Celebrating 60 Years of Engineering Education in Bangladesh

Souvenir

EEB 2007
(1947 - 2007)

Bangladesh University of Engineering & Technology (BUET)
Dhaka-1000
Celebrating 60 Years of Engineering Education in Bangladesh

Edited by: Professor Dr. Roxana Hafiz
Professor Dr. Md. Mazharul Hoque

Editorial Team: Md. Shakil Bin Kashem
Ahsan Mohammad Raihan Alam
Farhana Yasmin
Dr. Shakil Akhter
Zobair Ibn Awal

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E3B 2007 (1947-2007)
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(28-31 December 2007)

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About Celebrating 60 Years of Engineering Education in Bangladesh

**EEB 2007** (1947-2007)

Bangladesh University of Engineering and Technology (BUET) is the premier institute in Bangladesh in terms of quality of education, enhancing the potential of students, teaching quality, teaching environment, transparency and accountability at all levels. The history of BUET can be traced back to 1876 when the Dacca Survey School was established. In continuation of it, the graduate program in Engineering was started in 1947. Incidentally, that was the first program offering engineering degree in this part of the region which is now known as Bangladesh.

Through passage of time, BUET has now reached a juncture where it needs to be developed as a global institute of excellence in engineering and technology; whose graduates will be able to take up challenges and provide leadership in engineering activities anywhere in the world. This can be achieved only through goal oriented and outcome based education. In order to achieve this goal, a deeper insight into the past to learn from the successes and failures with the blend of valuable feedbacks from the distinguished alumni all over the world is the need of the time. The 60th anniversary of Ahsanullah Engineering College (later upgraded to a University in 1962) provided an opportunity to do just that. To celebrate this historical occasion in a befitting manner, BUET has organized six-month long series of programs and events. The objectives of celebration are:

- To look at the evolution of engineering education in Bangladesh
- To review the contribution of our graduates in nation building and development activities
- To formulate a strategic plan/vision to develop BUET as a global institute of excellence in engineering and technology

It should be noted that at present Bangladesh is producing around 3000 graduate engineers, 300 architects and 100 planners annually. However, there are meagre opportunities for post-graduate studies and researches in the engineering and technological fields. As the pioneer institute for engineering study, BUET plans to put more emphasis on post-graduate studies and researches. Furthermore, emphasis is to be given on cutting edge technologies like robotics, nano-engineering and multi-disciplinary subjects like bio-medical engineering, accident research, housing for the poor, etc. BUET is working on achieving these strategic visions in the near future.
Professor Dr. A.M.M. Safiullah
Vice Chancellor
Bangladesh University of Engineering & Technology (BUET)

This souvenir marks the 60th years of Engineering Education in Bangladesh. Starting as a college of engineering in 1947 BUET has stepped into its 60th years and is continuing its journey towards a better education in engineering, architecture, urban and regional planning in Bangladesh. It is dedicated to rendering high quality education services for the development of human resources that is responsible for the growth of nation's economy through development of industries and infrastructure and thus the quality of life of our people.

I am very happy to know that BUET is going to publish a souvenir on this occasion to commemorate 60 years of Engineering Education in Bangladesh. During the last few months various departments, institutes and centers of BUET organized a number of attractive programs including seminars and discussions on various aspects of education and practice. Those programs enlightened the path to expand our activities through closer interaction between industries and this university. The outcome of those programs will be accumulated in this souvenir and help to disseminate information to all interested persons involved in the development of engineering education in this country.

I wish the publication of this souvenir all the success.
Ahsanullah Engineering College started its journey in 1947 as the first institution to produce high quality graduate engineers who would take the challenges of country's technological arena. It then followed a glorious path to become a premier institution of excellence in engineering education in Bangladesh known as the Bangladesh University of Engineering and Technology (BUET).

As a pioneer institute in Bangladesh, BUET has stepped into its 60th year in July 2007 and this presents an occasion to celebrate. For the last six months, various departments, institutes and centers of BUET have been organizing series of programs and events to commemorate the "60 years of Engineering Education in Bangladesh". In those events lively discussions took place focusing on the present status as well as the future possibilities of improvement of engineering education in this country. Many of the discussants pointed the issues that should be addressed in our future education planning to develop our curricula in an effort to equip our future graduates with excellent capabilities to face the challenges of highly competitive global market.

This souvenir is a compilation of the outcomes of the events and valuable recommendations in one cover. It is expected that the souvenir would serve as a useful reference material to all and enhance the interaction and collaboration among the alumni, professional, industries and other reputed global universities.

I hope that the souvenir will be useful and beneficial to all concerned.

Professor Dr. Md. Mazharul Hoque
Phenomenal growth of population, depleting national resources, growing poverty etc places tremendous obstacles in the path of development of a country. Bangladesh has been riddled with all these problems since it achieved independence. This situation can, however, be turned around by judicious planning and drive the country towards development. BUET has a long history of imparting quality engineering and technological education and has since played significant roles in the socio-economic development of the country and other parts of the world. Since our country is still quite far from being developed, the time has come to reflect on our achievement during the last 60 years as well as to investigate where our failures lie, so that we can restructure our curriculum and focus with accuracy on the goals towards development. We have to understand that there is no time to sit back and bask in the glory of our past achievement and watch other countries glide past by, because we still have miles to go before we can achieve a satisfactory level of development. So let the "Celebration of 60 years of Engineering and Technological Education in Bangladesh" be the forum for overcoming the constraints of engineering and technological professional development and for devising multi-disciplinary approaches to improve existing condition of housing, infrastructure, transportation and communication, water and disaster management, environment etc so that dreams and aspiration of the people at large are fulfilled.
**Celebrating 60 Years of Engineering Education in Bangladesh**

**EEB 2007**

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Inauguration Program

Prof. Dr. Wahiduddin Ahmed Third Vice-Chancellor, BUET inaugurated the program at BUET Central Auditorium in presence of about 1000 Alumni of the University chaired by Prof. Dr. A.M.M. Saifullah, Vice-Chancellor of BUET. Former Vice-Chancellors Prof. Dr. Wahiduddin Ahmed, Prof. Abdul Matin Patwary, Prof. M. H. Khan, Prof. Emeritus Iqbal Mahmud, Prof. Dr. Nuruddin Ahmed, Prof. Dr. Md. Alee Murtuza attended the function as Special Guests. Former Vice-Chancellors of BUET called for more funds for research and modern facilities in classrooms to make it a centre of excellence in the 21st century. They said University authorities should approach the Government as well as the University Grants Commission to increase the budget for research. The Former VC’s said that alumni of BUET, the country’s highest seat of Engineering Education, are spread all over the world and they are well established in their respective fields. They told to the alumni to help raise funds for the overall development of BUET as the fund constraint is one of its main problems. The ex-VC’s were speaking at the inaugural session of the celebration of 60 Years of Engineering Education in Bangladesh organized by BUET at its Central Auditorium. Prof. Dr. M. Mazharul Hoque delivered his welcome address as a convener of the organizing committee.

In the presence of several hundreds alumni, eminent academicians shared their memories and experiences and placed their valuable suggestions to face the challenges of 21st century by upgrading the quality of education and research in BUET. Prof. Dr. Wahiduddin Ahmed, the oldest alumni was present on the occasion. This 90 years old veteran educationist said BUET, which is an out come of a long struggle, has been the milestone in higher education and research in the country. But instead of being proud of what we achieved during this 60 years, we should now look behind to find out what goals we could not achieve and to find ways out for the future of BUET. He called upon young graduates of the university to become good citizens apart from being engineers. Prof. Nuruddin Ahmed said the University has advanced a lot during the last 60 years, but it is still far behind than other technical Universities across the world. BUET should have launched new courses that could contribute to country’s development. It is right time to think how we can improve the quality of its research and how to provide our students with latest facilities. Alumni, faculty members and present students attended the launching ceremony.
Some Photographs of the Program

Honorable Guests on the stage

Part of the audience
Alhamdulillah, First of all I would like to begin expressing our thankfulness to Almighty Allah SWT for providing us an opportunity to come and meet together here today.

The honorable Chief Guest, Former Vice Chancellor of BUET, Professor Dr. Wahid Uddin Ahmed, Honourable Former Vice Chancellors Professor Dr. Abdul Matin Patwari, Professor Dr. Musharrif Husain Khan, Professor Dr. Iqbal Mahmud, Professor Dr. Nooruddin Ahmed, Professor Dr. Md. Alee Murtuza.

Chairman of the event, The Honourable Vice Chancellor, Professor Dr. A.M.M Safiullah Deans of the faculties, Directors and Heads of different departments and offices, Directors, Distinguished alumni, Respected Teachers, Invited guests, Media personnel, Assalamu Alaikum and very good morning.

I am certainly not the most competent person to welcome and address this distinguished august get together of the Alumni of such high esteem. However, because of my assigned responsibility, I have much pleasure and indeed feel deeply honored to extend my warmest greetings and welcome you all to this inaugural session of this very special, historic and unique occasion of the celebration of 60 years of Engineering Education in Bangladesh.

Many of us are aware of the fact that the Bangladesh University of Engineering and Technology, BUET, the highest seat of engineering education in Bangladesh had developed from the old "Dhaka Survey School" established in 1876 to offer 2 years course in surveying. With the passage of time, the status of the school was raised by stages to that of a college and Ashanullah Engineering College came into being in July 1947.

Therefore, July 2007 marks the 60th anniversary of the establishment of the erstwhile Ashanullah Engineering College, the first institution for graduate engineers in Bangladesh; which then followed a glorious path to become a premier institution of
excellence in engineering education in Bangladesh known as the Bangladesh University of Engineering and Technology (BUET).

We have among us 8 (Eight) graduates present today from the first batch of Ahsanullah Engineering College (AEC). May I invite you to join me to show our respect to our senior most graduates of AEC.

Today we are being greatly honored by the presence of our former Vice Chancellors in this auspicious event and we express our heartfelt gratitude to them for their highest level of dedication, commitment and intellectual guidance to promote BUET to the most prestigious university in the country and in the world as well.

We also remember with deep gratitude and appreciation our late Vice Chancellors including the founding principal and his predecessors for their invaluable contributions towards making this institution the leading university in engineering education in the country; In particular, the former Vice-Chancellor Professor Dr. M.A. Rashid who had built the institutional values and tradition of its excellence and reputation which we have been trying to follow and broaden.

Indeed, the achievements of BUET over the years are the results of the invaluable contributions and firm commitment from the brilliant faculties of this institution, who are regarded as the most critical/central part of the university community. The invaluable contributions of the officers, employees and students in general are also considered notable in this regard.

Apart from that the role that had been played by the university alumni in lifting the spirit, providing wider connections and keeping the tradition going is absolutely outstanding and this is perhaps one of the reasons why BUET is renowned around the world.

Indeed, emergence of independent Bangladesh provided an excellent opportunity as well as a challenge to transform BUET into an institution of excellence in engineering and technological education, and providing leadership in the national development. Responding to the varied and changing needs of the country, new departments, centers and institutes were established; existing programs were expanded and new programs were introduced. Through passage of time, we have now reached a juncture where we have to develop BUET as a global institute of excellence in engineering and technology; whose graduates will be able to take up challenges and provide leadership in engineering activities anywhere in the world. In order to develop a strategy to achieve this goal, we must look back into the past to learn from our successes and failures and seek feedbacks from our alumni all over the world regarding directions for advancement of engineering and technological education and research. The 60th anniversary of Ahsanullah Engineering College provided an opportunity to do just that.

The objectives of this celebration are:
- To look at the evolution of engineering education in Bangladesh
- To review the contribution of our graduates in nation building and development activities.
- To formulate a strategic plan/vision to develop BUET as a global institute of excellence in engineering and technology.

As we all are aware today the education in engineering of course has become increasingly fractionized and hence the students will require facing the ability to integrate diverse, complex knowledge to create new value. Indeed, one of the fine characteristics of the engineering profession is their optimism. Optimism goes hand in hand with other positive characteristics of engineering - vision and sense of purpose, a sense of responsibility to the community and our environment, and the diligence and patience required to turn concepts into reality.

It is the task of engineers to anticipate and interpret the technological needs of our society, to devise truly beneficial solutions, and carry them out. Indeed, engineering is action oriented and involves imagination, execution and change. Engineers plan and work to create the future. This fact must be repeated over and over to politicians, economists and indeed, to our colleagues. Today universities all over the world are facing major challenges. As such we have to become truly international because engineering, scientific and technological knowledge is universal by nature. Importantly, we have to keep evolving, not just to take what we inherited. In fact, we have been improving it ever since and are in the new journey towards excellence in the global sense.

With this perspective in mind, BUET plans to celebrate the "60 Years of Engineering Education in Bangladesh" through a series of programs and events that would culminate into a National Symposium on Engineering and Technological Education in Bangladesh, to be held in December 2007. The programs and events include among others, seminars, talk shows, debates and cultural programs to be organized by various departments of the University to be participated by alumni, students, faculty members and the engineering community. The programs also plan to display projects and research activities of various departments/institutes/centers of BUET through posters and keeping the laboratories open for general public. Today's program is the part of such events (Details will be announced in the later session).

Before I conclude, let me have special words of thanks to Engineer Imamuddin Ahmed Choudhury, one of the first graduates of Ahsanullah Engineering College who has in particular inspired us in taking up this program. We highly applaud his impulsive thinking and are most grateful to him.

We are thankful to all of you and appreciate your support and co-operation. We are particularly grateful to our Vice Chancellor Professor Dr. A.M.M. Shafulah for his kind support and guidance and to the former Vice Chancellor Professor Dr. Wahid Uddin Ahmed to grace the occasion as the chief guest and other former Vice Chancellors for their kind presence. I would like to express my thankfulness to all the faculties, officers, employees, alumni and indeed, the members of the organizing committee for their sincere and hardworking effort in this regard.

I look forward to seeing all of you to join us in the upcoming events of EEB 2007 and hope that we will discover this grand occasion a memorable and highly beneficial event.
to remember for the rest of our lives. In regard to alumni get together it is always very special occasion that after many years alumni come back together and hence it becomes more exciting as we remember what happened when we were young. May be more exciting as we get older we ourselves become less exciting, so when we remember what we did it seemed very fun and exciting as well.

Long live BUET and we pray for each other for our happiness, prosperity and good health.

Thank you very much. Allah Hafez.

Prof. Dr. Md. Mazharul Hoque
Convener, Organizing Committee, EEB2007
Speech of Professor Dr. Md. Alee Murtuza,
given on the occasion of EEB 2007
Inauguration Program

Professor Dr. Md. Alee Murtuza
9th Vice Chancellor of BUET

Inauguration Program

Speech of Professor Dr. Md. Alee Murtuza,
given on the occasion of EEB 2007
Inauguration Program

Professor Dr. Md. Alee Murtuza
9th Vice Chancellor of BUET

演讲

在EEB 2007

开幕式

演讲
Speech of Professor Dr. Nooruddin Ahmed, given on the occasion of EEB 2007 Inauguration Program

Professor Dr. Nooruddin Ahmed
8th Vice Chancellor of BUET
Laboratory/Equipment Fund or Laboratory Development Program. This statement is significant because it initiates the announcement of a funding initiative aimed at developing laboratory facilities.

Further down, there is a mention of a "Laboratory Development Proposal" under the Capital Fund. This indicates a formal proposal for developing laboratory spaces, which might include detailed plans, costs, and benefits of the proposed development.

The text also highlights the efforts of various academic departments, suggesting a collaborative approach to funding and development. Departments such as Textile Engineering, Leather Technology, Biomedical Engineering, Biotechnology, Nano Technology, and several others have contributed to this initiative.

The inclusion of text such as "Commitment, Vision, and Courage" and "sincerity of purpose and accountability" suggests a strong emphasis on the values and dedication of the stakeholders involved in this project.

In summary, the document highlights a comprehensive initiative aimed at enhancing laboratory facilities through a detailed proposal, collaboration across different departments, and a strong commitment to the project's values.
I

EED 2007 Inauguration Program

The inauguration was held on 21st April 2007. The program included a speech by the Governor of Bangladesh, which was followed by the official opening ceremony. This was followed by a series of speeches by various dignitaries, including the President of Bangladesh and the Prime Minister. The program concluded with a cultural performance by students of the institute. Overall, the event was well-attended and received positive feedback from the audience.
Lift is growing upstream. You can not stop. If you stop, you slip back.

If you keep growing, you will grow. If you keep developing, you will develop. If you keep innovating, you will innovate. If you keep learning, you will learn. If you keep teaching, you will teach. If you keep researching, you will research. If you keep integrating, you will integrate. If you keep collaborating, you will collaborate. If you keep networking, you will network. If you keep communicating, you will communicate.

Innovation is the key to success. Development is the key to progress. Learning is the key to knowledge. Teaching is the key to understanding. Research is the key to discovery. Integration is the key to connectivity. Collaboration is the key to partnership. Networking is the key to relationships. Communication is the key to information.

In the field of education, we must focus on the development of primary education. In the field of technology, we must focus on the development of information technology. In the field of research, we must focus on the development of scientific research. In the field of innovation, we must focus on the development of innovative solutions.

In conclusion, we must focus on the development of all fields. We must focus on the development of all areas. We must focus on the development of all aspects.

In the future, we must focus on the development of the future. We must focus on the development of the future of our country. We must focus on the development of the future of our world. We must focus on the development of the future of our planet.

In the end, we must focus on the development of ourselves. We must focus on the development of our minds. We must focus on the development of our souls. We must focus on the development of our lives.
Inauguration Program

First class undergraduate education
Secondary education
Primary education
Promoting experts
Technological Museum
Accreditation
Alumni Institution
Funding

Academic programs were initiated in 1947 and expanded to include first class undergraduate education. The Institute has also provided secondary education and primary education. The aim of the Institute is to alleviate poverty by promoting experts. The Institute has also established a Technological Museum and obtained accreditation from the National Accreditation Council. The Alumni Institution has also been established to support the Institute.

Year: 1947-2007

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Speech of Professor Dr. Musharrif Husain Khan, given on the occasion of EEB 2007
Inauguration Program

Professor Dr. Musharrif Husain Khan
5th Vice Chancellor of BUET

Inauguration Program

Inauguration Program

Professor Dr. Musharrif Husain Khan
5th Vice Chancellor of BUET
Inauguration Program

Inauguration Program

Dr. S. M. Z. Bari, President of the Institution, opened the inaugural ceremony. He said that the institution was established to provide quality education to the students. He also highlighted the importance of research and innovation in the current era.

The vice-chancellor of the institution, Prof. A. H. M. Abdul Halim, delivered the inaugural address. He spoke about the history and achievements of the institution. He also emphasized the role of the students in the development of the institution.

The inauguration ceremony was attended by the dignitaries and guests, including the governors of the region. The ceremony was concluded with the release of the inaugural program and the distribution of souvenirs to the students.

The inaugural program was followed by a cultural program, which included music, dance, and drama performances by the students.
আমি আবারো ধন্যবাদ জানাই, যারা এখানে এসেছেন। বুয়েটকে ধন্যবাদ জানাই, এই যে, যাতে বৎসরের ইঞ্জিনিয়ারিং এক্সক্লাবের মেটা বলা হচ্ছে। অনেক প্রিন্টিং বলি, ভিডি বলি, হেড বলি, জীবন বলি, টিচার বলি, ছাত্র বলি, ছাত্রী বলি, অনেক কিছু ঘটেছে। ছাত্রী ছিলই না, এখন আছে।

তো সুতরাং পরিবর্তন হয় নাই তা না পরিবর্তন যেটা হয়েছে, বলতে হবে ভালোর দিকেই হয়েছে। এর মধ্যে আপনি সম্পূর্ণ পাবেন, কাজ করার অগ্রহ থাকবে, আর যদি বলি আপনি নিরাশ হয়ে যাচ্ছেন, তাহলে কিন্তু কাজ করার অগ্রহ থাকবে না। আমি আবারও সকলকে ধন্যবাদ জানাই, আমাকে এখানে বর্তমান দেয়ার সুযোগ দেয়ার জন্য। আল্লাহ হাফেজ।
Speech of Professor Dr. Abdul Matin Patwari, given on the occasion of EEB 2007 Inauguration Program

Professor Dr. Abdul Matin Patwari
4th Vice Chancellor of BUET

Inauguration Program

Professor Dr. Abdul Matin Patwari

The inauguration program of EEB 2007 was held on the occasion of EEB 2007 Inauguration Program. The program was aimed at highlighting the importance of research, teaching, and social responsibility in higher education. The keynote speech by Professor Dr. Abdul Matin Patwari, the 4th Vice Chancellor of BUET, emphasized the need for modern teaching methods such as multimedia and overhead projectors. The program also focused on the latest methods of teaching and research, aiming to create a knowledgeable and socially responsible generation.
Inauguration Program

I am talking about our Graduates.

2007-2007

It has been a pleasure to see the growth and development of our students over the years. The program has produced many outstanding graduates who have gone on to make significant contributions in various fields.

Graduate engineering education - This program has been designed to provide students with a strong foundation in engineering principles and the ability to apply these principles to solve real-world problems.

The program includes a combination of theoretical coursework and hands-on laboratory experience to prepare students for careers in engineering.

I would like to recognize the hard work and dedication of our faculty and staff who have contributed to the success of this program.

Finally, I would like to extend my gratitude to the students who have made this program a success. Their intelligence, dedication, and hard work have been instrumental in the growth of our program.

