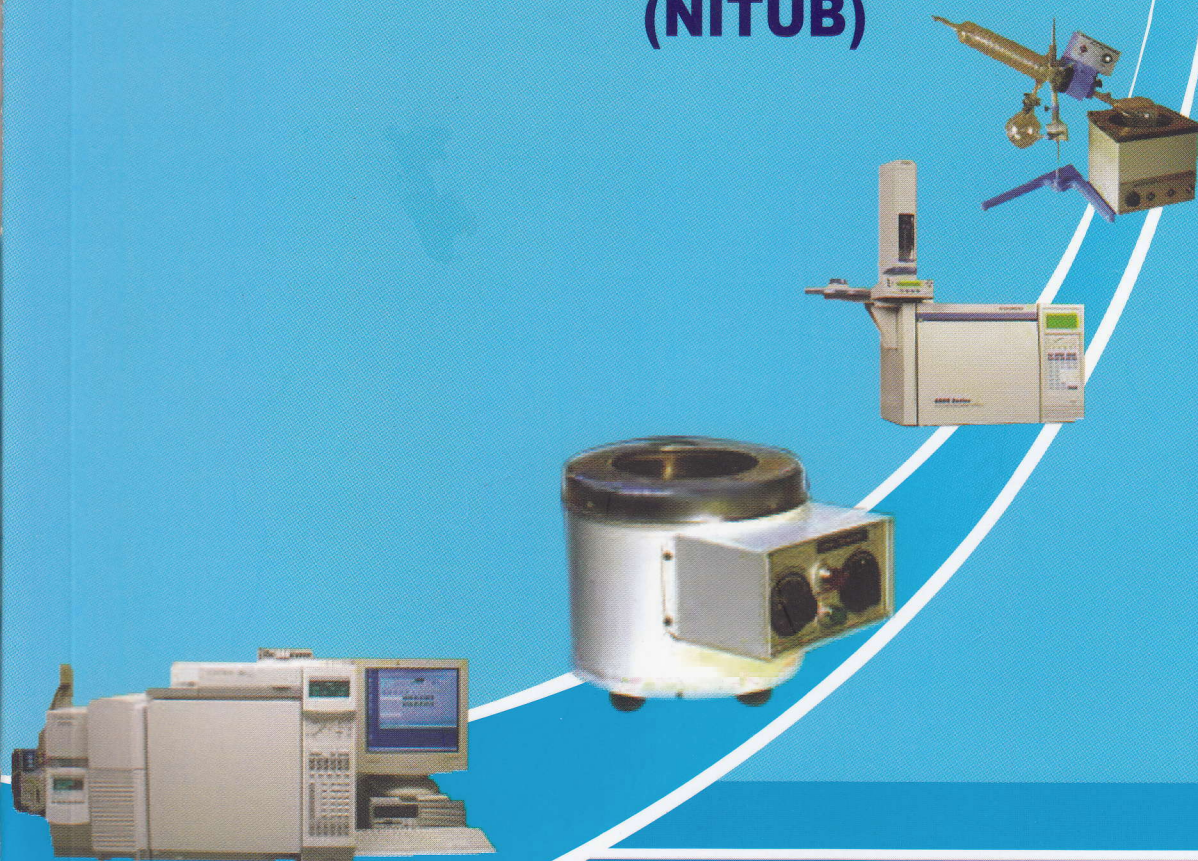


Network of Instrument Technical personnel and User scientists of Bangladesh (NITUB)



A PROFILE

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Network of Instrument Technical personnel and User scientists of Bangladesh (NITUB)

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NITUB

Network of Instrument Technical personnel and User scientists of Bangladesh (NITUB), launched in 1994, is a learned society dedicated to scientific education and research in Bangladesh. It is a voluntary and non-political learned society and registered with the Registrar of Joint Stock Companies and Firms, Government of the People's Republic of Bangladesh. The Network is being managed by an Executive Committee comprising of leading scientists of Bangladesh and its major financial support is coming from International Science Programme (ISP), Uppsala University, Sweden.



Dr. Peter Sundin, Director, ISP, at NITUB office with NITUB EC members.

