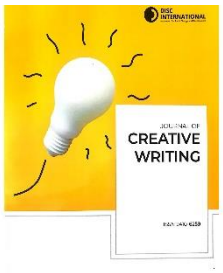

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Curriculum and Fundamental Computer Course at Bangladesh Islami University

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Abstract

In pedagogy, there are different methods of instruction, and each is often designed to suit a unique classroom instruction. Teaching methods are described as techniques and means through which teachers deliver the curriculum content. These include lectures, demonstrations, discussions, problem-solving, excursions, projects, and play-way methods. Consequently, this course (Computer Fundamentals) is also designed to train students about these techniques and their applicability in appropriate and unique contexts. Computer fundamentals is a mandatory course involving three credits for the second semester in first-year students in all departments at Bangladesh Islami University (BIU). This course vastly helps the students to extend their knowledge of basic computer or digital devise use in daily life for every occupation. This article concerns the pedagogy I follow to instruct and teach undergrad students at BIU.

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Introduction

Our lives are connected with digitization. We used computer in universal. Computers or digital devices are everywhere, from homes to schools or colleges, banks, post offices, or the professional world. We used computers in the universities as even lectures are being conferred with the facilitation of PPTs. Now we can declare that the computer is an amazing science to modern man from Science. Many of our daily jobs are done on the computer; therefore, the gap between man and device has been bridged by using computers.

Most of us must know the dictionary meaning of the word "Computer Fundamentals", which is an electronic calculating machine. Its derivation has taken place from the word compute, which means to reckon.Also, the computer mechanism is straightforward. The computer is a data-based machine, and Information processing is the key to computing. Today, computers do many tasks, like forecasting the weather, operating machines, cutting shapes out of sheet metal, and even guiding spacecraft to the moon. There are other extremely important uses of Computers. Some examples are printing books and newspapers, diagnosing diseases, looking for obscure documents in archives and elusive criminals, etc. It is also used in the tourism industry where a Travel agent comes to know which seat or bed will be available in an airplane or hotel in advance. Many big companies use it for advanced processes like accounting, invoicing, stock control, and payroll.

Course Objective

Make the students understand how to operate it, to make familiar with the part and functions of a computer, its types, how to use a computer in our day-to-day life, its characteristics, its usage, Limitations, and benefits, etc. At the end of this course, students can operate a computer by knowing all the parts and main functions of a computer.

Computer Parts

There are four basic types of computer parts. Figure 1.1.0 shows their relationship.

a) Input devices - parts of the computer that allow information or data to be given to the computer like keyboard or a mouse.

b) Storage devices – parts of the computer that hold information. The primary storage device is the computer's memory called RAM (random access memory). It remembers everything that is read, input, or output. But, because the computer's memory is in a temporary area—it forgets everything when turned off—it must have another place to store information permanently. This secondary storage device is usually a disk.
c) Processing device – part of the computer that processes and controls the flow of information; it does the work. The central processing unit or CPU is one part of the computer that handles this job.
d) Output devices - parts of the computer that gives out information generated by the computer, like a monitor, printer, or speaker.

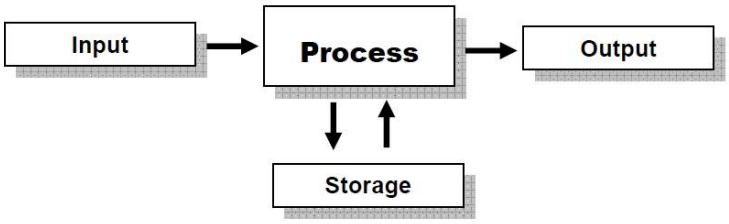

Figure 1.1.0

The efficiency of a computer

Speed	A computer can issue millions of instructions per second.
Reliability	Failures are usually due to human error, one way or another. (Blush for us all!)
Storage	A computer can keep huge amounts of data.

Course Curriculum

The course curriculum engaged almost every chapter of the fundamentals of computers. The curriculum of the course is: provides a comprehensive introduction to computers, types of computers, history, and generation of computers, functions of the computer, number system, and codes, Boolean algebra and Logic gates, hardware and software, processor, memory, input and output devices, storage devices. Software types, system software and application software, operating system, and system utilities. Examples of system software: are DOS, Windows, UNIX, and Linux, and application software: word processor, spreadsheet, database management, mathematical and statistical packages, modeling and simulation, and business and financial packages. Data communication and computer network, intranet and internet,

information system, multimedia, and database concepts. Hardware Assembling Familiar with the Desktop, MS Office (MS Word, MS Excel, MS PowerPoint, MS Access), Web Browsing, Searching Information from web pages, Create and use Email.