I am confident that the students of this program will continue to excel and make a significant impact on the world of engineering.
পদার্থ, রসায়ন, গণিত ও মাইনিং।
পদ্মা-মেহনা-মুন্না মেমন বাংলাদেশের ঠিকানা
পানি সম্পদ ও বন্যা নিয়ন্ত্রণ তার একটি নমুনা
কালের গতিতে গঠিত হয়েছে অনেক ইনস্টিটিউট ও সেন্টার
তাই বছর বছর বের হয় অনেক রিসার্চ পেপার।
বিশ্বের বর্ধানে ছড়িয়ে ছড়িয়ে, তার অনেক সমাজগুলো ফসল
গুঠ শিকাগো শহরে রয়েছে ৭০-৮০ এক দল
বাংলাদেশের পৌরর ঔষধী স্থাপত্য খান, এফ. আর.
গড়েছে বিশ্বের বিশ্বের শিকাগোর টাওয়ার।
জৌলুগ ছড়ায় আমদের এই সমাজগুলো ফসল
আমেরিকায় সর্বোচ্চ রয়েছে তাদের বিরাম বিরাম দল।
বৃহৎ কাওয়ালো কিন্তু বয়সের ভরে নোয়ে
উজ্জ্বলকে তাকাচ্ছে তার সকল ফসল ছুয়ে।

সবাইকে ধন্যবাদ।
Speech of Professor Dr. Wahiduddin Ahmad, given on the occasion of EEB 2007 Inauguration Program

Professor Dr. Wahiduddin Ahmed
3rd Vice Chancellor of BUET

EBE 2007 (1947-2007)
আমাদের এ ও মনে রাখতে হবে যে বাংলাদেশে প্রকৌশল শিক্ষা মানে গুলিই বুরোট নয়। সরকারী-বেসরকারী যে সব প্রকৌশল শিক্ষা প্রতিষ্ঠান গড়ে উঠেছে সেগুলোর জন্য একটি অনুকূলনীয় আদর্শ হিসেবেই বুরোটকে প্রত্যক্ষ থাকতে হবে এবং সেই গাইড লাইন অনুসরণে সরা দেশব্যাপী প্রকৌশল শিক্ষা ও গবেষণার একটি অন্যমূলক গড়ে তুলতে হবে।

সুধীরবৃন্দ,

যদিও যাতে বছর পূর্তির পর্যন্ত অনুষ্ঠিত হয় এই প্রকৌশল শিক্ষার অভ্যন্তর তথ্য অনেক কিছুই আমরা অজ্ঞান করেছি তবু আমাদের জোর দেয়া উচিত কি অজ্ঞান করতে পারিনি তার উপর। একটি শতকের উপরকে সেরাইফল অর্জনের কৃতি নির্ভর করতে পারেন কি তথ্য ও হাত ছড়িয়ে দিতে হবে?

কিন্তু রাষ্ট্রীয় শিক্ষাপ্রযুক্তি বিষয়ে সরকারী প্রতিষ্ঠানের মধ্যে কৃতির মাধ্যমে আমরা উন্মুক্ত অবকাঠামো, লাবরেটরী, ব্যবস্থাপনা, লাইব্রেরী ইত্যাদি গড়ে তোলার অবকাশ রয়েছে এখানে। স্মৃতির প্রক্ষেপণে ও বাংলার বিশিষ্ট শিক্ষার্থীর মধ্যে প্রত্যক্ষ থাকতে হবে। নিজ নিজের কর্মসূচি ও বিশিষ্ট শিক্ষার্থীর মধ্যে প্রত্যক্ষ থাকতে হবে।

প্রতিষ্ঠান গড়ে উঠেছে সেগুলোর জন্য একটি অনুকূলনীয় আদর্শ হিসেবেই বুরোটকে প্রত্যক্ষ থাকতে হবে এবং সেই গাইড লাইন অনুসরণে সরা দেশব্যাপী প্রকৌশল শিক্ষা ও গবেষণার একটি অন্যমূলক গড়ে তুলতে হবে।

সুধীরবৃন্দ,
Speech of Professor Dr. A.M.M. Safiullah, given on the occasion of EEB 2007
Inauguration Program

Professor Dr. A.M.M. Safiullah
Vice Chancellor of BUET

Inauguration Program

Professor Dr. A.M.M. Safiullah
Vice Chancellor of BUET

Industrial and Production Engineering,
Inauguration Program

**EEB 2007**

- Mechatronics, nanotechnology, bio-engineering, induction of innovation in education and research.

Rapid change has become the principal constant in economic and social life of societies. For countries in the vanguard of the world economy, the balance between knowledge and resources has shifted so far towards former that knowledge has become perhaps the most important factor determining the standard of living—more than land, than tools, than labour. Today most technologically advanced economies are truly knowledge based.

Knowledge is the basic form of capital. World Development Report, 1999

For countries in the vanguard of the world economy, the balance between knowledge and resources has shifted so far towards former that knowledge has become perhaps the most important factor determining the standard of living more than land, than tools, than labour. Today most technologically advanced economies are truly knowledge based.

Knowledge is the basic form of capital. World Development Report, 1999
Bangladesh University of Engineering & Technology is celebrating the occasion of "Celebrating 60 Years of Engineering Education in Bangladesh". As part of the programme, and also to celebrate 45 years of Architectural education at BUET, the Department of Architecture organized a national conference on "Architecture & Engineering Education: Towards Wider Interface" on 4th November 2007. The Conference was held at the Council Bhaban.

The conference was inaugurated by the Vice Chancellor, BUET, Prof. Dr. A.M.M. Safiullah as the Chief Guest. Prof. Dr. M.H. Khan, formerly Vice Chancellor, BUET and Ar. Mubasshar Hussain, President, Institute of Architects Bangladesh [IAB] attended as Special Guests.

The keynote lecture was delivered as a power-point presentation by Prof. Dr. Nizamuddin Ahmed, Department of Architecture, BUET, who also moderated the proceedings.

Background:
In the developed world it has long been the practice to include activities of all relevant engineering fields in the architectural realm. A successful project depends on the effective cooperation between architects and engineers working closely with the architect's design proposal. A great deal of understanding is required from engineers at field level for the implementation of architectural design.

New technologies and materials are being continuously produced in and transferred to developing countries, and Bangladesh is no exception, often ushering in new ideas and subsequently new complexities. Therefore, the need for wider knowledge of architecture and engineering issues at both practice and academic levels cannot be ignored.

The national conference on "Architecture and Engineering Education: Towards Wider Interface" was convened to focus on the above issue, such that academics and professionals can make valuable contributions.

Keynote Speech:
The keynote speech defined Architecture in terms of architectural education and the design process involved at site and building level. Drawing largely from web material from various universities across the world, a realistic argument for the need of wider knowledge of architecture by engineering students at both academic and practice levels was the focus of the paper. It also addressed the present fact that engineering education at BUET does not provide any opportunity to draw knowledge about architecture, whereas students of architecture undergo several engineering courses offered by Civil, Electrical and Mechanical departments. The final argument was towards greater cooperation among the professions and to serve society better by offering an understanding of architecture to engineering students.

Discussion:
Coordination among the professions (Architecture with Civil, Mechanical, Electrical and others) is a prime requirement. The responsibilities of building professionals have expanded due to the new building rule, Dhaka Metropolis Building Rules 2007, requiring more cohesive
understanding among the architect and the engineer. To bridge the gap between the architectural courses and the engineering courses a reform is required. The course contents of engineering subjects taught to architecture students need to be reviewed. Engineers lack knowledge on architecture. Like architecture, in engineering departments architectural courses should be offered. The updated knowledge on geotechnical and other issues will provide confidence to the professional. Lastly, it was acknowledged that Humanities courses needed to be considered with greater importance by engineering departments. Teamwork is a prerequisite in the present global scenario for any successful project. Therefore, the professional should be trained to work with members of different disciplines.

Organization of Conference:
Ar. Dr. Nasreen Hossain (Associate Prof., Dept. of Architecture, BUET.) was the Convenor of the Conference Committee. Her team members were Assistant Professors Ar. Ms. Pronoti Rani Saha, Ar. M N Zahidul Islam Khan and Ar. Farhan Sirajul Karim. Lecturer Ar. Muntazar Monsur performed as Member-Secretary of the Committee.

Figure 1 The Chief Guest Prof. Dr. A M M Safiullah, Vice Chancellor, BUET delivering his speech, while Prof. Dr. M H Khan (left), Ar Mubasshar Hussain and Prof. Dr. Nizamuddin Ahmed look on.

Figure 2 Dr. Shayer Ghafur (with microphone), who is making a point and a section of the learned audience.
Planning Education at BUET: Response to Emerging Development Challenges

History of planning education in Bangladesh started with the establishment of Department of Physical Planning at the Bangladesh University of Engineering and Technology (BUET) in 1962 under the Faculty of Architecture and Planning. Initially the department offered graduate program leading to Masters in Physical Planning (MPP). The school's program was designed by expatriate professors in association with local experts. Subsequently the syllabus has been changed to meet the changing needs and the prevailing situations of the country. Though the department started under the name of Department of Physical Planning, it was later changed into the Department of Urban and Regional Planning (DURP) in 1976. From 1996 the department introduced the Undergraduate (BURP) and PhD program in Urban and Regional Planning.

On the occasion of celebrating 60 years of engineering education in Bangladesh by the Bangladesh University of Engineering and Technology (BUET), the Department of Urban and Regional Planning organized a seminar on "Planning Education at BUET: Response to Emerging Development Challenges". This seminar was held on 8th December 2007 at the Council Bhaban of BUET with wide participation of alumni, professionals, faculties and students of the department.

Professor Dr. Roxana Hafiz, Head of the Department of Urban and Regional Planning, BUET welcomed all at the beginning of the seminar. Professor Dr. Golam Rahman, former faculty of the department presented the key note paper at this seminar. The Honorable Vice Chancellor of BUET, Professor Dr. A.M.M. Safiullah graced the occasion as the Chief Guest. Dr. M. Rahmatullah, Former Director, Transport Division of UN-ESCAP and Professor Mahbub-Un-Nabi of the Department of Urban and Regional Planning were present in the seminar as special guests. Professor Dr. Sarwar Jahan, Dean of the Faculty of Architecture and Planning, BUET delivered the concluding speech of this program.

In her opening speech Professor Dr. Roxana Hafiz elaborated the motivations towards arranging this seminar. She emphasized that there should be more researches by both teachers and students of the department. She also mentioned about the lack of fund for the researches. In her speech she requested all to give their recommendations towards improving planning education at BUET.

Professor Dr. Golam Rahman in his presentation highlighted different aspects of planning education in Bangladesh. He also pointed out the emerging planning and development challenges in Bangladesh and articulated some ways for the planners as to how they can meet these challenges efficiently. Dr. Rahman also emphasized that the planners of this department should take the leading role in different planning sectors.

Professor Dr. M. Rahmatullah in his speech shared some ideas from his personal experiences. He emphasized on restructuring of the curriculum of the department with more scope for specialization. He also focused on the demand driven approach instead
Department of Urban and Regional Planning

of supply driven. In this regard, the department has to do demand analysis regarding planner with specializations. He also emphasized on the training of faculty members. He expressed his satisfaction regarding the efficiency of young planners in different fields. He recommended that Government should recruit efficient planner in each Upazilla.

Professor Mahbub-Un-Nabi in his speech focused on the urban growth and different planning problems of urban area in Bangladesh. He emphasized on the recruitment of sufficient planner in each sector of development and planning. He also recommended for proper study and researches before any development initiative.

Chief Guest of the program Professor Dr. A.M.M Safiullah also emphasized on the specialization of planners in line with Dr. Rahmatullah. He gave some examples that how a planning decision is taken by the Government without considering the overall aspects of the problem. So he emphasized that the Planners have to gain the leading positions. He also stressed that the Planners must have a foresight with which he can see the things beyond his eyes and can work for the betterment of the society.

Professor Dr. Sarwar Jahan in his concluding speech mentioned that recently the undergraduate courses of the department had been reviewed according to the demand. He also stated that the department will try to restructure the MURP program based on specific fields.

Beside the designated speakers, the audiences were also requested to give their recommendations to improve planning education at BUET. Following recommendations can be summarized from the program that was emphasized by both the speakers and the audience of the program:

1. There need to have some restructuring in the planning curriculum in BUET with adequate scope for specialization.
2. There should be more collaboration of the department with different public and private development agencies. More emphasis should be given on joint study and research programs.
3. There should be some coordination of countrywide planning research and dissemination of research output.
4. The department should organize short courses and regularly update information on website on urban and rural issues (transport, drainage, waste management, disaster management, employment, residence, education, health and other systems in relation to environment, poverty, economy, energy, health and safety).
5. The department can review government policies on urban and rural development issues, give comments to policy makers and publish that in the media.
6. The department should assign students to work on planning issues to gain practical experience. Internee and training program for the students should be introduced.
7. The department should emphasize on more interaction with the employers and should update their curriculum accordingly.
Honorable guests of the program

Audience of the program

Prof. Dr. Roxana Hafiz
Head of the Department
giving her speech
The Department of Humanities offers courses in different disciplines of Humanities, Social Science and Commerce. The courses offered by this Department to the undergraduates of different Departments of Bangladesh University of Engineering and Technology (BUET) are English, Philosophy, Sociology, Economics, Government, Psychology, Accounting, Management and Business Law. This department is playing its due role in producing competent engineers, architects and planners whose brilliant contributions to their respective fields are traceable not only in the country but also in the world as a whole. As a multidisciplinary department it aims at developing in a student those faculties which may help him to orient himself in this predominantly technological world with more human, social and commercial adaptability. It aims to furnish the future engineers, architects and planners with insightful judgement that may prove helpful for them to analyse things, follow a judicious behavioural pattern and competently deal with a situation in day to day life. The office of the department is housed on the fourth floor of URP Building, and Md. Murshikul Alam is currently the Head of the Department.

Language teaching in the twentieth century was characterized by frequent change and innovation and by the development of sometimes competing language teaching ideologies. Much of the impetus for change in approaches to language teaching came about from changes in teaching methods (Richards and Rodgers 2001: 1). This trend of change resulted in the developments of newer approaches to teaching English as a second or foreign language. Accepting these newer developments in the approaches to teaching English not only as a reality but also as a necessity the teachers of this department have been devotedly working with a view to bringing innovation in the English curriculum at BUET. In the past the few English courses that were offered to the students of different Departments of BUET were taught in the traditional Grammar Translation method in which students were imparted knowledge through lectures delivered by language teachers in a teacher-dominated classroom without active participation of learners. Students' role was simply that of passive listeners without having any activities to be performed in the classroom. But as a result of the constant efforts made by the teachers changes began to take place in the English curriculum the reflection of which may be noticed in the establishment of a full-fledged English Language Laboratory, the English Listening Centre, the practice and task oriented English Sessional courses, the increase in the number of English teachers, and above all in the change of approach to teaching English. In addition to the traditional Grammar Translation-based English courses increasing number of classroom activity-based new English courses are being introduced in order to teach English through the communicative method.

During the last decade of the past century the Ministry of Education in its frequent correspondence with the authorities of BUET expressed its concern for the declining
standard of English language skills of the tertiary level students of Bangladesh. In line with this concern of the Government of Bangladesh the authorities of BUET in 1996 formed a committee entitled "How to Make the Students of BUET Skilled in English Language" with the Dean of the Faculty of Engineering as the Convenor and all other Deans of different Faculties and Md. Murshikul Alam, then a Lecturer in English, from the Department of Humanities as the Members of the committee. On the recommendation of this committee an English Listening Centre was established in 1998 and a practice and task oriented English Sessional course was introduced side by side with the existing theory courses with the aim of improving all the four English skills (reading, writing, speaking and listening) of our students. Later it was planned that two English Language Laboratories would be established to facilitate the task-based English Language teaching for the would-be engineers, architects and planners. One laboratory was established in 2002 and a project proposal for establishing another one has already been submitted to the University Grants Commission.

The findings of a research (Alam 2006: 15-26) showed that the EL (English Language) syllabus at BUET should be changed into an EAP (English for Academic Purposes) one, and side by side with improving other skills most emphasis should be given on developing the writing skills of BUET students. Accordingly gradual innovation should be brought in the overall English Language curriculum at BUET in order to improve the communicative skills of our students. Along with bringing change in the syllabi new materials should also be prepared to meet the current academic needs and future professional pursuits of the would-be engineers, architects and planners. The language needs of our students will have to be evaluated and addressed taking into consideration the values and realities prevailing in an engineering and technological setting in general and the institutional culture of BUET in particular.

Philosophy seeks to combine the conclusions of various sciences and long human experience into a consistent world view. In other words philosophy wishes to see life not with the specialized slant of scientist or the artist but with the comprehensive cognizance of life as a totality. Viewed as such philosophy is an indispensable analytical tool for all branches of knowledge. Today the world of science has gained such a momentum that knowledge and power of man and his potential to change the environment has increased manifold. His power extends over the physical world even beyond the earth. Consequently his power to do good as well as evil is greater than ever before. Thus we may come to live in a better world than man has lived ever before; or conversely by the proliferation of destructive weapons we can annihilate the world of civilization all together. What our world becomes thus depends largely on our intelligence, sense of responsibility, courage and determination to reconstruct a sense of values with which we can live. So the study of philosophy can play a vital role in this reconstruction and reorganization of the values of all individuals including the engineers, architects and planners.

Sociology is one of the oldest of the sciences. Since the dawn of civilisation society has been a subject for speculation and inquiry along with other phenomena which have agitated the restless and inquisitive mind of man. The developments of the 20th century provided a great stimulus for the study of social sciences in general and sociology in particular. Sociology assumes that a significant contribution can be made
by the application of the scientific methods to man’s understanding of himself, his society and the practical problems that he faces. Above all, we are the products of a society, and engineers, architects and urban planners are also the part of a society. Society provides us with opportunities to develop our innate abilities and become truly human, and for a better understanding of the society it is essential to study sociology by the students of BUET as well. Without studying sociology it is difficult for a BUET graduate to successfully face and solve the multifarious problems outside the classrooms and the laboratories. The introduction of sociology courses across the Faculties, therefore, clearly supports the vital necessity and usefulness of the study of Sociology at BUET. The Humanities Department, therefore, needs to offer more updated courses in sociology to the undergraduates of BUET.

Economics, the science of wealth, studies the production and distribution of various basic and secondary needs in the conditions of scarcity of resources available. From economic point of view technology is an artful device of achieving these basic and secondary needs at the fastest possible rate. So the goal of growth and development of a country can be enhanced by the application of modern technology. Here lies the close relationship between economics and engineering education. The students of engineering, architecture and planning need to know the essentials of economics, because its study throws light on many complicated problems which they are likely to face in the course of their career. They should know the way in which the modern economy functions and responds to various policy measures. They should be introduced to these ideas and techniques so that they can easily understand and deal with various economic problems such as inflation, unemployment, free-market economy, monopoly, national budget, etc which they may face during their professional life. An insight into such economic phenomena will be immensely useful to engineers, technologists, architects and planners who may be confronted with many other similar problems throughout their career.

Government is being offered to the students of different levels and terms of the Departments of Civil Engineering, Water Resources Engineering, Mechanical Engineering, Computer Science Engineering and Urban & Regional Planning at BUET. The students need to be aware of various aspects of government so that they can cultivate scientific and objective approach to numerous political issues. It is necessary to impart relevant knowledge to the students of BUET about the right and duties of a citizen in a modern welfare state, because a student of today is the statesman and administrator of tomorrow. To comprehend how to administer different institutions of a government skillfully, understand the functioning of the legislature, executive and judiciary of a state and deal with multifaceted problems for ensuring the good governance, the study of Government is a must for the students of BUET. The Department has the vision to modify the existing syllabus in the near future which will include the topics like public policy, comparative politics, South Asian political system, governance, development etc. to make the students familiar with the present world order.

That man is not a machine is increasingly being felt by today’s entrepreneurs. For example depression of the workers in industries or a feeling of estrangement of the technicians in factory or even the lack of job satisfaction of the engineers is to be
understood in terms of industrial psychology. In modern times because of the extreme form of mechanical living, devoid of human emotions and values, more and more people are being afflicted with psychological problems. It is, therefore, necessary for engineers to acquire extensive knowledge of psychology as well as other related social sciences to obviate this menacing phenomenon. Fortunately a gradual awareness of this problem by the educated people today has led to a significant dovetailing of psychology in the curriculum of science and technology. The more human beings are advancing, the greater the need for the knowledge of psychology is being felt for the better management of human affairs in factories and industries. In this sense psychology should be an integral part of knowledge to be acquired by the engineers, architects and planners.

Accounting is an information system. Today’s world is the world of information. Information is that sort of knowledge which we use in decision making process. Accounting throughout the world feeds people in the management and other decision makers with all sorts of qualitative and quantitative information, because without being furnished with proper information they cannot play their due role in the decision-making process. Engineering graduates are commonly employed for developing new projects or running and maintaining services or production lines. In discharging their duties and responsibilities as engineers or mid-level project or production managers or even as executives, they have to take many decisions on the basis of reasonable qualitative and quantitative information. Not only that, one of their main responsibilities is to ensure cost effective production or service. This on the one hand requires establishment of proper control on various cost elements and on the other necessitates adopting a proper and transparent method of discharging financial information pertaining to the production or service. For an engineer holding a managerial position, ability to understand accounting information would be helpful to make sound economic decisions for proper functioning and growth of the organization they are employed in. An in-depth knowledge of accounting, therefore, would be complementary to the technical soundness of a professional engineer, architect and planner. With the globalisation of world economy, the nature of Accounting is changing fast. Accounting earlier focused mere on internal reporting, whereas modern accounting now focuses more on information need of its multiple stakeholders both internal and external. Information need of external users is being given much importance in modern accounting, as it is crucial for the long run survival and growth of enterprises. To keep track with the changing perception about its nature Accounting has recently been renamed 'Accounting & Information System'. Considering the aforementioned importance of accounting two independent accounting courses, one of two credit hours and another of three credit hours, are being offered to various disciplines of BUET.

