Situation of E-Management in Higher education in Bangladesh

A thesis is submitted for the partial fulfillment of the requirements for the degree of Master of Philosophy

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CERTIFICATE

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DEDICATION

The thesis is dedicated to my honorable sir Professor Dr. Mohammed Alauddin, Vic-Chancellor of DUET, Gazipur and Professor Dr. Mohammad Asaduzzaman Chowdhury, Registrar, DUET, Gazipur for their encouragement and support throughout the venture.

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ABSTRACT

Information and communication Technology (ICT) is now a source of value for many organization both public and private across many industry sectors and in many countries both developed and less developed. A gain in productivity across the whole economy that benefits all citizens can be shown to flow from effective use of ICT. The major objective of this study was to explore the use of ICT in academic and administrative activities in higher educational institutions especially the public universities in Bangladesh for quality education. The major focus of this thesis is to investigate the current status of availability of ICT in higher education of Bangladesh. To explore the volume of using ICT in higher education academic and administrative activities. To gain competitive advantage in higher education sector it is urgently need to adopt E-Management in our work place to keep pace. In this qualitative and empirical research, we conducted an intensive field study and, therefore, the information presented based on both primary and secondary sources of data. Primary data was collected through questionnaire, observation and semi-structure interview. Moreover, a special emphasis was given to the participatory approaches in all aspects of primary data collection of the study. The primary sources were the institution itself, teachers, students and classroom teaching learning activities of higher educational institutions. The prime method of data collection was mainly participatory field investigation. The semi-structure interview was conducted and recorded. The different categories of respondents were selected for collecting primary data which were: Public University Teachers, Dean, Chairman or Head of the department, Classroom/teaching learning activities and Learners/Students. The secondary data was gathered through analysis of ICT documents, research reports, seminar reports, articles and government documents. The expenses of private university are not payable by all citizens. Thus, the public universities are considered as the core Higher education providers in Bangladesh. Thus 3 public universities (BUET, DUET, BSMRAU) and 3 private universities (AUST, UIU, Uttara University) were selected purposively as the sample for this study. 5 teachers were identified from each 6 universities. The stratified sampling strategy was employed for teacher sampling. One of the teachers was selected who are the Head of the department and the Dean of the faculty. Two classroom/teaching-learning observation activity from each 6 universities had been selected purposively. Thus, a total of 12 classroom teaching-learning activities had been observed for collecting data. Ninety students were taken on availability and their interest. This includes exploring the existing infrastructure of ICT, capacity of teachers & staff on using ICT, availability of ICT facilities in the institutions and future challenges. Therefore Readiness of E-Management integration in Higher Education of Bangladesh attempts to explore the situation.

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LIST OF ACRONYMS

3CSR	:	Center for Climate Change & Sustainability Research
A&S	:	Arts and Sciences
AIF	:	Academic Innovation Fund
Arch.	:	Architecture
ARI	:	Accident Research Institute
AUST	:	Ahsanullah University of Science and Technology
BASIS	:	Bangladesh Association of Software and Information Services
BCC	:	Bangladesh Computer Council
BCS	:	Bangladesh Computer Samity
BdREN	:	Bangladesh Research and Education Network
BME	:	Biomedical Engineering
BSMRAU	:	Bangabandhu Sheikh Mujibur Rahman Agricultural University
BTCL	:	Bangladesh Telecommunications Company Limited
BUET	:	Bangladesh University of Engineering and Technology
BUET-JIDPUS	:	BUET-Japan Institute of Disaster Prevention and Urban Safety
CE	:	Civil Engineering
CSE	:	Computer Science and Engineering
DHCP	:	Dynamic Host Configuration Protocol
DNS	:	Domain Name System
DUET	:	Dhaka University of Engineering & Technology
E-Books	:	Electronic Books
EEE	:	Electrical and Electronic Engineering
E-Governance	:	Electronic Governance
E-Journals	:	Electronic Journals
E-Mail	:	Electronic Mail
E-Management	:	Electronic Management
FDT	:	Fashion Design and Technology
FE	:	Food Engineering
FTP	:	File Transfer Protocol
G2B	:	Government to Business Communication
G2C	:	Government to Citizens Communication
G2G	:	Government to Government Communication
GCE	:	Glass and Ceramic Engineering
HEMIS	:	Higher Education Management Information System
HEQEP	:	Higher Education Quality Enhancement Project

Hi-Tech	:	High Technology
HSS	:	Humanities and Social Sciences
Hum	:	Department of Humanities
IAT	:	Institute of Appropriate Technology
IBM	:	International Business Machines
ICT	:	Information and Communication Technology
IICT	:	Institute of Information & Communication Technology
INPE	:	Institute of Nuclear Power Engineering
IPE	:	Industrial and Production Engineering
IRE	:	Institute of Renewable Energy
IT	:	Information Technology
IWES	:	Institute of Water and Environmental Sciences
IWFM	:	Institute of Water and Flood Management
LAN	:	Local Area Network
Math.	:	Mathematics
ME	:	Mechanical Engineering
MME	:	Materials and Metallurgical Engineering
MPE	:	Mechanical and Production Engineering
MSN	:	Microsoft Network
NAME	:	Naval Architecture and Marine Engineering
OPGW	:	Optical Ground Wire
PABX	:	Private Automatic Branch Exchange
PC	:	Personal Computer
PGCB	:	Power Grid Company of Bangladesh
PMRE	:	Petroleum and Mineral Resources Engineering
TE	:	Textile Engineering
UDL	:	Universal Design for Learning
UGC	:	University Grants Commission
UIU	:	United International University
URP	:	Urban & Regional Planning
VSAT	:	Very Small Aperture Terminal
Wi-Fi	:	Wireless Fidelity
WRE	:	Water Resources Engineering

CHAPTER 1

PERSPECTIVE OF THE STUDY

1.1 Introduction

The development of a modern society depends on standard of higher education. Thus the role of higher education is to prepare competent and knowledgeable people. The growing importance of knowledge in the modern world can hardly be overemphasized, especially in the era of globalization and in a global environment which is competitive. Particularly, higher education has enormous potential to promote prosperity in the developing nations.

In Bangladesh there was a time when higher education used to be considered a luxury in a society of mass illiteracy. However, towards the turn of the last century the need for highly skilled manpower started to be acutely felt every sphere of the society for self-sustained development and poverty alleviation. Highly trained manpower not only contributes towards human resource development of a society but also brings technological revolution in the field of agriculture, industry, business and commerce, medicine, engineering, transport and communications.

The higher education sector vary from country to country. In the case of Bangladesh, higher education is generally used to comprehend the entire range and dynamics of post higher secondary education. This article is an attempt to address the problems and issues of the universities of Bangladesh and to explore the areas for further enhancement of these universities.

Higher education in the public sector is a legacy of the British colonial education system. At present there are 122 universities in Bangladesh of which 37 are public and 85 are private universities. The number of students in the public universities is around 32,06,435. Thus at the moment above 03 million of population receive higher education in Bangladesh of which 74 percent are male and 26 percent are female students.

The percentage of female students enrolling at the universities is risen. Higher education facilities of the public universities are spread over the entire country. Thus the different regions can receive higher education without going very far from their familiar environment. Thus there is at least one public university in all the administrative divisions.

There are 5 types of higher education available in the country. These are: i. General Education; ii. Science & Technology and Engineering Education; iii. Medical Education; iv. Agricultural Education; v. Distance Education. In addition, the higher education sector also provides Madrasha education.

In Bangladesh higher education consists of a 3 year pass -course or a 4 year honours course for the bachelor's degree, followed by a two year Master's course for pass graduates and a one-year Master's course for honours graduates.

The number of teachers in public universities is 12,748. The average student and teacher ratio in the public universities is about 1:20.

The number of National University Affiliated colleges is 1,297. There are 1,00,081 teachers and 20,73,069 students in these colleges. That is 1:21 teacher student ratio. At present, among the graduate and post-graduate students, 83% were studying in national University affiliated colleges and the rest in the public universities.

1.2 Background of the Study

To face the challenges of globalization, the quality of higher education is very important. The education system in Bangladesh is improving day by day to establish international standard education. Education institutes must have high speed internet access and rich educational resources to meet the high-quality education. The set of activities that have successfully stimulated young-students interest in Science & Technology.

University Grants Commission of Bangladesh, On behalf of the Ministry of Education, Secondary and Higher Education Division is currently implementing the Bangladesh Research and Education Network (BdREN) under HEQEP with financial assistance from World Bank. It will be a high performance data Communications network providing connectivity among education and research institutions in both public and private universities.

BdREN with its multi-gigabit capability aims to connect all universities, research institutions, libraries, laboratories, healthcare and agricultural institutions across the country and to support geographically dispersed academics, scientists and researchers with reliable access to high-end computing, simulation tools and datasets.

With a view to implementing the BdREN backbone, recently UGC has made a contract with Power Grid Company of Bangladesh (PGCB) Ltd. for its country-wide OPGW network. Backbone network of BdREN will be designed based on this optical fiber. BdREN will also be connected with other regional and trans-continental Research and Education Networks. It will link the faculties and students of Bangladesh to the global academic community and learning resources. It will also facilitate international collaborative research and will catalyze innovation in the country. BdREN will eventually be operated by a Non-profit Trust organization with a board of trustees consisting of representatives from the universities.

1.3 Significance of the study

There are a lot of challenges faced by the public university in Bangladesh. Corruption is one of the barriers of higher education. Besides, nepotism, recruitment of less meritorious teacher by political identities are created obstacle in the higher education. Nevertheless, financial crisis, lack of residential halls, shortage of seats for the applicants as well as the involvement of teachers with other activities are also been identified by the respondents as the barriers of quality education in Bangladesh.

The traditional teaching method is the common feature in our universities. Here, the sharing of knowledge and students participation is very minimal. The brain storming discussions and presentations by the students enables them for a better grooming up. But this is almost absent in our university education system. Moreover, the monologue type of teaching and learning, the traditional system of distant relationship between teachers and students act as barriers in the congenial atmosphere of free learning in the universities of Bangladesh. Simultaneously, modern teaching methods and facilities like internet, multimedia, sound system are also been absent at the public university of Bangladesh. Poor quality of teaching staffs who fail to satisfy the students needs both in quantity and quality. Most of them have lack of specialized research and training on higher education. Moreover, due to the recruitment of political consideration a good number of teachers have no scientific and update knowledge that assist them to change their teaching methods.

1.4 Statement of the Problem

It is essential that use of ICT for quality higher education. Before ensuring the use of ICT, it is important to explore the existing facilities and the challenges to use ICT in higher education level.

This includes exploring the existing infrastructure of ICT, capacity of teachers & staff on using ICT, availability of ICT facilities in the institutions and future challenges. Therefore Readiness of Information and Communications Technology (ICT) integration in Higher Education of Bangladesh attempts to explore the situation. The area comprising the present Bangladesh was to have no university for a long time during the British rule. A teaching cum residential university was set up first in Dhaka in 1921. The second university was set up in Rajshahi in 1953. In total there had been 6 public universities in the country before 1971. After the liberation of Bangladesh in 1971, during the last 45 years, higher education scenario has greatly been transformed. The number of public universities has increased significantly. Some important features of public universities are :

- Enrollment rate has increased over periods
- Teachers in the universities have better academic qualification now than before. There appears to be more publications made by academics now than before.
- The expansion is mostly quantitative. Quality of education has not improved.
- In general higher education is highly subsidized. In absolute term the extent of subsidy has been increasing over time.
- In the last decade the share of university allocation to total education was decreasing trend for last three years.

1.5 Rationale of the study

There are 37 public University and 85 private university in our country which are functioning for the higher education in Bangladesh. Dhaka University of Engineering & Technology, Gazipur is one of the largest Universities of the country having highest seat of learning in the field of engineering of Bangladesh. Dhaka University of Engineering & Technology, Gazipur was established on 2003 and has been providing higher education and research.

The university is located at the green premises of Gazipur which is very close to the Dhaka City. Altogether there are 04 faculties, 02 Institutes and 08 departments in the University. To ensure the quality in higher education the university follows national policies approved by the government/University Grants Commission and also, has its own policies and governing mechanism as an autonomous body.

National policies or statements issued by quality assurance agencies or other organizations help bring quality in higher education. These policies give framework to the university authorities for creating a culture of quality in their institutions. In this regard, we developed into the policy framework and institutional arrangement in ensuring ICT based quality of higher education in Bangladesh.

The University Grants Commission of Bangladesh was established to supervise, maintain, promote and coordinate the university education. Major responsibilities of UGC are maintaining standard and quality of all the public and private universities in Bangladesh.

It is also assigned to assess the needs of the public universities in terms of funding to higher education in Bangladesh.

In Bangladesh, public universities are established under separate Act of the Parliament. According this Act the respective university enjoys enormous power about opening new subjects, creating posts of faculties, human resource management, including reward and punishment, preparing syllabus and curricula etc. As other public universities, Dhaka University of Engineering & Technology, Gazipur is governed according to Dhaka University of Engineering & Technology, Gazipur Act, 2003. According to Section 18-22 of this Act-the the Syndicate, the Academic Council, the Faculties, the Departments, the Committees of Courses, the Boards of Advanced Studies and the Selection Boards are the authorities that are responsible for ensuring the quality of teachers and graduates.

Every department forms “academic committee” and “committee of courses”. “Academic Committee” is formed by every teacher of the department, which is authorized to supervise, monitor and guide the department for keeping its activities on track for achieving its ultimate objective.

All the teachers of the department are member of “committee of courses”, and external members (one or two) are invited by the department from outside the university who have reputation for his/her expertise in this field. Usually, the department organizes the meetings of committee of courses once a year to redesign or revise the curriculum. After evaluating the curriculum the department submits it to the Faculty meeting. After getting approval from Faculty meeting it goes to “academic council” of the university. Finally, it goes to syndicate for final approval.

According to laws and regulations of Dhaka University of Engineering & Technology, Gazipur has a wide-ranging institutional framework to oversee the academic activities, but compliance of these rules and regulation in detail manner is rare. In most of the cases, authorities organize meetings only for maintaining formalities.

Academic staffs are not interested in academic issues because they are involved with different types of other activities like, consultancy, personal business, class taking in private universities. In some cases, syndicate and decision making bodies overlook malpractices and noncompliance to the rules and regulations. In spite of having a legal-institutional framework for ensuring quality and preventing the mal-practices, in reality, there has been little organized effort. Interpersonal communication, intra-party and inter-party ties, kith and kin network, regional identity/regionalism and previous teacher-student relationship hamper the quality control mechanism in University. Basically, Bangladeshi society is hierarchical, and due to dominance of collectivism, people try to maximize the benefit of friend networks, relative networks and political network for taking undue benefits which foster the nepotism and favoritism. Recently, the syndicate of Dhaka University of Engineering & Technology, Gazipur is taking some positive initiatives.

Teaching is a specialized profession which requires special knowledge and training. Students’ dissatisfaction and their comment about quality of teachers indirectly showed that there are gaps in lecture delivery and making the class interactive using different instructional style. In public universities, an irregularity in class taking is a common phenomenon. In many cases chairman of department and director of institute failed to convince the senior and mid level colleague to conduct class regularly.

