

# IT education in Bangladesh : A review

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## IT education at different levels

Application of computers in industry, business, communication, education and in every other sphere of life demands the extensive introduction of computer education from primary to postgraduate level. IT has immediate implication in our social, commercial and domestic life and it can significantly contribute to the economy. Formal education in computer was first started in 1984 with the foundation of Computer Science and Engineering Department in Bangladesh University of Engineering and Technology. The IT education thereafter gradually extended to Bachelor, Higher Secondary and Secondary levels. In Bangladesh, there are about 83,796 primary level institutions, 5694 and 15748 number of junior and secondary level

institutions respectively, 2339 number of higher secondary and degree colleges. This section describes the introduction and status of IT education in Primary and Junior Secondary, Secondary and Higher Secondary, Diploma, Undergraduate and Postgraduate levels.

**Primary and Junior Secondary Level:** The first five years and the next three years of education constitute the Primary and Junior Secondary level respectively. Bengali and English languages, History, Geography, General Science, Mathematics and Religion are the major subjects taught at these levels. Students become, in a very small scale, aware of computers and their vast applications through their General Science text books. Recently the Government has passed the National Education Policy in the cabinet and endorsed it in the Parliament. In the National Education Policy introduction of IT

education in primary and junior secondary level has not been included in the implementation period of 2010. Majority of the schools in the country cannot afford to buy computers for their students. Through a small number of city based schools have a very limited computer laboratory facilities, yet they fail to make their students familiar with internet, emails and related technology because of the lack of nationwide telecommunication infrastructure and internet facilities. In addition, the school teachers at these levels lack the minimum level of training on IT. We recommend the following for the Primary and Junior Secondary level students:

General Science text books should adequately cover fundamental concepts on computers and their numerous applications. Differences between hardware and software, history of computers and their use, classification of computers, concept of computer network, internet and emails, introduction to computer peripherals and input/output devices should be introduced.

Short term intensive training on IT may be arranged for the teachers at Primary and Junior Secondary levels.

Until telecommunication infrastructure improves and internet facilities are provided at school levels, communication media like Television and Radio can regularly broadcast programs showing hands on use of computers, emails and internet to makeup the present deficiencies. A separate TV channel may be dedicated to broadcast IT related programs 24 hours a day.

Special care should be taken to improve the English language ability of the students.

Expatriate Bangladeshis may arrange to buy second hand computers at either free or small cost and to distribute them to schools at their home. Bangladeshi missions at abroad may collect computers from expatriates and then send them to Bangladesh by national fleet at free of cost.

Gradually Computer Aided Education System and Learning should be introduced at Primary and Junior Secondary levels.

**Secondary and Higher Secondary Level:** The 9th and 10th year of a school going student and the next two years of a college going student constitute the Secondary and Higher Secondary level respectively. Computer Science education has been launched as an optional subject for the Secondary level students from the beginning of 1994 and about one hundred fifty schools were permitted to start up the subject. Many more schools have shown interest and the quantitative expansion of IT education in Secondary level is phenomenal. The National Education Policy has recommended compulsory computer courses from

the secondary level of education. Some of the important recommendations of the National Education Policy are as follows:

5694 and 15,748 number of junior and secondary level institutions as well as 922 colleges, 347 professional institutes and 1462 mid level technical and vocational institutions will be brought under IT education by 2010.

Introduce IT education in the new 12 science and technology universities being established by the Government.

Highly educated and skilled teachers and trainers will be brought from abroad on contract basis to meet the present shortage of IT teachers and trainers in the initial stage.

Maintain standard and quality of IT education in both the formal and non-formal sectors by introducing a nation wide central examination system.

Board of intermediate and secondary education, Dhaka has launched Computer Science education in 1991 as an optional subject. Only a very few colleges offered Computer Science course at that time. Nearly fifty colleges introduced Computer Science course as an optional subject for science stream students in the first quarter of 1994 and with the reduction of price of computer hardware, this number is sharply increasing. Computer Science subject has been introduced at Secondary level in vocational training institutes of the country in 1995 and the education has been gradually extended to higher secondary vocational training institutes. Bangladesh Computer Council has been implementing a project to introduce IT education in secondary level institutions and also has been training the teachers of these institutions.