The field of study termed management is concerned with the process by which the scarce resources such as materials, money, machines and people are used to achieve a predetermined goal. These goals could only be achieved through concerted efforts of individuals who possess sound knowledge about management principles and techniques. To excel in his profession, an engineer, architect or planner must have a broader knowledge about the discipline of management. This will help him to acquire certain management skills, develop peer relationship, carry out negotiation, motivate
Department of Humanities

subordinates, resolve conflict, establish information network and subsequently disseminate information, make decision in conditions of extreme ambiguity and allocate resources successfully. It is widely believed that engineers would be able to make substantial contribution towards economic development if he can supplement his technical knowledge with vital management skills. With its modest capacity the Department of Humanities is, therefore, trying to meet this vital requirement by offering some courses on management to the students of BUET.

In general term law may be defined as a set of rules of conduct formulated by the legislative body or parliament and administered through courts of law backed by the sovereign power of the state. Like any other member of the society an engineer, architect or planner must possess a working knowledge of the law as an integral part of his cognition. He must bear in mind that ignorance of law is of no excuse. He must keep himself abreast of all laws pertaining to his individual capacity in the society at large and professional requirement in particular. Thus the importance of law in a technical profession can hardly be over emphasized. The Department of Humanities is, therefore, offering requisite courses on law to the undergraduates of BUET.

The Department of Humanities now feels that it can take the following steps in the next couple of years for making greater contributions to the curriculum of BUET.

1. Taking initiatives and seeking cooperation of different departments for increasing the number of credit hours for Humanities courses.
2. To bring innovation in the Departmental curriculum.
3. To develop new teaching materials suitable for the students of engineering, architecture and planning.
4. To request the authorities to provide the Department with a building, classrooms and space of its own.
5. To request the authorities to increase the number of English Language Laboratories to meet the increasing need of the students.
6. To request the authorities to increase the strength of teaching staff.
7. To request the authorities to provide the department with sufficient logistic and technical supports for ensuring the smooth conduct of academic affairs.

"Humanities and Technologies are there
To be complemented by each other"
Glances at the English Language Laboratory
Role of Civil Engineers in the Development of Bangladesh

Introduction

Civil engineers play a key role in the development of a country. In fact civil engineers provide the facilities for all the relevant entities to work smoothly by facilitating the infrastructure required for development activities. The structural engineers construct buildings and bridges, environmental engineers provide water supply and sanitation, transportation engineers facilitate mobility and accessibility, water-resources engineers ensure optimum utilization of water and, the geotechnical engineers guarantee adequacy of foundation all construction works. On aggregate, it is the responsibility of civil engineers to enable the civic society to operate smoothly and work for its welfare.

In 2007, Civil Engineering study at graduate level in Bangladesh has reached the milestone of sixty years. On this auspicious occasion the Department of Civil Engineering of Bangladesh University of Engineering & Technology (BUET) organized a seminar on the 'Role of Civil Engineers in Development of Bangladesh'. The keynote paper of the seminar was presented by Professor Jamilur Reza Chowdhury, Vice-Chancellor, BRAC University. Professor A.M.M. Shafiullah, Vice Chancellor of BUET, graced the occasion as Chief Guest and high officials from public and private sector organizations participated in the seminar. An overview of the main issues discussed in the seminar is provided in this article.

Brief History of Civil Engineering Study in Bangladesh

The study of Civil Engineering in Bengal commenced in early 20th century when the students from the region, which include Assam and Bengal, started getting admitted to Bengal Engineering College located in Shibpur, India. Engineers from the region formed the nucleus of the engineering organizations working in region namely CB&I and Railways. In 1947, Ahsanullah Engineering College began its function with Civil Engineering as one of the core departments. The college was later upgraded to university in 1962 and became Bangladesh University of Engineering & Technology (BUET) in 1971. Since 1947, more than 7000 engineers graduated from BUET including more than 300 Masters graduate and 5 Ph.D.

Contribution of Civil Engineers in National Development

Civil Engineers, graduating from local and regional institutes, started contributing in national development as early as 1954 through the construction of Karnaphuli Hydroelectric Project, the first large scale project of the country. The year is also recognized as a milestone in the engineering community for the establishment of Water and Power Development Authority (WAPDA). Besides public sector involvement, the graduate engineers also established consulting and construction firms among which 'Consulting Engineers Limited' and 'The Engineers Limited' were the pioneers. In the early sixties WAPDA attracted many graduate engineers in Coastal Embankment Project. Civil Engineers of the country can be proud for successful implementation of works like GK Project and Meghna Cross Dam project. Organizations like EPADC, WASA, DPHE, EPIDC and Central Engineering Services (PWD,
Railway, RHD and T&T) also attracted large number of civil engineers to contribute in national development. The creation and evolution of LGED in the 80's is recognized as one of the major achievements of civil engineers of the country. Private sector, particularly the housing industry, has evolved in recent years to become a significant working arena for the civil engineers of the country.

Civil Engineers of Bangladesh has earned reputation and valuable foreign currency by working in countries like Iraq, Kuwait, KSA, Libya and Malaysia. They contributed in infrastructural development in these countries and gather invaluable experience.

Although the civil engineers worked diligently at home and abroad, in recently years the tendency of using foreign engineers as consultant in national projects is highly apparent. Although the tendency might be expedited by the failure of some constructions works by local engineers, the role of donor agencies and interest groups can not be down played. Engineering community should confront the trend with expertise and courage.

**Future Challenges for Civil Engineers**

As the country is going through a transition period of rapid development, Civil Engineers of the country are expected to rise to the challenge. Specific areas of focus in this regard include the following issues.

- Millennium Developments Goals
- Disaster Risk Reduction
- Infrastructure
- Housing
- Water Resources
- Environment: Local, National, Global
- Transportation
- Education and Research

**Fig. 1 Seminar on the Role of Civil Engineers in the Development of Bangladesh**
Also, engineers should develop the skill to work with multidisciplinary groups for design, implementation and operation of integrated solution. Such multidisciplinary teams should include other professionals, such as ecologists, economists, and sociologists, to effectively address the issues and challenges of sustainable development.

Conclusion

Civil Engineers play an important role (perhaps the most vital role) in socio-economic development of developing countries like Bangladesh. The Civil Engineering community should prepare a plan regarding the ways to overcome the constraints of the profession. Also, policy makers are required to contemplate new avenues to utilize the expertise of Bangladeshi Civil Engineers which include export of services to other countries by encouraging Bangladeshi firms (consulting and construction) to seek work abroad. The Civil Engineering Department of BUET has an important role to play in this context. The university should take the leadership to devise effective collaboration between the industry and educational institutions. Also, the Civil Engineering curriculum should be updated to accommodate the present demand of the society.

Acknowledgement: The article is based on the keynote paper presented by Professor Jamilur Reza Chowdhury, Vice-Chancellor, BRAC University, in the seminar on 'Role of Civil Engineers in the Development of Bangladesh' held in BUET on 15th December, 2007.
Challenges of Water Sector Professionals and the Role of BUET in Enhancing Knowledge and Capacity

On the occasion of celebration of 60 Years of Engineering Education in Bangladesh (EEB 2007), the Department of Water Resources Engineering organized a seminar entitled "Challenges of Water Sector Professionals and the Role of BUET in Enhancing Knowledge and Capacity" on 6th December 2007 at the Council Bhaban of BUET. Honorable Vice Chancellor of BUET, Prof. Dr. A.M.M. Safiullah kindly graced the occasion as the Chief Guest.

Objectives of the seminar

- Recapitulate the challenges for sustainable development for the coming decades.
- Identify priorities to be addressed in enhancing knowledge and capacity in order to respond to those challenges.
- To assess the direction of reorientation of our educational and research programs.

Participants

The participants of the workshop were middle and top level professionals from the government, semi-government and private water sector agencies, educational and research institutes and consulting firms. Those water sector agencies include Bangladesh Water Development Board (BWDB), Water Resources Planning Organization (WARPO), Local Government Engineering Department (LGED), Bangladesh Inland Water Transport Authority (BIWTA), River Research Institute (RRI), BETS and Joint River Commission (JRC). Among educational, autonomous and research institutes were the Institute of Water Modelling (IWM), Center for Environmental and Geographic Information Services (CEGIS), Bangladesh Agricultural Research Institute (BARI), Institute of Water and Flood Management (IWFM), Department of Civil Engineering and Department of Water Resources Engineering of BUET.

Keynote Paper

The seminar was started by the welcome address of Prof. Dr. M. Mirjahan, Head of the Department of Water Resources Engineering. After that Prof. Dr. M. Fazlul Bari of the Department of Water Resources Engineering presented the keynote paper entitled "Challenges of Water Sector Professionals and the Role of BUET in Enhancing Knowledge and Capacity" in the seminar. The paper describes issues like key challenges faced by the water sector, adaptive water management in Bangladesh, the role of education and training in achieving sustainability, mission and educational objectives of the Dept of WRE, BUET and lastly the promotion of water...
sector/industry-University Cooperation. The paper focused on the history of water resources, water resources development and management in Bangladesh, water management problems, development trend of water sectors since 1960. The paper concludes that water management in Bangladesh has been adaptive and BUET also has been adaptive in course curriculum design and building collaboration and partnership. However, there is always a more need to work in the field of research and collaboration. Academia and real world together can solve practical and field problems and contribute effectively to the national development.

Discussions

After the presentation of keynote paper, five designated discussants namely Mr. Md. Inamul Haque, Director General of WARPO, Mr. Emaduddin Ahmad, Executive Director of IWM, Mr. Giasuddin Ahmed Choudhury, Executive Director of CEGIS, Mr. Md. Habibur Rahman, Chief Planning of BWDB and Mr. Jalal Uddin Md. Abdul Hye, Chief Engineer Hydrology of BWDB gave their views on the presentation. They put forward their comments and valuable suggestions for further strengthening the linkages between water sector agencies and BUET to face the future challenges in the field of water resources engineering and management due to ever increasing demand of water and future climatic changes. After the designated discussants, the floor was open to the audience for discussion. A number of participants from different agencies and institutes took part in this open discussion. The discussion was ended by valuable comments and suggestions provided by the Chief Guest Honorable Vice Chancellor of BUET, Prof. Dr. A.M.M. Safiullah. He shared his early life professional experience in water sector and emphasized strengthening of university-industry linkages for solving emerging national water resources problems.

Outcomes

From the presentation of the keynote paper and the discussions, the following recommendations have been put forward:

- The undergraduate course curriculum of the WRE Dept. should give more emphasis on the solution of practical problems. Disaster management should be addressed in the course curriculum.
- The linkage between BUET and water resources agencies should be further strengthened.
- The research activity of BUET should focus more on water problems related to coastal areas
- Continuing education should be given priority to train water sector professionals
- BUET alumni should come forward and BUET should lead to solve the water sector problems
- The huge information and works available in the various water sector organizations should be preserved in the form of books and reports.
• Public service planning of Bangladesh should be revised to give more emphasize on the role of engineers to the society and to do that BUET should take the lead.
Day Long Program of EEE Dept. in celebrating 60 Years of Engineering Education in Bangladesh

Electrical and Electronic Department of Bangladesh University of Engineering and Technology organized a daylong program to celebrate "60 Years of Engineering Education in Bangladesh" on 27th October 2007. The honorable Vice-Chancellor of BUET, Professor Dr. A. M. M. Safiullah inaugurated the daylong program. Professor Satya Prasad Majumder, Head, EEE Dept., presided over inaugural session. Professor Mohammad Ali Choudhury of EEE Dept. delivered his valuable speech as a keynote speaker he talked on "Electrical Engineering in a Challenging world". Professor Satya Prasad Majumder spoke about "History of Department of EEE". Prof. Professor A. B. M. Siddique Hossain who was the last speaker of the morning session gave a presentation on "Promoting Research in EEE Department". The morning session was ended with a video presentation. Past and present development of the department was shown in the presentation. An important part of the presentation was to introduce our IEEE Fellows and collaboration. Distinguished speakers from different public and private organizations and industries talked on "Collaboration of industry with EEE Department" in the afternoon session. It was a well-attended session and valuable suggestion and proposals came from them in this session. The recommendations and proposals of the program are summarized below:

1. As a major portion of our graduates is being employed in industries local and abroad, we should prepare the syllabus in consultation with the people in industries. EEE Department should strive to develop the following skills and attributes in all of its graduates:
   - Real time problem solving skills with solution oriented innovative thinking
   - Hands-on work experience in industry or academic research (Coop and summer internships)
   - Comfort with and ability to accept and deploy new tools and technology in a productive manner
   - A strong ability to communicate in both written and oral formats at all levels of an organization
   - Good balance between individual and team contributions
   - Strong work ethic, personal initiative and a good sense of proper business and professional ethics
   - Commitment to long-term learning, personal growth and community service

2. Development of research centers in BUET on different state of the art technology such as: Biomedical Engineering, Fibre-optics and Photonics, Nanotechnology, Wireless Networks, VLSI Design and Fabrication etc.

3. Creation of Postgraduate Faculty.

4. Nation expects that our faculties will do research on local industrial problems and also on engineering problems related to engineering discipline.
Department of Electrical and Electronic Engineering

- BUET authority must give more importance on candidate's publication while giving appointment.
- And also encourage and acknowledge the present faculties' researches.

5. Collaboration with Industries and Alumni

- More intensive collaboration with Local Electrical and Electronic Industries and Engineering Entrepreneurs
- Collaborative research funding through EEE-BUET Alumni abroad (such as IBA, AABEA)
- Collaboration with universities abroad
- Create a strong and sustainable industry - academia relationship that may promote research significantly. Industries should keep a separate R&D budget. Academics may be involved to solve their problems and improve quality of their products.
- Strong governmental support from its annual R&D budget to promote relevant and useful research in academic institutions and monitor them closely.
- Sincere and meritorious research contributions should be recognized and awarded properly
- International research collaboration like joint research programs with other universities, joint degree programs, teacher-student exchange programs etc. may be initiated.

Electrical graduates are employed in the electronics and computer industries with responsibilities such as designing, installing and operating technical systems, configuring hardware and software systems for unique applications, developing and producing products, managing manufacturing processes, and providing customer support for teaching products and systems. Only a university who provide quality education can produce graduates who will be able to discharge such responsibilities efficiently. Speakers and participants in the seminar desired and hoped that BUET would consider the components that are necessary to establish a world-class university.
Some photographs of the program
Celebrating 60 years of Engineering Education in Bangladesh by Department of Computer Science and Engineering

Introduction

A seminar on 60 years of engineering education in Bangladesh arranged by department of CSE was held on 6th November, 2007 at Conference Room, Civil Engineering Building, BUET. Honorable Vice Chancellor of BUET Prof. A. M. M. Shafiullah was invited to the seminar as chief guest and Prof. S. Shahnawaz Ahmed was invited as special guest. CSE faculty gave presentation and talk on different issues. CSE Alumni and industry entrepreneur participated in the seminar.

CSE as science and engineering education

Prof. Md. Masroor Ali gave an introductory speech about computer science and engineering education. He highlighted the broader aspects and universal applications of computer science and engineering education.

Glorious history of CSE department

Prof. Samsul Alam described the history of CSE department which started with initially with MS program. Now, department has intake of 120: undergraduate students per batch. CSE has now 13 teachers with doctoral degree and around 40 faculty in total. Department offers B. Sc. Engineering, M. Sc. Engineering, M. Engineering and Ph.D. in Computer Science and Engineering every year.

Contribution of CSE department to the national development

Dr. A. S. M. Latiful Hoque gave a description of CSE department's contribution at national levels. Department contributed in the different sectors of national development including computerization and IT of Cabinet Ministry of Bangladesh, Dhaka Stock Exchange (DSE).

Alumni achievements of CSE department

Dr. Masud Hasan gave a presentation on the success and achievements of CSE graduate and alumni. Many CSE alumni are working as faculty in foreign universities. Some are working at good positions in industry.

Academic and research achievements of CSE department

Prof. and Head of CSE department Dr. Md. Saidur Rahman gave a presentation on research and academic achievements of the students and faculty CSE department. Faculty and the students of CSE department regularly participate in research, academic and organizational activities. Since last 11 years CSE students are participating in
Department of Computer Science and Engineering

prestigious ACM world programming competition Final. These students team bring glory to the
country by holding good position in this competition. CSE department's faculty,

Prof. M. Kaykobad and Prof. Md. Saidur Rahman received Bangladesh Academy of Science
Gold Medal Award for their research excellence and contribution. CSE undergraduate students
regularly participate in research paper publishing world reputed journals and conferences. Prof.
Saidur Rahman wrote a book on graph drawing algorithm which was published by famous
publisher World Scientific became best seller book.

Department arranged international conference W ALCOM in 2007 and is going to arrange in
2008 also. W ALCOM proceeding is approved by the world famous Lecture Notes series
publisher Springer-Verlag.

Industry linkage with CSE academics and suggestions

Industry Entrepreneur Md. Forkan Bin Kashem of Spectrum Ltd. suggested:
1. Building industry research incubator at BUET like foreign universities
2. Marketing of research and BUET engineers' skill and contribution
3. Better presentation skill should be developed in students
4. More ties between industry and academics

Remarks of Prof. S. Shahnawaz Ahmed, Dean of Faculty of Electrical and Electronics
Engineering

The special guest Prof. S. Shahnawaz Ahmed, Dean of Faculty of Electrical and Electronics
Engineering suggested:
1. No more new department should be started.
2. There might be new programs started under existing departments
3. University authority should be more flexible about sabbatical leave of teachers.
4. Partnership between BUET institute and academic department
5. More emphasis on quality of students, not the quantity
6. More presentation skill should be developed in students

Conclusion

The seminar was ended by the valuable speech of Honorable Vice Chancellor of BUET Prof. A.
M. M. Shafiullah.
Some Photographs of the program
Chemical Engineering Education and Practice

On the 14th of November 2007, a seminar titled "Chemical Engineering Education and Practice" was arranged by the Department of Chemical Engineering, BUET. The seminar was held at the Council Bhaban, BUET and was part of the "60 years celebration of Engineering Education in Bangladesh". Professor A.M.M. Safiullah, Vice Chancellor, BUET graced the occasion as Chief Guest and Professor Emeritus Dr. Iqbal Mahmud, Former Vice Chancellor, BUET chaired the session.

The convener Professor Dil Afroza Begum and the Head of the Department of Chemical Engineering, Professor Ijaz Hossain welcomed all present and invited them to particulate in the proceedings.

The speakers for the event included Professor Nooruddin Ahmed, Former Vice Chancellor of BUET, who spoke about "Chemical Engineering Education in BUET", Engr. Hasanul Morshed, Ex-Chairman of BCIC (Bangladesh Chemical Industries Corporation) who talked about "Development of Chemical Industries in Bangladesh; An overview". Also presenting keynote papers were, Engr. Md. Saber Ali, Former Director Operations and Plant Manager, KAFCO (Karnaphuly Fertilizer Company), on "Fertilizer Production Technologies in Practice"; and Engr. Md. Abdur Rahim, General Manager, KAFCO, on "Challenges of Maintenance and Production in Fertilizer Industries".

Mr. Asif Malik, General Manager (Operation and Planning), Eastern Refinery Limited and Mr. Md. Kamruzzaman, Chief Coordinator, Global Heavy Chemicals Ltd., also presented their views. Various engineers employed in industries around the country participated in the open discussion chaired by Professor Nooruddin Ahmed former Vice Chancellor, BUET. The discussion focused on the Chemical Industries of Bangladesh, their current status and development issues and strategies.

Speakers cited that at present, the demand for fertilizers surpasses the production by about 1 million tons per year. The agricultural sector of Bangladesh is heavily dependent on fertilizers. Importing fertilizers to meet the demand is creating a pressure on the economy, as fertilizer prices in the foreign market are excessively high due to high gas prices. On the other hand in spite of the energy crisis, Eastern Refinery Limited does not have the processing capabilities to use the condensate that Bibiana Gas Field is likely to produce in the future, resulting in a loss of thousands of crores of Taka in terms of condensate. The speakers suggested the construction of a new fertilizer factory and condensate processing plant. Suggestion was also made for coal-based power plants to lessen the pressure on the gas demand. The gas thus saved should be used as raw materials for future chemical plants. Since the gas reserves in Bangladesh are limited, we should aim for efficient use of gas.

The speakers pointed out that the World Bank, Asian Development Bank and International Monetary Fund are not interested in funding such a venture. For securing the necessary funds, they suggested developing an interest within the Bangladesh community residing outside Bangladesh and businessmen within the country, and that
they should be able to buy shares of the company. This form of funding can also be used for power plants.

It is noted that the demand for production of these projects is so high that investment in these sectors (power and gas) is virtually risk-free provided the investments are managed in a proper way. Discussion revolved around maintenance of existing chemical plants. Speakers introduced the concept of 4th generation maintenance technology and suggested Chemical Engineering education in Bangladesh should meet the challenges of upcoming advances and modernization of chemical industries. To increase the quality of Chemical Engineering Education, laboratories should be improved. Also to maintain the quality of teaching, experienced teachers should be encouraged to stay in the University. This could be achieved by offering them proper remuneration. Professor Nooruddin Ahmed mentioned that unless these steps are taken it would prove difficult to maintain the standards of Chemical Engineering Education.

