BANGLADESH TECHNICAL EDUCATION BOARD

SYLLABUS FOR THE ADVANCED CERTIFICATE COURSE

IN

Computer Technology

TOTAL DURATION: 1(one) YEAR, 2 SEMESTER

CURRICULUM FOR THE ADVANCED CERTIFICATE COURSE IN COMPUTER TECHNOLOGY

1st Semester (Duration 6 months)

SL No.	Subject Code	Name of Subject				Marks				
			T	P	C	Theory		Practical		Total
						Cont. Assess	Final Exam	Cont. Assess	Final Exam	
1	2211	Computer Fundamental & Operating System	2	6	4	40	60	60	40	200
2	2212	Application Packages &Office Automation	0	9	3	0	0	90	60	150
3	2213	Programming Language	2	6	4	40	60	60	40	200
4	2214	Data Structure & Algorithm	1	3	2	20	30	30	20	100
5	2215	Creative Graphic Design	0	9	3	0	0	90	60	150
6	2216	Business English	1	3	2	20	30	30	20	100
	Total		6	36	18	100	200	410	190	900

2nd Semester (Duration 6 months)

SL No.	Subject Code	Name of Subject				Marks				
			T	P	C	Theory		Practical		Total
						Cont. Assess	Final Exam	Cont. Assess	Final Exam	
7	2221	Data Communication & Networking	2	9	5	40	60	90	60	250
8	2222	Database Management System	1	9	4	20	30	90	60	200
9	2223	Web & Mobile Application Development	1	12	5	20	30	120	80	250
10	2224	Internet & Web Technology, Online Outsourcing	1	6	3	20	30	60	40	150
11	2225	System Analysis & Design	1	0	1	20	30	0	0	50
	Total		6	36	18	120	180	360	240	900

Curriculum for Computer Technology
1st semester (Duration 6 month)

Subject: Computer Fundamental & Operating System Code: Credit-2(T)+2(P) = 4

Chapter	Name of the Topics
1	Acquire knowledge on Computer Fundamentals Describe the history of computer. List different types of computer depending on data processing. Classify computer depending on capability, size, speed, etc. Difference between Hardware & Software.
2	Learn Computer System Components Learn Storage Devices Classification of different type of Storage Devices Define Hard Disk Type (PATA, SATA, SSD, etc)
3	RAM Types and Features List the types of Memory Identify Primary and secondary Memory Distinguish between RAM and ROM State Bit, Byte, Kilobyte, Megabyte, Terabyte.
4	Device Connections and Interfaces Hardware Port (Ex: Serial, Parallel, HDMI, USB/PS2, etc.) Learn Hardware specification for PC
5	Learn Operating System Fundamentals Personal Computer Operating System Define Single user OS, Multiple user OS, multitasking
6	Control Panel Utilities Security Settings Operating System Tools
7	Difference between System Software and Application Software. Learn Operational Procedures Basic Maintenance Tools & Techniques
8	Describe computer virus and anti-virus, computer security. Describe Printer Technologies.

PRACTICAL: Computer Fundamental & Operating System

Exp no.	Name of the Experiments
1	Identify the different units of a Personal Computer – Casing, Motherboard, Power Supply, Hard Disk, RAM, Lan Card/ Wifi Lan Card, PCI VGA Adapter, etc. BIOS Setup
2	Assemble all the components, ensure power cables and data cables connection. Front panel power switch, Front or Back panel USB ports, LEDs, etc.
3	Re-assemble all the components of a Personal Computer Identify the different units of Laptop/Notebook.

4	Hard Disk Partitioning with Third Party Software like Acronics, Norton Ghost or any other. Primary Partition Logical Partition
5	Install Microsoft Windows Windows upgrade and preventive maintenance
6	Install Motherboard Driver Install, Configure and maintain Printer Install, Configure and maintain Scanner Install, Configure and maintain Modem
7	Practice on Windows Operating System Environment. Select, open and close Desktop icons for navigation purposes. Create / Rename a folder, Cut/Copy/Paste a File or Folder. Run program/application based on job requirements. Create and manage User Accounts Create Administrator Accounts, Local accounts Set Password for user accounts
8	Install Linux Desktop Operating System (Ex: Ubuntu Desktop)
9	Practice on Linux Operating System Select, open and close icons for navigation purposes. Create / Rename a folder, Cut/Copy/Paste a File or Folder. Create and manage User Accounts Set Password for user accounts
10	Install, configure, update Antivirus Software