Without taking regular class, senior teachers complete the class by a few lectures or she/he handovers the class relatively to junior teacher of the same department or same institute. Teachers do not give enough time in the class and academic work, due to their other involvements (consultancy, teaching in private universities etc). Many other electoral/ representative functions like electing Vice Chancellors, Deans, Syndicate members permissible under the University Act, create a political culture rather than congenial academic culture. The political culture, also, acts as a hindrance to ensure accountability of the teachers. Teacher recruitment is a vital factor in ensuring quality of higher education.

In Bangladesh, university authority irrespective of political regime over the decades preferred recruiting ‘voters’, not 'teachers' that adversely affected the quality of university education. In teacher’s recruitment political loyalty or family relationship or any other group identity get priority over the merit.

1.6 Research Objectives

The major objective of this study is to explore the use of ICT in academic and administrative activities in higher education for quality education of Bangladesh. The major focus points is :

- To investigate the current status of availability of ICT in higher education of Bangladesh.
- To explore the volume of using ICT in higher education academic and administrative activities.
- To explore the physical infrastructure for using Internet in the higher educational institution including LAN, VSAT, servers, PCs, telecommunication network, institution website, the computer center, the library system, computer lab facilities.
- Examine the support infrastructure, including financial assistance and the proportion of ICT- oriented courses of studies and of academic staff and officials with an ICT background working in the concerned sectors of the higher educational institution.
- Investigate some aspects of using the Internet, especially: the use of Internet resources; policy for using the Internet; the use of software, search engines; the major Internet access benefits; the level of Internet access satisfaction.

1.7 Research Questions

- What is the ICT infrastructure at higher educational institution in Bangladesh?
- What is the level of access and use of ICTs at higher educational institution in Bangladesh?
- What are the ICT usage patterns among the students at higher educational institution in Bangladesh?

1.8 Definition of Used Terms

E-Management : E-Management denotes electronic management. It is the process of getting people together to accomplish desired goals. E-Management comprises planning, organizing, staffing, leading or directing and controlling an organization or effort for the purpose of accomplishing a goal through the deployment of ICT and manipulation of human resources, financial resources, and natural resources.

Higher Education : Higher Education is a term that refers to colleges, universities, and any education beyond high school that leads to a certificate. Higher Education is also referred to as post-secondary education. Higher education mainly and generally means university level education. It is usually an undergraduate academic degree awarded for a course or major that generally lasts three or four years. It is an academic degree usually awarded for completion of a postgraduate or graduate course of one to three years in duration.

1.9 Limitation of the Study

In the present context of Bangladesh, the university education has been facing some crucial challenges that can be mentioned here. Poor Quality of Teaching Staffs who fail to satisfy the students' needs both in quantity and quality. Most of them have lack of specialized research and training on higher education. Moreover, due to the recruitment of political consideration a good number of teachers have no scientific and update knowledge that assist them to change their teaching methods. ICT infrastructure should be developed in every higher educational institutions by providing sufficient computer for teachers. Internet facilities at least one computer, multimedia projector and alternative power supply should be available for teaching learning activities.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

The level of quality is determined by the extent to which a product or service meets its stated purpose or requirements. Due to a lack of consensus among different stakeholders, it is challenging to articulate the purpose of higher education. The objective of higher education may be instruction in skills, promotion of the general powers of the mind, advancement of learning, and transmission of a common culture and standard of citizenship. The above list is not exhaustive as the objective of higher education may also include developing critical thinking abilities, creativity, gainful employment, the discovery of knowledge and social, moral, and ethical standards. The concept of conforming to specification and standards originated in the manufacturing industry as a basis for measurement to describe the required characteristics of a product or service that would satisfy customer requirements. Higher education institutions can measure quality in terms of academic standards. The term standard causes other challenges as it often conveys excellence or high standards.

Academic standards can broadly be defined in terms of teaching, learning, research, course, curriculum, admission procedures, physical resources, academic advising, faculty involvement, etc. The above standards can be classified into three distinct areas: input as incoming students, output as student achievement or academic success, and management and control during the course of study.

Another important dimension of quality is to meet customer requirements in addition to conforming to standards. However, as mentioned earlier, the customers of higher education are uncertain, and each proposed customer has differing ideas of quality in higher education. If the output of higher education is defined as a product, then it is not clear whether students are consumers, products, or both. One solution to this dilemma is to define students as consumers when attending a university and then to consider students as the product immediately after graduation. Quality is a relative concept that different interest groups or stakeholders in higher education view differently. Quality as a reduction of variation can be applied to higher education as a repeatable process.

This can be achieved by providing consistent instructions to improve the performance of students. The current system ignores variation, resulting in a significant number of students being unsuccessful after receiving a degree. Success criterion in higher education should not be limited to only academic success measured by grades, but to overall success - such as leadership, communication, moral and ethical standards, critical thinking skills or similar attributes. Variations may exist among incoming students as well as in the processes used by the institutions. This results in a variation of output or the graduates' quality. Although it may be difficult and even impossible to identify and eliminate all sources of variations, institutions should attempt to develop a process to reduce the variations that have a significant impact on the output.

2.2 Context of E-Management in Universities of Bangladesh

In this age of innovations in information technology and well-developed communication systems across cultures and landscapes, the world is becoming the center for the sharing and exchange of knowledge and excellence in scholarship and in values. E-learning, E-governance, E-management, E-sale and Sale management are new concepts increasingly gaining acceptance.

Information technology helps us to collect, synthesis and analyze a huge amount of open-ended and close ended data while maintaining a high level of ethical practice as well as ensuring confidentiality. Further works on these data help to introduce a research environment and culture to facilitate the running of organizations. *(Hunyadi & Iulian Pah, 2009)*

The Macro aspect include Decision-making and planning, Strategic management and policy, Controlling & evaluating and Governance and regulatory control. On the other hand the Micro involves staffing, financing, curricula design process, instructional materials and methods as well as other daily activities and responsibilities.

Within the scope of this paper, we aim to focus the discussion on the important role of this system in ensuring a scientific participatory approach in section of this paper aims to address the question of how a faculty can overcome barriers that are normally experienced when organisations use the participatory approach in making decisions *(Fatimah Hashim, 2010).*

2.3 Methods and Approaches in E-Management in Higher Education in Bangladesh

As it is true all over the world, government in the developing nation's costs too much, delivers too little, and is not sufficiently responsive or accountable. Good governance reforms aim to address these shortcomings. Yet progress after many years of effort in implementing such reforms has been much more limited than expected. e-Governance offers a new way forward, helping improve government processes, connect citizens, and build interactions with and within civil society *(Richard Heeks, 2001)*.

At root, it has the power of ICTs, which provide three basic change potentials for good governance for development:

1. Automation

By replacing current human-executed processes which involve accepting, storing, processing, outputting or transmitting information. For example, the automation of existing clerical functions.

2. Information

To support current human-executed information processes. For example, supporting current processes of decision making, communication and decision implementation.

3. Transformation

To create new ICT-executed information processes or supporting new human-executed information processes. For example, creating new methods of public service delivery. *(Ahmed Imran, ANU)*

2.4 Efficiency gains

- **Governance that is cheaper**: To produce the same outputs at lower total cost.
- **Governance that does more**: To produce more outputs at the same total cost.
- **Governance that is quicker**: To Produce the same outputs at the same total cost in less time.

2.5 Effectiveness gains

- **Governance that works better**: To produce the same outputs at the same total cost in the same time but to a high quality standard.
- **Governance that is innovative**: To produce new outputs.

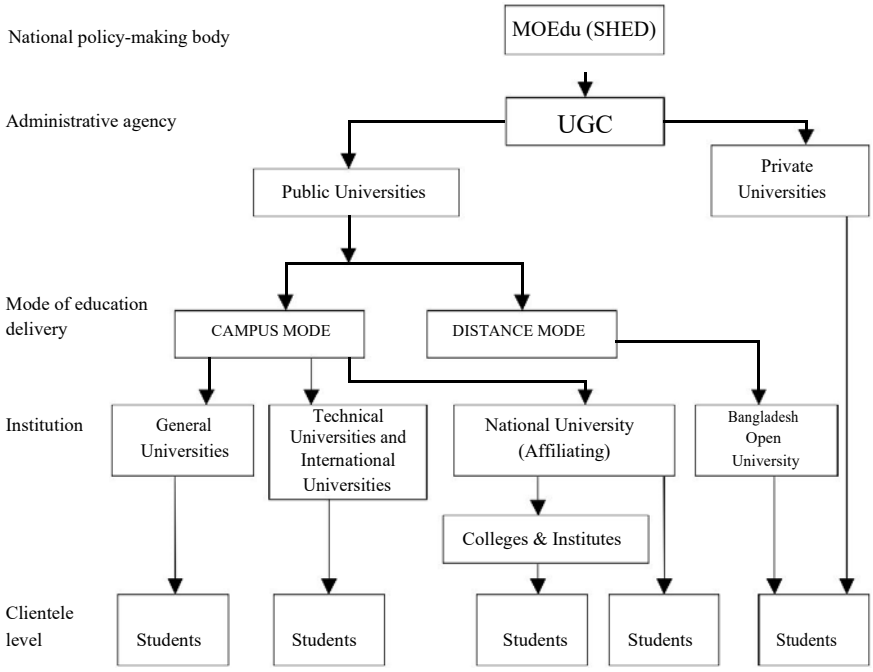
- These are the direct and objective benefits. ICTs can bring many others. For example, use of ICTs by government can bring benefits both internally and externally:
- Internally, providing benefits such as better staff motivation or greater political control or an improved public image.
- Externally, by delivering cheaper, better services to those who depend on government. Indirectly by demonstrating the benefits of ICTs to the wider population; by catalyzing the local IT industry; and by encouraging foreign investment.

2.6 Structure of Higher Education in Bangladesh

There are 5 types of higher education available in the country. These are: i. General Education; ii. Science and Technology and Engineering Education; iii. Medical Education; iv. Agricultural Education; v. Distance Education. In addition, the higher education sector also provides Vocational and Madrasha education *(Mobasser, 2010).*

In Bangladesh higher education consists of a 3 year pass -course or a 4 year honours course for the bachelor's degree, followed by a two year Master's course for pass graduates and a one-year Master's course for honours graduates.

Organizational Structure of Higher Education in Bangladesh



MOE = Ministry of Education, UGC = University Grants Commission of Bangladesh.

Figure No. 1 : Organizational Structure of Higher Education in Bangladesh.

Source : MOEdu, Bangladesh.

2.7 E-governance components

The main components of E-governance are Government to Government Communication (G2G) Government to Business Communication (G2B) and Government to Citizens Communication (G2C)**.** *(Sudip Suklabaidya, Angshu Maan Sen, 2013)*

The basic requirements of e-governance components are High and affordable Information and Internet infrastructure within Ministries, private sector and citizens. Extensive ICT Human Capacity development in Government, Private sectors and citizens. Legal Framework that recognizes and supports digital communication. *(IJETTCS, 2013)*

E-governance model

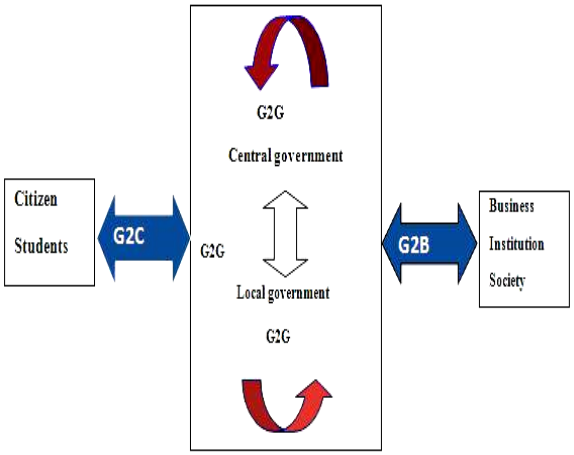


Figure No. 2 : E-governance model

2.8 E- Governance architecture and its necessity

For implementing strategy and policy, decision making and improving service delivery architecture is a blue print for the organization's operations. It's needed for further expansion and growth. To operate the best possible manner e-governance architecture is essential. *(Ahmed Imran, ANU)*

2.9 Enterprise architecture

To manage the enterprise more effectively and efficiently and incorporating future planning, discipline, leadership for growth and success is known as enterprise architecture.

2.10 Process of enterprise architecture

The required resources are designed chronologically to attain the objectives (performance and expectations).

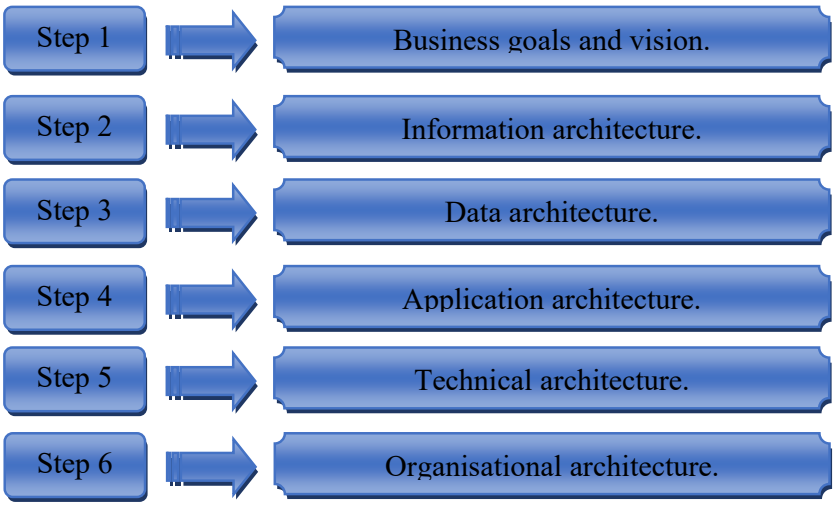
We can build the enterprise architecture in two ways. One is : The “big bang” method and another is incremental approach which is more dynamic and it has flexibility.

2.11 Objectives of the enterprise architecture

Roadmap prepared through a examination of the enterprise goal and strategy, structure, resources, environment and their careful alignment and relationship with each other in order to attain the best out come for the enterprise. Provide a tool for better managing the enterprise more effectively and efficiently.

2.12 Developing ICT architecture

To build the ICT architecture it is suggested to follow six steps.



Information technology architecture is a master plan of the information assets in an organisation. It is a plan for integration of ICT resources and application.

2.13 Traditional Teaching Method

The traditional teaching method is the common feature in our universities. Here, the sharing of knowledge and students participation is very minimal. The brain storming discussions and presentations by the students enables them for a better grooming up. But this is almost absent in our university education system. Moreover, the monologue type of teaching and learning, the traditional system of distant relationship between teachers and students act as barriers in the congenial atmosphere of free learning in the universities of Bangladesh. Simultaneously, modern teaching methods and facilities like internet, multimedia, sound system are also been absent at the public university of Bangladesh *(Mortuza, 2013).*

2.14 Corruption and Nepotism

There are a lot of challenges faced by the public university in Bangladesh. Corruption is one of the barriers of higher education. Besides, nepotism, recruitment of less meritorious teacher by political identities are created obstacle in the higher education. Nevertheless, financial crisis, lack of residential halls, shortage of seats for the applicants as well as the involvement of teachers with other activities are also been identified by the respondents as the barriers of quality education in Bangladesh.