How I Teach the Course

The course is prescribed as the core for every first-year faculty member who offers a course in the second semester and passes before graduating from the university. The course Fundamentals of Computer is a 100 marks course involving three credits. As the academic activities are divided into trimesters, I get only four months to educate the vast syllabus and access the students. I have to conduct two classes each week according to routine. Each class is held in a computer laboratory with 30 or more computers and one computer, often with a data projector. Each computer has a networking and internet facility. I take my class total of 1.30 - 30 minutes lecture hour and one-hour computer practice session.

As a lecturer, I usually prepare my lecture one week before the commencement of the scheduled class each trimester. I typically prefer reference books to making lecture notes or search engines for the students as students can know more if reference books are followed. I presented the topic as easy to understand during the lecture using a presentation slide. Sometimes I use a whiteboard to write the definition and to draw necessary graphs or figures in mathematical terms according to different scholars. This helps the students to take presentations for examinations and achieve a good result. This is the first time the students come across the course; thus, they need to have a clear view of it so that they would appreciate it.

During the practice, firstly, I show the students how they do the practical work using a multimedia projector. Secondly, I prescribed computer practice. Then I check the experimental work to understand whether they can do this. Finally, I give them to do homework in practice. In laboratory work, I generally provide five topics that are needed daily: word processing, spreadsheet, presentation slide, hardware, and software. In a short time, I provide the students immense of following practical works.

Word processing for text typing and editing is the most commonly used computer application. In word processing, the following key topics are covered:

1. Introducing the application window.
2. Creating, saving, and opening a documents

3. Formatting and editing the documents
4. Make tables, charts, and graphs
5. Make diagrams using shapes and word art
6. Setup the Page number, header, and footer
7. Text alignment, Bullets, and numbering
8. Font size, styling, reasonable paragraph, and line spacing.
9. Preparing a resume and developing other productivity tools.
10. Page setup and advanced features
11. Printer properties and printing documents etc.

A spreadsheet is an interactive computer application for the organization, analysis, and storage of data in tabular form. Spreadsheets were developed as computerized analogs of paper accounting worksheets. The program operates on data entered in cells of a table. Each cell may contain either numeric or text data or the results of formulas that automatically calculate and display a value based on the contents of other cells. A spreadsheet may also refer to one such electronic document. In the spreadsheet, the following key topics are covered:

1. General introduction to spreadsheets
2. Creating, saving, and opening spreadsheets
3. Doing mathematics formulas: addition, subtraction, average, logical formula, and function, etc.
4. Making charts: background, legend, the color of bars, creating pictograph, etc
5. Data sorting and filtering
6. Draw the table and customize the borders of the selected cells or text
7. Insert and delete the rows and columns and format the cells
8. Using a spreadsheet to do some project, like a salary sheet, grade sheet, etc.
9. Making page layout, including print properties.

Presentations are necessary for meetings, seminars, or other academic events. Student teachers must embrace best practices and essential skills for using presentation applications. The objective of this unit is to build learners' skills to work on and use presentation applications. In the presentation slide, the following key topics are covered:

1. General introduction to multimedia application
2. Creating, saving, and opening presentations
3. Viewing and working with slides

4. Building presentations (adding, moving/sorting, and duplicating slides)
5. Making slides look good (applying templates and changing color schemes, slide layout, and background)
6. Adding pictures and artistic effects (inserting and compressing pictures, applying borders to pictures and other objects, adding 3D effects)
7. Adding sounds, movies, and links
8. Adding animations and special effects (applying slide transitions, adding and customizing animations, adding action buttons, turning off animations)
9. Setting up and playing presentations (printing presentations, setting time)
10. Using multimedia to create presentations (lesson presentations, assignment presentations, etc.)

In hardware and software, the following terms are instructed:
Hardware assembling/disassembling

1. Disassembling the hardware configuration of a computer.
2. Assembling the hardware configuration.
3. Set up the operating system and other necessary applications.
4. Maintain the PC.