Mission:

The primary mission of NITUB is to create a nucleus of skilled manpower in Bangladesh to assure proper use, maintenance and trouble-shooting of scientific equipment so that scientific activities do not suffer due to non-functioning equipment.

To fulfill the mission of NITUB, the network conducts the following programmes:

- Training programme and workshop
- Instrument Repair Programme
- Contractual service
- Installation of scientific equipment
- Training programme on medical equipment
- Training programme for technical personnel

BACKGROUND AND JUSTIFICATION

Scientific research and education in Bangladesh like other third world countries are suffering mainly due to the fact that proper care of scientific equipment, including its installation, maintenance and repair, are lacking. Scientists are also complaining that costly scientific equipment can not be procured owing to fund constraint for which research activities suffer. Ironically, whatever instruments are there remain non-functional in many cases. This is due to insufficient technical knowledge of the scientists and scarcity of properly trained technical personnel in the country. The difficulties in maintaining and repairing of scientific instruments faced by the Fellows of the International Programme in the Chemical Sciences (IPICS) and the Grantees of the International Foundation for Science (IFS) were discussed by Professor M. Mosihuzzaman with the officials of IPICS and IFS and solicited their support.

To improve the capability of scientists and technical personnel to use, maintain and repair their scientific instruments properly, a week long Workshop on Instrument Maintenance and Repair was organized in 1991 by the IFS grantees and IPICS fellows of Bangladesh at the Department of Chemistry, University of Dhaka with the financial support of IPICS and IFS. The positive impact of the





Prof. AAMS Arefin Siddique, Vice-Chancellor, DU, addressing at the inauguration of 42nd training programme of NITUB



Training Programme at BCSIR Laboratory, Dhaka

workshop led to the suggestion of conducting another broader National Workshop with longer duration in which user scientists and technicians of Bangladesh working in the field of chemical and agricultural sciences participated.

This National Workshop on Instrument Maintenance and Repair was held on 12-25 January 1994 and its practical sessions were held at Chittagong, Dhaka and Mymensingh simultaneously. The workshop was attended by 40 scientists and technical personnel from different educational and research organizations of Bangladesh and was conducted by 6 foreign experts from the International Centre for Advanced Technology (ICAT), Luton College, UK and 8 local resource persons. The main sponsor of the National Workshop was IFS with some contributions from other national and international organizations. A post-workshop meeting attended by the resource persons, organizers, IFS and IPICS representatives, was held in Dhaka which was presided over by Professor M. Shamsul Haq (now deceased), then Chairman, UGC. It was recommended at the meeting that a Network be formed in Bangladesh to address the issues of proper use, maintenance and repair of scientific equipment. Later, this proposal was placed before the Asian Coordinating Group of Chemistry (ACGC) in a



Treasurer, President and General Secretary of NITUB (left to right) at the AGM of 2010

meeting held on 18 June 1994 in Melaka, Malaysia during the 8th Asian Symposium on Medicinal Plants, Spices and Other Natural Products (ASOMPS VIII) by Professor M. Mosihuzzaman & Professor Nilufar Nahar of the Department of Chemistry, University of Dhaka. The proposal was supported by IFS, IPICS, UNESCO and the Federation of Asian Chemical Society (FACS) representatives present in the meeting. ACGC took a resolution in its meeting supporting the formation of the Network of Instrument Technical personnel and User scientists of Bangladesh (NITUB). NITUB was formally launched on 19 July 1994.



Prof. M Mosihuzzaman; Dr. Peter Sundin, Director, ISP; Prof. Mesbahuddin Ahmad; Prof. Åke Bargman, Stockholm University; Prof. Altaf Hussain, and Prof. Nilufar Nahar (left-right) at the inauguration of 38th training programme



Prof. Nilufar Nahar delivering a lecture in the 38th training programme

AIMS AND OBJECTIVES

The main aims and objectives of NITUB are:

- to improve upon the capabilities of the technical personnel and user scientists in handling, maintaining, trouble-shooting and repairing of scientific instruments.
- to conduct training courses for the technical personnel and user scientists on different types of scientific instrument.
- to repair instruments and offer technical services to different educational and research institutions



A demonstration session of the 51st training programme

of Bangladesh by the technical personnel from the pool of NITUB and if necessary, to procure the services of foreign technical experts.