2.15 Teachers and Students Politics

Party politics both teachers and students have created a great problem in the higher education sectors. Both teaching and learning is greatly interrupted by the teacher and students politics. So, the respondents of the present study have clearly been identified as the major problems of this unexpected political practice in the higher education institutions *(Journal of Management and Science, 2013).*

Public universities are the foremost choice of the majority students seeking higher education. This is for various reasons. First, these universities offer wide range of subjects in Science, Commerce, Liberal Arts, Humanities, Engineering and Technology, Law, Education and Medicine disciplines. Second, public universities attract the best brains and researchers as teachers although monetary compensation for them is anything far from attractive. Third, library, laboratory, internet and research facilities are much better there than anywhere else in the country. Fourth, seminars, symposiums, workshops, debates, exhibitions and visiting teachers lecture series are often held in these institutions with a wide scope for national and international exposures for promising young knowledge seekers. Fifth, residential and boarding facilities at low cost/subsidized rates are available in these public universities.

2.16 Barriers of Higher Education

There are a lot of challenges faced by the public university in Bangladesh. The respondents of the present study have mentioned some issues that are hindered to the university smooth running. Most of them identified corruption as one of the barriers of higher education. Besides, 13% nepotism, 14% recruitment of less meritorious teacher by political identities, 12% session jam and 11% have raised the lack of modern facilities that are created obstacle in the higher education. Nevertheless, teachers and students politics, financial crisis, lack of residential halls, shortage of seats for the applicants as well as the involvement of teachers with other activities are also been identified by the respondents as the barriers of higher education in Bangladesh *(Journal of Management and Science, 2013).*

Most of the public universities are dependent on government for funding. However, of the 37 public universities the National University is financially independent of the government and very solvent. It derives its entire fund from students' registration and examination entry fees. Open University can cover about 30% of its revenue expenses from the fees collected from its enrollees and the rest is financed by the Government through the University Grants Commission of Bangladesh.

Public universities cater the educational needs of the thousands of meritorious students at a nominal cost of TK. 12 per month which has remained static for about the last 75 years. Thus, it goes without saying that sum does not even cover the cost of collection and maintenance records. Other incidental fees such as registration fees, sports, students union fees and examination fees have, however, increased to a large extent over the years so as to cover cost and even generate some income for their universities. But the tuition fees can not be enhanced due to strong pressure from students union and opposition political parties. Neither the university administration nor the government is keen on taking serious steps to increase the tuition fees simply because of the fear of students' unrest and opening up a new front for political opposition.

In the face of the above discussion a huge rise in costs of university administration the government has to spend a large amount of money for the public universities from the public exchequer every year. About 95 percent of the fund for higher education is provided by the government while a maximum of 5 percent on average are generated by the universities from their own resources.

It is supported by a good number of researches that use of ICT requires positively for quality higher education. Before ensuring the use of ICT, it is important to explore the existing facilities and the challenges to use ICT in higher education level. This includes exploring the existing infrastructure of ICT, capacity of teachers & staff on using ICT, availability of ICT facilities in the institutions and future challenges. Therefore, the study entitled "The Situation of E-Management in Higher Education in Bangladesh" attempts to explore the situation.

2.17 Quality assurance and accreditation

There is no national quality assurance system in Bangladesh. To provide assurances of the quality of higher education, one of the duties of the University Grants Commission (UGC) is to promote and coordinate university education and to monitor and maintain quality standards. However, the UGC is not an accreditation body. UGC is now ensuring quality in higher education mainly by enforcing minimum requirements in respect of opening and operation of higher education institutions and the programmes the institutions offer. Under Section 38 of the new Private Education Act 2010, the Secondary an Higher Education Division is currently considering establishing an Accreditation Council for Private Universities of Bangladesh, making membership compulsory for all private universities.

No such accreditation body has yet been established for public sector universities. However, public universities have some sort of built-in mechanism to ensure quality of education. Made up of four component parts, the University Grants Commission's Higher Education Quality Enhancement Project (HEQEP) is aimed at improving the quality of higher education. The first part encompasses funds made available to universities in conjunction with proposals to improve the quality of the education they provide: the Academic Innovation Fund (AIF). The second part encompasses the design of a Higher Education Management Information System (HEMIS): computer software programme intended to provide management with administrative and academic data, for instance, the number of students admitted, how they are performing, as well as information on study programme and alumni. HEMIS will be implemented at the national and institutional levels. The third part encompasses the establishment of the Bangladesh Research and Education Network (BdREN), which will aim to facilitate professional liaison between researchers and academic staff at the national level. The final part encompasses the project management of HEQEP, the aim of which is to ensure smooth progress with the preparations for and implementation of the entire project *(Rabbani & Chowdhury, 2014).*

2.18 ICT Policy in Bangladesh

In June 1997 the GoB officially recognized that ICT can make an important development impact by appointing a committee to look into barriers and opportunities to export software from Bangladesh. The Committee submitted a report to the government with 45 recommendations. The Committee, for instance, advised the government in the short term to support the ICT industry with tax holidays and specific exemptions, to provide the necessary authority to the BCC to function as the primary facilitator, to review computer science
curricula, and to prepare over 1,000 new 'trainers' for national universities *(NBU, 2014).*

In 2009 the National ICT Policy was broadly reformulated across areas including education, science and technology, infrastructural development, employment generation, private sector development, agriculture, health and nutrition. The GoB included an e-governance vision and promotion program for the ICT sector in the sixth Five Year Plan. This vision should support the aim of delivering significant gains in terms of productivity and employment for both domestic as well as foreign investors. The GoB also initiated 'Digital Bangladesh' intending to set up infrastructure for enhanced connectivity. In addition to policy development the GoB is maintaining close relationships with industry associations such as BASIS, BCS and BCC.

In order to further develop the ICT sector and to realize the export potential of the sector, the GoB recently took several noteworthy initiatives:

- All Software and ICT Service companies, including those under foreign ownership, are exempt from income tax until 2015.
- Both a government sponsored long-term equity fund and short term working capital financing are offered to ICT companies.
- A special hi-technology and software technology park is being built by the government to facilitate the development of all the infrastructure needed by companies that outsource activities to them. Furthermore the GoB has established the Bangladesh Hi-Tech Park Authority to operate the Hi-Tech Park (NBU, 2014).

2.19 IT Education in Bangladesh

Bangladesh has ninety public and private universities with more than 1.3 million new students every year. Annually there are almost 15,000 graduates in IT-related areas (Bangladesh Ministry of Finance, 2013). The World Economic Forum published the Global Competitiveness Report 2013-2014 in which Bangladesh ranks 98, 105, and 112 respectively for Quality of the Higher Education System, Quality of Management Education, and Quality of Science and Math Education (The World Economic Forum, 2013). A relatively young and growing population combined with increasing education creates an educated youth pool with the ability to read and write in English in Bangladesh. This is an attractive asset for offshoring services.

CHAPTER 3
METHODOLOGY

3.1 Nature of the study

For the present study researchers used document analysis, website search in every public university in Bangladesh, questionnaire, FGD, survey method of research to complete the research work systematically and successfully.

3.2 Area of the study

A traditional survey was conducted from the existing students of three public universities and three private universities in Bangladesh. The questionnaire was divided into two parts containing closed-ended questions. The first part contained questions regarding the dimensions of higher education quality, which are dependent variables. The second part of the questionnaire contained questions regarding students' socio-economic and back-ground-related questions, which are the independent variables.

3.3 Population of the Study

Researchers have selected 03 public universities BUET, DUET, BSMRAU and 03 private universities AUST, Uttara University, UIU by Purposive Sampling Method out of total population.

3.4 Sample & Sample Size

SL. No.	Category	Persons	University (Public/Private)	Total
01.	Head of the Department/Dean's	03	06	18
02.	Teachers	06	05	30
03.	students	15	06	90
04.	Document Analysis	-	06	06

Table-1 : Sample & Sample Size

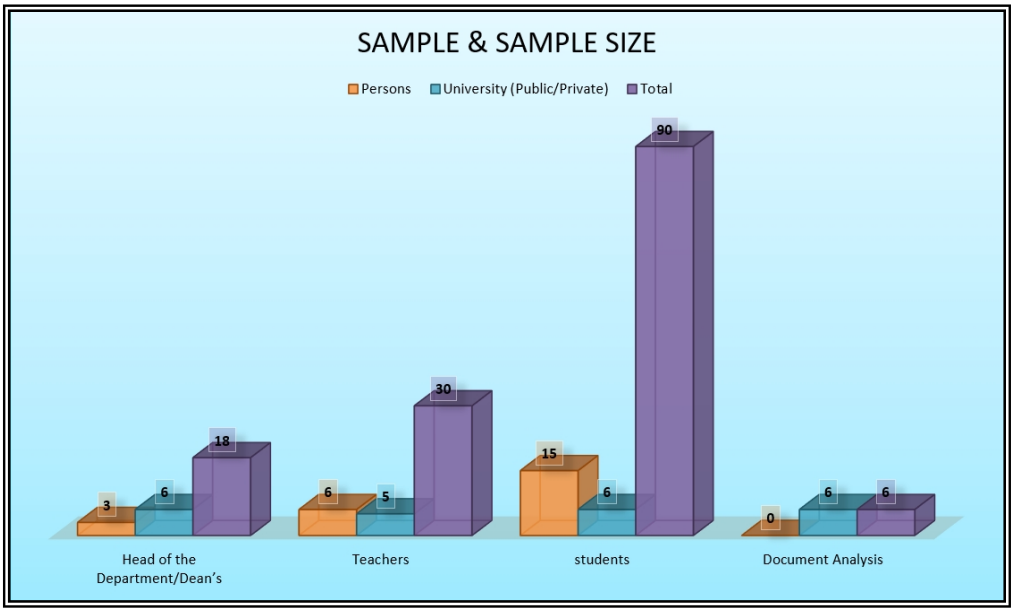


Figure-3 : Sample & Sample Size

3.5 Data Collection Tools

(i) Document Analysis.

(ii) Interview/Semi Structure interview schedule.

(a) Head of the Department/Dean's interview.

(b) Teachers interview.

(iii) Questionnaire for students.

3.6 Data Collection Techniques

Researchers have used Questionnaire, Document analysis, website visit to collect data from the sample as relevance tool in the study.

3.7 Data Editing

When inconsistencies and other errors are found include the following:

- Automated correction within specified criteria.
- Data verified by respondent, and any automated edits overridden.
- Corrected data provided by respondent.
- Corrected data available from elsewhere in the respondent's answers.
- Corrected data obtained from other sources. Then data is edited.

3.8 Data Analysis

Creativity, divergent thinking, keen perception of patterns among ambiguity and strong writing for qualitative data analysis. Qualitative analysis is less dependent on computing software. Qualitative data analysis involves more time-consuming extraction of meaning from multiple sources of complex data.

3.9 Data Presentation

To ensure that in a systematic manner, an analysis plan should be created. The analysis plan contains a description of the research question and the various steps that was carried out in the process.

3.10 Consideration of Ethical Issues

Information is a source of power and increasingly the key to prosperity among those with access to it. Ethical and legal decisions are necessary to balance the needs and rights of everyone. We have to consider the following ethical issues for E-Management in Higher education:

- Misrepresentation in the collection and reporting of data.
- Improper use of academic resources.
- Disrespecting the work of others.
- Lack of protection for human subjects in research.
- Breaches of computer ethics.
- Lack of adherence to copyright and copy-protection.

CHAPTER 4

DATA ANALYSIS AND PRESENTATION

4.1 Introduction

In this chapter collected data from six universities has been analyzed. The findings of the study is presented here. Data has been analyzed a combination of both qualitative and quantitative approaches. The study reviews the relevant literature published is journals and higher educational institutions websites. The research conducted a survey of 6 universities, 60 departments, 22 faculties and 16 institutes. The university computer center, central library and administrative offices to examine the overall E-Management system in the higher educational institution. The data collection tools are interview schedule for faculty members, Head of the departments, Deans which is semi structured, observation schedule for observation of classroom teaching-learning process and listed the ICT based equipment, FGD for stakeholders of the universities.

4.2 Data Analysis

This study has been conducted for 3 months duration at DUET, BSMRAU, BUET, and AUST, UIU, Uttara University. During this period of time, researcher has been met with a lot of faculty members, students, officials to understand. The situation of E-Management of the said institutions. This approach has been help to understand the capability of stakeholders to implement the E-Management in educational institution. All of the above mention activities have been described below by chapter wise.

4.3 Document Analysis

Institutional documents have been a staple in qualitative research for many years. In recent years, there has been an increase in the number of research reports and journal articles that mention document analysis as part of the methodology. What has been rather glaring is the absence of sufficient detail in most reports found in the reviewed literature, regarding the procedure followed and the outcomes of the analyses of documents. The document was analyzed in the research paper in the same way.

4.3.1 Document Analysis of DUET

- **The University Servers**

DUET has 5 servers including 3 brand servers, two HP and one IBM and two normal PCs used as servers maintained by the university computer center. These include: Proxy server, DNS and Mail server, Web server, DHCP server and the Gateway server. All are used to run the BTCL fiber optic broadband with the help of BdRen under UGC.

- **The PCs and Internet Connectivity of DUET**

The study finds about 369 PCs at different locations of the university among which 278 (75.34%) had Internet access Table-1. The Faculty of Electrical and Electronic Engineering was again on the top of the list having 74 (26.62%) Internet access PCs The Faculty of Civil Engineering 28 (10.07%), Faculty Mechanical Engineering 54 (19.42%), Faculty of Science and Engineering 39 (14.03%), Other Units 83 (29.86%) PCs had Internet access facilities in each central library and administrative offices (Computer Center, Central Library, Registrar Office, Controller of Exam, Comptroller Office).

Table 2: Internet Connected units and PCs of DUET.