The Chief Guest of the Seminar, Professor A.M.M. Safiullah mentioned that the engineers of the country do not receive proper recognition, which is why many qualified engineers do not stay back to serve the country. If this trend continues, the progress of the country will be slowed down. This is because the development of any country is heavily dependent on the services of engineers. During the inauguration or at the groundbreaking ceremony of development projects, other people are brought to the limelight to "cut the ribbon" but there is hardly any mention of the engineer(s) who devoted their mental prowess and physical effect in building the project.

Thus, engineers must be given due credit where it is deserved.

Professor Emeritus Dr. Iqbal Mahmud thanked the keynote speakers for critical analysis of the major topics of discussion.

Professor Nooruddin Ahmed thanked everyone for participating and contributing to the four hour long seminar and brought the event to a close.
Professor Nooruddin Ahmed is presenting Keynote paper

Dr. Iqbal Mahmud, Professor Emeritus is making concluding remarks on the keynote papers
Vice Chancellor, Professor A. M. M. Safiullah is addressing the guests

Portion of the respected guests attending the seminar
On behalf of the Department of Materials and Metallurgical Engineering, we welcome you all to celebrate with us 60 years of engineering education in Bangladesh. Starting with a handful number of departments Bangladesh University of Engineering and Technology (BUET) evolved a lot during this time and spread its wing encompassing many more branches of engineering. Nowadays we have many other engineering universities, but the quality of engineering education and research at BUET always remains as a yardstick in this country that others eager to reach.

The Department of Materials and Metallurgical Engineering erstwhile Department of Metallurgical Engineering was established at BUET in 1952 with a two-fold objectives:

1. To provide an advanced course of instruction on metallurgical engineering and allied subjects, and
2. To provide facilities for fundamental and applied research in metallurgical engineering with special emphasis on the utilisation of indigenous raw materials.

During these 60 years Bangladesh has observed a lot of development in industrial sectors. Today materials are playing key roles in all areas of technologies. Fundamentals of materials and new ways to produce and shape them are the key factors to the successful production of items ranging from house hold appliances to gigantic structures, automobiles to supersonic airplanes, opto-electronic devices to super computers, hip implants to intraocular lenses, just to mention a few. To cope with these developments, the department has also increased its capabilities. With increasing uses of non-metallic materials like ceramics and glasses, polymers and composites all over the world, the department gradually but continuously expanded its scope by reorienting and modifying its course curricula so as to give due emphasis on non-metallic materials. In 1997, department changed its name into the present form and adopted a unified approach towards all classes of materials in its curricula.

The Department of MME has now a group of well-qualified, hard-working young faculty members, who are constantly supported and guided by some seasoned and experienced senior faculties. The laboratory facilities of the department are clearly among the best in the university. Besides teaching, the faculty members are actively involved in a widely diversified programme of research in topics of significant.

The intake of undergraduate students has increased from 5 to 40 over the years and, besides the normal B.Sc., M.Sc. and Ph.D. programmes, the department now also offer M.Phil. degree in Materials Science to students to non-engineering background.

To commemorate 60 years of engineering education in Bangladesh, Department of MME organised its first programme "Meet the Department of MME" on 19 July 2007 at the Council Bhaban, BUET, in association with Bengal Plastic Industries Limited. Through the concerted efforts over the years, the department acquired a number of sophisticated research tools, including Scanning Electron Microscope (SEM), Optical Emission Spectroscope (OES), X-Ray Diffractometer (XRD), Fourier Transformed Infrared Spectroscope (FTIR), Differential Scanning Calorimeter (DSC), Thermogravimetric Analyser (TGA), and Radio-frequency (RF) Generator. This
programme was aimed at introducing the enhanced capabilities of the department to the concerned research organisations and industries of Bangladesh in a hope that the researchers and entrepreneurs of the country will get a general flavour of the potential of the Department of MME in undertaking advanced collaborative research and offering extended testing and consultancy services related to materials science and engineering and materials manufacturing processes.

Mr. Tapan Chowdhury, Honourable Adviser, Ministry of Science and ICT, Ministry of Food & Disaster Management, Ministry of Youth & Sports, and Ministry of Power, Energy and Mineral Resources of Government of the People's Republic of Bangladesh was present as the chief guest to inaugurate the programme. Mr. S.M. Wahid-uz-Zaman, Secretary of the Ministry of Science and ICT, GOB, Prof. Nazrul Islam, Chairman of the University Grants Commission of Bangladesh, and Prof. Ignace Verpoest, Promoter of Katholieke Universiteit Leuven, Belgium - BUET Link Programme were present as special guests, while Prof. A.M.M. Safiullah, Vice-Chancellor of BUET presided.

At the end the inauguration ceremony of the programme, the dignitaries visited the department and its laboratory facilities. A technical lecture on "The Potential of Natural Fibres as Reinforcement for Structural Composites," was delivered by Prof. Dr. Ignace Verpoest in afternoon session of the programme. The lecture was arranged in a view to let the audience know about the potential of jute and other natural fibres as reinforcement for structural polymer-based composites.

In this programme, the honourable dignitaries and the large audience appreciated the efforts of the Department of Materials and Metallurgical Engineering for the betterment of materials education in Bangladesh. The honourable dignitaries and representatives of research and industrial organisations were extremely pleased and appreciated the efforts of the faculty seeing the modernised laboratory facilities of the department.

On the occasion of celebrating 60 years of engineering education in Bangladesh, the Department of MME organised its second programme, a seminar on hydrometallurgical research, in 18 December 2007 at the Council Bhaban, BUET. Two papers were presented in the seminar. Prof. A. S.W. Kurny, Department of MME, BUET presented a paper entitled "Hydrometallurgical Research at MME, BUET" while Asstt. Prof. Dr. Shafiq Alam, Faculty of Engineering and Applied Science of Memorial University, Canada presented the paper entitled "Hydrometallurgical Research and Opportunity for Higher Education in Canadian University." Prof. A.M.M. Safiullah, Vice-Chancellor of BUET was present as the chief guest, while Prof. Ehsanul Haque, Member of University Grants Commission of Bangladesh was present as the special guest. Professor Md. Fakhrul Islam, Head of Department of MME presided the seminar. At the end of the programme, discussion with Dr. Shafiq Alam and the department was held for setting up a possible link programme with Memorial University and BUET.

Starting its journey in more than 50 years ago under the able guidance of Professor M. Ibrahim, the Department of Materials and Metallurgical Engineering has enjoyed revolutionary changes. Materials and Metallurgical Engineering community is now facing greater challenges. Over the years the department has put its best possible efforts to train its graduates adequately by improving its engineering education. Course curricula have been modified, laboratory facilities enriched and modernised, and the faculty members have engaged themselves in researches in areas of national and international importance. The department would like to assure all that it will continue its efforts in the next 60 years and beyond.
Professor Dr. Ehsanul Haque, Member, University Grants Commission is delivering his speech in the seminar.

Dr. Shafiq Alam, Assistant Professor, Memorial University, Canada is presenting his paper at the seminar.

Professor Dr. A. S. W. Karny is presenting his paper at the seminar.
Chemistry for Future Technology

n celebrating "60 years of Engineering Education in Bangladesh", a Symposium on "Chemistry for Future Technology" was organized by the Department of Chemistry on November 20, 2007.

Honorable Vice-Chancellor, Prof. Dr. A.M.M. Safiullah was present as Chief Guest. Theme Lecture was delivered by Prof. Dr. Mesbahuddin Ahmad, Ex-member, UGC, President, BCS, Professor, Department of Chemistry, Janhangirnagar University and Prof. Dr. M. Firoze Ahmed, Professor, Department of Civil Engineering, BUET. Five distinguished discussants discussed on the theme lectures. Designated discussants were Prof. Dr. M. Muhibur Rahman, Professor, Dhaka University and President, Bangladesh Chemical Society, Prof. Dr. Istiaq Mahmood, Professor and Chairman, Department of Biochemistry and Molecular Biology, Dhaka University, Prof. Dr. Anisul Haque, Professor and Head, Department of Electrical and Electronics Engineering, East West University, Prof. Dr. Md. Manwarul Islam and Prof. Dr. Al-Nakib Chowdhury, Department of Chemistry, BUET.

A Welcome address was delivered by Prof. Dr. Md. Wahab Khan, Head of the Department and a brief history of Chemistry Department was presented by Prof. Dr. Enamul Huq on a befitting manner.

The theme lectures and important discussion gave some fascinating glimpse of nanotechnology, combinational chemistry, bioplastics, supramolecular chemistry, green chemistry, new herbal drugs, new methods in agriculture and novel methods of instrumental analysis. The seminar has provided the scientist a platform to discuss the interplay between Chemistry and Technology.

Some of the important discussions on theme lecture are given below in short. Chemistry plays a key role in every aspect of development. It is at the centre for solving many crucial issues related to nutrition, crop production, water quality, pollution control, pest control, fuel efficiencies including bio-fuels, drug development and so on and so forth.

Polymer chemistry can be considered as one of the principal topics which will be directed both towards need-oriented as well as sustainable global economy. Plastics and ultra-high strength composite made of polymeric materials are being continually improved. Bioplastics produced from corn starch are already capturing and increasing marked and their significance is expected to rise in future. Synthesis of polylimonene carbonate, a polymer with many characteristics of polystyrene from carbon dioxide and limonene extracted from oranges. The use of carbon dioxide promises to be an excellent means of capturing some of the green house gas.

Energy is at the core of socio-economic development, so to say, we live in an oil-based economy. It is rightly apprehended that the oil will run out and with the global oil reserve dwindling the oil prices are already drafting in upwards. Intensive research is going on for converting biomass waste as well as wood chip, grass and corn stalks to
bio-fuels. The interest has been to reduce dependence on imported oil, to cut carbon emission from fossil fuel and more importantly not to touch valuable food resources. Two important promising sources of energy are the sun and hydrogen albeit besides atomic energy. Organic photovoltaic cells are made from films of organic semiconductors rather than silicon wafers and they are less expensive than traditional silicon based cells. Fuel cells have been introduced to utilize the chemical energy of hydrogen to generate electricity without combustions or pollution. But we are still a long way off for utilizing the fuel cells for power cars trucks, homes and business.

Nanotechnology is now recognized as the leading technology of the 21st century. Chemistry is at the heart of nanotechnology but progress in this area depends on the integration of chemistry, physics, biology and engineering. It has now been possible to prepare one atom thick materials which are two dimensional having only length and breadth and hardly any thickness. Carbon nanotubes exhibit both metallic and semiconductor behavior. Tubes are considered by stronger than conventional carbon fibers and steel. It is believed that nanotubes may be used for the construction of carbon-based nanochips that may ultimately supersede silicone based semiconductors.

Supramolecular chemistry has been the topic of much study of the chemists. High hopes are expressed with supramolecules taking the place of the silicon chips. These molecules are expected to replace semiconductor devices in electronic instruments like computers. The size of a computer will be substantially cut down if the molecules can be used as substitutes for a silicon chip.

The important topic of the seminar was also the chemistry for future technology in water, waste mater and solid waste management. The topic included problems in Dhaka water supply, waste water treatment and leachate treatment at matuall landfill, treatment and disposal of arsenic rich sludge, application of electro-chemical treatment system to NH2-N rich water and waste-water, treatment of textile dyeing waste water by electrio-chemical process, electrochemical treatment for colour removal and conventional technology for disposal in sanitary landfill.

The important part of the seminar was the history of the department of chemistry. Some of the points of the scenario of chemistry department in BUET are cited here:

The Department of Chemistry was established as an independent Department in 1962 during upgrading Ahsanullah Engineering College to University. At the beginning Professor A. Q. Chowdhury, Dr. Shamusuzzaman, Dr. Munirul Islam and Mr. Kamor Rahim were the active faculty members. The contribution of late Professor A.Q. Chowdhury to develop course curriculum and to design research laboratory is not forgettable. He is an author of Chemistry Fundamental (Vol I & II) which was written according to syllabus of engineering Education. Very Recently, Prof. Md. Monimul Huque has written a book entitled "Chemistry of Engineering Materials for engineering stdudents. In 1982 the department introduced the M.Phil. and Ph.D. program in organic chemistry. Later on the postgraduate programmes were also started in physical and inorganic chemistry. So far sixty two M.Phil students and three Ph.D. students were conferred degree from the Department of Chemistry. At present about twenty students are doing postgraduate research. There are three undergraduate laboratories and three postgraduate laboratories in the department. At present modern
equipments such as IR, UV, Freeze dry, rotary evaporator, pH meter, coulometer, potentiometer, Tentimeter, Ion analyzer and important glass apparatus are available in the department. The current research fields in the department include synthetic organic chemistry, synthesis of heterocyclic compounds, medicinal compounds, natural products; isolation and characterization of the active ingredients of natural products; synthesis of polymers and nanoparticles; studies on mixed ligand complexes; studies on complexes of metal ions; physico-chemical studies on aqueous solutions of electrolytes and non-electrolytes; electro-deposition; preparation of composite polymer and studies on surface chemistry etc. At present facilities for consultancy and testing services are available in the department through BRTC.

Chemistry department is such a department which needs to be nourished and expanded for the benefit of the University and the nation.
Department of Chemistry

Prof. Dr. A. M. M. Safiullah  
Vice Chancellor, BUET

Prof. Dr. Md. Wahab Khan  
Head, Chemistry Department

Prof. Dr. Meshbahuddin Ahmad  
Keynote Speaker

Prof. Dr. Firoze Ahmed  
Keynote Speaker

Prof. Dr. Enamul Huq

Prof. Dr. Manwarul Islam

Prof. Dr. Nazrul Islam

Prof. Dr. Al-Nakib Chowdhury

Prof. Dr. Muhibur Rahman

EEB 2007 (1947-2007)
Mathematics Education in BUET

Mathematics is the language of modern science, engineering and technology.

The Department of Mathematics is one of the oldest departments of this university. This department started functioning from the very beginning of engineering education in Bangladesh. The department has been providing mathematics education to all engineering, architecture & planning students in BUET successfully. At this auspicious moment we remember the renowned teachers of this department, particularly Mr. Md. Abdul Jabbar, Mr. Kazi Md. Jahiruddin, Mr. Md. Imran Ali, Dr. A. K. M. Sirajul Haque, Mr. Md. Ali Ashraf, Prof. Dr. Md. Zakerullah, Mr. A. K. Hazra, Prof. Dr. Syed Ali Afzal; whose contributions lead us to come this position. The department has now 18 faculty members and 4 office personnels.

The department offers basic and advanced courses in mathematics for the undergraduate and postgraduate students in different faculties of the university. The standard of the courses offered to the undergraduate students are comparable to those of any other standard international universities. Postgraduate courses are being offered for the students of various departments such as Department of MME, WRE, NAME etc. The department is offering postgraduate courses since 1986. Till then the department is successfully running the courses and research for M.Phil. degree. The research is conducted in the fields related to Fluid Dynamics, Quantum Mechanics, Numerical Methods, Graph Theory etc. So far 42 M. Phil. and 1 Ph. D. students have received their degrees from this department. Currently 47 students in M.Phil. and 6 students in Ph.D. are doing their research in the department.

In order to celebrate "60 Years of Engineering Education in Bangladesh", the Department of Mathematics, BUET has organized a day long program on 4th of November, 2007. The program had two sessions:

Morning session: (9:00 am -12:30 pm)

The department has organized a seminar in the departmental library. Prof. Dr. M. Sabder Ali, Dean, Faculty of Engineering, BUET has inaugurated the program. One of our ex-faculty Prof. Dr. Syed Ali Afzal (Ex-Head, Department of Mathematics, Former Dean, Faculty of Engineering and Ex-Syndicate member) was present on the occasion to encourage us in various respect. The departmental M.Phil. and Ph.D. students including a research fellow have presented their research papers in the seminar. Prof. Dr. Md. Mustafa Kamal Chowdhury was the session chair. Following are the titles of the papers:

Speaker : (1) Prof. Dr. Mosleuddin Ahmed
Title : On Hydrodynamic-Lagrangians and Its Existence.

Speaker : (2) Md. Mustafizur Rahman
Title : Mixed Convection in a Square Cavity with Heat Conducting Horizontal Circular Cylinder.

Speaker : (3) Rifat Ara Rouf
Department of Mathematics

Evening session: (3:00-5:00 pm.)

The department has organized a program to celebrate 60 years of engineering education in Bangladesh at the seminar room (1st floor), Civil Engineering Building. The honorable Vice-Chancellor of Bangladesh University of Engineering & Technology, Professor Dr. A. M. M. Safiullah has graced the occasion as chief guest. The department has got some important guideline from the speech of the honorable Vice-Chancellor, particularly:

i) To increase the inter-disciplinary activities.
ii) To introduce joint research program.
iii) To deliver application based mathematics to the undergraduate students.

As special guest Prof. Dr. M. Sabder Ali, Dean, Faculty of Engineering, BUET has delivered his speech and appreciated all the faculty members of the department for their recent performance.

As a keynote speaker Prof. Dr. Md. Mustafa Kamal Chowdhury stressed on the mathematics education in BUET. In order to develop BUET as a global institute of excellence in engineering and technology, we need:

i) To improve the syllabuses in mathematics to undergraduate engineering departments and increase mathematics courses, especially Multivariable calculus, Non-linear systems, Group theory, Computational mathematics etc for the higher level students.
ii) To introduce undergraduate program in mathematics at BUET.
iii) To introduce new subjects in M.Phil. courses and to update the current courses to cope with the ongoing research around the world.
iv) To setup a computational research laboratory in the department to improve research facilities.

A power point presentation related to application of mathematics in engineering fields was presented by Dr. Md. Abdul Alim (CD attached). Finally Prof. Dr. Md. Abdul Maleque, Head, Department of Mathematics has expressed his vote of thanks to all who organized the program successfully. Dr. Md. Manirul Alam Sarker was the proclaimer in the evening session and Prof. Dr. Md. Abdul Hakim Khan was the convener of the departmental program committee.
Photographs related to the program organized by the Department of Mathematics, BUET for celebrating "60 years of Engineering Education in Bangladesh."

(1) Honorable Vice-Chancellor Prof. Dr. A. M. M. Safiullah addressing to the audience.

(2) Prof. Dr. M. Sabder Ali, Dean, Faculty of Engineering, addressing to the audience.

(3) Prof. Dr. M. A. Maleque, Head, Department of Mathematics addressing to the audience.

(4) Prof. Dr. M. M. Kamal Chowdhury, Department of Mathematics addressing to the audience.

(5) Guests with the Honorable Vice-Chancellor (from right) Prof. Dr. M. M. Kamal Chowdhury, Honorable Vice-Chancellor Prof. Dr. A. M. M. Safiullah, Dean, Faculty of Engineering, Prof. Dr. M. Sabder Ali, Prof. Dr. M. A. Maleque, Prof. Dr. Md. Elias, Prof. Dr. M. A. Hakim Khan.

(6) Seminar in the morning session organized by the Department of Mathematics in presence of Prof. Dr. M. Sabder Ali, Dean, Faculty of Engineering.
National Conference cum Workshop on Materials Science and Technology

On the occasion of celebrating "60 years of Engineering Education in Bangladesh" and "Silver Jubilee" of the Postgraduate Program in Physics Department of Physics, Bangladesh University of Engineering & Technology has organized a National Conference cum Workshop on Materials Science & Technology on 2-4 December, 2007 with international participation. The aim of the conference is to create an attractive forum for presenting the scientific findings and to promote the exchange of ideas, views and experiences amongst young researchers and professionals, who have been collaborating with the Department of Physics from home and abroad in various fields of materials research since the commencement of postgraduate programs. It also helps to increase the collaboration between the engineers and physicist. The conference provides an opportunity to the young and promising researchers to interact themselves more closely.

The three day long program started with an Inaugural Ceremony at the Council Bhaban, BUET on 2nd December, 2007. UGC Professor and former Bose Professor Dr. A. M. Harun ar Rashid inaugurated the Conference cum Workshop as Chief Guest. Professor Dr. A. M. M. Safiullah Vice-Chancellor, BUET was present as Special Guest. Prof. P. Ramasamy from India, Prof. Masaya Ichimura, Prof. Eiji Kita and Dr. Masashi Kato from Japan, Prof. Per Nordblad from Sweden, Prof. Klaus Bärner from Germany and many other scientists, researchers, students from home country were present in the conference. Prof. Dr. Jiban Podder was the Organizing Chairman, Prof. Dr. Md. Abu Hashan Bhuiyan act as the Organizing Secretary and Prof. Dr. Md. Feroz Alam Khan as publication secretary of the conference.

The inaugural ceremony was started with the recitation from the Holy Quran. The Welcome address was delivered by Professor Dr. Jiban Podder, the Organizing Chairman. Then Convenor of EEB-07, Professor Dr. Mazharul Haque gave a speech on the importance of Engineering education in Bangladesh. Professor Dr. A. M. M. Safiullah, Vice-Chancellor, BUET Addressed as the Special Guest of the Conference and Inaugural Address was given by the Chief Guest, Professor Dr. A. M. Harun ar Rashid, UGC Professor & Former Bose Professor. Finally Vote of Thanks was given by the Organizing Secretary Professor Dr. Md. Abu Hashan Bhuiyan.