- to maintain a directory of technical personnel who can offer technical assistance to NITUB.
- to create a stock of spare parts and accessories required for repair of instruments on a routine basis and make them available to various institutions as and when necessary.
- to maintain an inventory of available scientific instruments in Bangladesh.

GOAL OF NITUB

The goal of NITUB is to see that all the scientific instruments of Bangladesh are functioning properly and the user scientists do not face problem in running their equipment.

MEMBERSHIP OF NITUB

Academicians, research scientists and professionals engaged in scientific education and research and related activities are eligible to apply for membership of NITUB in a prescribed form. The form can be downloaded from NITUB's website (www.nitub.org). Qualified instrument technical personnel may also apply for membership with the recommendation of two members of NITUB. The membership application for NITUB is considered and endorsed in a meeting of the Executive Committee (EC) of NITUB. The membership fee is Tk. 200/- (two hundred) per year and life membership fee is Tk. 2000/- (two thousand).



NITUB's members in the AGM of 2010 at NITUB office

ACTIVITIES OF NITUB

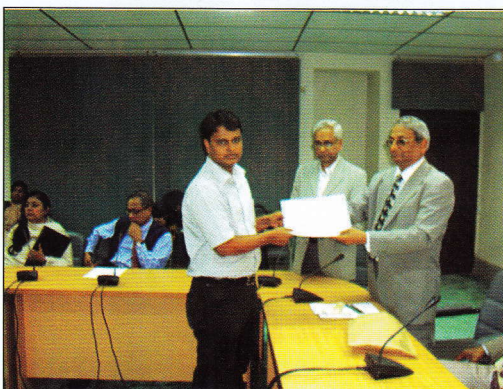
Training Programme/Workshop

NITUB organizes training programmes on the use, maintenance and troubleshooting on specific groups of equipment like IR & UV-VIS, GC, GC-MS, HPLC, AAS, X-ray and NMR for user scientists and technical personnel to update their knowledge and improve their skill on the use of the equipment. Training programmes are generally limited to 15-20 participants and are run for 5-6 days.

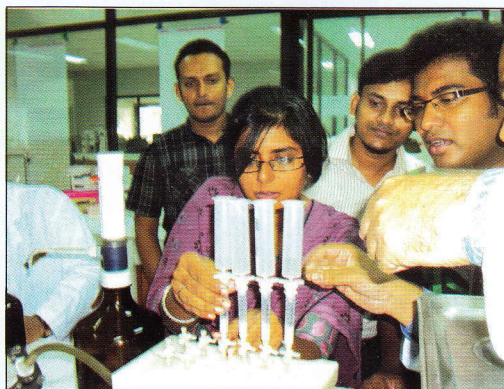


Prof. Nilufar Nahar delivering a lecture in the 42nd training programme of NITUB

These include both theoretical and practical sessions. Circular of all training programmes are posted in NITUB's website (www.nitub.org), as well as sent to research organizations and universities. So far, NITUB has conducted 53 such training programmes through which 764 scientists, university/college teachers have been trained. NITUB has achieved the appreciation of these scientists and the network is often requested to conduct such training programmes more frequently and for longer duration. A summary of the training programme so far conducted can be found in Table-1. The number of participants attending these training programmes is shown category-wise in Table-2.



Prof. SM Imamul Huq, Chairman, BCSIR distributing certificates to trainees



One of the laboratory session of the 49th training programme of NITUB on HPLC

NITUB also organizes workshops on

- common laboratory equipment for technical personnel
- common medical equipment for medical personnel
- common laboratory equipment for university college teachers



Technical expert, A.K.M. RahmatUllah, conducting 41st training programme of NITUB