Faculties	Department/Institute/ Other Units	Number of Units (PC)		Total Number of Units (PC)	Internet linked Units
		Dept.	Lab		
CE (28)	CE	05	30	35	15
	Arch.	05	04	09	09
	IWES	02	00	02	02
	3CSR	02	00	02	02
EEE (74)	EEE	01	06	07	06
	CSE	06	60	66	66
	IICT	02	00	02	02
ME (54)	ME	06	30	36	30
	TE	05	10	15	07
	IPE	05	10	15	07
	FE	02	10	12	08
	IRE	02	00	02	02
Science & Engineering (39)	Math	03	30	33	17
	Chemistry	04	04	08	06
	Physics	04	04	08	06
	HSS	04	06	10	10
Other Units (83)	Computer Centre	04	40	44	44
	Central Library	04	04	08	04
	Registrar Office	30	00	30	20
	Controller of Exam.	15	00	15	10
	Comptroller Office	10	00	10	05
Total =		121	248	369	278 (75.34%)

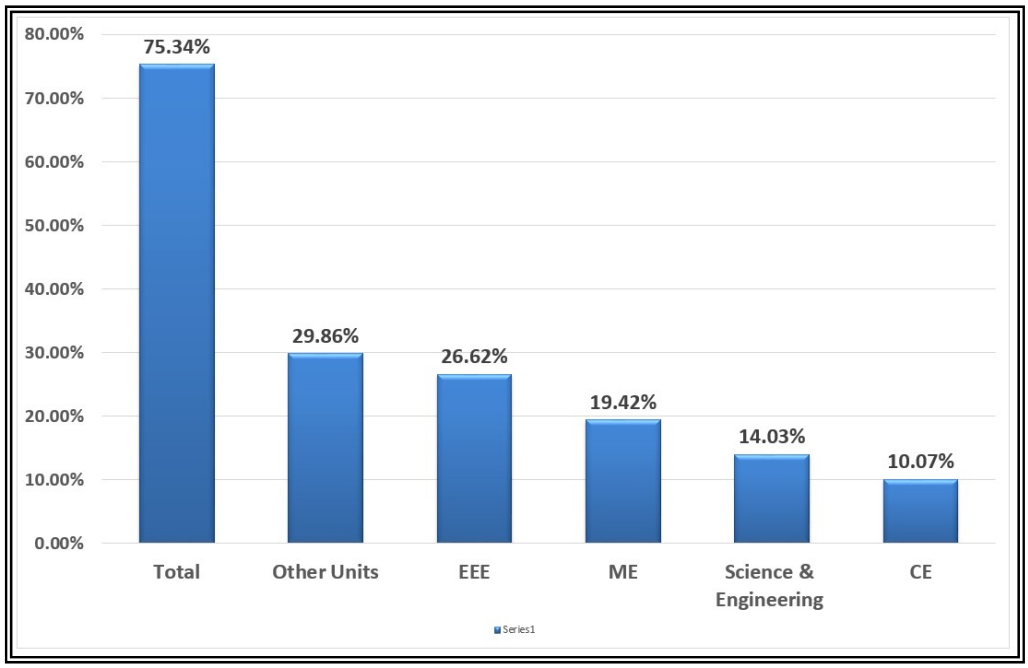


Figure-4 : Internet Connected units and PCs of DUET.

- **Telecommunication Network of the Campus**

The university has a digital telecommunication network. The network covers the entire campus area including all academic buildings, administrative buildings, central library, other offices and residences. The university has both direct and PABX connections. The telecommunication network was used to provide dial-up connection in one or two locations within the campus. The university has a plan to extent the capacity of Internet access.

- **The University Website**

The university has its own web site (www.duet.ac.bd) created by the computer center. The university web site contains the general information about the university, its faculties, institutes, departments, library, publications, admission, etc. along with the publication of some special events like the circulation for admission, application forms, the result of admission tests, important current issues, and so on. The study reveals that no departments is developed their own homepages containing general information about the departments or institutes. In almost all cases, the departmental or institutional web pages were not used to publish specialized information like ongoing researches, academic results, seminar or workshop information, even they were not regularly updated.

- **The University Computer Centre**

The University Computer Centre, located on the 3rd floor of the old Academic Building with floor space of 5,000 sq ft including lab area of 1,600 sq ft. was established in 2013. The center is administered and managed by one Director (Additional Charge), one Programmer, one Assistant Programmer, two Sub Assistant Programmer and two other non-technical personnel. The servers and university web site are maintained by the computer center. The center has a computer lab with 50 Internet access PCs. The lab is connected to other Internet access PCs at various locations. The center provides teachers, research students-mainly masters thesis, M.Phil and PhD students and non-academic staff with computer and Internet access facilities. It also offers short term training programmers on computer application, use of Internet and application of various packages to all categories of users. Computer Center is also used the tutorial center of Bangladesh Open University under CSE department of DUET.

- **The Library System**

The University Central Library was established in 2013 to provide students, teachers and researchers with required library resources, facilities and services to satisfy their academic and research. At present there are about 1,50,000 reading materials including e-books, journals, documents and reprints. The library is in a five-storied magnificent building. To create and maintain some bibliographic databases of thesis, dissertations and journals using software, UDL is working with the support of UGC. It is air-conditioning system but the library resources, facilities and databases are not on the Internet. Recently the library has initiated subscriptions to online journals through which resources can be accessed within the university network without any password. The Central Library has license agreement with publishers to subscribe e-books or e-journals. In fact, users at various locations used e-books and e-journals.

The library attached to the university website has active homepage with only journal option. PCs are being used only for official purposes, and still now the library do not have any facilities to allow users to access the PCs and Internet. The users use laptop by using Wi-Fi. In addition. There are seminar libraries in almost all departments, institute libraries, faculty libraries. The resources of these libraries are catalogued and processed by the central library staff and inspected periodically by them. None of these libraries have Internet access facilities.

- **Financial support infrastructure**

The total campus area network was centrally managed and financed by the university. The university had to pay bandwidth charge of monthly. No departments, institutes, or individuals within this network had to pay for using the Internet. Sometimes the university allocated a limited budget for the departments, institutes, or other sectors of the university to buy computers and technological equipment. Often the departments or institutes had to purchase computers and accessories from their internal funds.

- **ICT Background Manpower**

On the basis of the data provided in the questionnaire, 626 persons were calculated in DUET as academic staff and 179 persons as non-academic staff working in various departments and offices. Here ICT- background manpower refers to those who have short term Certificate, Diploma, Bachelor or Masters in computers or any stream of ICTs. The research indicates (Table-3). That majority of the ICT-background academic staff (30.32%) were employed by the faculty of ME. The other 17.42% were involved in the faculties of CE, 21.08% of EEE.

Table 3 : Status of ICT-background academic and non-academic staff

Nature of Staff	Faculties/Institutes/ Offices	Total No. of Staff	No. of staff having IT knowledge	Percentages of the staff
Academic	Faculty of CE	127	81	17.42%
	Faculty of EEE	148	98	21.08%
	Faculty of ME	229	141	30.32%
	Faculty of Science and Engineering	122	95	20.43%
Non- Academic	Different Offices	179	50	10.75%
	Total =	**805**	**465**	**100%**

Besides 179 persons of non-academic staff (including officials at 1st and 2nd Class, excluding employees at 3rd and 4th Class), only 50 (10.75%) were found to have ICT-background or some kind of ICT-knowledge who were engaged in 11 departments, computer center, central library and administration.

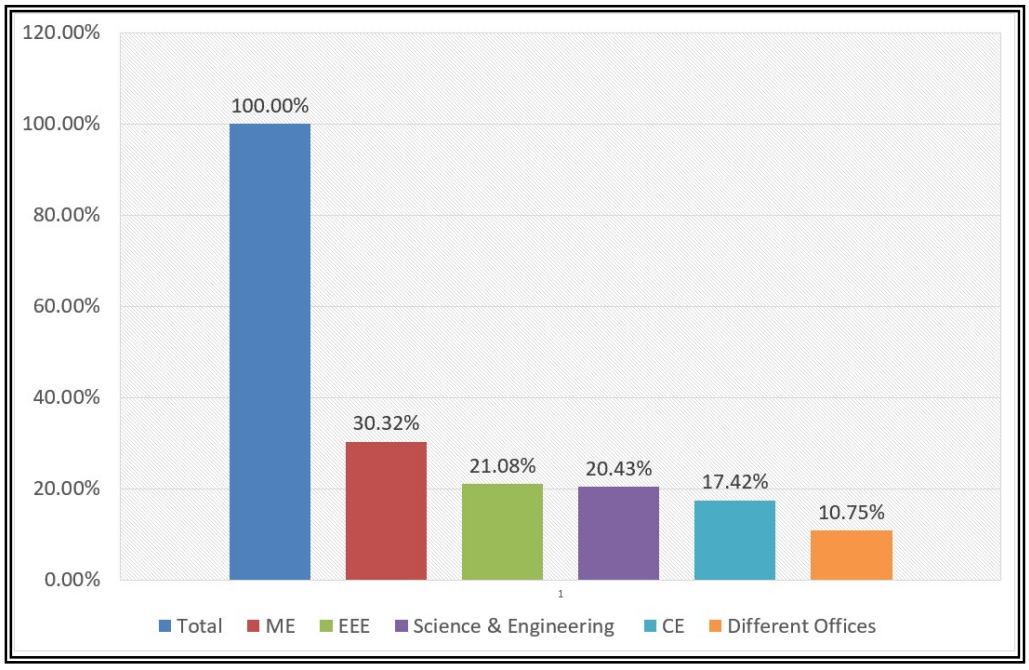


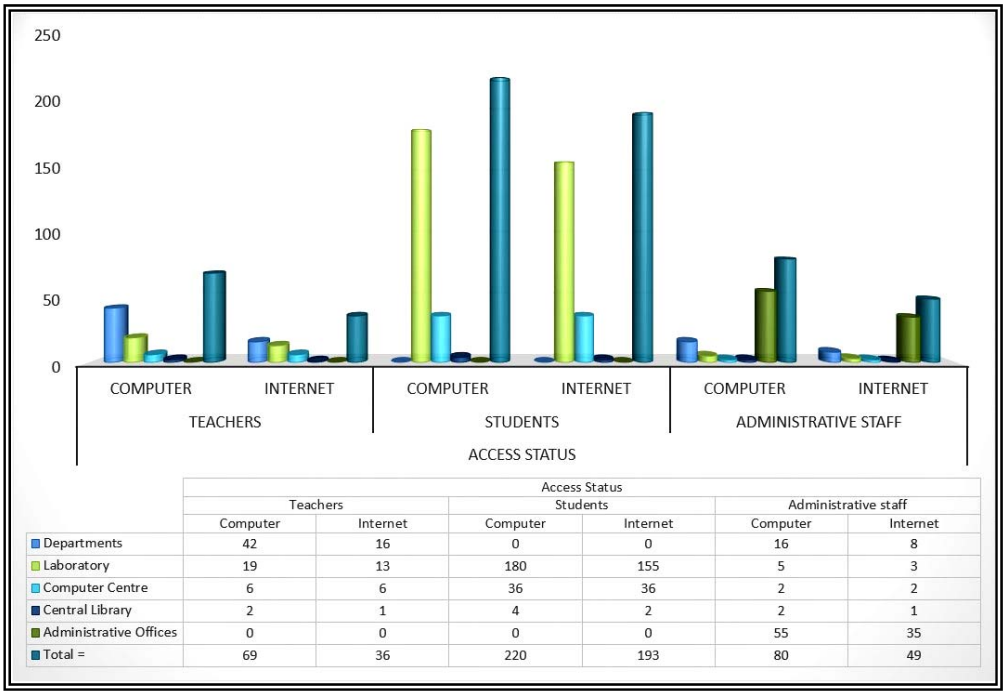
Figure-5 : Proportion of ICT-background academic staff in different faculties and Offices

- **Users Access to Computer and Internet at DUET**

Teachers, students and administrative staffs were identified as computer and Internet users in the campus. The study finds that all units along with administrative offices (Registrar Office, Comptroller Office, Controller of Exam. Office) provided teachers with computer access facilities. Teachers also had Internet access in all net connected units including administrative one. Mainly research students (Masters, M.Phil, and PhD) could have access to computers and Internet for practical and research purposes. General students had limited access to computers and Internet in some of the departments and faculty labs. Administrative staffs had computer access and Internet access.

Table 4: Status of users access to computers and Internet

Units	Access Status					
	Teachers		Students		Administrative staff	
	Computer	Internet	Computer	Internet	Computer	Internet
Departments	42	16	00	00	16	08
Laboratory	19	13	180	155	05	03
Computer Centre	06	06	36	36	02	02
Central Library	02	01	04	02	02	01
Administrative Offices	00	00	00	00	55	35
Total =	**69**	**36**	**220**	**193**	**80**	**49**



	Access Status					
	Teachers		Students		Administrative staff	
	Computer	Internet	Computer	Internet	Computer	Internet
Departments	42	16	0	0	16	8
Laboratory	19	13	180	155	5	3
Computer Centre	6	6	36	36	2	2
Central Library	2	1	4	2	2	1
Administrative Offices	0	0	0	0	55	35
Total =	69	36	220	193	80	49

Figure-6 : Status of users access to computers and Internet

- **Use of Internet Resources**

It is found from Table 6 that among some common Internet resources and facilities, E-Mail and web browsing were most popular being used by all the concerned sectors of the university. The next significant usage was FTP (mainly downloading, in some cases uploading) and Electronic Books and Journals. Both were mainly used in some of the departments and in computer center.

Internet Audio-video (Youtube) was used mainly by some of the departments. Some other common and advanced applications of Internet like Bulletin Board, Internet telephone, Internet radio, etc. Largely being ignored due to lack of sufficient knowledge on Internet and official restriction.

- **Internet Application Software**

Among the Internet application software available, Internet Explorer, Google Chrome was remarkably used by all the sectors (100%) of the university. Other software was less used including Netscape Navigator (24%), and MSN Explorer (14%).

- **Use of Search Engines**

Most commonly used search engines and tools were Google for M-Mailing and searching information. Of the 58 respondents, 56 (almost 97%) claimed that they were using both Yahoo and Google either for email or for searching.

- **Policy of Using Internet**

Centrally the university had recognized that the policy for using computers or Internet is essential. Only 13 departments and computer center reported to have their own policy related to the terms and conditions of computer laboratory use, Internet accessibility, time schedule, type and extent of facilities to be enjoyed, specification of user group, specification of fee-based facilities, and so on. The computer center, as for example, issued one-year duration ID card only for research students to use computer laboratory. But the teachers and administrative-Officials had open access to the laboratory without any ID card. Users could print multiple copies with own papers and printer ribbon. The computer center remains open from 8.00 a.m. to 8 p.m. for all type of users. But such systems vary from one unit to another. In fact, there was no standardization or consistency among the policies. The rest of the departments, the central library and the administration were using computers and Internet without having any approved policy.

- **Internet Access Benefits**

Table 8 shows that some common Internet access benefits and options were given to answer. It is found that all respondents (100%) identified Internet is used for communication most commonly via E-mail 86% considered Internet is a tool for academic and professional excellence. About 84% respondents mentioned that Internet is a source of information including e-books, e-journals and dissertations on diverse subject fields. Another benefit indicated by about 80% general information of different universities in home and abroad which would help them to know other universities, their institutes, faculties, departments course curriculum, education system, research, degrees offered, enrolment procedure, scholarships, staff, students. Almost 82% respondents considered Internet as a valuable source of scholarship and fellowship programmes, while 60% described Internet as an important source of conferences and training programmes related to their area of interests. About 40% authorities replied that Internet helped them to access foreign library systems and services on a limited scale. Other benefits include reading daily newspapers, publishing web pages, articles and results, as indicated by 50% of the respondents.