The theme of the "National Conference cum Workshop" was Materials Science and Technology. Renowned scientists from different universities and institutes of Bangladesh were attended. On this occasion of the conference an abstract book accumulating abstracts of the research works was published which have been ongoing in different fields of Physics, especially on Materials Science and Technology. The conference was consisted of 9 Sessions in which more than 16 invited talks on different important topics and more than 29 papers as contributory papers were presented. More than 200 participants from different institutions like SSN College of Engineering, Tamilnadu, India;Uppsala University, Sweden; Nagoya Institute of Technology, Japan; University of Tsukuba, Tsukuba, Japan; IV. Phys. Institut der Universität Göttingen,
Germany: Islamic University of Technology, Gazipur; University of Dhaka, Dhaka; University of Rajshahi, Rajshahi; American International University- Bangladesh, Dhaka, Bangladesh; Bangladesh Atomic Energy Commission, Dhaka; Atomic Energy Centre, Dhaka; SAARC Meteorological Research Centre, Agargoan, Dhaka; Khulna University of Engineering & Technology, Khulna; Ahsanullah University of Science and Technology, Dhaka; Shahjalal University of Science and Technology, Sylhet; Ahsanullah University of Science and Technology, Dhaka; Chittagong University of Engineering & Technology, Chittagong; Islamic University, Kushtia; Gono University, Dhaka and many others institutions. For convenience, the papers were presented in different sessions named as Materials Science and Technology; Condensed Matter; Atmospheric Physics and Other Topics; Semiconductor & Magnetic Materials; Semiconductor, Thin Films and Magnetism.

Workshop was held in the Department Premises on 4 December. There were a special session and a poster session. In these sessions scientists/researchers visited the undergraduate and postgraduate laboratory of the Department of Physics to acquaint with the laboratory facilities. In the poster session more than 58 Contributory Papers were selected for Poster Presentation. This session was inaugurated by the honorable Vice-Chancellor of BUET and was very interactive. Scientists and students have got chance to exchange their ideas with each other and can share their feelings. The session was highly appreciated by the foreign delegates.

In the evening of the closing day of the conference program there was an attractive Cultural Program arranged in the Central Auditorium in which many renowned National artists performed different items. After that the three day long Conference cum Workshop program was ended with a Dinner.

Prof. A.M.M. Safiullah, Honorable Vice Chancellor addressing the inaugural ceremony of the National Conference cum Workshop as the special guest.
Prof. A. M. M. Safiullah, Honorable Vice Chancellor inaugurate the poster session of the National Conference cum Workshop

Artists are performing songs at the cultural program on the occasion of celebrating 60 years of Engineering education and the silver Jubilee of the post graduate program in the Physics Department.
Twelve Years of Petroleum Education in Bangladesh: Performance and Expectations

It was not long ago that petroleum education started in Bangladesh and the department that pioneered institutional education on petroleum sector is the Department of Petroleum and Mineral Resources Engineering at BUET. The post graduate academic program of the department began in the year 1995. It became necessary for the department to have some open discussion with the industry in order to know what industry expects from our students and what measures should be taken to improve the performance of the ongoing program. With this objective, on the occasion of celebrating 60 years of engineering education in Bangladesh, the department arranged a seminar on 19th Nov, 2007 entitled "12 years of Petroleum Engineering Education in Bangladesh: Performance and Expectations". The program was held at the seminar room of civil engineering building.

The program was conducted by Prof Dr. M Tamim, head of the department, PMRE. Prof Dr. A.M.M Safiullah, honorable vice chancellor, BUET was present as the chief guest. The main event commenced with a presentation by Dr. Mahbubur Rahman, Assistant professor DPMRE. In his brief and informative presentation, His presentation covered the history, vision and mission of the department, present graduate program structure, course curriculum and various activities undertaken by the department.

As the goal of the program was to initiate active participation of the audiences so that various issues are addressed in a lively discussion, there was no fixed panel of speakers. Any one from the audiences was welcome to share views. At that point, Mr.Fazlul Huq, Manager, BAPEX (Bangladesh Petroleum Exploration and Production Company) Ltd was the first one to share few words with the audience. Mr Fazlul Huq is also an alumni of PMRE. He did his M.Engg from PMRE in the year 2003. He pointed out some problems that a petroleum engineer may face at job. He also suggested that subjects like economics should be included in the curriculum.

Mr Anwar Hossain, Director General, Hydrocarbon Unit mentioned the need of specialized knowledge on the topics like cementation, mud logging, testing, drilling etc. According to him, internships for students in different industries should be highly promoted and this can be an effective way by which both industry and students can be benefited. He also mentioned that safety and environmental study should not be neglected as these are some major concerns in mining sector.

Petroleum Geologist Mr. Moinul Huq raised a very important issue of job opportunity for the students of PMRE. As presently in Bangladesh, there is hardly any differentiation between the job of a technician and an engineer, it is getting difficult for the engineers to get the right job in the right place. He also suggested that the respective companies should have a preference to degreed petroleum engineers for hiring. Mr Moinul emphasized on promoting the knowledge of petroleum engineers so that they get their accommodation in the industry besides other engineers.
Mr. Shamsul Aziz, reservoir engineer, Chevron, Bangladesh reminded that processes like performance tracking, production optimization etc are not properly done in our country and it is the high time to pay attention to these practices so that we can employ our own manpower for various operations in the field. He explained the importance of proper planning in the field of petroleum engineering.

Mr. Javed Chowdhury, Manager, Petrobangla said that linkage between DPMRE and Petrobangla and other industries should be strengthened to get the maximum benefit. After, the speakers shared their views in the question answer section of the program. Many people from the industry asked important questions about the future program of the department. Some of them asked if there is any plan to start undergraduate program. Dr Tamim answered all the questions and ensured them that department will take all the suggestions into its consideration.

The major points that came out from the speeches and open discussions are:

- Course curriculum should be revised according to the need of the petroleum sector of the country. More emphasis should be given on some special topics and the need of the study of economics and management should not be neglected.
- Internships for the students should be promoted. Collaboration should be made with the industries so that the students get some practical knowledge before they start their career as a petroleum engineer.
- Students must be given a proper idea about the safety and environmental problems related to the petroleum sector.
- The department should take some steps to create job opportunities for the students. The knowledge of a petroleum engineer should be explained to the industry so that they consider recruiting a petroleum engineer besides engineers from other fields.
- Department should take part in decision making of petroleum sector.
- Department may consider to start undergraduate program. Conversion courses or short courses on some special topics maybe offered to the industry personnel.

The last speaker of the evening was Dr A.M.M Safiullah, Vice Chancellor, BUET. he asked the people from industry to cooperate with PMRE with their valuable feedback and suggestions. He said that a balanced program is necessary to utilize the merits of the students. He told that the usual practice of following course contents of some renowned universities of the world is not the proper solution. Rather need of the country should be considered while preparing the curriculum.

And finally a vote of thanks given by Dr. Mahbubur Rahman concluded the program with a hope that this little department of BUET will continue to work even with more integrity and advance towards prosperity.
As a part of the celebration of 60 years of engineering education in Bangladesh, Department of Mechanical Engineering, BUET organized a discussion program on 27 October 2007. The program was inaugurated at 2 o' clock in the afternoon by Prof. Dr. A M M Safiulla, Vice-Chancellor, BUET who was invited as the Chief Guest. After the welcome address by Prof. Md. Maksud Helali, Head of the Department of Mechanical Engineering and inaugural speech by the Chief Guest the main event started with a keynote lecture by Prof. S M Nazrul Islam. In his lecture based on a theme paper on "Mechanical Engineering Education: Past, Present and Future" Prof. Islam pointed out some chronological activities, progress and achievements of Mechanical Engineering Department of BUET. Mechanical engineering researches, as Prof. Islam mentioned, are related to multidisciplinary involvement. These are the demands in the field of applications. So to accommodate this reality he inferred that all laboratories shall be modernized and the data generated in the modernized laboratory shall be acceptable within a minimum level of uncertainty. Prof. Islam concluded his lecture with the following recommendations on strategic plans to update the academic status.

1. Laboratory space needs expanding to accommodate more experiments and the number of students.
2. The old models of test rigs need replacement by updated models.
3. Sufficient funds shall be allocated for procurement of experimental equipments and researches.
4. Teaching aids are to be updated and modernized to attract the students in the class room. Computer and multi-media systems shall be provided for delivering lectures.
5. On-job training of graduating students need introducing. A planning for such training is underway.
6. Teachers shall be inspired to enter in contract researches on the local industrial issues, and services.

The second phase of the discussion program was a panel discussion based on the keynote lecture. Copies of the keynote presentation were handed over to the discussants on the previous day. The following four, in spite of their busy schedule, kindly gave their consent to participate as discussants.

- Prof Dr M. H. Khan, former VC of BUET
- Engr Mohid Rumi, Managing Director, Maxim Ercon Ltd.
- Engr. A. K. M. Shamsuddin, Chairman & MD, E-Zone Ltd.
- Engr. M. A. Taher Ali, Chairman, Fortuna Group

Engr. Moyeed Rumi emphasized on increasing university-industry interaction, including more applied courses and industrial visit in B.Sc. Engineering curriculum. Engr. Abu Taher and Engr. Shamsuddin highlighted on the necessity of initiatives that the engineering university can provide to garment sector of Bangladesh. As an example they mentioned that Mechanical Engineering Department can help the garments and textile industries in design and manufacturing their own effluent treatment plants (ETP). Prof. M H Khan enumerated many points about the ideal teaching methodology and teacher-student relationship. He also mentioned some socio-economic complicacies that the teachers always have to face.
Around 200 engineers from different organizations came to attend the program. They all had a nice time with old friends and former teachers. During the tea break session they all had a good opportunity to exchange their ideas among each other.

The discussion program was followed by a cultural program. All the performers in the cultural program were the former students of the department of mechanical engineering.
36 years of education in Naval Architecture in Bangladesh

Introduction

Bangladesh is a riverine country. River transport plays a very significant role in the transportation of goods and passengers. Water transport is traditionally the safest, cheapest and environmentally friendly mode of transport in almost every part of the world. This is especially true in Bangladesh which has got the most intense river network in the world. So the necessity of Naval Architect and Marine Engineers in Bangladesh is immense.

Department of Naval Architecture and Marine Engineering

The program of study in the Department of Naval Architecture and Marine Engineering (N.A.M.E.) covers the diversified range starting from ships hulls to exploration of opportunities for harnessing all kinds of resources from the sea. Such topics as the form, strength, stability, sea keeping qualities, resistance and propulsion of ships, economic aspects of ship design and ship operation and many courses of mechanical engineering, electrical engineering, civil engineering and metallurgical engineering are covered. Other subjects of concerns are fundamental of the physical sciences and mathematics, Humanities and Social sciences. Since the design of modern ship or any marine system of whatever configuration or function encompasses many engineering fields, graduates of this department are called upon to handle diverse professional responsibilities.

The department is enriched with a group of highly qualified teaching staffs who have had their education and training from various renowned Institutions of the world.

The department offers both under graduate and post graduate degrees in the field of Marine Engineering and Naval Architecture. It has so far produced a few hundreds of graduates in more than 31 batches. The post-graduate program started in 1988.

Undergraduate students seeking the degree (B.Sc. Engineering in Naval Architecture and Marine) must complete a series of subjects. In addition to the undergraduate course, there are postgraduate programs available in which the students get the opportunity to specialize in certain areas in greater depth.

For the last 36 years the department is in constant touch with the country's ship design offices, shipyards and ship operators, including the cognizant governmental agencies and organizations concerned with various phases of ships, rivers and ocean development.

From Naval Architecture to Global Architecture

As a part of celebrating 60 years of Engineering Education in BUET, Department of NAME organized a seminar on 21st November 2007 at BUET. Honorable Vice-Chancellor of BUET Prof. Dr. A. M. M. Safiullah graced the seminar as the Chief Guest. Prof. Kazuhiro Hasegawa of Osaka University presented keynote paper entitled "From Naval Architecture to Global Architecture". Prof. Khabirul Haque Chowdhury, Head, Department of N. A. M. E. delivered his speech titling "Our Graduates: Where
are they now?" There was a lively discussion on how to move ahead from Naval Architecture to Global Architecture at the end of the seminar.

The discussants agreed to the point that the civil engineers, the architects and the naval architects should work together to meet the global demand of improving the environmental condition and the human safety involving the transports and infrastructures.

Conclusion

In the history of more than three decades, this department produced a few hundreds of high skilled graduates who are now serving to develop the economy of Bangladesh. A significant number of graduates are also serving the highly competitive global market including NASA.
Honorable Vice-Chancellor Prof. A. M. M. Safiullah delivering his speech as the Chief Guest

Prof. Kazuhiko Hasegawa presenting keynote paper

Prof. Kazuhiko Hasegawa presenting keynote paper
Department of Industrial and Production Engineering: The Journey through a Decade

Introduction

Industrial and Production Engineering is a relatively new discipline, a new sphere of engineering, especially in Bangladesh. It is a unique blend of Engineering and management, and its importance and relevance to the local industries is immense.

Presently the engineers and the managers of industrial concern are under constant pressure of time, cost and quality of products and services. As the global market is expanding rapidly, the tariff protection for the local industries will not be possible when the free market is in full force. Nations must develop to keep an edge in the fierce competition of the global market.

The research and development of a product, its manufacturing and marketing have to be achieved within a short period. Thus engineers are now facing diversified challenges. A new generation of engineering graduates, is, therefore, on the demand. Besides engineering skills they must possess leadership and managerial capabilities.

Keeping the above facts in view, undergraduate curriculum of Industrial and Production Engineering has been designed. The emphasis is given on developing analytical as well as application skills along with the requisite technical competence such that graduates are technically well trained and sufficiently flexible to deal with unpredictable future technical and managerial problems.

Overview of the department

IPE department started its journey in 1981 by offering postgraduate course. The undergraduate program started in 1997. The program includes courses in manufacturing, Computer Aided Drawing, Computer Integrated Manufacturing, Advanced Materials Processing, Management, Information Technology, Business Communication and other relevant engineering courses. The program also emphasizes considerable exposure of the students to the practical industrial environment. In this respect the need for industrial attachment of the students has been emphasized.

From 1999-2000, the department has also started offering post graduate course on Advanced Engineering Management (AEM), which is open for all branches of engineering.

The Journey through a decade

As BUET celebrates 60 years of Engineering Education in Bangladesh (EEB), the department of IPE is also glad and honored to have reached its 10 year milestone. Celebrating 60 years of EEB, the department organized a seminar on "Prospects of IPEs in Industries and Business and Graduate Meet" to reveal the current importance of this new class of engineers in context of Bangladesh.
The main purpose of this program was to enhance the bridge between the university and industries by discussing the role of IPEs' in different sectors. With this view Department of Industrial and Production Engineering invited all its' graduates who are now working at different industrial sectors with a great accomplishment to join this seminar.

To grace this seminar Honorable Vice-Chancellor of Bangladesh University of Engineering and Technology, Professor Dr. A. M. M. Safiullah delivered his speech as chief guest. Professor Dr. Md. Mazharul Hoque, convener, 60 years celebration committee, also delivered his speech as special guest. Head of the department of IPE, Professor Dr. M. Ahsan Akhter Hasin delivered his valuable speech and thanked all the guests for coming.

As department of IPE has crossed its' 10 years of education in undergraduate level, students from 6 batches have already graduated and working both in manufacturing and service sectors of our country. Graduates have already proved themselves in leading Multinationals as well as in leading national industries of Bangladesh.

A significant number of IPE graduates are now serving one of the leading sectors of Bangladesh which is Ready Made Garment (RMG) sector. Graduates are playing a vital role in the economy of Bangladesh by applying the tools and techniques of Industrial and Production Engineering to increase the production rate and to improve the overall planning of a garment factory. Personnel from DBL group, which is one of the leading garments of Bangladesh, Mr. Zahid has also delivered his speech on this seminar saying IPE graduates have become an important part of the improvement of RMG sector. He also pointed out different figures on what IPE graduates are working.

To enhance this seminar Dr. A. K. M. Masud, Associate professor, Department of IPE, BUET and Tanveer Ahmed, Assistant Professor of the same department also delivered their speech to clarify the roles of the IPE graduates in different sectors. On behalf of all the graduates Faruk-ul-Islam, working for Rahimafrooz Batteries Ltd, gave his speech where he emphasized that management skill along with manufacturing skill is the main strength of any IPE graduate. Other graduates also shared their experiences in an interactive session at the end of the seminar.

Conclusion

Being a very new department IPE graduates have already created a path for themselves both in Bangladesh and abroad. A large number of students have left the country for higher studies, where some of them are already employed in industries of different countries like USA and Malaysia and enhancing the name of BUET as well as Bangladesh.

It is to be expected that the way department of IPE is being flourished; it will definitely serve the nation for decades after decades where the graduates of this department will dedicate their knowledge for the betterment of the economy of Bangladesh.
Glimpse of the program

Professor Dr. A. M. M. Safiullah, VC, BUET, delivering his valuable speech.

Dr. M.A.A. Hasin, Professor and Head, Dept of IPE, delivering his speech.

A portion of the audience of the day of seminar.
Institute of Water and Flood Management (IWFM) has planned its programs to observe '60 years in Engineering Education in Bangladesh (EEB 2007)' at Bangladesh University of Engineering and Technology. The main goal of these programs is to reflect the Institute's recent research and academic activities.

As a part of the celebration of EEB 2007, the Institute organized a Stakeholder Seminar entitled "Research on Flood Management at IWFM". This Seminar was held on November 6, 2007 in the Seminar Room of the Institute Building. The main purpose of the seminar was to gather feedback from the stakeholders in order to plan future research agenda. The seminar was attended by the representative of Planning Commission, Bangladesh Water Development Board, Water Resources Planning Organization, Local Government Engineering Department and the Faculty members of BUET. Professor Rezaur Rahman presented an overview of the research activities at IWFM related to flood management. Professor A.M.M. Safiullah, Honorable Vice-Chancellor of BUET, attended the seminar as the Chief Guest and made closing remarks.

The Institute organized a seminar entitled "Post Graduate Research on Integrated Water Resources Management" on December 17, 2007 under the banner of EEB 2007. This was a half-day long event that focused on the collaborative postgraduate research program currently being carried out at the Institute under the Crossing Boundaries (CB) Project (Regional Capacity Building on Integrated Water Resources Management and Gender & Water in South Asia). The Seminar was an important forum for a wider stakeholder discussion on the research agenda prepared for the PG. Dip., M. Sc and Ph. D students who are recipients of Fellowships under the CB Project. At the beginning of the Seminar a welcome speech was delivered by Dr. Mashfiqus Salehin, Associate Professor of the Institute. Professor Jahir Uddin Chowdhury presented a paper on "Integrated Water Resources Management Concepts and Actions Needed for Bangladesh". It was followed by a presentation by Dr. Hamidul Huq, Research Coordinator of the CB Project, on the research agenda prepared for the postgraduate students of the Institute who will receive fellowships under the CB project. Mr. Dhali Abdul Quium of Bangladesh Water Development Board (BWDB) and Mr. Bashir Uddin Ahmed of Local Government Engineering Department (LGED) presented their own experiences and the activities of their organizations regarding the South West Area Integrated Water Resources Management Project. Mr. HSM Faruque, Director General, BWDB, in his discussion, emphasized the importance of collaboration between academic institutions and water project implementing agencies, and stressed the need for integrating human system with land, water and other resources in the water management framework. Mr. Gholam Mustafa Patwary, Superintending Engineer of LGED, discussed the ways of cooperation in the project and suggested a few areas of research. In the open discussion session, speakers touched upon the importance of trans-boundary water sharing issues in the context of water resources management in Bangladesh, and the need for training students on social, political and ethical aspects of water management along with the technical aspects. Professor A.M.M. Safiullah, Honorable Vice-Chancellor of BUET, was pleased to give a presentation on
"Engineering Education and Assessing its Quality". In his presentation, Professor Safiullah focused on the importance and responsibility of the engineers to the society, difference between scientists and engineers, aspects to be focused in engineering education, and the code of ethics to be followed by the engineers. Professor Safiullah also emphasized on the need for external collaboration for funding postgraduate research. Professor Md. Rezaur Rahman, Coordinator, Crossing Boundaries Project, made closing remarks as the Chair. Officials of water sector organizations comprising a multi-disciplinary team, BUET faculty members and the fellows of the CB project attended the seminar.

The Institute is participating in the National Symposium centrally organized by BUET to commemorate EEB 2007. On behalf of the Institute, Prof. Rezaur Rahman will present a paper entitled, "Multi-disciplinary Water Resources Education at the Institute of Water and Flood Management". Integrated Water Resources Management (IWRM) has emerged as a solution to the inefficiencies in the existing process of water management. Universities have to play a key role in capacity building in this emerging field. The paper by Prof. Rahman describes the multi-disciplinary postgraduate program that is being offered at IWFM since 2001. The paper also indicates the challenges IWFM has been facing in conducting this multi-disciplinary program, and the ways to overcome such challenges.

The Institute will arrange a poster exhibition and laboratory demonstration during December 29-31, 2007, a period earmarked as the 'Poster Presentation Period' by the EEB 2007 central organizers. During this period, the Institute will present/display the recent research activities of the Institute under 4 themes: Flood, Erosion, Climate Change, and Remote Sensing and GIS. An additional poster under the general activities of IWFM will highlight the mission and vision, research activities, ongoing research and the postgraduate academic programs of the Institute. The poster on floods will highlight the major recent research of the Institute on floods and its management with important findings, while the poster on erosion will present the summary of research works, which have been done at IWFM on river erosion mechanism and mitigation measures. The erosion prediction tools and impact of structural interventions will be also highlighted in this poster. The poster on climate change will summarize the research activities of the Institute on climate change highlighting the findings of the research project, 'Impact of Climate And Sea-level change in part of the Indian Sub-Continent (CLASIC)', a collaborative research project of the Institute with CEH, UK, Hadley Centre, UK, POL, UK and CEGIS, Bangladesh. The poster on Remote Sensing and GIS will highlight the postgraduate RS-GIS course, short course on RS-GIS, laboratory facilities, and research activities at IWFM using remote sensing and GIS. The relevance and importance of RS and GIS in rainfall estimation, flood forecasting using ANN, and use of NDVI data from the MODIS platform will be particularly highlighted.