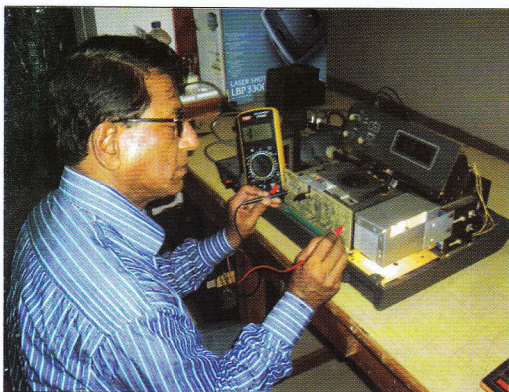
On-site training

NITUB also offers on-site training programme if requested. It has organized such programmes on the use maintenance of Atomic Absorption Spectrometer (AAS) and High Performance Liquid Chromatograph (HPLC) for the research officers of the Poultry Sector Development Project (PSDS) under the Directorate of Livestock Services (DLS), Firmgate, Dhaka, an organization of the Government of Bangladesh during February - April, 2001.

Instrument Repair Programme

A major programme of NITUB is Instrument Repair Programme. User scientists often face problems with their non-functioning scientific instruments and to address this problem NITUB started this programme in the year 1996. The programme runs throughout the year. The concerned scientist sends a request on a prescribed form of NITUB to repair his/her non-functioning instrument. This request form can be downloaded from NITUB's website (www.nitub.org). Technical experts of NITUB go to the institution where the instruments belong and repair it. If any instrument/part/s cannot be repaired, the technical experts then give a report specifying the fault.

If spare part/s required to repair an instrument costs more than Tk.1000/- the institution is requested to procure the spare part/s. When the institution procures the parts, NITUB experts go back and fix the instrument.



Mr. A.K. Chowdhury, NITUB's Instrument Engineer, repairing UV-VIS Spectrophotometer at NITUB workshop.



Mr. A. K. M. RahmatUllah demonstrating the operation of a flame photometer.

The success of the technical experts of NITUB in repairing non-functioning scientific equipment made this programme a very popular one among the scientists of Bangladesh. So far, NITUB has repaired 1300 scientific instruments of different organizations throughout Bangladesh. It is observed that usually less than 1% of the book value of the instrument is to be spent to repair the non-functioning instrument. NITUB repairs upto 100 instruments in a year and the instruments range from Water bath, pH meter to GC, HPLC, AAS, etc.

Technical Service to Nepal

In the year 2008, three technical experts of NITUB attended a workshop on Instrument Maintenance & Repair in Nepal as resource persons. During the



Mr. A.K. Chowdhury opening an equipment and detecting its fault.



Prof. Krishna Manandhar and NITUB technical expert Mr. Rahmat Ullah discussing about workshop organized by NITUN held in Nepal in 2008

workshop, the technical experts repaired 50 non-functioning scientific equipment of two public universities of Nepal. Scientists of Nepal plan to launch instruments repair programme there too.

Who use NITUB Services

The different institutions which used the service of NITUB to repair their non-functioning equipment are given below:

- Many Departments of Science, Bioscience, Pharmacy & Life science faculties of the University of Dhaka, Jahangirnagar University, Rajshahi University,
- Bangladesh Sheikh Mujib Medical University, Medical Colleges, Public Health Organizations.



Prof. Altaf Hussain, General Secretary of NITUB discussing with participants in the laboratory session of 42nd training programme of NITUB

- Research organizations like Bangladesh Council of Scientific and Industrial Research (BCSIR), Bangladesh Atomic Energy Commission (BAEC), Geological Survey of Bangladesh, Bangladesh Forest Research Institute, Bangladesh Institute of Nuclear Agriculture.
- Private Pharmaceutical Companies.

Contract Service

NITUB is ready to sign memorandum of understanding (MOU) with any institution for servicing of their equipment. The achievement of NITUB has created interest both in public and private sectors and it is being requested to sign contract to repair non-functioning scientific equipment on yearly basis by different organizations. Recently an agreement with Bangladesh Petroleum Exploration and Production Company Limited (BAPEX) has been signed for maintenance and repair of their instruments. Similar contract with some organizations are in process.

