow travellers near that person. Poverty is one of the factors which compel people to live in unhealthy conditions so it also needs to be eradicated to lessen the damage to the environment.

STR: How are the career opportunities in this field?

TG: These days people are finding this field very interesting, even now I have these two people in front of me who had to start their project in July but they have started it in March itself! M.Tech graduates are now mostly going to the core jobs and are getting good salary and are reluctant to go for software jobs. As the economy is growing so is the need for a healthy environment. There are many consultancy companies offering good jobs to students like Reliance, Maruti, Biotech, there is the NERI National Environment Research Institute at Nagpur, IITK and IITB are developing new departments for this field. IITD already has a separate department for atmospheric studies. ISRO is also working in this field and there is the TERI- Tata Energy Research Institute at Delhi. Even CPCB (central pollution control board of India) has certain jobs to offer. If awareness is created among the students collaboration with ONGC can be made which will increase the opportunities for the students. Several MNC are pushing to maintain the same environment protecting standards that they have to follow in the West when they bring their businesses here. So there is an upbeat mood to embrace the new standards in India and the gap is slowly but steadily being reduced.

STR: Sir, any final words of encouragement for the students?

TG: Yes, it is a general view that we are the sweepers of the society but we need to show that we have the power

to clean the environment and protect it and show that without us existence is not possible and this should be

done with good frame of mind and no selfish motives too...

Geoinformatics Engineering

Dr. Onkar Dikshit

STR: Sir, A few words about geoinformatics...

OD: Geoinformatics was initially restricted to the field of land surveying. However, with the advancement of technology and the facilities, it has also spread its wings to Aero-spatial surveying (Remote Sensing, Aerial Photography and LiDAR), Photogrammetry, Global Positioning Systems, Digital Image Processing, and Geographic Information Systems. Very recently, the Indian government has taken an initiative to map major cities of India at a higher scale. The government also plans to launch internet dhabas where land record information would be available at information kiosks for a meagre payment. Decision making and support systems, and vehicle monitoring are currently burning issues which are catching up large amounts of development in terms of development of technology and algorithms. In such a scenario, the need of trained and quality civil engineers in the field of Geoinformatics has arisen.

STR: Something about the activities of GI.

OD: Presently, although the opportunities for students of Geoinformatics are large, the faculty strength in the division is small. In this connection, the students of the Geoinformatics division have initiated an academic activity which they call as GI@IITK. In this auspices of GI@IITK, the students discuss emerging scenarios, trends and how geoinformatics education be bettered in the Institute. The faculty is currently collaborating with National Remote Sensing Agency, Indian Space Research Organisation and Department of Science and Technology for various projects. The division has also conducted several workshops and training programmes in the field of geoinformatics applications for archaeology and LiDAR technology respectively.

STR: Sir, the opportunities for students at IITK?

OD: I am happy to mention that our students have gone into higher studies and also joined pioneering organisations like Indian Space Research Organisation and the National Remote Sensing Agency of the Government of India. Survey of India is a premier institute for mapping the country and it has opened up avenues for private organisations with the vision of mapping the country on a larger scale. Apart from this, geoinformatics has a strong presence in the private sector. It is important to mention here that due to rules of restriction in the access to data, the progress has been rather slow. However, the ministry of Information Technology has recently announced its intentions of mapping many cities at higher scales and the development of large scale geodatabases and hence, the market holds enormous opportunities for our students. Some of our previous students have made initiatives with the help of SIDBI Incubation centre to open up their own companies.

Geotechnical Engineering

Dr. Sarvesh Chandra

STR: Sir, according to you, what is the importance of geotechnical engineering to the society?

SC: Geotechnical Engineering is an extremely important branch as all the structures have to rest on the ground or below the ground. The performance of all structures will depend on how strong the foundation

is and how well it can withstand the forces of nature.

STR: What are the latest advances in this field on a global scale?

SC: These days the construction industry is booming and the industry is using advanced construction methods and using materials like

Geosynthetics on a large scale. The use of reinforced earth walls for embankments is very common now. In Kanpur itself we can see that it has the largest elevated four-lane stretch of 22 kilometers which is a part of the golden quadrangle of the Delhi-Calcutta corridor. It is using mostly reinforced earth wall (RE Walls) with fly ash. A decade back India was not

so much advanced in this field but these days RE walls are used extensively and the railways freight corridor is proposed on this. We can see Delhi Metro Rail using advanced tunneling technology and using boring machines for several lines in New Delhi. We have advanced a lot since its inception and this branch is quite old now. Here in IITK, we produced the first PhD in Geotechnical Engineering around 1970.

STR: Do you think India is at par with the world in this field?

SC: Yes, India is quite competent in this field. We may be backward by 5 years in practice but we have the knowledge of all advanced theories.

STR: What do the students feel about this field? What are the career opportunities in either research or in core companies?

SC: Well, the students find this field quite interesting as there are opportunities of getting involved in lot of field problems, laboratory work, inventing new instruments/technologies. They find a lot of new opportunities to work with variety of problems which makes this more interesting. For research, we have a lot of institutions in our country like the Central Soil and Materials Research Station in New Delhi under the water resources ministry. We have institutions like Central Mining Research Institute at Dhanbad and National Institute of Rock Mechanics

at Kolar specialized in Rock Mechanics. We have institutions like Central Building Research Institute and Central Road Research Institute which carry out research in all the major constructions like dams, roads, buildings, highways etc. These days the students get a lot of opportunities in core companies which are involved in soil testing, piling, providing support for underground tunneling etc. Students after going through their bachelors' degree in Civil Engineering can take up this field for higher studies in large numbers. Now a days they find so many good opportunities that they are giving more preference to core jobs than software jobs which is a very healthy sign for today's society.

Water Resources Engineering

Dr. Rajesh Srivastava

STR: According to you, what is the importance of your discipline in the society?

RS: Water is the most important commodity. In our discipline, we lay emphasis on the quality as well as the quantity of water. Techniques like artificial recharge, water harvesting are very much practiced. It is said that the third world war will be water-based and not oil-based!

STR: What are the advancements which have taken place on a global scale in this area?

RS: Well....There is nothing which has fundamentally advanced a lot, though a lot of research is going on. Mostly, there have been developments in the computational aspects. Earlier, the governing equations were solved using physical models, which were found to be much

more expensive. But now, they can be computed using various software, thus saving time and money.

STR: What is India's position on a global scale, in this field?

RS: In terms of experimental analysis, we are much ahead, but not in computational. We are also lagging behind in field practices. We have designs which are safe, but not economical. Government does not want to experiment with new design. Mindset of the people needs to be changed. Working in a lab cannot convince how will be the performance on field. Funded projects have to come. Bridges, dams, etc are not short term projects. They may be safe for 10 years, but we may not conclude the same for 100 years. We need to design structures sustainable for longer durations with appropriate factor of

safety to make it economically suitable.

STR: What is the scope of this field in core companies or research? What is the trend prevalent in the student community?

RS: Its scope in the core companies is good. In water pollution, it is still improving. In irrigation also, its scope is improving. But, new innovations are in demand in the world. No one would like to keep you for designing traditional canals.

As far as research is concerned, there is tremendous scope in all the disciplines of Civil Engineering in general and hydraulics and water resources in particular. The techniques available to us have been derived from data that is very old. There is a lot of scope for collecting new data and its analysis.

Transportation Engineering

Dr. Animesh Das

STR: What is the importance of Transport Engineering to the society?

AD: As everyone knows, a well laid road and rail network is an indicative of the growth of a country. Big road projects like East-west corridor and golden quadrilateral are coming up. But still we are importing large parts of our equipments from abroad, spending a lot of foreign currencies.

STR: What are your views about the transport system of Kanpur?

AD: Talking of Kanpur, it is an old city. The numbers of vehicles have increased suddenly in the past few years (just like the use of mobile

phones) in a rather unplanned way. There are only few bridges in Kanpur and a railway line crossing through the city! A detailed traffic study needs to be done at every junction, and other important locations and some improvements can definitely be suggested. Road performance data should be kept and analyzed continuously in terms of quality, roughness, etc. Data should be available for further research, like it is available in countries like U.S etc.