Table 5: Summary of Internet Access Benefits

Sl. No.	Benefits of Internet	Respondents N=50	% of the Respondents
1.	For communication Purpose	50	100%
2.	Academic and professional excellence	43	86%
3.	Sources of information	42	84%
4.	Different university's general information	40	80%
5.	Source for scholarship	41	82%
6.	A source of conference and training program.	30	60%
7.	Access to foreign library	20	40%
8.	Others (Newspaper, Different web pages)	25	50%

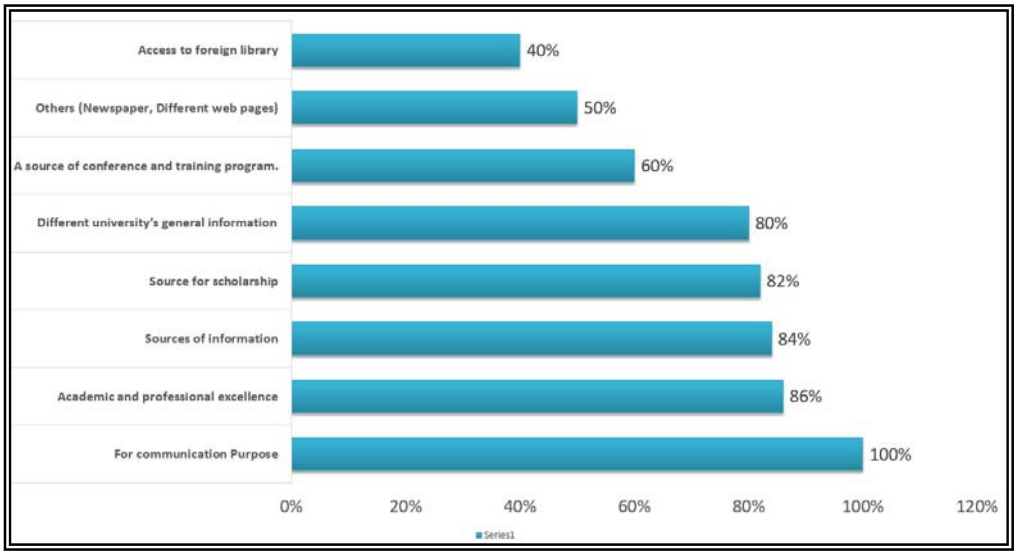


Figure-7 : Summary of Internet Access Benefits

- **Main Reasons of hindrance for implementation of E-Management**

Most significant problem was the lack of sufficient computers, identified by 80 percent of the respondents. Almost the same proportion of respondents identified that financial capacity is not sufficient for purching computers to maintain lab facilities for both teachers and students as a major constraint. Thirty-seven respondents expressed their opinions about the lack of IT-knowledge, while 37 reported having acute space problem to organize computers and Internet in their departments or institutes and 35 remarked that internet speed was not at a satisfactory level, so they had to spend more time for accessing, browsing and downloading. IPS was another constraint for proper utilization of computer and Internet access benefits in the campus as identified by 30 authorities. Besides, 10 respondents identified their ignorance about Internet resources, lack of latest computers, finding suitable time to use limited computers.

- **Overall Satisfaction of the DUET**

Of the 50 respondents, 48 (about 96%) indicated their level of satisfaction, while 8 (about 16%) did not have any comment on this point. 30 (60%) of the concerned authorities were not satisfied because of the insufficiency of the present Internet access facilities. 15 (30%) respondents expressed their satisfaction to some extent regarding the use of Internet, especially for official and personal dealings, while 10 (20%) were pleased with sufficiency of the existing Internet services and facilities.

4.3.2 Document Analysis of BSMRAU

- **The PCs and Internet Connectivity of BSMRAU**

The Study finds about 1012 PCs at different locations of the university among which 930 (91.90%) had Internet Access (Table-6). The Faculty of Agriculture was on the top of the list having 480 (51.61%) Internet access PCs. The faculty of Veterinary Medicine and Animal Science had 210 (22.58%) Internet access PCs. Faculty of Fisheries had 140 (15.05%) internet access PCs and Agricultural Economics and Rural Development had 100 (10.76%) internet access PCs.

Table 6 : Internet Connected units and PCs of BSMRAU

Faculties Department/Institute/ Other Units	Number of Units (PC)		Total Number of Units (PC)	Internet linked Units
	Departments	Lab		
Agriculture	32	480	512	480 *(51.61%)*
Fisheries	10	150	160	140 *(15.05%)*
Veterinary Medicine and Animal Science	20	200	220	210 *(22.58%)*
Agricultural Economics and Rural development	20	100	120	100 *(10.76%)*
Total =	82	930	1012	930 *(91.90%)*

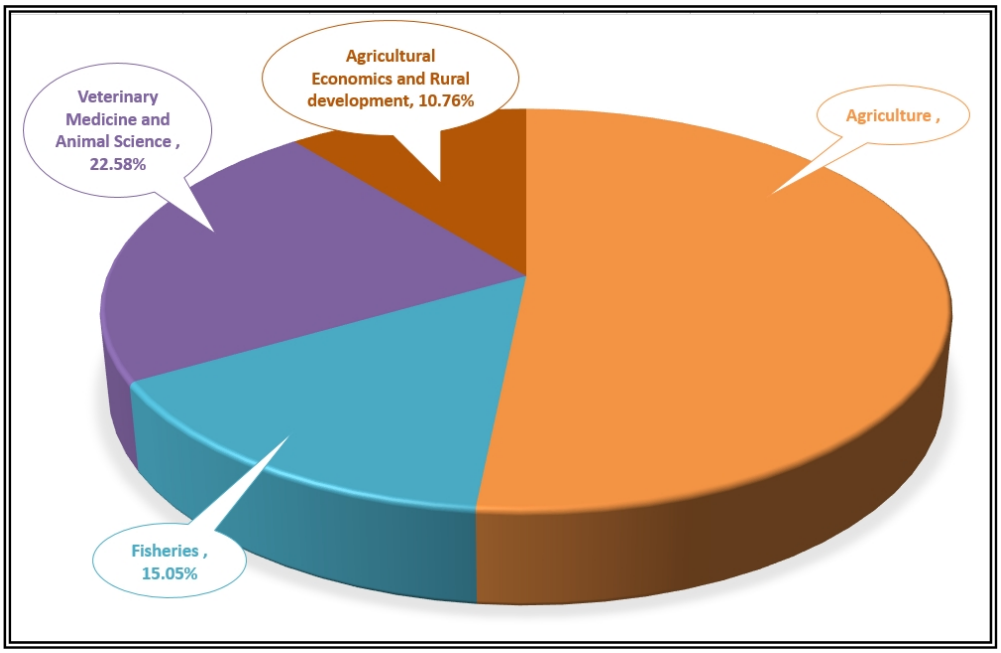


Figure-8 : Internet Connected units and PCs of BSMRAU

4.3.3 Document Analysis of BUET

- **The PCs and Internet Connectivity of BUET**

The Study finds about 1764 PCs at different locations of BUET among which 1235 (70.01%) had Internet Access (Table-7). The Faculty of EEE was on the top of the list having 265 (21.46%) Internet access PCs. The faculty of CE 250 (20.24%), Faculty of Engineering had 256 (20.73%), Computer Centre and other Offices had 208 (16.84%), Faculty of Mechanical Engineering had 105 (08.50%), Architecture and Planning had 61 (04.94%) internet access facilities.

Table 7: Internet Connected units and PCs of BUET

Faculties/ Institute	Department/Institute / Other Units	Number of Units (PC)		Total Number of Units (PC)	Internet linked Units
		Dept.	Lab		
Engineering (256) *20.73%*	Ch.E	04	12	16	12
	MME	06	20	26	20
	GCE	06	20	26	20
	Chem.	06	12	18	08
	Math	06	180	186	160
	Phys	10	20	30	20
	PMRE	06	20	26	16
Civil Engineering (250) *20.24%*	CE	10	180	190	130
	WRE	08	130	138	120
Mechanical Engineering (105) *08.50%*	ME	10	120	130	30
	NAME	08	25	33	15
	IPE	08	60	68	60

Faculties/ Institute	Department/Institute / Other Units	Number of Units (PC)		Total Number of Units (PC)	Internet linked Units
		Dept.	Lab		
Electrical & Electronics Engineering (265) ***21.46%***	EEE	12	120	132	60
	CSE	20	200	220	180
	BME	10	30	40	25
Architecture and Planning (61) ***04.94%***	Arch.	08	16	24	16
	Hum	06	15	21	15
	URP	06	30	36	30
Institute (90) ***07.29%***	IWFM	06	00	06	06
	IAT	06	00	06	06
	IICT	08	60	68	35
	ARI	06	10	16	15
	BUET-JIDPUS	04	16	20	16
	INPE	02	10	12	12
Other Units (208) ***16.84%***	Computer Centre	02	180	182	150
	Central Library	04	10	14	12
	Registrar Office	30	00	30	10
	Controller of Exam.	30	00	30	20
	Comptroller Office	20	00	20	16
Total =		268	1496	1764	1235 (70.01%)

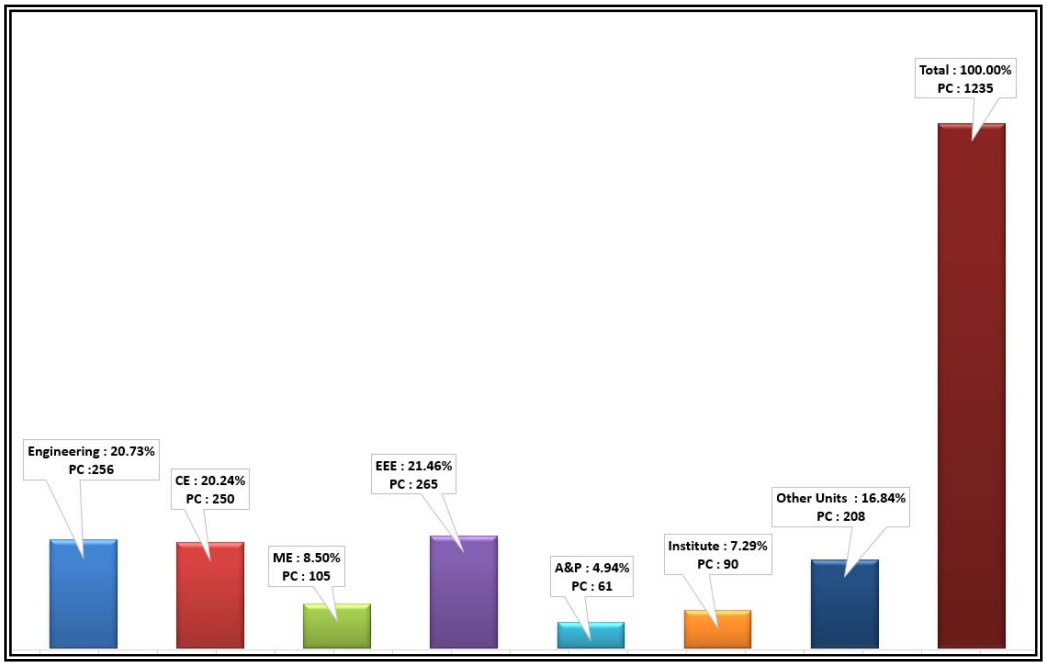


Figure-9 : Internet Connected units and PCs of BUET

4.3.4 Document Analysis of AUST

- **The PCs and Internet Connectivity of AUST**

The Study finds about 752 PCs at different locations of The AUST among which 562 (74.73%) had Internet Access (Table-8). The Faculty of CSE was on the top of the list having 170 (30.25%) Internet access PCs, followed by the department of EEE 108 (19.22%), Computer Centre 62 (11.03%), Department of CE 38 (6.76%) had internet access facilities in each.

Table 8 : Internet Connected units and PCs of AUST

Department/Institute/ Other Units	Number of Units (PC)		Total Number of Units (PC)	Internet linked Units
	Dept.	Lab		
Arch.	06	60	66	36 (6.41%)
CE	08	60	68	38 (6.76%)
CSE	10	180	190	170 (30.25%)
EEE	08	120	128	108 (19.22%)
MPE	10	90	100	60 (10.68%)
A&S	04	30	34	20 (3.56%)
TE	06	30	36	16 (2.85%)
Computer Centre	04	60	64	62 (11.03%)
Central Library	06	10	16	12 (2.14 %)
Registrar Office	20	00	20	18 (3.20%)
Controller of Exam.	22	00	22	16 (2.83%)
Comptroller Office	08	00	08	06 (1.07%)
Total =	112	640	752	562 (74.73%)

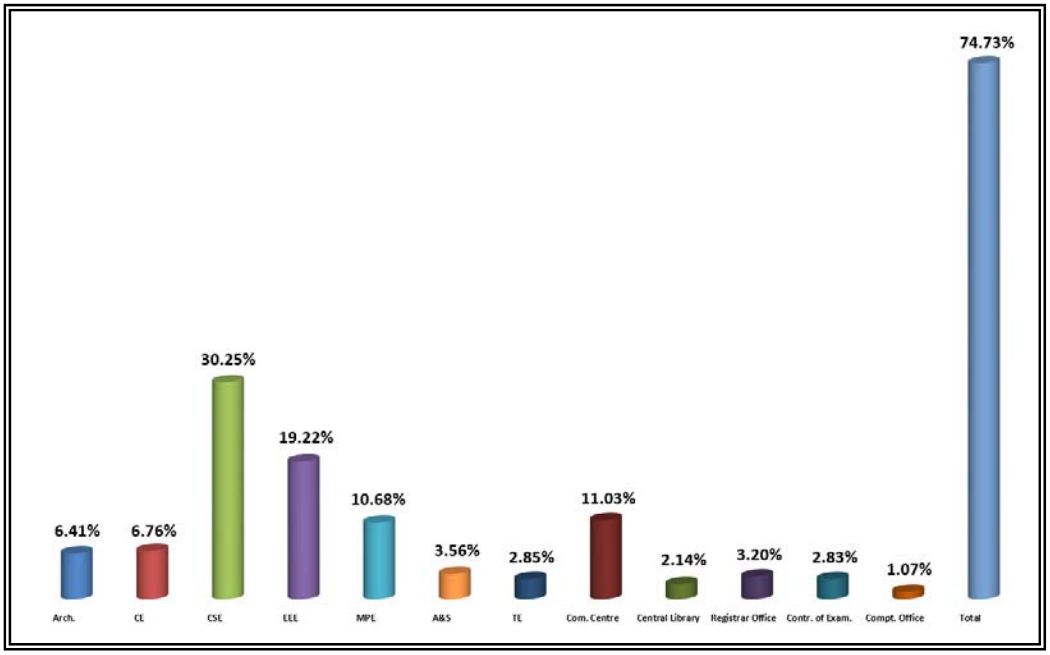


Figure-10 : Internet Connected units and PCs of AUST

4.3.5 Document Analysis of UIU

- **The PCs and Internet Connectivity of UIU**

The Study finds about 666 PCs at different locations of The UIU among which 550 (82.58%) had Internet Access (Table-9). The department of CSE was on the top of the list having 160 (29.09%) PCs had Internet access facilities flowed by the department of EEE 116 (21.09%); Computer Centre 122 (22.18%); Business Administration dept. 38 (6.91%) PCs had internet access facilities in each.