Installation Services

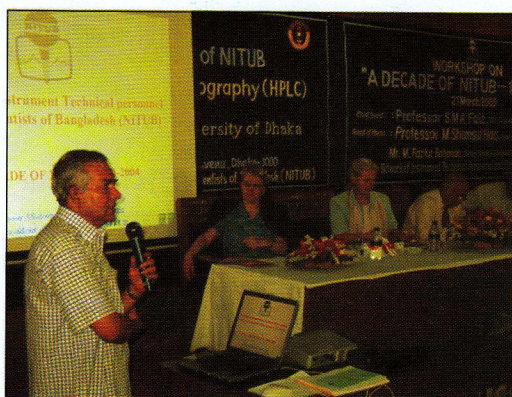
NITUB also offers installation services to the educational and research institutions. Equipment like IR, GC-Mass, HPLC, X-ray have been installed by NITUB technical personnel in a number of institutions. These instruments could not be installed earlier by the institutions due to lack of expertise available in the concerned institutions. During installation the engineers and technical experts also trained the user scientists and technical personnel of the respective organization to run the equipment.

Advisory Services

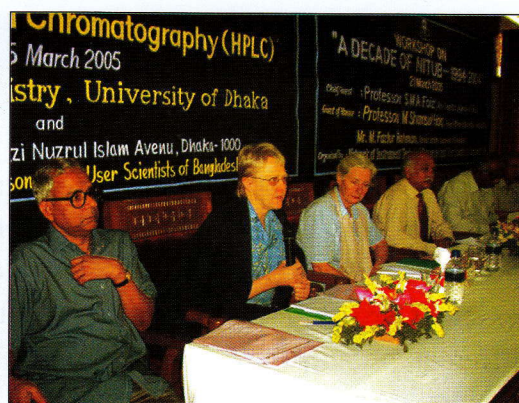
It is often observed that the scientists are not well conversant with the equipment they need to procure for their laboratory. In such cases, NITUB offers Advisory Services, if requested.

A decade of NITUB

NITUB organized a one day symposium, "A Decade of NITUB", in 2004 to assess its strength and weakness. The symposium was attended by administrators, senior faculty members, senior scientists and participants of all previous training programmes of NITUB. The participants expressed their views on the results of their experiences with respect to the training that they had received. The participants were very positive about the different training programmes of NITUB and expressed their satisfaction that NITUB was at hand to help them when necessary.



Prof. M. Mosihuzzaman, presenting activities of NITUB at the inauguration of "A Decade of NITUB".



Dr. Malin Åkerblom, Director, IPICS, addressing at the inauguration of "A Decade of NITUB" and HPLC training programme in 2005.

MOU with IFS

NITUB has signed an MOU with IFS for IFS grantees (national and regional) to participate in NITUB's programmes. NITUB will also repair the non-functioning equipment of IFS grantees if asked for. The MOU was for the period 2007-2010. In this period 07 IFS grantees (National and Regional) participated in various training programmes of NITUB. NITUB hopefully will have similar MOU with other international organizations.

Regional cooperation

Following the example of NITUB, Professor Mangala Manandhar of the Central Department of Chemistry, Tribhuban University, Nepal, took an initiative to form Network of Instrument Technical personnel and User scientists of Nepal (NITUN). NITUN is getting active support from IFS to run their activities. For the last few years, scientists and technical



Prof. Mesbahuddin Ahmad, President of NITUB distributing certificate to a training

personnel of Nepal took part in NITUB's programmes getting financial support from IFS or from their own sources. NITUB has also organized a regional training programme on common laboratory equipment sponsored by IFS and OPCW where scientists and technical personnel from Nepal and Myanmar took part. NITUB hopes to extend its regional collaboration programme with other countries of the region, including Laos, Vietnam and Cambodia.

Manpower of NITUB

NITUB has nine (09) Honorary Executive Committee (EC) members, five (05) voluntary service technical personnel and four (04) salaried staff members who are maintaining the office of NITUB. Two Instrument Engineers are full time employee of NITUB. NITUB has also two part time staff members of which one is Office Assistant and the other one is Messenger Peon cum Cleaner.