Unless road performance data is preserved and systematic research is done, the road building technology can not improve.

STR: What is the scope of this discipline? What are the trends being followed by the students?

AD: 6-7 years back, a number of CE students from IITK used to go for higher studies, but I find the interest has declined at present. Large numbers of students are now going for software and management jobs. In some places, trends are rather reverse. For example, in IIT Madras, 90% of the CE students are still strongly inclined to go for higher studies. However, there exist good research opportunities in subjects like Transportation engineering.

The Saturday Night

Dinesh Bharadia

the day is old,
i am feeling the cold,
the sun has gone
i am left alone
the music of celebration floating in
dummy light
reminding me something is this
the Saturday night...

these laughs of boys and girls
around
made a sudden breeze blow
through my mind
reminding me of those memories
of mine
those brown black eyes and hair
how to bear that sudden curl of
hair around her ear
her round face and her hilarious
rolling walk
i a don't know why but i love to
watch
she waited for me and we walked
along
and believe me it was magic the
earth the tree the sky were all
shining
we will reach her house and talk a
while
and then with a smile she will say
me a bye
sometime she brought me flowers
so bright
reminding me something is this
Saturday night

look there that fare seeming to be
so tension free sitting under that
dark
shady tree,
drinking the mesmerizing wine of
their love crock
intending how i sipped a few drok,
i don't remember the time and the
day but i'm leaving that moments
till
today
and when for the first time she
took my hand and held it tight
against her
hand ,
that touch that beautiful touch of
her hand i'm ready to walk for it
on
burning sand
and as i looked into her eyes the
universe froze and i was in
paradise
and many a time
after that she touched me and
took my hand into her hand
and many a times i drowned into
those eyes but every moment was
new every
touch was new and new was her
every sight
and all i have of her now are those
Saturday nights

life is journey which we travel
and as the turns of life unreveal in
a blink of eye we are at new places
with some new faces

and some new races
these faces become a part of our
story
some become friends while some
enemy
and some are buried in sand of
times
and same happen with races yours
and mine
some we win and lose other
but have we ever stopped to
bother the rarest thing in life sights
of
those Saturday nights
we live many a decades of life but
collect a few Saturday nights
i asked her to wait for i will return
with bag so big and might in
which both of us will keep out life
as
beautiful as Saturday night
but will she wait and fight the
unstoppable storm of
circumstances and time
which turned into rubbles empires
on cloud mine
only time will tell what will
happen next
but i have got these gifts from few
of those precious moments of my
life
i wil cherish those Saturday nights
for all i have of her now are those
Saturday nights
those Saturday nights those
Saturday nights.....

John Skilling

Born in Los Angeles in 1921 and moved to Seattle to attend the U.W. He never left that place, except for business and pleasure. In 1947, he graduated from university of Washington and worked in a small firm from then, named W.H.Witt and Co. In 1983, he became the chairman of the firm, till he retired in 1997.

He was married and had three children. His enthusiasm was such that most parents would teach their children to build model, he

helped his son to make a full working television set.

He became famous when he was handled contract to build THE TWIN TOWERS, in 1965, with Leslie Robertson and Yamski.

In 1993, he made a statement that a Boeing-707, with 600mph, even can't break The Twin Towers, as by study before start of its construction. But when twin towers were attacked, he came into light again.

His other creations were:

1. World trade centre
2. Seafirst building
3. Seafirst avenue tower
4. Century square
5. 76 story Columbia Seafirst centre
6. Freeway spanning Washington state convention centre
7. Rainer bank tower

He designed over 1000 buildings in 36 states and 27 countries.

Orkut Politics, Globalization and the Internet Ban

Suddhasheel Ghosh

Since my childhood, situations have arisen when I had not been able to choose between the options for the next course of action. Doctor or engineer, the two high school crushes, the choice of college and the choice of the PG specialization are amongst the few to name. This day, when I find myself in a generally termed "elite" institution, the situation repeats itself. The dilemma has raised its head again. Life is again at the crossroads.

The term "generation gap" is pretty common. The past generation finds ultimate solace in accusing its successor of not following the "norm" of what they practised during its prime time. For example, my past generation often kept pressurising me to read aloud whether it was English literature, language or science for that matter, which of course I did not like, for it felt that I was a parrot! The moral of the story seemed like "Memorize whatever you could, by crying yourself hoarse, and then, literally 'vomit' it out on the examination paper!" As a route for escape, I found that doing mathematics was safer, as you could not solve trigonometric problems or calculus by reading aloud.

A tool initially developed by the Department of Defence in America, the Internet took a larger leap by the end of the past century, and as expected, the audience was appalled with a continuously growing repository of information and otherwise. Terms like "information superhighway", "distributed databases", "digital library and cataloguing", "e-commerce", all came up with a boom, and courses in various universities were started. The concept of globalisation, which was the keyword in the nineties of the past century, was beginning to take shape. The progressive members of the past generation, who were often wistful about having only 24 hours during the day, were now enabled and

enthralled with a tool for their day to day activities including research.

Unfortunately enough, the fantasy of the common youth caught up with "undesirable information" which was also available for free, and it felt that it was much easier to please its senses rather than stimulate the intellectual within. The evening cricket match, broken panes and consequent shouting which were common scenes earlier, and also a means for socialising, were replaced by Rs 20 per hour Internet cafés. Socialising therefore started restricting itself within small cabins where college students usually met while typing on the keyboard. Socialisation therefore, turned global wherein the internet chat room was a playground, where people started seeking net partners and even net spouses. I remember that in 2003, when I was a frequent visitor to the Bollywood Chat rooms, a girl who called herself *Chanchal*, from Mumbai, India was already "net married" to a guy from Islamabad, Pakistan and was being addressed as Bhabhi (sister-in-law) by many of the chatters. In 2005, I visited the rooms again and happened to meet the same guy. I asked him about *Chanchal* and he had no clue where she was. Probably some guy had hacked her profile and account and the "love" was lost in oblivion. The guy had "moved-on" as he had realised it was not the real life.

The popularity of net-based socialisation caught up with sites like Orkut, Hi5, Tagged etc, where the fantasy of seeking photographs of pretty girls and handsome hunks caught up fast. Six months after I had subscribed to Orkut, I was often asked by peers as to why my scrapbook was vacant and as to why I had deleted their scraps. People then seemed to get closer to those who wrote a testimonial for them or became their fans. The testimonial might just be anything. Even the most disastrous

grammar or SMS lingo would do. I recall one of my Bengali friends had *oti jaali maal* (extreme fraud) written on his testimonial and he was proudly showing it off! A person from a senior batch of mine asked me to write another testimonial for her which would be pretty long and should gratify her desire to be flattered, instead of the little meaningful and nicer one line testimonial I had scribbled after a lot of thinking for 17 long hours. I also recall an incident when one *Shachi* (name changed), charged me of being an *Utko lok* (strange bloke) on the scrapbook of *Yogita* (name changed) based on a scrap which I had written to *Yogita*! Politicking based on scraps had already begun and I had to face it hard. I, of course retorted with *Gandhigiri* and *Shachi* therefore, cannot look me in the eye currently! I have to accept that, I too have jumped in to politicking with my Orkut friends.

The above paragraph however presents a negative aspect of the picture. I have been able to connect with many friends from college, my teachers at school and the students of my teachers too. They keep on updating me about the well being of my teachers. Although I have been very choosy about selecting friends on social networking websites, restricting my friend-list to whom I know personally, occasions have arisen when people unknown to me have become very good friends sharing their happiness's and sorrows with equal fervour.