Table 9 : Internet Connected units and PCs of UIU

Department/Institute/ Other Units	Number of Units (PC)		Total Number of Units (PC)	Internet linked Units
	Departments	Lab (11 No's)		
CSE	08	180	188	160 (29.09%)
EEE	06	120	126	116 (21.09%)
Business Administration	08	60	68	38 (6.91%)
Economics	06	30	36	26 (4.73%)
Natural Sciences	08	30	38	20 (3.64%)
Computer Centre	06	120	126	122 (22.18%)
Central Library (KOHA)	04	30	34	30 (5.45%)

Department/Institute/ Other Units	Number of Units (PC)		Total Number of Units (PC)	Internet linked Units
	Departments	Lab (11 No's)		
Registrar Office (Document Preservation System)	20	00	20	18 (3.27%)
Controller of Exam.	20	00	20	12 (2.19%)
Comptroller Office	10	00	10	08 (1.45%)
Total =	**96**	**570**	**666**	**550 (82.58%)**

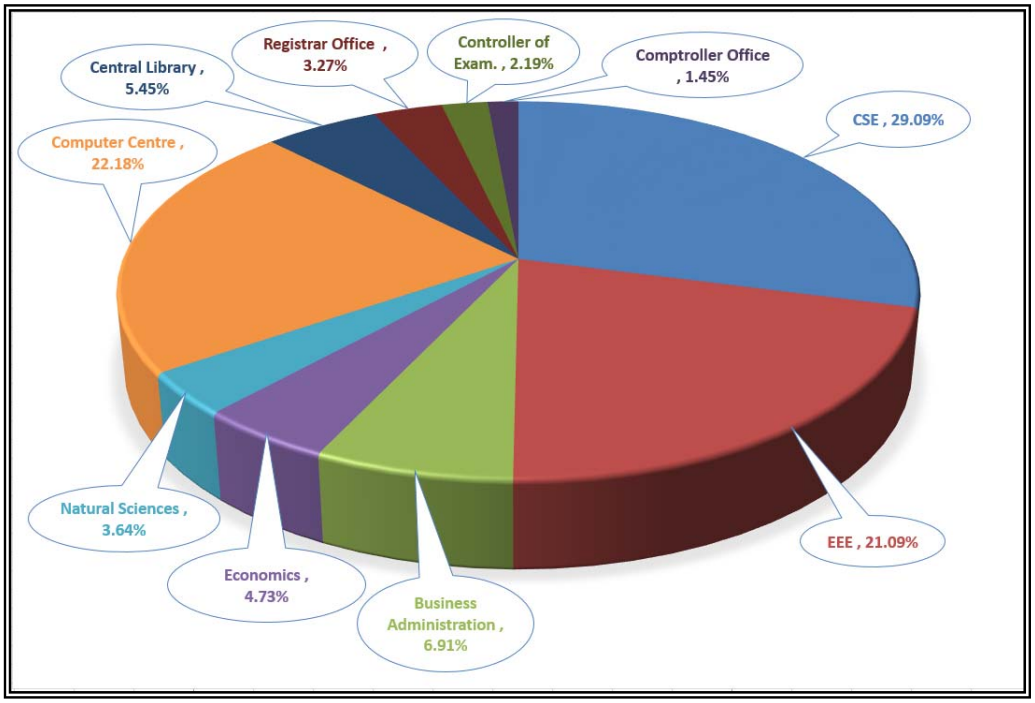


Figure-11 : Internet Connected units and PCs of UIU

4.3.6 Document Analysis of Uttara University

- **The PCs and Internet Connectivity of Uttara University**

The Study finds about 1037 PCs at different locations of The Uttara University among which 811 (78.21%) had Internet Access (Table-10). The department of CSE was on the top of the list having 160 (19.72%) Internet access PCs followed by the department of CE 120 (14.80%). The department of EEE 110 (13.56%); FDT 110 (13.56%) PCs had internet access facilities in each department.

Table 10 : Internet Connected units and PCs of Uttara University

Department/Institute/ Other Units	Number of Units (PC)		Total Number of Units (PC)	Internet linked Units
	Departments	Lab		
Business Administration	10	30	40	30 (3.70%)
Law	10	20	30	25 (3.08%)
EEE	10	120	130	110 (13.56%)
CE	12	160	172	120 (14.80%)
FDT	10	120	130	110 (13.56%)
CSE	10	180	190	160 (19.72%)
TE	08	60	68	38 (4.69%)
English	08	00	08	06 (0.74%)
Education	06	00	06	06 (0.74%)
Physical Education	08	00	08	06 (0.74%)
Islamic Studies	04	00	04	02 (0.25%)
Bengali	04	00	04	02 (0.25%)
Mathematics	06	30	36	16 (1.97%)
Physics	04	00	04	04 (0.49%)
Computer Centre	04	150	154	140 (17.26%)
Central Library	06	10	16	12 (1.48%)
Registrar Office (UMS)	15	00	15	10 (1.24%)
Controller of Exam.	12	00	12	08 (0.99%)
Comptroller Office	10	00	10	06 (0.74%)
Total =	**157**	**880**	**1037**	**811 (78.21%)**

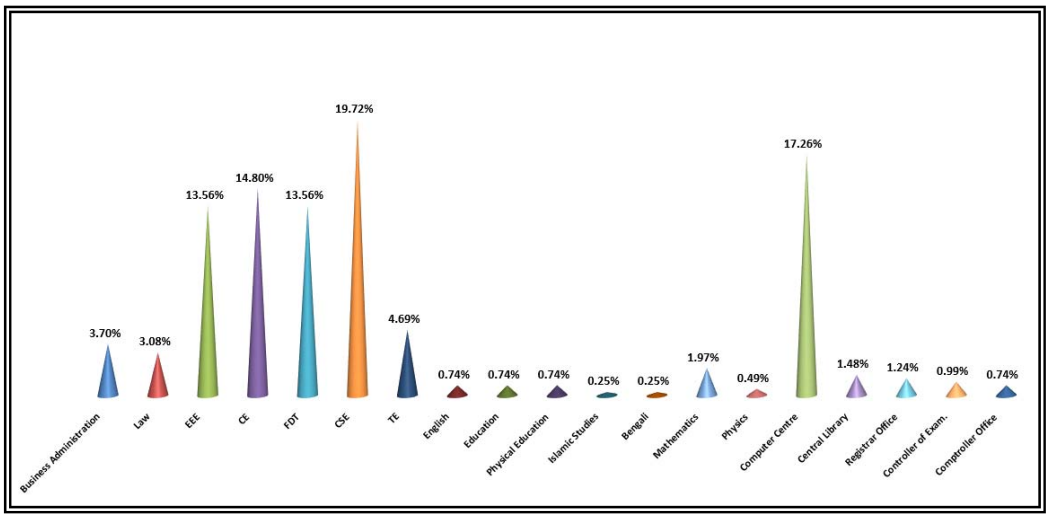


Figure-12 : Internet Connected units and PCs of Uttara University

4.4 Data Presentation of Interview/Semi Structure Interview Schedule of the Head of the Department/Dean

- **The main Challenges of the Faculty to integrate technology in teaching learning**

The main challenges and problems of the faculty to face in trying to integrate technology in teaching learning system. A country's educational technology infrastructure sits on top of the national telecommunications and information infrastructure. Before any ICT-based program is launched, policymakers and planners must carefully consider the followings. Appropriate rooms or buildings will have to be available. In countries where there are many old school buildings, extensive retrofitting to ensure proper electrical wiring, heating/cooling and ventilation, and safety and security would be needed. Another basic requirement is the availability of electricity and telephony. In developing countries large areas are still without a reliable supply of electricity and the nearest telephones are miles away. Although this is currently an extremely costly approach. Policymakers should also look at the use of ICT in the country in general, and in the educational system (at all levels) in particular. For instance, a basic requirement for computer-based or online learning is access to computers in schools, communities, and households, as well as affordable Internet service.

- **Technological Integration in Higher Education**

Data Presentation of technological integration of higher education shows that the respondents were requested to express their opinion regarding technology integration in higher education. Most of them said that technology integration means the use of technology tools in general content areas in education in order to allow students to apply computer and technology to learn and solve problem. Educational Institutions are adopting new technologies to integrate ICT in teaching learning process. Students can use computer and technology to learn and solve problem. More over the administrative officers of the higher educational institute can serve quick and easiest way by using ICT technology. Examination system such as result publishing can be done shortest possible time by using customized software. In the Classroom technology integration can also support students to complete assignments on the computer rather than with normal pencil and paper.

- **The Benefits of using Technology in Higher Educational Institution**

The respondents were asked to express the benefits of using technology in higher education. In accordance with result in the question, the respondents are most inclined towards the use of ICT materials. The benefit of technology use in education in many ways. Such as they can solve problem speedy and effective way. Data can be storage and share within a few moments. They can get information and data can be transferred by remote connectivity. The daily necessary work can be done by automation system. Students not only become more engaged but also they begin to take more control over their own learning. Students are often actively engaged in projects work when technology tools are a part of the learning process.

- **E-Management Activities regarding Students**

The faculty/officers of the university were requested to express the activities regarding student's administration. For students' administration by E-Management includes : Admission enquiry by students, Applying for admission through e-media, Registration or enrolment of students, Course allotment and availability of information like time-table/class schedule in electronic form, and attendance monitoring, Information about hostel accommodation, E-Management under staff and general administration includes: Recruitment and work allotment of staff in the institution, Attendance and leave management of staff members, and performance appraisal, Use of e-media for scheduling or allocation of examination halls, Fee payments : Use of e-media for the processing and display of results of students, etc.

4.5 Data Presentation of the Teachers Interview

- **The Availability of Technologies for Faculty Members and Students**

The faculty members and students were asked to express for teaching learning outcome. The faculty members and students use technologies like Electronic Whiteboards, Flipped Learning, Desktops and Laptops, Projectors, Videoconferencing Classroom Technologies, Mobile Learning, Television, Computer Networking. For developing expected students learning outcomes these tools are essential.

- **Evaluation of the Students by using Technology**

The respondents were asked to use technology for the evaluation system of their institutions. The officers regarding evaluation system informed that the evaluation system of the university is done by customized software. Students can get their transcript within one or two days. When we use online test, many of the logistical challenges get automatically resolved. If the answer sheets are stored online the process of retrieval becomes much easier. Examinations must lead to students being awarded a certification which is a logistical exercise of large magnitude. This logistical challenges get automatically resolved to a large context by using ICT.

- **Effective Utilization of ICTs for Professional Development**

The professional development of the university officers may be effective by utilizing of ICTs. The need of trained officers is great. ICTs are increasingly seen as important tools in reaching and engaging official on an on-going manner. The officers of a higher educational institution also develop associated documentation and design, develop, control, maintain and support databases and other information systems to ensure optimal performance and data integrity and security.

- **Importance of E-management in Higher Education**

The faculty and students are concerning the issue of E-Management in higher education. Now a days E-Management in higher education is an important issue. Institutional autonomy should be respected. Whilst we take it as axiomatic that government will set the policy framework for higher education nationally, we equally take it as axiomatic that the strategic direction and management of individual institutions should be vested wholly in the governance and management structure of autonomous universities. Academic freedom within the law should be respected. By this we mean the respect for the disinterested pursuit of knowledge wherever it leads.

This too is axiomatic, but needs to be managed responsibly by individual academics and institutions. Institutional governance should be conducted openly and should be responsive to constituencies internal and external to the institution.

4.6 Data Presentation of Questionnaire for Students

- **Technology in Classroom to Integrate Students Learning**

Students express their opinion to integrate lessons by using technology. Technology has become a teaching material in many classrooms. This question assesses how the candidate utilizes available technology to help students learning as well as teaching them basic technological skills. Technology in the classroom can be a valuable asset that helps students learning. It is important that students learn how to use technology for education as well as teaching them basic technological literacy and incorporated it into lessons by assigning students tasks that require more advanced use of technology. The students must learn to adjust margins, spacing, line breaks, citations and other more advanced features of word processors throughout the year. Not only do they become experts at the formatting they also learn how to manipulate formatting through repetition and exploration of these features that they would otherwise not have been exposed to. This exposure allows the students to get comfortable with the platform and creates a foundation that helps them use technology both inside and outside of the classroom.

- **ICT is a Tool to improve the quality of Education**

The respondents were requested to express their preference for using ICT. It is a general tools to improve the quality of education. ICT is a great tools to enhance the quality of education. ICT enables information and knowledge to travel faster and further, ICT supports information and knowledge sharing on a large scale, ICT makes available just-in-time information and knowledge for learning, ICT has brought about revolutionary advances in distance learning, ICT can significantly reduce learning costs. By using ICT, training and learning can reach a large number of people at a low marginal cost. The savings on travel and the economies of scale gained reduce learning costs and bring about cost effectiveness. There are some challenges like : Immense expenditures, Insufficient methods of teaching, Waste of valuable time, Misguided by the wrong information, Major challenges for teachers.

Software's keep on upgrading and if a teacher does not possess technical skills, it becomes difficult for him to execute it in the right direction. Hence, educators have to be expert in technical skills or the University has to hire technical experts adding extra expenses to their expenditures to overcome these technical challenges. The students express their opinion to use technology to complete their assignments. The respondents replied in positive. Most of them use internet to collect data for completing their assignment.

- **Improvement of Learning System by Using Technology**

ICT enhances the overall admission activities of higher education institutions. Online application and admission has also made easier. The faculty shall have to train continuously for their betterment of teaching learning system. University service rules should be more updated and disseminate the University employer. Syllabus should be modified on need base and international standard. ICT infrastructural development should be needed.

- **Opportunity to access Technology for the Students**

The opinion of the students concerning the issue of opportunity to access technology. If one can be able to improve the opportunity to easy access of technology, he can get online information and records of students, provision of online information about release of examination results and assessments, Online access to transcripts and other documents of students, Online postgraduate application process, Online allocation of hostel/rooms. The respondents were requested to express their ideas and suggestions in learning about the use of technology. The use of technology resources such as computers, mobile devices like smartphones and tablets, digital cameras, social media platforms and networks, software applications, the Internet, etc. In daily classroom practices and in the management of the university. They think success is achieved when the use of technology is routine and transparent, accessible and readily available for the task at hand.

- **Effects of E-Management in Higher Education**

The respondents were requested to express the effects of E-Management in higher education in Bangladesh. Application of ICT has great influence on the administrative services of students' records in the universities. ICT produces effective, efficient and excellent services in university administration and management of students' records.

The main impacts of ICT on administrative services of student's records in universities were to use of website to display the university, use of computers for clerical and general administration, application and admission of students, students' registration and fee payments. The effects of E-Management is to support the curricular goals and help the students effectively to reach their goals.

- **Improving Technology Integration at Faculty Level**

For the betterment of technology integration it is suggested that technology be made available on an equitable basis for use in improving student learning and enhancing teacher professional development. Enable teachers to establish contacts for mentoring, participate in networking and access a variety of curricular and pedagogical models, via technology. Technology can develop for higher education but the next level of IT responsibility will be to address student engagement and success through technology solutions and services. It is not enough to put a tablet or laptop in every student's hand and expect them to instantly improve test scores and graduation rates.

- **Benefits of Using Technology in Teaching learning System**

The students concerning the issue of the benefits of using technology in teaching learning. One can be benefited by using technology in teaching learning system. The examples are: Technology makes teaching easy, Technology helps us to track students' progress, Technology makes distance learning more accessible than ever, Students and teachers can access information at any time, Technology makes collaboration more effective.