The Institute will arrange a demonstration of its physical model facilities through simple experiments on open channel flow and influence of structural interventions on flow field. The physical model is equipped to show the horizontal and vertical flow structures along the channel.
Stakeholder Seminar on
Research on Flood Management at IWFM
November 6, 2007

Prof. Dr. Rezaur Rahman presenting the paper.

Vice-Chancellor Prof. Dr. A.M.M. Safiullah Making his closing remarks.

Section of the audience in the seminar.
End of June of 2007 marked the inauguration of the six-month long festivities to commemorate the 'Sixty Years of Engineering Education in Bangladesh'. To celebrate this historical occasion in a befitting manner, Institute of appropriate Technology, BUET has been organizing a number of programs. The programs that have been organized by the Institute of appropriate Technology, BUET, Dhaka, are as follows.

2. Seminar on 'National Energy Policy' held on December 1, 2007 at Council Bhaban, BUET.
3. Seminar on 'Management of Technology for Competitive Edge' to be held on December 26, 2007 at Seminar Room, IAT, BUET.
4. Seminar on 'Material's Tribology' to be held on December 26, 2007 at Seminar Room, IAT, BUET.

The participants of the five days long workshop on 'Heat Treatment and Quality Assurance System' are technologists, entrepreneurs, owners of enterprises/industries, engineers, managers, technicians etc. of light engineering industries from different areas/districts of the country. As many as 36 persons from different places of the country participated in the workshop. All the faculty members of the institute of appropriate Technology, BUET and a number of experienced and senior teachers from other departments of BUET such as Materials and Metallurgical Engineering and Department of Industrial and Production Engineering had been involved as core resource persons of the training workshop. In addition, some senior teachers from other organizations (such as DUET; IUT; MOC, GOB) delivered lectures as core resource persons of the training workshop. The program rendered the knowledge of heat treatment, various methodologies of heat treatment, its modality, and appropriate procedure of achievement of certain properties of metals. Teaching all about quality assurance system is other aspect of the training program. The ultimate objective is to enhance technical, financial, operational and managerial capability of the personal of the sector so that it can proliferate overall development of the sector. Secondly, a number of factories/workshops were visited to develop a database to collect and collate information on machinery and technologies the entrepreneurs are using.

About 100 participants attended the seminar on 'National Energy Policy' held on December 1, 2007. The participants are mainly engineers, technologists, researchers, academicians, scientists, policy makers, decision makers etc. They are from various organizations such as BAPEX, various ministries, various departments, NGOs, universities, public & private organizations, etc. BAPEX has sponsored the seminar. Honourable Vice-Chancellor Prof. Dr. A.M.M. Safiullah graced the occasion as chief guest. Prof. Dr. M. Nurul Islam delivered the key note lecture 'National Energy Policy'. The seminar was chaired by Mr. A.M.M. Nasir Uddin, Member, Planning Commission and in-charge of infrastructure and energy division who was the secretary, Energy
Division. He is one of the most experienced energy policy planner of the country at present. Designated discussants were three persons: Mr. M. Jamaluddin, former Managing Director, BAPEX; Mr. Md. Mokhlesur Rahman, Member, Energy Regulatory Commission; Mr. Md. Mosharraf Hossain, Ex-member, Energy Regulatory Commission they are highly experienced in the area of the energy sector. A great enthusiasm was created in the seminar. The key note lecture made deliberations on various issues such as status of laws and policies on energy; national energy policies of Bangladesh; institutional reforms in energy sector, revision of national energy policy, stake holders of national energy policy; energy situation & future energy mix of Bangladesh; the framework of national energy policy; management of energy sector; etc. There were a long session of questions and answers. Many questions were asked and answers. A vivid picture of our status, constraints, strengths, weaknesses, disability, sustainability, workability and goals & imperatives with regard to the energy sector and the national energy policy came out.

Institute of Appropriate technology has been doing researches of various modalities such as policy research, basic research and core technological research. Energy sector is one of the research areas. Other areas are SMEs (Small and Medium Enterprises), Light Engineering Industries (LEIs), Technology Assimilation and Development, Technology Transfer and Dissemination, Reverse engineering, etc. The institute is providing significant support to the government and industrial sectors and various public & private organizations to help the country for industrialization. Development of a robust SMEs (Small and Medium Enterprises) sector in the country is one of the vital areas of research of the institute. The institute is rendering continuous support and research outcome to the ministries and associated department, policy makers and decision makers for formulation of national industrial policy, energy policy, SMEs policy, technology transfer and dissemination policy, etc. Thus the research and development function of the institute covers, interalia, the areas of policy research, technology assessment, resource assessment, technology development of the prioritized areas. On of the main objectives of the institute is to assist government in policy planning with respect to technology. In doing so, the areas that require priority attention for policy planning, decision-making and implementation are chosen for research purpose.

In the present context, Bangladesh needs to be technologically upgraded to face the challenges of globalization. Bangladesh predominantly depend on conventional and indigenous technologies. Key to international competition, access to advanced appropriate technologies and adaptation of these technologies is crucial to build up indigenous technological capacity, which our country now need the most. In the age of rapid technological development, higher quality requirements, competitive national and international environment and the increasingly multidisciplinary nature of developmental activities, it is unlikely that an organization would have adequate expertise and capabilities relevant to these needs. This is even truer in the case of our industries where technical, managerial and financial resources are very limited. Institute of Appropriate Technology is continuously working relentlessly to develop the industrial sectors so that they can be able to meet the competitive challenges of the era.
1.0 Introduction

Bangladesh University of Engineering and Technology (BUET) is the oldest institution for study of Engineering and Architecture in Bangladesh. The Institute of Information and Communication Technology (IICT) is a new institute of BUET. It has been emerged from the then Computer Center of the university. Keeping its original role intact, IICT has introduced academic and research program in the field of Information and Communication Technology (ICT). Apart from the internal activities, IICT is deeply involved in rendering services to the nation in ICT related tasks. This paper describes the diversified activities of IICT.

2.0 Academic Activities

IICT runs two academic programs, namely (a) Postgraduate Diploma and (b) Masters. The seat capacities in the programs are 60 and 30 respectively. Both the programs are 36 credit programs. The PG Diploma program runs in three terms in a year, whereas the Masters program runs in two semesters. In the diploma program, the new intakes are made in first week of December. In the midst of different odd situations, IICT managed to keep the starting date almost identical.

At present IICT has two professors, three assistant professors and five lecturers. There are few external faculties for guiding our students for their project works. IICT always maintain a strong relationship with the industries and collaborate in solving real-life practical problems.

3.0 University Services

3.1 Internet Service

BUET has its own VSAT for providing Internet services to its users. With a speed of 1.5 Mbps downlink and 384kbps uplink capacity, the services is provided for all faculty members, students and first class officers of the University. IICT maintains this service on behalf of BUET. The equipment necessary for maintaining this service is housed at IICT.

Recently, BUET has been connected with submarine cable. The speed of the link will be upgraded to 10 Mbps in both ways.

3.2 University Backbone Network

The BUET campus is connected through optical fibre network. Inter office communication are made electronically using the backbone network. At present, the development work on BUET Institutional Information System (BIIS) is in progress. Under the work, all academic and administrative activities are being computerized. Using the backbone the developed software modules will be used for automation of BUET activities.

3.3 ICT Services to the Users

Different ICT related services are provided from IICT. The teachers and students need different support related to their personal computers, printers, LAN, network etc.

4.0 Innovations

4.1 Prepaid Electric & Gas Meters

After receiving first prize in an International Competition on Student's Electrical Designs arranged by IIEE, a commercial prepaid electricity meters have been developed at IICT. In the first phase, IICT produced 5000 meters which has already been operating in Uttara of Dhaka City since mid 2005. In a second phase, we are producing another 5000 meters. IICT, BUET
will receive royalty from the production of the prepaid meters in a factory established by Dhaka Electric Supply Company (DESCO).

Having a great success in developing the electricity prepaid meters, IICT recently developed prepaid meters for Gas Systems. A project is underway for its implementation with TITAS Gas Transmission and Distribution Company.

4.2 Online Data Acquisition
In Bangladesh, the generation and distribution of electricity is a huge challenge. As we have less generation of power than demand, it is always a challenge to distribute the power efficiently and uniformly. To deal with this challenge, we need to analyze the real-time information of our load. Data Acquisition System based on embedded chips developed by IICT, acquires all information of loads of a substation and sends it to a remote central server where this information is analyzed to manage the demand. The test system has already been implemented in Basundhara 132/33 kV Grid substations. The on-line data collected at the Basundhara is transmitted to a central location using Grameen Mobile Network.

4.3 Electronic Voting Machine
The polling system of Bangladesh both at the national and regional levels is completely manual and that’s why the publication of result is delayed. Apart from the delay, the manual casting process is prone to errors in various respects. In order to make the voting process completely error free, easier, cheaper, faster, more reliable and more effective against vote manipulation, an electronic voting machine (EVM) is developed here at IICT and tested. Our EVM is battery operated eliminating the need of electric power supply at the remote place. Moreover, our EVM is a cost effective product which can be implemented in large scale, if government decides to introduce the EVM in elections.

5.0 System Development
5.1 SSC & HSC Computerization
Until 1994, the examination systems of two public examinations had been maintained manually with a scope of misappropriations. In 1994, IICT has developed and executed the computerization of the two public examination systems in Bangladesh. Starting from the registration process the result, tabulation and certificate issuance system were developed under the project. After conducting an extensive training, the system was handed over to the Education Boards. For more than 12 years, the system is up running. The Optical Mark Reader (OMR) technology has effectively been used in the project. The project was one of the largest projects in Bangladesh. It was executed in a record time of 9 months.

5.2 Manpower Tracking System of BMET
A remarkable amount of foreign currency is earned through the manpower export business in Bangladesh. IICT developed a Registration and Tracking Network (RTN) for the overseas job seekers of Bangladesh. The system was developed for the Bureau of Manpower Employment and Training (BMET). All around Bangladesh, there are 24 zonal registration centers of BMET. A job seeker can apply for registration from one of the zonal centers. Under the RTN, a database of the job seekers has been created. Similar database of the prospective employees is maintained under the database. A registered job seeker can apply against an advertisement. After final selection, the official formalities for clearances are completed electronically. The same database is connected with the international airports so that the departure and arrival of the overseas job holders can be tracked easily. This project has established a complete transparency in the manpower business in Bangladesh.
5.3 Revenue System Computerization of Bakhrabad/Jalalabad Gas T&D Ltd.
The revenue systems of Bakhrabad and Jalalabad Gas Systems are being computerized under two similar projects for the two organizations. Each organization is comprised of a head office and several zonal offices. Starting from the meter reading collection, the bill generation system, the collection system and final reconciliation system have been developed for the two companies. The whole revenue system including the purchase of Gas will be computerized. The project is near completion. Once implemented, the systems will bring a discipline in the accounts of the organizations.

5.4 Pilgrim Management System
Every year, a large number of Muslim people visit Saudi Arabia for performing their Pilgrimage. As a part of the activities, a pilgrim has to travel from one place to another. In order to track a particular pilgrim, a computerized tracking system has been developed by IICT and implemented through a local IT company. Since the implementation, the complex management of pilgrimage has become simple and efficient. The registration process, pilgrim pass issuance process and day to day updating process are the main components of the whole system. The web based tracking system provides a number of instant information of the event.

5.5 EU e-Learning
A joint-venture project funded by European Union is undertaken under EU Asia link program. Four partners from the different parts of the globe are developing e-Learning modules for teaching ICT courses. The partners are Tempera University of Science from Finland, Berlin University from Germany, Shahjalal University and BUET from Bangladesh. The objective of the project is to develop a number of learning objects that will be used for teaching students. The covered areas are C/C++, Java, operating system, embedded system and algorithms. The three year project has completed its major target with a view to complete it by the end of this year.

6.0 Conclusion
IICT is the most recently developed Institute of BUET. It plays an important role in the development and maintaining of ICT activities in BUET. The academic side of the institute is composed of offering M.Sc and Post Graduate Diploma (ICT). Moreover, IICT plays an important role in ICT activities at National level.

Fig 1: IICT Browsing Room
On the occasion of Celebrating 60 Years of Engineering Education in Bangladesh (EEB-2007) the Directorate of Continuing Education (DCE) of BUET organized a symposium on The Development of Engineering Manpower: Role of Continuing Education on 01 November, 2007. The symposium was arranged in the seminar room of the Civil Engineering building of BUET.

The Director of DCE, Professor Dr. M. Imtiaz Hossain in his welcome speech mentioned that the Directorate has created opportunities for professional interaction and relationship building among the engineering professionals. The professionals can protect themselves from obsolescence by utilizing the opportunities available here to upgrade and update their professional knowledge skill. He then introduced the presenter of the keynote paper and the invited discussants. Professor A.M.M. Safiullah, hon'ble vice chancellor of BUET was present in the session as the Chief Guest.

The theme paper of the symposium was presented by Professor M. Anwarul Azim, Hon'ble Vice Chancellor of the Dhaka University of Engineering and Technology (DUET), Gazipur. Five eminent professionals of the engineering profession were invited to discuss on the paper. The discussants were Engr. Quamrul Islam Siddique, Chairman, Bangladesh Water Partnership (BWP), Engr. A.K.M. Shamsuddin, Chairman and CEO, E-Zone Ltd., Dr. Abdullahel Bari, Chairman, Ananda Group, Professor Md. Mazharul Hoque, Director, Accident Research Centre (ARC) of BUET and Engr. Jawaherul Ghani, Managing Director of Modern Erection Ltd. The last discussant however, could not turn up till the end of the session.

To ensure wider discussion and participation many engineering organizations were requested to nominate participants to the symposium. In response organisations like BUET, DUET, MIST, BCSIR, DWASA, Bangladesh Navy, Titas Gas etc. nominated about 50 participants many of whom participated in the symposium actively. The audience attending the symposium was well over a hundred.

In his theme paper Professor Azim highlighted that from the later part of the last century, the engineering profession is facing a host of multi-dimensional challenges due to national and global developments. The challengers are:
- The phenomenal growth of sciences and technology, specially in electronics and information technologies
- Unprecedented knowledge explosion affecting the engineering domain, resulting in emergence of new engineering professions
- The depletion of world's natural resources
- The environment and the sustainable development
- The human rights
- The change of role of Government as regulator and monitor of development.

The speaker in his paper calls this a new paradigm of knowledge domain in engineering profession. He says that due to the expansion of the domains of sciences and their applications and other factors dominating the global development, the knowledge domains of conventional engineering field are experiencing explosion. The conventional engineering professions have started to disintegrate into independent specialized fields - for example, mechanical engineering
into power plant engineering, manufacturing engineering, air-conditioning engineering etc. Further differentiation of manufacturing engineering has led to specialized fields like:

- Finishing process
- Machine Vision
- Machining Technology
- Manufacturing Research
- The Computer and Automated Systems
- Forming and Fabrication Technologies
- Composite Manufacturing
- Electronics Manufacturing
- Plastic Moulding
- Rapid Prototyping
- Robotics

He termed this process of disintegration as Knowledge Differentiation. He also draws attention to the fact that during the last quarter of the last century or so an unforeseen fusion and osmosis among different scientific and engineering knowledge base have given birth to new engineering professions. He termed this as Knowledge Integration. Examples are Bio-medical engineering - a merger of computer engineering, medical science and biology. Neumorphic vision chips adapt in milliseconds to vast changes in illumination.

Ceramics technology - a fusion of manufacturing and chemical engineering, material science.

Present-day automobile engineering - merger of material science (body fabrication and coating, wheels, inner gazettes, upholstery etc.), telecom (for GPS), electricity (for power and lighting), electronics (for EFI, navigation, temp. control) etc.

In fine the author emphasizes on the role of continuing education in the development of engineering manpower. He claims that an engineer must remain nationally and globally competitive during his economic life cycle of 40 plus years in the face of technological sophistication, Paradigm shift in knowledge domain in engineering profession, limitation of our natural resources, environmental degradation, shift in responsibilities as an engineer moves up in his profession.

He believes that continuing education or life-long learning is a sine qua non for engineers. The more is the technological development, the more is the scientific advancement, the more is the globalization, hence the more is the knowledge explosion, the more is the need for continuing education.

He further notes that in the contemporary world many of the national economies have passed through agriculture and industrial ages. Information age is coming to an end and knowledge base societies will soon emerge. Consequently the continuing education of an engineer must take place in a matrix of horizontal and vertical upgrading. Professional institutions/societies of different countries bind a minimum number of days of CPD per year for its members. Some generic areas of continuing education may be suggested in the following:

- Domains in his discipline, where significant sophistication has taken place. Perhaps most affected disciplines are computer, telecommunication and material engineering.
- Because of knowledge differentiation and knowledge integration some conventional engineering professions may loose importance. Retooling of these engineers in important. As back as 1995 German mechanical engineers- well-known for their quality- were being retooled for new jobs.
- Aspects of environmental pollution including ISO14000.
- Areas of financial control, legal aspects, interpersonal skill, human resource management, negotiation and communication skills.
- History and culture of mankind and social behaviour and attitude of individual societies.
Directorate of Continuing Education

- Computer skill has become a must for every engineer.
- Besides strengthening (i.e. post-graduate studies) university teachers - specially those teaching at the under-graduate level - need to have a comprehensive knowledge of technological sophistication in their respective fields.

In conclusion the author suggested that an effective institutional mechanism should be put in place to satisfy the need for continuing education. Bangladesh University of Engineering and Technology (BUET) through its Directorate of Continuing Education (DCE) and the Institution of Engineers, Bangladesh through its Staff College have made a good start. For example, DCE has offered as many as 90 short courses and upgraded over 2500 engineers. As the demand is huge, other engineering universities and appropriate universities of science and technology should join the system of upgrading.

Because industrial organizations have state-of-art technologies in operation and they need to be globally competitive, they have an important role to play. Academia and praxis should work hand-in-hand in respect of continuing education.

Salient parts of the discussion

Engr. Quamrul Islam Siddique, Chairman, Bangladesh Water Partnership (BWP) said that Engineering profession is a great profession. To excel in this profession an engineer must acquire multi-disciplinary knowledge. Education standard, knowledge sharing and engineering ethics are also very important for him. He should be capable of blending his knowledge with leadership and management qualities. Engineer Q.I. Siddique termed this as a fusion of knowledge which can be acquired through continuing education only. He remarked that government has very little support for Continuing Education.

Engr. A.K.M. Shamsuddin, Chairman and CEO of E-Zone Ltd. in his discussion said that Technology is a changing phenomena. Therefore, there is no alternative to upgradation of skill through continuing education. He particularly stressed on on intellectual and physical enhancement, social science, management courses, recruitment, planning, organization etc. He suggested that DCE of BUET should define its purpose and vision in very clear terms. He expected that as a top rated engineering university BUET should have a top rate management course.

Dr. Abdullahel Bari, Chairman, Ananda Builders Ltd. in his discussion stressed on the fact that the engineering professionals should be capable of integrating different subjects in their minds. Young engineering should be exposed to all available softwares and they should blend it with their basic engineering knowledge. He gave much importance on Design work and wanted engineers to devote more of their time on it. He suggested that the goal of an engineer should be fixed. He should then use all available tools to reach their goal. The internet is a good tool to upgrade the engineer. Professional bodies also have a role to play. He suggested that the continuing education activity in BUET needs to be extended further.

Professor Md. Mazharul Hoque gave importance on e-learning and distance learning. He threw some light on the limitations of our professionals. He noted that we are weak in energy sector especially in dealing with production sharing contracts etc. Upgrading of professional in fields like interpersonal relation, team work, leadership etc are among some of the skills that we lack severely. Our professionals should be taught all these things through continuing education since these are not available in regular degree programs.
The chief guest Professor A.M.M. Safiullah remarked that we have to develop BUET to an international standard. We also have to link it with the industry. We have to realise that knowledge is also an wealth and the university is a place where we can increase our knowledge. We have to develop the sense of confidence in the minds of all from both the academic and industrial fields so that they feel comfortable in sharing their experiences. He also mentioned that expansion of the continuing education program should be beneficial to the nation.
A seminar on "Energy and Environment: Bangladesh Perspective" was organized by the Centre for Energy Studies of BUET at the Council Building on 6 November 2007 on the occasion of the celebration of 60 years of Engineering Education in Bangladesh. The seminar was inaugurated by the chief guest Prof. Dr. M. Sabder Ali, Dean, Faculty of Engineering, BUET. Prof. Dr. Shahidul Islam Khan, Director, Centre for Energy Studies was the chair in the function. The speaker of this seminar was Dr. M. Nurul Islam, Professor, Institute of Appropriate Technology, BUET. Prof. M. Nurul Islam said that Bangladesh has adequate reserves of natural gas and coal to ensure long term energy security, provided coal and gas are not exported and are produced in synchronization with demand. The speaker Prof. Islam said that for any nation, abundant reserves of energy resources may not be able to ensure energy security and sustainable economic growth in the absence of good governance. The seminar was participated by 30 representatives from industries, government organizations, private companies and universities.

Seminar on "PBL": A New Concept in Engineering Education

A seminar on "PBL": A New Concept in Engineering Education was organized by the Centre for Energy Studies of BUET at the Seminar Room of Civil Building, BUET on 10 December 2007 on the occasion of the celebration of 60 years of Engineering Education in Bangladesh. The speaker of this seminar was Ms. Mona Dahms, Associate Professor, Department of Development and Planning, Aalborg University, Denmark. Prof. Dr. Shahidul Islam Khan, Director, Centre for Energy Studies was the chair in the function. The seminar was participated by 40 representatives from industries, government organizations, private companies and universities. The seminar discussed main reasons and barriers against introducing new teaching and learning methods in engineering education in Bangladesh.