Google has its own share of implications. Since long, Google has been a tool for the researchers to find out research papers, material, programming code and workarounds to name a few. The recent addition of soft copies of books at Google has also given rise to the pleasure of finding free educational material for browsing. The pleasure of taking

short cuts to life also comes in here. People freely pick up material or "plagiarise" from the internet and create their own material without the courtesy of acknowledgement. I am reminded of a story when a king asked Euclid whether there was an easier method or way to learn Geometry, and he responded by saying "There is no royal road way to Geometry". In this connection, I would like to mention the name of Kaavya Vishwanathan, a student of Indian origin, who recently earned a place in the shame list of Harvard University, for plagiarising parts of a novel (How Opal Mehta Got Kissed, Got Wild and Got a Life). Some of us are plagiarising to earn good money

and fifteen minutes of fame, but are bringing a bad name to our origins and country.

We can see here that the internet with its fair and unfair implications has become an important component in the daily lives of the students and faculty. Accept it or not, the Internet tools have made us do a lot of work which were not possible earlier in a span of 24 hours. The daily life and productivity have changed their ways. The recent ban on the use of internet at hostels has drawn a lot of flak from the fraternity. Words like "unwanted parenting" and "technical prison" have been used recently in threads based on this issue. In this

connection, I am reminded of a move by an American university which deleted a huge repository of "objectionable" digital images from its storage area, with a note - "If you can explain or justify how these photographs would be useful for your studies and stay in this university, and we are convinced, we would replace these photographs immediately".

But in spite of these, I am still in a dilemma. Should Internet be banned or allowed? Life is at crossroads again. And we have to choose the right way, the hard way, to use the facilities responsibly, to become the best and to remain the best.

THE SUN AND THE MOON

Abhishek Kumar Singh

It has happened several billion times in the history of mankind. And it made another appearance recently in my proximity. People responsible for its outbreak are our very own Sun and Moon. Certainly I'm not talking about the celestial bodies. And hence if you find unfamiliar with these mortals, then you badly need a brief acquaintance with them!

Our sun is a lean and thin lad of twenty, but with no any special and real sign of youth. Messed up hair with wheatish complexion really takes him miles apart from being termed as a real handsome. Still he is our hero, the one who created the story.

Now we move on to our next character, Miss Moon. She is cute, short stature a bubbly young lady. Her fairness with jet black hair makes a good combination. But she looks a bit overweight considering that to she's just sixteen.

So, logical rationalization discards any intermingling of these two fellows. And this could be understood

by the most bullheaded person on this planet. But uncertainties are the most beautiful phenomena that exist in the universe, and it inspired the sequence of incidents that took place.

On a balmy evening, Sun was on his routine and so was moon. Though they had several confrontations earlier it was something charismatic this time. As soon as eye contact was made, Moon passed a million dollar smile, and there was an orgasm of emotions everywhere. And our sun could only mumble, "How are you?"

"I did not get you," replied moon in mesmerized tone as if she was still sailing in sea of wavy feelings. But none of them muttered a single word after this, and departed with an increased heart rate. This increase was substantial and lasting as well.

From that evening these youths underwent a series of psychic traumas. There was sort of desperation to be in each other's

vicinity. And this led to state of dilemma, where none of them were able to interpret their mental status. But Moon as a real life protagonist decided to end all this fuss. It was bright and cool morning and Sun was heading towards his college. But he was interrupted by a shrill call, someone was shouting his name. And as Sun turned back to see the person, he was stuck by greater astonishment; she was Moon, cute as always and in a bit more gleeful gesture. She ran hard towards Sun, hugged him and bestowed a shower of kisses. This was a certain end of desperation and beginning of something really beautiful.

Two weeks later, in posh dining lounge of a luxurious restaurant, Moon was with the man of her choice. And the Sun was also accompanied by his dream girl. They both were enjoying the romantic evening, but in slightly different way. Because this time Mars and Moon were on one table and lady sitting besides Sun was Miss Venus.

Mastering @ Web Designing

Ankit Kumar Agrawal

First thing that comes to one's mind on web-designing is learning HTML. The point of concern is, is it really

necessary to learn HTML for this purpose. A simple website can be an output of just a few hours' effort on

front page. What generally people do is they start going for the HTML tags and then after some time they start

losing interest in the field. Now, how to start. For a beginner, going for freely available template is a better option than designing one for own. Templates of choice can be found on many websites. Just select a template and make it as you want. Moving deeper into the concept of designing, most of the websites make use of flash animations and some catchy graphics made in Photoshop. Learning them also becomes necessary to make the site attractive. Sometimes little programming is required for the manipulation of data received from user. The best way to do this is to learn a few simple concepts of PHP. PHP is just a simple

language which also uses same functions as used by C or C++. Many times it is not necessary to write a PHP code as free PHP scripts are available on web. Similarly some more features like menus and moving objects can be added by use of JavaScript and fortunately even they are available on web.

Some points to be taken care while finalizing the website:

- The fonts used are the common fonts which are generally available. Any font if not available on any other computer might not be displayed correctly. If it becomes necessary to use any

specific font, making an image of the text in Photoshop and inserting that image in place of text might be useful.

- Images used should not be very large sized as downloading them might be a problem, especially when the bandwidth is low.
- Colors and fonts used should not be irritating for the eyes.
- Foreground colors should be very clearly visible on the background used.
- Sound clips if used should not be very noisy as they might cause irritation to the user.

Ambition

Saurabh Moondhra

When I came out after attending a session,
My mind and heart together asked me a question.
That did I have something in my life called "Ambition".
So, I decided with firm and strong determination,
That I would figure out what exactly was Ambition.

I went into a society to take views from every section,
Mr. Richie Rich told me it was money and wealth,
But Mr. Body Builder said it was

fitness and health.
The News Reporter wanted to create a sensation,
Whereas the politician wanted to lead a big procession.
The designer wished to change the world's fashion,
My friend wished to increase his stamp and coin collection.
'A' wanted to become an officer at a high position,
But 'B' was hungry for appreciation and admiration.

All these views did nothing but added up to my confusion.

I sadly walked down the street with dejection, And recalled my meetings with each and every person, Oh! Yes!! I got something which was common. All of them strongly desired, to achieve what they aspired. And this strong aspiration to achieve your goal,
Is the meaning of 'ambition' as a whole?

At last I successfully achieved my ambition,

Which was to find the meaning of the word AMBITION!!!

My Ordeal in the Desert

Saurabh Moondhra

Since the time when I was a student, I had made a decision very confident. That at least once in my life, I would have a look, At the Pyramids of Egypt, by hook or crook. I got a golden chance, to have a glance. But in order to reach the Pyramids, I had to cover the desert, all on my legs. The sun was scorching, but I kept on walking.

It appeared as if the desert was endless, I went in all directions and landed up in total mess. One step was looking as one mile, I could not even find the river Nile. I had no ray of hope, And there was no choice other than to cope. I was totally exhausted and tired, Hot blows of wind were pushing me hard.

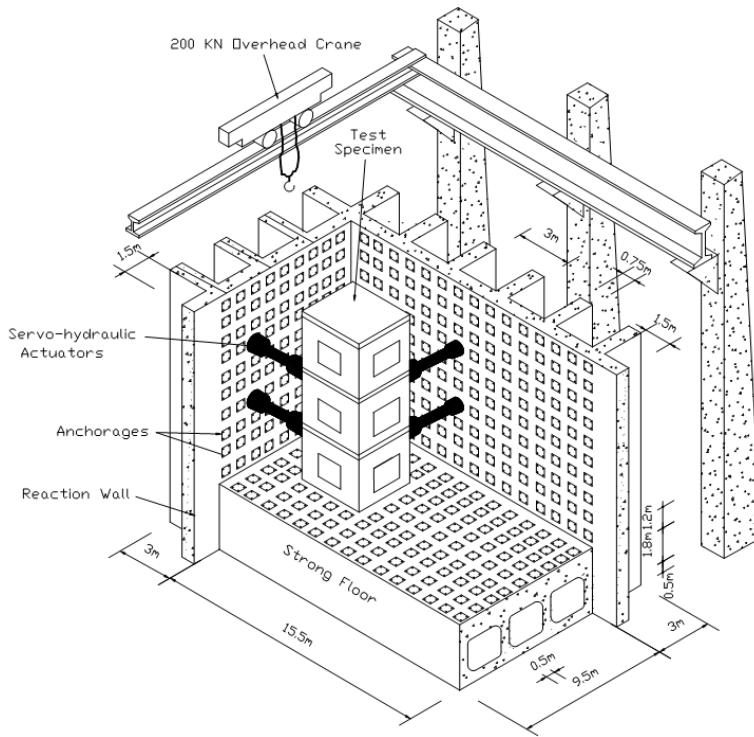
I had run out of water and food, Ah! This had spoiled my mood. At many instances I saw water on the land, But they were mirages, which I couldn't understand. I ran in the direction of the voice of the bird, And was delighted to find a Pyramid! I was surprised as well as elated, That all my dreams and wishes were completed!!!