**Diploma Level and Training Institutes:** Twenty polytechnic institutes of the country are offering three year Diploma course for SSC passed students in Engineering subjects. Three polytechnics of the country have launched three years diploma in Computer Engineering in 1994. Board of Technical Education has started a project for developing course materials for Computer Engineering Diploma. For most of the cases, semi skilled personnel have been chosen for course material development which would have serious adverse effect on human resource development and which has already caused under utilization of funds. Bangladesh Open University is now offering three semester Diploma in computer applications. In the recent years Ministry of Youth has established 69 computer training institutes over the country under a project for self employment generation of the educated unemployed youths in the field of IT.

**Undergraduate and Post Graduate Level:** Bangladesh University of

Engineering and Technology (BUET) first introduced the formal education in Information Technology in 1984 by launching the Masters program in Computer Science and Engineering. Undergraduate courses started from 1986 with the first intake in 1987. The initial enrollment was 30 per year which has been subsequently increased to 60 and now the intake is 120 per year. It has been observed that with a very few exceptions the very best students get enrolled in this department. BUET is now running six batches consisting of a total of 350 students and already a total of 250 students graduated from this department. Masters program in BUET attracts 50 students per year and until now around 70 students have completed their postgraduate curricula.

Dhaka University started their one year Masters program in Computer Science in 1993 with a total of 20 students and the present enrollment in this program is around 31. Dhaka University started their Undergraduate program in 1995 and at present their yearly intake is 60. Besides, some Computer related courses such as Microprocessors and programming languages are taught in Applied Physics and Electronics department.

The major similarity among the public Universities and institutes is that the very meritorious students get enrolled in Computer Science departments. The major and the biggest problem is the acute shortage of faculties in the aforementioned universities. The lack of internet and email connection for students, insufficient laboratory facilities, lack of books and journals, absence of interaction with the industries are the main bottlenecks to the achievement of international standards in our undergraduate curriculum in Computer Science and Information Technology. We recommend the following measures to improve this grave situation:

There should be uniformity in course curricula and degree requirements. Course curricula should be revised at no more than two years intervals.

At present, most of the software are web enabled and they work in internet environment. Lack of intensive internet facilities at Universities are depriving students from learning web enabled software and applications. In addition they are deprived of getting enormous amount of information from the internet which is seriously hampering their research and development activities. If the present situation continues, our students will soon become outdated with respect to this rapidly changing world.

High speed campus backbone network is a prerequisite for present day computing. Since the internet speed is prohibitively slow, off line down loading and subsequent

storage in a central server may give access to the students with their requisite information in a relatively short time. In addition, high speed campus backbone network will change the work environment quite dramatically and routine official and academic jobs will be done more efficiently and smoothly.

Since there is an acute shortage of qualified teachers, an international faculty appointment or exchange programme should be immediately start. Expatriate Bangladeshis working abroad may be invited as visiting faculties at least once a year. If such opportunities are created, many Bangladeshis will be interested to come forward to disseminate their expertise.

Postgraduate program should be strengthened. Most of the graduates leaving the country for higher studies are not coming back. A rigorous and standard postgraduate program will be able to encourage more students to complete their higher

study in the country and eventually fill up the current vacuum of qualified teaching staffs.

Laboratory facilities should be considerably increased. Extra allocation in yearly budget should be reserved for Computer Science departments. At present Computer Science departments are treated as any other department within a University and their special need is most often completely ignored.

Books and journals should be made available in the University libraries.

Short term internship with the industry will be very much beneficial for the students. In the academic body of the universities, industry representatives might play a constructive role.

Number of students in different Computer Science departments have recently been doubled at the instruction of the Government. However, ironically Government has not allocated any extra funds to

increase infrastructure and logistic facilities which have aggravated the present poor condition of the departments. The present demand needs many more students to be shifted from other disciplines to Computer Science and at the same time the logistic facilities should be proportionately increased. Government has allocated 15 crores of taka to five public universities for starting post graduate diploma programme. We believe this money will be more fruitfully utilized if it is used to increase the number of seats in Computer Science departments for a long term benefit. It is to be understood that university graduates will form the backbone of our IT sector in the long run. India is very successful in IT sector because she has given highest emphasis on university education.

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## PARTICIPANTS

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