Workshop on "Project Based Learning (PBL) in Engineering Education"

A workshop on "Project Based Learning (PBL) in Engineering Education" was organized by the Centre for Energy Studies of BUET in the Seminar Room, ITN Centre, BUET on 11 December 2007 on the occasion of the celebration of 60 years of Engineering Education in Bangladesh. The resource person of this workshop was Ms. Mona Dahms, Associate Professor, Department of Development and Planning, Aalborg University, Denmark. Prof. Dr. Shahidul Islam Khan, Director, Centre for Energy Studies was the chair in the function. The workshop was participated by 15 representatives from government organizations, private companies and universities. The workshop discussed on different PBL models and how these models can be implemented in teaching practices.
Address by Prof. Dr. Shaidul Islam Khan, Director, Centre for Energy Studies

Seminar by Prof. M. Nurul Islam, Institute of Appropriate Technology, BUET
Workshop by Ms. Mona Dahms, Associate Professor, Aalborg University, Denmark

Workshop participants doing discussion on BUET PBL Model
The Centre for Environmental and Resource Management (CERM) was established at the Bangladesh University of Engineering and Technology with a separate Governing Board having the primary objective of developing local environmental manpower and expertise in order to enhance the economic growth of the country without compromising the quality of the environment. It also is dedicated towards training and educating the technologists, managers, decision makers, and academicians in sound management practices. Applying technological solution without proper assessment usually causes more harm than benefit; therefore, CERM aims at providing specific project oriented training to professionals of industries and other development agencies. It also offers consultation services to development agencies and development partners with a specific target towards achieving the millennium development goal. National and international level multidisciplinary collaborative researches are also undertaken by the CERM to incorporate better environmental management practices. CERM also organizes national and international seminars, workshops and symposium to disseminate information as well as research outcomes on important environmental issues.

Contemporary Environmental Challenges

Development of an Assessment System to Evaluate the Ecological Status of the Rivers in the Hidu-Kush-Himalayan Region
Arsenic Concerns in South Asia
In the recent past there is a commendable progress in medical science and people are expecting to get better medical facilities. To provide this service new clinics, hospitals and diagnostic centers are being established continuously mainly by the private entrepreneurs. These medical establishments are using the most modern equipments for their jobs. These equipments need regular maintenance and periodic calibration. But there is acute shortage of trained manpower and facilities in this field to help the doctors to carryout their jobs smoothly and efficiently.

Along with the enormous growth of medical establishment, there is a boom in pharmaceutical companies in Bangladesh. These companies are using the state of the act technology for their products. The modern machineries used in these factories need constant maintenance and supervision for the proper functioning to produce product of specified quality. Any slight deviation of the quality of their product i.e. medicine greatly hampers the quality of the treatment of the patients. But there is great scarcity of trained manpower in this field also.

Considering the above facts the centre for Biomedical Engineering and Research was established in BUET in 2001 to train manpower in this field. Since then the centre has been offering courses on Biomedical Engineering to undergraduate students of Mechanical Engineering Department and planning to extend to students of other departments and offering diploma courses in near future. The centre has one basic laboratory to give students on hand training.

In celebration of 60 years of engineering education in Bangladesh the centre invited Dr. Frank H. Paulin, WHO Public Health Administrator on 5th December, 2007 and had fruitful discussion with him regarding the expansion of the centre.
Background:

Accident Research Centre (ARC) at the Bangladesh University of Engineering and Technology (BUET), a centre first of its kind, was established under the top priority programs of the Government of the People's Republic of Bangladesh to carry out scientific studies and research regarding the causes of accidents on roads, railways and waterways and commensurate remedial measures. ARC conducts appropriate training programs and workshops to develop qualified human resources for professional capacity building and also for creating mass awareness on road safety. In addition, ARC is expected to play major role to develop pragmatic, cost-effective scientific solutions and bring about significant improvements in the capability of the professionals and workers in the field of transportation to a meaningful level of expertise for accident prevention and injury control and thereby contribute to the safer road environment for all users and operators. ARC is also exploring the possible scopes for exchanging knowledge and technologies through collaboration with an extensive number of renowned overseas institutions, organizations and universities etc. at local, regional and international levels.

ARC’s Objectives:

The major objectives of the Accident Research Centre (ARC) are:

- To establish and maintain a comprehensive accident and injury database
- To ascertain the causes of accidents and injuries and contributory factors
- To develop accident countermeasures on the basis of scientific studies and engineering knowledge
- To monitor and evaluate road safety programs and accidents countermeasures
- To assess economic, social and health impacts of accidents and injuries
- To conduct high quality research on technological, behavioral and educational safety improvement opportunities and their cost effectiveness
- To provide training and education on accident prevention and safety technology and management
- To introduce and administer road safety courses leading to certificates, diplomas and degrees
- To disseminate and share the knowledge and translate them into safety policies and practices
- To foster safety research excellence through exchange and linkage with institutions/organizations at regional and international levels
- To provide advisory and expert services to the relevant organizations on the matter of road safety and safety promotions
- Through the wider expansion of research works, eventually the centre would turn into a National Accident Research Centre and hopefully a Centre of Excellence for the advancement in safety research and technology
ARC's Activities and Outputs:

The activities of ARC can essentially be divided into two broad areas viz. road safety research and training.

♦ Road safety research and investigations

ARC conducts road safety research and investigations, which are useful in documenting the accident problem characteristics and would provide the means to develop and evaluate effective countermeasures. Some major areas of ARC's research and investigation works include:

- Road traffic accident data collection, accident database development and updating
- Identification of hazardous road locations (HRL) and accident black-spots analysis in Bangladesh
- Investigation of major fatal accidents and accidents during festivals
- Metropolitan street accident characteristics and safety improvements
- Involvement of pedestrians and children in road traffic accidents and injuries
- Understanding heavy vehicle drivers' behaviour and their attitudes
- Observational studies of Hazardous Road Locations (HRL)
- Accident spot investigation and in-depth analysis
- Recording and analyzing of inland water transport accidents and identification of the remedial measures
- Investigation of the incidence of over-speeding in relation to roadway safety
- Development of road safety education materials for children and drivers
- Emergency care and rescue of accident victims using GIS technology
- Heavy vehicles involvement in road traffic accidents
- Involvement of drivers in accidents and their characteristics
- Effects of vehicular defects on road traffic accidents
- Road safety hazards associated with bridges and culverts
- Estimates and analysis of costs (Social and monetary) of accidents
- Route/site specific detailed analysis: Dhaka-Aricha highway corridor and the Jamuna multipurpose bridge and its approaches

♦ Road safety training and awareness programs

ARC has already developed and organized a number of training programs to strengthen professional and institutional capacity in road safety management to promote safety conscious behaviour and mass awareness. Some major areas of ARC's road safety training and awareness programs include:

- Training for professionals and road safety practitioners
- Training for students, Cadets and Scouts
- Training for heavy vehicle drivers (buses and trucks)
- International Conference on Road Safety in Developing Countries
- National and regional workshops, seminars, policy discussion meetings and rallies
- Observation of UN First Global Road Safety Week and the World Health Day with the theme "Road Safety is No Accident"
Accident Research Centre

• Established a co-operative linkage and networking with various departments, institutions and organizations of Bangladesh in promoting road safety
• Preparation of road safety materials, booklets, posters, leaflets, banners for mass awareness among the policy makers, professionals, members of the civic society, NGO workers, transport operators and owners and the general public.
• Major Publications:
  □ Proceedings of the International Conference on Road Safety in Developing Countries
  □ Key Road Safety Facts
  □ Drivers Booklet (in Bengali)
  □ Road Safety Messages
  □ Brochure on Accident Research Centre
  □ Brochure over Pedestrian Safety
  □ ARC News Letter

The Centre has also initiated professional exchange programmes with similar overseas organizations and institutions for exchanging, updating and sharing of knowledge and experience on matters related to traffic accident and safety.

The Role of Accident Research Centre in "Celebrating 60 Years of Engineering Education in Bangladesh"

* The Secretariat*

Accident Research Centre (ARC) has been acted as the Secretariat of the BUET program for "Celebrating 60 years of Engineering Education in Bangladesh". It has coordinated and facilitated series of programs including seminars and workshops organized by different Departments, Institutes, Directorates, and Centres of BUET. Details are listed below:

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Programs</th>
<th>Organized by</th>
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<tbody>
<tr>
<td>1</td>
<td>Opening Ceremony of Celebrating 60 Years of Engineering Education in Bangladesh (28/07/07)</td>
<td>Organizing Committee</td>
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<tr>
<td>2</td>
<td>Outcome Based Education for Global Engineer Market (30/07/07)</td>
<td>Organizing Committee</td>
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<tr>
<td>3</td>
<td>Arsenic Concerns in South Asia (04/09/07)</td>
<td>CERM, BUET</td>
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<td>4</td>
<td>Energy Security and Energy Policy of Bangladesh (12/09/07)</td>
<td>IAT, BUET</td>
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<td>5</td>
<td>Engineering Education in a Globally-Competitive Marketplace (15/09/07)</td>
<td>Organizing Committee</td>
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<td>6</td>
<td>Heat Treatment and Quality Assurance System (19/09/07)</td>
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<td>7</td>
<td>Career Prospect in USA for BUET Graduates (22/09/07)</td>
<td>Organizing Committee</td>
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<td>8</td>
<td>Teaching-Research Nexus at World Class Universities (23/09/07)</td>
<td>Organizing Committee</td>
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<td>9</td>
<td>Prospects of IPE in Industries and Business (25/10/07)</td>
<td>IPE, BUET</td>
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<td>10</td>
<td>Mechanical Engineering Education-Past, Present and Future (27/10/07)</td>
<td>ME, BUET</td>
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<td>11</td>
<td>Electrical Engineering in a challenging world (27/10/07)</td>
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<td>12</td>
<td>The Development of Engineering Manpower: Role of Continuing Education (01/11/07)</td>
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<td>13</td>
<td>45 Years Journey of Humanities: Steps Ahead (03/11/07)</td>
<td>Hum, BUET</td>
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<tr>
<td>14</td>
<td>Mathematics Education in BUET (04/11/07)</td>
<td>Math, BUET</td>
</tr>
<tr>
<td>15</td>
<td>Architecture and Engineering Education: Towards Wider Interface (4/11/07)</td>
<td>Arch, BUET</td>
</tr>
</tbody>
</table>
As a part of "Celebrating 60 Years of Engineering Education in Bangladesh", a two day Workshop on "Road Safety in Bangladesh: Constraints and the Way Forward" was organized by ARC, BUET and was supported by The World Bank and the Roads and Highways Department. It was held on 21-22 November at the Council Building, Bangladesh University of Engineering and Technology (BUET), Dhaka.

Participants:
The workshop was attended by World Bank road safety experts and representatives of the local office and the key road safety stakeholders in Bangladesh. There were nearly seventy participants in the workshop and the inaugural function was attended by about two hundred participants and guests. The workshop brought together highest level of policy maker and the representatives from the transport, road and local professionals, urban planners, police/law enforcement officers, practicing engineers, road safety advocates, researchers, medical professionals, community workers and vehicle owners and operators as well as international agencies to acquaint themselves about the advances in road safety management and develop strategies for successful implementation of road safety action plane in Bangladesh. Mr. Mohammed Anwarul

ARC’s Road Safety Workshop
Iqbal, Honourable Adviser, Ministry of Local Government, Rural Development & Co-operatives and Ministry of Labour and Employment, Government of the People's Republic of Bangladesh, was present in the event as the Chief Guest. Dr. Mohammad Mahbubur Rahman, Secretary, Ministry of Communications, GoB and Mr. Mohammed Alhousseyni Touré, the Operations Advisor, The World Bank was present as special guests. Professor Dr. A. M.M. Shafiullah, Vice-Chancellor of BUET presided over the function. Two noted overseas experts, Mr. Anthony G. Bliss, Lead Road Safety Specialist, GRSF, The World Bank, and Mrs. Jeanne Breen OBE, Road Safety Consultant participated in the workshop.

Lectures and Presentations:
The following technical papers were presented:
- "Road safety problems: global and regional perspectives" by The World Bank
- "In country road safety issues, constraints and recent initiatives in Bangladesh" by ARC, BUET
- "The design and implementation of 2nd generation road safety projects" by The World Bank
- "Societal and health impact of road traffic accidents and injuries" by CIPRB and ARC, BUET
- "Road safety enforcement: the role of highway police" by highway police and ARC, BUET
- "Road safety action plan in Bangladesh: institutional and budget requirements" by ARC, BRTA and RHD
- "Proposed road safety demonstration project in Bangladesh" by ARC, BUET, BRTA and RHD
- "Road safety monitoring and evaluation process" by The World Bank

Recommendations of the Workshop:
The workshop endorses the following recommendations:
- Urgent action needs to be taken to implement the road safety action plan.
- A large-scale multi-sectoral demonstration project would provide a useful start to the process of implementing the national road safety action plan and developing a more comprehensive evidence-based and resourced national strategy. A project concept has been developed, considered and broadly approved by the workshop (section of N5 Corridor, Dhaka to Aricha).
- This demonstration project could be accommodated within the current Road Sector Reform Project (which is scheduled to go to the World Bank Board by the end of June 2008) and hence some of the relevant decisions would need to be made by the end of 2007.
- Decisions need to be taken about the project management which will be considered further by a safety management capacity review, the need for which should be confirmed by the Government and a high level team designated to participate and cooperate in the review and take appropriate decisions including:
  - Clarification, as soon as possible, of which Government Department should take the lead agency role (BRTA?)
  - Review of NRSC membership and role with respect to the demonstration project
  - Creation of a senior level working group to support the NRSC in its management of the project
  - Confirmation of ARC taking the monitoring and evaluation role.
Glimpses of the ARC's Road Safety Workshop Sessions
Glimpses of the ARC Activities
Role of ITN Centre, BUET towards building capacity in WatSan Sector in Bangladesh and in the region

The ITN-BUET is established at the Bangladesh University of Engineering & Technology (BUET). The Centre is functioning with financial assistance of DANIDA.

Aims and aspirations
The primary goal of ITN-BUET is to achieve an improved human resource base that promotes sustainable development of water supply and sanitation. It strives for expansion of knowledge base through networking and thus building capacity in WatSan sector in Bangladesh and in the region.

Capacity building within WSS
Capacity building within WSS sector is the main focus of ITN-BUET. Human resources development (HRD) to support WSS sector activities in the country is an important element in this arena from national perspective. Primarily through an approach of skill transfer from all dimensions, be it with social, technical, institutional front, etc. development of this national element, i.e., 'capacity building' is being perused by ITN Center. Conceptually ITN Bangladesh renders its services on a multiplier effect. It takes care of curricula and syllabi; produces master trainers; develops teaching and training materials; develops R&D skill in the sector relating to socio-economic context of the country. It has successfully actuated the bridging role between 'academic & research institution' and 'management & implementing organizations' and it strives to create opportunities for the academicians and implementers to come up in a common forum and work hand in hand for the WSS sector.

Strategic Input towards sustainable development of WSS sector
ITN-BUET provides the following strategic inputs to bring in changes in WatSan and ensure its sustainability:

- Re-orientation of environmental engineering curricula and syllabi to address the need of the WSS sector;
- Publication of textbook to support reoriented curricula;
- Publication of relevant document to fill knowledge gaps;
- Training courses on special topics of emergent needs and for developing trainers to support HRD in the WSS sector;
- National and international workshop and seminars to promote knowledge sharing and dissemination;
- Scientific and applied research to support WatSan sector.
- Expansion and maintaining an active network among resource centres throughout the globe.

Training Courses
To strengthen the capacity of government, local government institutions and non-government stakeholders at all levels ITN organizes various specialized courses on important topics of emergent needs.

Research Activities
ITN-BUET is very selective in setting its research agenda. The emerging sector issues, which not only prevent advancement of water supply and sanitation but also jeopardize the achievements made earlier, are targeted for research and studies. In the Research
International Training Network Centre

front ITN Centre undertakes the following responsibility in the Water Supply and Sanitation sector in the country.

- Conduct need based research and consultancy in appropriate water supply and environmental sanitation;
- Advise others on the quality, content and management of research activities;
- Disseminate outputs from research and consultancy including journal articles, books and pamphlets, conferences, seminars and workshops and mass media; and
- Advise on WS&S sector policy and strategy; and institutional reform and capacity building.

To address emerging sector issues and build consensus on probable solutions, ITN will hold workshops, seminars, symposiums etc. either in collaboration or individually. As in the recent past, ITN will actively support and assist the initiative of the government and other stakeholders and ESAs in these kinds of activities.

Publication of ITN

For maintaining continuity and progressive development of the sector, the importance of documentation and publication is essential. It is difficult to design sustainable programmes built on lessons without proper documentation and publication. Overcoming knowledge gaps and documenting those are prerequisite to conceptualize, plan and formulate future programmes in any development sector. ITN has already attached a high degree of importance to this task and has already brought out a good number of publications that are well recognized as resources of the WSS sector.

Area of Specialization

- Human Resources Development for WSS Sector;
- Appropriate Technical Education for Sustainable Development of WSS
- Scientific and Applied Research in WSS on Current Issues
- Specialized training courses on topics of emergent needs
- Organizing national and international workshop and seminars on subject of importance

Valued Clients and Recipients

- Faculty and students of BUET, SUST, Engineering Universities and Polytechnic Institutes,
- Decision makers, planners and managers in WSS sector,
- Officials, Engineers and field workers of Government agencies,
- Professionals & field workers of Water Authorities,
- Pourashavas & City Corporations,
- Health and community development practitioners from public and private sector,
- NGO staff,
- Women,
- External Support Agencies,
- Private Sector Organizations,
- Professional Bodies etc.
Fig-1: Participants of an International Training Course of ITN-BUET

Fig-2: Group Work by Participants of a Training Course

Fig-3: Field Visit under Training Course

Fig-4: Using of Computer Facilities by Participants

Fig-5: Research on Multi-Stage Filtration

Fig-6: Community Consultation by Participants
ঢাকা ইঞ্জিনিয়ারিং কলেজের ছাত্র বছরের ইতি কথা

- ইমাম উদ্দীন আহমদ চৌধুরী

অবিভক্ত ভারতে পূর্ববঙ্গ ও আসাম ছিলো সর্বস্তরে পদাতন। এ অঞ্চলে কোন বিশ্ববিদ্যালয় না দুরের কথা, একটা ইঞ্জিনিয়ারিং কলেজ বা মেডিকেল কলেজও ছিলো না। পূর্ববঙ্গে প্রায় ৮০ শতাংশ পাঁচ জনে একটা পটালি ছিলো না- সবাই ছিলো পশ্চিম বঙ্গ। এ অঞ্চলের দারী মুখে ভারত সরকার ১৯০৫ সনে বাংলার ভাগ করে পূর্ববঙ্গ ও আসাম আলাদা প্রদেশ গঠন করেন। কিন্তু পশ্চিম বঙ্গ থেকে প্রথম আর্থিক আগতি এর উপর নির্ভর থাকে। বিন্যস্ত বৈদ্যুতিনী থাকবে "বাংলার মাটি, বাংলার জল, বাংলার বাড়ি-এর ধারে এক ধারে নির্ভর হে অমন" কবিতায় লিখে এর উপর নির্ভর করেন। ঐ আসামের মুখে ১২ ডিসেম্বর ১৯১১-তে বৃটিশ সরকার বসতি রাখার চেষ্টা করেন। তবে পূর্ববঙ্গের দারী মধ্যে ঢাকায় একটা বিশ্ববিদ্যালয় স্থাপনের সমাপ্তি দুঃখ্যাত হয়। কিন্তু এই সিদ্ধান্তের বিরুদ্ধেও আসামের সরকার পশ্চিম বঙ্গে কলকাতা গড়ে ঢাকা বিশ্ববিদ্যালয় স্থাপনের সরকারী সিদ্ধান্ত বাতিলের দাবীতে বিশ্ববিদ্যালয় থাকবে।

১৯০৪ সালে বাংলার তদানীন্তন প্রধানমন্ত্রী শাহীদ হোসেন সোহারাওয়ান্ডর ঢাকায় একটা মেডিকেল কলেজ এবং একটা ইঞ্জিনিয়ারিং কলেজ স্থাপন করা সংকল্প করেন। মেডিকেল কলেজ চালু হয়ে যায় ১৯৪৬ ইঞ্জিনিয়ারিং কলেজ ও কলকাতা মেডিকেল কলেজ স্থাপন করা। ১৯১৭ সালের মার্চ মাসে প্রথম পরিকাশন সম্পন্ন হয়। এর পরবর্তীতে ২৩ মার্চ ১৯২০ ইঞ্জিনিয়ারিং কলেজ স্থাপন করা। অনুষ্ঠানটি হয়ে থায় ও তার পরিকাশন ১৯২২ সালে করা হয়। পশ্চিম বঙ্গের সরকারী সিদ্ধান্ত বাতিলের দাবীতে বিশ্ববিদ্যালয় স্থাপনের কার্যক্রম শুরু হয়।