Pseudo-Dynamic Test Facility

for Characterization of Seismic Resistance of Structures at the Structural Engineering Laboratory

The Department of Civil Engineering, IIT Kanpur is coming up with an experimental Pseudo-Dynamic testing facility for evaluation of seismic performance of various civil engineering structural systems towards development of improved structural design methodologies. This facility will be an extension of the existing structural engineering laboratory by a modest level to minimize the supporting staff requirements.

- a) The Pseudo-dynamic facility will be equipped with the following (Figure 1):
- b) A strong floor (of reinforced/post-tensioned concrete) to support the test specimen and loading devices;
- c) Servo-Hydraulic actuators (of higher capacities up to 1000 kN with fatigue rating) for lateral cyclic loading of large scaled test specimens;



- d) A reaction wall (of reinforced/post-tensioned concrete) to react the lateral loading devices;
- e) An overhead handling facility (electrically operated traveling crane of 200 kN capacity); and
- f) Reaction blocks and frames to be fixed on the strong floor for offering restraints to the specimen and actuators.

In phase I, the following structures would be created:

1. A new integrated reaction wall and strong floor of reinforced/post-tensioned concrete;
2. An overhead handling facility (electrically operated traveling crane of 200 kN capacity); and
3. Laboratory space for housing the hydraulic and electronic equipment of the new facility, and modification to the existing laboratory building.

Project duration:

The project regarding the construction of the facility has already commenced and would be completed within a few months from now.

(inputs: Dr. C.V.R. Murty)

The City of Chandigarh

Anonymous

Chandigarh is the 1st planned modern city of India designed by the French architect **Le Corbusier**. Chandigarh and the area surrounding it were constituted as a union territory on 1st November, 1966. It serves as the joint capital of both, Punjab and Haryana states. It is bounded on the north and west by Punjab and east and south by Haryana. Total area of the union territory is 114 Sq.Km.

The city was named after the mother goddess of power, Chandi, whose temple Chandimandir is a feature of the new city. Le-Corbusier was assisted by his cousin, Pierre Jeanneret and the English couple E.Mazwell Fry and Jane B. Druel. These 3 architects are responsible for most of the public and residential building raised in Chandigarh between 1950 and 1965. The beautiful city also known as 'city of roses', was

planned to house the capital to the erstwhile Punjab state. On partition of Punjab, on linguistic basis, the present union territory was formed which in addition to the city of Chandigarh included Mani Majra town and some villages of Kharar Tehsil of Ambala district. Much of the beauty owes to the planning of the city in sectors with houses which conform to a modern design and its grand Secretariat and Assembly buildings were build

according to Le-Corbusier's plans and a picturesque lake was also created along with the Shivaliks. The genius of Nek Chand led to the creation of one of Chandigarh's landmarks the 'Rock garden', and a rose garden also came up. It is one of the most attractive cities of India. It has a large lake i.e. Sukhna lake, with beautiful picnic spots.

Hindus, Muslims, Sikhs, Buddhists, Jains and others from the religion wise break up of population, decendingly in that order.

Geography and Physical Features

Chandigarh is situated at the foot of the Shivalik range. There are hardly any forest in this union territory, except for small tracks of forest by acquiring some area on lease from Punjab and Haryana states. There is about 2542 hectares of forest area in Kansal (Leased from Punjab) and Nepali (Leased from Haryana) forest and some area in Raipur Khurd village of Chandigarh union territory. The forest department is also maintaining a Deer Park in Kansal forest and a nursery near Hallo Majra village. Forest Department is also taking adequate steps to promote

wild life in Kansal forest and is likely to be converted into a tourist spot. The district at present comprises of one Tehsil and equal number of community development blocks. It has 5 towns and 25 villages.

Communication

In Chandigarh, transport and communication facilities are highly good. Indian Airline Service connects Chandigarh with Delhi, Amritsar, Jammu and Srinagar. During season Kulu flight from Delhi also hauls at Chandigarh. It is directly connected with Delhi and Amritsar by rail. Regular buses ply from important cities of Chandigarh.

Civil Engineering Survey Camp

Abhinav Garg, Ankit Agrawal

Survey camp: Introduction to work

Survey camp is first experience of field work for Civil Engineering 3rd Year students. In this camp, students are exposed to three Survey techniques Triangulation, Total Station and Global Positioning System (GPS). Work also included adjustment of a Braced Quadrilateral formed by the four Control Stations set up at approx. 1 km distance from each other and different elevations. Secondly, Plane Table technique is used for map making of a given area.

The four stations are named as: Hill Top-1 (HT-1), Hill Top-2 (HT-2), Road Corner (RC) and Bengali Temple (BT). You can easily locate these four stations using Google Earth link. The different paths to reach the four stations are also marked. The students will visit all the stations to set up control by clearing up the area and checking for visibility during the Reconnaissance (Reccy) in the beginning of camp. The coordinates of the four stations are calculated by Triangulation, Total Station and GPS observations. And then the geometry of braced quadrilateral is used to compare the result of the three survey techniques. This part is to be completed in FOUR DAYS!

The Plane Table is used to map of the Sookhi Nadi area showing all the necessary features like trees, houses, lamp posts, bridge, road and contours. Using the appropriate symbols and colours these are plotted on the map. The map has to be properly scaled to accommodate entire area. The instruments used during the plane tabling are Auto Level, Altitude, and Measuring Tape etc. It is to be completed in TWO DAYS!

Survey camp: report writing

Report writing is another essential part of camp. This is first experience of Comprehensive Report writing. The report needs to be in a proper format starting from title page, then the contents of report. The report begins with an abstract, then introduction to the report, followed by description of work done in the camp, the description of instruments used, and a detail procedure of all the activities carried during the camp. Then comes the calculations and observations part for the individuals followed by group calculations and finally the all calculations. In the end, considering the Triangulation result for the case all as most accurate, the accuracies of results of Total Station

and GPS Survey are determined. The idea is to compare these survey techniques and how each could be used in field.

Camp planning

Planning is very important for the smooth functioning of camp. There must be a proper schedule for every activity keeping in mind every possible factor and it should suit all the campers. For this, coordination among students and faculty members is fundamental. The camp is conducted in Winter Holidays but its arrangements like booking of train tickets, booking the accommodation, hiring buses etc. begin around October. All the arrangements are to be done by students under the supervision of the faculty members.

During the camp, students have to form their own groups of 5-6 students. Then a schedule is made for each group according to which they have to perform the different camp activities. For activities like Triangulation, coordination among the groups is very important, while coordination among group members is required for the Plane Table activity

and later in computation and report writing.

One group, per day, will be serving food to the other groups and faculty during the mess timings at breakfast, lunch and dinner. So time can be saved if the different groups work in coordination and such time management can make a big difference in the camp. We carry our mess with us to the Aashram; the mess includes the cook and utensils etc. While the arrangements of raw materials like gas cylinders, raw vegetables etc. are to be done by the students as instructed by the Instructor In charge.

During the camp, students get enough opportunities to visit Dehradun and

Mussoorie which add up to the excitement of the camp. However students must always seek the permission of the Instructor In-charge before leaving the Aashram premises when going for personal reasons.