Operate the computer

1. Turn on and turn off the computer using 'Start' and 'Shut Down.'
2. How to log on or log off windows
3. Maximize, Minimize, Close a window
4. How to operate the mouse to point to an object and lunch the application, and use of single and double click
5. How to operate the keyboard and shortcut menu using the keyboard

Fundamental skills

1. Create a new folder, delete files or folder
2. Usage of recycle bin
3. Select and rename a file or folder
4. Save documents and search the file
5. Access Help

Browser for the internet

1. How to access a website using a URL
2. Bookmark a web page using, 'Back' and 'Forward' buttons to find recently displayed web pages
3. Navigate through a website using hyperlinks, buttons, and tabs
4. 'History' button to find recently displayed web pages.'

Email

1. Create a new email account
2. Login and logout email
3. Sending and receiving a mail
4. Attached is a file with a mail
5. Forwarding and printing a mail

Multimedia

1. Usages CD/DVD or pen drive
2. Lunch the audio and video using the media player
3. Using headphones and a speaker
4. Eject CD/DVD or pen drive safely

Assessment Methods and Duration of the course

Students are aware of summative assessments from their secondary and higher secondary experiences. University has fixed two summative assessments like midterm examinations and final examinations, and devised formative assessments like a lab test, class test, assignment, presentation, class attendance, and viva. Each category carries a defined mark that totals 100 marks; the marks distribution is given table-1.

In midterm examinations, students have to answer two questions and are final examinations, they have to answer three questions. I usually take two lab tests in each trimester. Lab-1 takes in before the midterm examinations, based on hardware assembling and word processor. In word processors, we use Microsoft word. Lab-2 takes in before final examinations, based on spreadsheet and presentation software. In spreadsheets, we use Microsoft excel, and in the presentation, we use Microsoft PowerPoint.

I usually prescribe making an assignment using Microsoft word and taking viva or class tests to ask relevant questions to assess their apprehension about the topic prescribed to them. Class attendance considers students' attendance in class.

Table-1: Marks Distribution

Categories of Assessment	Marks
Lab-1 (Word processor and Hardware Assembling)	10
Midterm Examinations	20
Lab-2 (Spreadsheet and Presentation)	10
Final Examinations	30
Assignment	10
Viva and Class Test	10

Class Attendance	10
Total	100

Intended Outcome of the Course

After finishing the point of the teaching, a student's carries out the following ability

- They can express the history of the computer invention and also express the generation of the computer.
- They understand the fundamental of computer terminology and to be used.
- Can survey the career possibility and opportunities in these sectors.
- Able to know the computer's configuration and recommend purchasing essential parts of computer or a computer system based on its future application.
- Be capable of assembling and disassembling computer hardware and setup system software, application software, etc.
- To identify hardware or software problems and to use troubleshooting techniques.
- Capable of operating and browsing the internet for education, research, e-commerce, and other professions.
- In the MS Office program, they know how to create, edit, utilize functions, format and manipulate documents using Microsoft Word, spreadsheets using Microsoft Excel, and presentations using Microsoft PowerPoint.
- They also know how to create and query a database using Microsoft Access.
- Illustrate the advantages and disadvantages of network topology in computer networking and describe the hardware devices used in networking.
- Understand Internet Ethics
- Regarding communication skills, they can send or receive an email and open email attachments. They are also familiar with social media.
- Finally, they are capable of using a printer.

Suggested Major books for the course

1. Peter Norton, “Introduction to Computer”, New York: McGrow-Hill Technology Education, Sixth Edition, 2006
2. Prodeep K. Sinha, “Computer Fundamentals”, New Delhi: BPB Publications, 4th Edition, 2010-2011

3. Shah Sayed Shahjahan Sajib "Computer Fundamental", Universal Publication, 2018
4. Mahbubur Rahman, "Microsoft Office (MS Word, MS Excel, MS PowerPoint, MS Outlook)", 2010
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Conclusion

Finally, I encourage them to develop skills that still need to be practiced on a computer. Education is the process of facilitating learning or the acquisition of knowledge, skills, values, beliefs, and habits. The teacher is the key player in making education or the educational system perfect and empirical. The logistic materials and support of BIU to conduct the course are convenient, which has made the teaching and learning processes conducive to the teachers and students, respectively. Being a history-based course enriches the students' knowledge under systematic teaching procedures. In fact, the course in a formal setting affects how one thinks, feels, or acts.

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