উপরের পাতায় প্রকাশিত হলো অবিভক্ত বাংলার তদানীন্তন প্রধানমন্ত্রী শাহীদ হোসেন সোহারাওয়ান্ডর ঢাকায় একটা মেডিকেল কলেজ এবং একটা ইঞ্জিনিয়ারিং কলেজ স্থাপনের সংকল্প নেন। যে সিদ্ধান্ত প্রধানমন্ত্রী মুহিবুল্লাহ প্রধানমন্ত্রীর সামনে দিয়েছিলেন। সে সিদ্ধান্তটি ছিলো আসামের সরকারের কর্তৃত্বের সিদ্ধান্ত শ্রেষ্ঠ। এ সিদ্ধান্তটি আসামের সরকার যতিনি দিয়ে পড়তে দেয় সুযোগ দিতেন। এ সব পাতা ভেঙে পড়তে দেয় মুহিবুল্লাহ প্রধানমন্ত্রী। এ সব পাতা ভেঙে পড়তে দেয় মুহিবুল্লাহ প্রধানমন্ত্রী।

১৯০৫ সালে বাংলার যুদ্ধের দৃশ্য বিবৃতীতে করেছিলো তারাই বৃহত্তর বঙ্গে দুইবার করে আন্ধ্রী ভূমিকা নিলো। হোসেন সোহারাওয়ান্ডর এবং শরৎ বসুর বৃহত্তর বঙ্গের সিদ্ধান্তের প্রতিকূলতাকারী প্রতিকূল হলো দৃষ্টিপথ নিয়ে করেছিলো। এবার বাংলার মাটি, বাংলার জল, বাংলার বাড়ি তারাই দুইবার করে দিলো।
চ্যা ইন্জিনিয়ারিং কলেজ ১৯৪৭ সালের জুলাই থেকে একাডেমিক কোর করার কথা থাকলেও আমাদের ভর্তি বিভাগের ফলে তা সম্প্রে করা হয়েছিল। বিশ্বনাথের শিক্ষকের অভাবে তা বাতাও হয়। অবশেষে ১ সেপ্টেম্বর ১৯৪৭ থেকে পড়ালাই শুরু হয়। শিখাই ইন্জিনিয়ারিং কলেজ থেকে মেকানিকালের আধুনিক মহাবিদ্যালয়ের ভাইস হিসিপাল পদে যোগ দেন এবং শিখন কলেজের সিভিলের করিস উদিন তার এবং তার হিসিপাল হর্মীন আগালি (পদের হিসিপাল ছিলেন) হাতে বানান টাইট শিক্ষক ছিলেন না। শিখনের শিক্ষক জন্ম ফয়জে উদিন তাইয়া, আমার আগালি মূখ শিখকের হয়তা করেন। পরবর্তীতে মঃ আলী রশিদ (এ.এ.,কেন্দ্রীয়, যুক্তরাষ্ট্র) ডঃ আব্দুর আলী রশিদ (ডি.এস. কেন্দ্রীয়, যুক্তরাষ্ট্র) ডঃ ওয়াকার আহমদ, এম.এ., এম.অ, ডঃ ওয়াহিদ উদিন, ডঃ এ, হাসানত, ডঃ আলিম মুন্ডা ধান, জগন্নাথ হক, নজরুল হক, এম.এ., এম.হর প্রথম শিক্ষক যোগ দেন।

১৯৫৭ ইং প্রথম বর্ষে আমাদের এডাপ্লাইড ফিজিক্স এবং এডাপ্লাইড কোম্পানী চ্যা বিশ্বদায়লের কর্মন হল পড়ালা শুরু হয়। বাংলা ভাষা অনুপ্রাণনের পৃথিবী প্রফেসর আবুল কাশেম, পাদার বিজ্ঞান এবং আবুল কুলদ চৌধুরী রসায়ন পড়ালা। শিক্ষক সম্মান ক্রমাগত উন্নতি হয়েছে প্রথম বর্ষে সমাপন বর্ষ ১৯৫১ পর্যন্ত পঞ্চায়া- হওয়ায় কর্মকর্তা শিখনের উপর অনেক চাপ পড়ে। আমর মনে আছে চৌধুরী বর্ষের একটি কর্ম শিখনে ডঃ আব্দুর রশিদ সাহা পিরিয়েডেই ক্রান্তিন নেন।

পূর্বেই বলা হয়েছে ১৯৪৭ সালে চ্যা ইন্জিনিয়ারিং কলেজ ১২০ জন ছাত্র নিয়ে যাতায় করে। তার মধ্যে ১৯৫১ সালে ফাইনাল ডিগ্রী পাশ করার মাত্র ৪৫ জন পাশ করেন তাদেরর মধ্যে ইন্জিনিয়ারিং-এ ১৭ জন এবং ইলেকট্রিক্যালে ৭ জন। তুলনায় ১৯৫০ সালে লক্ষ্যকার সমাপ্তিক দাঙ্গা ক্রেজে হাত শিখন ইন্জিনিয়ারিং কলেজ থেকে চ্যা ইন্জিনিয়ারিং কলেজের তৃতীয় বর্ষে ভর্তি হয়। এরমধ্যে ১৯৫১ সালে প্রথম বর্ষে সিভিলিন জন, ইলেকট্রনিক ইন্জিনিয়ারিং-এ ৩ জন পাশ করেন। ১৯৫০ সালের সমাপ্তিক দাঙ্গা শিখন ইন্জিনিয়ারিং কলেজের কর্মকর্তা হাতে ফাইনাল পরীক্ষার কর্মকর্তা বিয়া পরীক্ষা নিতে পড়ালা।

তাদের জন্য চ্যা বিশ্বদায়লা ১৯৫০ সালে বিশেষ পরীক্ষা নেন। এর মধ্যে ছিলেন আনন্দমোহন বডঃ এফ, আর, ধান, কয়ুল অনাম সিদ্দিক সহ অনেক ইন্জিনিয়ার। ডঃ খানের সঙ্গে আমি পূর্ব পাখিচারের কমিউনিকেশন ও ভিডিও বিভাগে ১৯৫১-৫২ সালে কর্মকর্তা করার সুযোগ পাই।

চ্যা ইন্জিনিয়ারিং কলেজ ৪র্থ বর্ষে অধ্যাপকের পূর্ব বর্ষে সফরকার থেকে (সি.এডবিন.সিসিভাগাড) এক বিভিন্নতার বলা হয় ইন্জিনিয়ারিং কলেজ থেকে যারা ডিগ্রী পাশ করেন, তাদের এক বর্ষ মাসিফ ১০০/- টাকা দেন সেপ্টেম্বর আমাদের হিসেবে কাজ করতে হবে এবং এই এক বছর সফরকারের সার্ক কাজ করার এলিমিনিই ইন্জিনিয়ার হিসেবে কাজ করার যোগ্যতা অর্জন করেন। 

সাধারণত এর কর্মকর্তার যাত্রিত্র করে পূর্ব বর্ষের সিসিভাগাড.বি.বিভাগের কেন্দ্রীয় প্রতিষ্ঠান সার্কের সুপারটেক্সিং ইন্জিনিয়ার জন্য ভ্রমণ করে, সি, ডান আমাদের ফাইনাল পরীক্ষার এক্সামেন্ট ও সিসিভাগাড রের্ণ হওয়ায় আগেই আমাদের ৩ জন-আমাদের আগালি, আমি ইমম উদিন আহমদ এবং মকরুল আহমদের ওয়ার্ড চার্ড এলিমিনিই ইন্জিনিয়ার হিসেবে মাসিফ ২৫৫-৫৪০ কেলে নিয়োগ দেন। এ পদে চার্টারীত থেকেই বাকী এক্সামেন্ট কর্মকর্তা ও সিসিভাগাড হোস্টেল থেকেই কাজ করি।
ডাকা ইঞ্জিনিয়ারিং কলেজ যে ব্যারিটর সমূহ সম্পর্কে ব্যাঙ্গালি হয় তাঁর কথা না বললে এ ইতিহাস অপর্যাপ্ত হবে। সে অসামান্য ছিলো ইঞ্জিনিয়ার হাফিজ আলী। উমামহেদের আইনজীবি যুগলকিছুকে বুঝানোতে করা আগেই লাগে যায় এবং তাই প্রচেষ্টায় এ সংকট তাপমাত্র উপদ্রব হয়। অন্যদিকে একটি ইঞ্জিনিয়ারিং কলেজের শিক্ষা যুগপাত যোগাযোগী কোন যোগপ্রাপ্তি ছিল না। জানাতে হবে এই কোন ভাষায় কিছু বিশেষায়িত কলেজগুলো যুক্তরাষ্ট্রের পাঠদাতা কর্তৃক অনুমোদন করা গড়ে উঠেছে এবং তাই প্রচেষ্টায় এ সংকট তাপমাত্র উপদ্রব হয়।

সন্ধান করা যায় যে এই প্রচেষ্টায় জাতীয় সমাজ জনসম্পর্কে বিশ্বাস করা যায়। এই প্রচেষ্টায় নিয়ে এই কোন যোগপ্রাপ্তি হয় না। জাতীয় পরিষদ এ প্রচেষ্টায় অবস্থান অপরিসমৃত। সম্প্রতি যুদ্ধের হেতু ফালে দেশ করিয়ে তা পরিশীলন ও বিহীন ব্যবস্থা যোগাযোগের জন্য নিয়মে উদ্ধৃত করেন। আমাদের স্বাধীনতা জানাতে হবে।

পরিশীলন ঢাকা ইঞ্জিনিয়ারিং কলেজের জাতীয় পরিষদের অবস্থা স্বরুপ বিষয়ক যে কোন কলেজের দৃষ্টিকোণ হয় এবং সমস্ত জনতার কাছে উদ্ধৃত হয়। সেটি প্রচেষ্টা হয় না। মার্চ ১৯৪৮ সনের প্রথম বছর আমলের স্বতন্ত্র প্রস্তাব এই অবস্থায় একক ফোকাস হয়।

আমার ১৯৯৭ সনে ঢাকা ইঞ্জিনিয়ারিং কলেজের ৫০ বছর পূর্বে সুবর্থা জয়ের কারণে চর্চালিঙ্গ। তদন্তনিত রুটারের ভিত্তি, ডি. ইন্টার্নাশনাল মার্কেট এই কলেজের কন্ডিশনকে সাথে তা করতে রাখতে হয়। আমাদের কেন্দ্রস্থলে সাহায্য নিয়েছিলেন কিন্তু অনিশ্চিত পরিস্থিতিতে সুরক্ষিত থাকার সময় পাওয়া যাচ্ছে। আমরা তাকে এই বছর ঢাকা ইঞ্জিনিয়ারিং কলেজের ৩০ বছর পূর্বে যে অনুষ্ঠানের জন্য রুটারের বর্তমান ভিত্তি, ডি. এলএম, সফটওয়্যারকে অনুরোধ করলে সর্বশ্রেষ্ঠ সাথে তিনি আমাদেরকে তাঁর সাথ সম্পর্কায় দিচ্ছে এই অনুষ্ঠানের ব্যবস্থা করতে। আমারা তাকে এই অনুষ্ঠান বন্ধনী জানায়।}

১৯৪৭-২০০৭
An Engineering Problem and Solution: An Expert Opinion

by

M. Mujibur Rahman
B Sc Engg(C E). FIE(B). F/E(Ind).EDP(USA) Chief Engineer Rtd BSEC, House No.10, Road 23A. Block B
Banani. Dhaka. Phone: 601063. 01711-525395

Chief Engineer
Jamuna Bridge
Dhaka

Sub: Cracks in Jamuna Bridge.

Dear Sir,

I have noted the news that there are some cracks in some parts of concrete in the bridge.

The I faced the similar problem while constructing Chittagong Dry Dock, very heavy R.C.C. casting had several cracks, water was oozing through several cracks. The foreign consultant and contractor came up with the suggestion to seal the cracks with special rubber sealing. I rejected the suggestion and asked them to come out with a solution which will make the cracks to join together with original concrete strength and also seal water oozing. They failed to give proper solution.

I then engaged a Swiss Epoxy manufacturing and applying company to carry out tests of tensile strength of Epoxy joined concrete and its water resistance capacity and found that concrete failed at any other place but not at the joint as such I approved the material.

Now the question of method of application came up. I asked them to take one or two cracks practically on the Chittagong Dry Dock surface which we shall physically constantly watch and if satisfied shall approve or reject.

Outside area of Dock was de-watered by powerful pumps, inside of the dock was dried by pump. For vertical cracks plug holes were made with drill at suitable intervals from the bottom to top. Now with a cementing material the surface of the crack was sealed in between the holes. Epoxy Resin (SK-60 manufacturers IN) under required high pressure was injected from the bottom-most whole point of the crack. Epoxy, after some time, came out from the next higher hole which means that the cracked gap has been filled from bottom hole to next higher hole. The process was repeated from hole to hole from bottom to top. We found the test portion sound and allowed them to carry on the repair. The cost was born by Consultant and Contractors on their mutual agreement. The repair was done in 1978 and till now is in sound condition.

If you need my advice do not hesitate as foreign Contractors and Consultants will go away but the Bridge will remain with us.

Thanking you
Yours faithfully

(M Mujibur Rahman)

Sub: Cracks in "Bangabandhu Bridge".

Dear Mr. Rahman

Thank you for your letter dated October 20, 1997. We are very much glad to know your keen interest about our under construction "Bangabandhu Bridge" (Jamuna Multipurpose Bridge) and appreciate your valuable suggestion for sealing the cracks on bridge. You will be glad to know, the problems due to cracking of concrete on bridge are being looked by experts of Consultant and Contractor. Moreover, we have a Panel of Experts (POE) of international reputation including experts from BUET. All measures have already been taken from our side for repairing and sealing the mentioned cracks with the application of latest technology including injection of Epoxy Resin. We will consider your suggestion at the time of finalization of the remedial measures.

With thanks
Sincerely yours
(Anwar Hossain)
The Engineer: A Man Of Many Talents

Zobair Ibn Awal
Jr. Research Fellow/Lecturer, Accident Research Centre (ARC)
Bangladesh University of Engineering & Technology (BUET), Dhaka 1000
E-mail: ibnawal@arc.buet.ac.bd

Engineering - historical perspectives

When did engineering begin? Who were the first engineers and what were the objectives of work by the early engineers? The answers to these questions are available in the fragments of historical information. In fact, the beginnings of civilisation and the beginnings of engineering are coincident. As early man emerged from caves to make homes in communities, he adapted rocks and sticks as tools to aid him. Some served as tools in the struggle for existence of an individual or group, and others were used for protection against wild animals or warlike neighbours. Early engineering was therefore principally either civil or military.

It is widely believed that the beginning of engineering probably occurred in Asia Minor or Africa some 8000 years ago. About this time, man began to cultivate plants, domestic animals and build houses in community groups. It was during the fifth to sixteenth centuries that the name engineer first was used. Historical writings of about A. D. 200 tell of an ingenium, an invention, which was sort of battering ram used to beat down the wall of besieged cities. Some thousand years later, we find that an ingeniator was the man who operated such a device of war - the beginning of our modern title, engineer.

A first-century A.D. Roman engineer's tools - an A-frame, a ruler, a Plumb line, calipers and a set-square - are curved on the tomb.
Science and engineering

It is apparent from an examination of an engineering curriculum that engineering is firmly based in the sciences, especially physics, chemistry, and mathematics. All areas of engineering require this background before the specific disciplines can be studied. What, then, is the relationship between the science and engineering at the advanced levels? For example, what is the difference between the work of the physicist and that of the engineer? The basic distinction between the linked professions of science and engineering lies in their goals. This difference can best be described as follows: The scientist is primarily concerned with the study and understanding of basic principles and relationships, whereas the engineer is mainly concerned with the application of these principles for the needs of mankind.

Thus a scientist, the German physicist Heinrich Hertz, discovered radio waves, but Guglielmo Marconi developed wireless telegraphy, a feat of engineering. Similarly after the scientific principles of nuclear fission were established, the hard work of creating atomic weapons and useful power plants was accomplished by electrical, chemical and mechanical engineers. This description of the engineer may make him seem dependent on the scientist, earning his living by developing ideas produced in the scientist's laboratory. In reality, however, scientists are just as dependent upon the work of engineers as the other way round; many great discoveries of science have stemmed from engineering. For example, the fundamentals of thermodynamics, the science of heat, were established by Nicolas Leonard Sadi Carnot, a French physicist who studied the practical steam engines that had already been developed by engineers who had no science to guide them.

The engineer - a creative person

Creativity is a human endeavour. In scientific work creativity is often used interchangeably with innovation. However, the two are not synonymous although they do have some similarities. The history of civilization is a history of man's creative efforts through the centuries. Creative thought may be expressed in such diverse things like a suspension bridge, a musical composition, a poem, a painting or a new type of machine.

The outstanding characteristics of engineers through the centuries have been willingness to work and intellectual curiosity about the behavior of things. Their queries about "Why?", "How?", "With what?" and "At what cost?" have all served to stimulate an effort to find desirable answers to many types of problems. Due to obvious reason an engineer must have a fertile imagination, must be creative and should be ready to accept new ideas.

Today, more than ever before, the engineer is faced with an unprecedented number of problems. He has to design devices and structures that function over a vast spectrum of environmental conditions. These vary from the low pressures found in outer space to the very high pressures existing in the ocean depths and include temperatures ranging from below that of liquid helium (-2700C) to those encountered in nuclear reactors and rocket engines (over 15000C).
It is part of the engineer's responsibility to select materials from which structures and devices will be fabricated and to specify changes when materials have failed in their intended function. The technical solution to such problems like low-cost housing, mass transportation, and human implants will undoubtedly require new concepts and new materials.

**The role and responsibility of engineers**

The role of an engineer has not changed through the centuries. He is basically a problem solver. His job is to take knowledge and make practical use of it. He converts scientific theory into useful application. More specifically, the engineer's duty is to come up with better ways of satisfying a need: to satisfy it more safely, reliably, and at a lower cost to the user. The training an engineer receives serves as an excellent foundation for whatever career he ultimately chooses, be it as an engineer per se or in some other fields. In years to come the image of an engineer and the roles he fills will surely change, just as they have dramatically changed in the last 50 years. One who chooses engineering as a career should realise that, perhaps more than any other, his profession will shape the destiny of civilizations yet unborn.

The great responsibility of the engineer compared to men of other professions is that his works are out in the open where all can see them. His acts, step by step are in hand substance. He can not bury his mistakes in the grave like the doctors. He cannot argue then into thin air or blame the judge like the lawyers. Also he cannot, like the architects, cover his failures with trees and vines.

Indeed, many public functions are performed by the engineer from which he gets only philosophical satisfactions. Most people do not know it, but he is an economic and social force. Every time he discovers a new application of science, thereby creating a new industry, providing new jobs, adding to the standard of living. The responsibility of an engineer, however, has not been limited to technical sectors alone. Formerly executive positions were held almost exclusively by men whose primary training was in the field of law or business, but the tendency now is to utilise engineers more and more as administrators or executives. Likewise the number of the past and present ruler or head of many states with engineering background is worth mentioning.

**Engineering - education without end**

Until the late eighteenth century, engineering was more a trade than a profession, a set of mechanical skills passed from father to son, from master to apprentice. There was no such thing as a school for engineers. Things are now totally different. Even the first-year engineering students, who already know more science than the practicing engineer of 50 years ago, are intensively trained in scientific concepts of engineering. On a broad basis of mathematics, chemistry, physics and the humanities are laid specialized studies in all fields of engineering: from agricultural to aeronautical. Even after graduation, the engineer will continue to learn.
Besides being used for solving complex mathematical problems, the present day computers have made many domestic jobs easier: working out income tax return, checking household bills - and also converting a recipe, for 6 people into one for 11 dinner guests, for example.

Historically, engineers become involved in the field of human health care: they are termed as biomedical engineers. Without question, an infinite number of opportunities lie ahead for biomedical engineers to contribute to the longevity and good health of mankind. Let us see the case of Mrs. Ahmed, an attractive grey haired widow living at Mirpur of Dhaka whose busy life includes housekeeping, work at home as a dressmaker, and frequent visits with her daughter and two grandchildren. The description of Mrs. Ahmed sound like hundreds of women in Dhaka city. But in one respect she is most unusual. She is alive to enjoy her routine only because a tiny, battery-powered device known as a 'pace maker' has been implanted in the skin beneath her ribs. Without this man-made rhythm-keeper, Mrs. Ahmed's heart would soon falter and she would almost certainly die. She owes her life to a new breed of engineers: the biomedical engineers, who focus on the engineering problems and possibilities of living things. These engineers are still a small group, but the advances they have helped to bring about have already had an important impact on the lives of many men and women.

By nature, engineers are the best users of materials. Waste is intolerable to them. Materials formerly discarded are today used in manufacturing: Sulpher for example, at one time an annoying impurity is now recovered for making valuable building materials. Likewise fly ash, slag, silica fume etc once considered as by-product waste now become the most demanding ingredients in producing high strength concrete. In the years to come, more people will require far more supplies - food and shelter of course, the demand of energy will remain in crucial state. It is the engineers who through their varied and extensive education will meet all these demands.

The challenges of tomorrow

Today's world is a world of change, challenge and opportunity. One must agree that the challenges of tomorrow's engineers will not be small ones. We the inhabitants of the earth, become more technologically oriented every day. With the increase in the world population the problems have come more complex, more difficult to solve. We cannot at this time be exact in defining the problems that will exist 10, 20 or even 100 years from now. However, the engineers are thinking ahead and shaping dramatic new concepts like traveling from city to city on trackless trains at supersonic speeds, and communicate quickly with any point on earth or other planets by means of elaborate networks of beamed light. Their food may be grown on what is now wasteland - barren and tundra. They will live for long periods in underwater houses, emerging to move freely about the ocean floor and to bring forth the vast mineral wealth buried there. Given the challenge, the funds and the time, the engineer can overcome the technical problems that stand between any of these dreams and reality.