Some Do's & Don'ts/ facts

- 1) Take utmost care of the various instruments from the moment you issue them till they are returned.
- 2) No beddings will be provided in the Aashram, so you have to carry your own beddings and blankets.
- 3) It is likely that you may have to take a bath without any buckets and even with cold water.

4) The water there contains some hardness which may cause problems to some of the students. Such students purchase bottled water from nearby shops.

5) There are small shops nearby the Aashram so one need not worry about small things like stationary items, junk food and snacks etc.

6) Don't forget to bring your Calculators & Laptops; you will be requiring these for the calculations during report writing. You may use MS Excel or MATLAB programs for some matrix calculations.

100 Years Ago...The Jamaica Earthquake

Anonymous

The earthquake and the future

The business centre of Kingston is today a mass of ruins, and practically no portion of the city has been left untouched. At 3:35 on Monday evening we were struck by an earthquake, and within 40 seconds our capital had fallen and over 1,000 persons lay dead and dying on the ground.

The blow has been terrible. Just when we were talking of returning prosperity the hand of adversity has again touched us, and one more time we are called upon to fight our way forward. We will do so. We will not allow ourselves to be terrified. We will build Kingston again, and, with God's help, will build it better.

We have not received a setback for another fifty years, as some are saying. Time and again the capitals of Spanish-American countries have been destroyed, but never have the people despaired. We are not made of inferior stuff. We shall recover from this blow as we have recovered from all former ones. The industries of the island are absolutely uninjured. In this and in our energy lies our future

hope. We must "work and despair not."

Story of the destruction

It will be weeks and perhaps months before the story can be told in detail of the almost complete destruction of Kingston by earthquake and by fire on the afternoon of Monday 14th instant.

It is a fearful story and never be amply told.

The first destructive shock occurred at 3:35 p.m. It lasted about thirty seconds. And these few moments served to throw the city into woe and consternation. When the shock subsided, thousands of buildings had fallen with a terrific roar.

Not so much fallen, perhaps, as crumbled to dust and debris. Huge walls fell in the commercial part of the city. Some from the south went northward; and others from the north toppled over to meet the crash from the opposite side. These walls all tumbling together crushed all who happened to be on the side-walks or in the streets. Hundreds of people were killed instantly in this way and

omnibuses, and in one and two instances, street cars were crushed to atoms.

A member of the "Gleaner" staff who fought his way through the office wreckage was one of the first persons on Harbor street after the disaster, looked at the east and to the west, and not a living soul was to be seen. In a moment or two a few figures came struggling through the mass of broken timber and scattered bricks. They were mostly all injured, and blood was flowing freely. A few thoughtful individuals, although injured themselves, started to rescue several of those who were buried.

But this humane work was interrupted within five minutes by the approach of fire which had before made its appearance to the west of the city.

The fire brigade had been demolished by the earthquake and there were no means of fighting the outbreak; and the fire swept over an area bounded by the sea to the south, Southern Parade to the north, Mark Lane to the east and Orange Street to the west.

Next morning hundreds of bodies were found burned and charred along the principal streets. It is believed that many who had been injured and unable to help themselves were burnt to death by the flames. All these bodies were at once taken up for burial.

With the large number of deaths the supply of coffins soon gave out and the bodies were buried wrapped in sheets and in hastily dug trenches. Up to this morning bodies were still being recovered. It is conservatively estimated that the death list will exceed one thousand when all the bodies have been recovered.

On Tuesday morning the military and police authorities took control of the

On Monday night 27 legs were amputated. The same evening several clergymen and priests went over the city ministering to the injured and the dying. The Governor gave the clergy

city and a stop was put to petty looting that occurred in some parts of the city. Lines of sentries were stationed in all the streets to prevent indiscriminate ingress and egress.

On Thursday the U. S. warships Missouri and Indiana came into the harbor and at once landed bluejackets, took some of the injured on board for proper care, and placed their stores at the disposal of the Government.

At the hospital, which was overtaxed from the start, the scene has been very busy. On Tuesday and Wednesday Lady Swettenham and Miss Copeland served as cooks at the institution, whilst Mrs. Bourne, Mrs. Bourne and Mrs. Ker and other ladies served as nurses.

money to provide conveyances to the hospital for the injured.

The Governor and the Colonial Secretary and other officials were also busy in various parts of the city.

The hospital staff was largely augmented for the occasion and considerable pressure still obtains there. Dr. Ker, S.M.O., went to work with the staff doctors, and several district medical officers were brought in, including Dr. Turton, from Stony Hill; Dr. Thomson from Chapeltown, Dr. Neish from Spanish Town; and Dr. Campbell, from St. David's. Dr. Edwards, of Gordon Town, who was a patient in the hospital, forgot his own ailments and at once proceeded to join the hospital staff. All hands have been working night and day and yet there are cases still to be attended to.

There are very few habitable houses in Kingston and Lower St. Andrew and the population is camped on the Race Course, and in the Park and in other open places.

Ancient Indian Architecture

Ankit Agarwal

Indian architecture is that vast tapestry of production of the Indian Subcontinent that encompasses a multitude of expressions over space and time, transformed by the forces of history considered unique to the sub-continent, sometimes destroying, but most of the time absorbing. The result is an evolving range of architectural production that none the less retains a certain amount of continuity across history.

Indus-Saraswati Civilization and the Vedic Village

The earliest production in the Indus Valley Civilization was characterized by well planned cities and houses where religion did not seem to play an active role. The presence of drainage systems and public baths showed advanced standards of hygiene and sanitation and ingenious planning. The Vedic village had certain distinct characteristics that

influenced subsequent architectural production. The Vedic 'grama' could have a pur, or a fort-like structure within it. The Vedic hymns speak of "purs" made of stone and metal.

Buddhist and Jaina Architecture

Buddhism gained prominence during the reign of the emperor Ashoka. It is primarily represented by three important building types- the Chaitya Hall (place of worship), the Vihara (monastery) and the Stupa (hemispherical mound for worship/memory)- exemplified by the magnificent caves of Ajanta and Ellora and the monumental Sanchi Stupa. The Greek influence led the Indian architecture of the time, especially the rock-cut art, to fall under one of the two categories: the Mathura school of art which was strictly Indian in spirit and did not adopt from the Greek styles, and the Gandharva school of art which

incorporated influences of the Greek art. The division of Buddhism into Hinayana and Mahayana phases also influenced the nature of rock-cut art, the former being represented by artefacts used by the Buddha, and the latter by images of the Buddha. The Jaina temples are characterised by a richness of detail that can be seen in the Dilwara Temples in Mt. Abu.

The Hindu Temples

The reference to temples in literature go back early with Panini (520 BC - 460 BC) and Patanjali mentioning temples which were called *prasadas*. Early beginnings of Hindu temple architecture have been traced to the remains at Aihole and Pattadakal in present day Karnataka, and have Vedic altars and late Vedic temples as described by Panini as models. Later, as more differentiation took place, the Dravidian/ Southern style and or the Indo-Aryan/ Northern/ Nagara style

of temple architecture emerged as dominant modes, epitomised in productions such as the magnificent Brihadeeswara Temple, Thanjavur, and the Sun Temple, Konark. The older terminologies of Dravidian and Indo-Aryan are not used in current practice because of their racial and dubious origins. Buddhist elements and motifs have influenced temple architecture to a considerable extent.

Early temples were rock-cut, later structural temples evolved. The Kailasanatha temple at Ellora is a good example of the former, excavated from top to bottom out of a massive rock face.

Decoration was fundamental to Indian architecture and is seen in the myriad details of figured sculpture as well as in the architectural elements. The concept of fractals has been used to examine the form of the Hindu temple, both in terms of its planning and external appearance.