PRESENTATION OF NITUB IN INTERNATIONAL FORUM

Cameroon:

IFS organized an International Workshop on "Purchasing, Servicing and Maintenance of scientific equipment in Western Africa" on 05-08 November 2002 at Buea University, Cameroon where General Secretary of NITUB, Professor Altaf Hussain, presented a paper on NITUB's activities.

Italy:

The Third World Network of Scientific Organization (TWNISO) organized a workshop, "Knowledge Sharing for Local Development in the South" in Trieste, Italy on 4-6 July 2005. Professor Mesbahuddin Ahmad, President of NITUB was invited to attend the workshop. Professor Ahmad presented a paper on the activities of NITUB in the workshop.



Prof. Dr. Shahid Akhtar Hossain, Pro-Vice Chancellor (Administration) DU, addressing at the inauguration of 53rd training programme of NITUB.

Taiwan:

Professor Altaf Hussain, attended the 8th Conference of the Asian Crystallographic Association (AsCA'07) in Taipei, Taiwan on 4-7 November 2007. During the conference, Professor Hussain was invited at the Institute of Chemistry, Academia Sinica of Taiwan to deliver a lecture on 07 November 2007. Professor Hussain not only talked on his research field there but also presented NITUB and its activities.

Ethiopia:

International Science Program (ISP) organized a International Conference titled, "Regional and Interregional Cooperation to Strengthen Basic Sciences in Developing Countries" on 1-4 September 2009 at UNCC in Addis Ababa, Ethiopia. Among others the conference was participated by Research Project/ Network members of ISP supported programs. Professor M.Mosihuzzaman, Vice-president of NITUB attended the conference to represent Asian Network of Research on Antidiabetic Plants (ANRAP). Professor Zaman also delivered a plenary lecture in the conference title was "Importance of Collaboration and

Networking in Capacity Building in Basic Sciences in Developing Countries". Professor Altaf Hussain, General Secretary of NITUB gave an oral representation and also presented a poster on NITUB in the conference.

Professor Begum Rokeya, Joint Secretary, NITUB was invited to present NITUB in the 8th E-SALAMA workshop in Addis Ababa, Ethiopia held on 7-11 December 2009. During the workshop, Professor Rokeya presented a paper on the activities of NITUB and also its future programs. The participants of the workshop highly appreciated NITUB and were planning to have a similar network in their countries.

Lao People's Democratic Republic:

Professor Altaf Hussain, presented a paper on NITUB's activities in The Third International Conference on Science and Technology for Sustainable Development of the Greater Makong Sub-region (3rd STMGMS) and The Second International Conference on Applied Science (2nd ICAS) held at Souphanouvong University, Luang Prabang, Lao People's Democratic Republic on 24-25 March 2011.

FUTURE PROGRAMMES OF NITUB

The duration of the training programmes of NITUB is generally 5-6 days. Participants frequently request NITUB to organize training programmes for longer duration (2-3 weeks long). Programmes of longer duration will definitely help participants to be more conversant in using and confident in handling their instruments. NITUB has already conducted a two-week long training programme on AAS (05-17 June 2010). Similar programme on HPLC has recently (08-20 October 2011) been organized. Considering the demand of users such programmes will be continued in future.

In addition to its usual programmes:

- Training programmes on specific type/ group of instruments.
- College level training programme in collaboration with National University.
- Training programmes on medical equipment.
- Training programme for technical personnel.
- Instrument repair programme
- Installation

Table-1. Training programmes of NITUB conducted during 1994-May-2015

Training Programme		Institution involved	No. of Participants
1	7 training programmes on GC	DU and BIRDEM	96
2	X-Ray Powder Diffraction Technique	DU	7
3	8 training programmes on HPLC	DU; BIRDEM; BCSIR and Dept. of Livestock Services	108
4	7 training programmes on UV-VIS & IR Spectrophotometers	DU; JU; RU; SUST, BCSIR and Plasma Plus+ Application Research Laboratory	112
5	8 training programmes on AAS	BCSIR; DU; ICDDR'B; Geological Survey of Bangladesh; AEC and Plasma Plus+ Application Research Laboratory	94
6	9 training programmes on Various Common Laboratory Equipment	BCSIR Dhaka, BCSIR Chittagong; BCSIR Rajshahi; DU; BAU	174
7	Nuclear Magnetic Resource (NMR) spectrometer	BCSIR Dhaka	4
8	3 training programmes on GC and GC-MS	DU & BCSIR Dhaka	33
9	7 training programmes on Common Medical Instrument	BIRDEM; BIHS; Gono Bishwabidyalay and Gono Shasthaya Samajvittik Medical College Hospital	85
10	5 training programmes on Common Laboratory Equipment for College Teachers	Eden Mohila College; Ananda Mohan College, Rajshahi College and BM Collage, Barisal	85
11	2 Training programme on Basic Electronics	NITUB Office	29