4.7 Arguments Against E-Management

The arguments against E-Management is that it is structured. When a program is developed, it is based on what the course developers think is the right curriculum at the time. However, learning materials can quickly become outdated and may contain errors even from the beginning. After an E-Management course is developed, it can take an inordinately long time for any needed changes to be worked in. Developing a really effective E-Management course takes time, money and a great amount of expertise. A good E-Management course involves multimedia, custom web development, technical support and strong User Interaction design.

CHAPTER 5

FINDINGS AND RECOMMENDATION

5.1 Introduction

The results from the conducted questionnaire survey clearly show the significance of integrating of ICT in higher education. The data showed that ICT-integrated environments have been created by institutions to provide effective use of ICT. The institutional strategic plan and policy which in turn feeds into the national policy on ICT use in education. The analysis and approaches in ICT use among university students indicates that there are opportunities and challenges in adopting ICTs in professional development. Empirical evidence from the data suggests that in generally students and faculty members have a low technology access. This is not a good enabler for successful implementation of ICT integration in higher education sector. The study showed that students are aware about the social media and the E-mail. Students use the email, but their usage is limited to personal communication with friends and family members. More over their common use of email, students do not use it as a personal learning or knowledge sharing. It indicates that the failure of integrating technology in teaching and that the benefits of technology integration can only be attained if teachers can use the technology well. Technologies do not have predetermined impacts. The findings showed that university students have basic knowledge in the use of a range of technologies, software's and applications such as sending mails, chatting, Internet search and word processing. It is suggested that students' ability in using ICT is also one important factor which can help the success of ICT integration. The success of ICT integration does not only depend on how much money is spent for the procurement of technology facilities, but also depends on how frequently they are used for facilitating teaching and learning. After the discussion and objective of the research some recommendations have been made on considering the situation of E-Management of higher education in Bangladesh.

5.2 Findings of the Research

5.2.1 Findings of the Current Status of ICT in Higher Education

As per the focus point of the objective of the research we find that only 75.34% of the institutions have their internet linked units PC and most of the institutions have their own webpage. The research also found that 10.75% have ICT background or some ICT knowledge who were worked in different departments of the university. The majority of the ICT background academic staff was 30.32% who were in the faculty of Mechanical Engineering. It has been noticed that no university have digital library system. It has some limited license agreement with publishers the subscribe e-book or e-journals.

5.2.2 The volume of using ICT in higher education for academic and administrative purposes

Based on the second objective of the research the findings of this study shows that enquiry by the student regarding admission registration, course allotment is maintained by electronic form. The use of ICT in maintenance of the student records and communication with the stakeholders is essential for sustainable development of the educational establishment.

5.2.3 The Physical Infrastructure for using ICT in Higher Educational Institutions

As mentioned in the research objective we found that physical infrastructure is procured, implemented, configured and maintained by a service provider under a contract have a payment. But insufficient funding lead to very limited access to the internet and the international academic community by faculty and students.

5.2.4 The Support Infrastructure of the Higher Educational Institutions

Earlier mentioned in the objective of the research we find that the low levels of government funding for support infrastructure like power supply, relevant equipment and very high percentage of the funding for allocation of salaries leads to inadequate funding for equipment, computers, books and journal for personnel and building maintenance.

5.2.5 Internet resources and Internet access satisfaction

This study shows that the high use of the internet gave them instance access to knowledge. Most of them use internet in support of their study and teaching. Study results also indicate that 75% of the students currently have experienced with blended learning environment. This has made an impact on their academic performance. All the stakeholders including teachers and others staff said that they enjoyed the benefits of blended both on line and in-class learning style.

- **Activities of the Higher Educational Institution**

The university develops its own curriculum and this curriculum developing process is defined in the respective university order, statutes, ordinance and regulation. Generally three authorities' deals with curriculum development. These are Academic Council, faculties and the committee of courses. One of the important responsibilities of the faculty members is to assist the department in preparing courses and Syllabus.

Faculty members who prepare students for the job market seem to emphasize on developing transferable skill to the students. Most of the faculty and students make to understand to continue learning computer tools for their use inside the classroom because they consider them helpful to keep students attention, improve the intervention with students with difficulties and also improve the motivation and academic performance of both teachers and students.

- **Government Policy Regarding E-Management implementation**

The people's republic of Bangladesh adopted the national ICT policy in year of 2009 and government has been trying to implement it. This policy aims at building an ICT driven nation comparing of knowledge-based society. The prospects of ICTs in education sector are much diversified in nature. Almost all university developed website. From these websites various form, data, messages, results can easily get through these websites. In Bangladesh a fresh university graduate can instantly take up teaching without acquiring any training for teaching skills. To become a good teacher, necessary skills must be acquired through training, but unfortunately there is no scope for training of university teachers. The tertiary education system is particularly weak in facilities and faculty, governance and the quality of graduates produced. Adequate facilities is necessary for campus teaching and learning. If lecture halls, laboratories and libraries has insufficient space or have inadequate electricity, water supplies or bus services. Students will not have the minimum facilities which is necessary for learning. Physical facilities are costly and take time to construct. If left unattended, the facilities deficit can become so long that resolving is quiet impossible.

5.3 Recommendation

From the data analysis and findings of the above discussion the following recommendations have been made for Bangladesh higher Educational institutions. Research result represents that e-management infrastructure of the higher educational institution is not sufficient *(See Figure-4 on Page No.-25)*. To implement a ICT based higher educational institution the following measures should be taken :

- To use cost effective, appropriate and sustainable technology for e-management in different educational institution. The whole prerequisite hard were infrastructure needs to be in place with supporting equipment's.
- ICT infrastructure should be developed in every higher educational institutions by providing sufficient computer for teachers and students. Internet facilities at least one computer, multimedia projector and alternative power supply should be available for teaching learning activities.

- The syllabus of university should be modern, need-based and international standard. The university authority has to monitor properly to add new and innovative courses and ideas in the learning process so that the students can face the challenges of new millennium. Necessary institute, department should be opened for employment opportunities and income generating activities.

- The findings also indicated that, Computers are extensively used for accounts-related, clerical and general administrative duties in the university. Computers are used for effective educational administration, for financial records, word processing, examination processing, inventory records, students' records, and general administration. So customize educational software should be more included in higher educational administrative management.

This research study shows that there are some problem to implant the e-management, because most of the officials are not skill to use ICT. *(See Figure-5 on Page No.-28)*
In these circumstances necessary measures are :

- Quality professional training should be established to produce skilled manpower for the meet the demand of the future challenges of the world. To incorporate ICTs into university curriculum, provide proper guidelines as to teachers and set national and regional standard. Orientation and training for all concerned staff in the strategic and technical dimension of the process is a necessary condition for success.

- A monitoring board under the UGC can be established to assess the quality, recruitment and efficiency of faculties, officers and employees of the concern university. Reward to the good teachers may improve the quality teachers of higher education in Bangladesh.

This research study shows that there are some limited access for students to use internet *(See Figure-6 on Page No.-29)*. It is the main obstacle for the students to get information for their learning. In these situation the following steps should be taken :

- A long-term plan to create Internet access opportunity for general students. Initially, the authority may introduce some Internet services for the students with minimum charge.

This research study shows that the laboratory facilities for students of private universities is not satisfactory *(See Figure-12 on Page-39)*. It is the main barriers for the students to gather practical knowledge from the laboratories. For quality education the following steps should be taken by the concern private university authorities :

- All faculties, departments should be provided for their laboratories with sufficient computers and accessories to develop state of the art laboratories with Internet connection as well as to ensure more access facilities.

In computer center this research result shows that there are some limited facilities for students to use internet in private universities *(See Figure-10 on Page No.-36)*. Many authorities were not satisfied with the present services of the university computer center. It is the main barriers for the students to share knowledge for their learning. In these situation the following steps should be taken :

- The university should establish a full-fledged cyber center with well equipped latest computers, sufficient space to accommodate more users and major Internet access services to meet the student and faculties demand.

In Center Library this research result shows that there are some limited facilities for students to use e-books and journal. Library system is not automated *(See Figure-7 on Page No.-31)*. Many users were not satisfied with the present services of the university Library. In these reason the following steps should be taken :

- The authority should take immediate action to automate the library and to introduce Internet library system. Moreover, the library authority should deploy a focal point to establish an online networking and resource sharing programme with the departmental libraries, faculty libraries and the libraries of the students' halls.

5.4 Conclusion

A survey was conducted among faculty members of six higher education institutions of Bangladesh in order to identify the areas requiring improvement for enhancing the quality of higher education. The questions survey was divided into four sections: curriculum, assessment, faculty involvement and administrative support towards quality improvement. The survey findings revealed several critical areas of improvement. The first area of improvement identified was development of ICT infrastructure and program objectives that align with the university's mission. This was followed by the importance of an assessment of the learning outcomes. The area identified was the lack of knowledge and understanding of faculty and administrators in ICT equipment uses. A critical need for training in this area was demonstrated. A number of Higher Education Quality Enhancement Projects (HEQEP) funded by World Bank implemented under UGC-Bangladesh includes improvements of teaching-learning processes at different universities in Bangladesh as well as to ensure internet access facilities to the universities with high speed internet bandwidth. To provide effective training for sustainable improvement of quality education and skilled manpower of the different departments of the higher educational institutions. There are a number of expatriate Bangladeshi experts who are interested and willing to contribute to quality improvement initiatives in right education in Bangladesh. Different universities in Bangladesh must also take initiatives to arrange workshops and training by these experts on the teaching and learning process.

CHAPTER 6

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Annex-A

Teacher's/Students Semi-Structured Interview Schedule

1. What are the technological integration in higher education?
2. What are the benefits of using technology in Higher education?
3. What type of technologies are available for faculty members and students in higher educational Institutions? Is it enough?
4. What are the evaluation system of the students by using technology?
5. What are the main challenges and problems of the faculty to face in trying to integrate technology in teaching learning system?
6. What do you think of technology in the classroom and how have you integrated it into your lessons?
7. What is the effective utilization of ICTs to support on-going professional development for University officers?
8. Why is e-management in higher education is an important issue?
9. What are the effects of e-management in higher education in Bangladesh?
10. What are the activities regarding students for e-management in higher education system?
11. What are the arguments against e-management in higher education system?
12. What are the recommendation for improving technology integration at the faculty level?
13. How would you define the technology of development of higher education system?

14. If you do not have opportunity to access technology do you think you would improve by having access? Why?

15. What are your ideas and suggestions in learning about the use of technology?

16. What are the benefits of using technology in teaching learning system?

17. Do you believe that ICT is a great tools to improve the quality of education? Explain.

18. What are challenges do you fetch in using technology?

19. Do you use technology to complete your assignments?

20. What are your suggestion to improve the learning system by using technology at the University?

Annex-B

Classroom Observation Schedule

General information

University Name	
Under Graduate/Post Graduate	
Class	
Date	
Teacher Name	
Observer Name	
Time of lesson start	
Time of lesson finish	
Total Students	
Absent in Class	
No. of Girls	
No. of Boys	

Observation Notes :

Start of Lesson :

Time	Observed critical incidences and timed observations (Should be in 5 minute intervals)	Used ICT	Techniques	Problems in using ICT	Comments

Middle of Lesson :

Time	Observed critical incidences and timed observations (Should be in 5 minute intervals)	Used ICT	Techniques	Problems in using ICT	Comments

End of Lesson :

Time	Observed critical incidences and timed observations (Should be in 5 minute intervals)	Used ICT	Techniques	Problems in using ICT	Comments

After the observation :

In general, the Teacher :

	Circle on	Comments
Seems motivated	YES/NO	
Engaged the students	YES/NO	
Mostly Use in ICT	YES/NO	
Seemed prepared	YES/NO	
Moved around the classroom	YES/NO	
Seems in control of class	YES/NO	

In general, the Students :

	Circle on	Comments
Seemed to enjoy the lesson	YES/NO	
Were willing to participate in activities	YES/NO	
Mostly Use in ICT	YES/NO	
Seemed to be following the lesson	YES/NO	

Annex-C

The Documents used in Document Analysis

Follow the URL to retrieve the document

SL	Name of The University	Website
01	Ministry of Education (Secondary and Higher education division)	www.moedu.gov.bd
02	University Grants Commission of Bangladesh	www.ugc.gov.bd
03	Bangladesh Research and Education Network	www.bdren.net.bd
04	Higher Education Quality Enhancement Project (HEQEP)	www.heqep-ugc.gov.bd
05	Dhaka University of Engineering & Technology	www.duet.ac.bd
06	Chittagong University of Engineering & Technology	www.cuet.ac.bd
07	Rajshahi University of Engineering & Technology	www.ruet.ac.bd
08	Khulna University of Engineering and Technology	www.kuet.ac.bd
09	Bangladesh University of Textiles	www.butex.edu.bd
10	Bangladesh Open University	www.bou.edu.bd
11	Jagannath University	www.jnu.ac.bd
12	Bangabandhu Sheikh Mujibur Rahman Science & Technology University	www.bsmrstu.edu.bd
13	Chittagong Veterinary and Animal Sciences University	www.cvasu.ac.bd
14	Mawlana Bhashani Science & Technology University	www.mbstu.ac.bd
15	Patuakhali Science And Technology University	www.pstu.ac.bd
16	Pabna University of Science and Technology	www.pust.ac.bd
17	Barisal University	www.barisaluniv.edu.bd
18	Bangladesh University of Professionals	www.bup.edu.bd
19	Australian National University	www.anu.edu.au
20	Bangladesh Public Administration Training Centre	www.bpatc.org.bd

Annex-D

Dhaka University of Engineering & Technology, Gazipur Act-2003

রেজিস্টার্ড নং ডি এ-১

বাংলাদেশ গেজেট

অতিরিক্ত সংখ্যা

কর্তৃপক্ষ কর্তৃক প্রকাশিত

শনিবার, জুলাই ১৯, ২০০৩

বাংলাদেশ জাতীয় সংসদ

ঢাকা, ৪ঠা শ্রাবণ, ১৪১০/১৯শে জুলাই, ২০০৩

সংসদ কর্তৃক গৃহীত নিম্নলিখিত আইনটি ৪ঠা শ্রাবণ, ১৪১০ মোতাবেক ১৯শে জুলাই, ২০০৩ তারিখে রাষ্ট্রপতির সম্মতি লাভ করিয়াছে এবং এতদ্বারা এই আইনটি সর্বসাধারণের অবগতির জন্য প্রকাশ করা যাইতেছে ঃ—

২০০৩ সনের ৩৪ নং আইন

প্রকৌশল ও প্রযুক্তির বিভিন্ন ক্ষেত্রে অগ্রসরমান বিশ্বের সাথে সঙ্গতি রক্ষা ও সমতা অর্জন এবং জাতীয় পর্যায়ে উচ্চ শিক্ষা ও গবেষণা, আধুনিক জ্ঞানচর্চা ও পঠন-পাঠনের সুযোগ সৃষ্টি ও সম্প্রসারণের নিমিত্ত বাংলাদেশ ইনস্টিটিউট অব টেকনোলজী, ঢাকাকে উন্নীত ও রূপান্তরক্রমে, ঢাকা প্রকৌশল ও প্রযুক্তি বিশ্ববিদ্যালয়, গাজীপুর নামে একটি বিশ্ববিদ্যালয় স্থাপনকল্পে বিধান প্রণয়নের লক্ষ্যে প্রণীত আইন।