The garba-griha or the womb chamber forms the central focus housing the deity of the temple and is provided with a circumambulation passage around. However, there are also many subsidiary shrines within temple complexes, more particularly in the South Indian (the Dravidian style) temple. As the Hindu temple is not meant for congregational worship, the garba-griha is small in scale when compared to the whole temple complex. However, it is articulated externally by the vimana or the sikhara. Pillared halls or mandapas are found preceding the garba-griha. The spatial experience of a South Indian temple complex is considered particularly rich and meaningful. In many of them, such as the Ranganathaswamy temple at Srirangam, the concentric enclosures or prakaras along with the series of gopurams or entrance gateways reducing in scale as they move towards the garbha-griha set up a rhythm of solids and voids as well as providing a ritual and visual axis. The principles of temple architecture were codified in treatises and canons such as Manasara, Mayamatam, and

Vaastu Shastra. These offered an ordering framework yet allowed a certain latitude for contextual articulation.

Today most of the ancient Hindu architecture thrives in temples of south India and south-east Asia as the subsequent forces of Islam transformed the cultural landscape of India more dominantly in the north.

Influence of Islam and the Mughal Architecture

With the advent of Islam, the erstwhile Indian architecture was slightly adapted to allow the traditions of the new religion, but it remained strongly Indian at its heart and character. Arches and domes began to be used and the mosque or masjid too began to form part of the landscape, adding to a new experience in form and space. The sahn or the open courtyard for congregational worship with the enclosing cloisters or liwans and the sanctuary at the Western end offered a different architectural vocabulary. The fundamental difference lay in the fact that Islam prohibited idol worship and therefore a concentrated point of focus such as the garba-griha was unnecessary. However, the mihrab on the Western wall of the sanctuary articulating the Qibla or the direction towards Mecca offered a notional focus. As idolatory was prohibited, the main means of adornment was surface decoration through the use of geometry, arabesque and calligraphy. Later, mosques began to be built with original material. The Jami masjid at Delhi is a representative example of an Indian mosque. Islamic architecture was also represented by distinct regional styles that drew a lot of inspiration from the local context.

Taj Mahal

The most famous Islamic buildings in India emerged during the Mughal period. Mughal architecture built on the traditional Hindu architecture with influences from the Persian world. Over time, Hindu and Islamic

architecture produced a synthesis that is exemplified in the glorious production of Akbar- the city of Fatehpur Sikri, considered by many to be superior to the Taj Mahal (often seen as representing India) in terms of what it has to teach to civilization-syncretism, tolerance and the best of different worlds, and the Taj itself, renowned for its beauty in white marble, its intricate engravings, its minarets and its setting.

The most popular Islamic building type in India is the tomb or the mausoleum which evolved from the basic cube and hemisphere vocabulary of the early phase into a more elaborate form during the Mughal period where multiple chambers are present and tombs were set in a garden known as the charbagh. The tomb chamber houses the cenotaph below which is the grave. Well known examples are the Gol Gumbaz, Bijapur and the Taj Mahal, Agra.

Secular Architecture

The colonial attention towards Indian architecture was mainly focused towards religious buildings and hence there is much scholarship in this area. In recent times, the secular production of India is gaining the attention it merits. Cities of the desert region in the North such as Jaisalmer, Jodhpur, towns such as Srirangam in Tamil Nadu evolving around the temple as nucleus, the stepped wells of Gujarat, the vernacular architecture of the warm, humid area of Kerala- all these are unique in their response to socio-cultural and geographic context.

Architecture under the Colonial Rule

With colonization, a new chapter began. Though the Dutch, Portuguese and the French made substantial forays, it was the English who had a lasting impact.

The architecture of the colonial period varied from the beginning attempts at creating authority through classical prototypes to the later approach of producing a supposedly more responsive image through what is

now termed '*Indo-Saracenic architecture*'- a mixture of Hindu, Islamic and Western elements. Institutional, civic and utilitarian buildings such as post offices, railway stations, etc., began to be built in large numbers over the whole empire. Perhaps the most famous example is the Chhatrapati Shivaji Terminus (CST) in Mumbai, originally named in honor of Queen Victoria. The creation of New Delhi in early 20th century with its broad tree lined roads and majestic buildings generated lots of debate on what should be an appropriate architecture for India.

Post-independence architecture of India

With the introduction of Modern Architecture into India and later with Independence, the quest was more towards progress as a paradigm fuelled by Nehruvian visions. The planning of Chandigarh- a city most architects hate/love- by Le Corbusier was considered a step towards this. Later as modernism exhausted itself in the West and new directions were sought for, in India too there was a search for a more meaningful architecture rooted in the Indian context. This direction called Critical Regionalism is exemplified in the works of architects such as B.V. Doshi, Charles Correa, etc.,

Indian architecture as it stands today is a pluralistic body of production that cannot in all justice be exemplified by the approaches, buildings and architects cited above. It has evolved over the centuries and has been affected by numerous invaders who have brought different styles from their motherlands. But it is an unavoidable fact that certain expressions tend to get magnified and others reduced when set against the vast canvas of the world. In that sense, there is a distillation to an essence that does not have all the ingredients. A more representative selection can occur only at a deeper level of study.

Conclusion

My Marks Just Screwed Up

Aditya L

My marks just screwed up. Not that its anyone else's fault. Okay, yeah, getting down to it, it is always that I could have put in more effort.

But the whole shit about this thing is that I never wanted this kind of life; especially after the gruel some JEE. Well, why does there have to be someone at top of you? And why exactly do you have to run up to him....I mean, let us think rationally. No one's a God out here. We were never meant to be perfect. We may just be test samples in this huge experiment done by God. And the ultimate aim is to learn to live with your disparities between your real and model self.

So why not just sit back and relax, ole friend. Enjoy, think, contemplate and

end it all with a laugh. Don't worry, you as your distinct Personality won't get a second chance.

And again far in the distance you see that mule whizzing after some God-damned (created?) mirage.

So???? Hey, pack up, leave. Be on your twos quick, who knows what treasure that mule is running after. You find yourself rushing in and how! There's a whole torrent running around you and suddenly you are caught again...You panic, look around just to find similar white faces staring back at you. You can see the same senseless modern art painted inside everyone. The individual thinks it as something spectacular: complex and sophisticated. And yeah,

the reality is that it is just the same splash of colors.

Now you are sick and you want to get away. However, deary, you can't stop. The race is hot and you are a part of it. And what we need to do is to take a break from the continuous running around. Just take a chill once and observe....

Observe from as far as to what's happening and where is it leading to. What's the purpose and what's the end. What happens is that once drawn in the vicarious circle one only keeps getting further entangled. Our life isn't just a computer loop which will keep executing again and again. It's a precious one-time gift. Sometimes all one has got to do is decide what to do with the time that is given to us.

Core SOCE Team

PG: Srikanth Deevi (Coordinator), Sujit Kumar Sarkar, Arvind Pandey

UG: Raushan K. Singh (Coordinator), Rajil Jain (Treasurer), Ankit K. Agrawal (Webmaster), T.V.N. Srinivas, Manali Singh, Pradeep Maheshwari (Y5 Executive members), Varun Singla, Mayur Chandak (Y6 Executive members)

CIVERE07 Coordinators: Abhishek Joshi (PG), Rahul Sharma (UG)

Ex-officio members: Anand Hingway, Mayank Jain, Suddhasheel Ghosh

Faculty Advisors: Dr. Amit Prashant, Dr. Tarun Gupta

The SOCE Diary: 2006-2007

Compiled by Sudhasheel Ghosh

The Freshers' Evening:

The formal welcome for the first year students of the Department of Civil Engineering (UG and PG) was organized on August 21, 2006 at the L-7. The event commenced at 7:30 PM. The first year undergraduates, namely Saumya Lal and Mayur Chandak were the masters of ceremony for the event. They handled the event professionally and successfully for an hour and a half. The events comprised of a skit, a mimicry item and instrumental music. The 2005-2006 issue of STRENGTHS was inaugurated by the Head of the Department, Dr. Bithin Datta. This event was the first organized event by the newly appointed SOCE team. Efforts made by the coordinators of the event namely Raushan Kumar Singh, Srikanth Devi and Rajil Jain were largely appreciated. The faculty appreciated the multifaceted talents within the department. The programme ended with a dinner at 9:00 PM.