Table-2. Category wise participants who attended the training programmes

No. of training programs conducted	Total number of participants attended these training programs = 827				
	University/College teachers	Graduate Student	Research Scientists	Technical Personnel	Medical Technologist
58	234	25	359	163	46

NITUB will expand its activities in:

- Conducting 2-3 weeks (or even longer period) long training programmes on specific instruments.
- On-site training programme
- Follow-up workshop for trainees
- Training manual
- Courses on basic and advance electronics
- Course on laboratory technology
- Contract service

ACKNOWLEDGEMENT

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- International Science Programme (**ISP**), Uppsala University, Uppsala, Sweden
- International Foundation for Science (**IFS**), Stockholm, Sweden
- Organization for the Prohibition of Chemical Weapons (**OPCW**), The Hague, The Netherlands
- Ministry of Health and Family Welfare (**MOH&FW**) and Ministry of Science, Information and Communication Technology (**MOSICT**), Government of the People's Republic of Bangladesh
- University Grants Commission (**UGC**)
- Universities of Bangladesh
- Bangladesh Council of Scientific and Industrial Research (**BCSIR**)
- Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (**BIRDEM**)
- Bangladesh University of Health Sciences (**BUHS**)
- Bangladesh Diabetic Somity (**BADAS**)
- Network of Instrument Technical personnel and User scientists of Nepal (**NITUN**)
- Bangladesh Centre for Advanced Studies (**BCAS**).
- Plasma Plus+ Application & Research Laboratory
- Centre for Advanced Research in Sciences (**CARS**), DU.

Executive Committee of NITUB for the term 2013-2015



Prof. Mesbahuddin Ahmad
President



Prof. M. Mosihuzzaman
Vice-President



Prof. Altaf Hussain
General Secretary



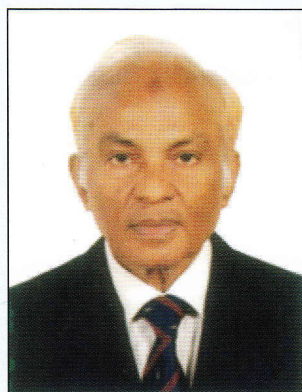
Prof. Nilufar Nahar
Treasurer



Prof. Begum Rokeya
Joint Secretary



Dr. Muhammad Eusuf (Deceased)
Member



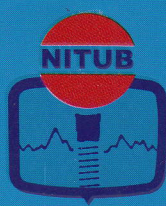
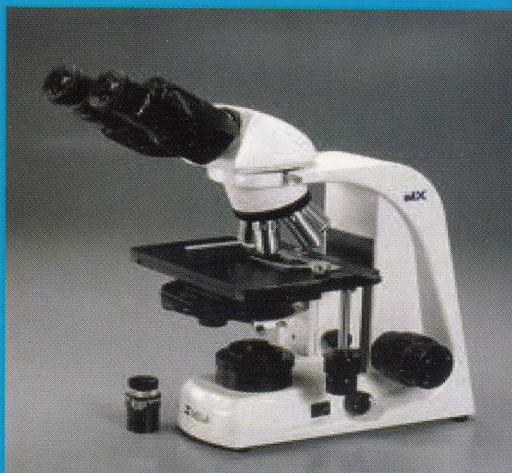
Prof. A. M. Shafiqul Alam
Member



Prof. Nishat Ahmed Pasha
Member



Mr. A. K. M. Rahmatullah
Member



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