যেহেতু প্রকৌশল ও প্রযুক্তির বিভিন্ন ক্ষেত্রে অগ্রসরমান বিশ্বের সাথে সঙ্গতি রক্ষা ও সমতা অর্জন এবং জাতীয় পর্যায়ে উচ্চ শিক্ষা ও গবেষণা, আধুনিক জ্ঞানচর্চা ও পঠন-পাঠনের সুযোগ সৃষ্টি ও সম্প্রসারণের নিমিত্ত বাংলাদেশ ইনস্টিটিউট অব টেকনোলজী, ঢাকাকে উন্নীত ও রূপান্তরক্রমে, ঢাকা প্রকৌশল ও প্রযুক্তি বিশ্ববিদ্যালয়, গাজীপুর নামে একটি বিশ্ববিদ্যালয় স্থাপন করা সমীচীন ও প্রয়োজনীয়;

সেহেতু এতদ্বারা নিম্নরূপ আইন করা হইল ঃ—

১। **সংক্ষিপ্ত শিরোনাম ও প্রবর্তন**।—(১) এই আইন ঢাকা প্রকৌশল ও প্রযুক্তি বিশ্ববিদ্যালয়, গাজীপুর আইন, ২০০৩ নামে অভিহিত হইবে।

মূল্য ঃ টাকা ৮.০০

(২) সরকার কর্তৃক উহার কর্মকর্তা ও কর্মচারীদের ভবিষ্য তহবিল সম্পর্কে প্রণীত বিধিমালা, প্রয়োজনীয় সংশোধন সাপেক্ষে, বিশ্ববিদ্যালয়ের শিক্ষক, কর্মকর্তা ও কর্মচারীদের ক্ষেত্রে প্রযোজ্য হইবে।

১৬। পূর্বে গঠিত ভবিষ্য তহবিলের কার্যকারিতা বিলোপ।—এই সংবিধি প্রবর্তনের অব্যবহিত পূর্বে বাংলাদেশ ইনস্টিটিউট অব টেকনোলজী, ঢাকা কর্তৃক গঠিত কোন ভবিষ্য তহবিলের কার্যকারিতা এই সংবিধি প্রবর্তনের সংগে সংগে বন্ধ হইয়া যাইবে এবং উক্ত তহবিলে জমাকৃত সকল অর্থ উহার উপর অর্জিত সুদসহ অনুচ্ছেদ ১৫ অনুযায়ী গঠিত সাধারণ ভবিষ্য তহবিলে স্থানান্তরিত হইবে।

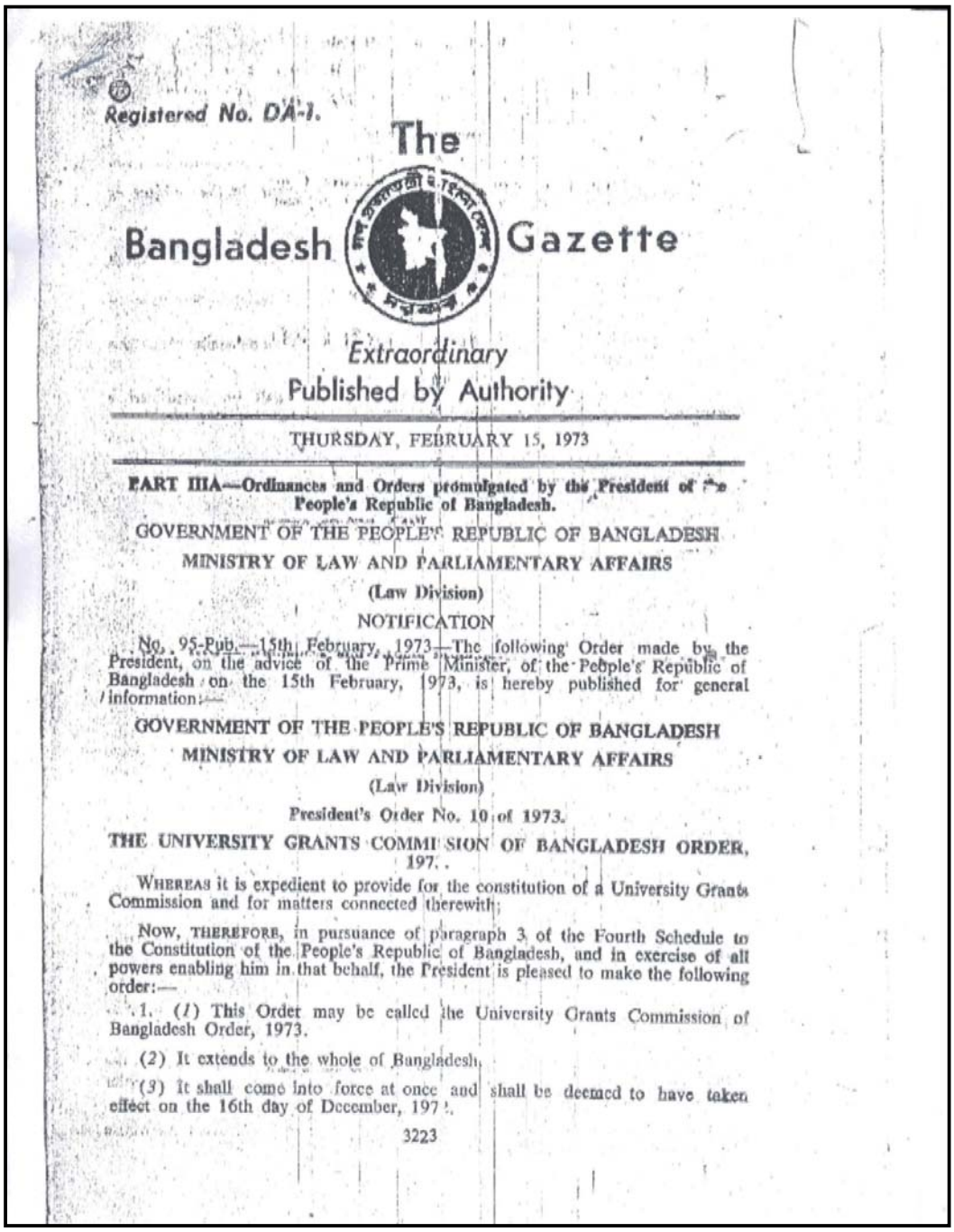
১৭। সংবিধির ব্যাখ্যা।—এই সংবিধির কোন বিধানের ব্যাখ্যার প্রয়োজন দেখা দিলে বিষয়টির উপর সিন্ডিকেটের প্রতিবেদনসহ উহা চ্যান্সেলরের নিকট প্রেরণ করিতে হইবে এবং এতদ্‌বিষয়ে চ্যান্সেলরের সিদ্ধান্তই চূড়ান্ত হইবে।

কাজী রকিবউদ্দীন আহমদ
সচিব।

শেখ মোঃ মোবারক হোসেন (উপ-সচিব), উপ-নিয়ন্ত্রক, বাংলাদেশ সরকারী মুদ্রণালয়, ঢাকা কর্তৃক মুদ্রিত
মোঃ আমিন জুবেরী আলম, উপ-নিয়ন্ত্রক, বাংলাদেশ ফরম ও প্রকাশনা অফিস
তেজগাঁও, ঢাকা কর্তৃক প্রকাশিত।

Annex-E

University Grants Commission Act-1973



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PART IIIA—Ordinances and Orders promulgated by the President of the People's Republic of Bangladesh.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

MINISTRY OF LAW AND PARLIAMENTARY AFFAIRS

(Law Division)

NOTIFICATION

No. 95-Pub.—15th February, 1973—The following Order made by the President, on the advice of the Prime Minister, of the People's Republic of Bangladesh on the 15th February, 1973, is hereby published for general information:—

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

MINISTRY OF LAW AND PARLIAMENTARY AFFAIRS

(Law Division)

President's Order No. 10 of 1973.

THE UNIVERSITY GRANTS COMMISSION OF BANGLADESH ORDER, 197.

WHEREAS it is expedient to provide for the constitution of a University Grants Commission and for matters connected therewith;

NOW, THEREFORE, in pursuance of paragraph 3 of the Fourth Schedule to the Constitution of the People's Republic of Bangladesh, and in exercise of all powers enabling him in that behalf, the President is pleased to make the following order:—

1. (1) This Order may be called the University Grants Commission of Bangladesh Order, 1973.

(2) It extends to the whole of Bangladesh.

(3) It shall come into force at once and shall be deemed to have taken effect on the 16th day of December, 197 .

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13. In the event of any dispute arising between the Commission and a University out of an action of the Commission which is considered by the University concerned to have adversely affected its interest, an appeal shall lie with the President:

Provided that such an appeal shall be submitted through the Commission which shall forward the appeal along with its views to the President within the shortest possible time.

14. The Government may, by notification in the official Gazette, make rules for carrying out the purposes of this Order.

15. (*1*) The Commission may, with the approval of the Government, make regulations, not inconsistent with the provisions of this Order and the rules, to provide for all matters for which provision is necessary or expedient for the purpose of giving effect to the provisions of this Order.

(*2*) All regulations made under this Article shall be published in the official Gazette and shall come into force on such publication.

DACCA;
The 15th February, 1973.

ABU SAYEED CHOWDHURY
President of the
People's Republic of Bangladesh.

N. AHMAD
Joint Secretary.

Printed and Published by A. R. Siddiqui, Special Officer,
Bangladesh Government Press, Dacca.

Annex-F

Private University Act-2010

রেজিস্টার্ড নং ডি এ-১

বাংলাদেশ গেজেট

অতিরিক্ত সংখ্যা

কর্তৃপক্ষ কর্তৃক প্রকাশিত

রবিবার, জুলাই ১৮, ২০১০

বাংলাদেশ জাতীয় সংসদ

ঢাকা, ১৮ই জুলাই, ২০১০/৩রা শ্রাবণ, ১৪১৭

সংসদ কর্তৃক গৃহীত নিম্নলিখিত আইনটি ১৮ই জুলাই, ২০১০ (৩ রা শ্রাবণ, ১৪১৭) তারিখে রাষ্ট্রপতির সম্মতি লাভ করিয়াছে এবং এতদ্বারা এই আইনটি সর্বসাধারণের অবগতির জন্য প্রকাশ করা যাইতেছে ঃ

২০১০ সনের ৩৫ নং আইন

বেসরকারী বিশ্ববিদ্যালয় আইন, ১৯৯২ রহিতক্রমে কতিপয় সংশোধনীসহ উহা পুনঃ প্রণয়নের উদ্দেশ্যে প্রণীত আইন

যেহেতু দেশে মানসম্মত শিক্ষা সম্প্রসারণের লক্ষ্যে বেসরকারী পর্যায়ে বিশ্ববিদ্যালয় প্রতিষ্ঠা এবং উহার সুষ্ঠু ব্যবস্থাপনার জন্য এতদ্‌বিষয়ে বিদ্যমান আইন অপর্যাপ্ত বলিয়া উহা রহিতক্রমে একটি নূতন আইন প্রণয়ন করা সমীচীন ও প্রয়োজনীয়;

সেহেতু এতদ্বারা নিম্নরূপ আইন করা হইল ঃ—

১। **সংক্ষিপ্ত শিরোনাম ও প্রবর্তন।**—(১) এই আইন বেসরকারী বিশ্ববিদ্যালয় আইন, ২০১০ নামে অভিহিত হইবে।

(২) ইহা অবিলম্বে কার্যকর হইবে।

২। **সংজ্ঞা।**—বিষয় বা প্রসঙ্গের পরপন্থী কোন কিছু না থাকিলে, এই আইনে—

(১) **"অনুষদ"** অর্থ কোন বেসরকারী বিশ্ববিদ্যালয়ের শিক্ষা অনুষদ বা স্কুল অব স্টাডিজ;

(২) **"একাডেমিক কাউন্সিল"** অর্থ কোন বেসরকারী বিশ্ববিদ্যালয়ের একাডেমিক কাউন্সিল;

(৭৪২৩)

মূল্য ঃ টাকা ১২.০০

৫২। **ইংরেজীতে অনূদিত পাঠ প্রকাশ।**—এই আইন কার্যকর হইবার পর সরকার, প্রয়োজনবোধে, সরকারী গেজেটে প্রজ্ঞাপন দ্বারা, এই আইনের ইংরেজীতে অনূদিত একটি প্রমাণীকৃত পাঠ প্রকাশ করিতে পারিবে, যাহা এই আইনের প্রমাণীকৃত ইংরেজী পাঠ (Authentic English Text) নামে অভিহিত হইবে ঃ

তবে শর্ত থাকে যে, এই আইনের মূল বাংলা পাঠ ও উক্ত ইংরেজি পাঠের মধ্যে বিরোধের ক্ষেত্রে মূল বাংলা পাঠটি প্রাধান্য পাইবে।

৫৩। **রহিতকরণ ও হেফাজত।**—(১) এই আইন বলবৎ হইবার সংগে সংগে বেসরকারী বিশ্ববিদ্যালয় আইন, ১৯৯২ (১৯৯২ সনের ৩৪ নং আইন), অতঃপর রহিত আইন বলিয়া উল্লিখিত, রহিত হইবে।

(২) রহিত আইনের অধীন কৃত বা গৃহীত বেসরকারী বিশ্ববিদ্যালয় সংক্রান্ত যাবতীয় কার্য এই আইনের অধীন কৃত বা গৃহীত বলিয়া গণ্য হইবে।

(৩) উপ-ধারা (২) এ যাহা কিছুই থাকুক না কেন, রহিত আইনের অধীন স্থাপিত বেসরকারী বিশ্ববিদ্যালয়সমূহকে এই আইন কার্যকর হইবার তারিখ হইতে এই আইনের অধীন আবশ্যক সকল শর্তাবলী যথাযথভাবে অনুসরণ ও প্রতিপালন করিতে হইবে।

আশফাক হামিদ
সচিব।

মোঃ মজিবুর রহমান (যুগ্ম-সচিব), উপ-পরিচালক (অতিরিক্ত দায়িত্ব), বাংলাদেশ সরকারি মুদ্রণালয়, ঢাকা কর্তৃক মুদ্রিত।
মোঃ মজিবুর রহমান (যুগ্ম-সচিব), উপ-পরিচালক, বাংলাদেশ ফরম ও প্রকাশনা অফিস,
তেজগাঁও, ঢাকা কর্তৃক প্রকাশিত। web site : www.bgpress.gov.bd

Annex-G

Training on E-Management from Australian National University

Australian National University

CERTIFICATE OF COMPLETION

Supported by AusAID, Public Sector Linkage Program

Md. Mofizur Rahman

Enhancing Effectiveness, Accountability and Transparency in Government through e-Government Capacity Building

eGovernment Management Course

Conducted at Bangladesh Public Administration Training Centre, Dhaka, Bangladesh

12 December 2011 - 8 January 2012

Professor Jayne Godfrey
Dean and Director
ANU College of Business and Economics