(Inputs: Raushan Kumar Singh)

DANSANT: The dance festival

As a part of boosting interaction between the departmental and other students, a dance party was organized on September 9, 2006. Students from all departments turned in from 8:00 PM onwards and danced swinging to the music by the DJ. Some of the students, who had already participated in the stage, were seen to attract a lot of attention from the audience and the participants.

SOCE Open Quiz:

A general knowledge quiz was conducted in the month of October. Students from all the departments were invited with extended interaction as the main motive. This event witnessed heavy participation from students. T.V.N.Srinivas and Shrey Tewary acted as quiz masters and posed some very witty questions

to the teams. Top three teams were rewarded with cash prizes as announced.

(Inputs: T.V.N.Srinivas)

Cricket Match

A faculty-student cricket match was organized on January — 2007 which had teams comprising of both the professors and the students. The match started at around 10:00 AM in the morning. The students took turns for the commentary on the cricket match which were full of jokes and light hearted description of what was seen around in the campus. Each of the teams scored a total of 70 runs in the designated 15 overs.

Open House Sessions

Years of research in higher education supports the fact that student-faculty interaction is positively associated with several aspects of student success, for example, academic performance, persistence to graduation, personal and intellectual development, educational aspirations, satisfaction with faculty and department, career prospects, curriculum development, etc. The interaction has been identified as one of the primary sources influencing the attitudes, interests, and values of students, and plays an important role in the learning environment. Therefore, a better interaction between students and faculty is necessary for overall development of any educational institute. In order to develop a good interaction between students and faculty of Civil Engineering Department of IITK, Society of Civil Engineers (SOCE) decided to conduct a series of Open House Discussions. First two discussions were held in the month of September 2006 and October 2006 with "academic system at IITK" and "thesis/BTP delays in the department" as core issues. The third discussion on "Career prospects and curriculum development" took place

in January 2007. The discussions were attended by several students and faculty members in the department, and fruitful discussions took place on several related topics. The fact that even some faculty members could not control their emotions during these passionate discussions stresses the need for conducting more such sessions in future. Articles on Open House Discussions have been included in this issue. This effort was largely appreciated by one and all.

(Inputs: Anirban Dhar, Hemant Kaushik and Kaustubh Dasgupta)

CIVERE: The paper presentation contest

The third annual technical paper presentation contest in Civil Engineering named CIVERE-07 (Encouraging Research and Education) was held at the Lecture Hall Complex of Indian Institute of Technology Kanpur (IIT-K) on 17th and 18th February, 2007. Especially targeted towards encouraging and exposing the young and budding engineers towards the magnum opus of Civil Engineering education, research and practices, this paper presentation contest gives a platform to the students to upgrade their skills not only in the domain of research but also in the form of interaction and presentation skills. In addition they are also exposed to the vast collection of literature and the facilities at IIT-K by leading the participants to the library and various laboratories of the department. Over the two days of the contest, participants engaged in presentations and games where prizes had been dedicated for each session. Two institute level popular lectures were also organized during the event. Prof. Debasish Choudhury spoke on "Particle Hopping models of Traffic: From vehicles to nano-motors" in the lecture which took place just after the

inaugural session. Prof. H. C. Verma who has been actively promoting science amongst the students, spoke on "Enjoying science with simple experiments" on Saturday.

The participants of the contest were selected in two phases. In the first phase, 197 abstracts were received and 90 were selected for submission of papers. In the final phase 85 papers were submitted and 35 were selected for final paper submission and paper presentation at IIT-K. The participants were selected out of the 450 engineering colleges where invitations for the contest were sent to.

Prof. Kripa Shankar, the Deputy Director of IITK, was the chief guest at the inaugural ceremony. Dr. C. V. R. Murty, the acting Head of the Department of Civil Engineering (now the current head) and the SOCE faculty advisors namely Dr. Amit Prashant and Dr. Tarun Gupta were also present. Prof. Kripa Shankar expressed his happiness on the effort made by the student community to encourage research and education and encouraged the participants to make the best of this opportunity to explore the facilities of the institute and make friends, so that they could

benefit from the intellect of the institute. Prof. C. V. R Murty highlighted the fact that Civil Engineering was returning to the peak again after a long wait as the country's need of infrastructure has increased. He expressed happiness with the fact that the contest was getting better and bigger each year with the involvement of the students increasing and the ever existing faculty support. Mr. Abhishek Joshi, the coordinator of CIVERE'07 mentioned that the concept has taken the shape of a movement to promote education and research amongst the student and also to share knowledge and information. Mr. Rahul Sharma, the co-coordinator mentioned that he was happier to see the fairer gender taking part in the event more actively with time and coming up with good research work which they are presenting at a prestigious institution like IIT-K. Mr. Sreekanth Devi mentioned that he was happy to see so many students participating in the contest for the cause of Civil Engineering Research and Education. Mr. Raushan K. Singh mentioned that the concept of CIVERE had spread through a lot of extracurricular events in IIT-K and had evoked interest amongst the student community to participate in the

event. Dr. Amit Prashant and Dr. Tarun Gupta thanked Messrs Hindustan Construction Company Limited to agree for being the event sponsors and mentioned that the participation from the industry would evoke further response from the students. They also thanked the organizers for being so pro-active and waking up throughout the night to bring the event to its final shape.

50 students from 25 different institutes and 35 papers were participating in the competition. The prizes were planned session-wise. Seven best papers were awarded in the competition where the masters of the disciplines judged the papers and presentation for content and innovation.

It is a very big achievement to gain such a momentum in a short span of three years, but more is to be done. In CIV-ERE we are looking for quality and not just number, now that we have woken up the masses, our focus will move towards training them and nurturing their talent to make them true researchers and engineers.

(Inputs: Abhishek Joshi)

CIVERE 2007- Winning Abstracts

Effects of Fines on Liquefaction Potential of Sandy Soil

*Amresh Kumar
CE,BTech,IITK*

This paper is focused on the study of effect of presence on fines on the liquefaction potential of sandy soils. It was done through an experimental program which included a series of cyclic triaxial test on sandy soils. For clearly estimating the effect of fine content on sandy soils, samples were reconstituted in lab with varying fines percentage and having different relative densities. Experiments were performed on clean toyoura sand

and sand added with different percentages of kaolin clay added as fines. Liquefaction Potential of each type of such soil sample was determined by cyclic triaxial test. The results thus found were analyzed and impact of percentage of fines was accessed. These results as well as, a comparison between previous such studies, experimental as well as analytical has been presented in this paper. It was observed that effect of presence of fines in sands is to reduce to the liquefaction potential but there are some limitations and certain conditions under which these observations are true. Thus, it also

gives scope for further studies in future under different experimental conditions which can alter the behavior from what have been observed in this paper.

Site selection for rain water harvesting structures using gis

*Ankit Garg and Sourabh Agrawal
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In semi arid zones inadequate amount and uneven distribution of precipitation is very common. The limited quantity of rainfall and its unfavorable distribution compels to

think for its proper management and to store rainwater at proper locations. Jhansi being a semi arid region experiences limited showers and faces acute shortage of water especially in summers. Rainwater harvesting is the only solution, which will help in rising of water table of the region. This will provide water in root zone and hence crop yield will be increased.

The topography, type of soil, landuse, and available rainfall are important parameters for selecting sites to tap rainwater. In this study Digital Elevation Model (DEM), slope map, soil map, drainage map, rainfall map have been prepared and an attempt has been made to locate sites for rainwater harvesting using Geographical Information system (GIS).

Design of a constructed wetland for paddy runoff

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Wetlands are areas that are periodically submerged in shallow waters and support various types of plants and aquatic organisms. A constructed wetland is designed and built artificially and then allowed to mature by natural processes to control water pollution from point and non-point sources. This project involves the hydraulic design of a basic Free Water Surface Wetland train consisting of three cells in series, to treat non-point source runoff from paddy fields. Runoff for the proposed project area is calculated using the CROPWAT software and the Penman-Monteith equation. Each wetland cell is divided into three zones - two vegetated zones and one non-vegetated clear zone. Suitable vegetation for each zone will be decided based on the local environmental conditions. This project will serve as a precursor to deciding whether the wetland is feasible in practice, and if it is, a

more detailed design of the wetland may be carried out.

Construction Stage Analysis Of Cable Stayed Bridge

*Heena .B. Kharat
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Bridges often provide vital links in transportation systems. A typical cable stayed is a continuous girder with one or more towers erected above piers in the middle of the span. From these towers, cables stretch down diagonally (usually to both sides) and support the girder.

Behavior of cable stayed bridge is of great importance as the influence of moving loads, seismic and wind forces, on these structures mainly dependent on its characteristics. Major structural component of cable stayed bridges are deck, tower/pylons, cables and abutments/piers. The structure is of nonlinear nature and highly indeterminate. There are now demands for construction of cable stayed in India. The technique and methods of erecting cable stayed bridges are as varied and numerous as the ingenuity and number of erector contractors. Erection methods not only affect the stresses in structure during erection but also have an effect on the final stresses of completed structure.

The objective of the paper is to present the behavior of a cable stayed bridge during stage by stage construction to understand the behavior of bridges with respect to variation in various parameters such as a cable tension, pylon height, type of support conditions etc. and to suggest guidelines for the design of such bridges.

River Bank Filtration: An overview

Obulesu Nanganuru and Anirudh Vemula

Dept of Civil Engg, IIT Roorkee

For more than one hundred years, riverbank filtration (RBF) has been used to produce drinking water by inducing surface water to flow downward through sediment and

into a pumping well. During this process, potential contaminants are filtered from the water, significantly improving water quality. This paper explores the mechanics behind RBF, its ability to remove contaminants from surface water, and critical research needs. This paper describes the current and state-of-the-art applications of RBF technology as currently practiced in two continents. Its purpose is to show that RBF is a low-cost and efficient alternative water treatment process for drinking-water applications. The need for the use of RBF in India is also emphasized.

Effect of fine aggregate replacement with fly ash on the mechanical properties of concrete

*Rishi Javeri & Siddharth Pandya
K.K.Wagh Institute of Engineering Education and Research, Nashik*

The utility of flyash as partial replacement in concrete mixes is on rise these days. Flyash is a waste product which is generated in thermal power stations. The quantity of fly ash produced from thermal power plants in India is approximately 105 million tons each year, and its percentage utilization is less than 13%. Majority of fly ash produced is of Class F type. The use of these materials would reduce the disposal problems now faced by the thermal power stations and industrial plants. During the last few years, some cement companies have started using fly ash in manufacturing cement, known as 'Pozzolana Portland cement', but the overall percentage utilization remains very low, and most of the fly ash is dumped at landfills.

Fly ash is generally used as replacement of cement, as an admixture in concrete, and in manufacturing of cement. Whereas concrete containing fly ash as partial replacement of cement poses problems of delayed early strength development, concrete containing fly ash as partial replacement of fine aggregate will have no delayed early

strength development, but rather will enhance its strength on long-term basis. In this investigation flyash is used as sand replacement material. The material mix of proportion 1:1.45:2.46:0.5. Each category comprises of various percentages of sand replacement material in increasing order i.e. 46%, 47%, 48%, 49%, 50%, 51%, 52%, 53%, 54%, and 55%. The workability is maintained constant for all mixes. Strength characteristics such as compressive strength flexural strength split tensile strength of concrete mixes are found out for seven and twenty eight days curing period and results are analyzed.

Use of modified bitumen, emulsions and geotextiles in modern road construction

Varun Kapoor

*Student, 3rd year, CE,
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The flexible pavement construction technology in India has undergone upgradation in recent years to improve the quality, durability and economy of the roads. This paper presents a few benefits accrued by the use of a few such materials like polymer modified bitumen, asphalt emulsions and geotextiles.

Polymer modifies bitumen is obtained by the addition of polymeric materials to bitumen to extend its applications by improving the thermal susceptibility, flexibility and resistance to fatigue. This permits the use of thinner bituminous layers in road construction.

Asphalt emulsions are dispersion of asphalt in water and stabilized by chemical system. These are economic, safe, eco-friendly and

versatile products. They ensure improved adhesion, use of just adequate quantities and uniform spreading of bitumen over the aggregates, thus avoiding bleeding during summer. Bitumen, a depleting product, can therefore be used conservatively under varying temperatures to achieve better performance and durability.

Geotextiles are permeable synthetic fabrics which have the ability to separate, filter, reinforce and drain. Their presence within a pavement structure provides reinforcing effect, a greater fatigue life and check propagation of reflection cracks.

Advent of these modern construction materials would definitely benefit the Development & Maintenance of efficient road network.

Department of Civil Engineering Awards and Honors

STRENGTHS Team

Dr. C.V.R.Murty of Structural Engineering was awarded the fellowship of the Indian National Academy of Engineering.

Dr. Rajiv Sinha of Engineering Geosciences was awarded S.S. Merh Award for 2006 by the Geological Society of India. This award is given once in two years for contributions in the area of Quaternary Engineering.

Dr. Animesh Das of Transportation Engineering was awarded with the IRC- Pt. Jawaharlal Nehru Birth Centenary Award 2005 by the Indian Road Congress for his outstanding contributions in the field of Highway Engineering (including Bridges).

Ankit Agarwal, Arpit Garg and Mohit Chug; B.Tech students of Civil Engineering have won the runners up prize in National Concrete Cube Competition 2006 organized by the Indian Concrete Institute, and the Associated Cement Companies (ACC).

Mr. Abbani Patnaik, M.Tech student of Environmental Engineering and Management Program won the Best Poster Award at the Golden Jubilee National Symposium on the Role of Meteorology in National Development, Pune in November 2006.

Akanksha Gupta; B.Tech student of Civil Engineering won the best swimmer award with four individual goals in 100m freestyle, 50m freestyle, 50m backstroke and 50m butterfly events in the Inter IIT Sports Meet.

Suddhasheel Ghosh, Best poster award in Map World Forum 2007, Hyderabad, January 22-25, 2007

A few words from The Editor

Well, I was supposed to write a few words about this magazine and SOCE. But before that, as I did not find any article in this magazine about an issue being raised by our professors and still being ignored by the student community, I would like to take it up here in my space.

This is all about the need for specialization. Over the years, in the Engineering world in general and Civil Engineering in particular, a bachelor's degree has been losing its value. The problems in this competitive and developing world have been becoming more complex. We have moved over from the times of 'laying' roads to 'designing' roads. The trends have changed so drastically that Civil Engineering today is in no way comparable to what it was half a century ago. Now, the world is in need of *experts*. Specialized people are required to solve the challenges posed by the current engineering practices. Today, only specialized people can make a career. A bachelors degree leads to nowhere in this spectrum. A minimum of master's degree is a must to survive in the engineering field.

This magazine is a dream project of SOCE this year. After a lot of changes in charge, finally I happened to take the responsibility to bring this out. Efforts have been put to bring out the main issues in the department through the cover story and the open house discussion articles. Faculty interviews from each specialization have been taken to help the student community. Other departmental events, SOCE events are also covered. A lot of fun is also included through a number of articles received from students. Interviews of biggies like Padmashri E. Sreedharan and Padmashri M. Anandakrishnan have been covered. Care has been taken to see that there is no distortion of facts. This time, unfortunately, we could not accommodate articles in other languages because of both space and print restrictions. I deeply apologize for the inconvenience caused and guarantee that this would be taken care in the next issue.

It has been a quite a painstaking process to get all this done. I would like to thank, in this regard, the whole STRENGTHS team who worked with me and helped me whenever needed. Especially, I would like to thank Dr. Amit Prashant who gave his valuable inputs and suggestions throughout the process. I would also like to thank all the faculty members for their cooperation in bringing out this magazine.

T.V.N. Srinivas

Any complaints, queries, submissions, criticisms and suggestions regarding the magazine to the editor are invited. The editor could be contacted through Email at strengths.soce@gmail.com

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