Subject: Application Packages & Office Automation Code: Credit-0(T)+3(P) = 3

PRACTICAL: Application Packages & Office Automation (32 classes)

Exp No.	Name of the Experiments
1	Install and Uninstall Application software like Microsoft Office, Bijoy, CC Cleaner, Winrar, PDF, Flash Player, etc. Run setup program
2	Install and Uninstall Application software like Open Office, Flash Player, etc. Run setup program in Linux System
3	Install, Configure and maintain Printer Install, Configure and maintain Scanner Install, Configure and maintain Modem
4	Troubleshoot Video and Display devices Troubleshoot Hard drives Troubleshoot Printers, Scanners Troubleshoot Modem
5	Identify the different components of MS Word program. Select Text using mouse / keyboard Edit text as per requirement
6	Format Text / Paragraph. Practice typing using “Type Tutor”

7	Save a new document in a specific folder, Open the previously saved document Practice with save and save as option Compose sample English document
8	Create a document with multiple page Insert page break, page numbers, different type of page numbering in different section of a same document, date & time, footnote & endnote, header & footer, symbols in a document .
9	Insert Picture from ClipArt, Image File, WordArt, Shape in a created document.
10	Compose Bangla/English document Install and work with specialized Bangla Typing software
11	Insert AutoShape, TextBox, Bookmarks & Hyperlink (Internal & External Hyperlink), comments, caption, index & tables files in a document.
12	Use Bullet & Numbers, Borders & shape as per requirement. Create Watermark, Drop cap, Change Cases, style of paragraphs & text and use Auto Foratting in a document.
13	Use AutoSave, AutoCorrect Options and other options of tools menu.
14	Work with Mail Merge Wizard. Create Primary or main document, and secondary document (Add/Remove Fields, Get data or Fill up the forms) Merge Documents in accordance to task assigned Print Document, create & print Envelopes, and create & print labels in a document.
15	Configure Paper size, Margins, Gutters, Paper Orientation, Mirror Margin for printing a document. Print entire document or selective pages, or selective portion of the document as needed.
16	Use shortcut keys in MS Word.
17	Compose a sample document/application/Bio-data in Bengali and English with formatting.
18	Identify the different components of spreadsheet program Identify Rows, Columns, Cells and range Move cursor upward, downward, left, right, last cell, last column, last row, first cell, first row, first column
19	Use page setup options. Apply different options/operations of edit menu in a spreadsheet file (Cut, Copy, Paste, Paste Special, Fill, Clear)
20	Use various operations of find and replace in spreadsheet file in accordance to task assigned. Use Hide or show options for row/column when required and zoom the sheet.
21	Insert AutoText and Custom Text as Header and Footer, Rows, Columns, Worksheets, symbols, Comments, Page Breaks, Copied Cells, Picture from ClipArt & Image in spreadsheet file in accordance to task assigned.
22	Format Rows & Columns, format Cells with Number on task necessity Practice Decimal place setting and style of Negative figures. Format Cells for Alignment, Merge, and Fonts
23	Practice cell reference (Absolute & Relative). Logical Functions- AND(), OR(), IF(), TRUE, FALSE, etc. Date & Time Functions- Now(), Today(), DAYS360(), HOUR(), MINUTE(), etc.
24	Practice Mathematical Functions- Abs(), Sum(), SUMIF(), CEILING(), FLOOR(), MOD(), POWER(), RANK(), COUNT(), MAX(), MIN(), etc.
25	Create a salary sheet and prepare, sort by name/by salary/by date and also check for Spelling & Grammatical Error

26	Set Page Orientation, Paper Size, Scaling, Margins, print Titles to the center of the page, set printer as default Print a hardcopy of entire Book, entire Worksheet, or selective pages of a Worksheet from MS Excel. Understanding Print Area and Clear Print Area under file menu.
27	Identify the different components of MS Power Point Program
28	Design templates, color schemes, animation schemes Add/delete slides in the presentation in accordance with the necessity Create a template using slide master.
29	Add Pictures, graphs, charts and other objects into slides as per requirements. Animate Text and other objects are in a very attractive way or motion.
30	Execute Slide transitions in accordance with the theme of the subject matter of the presentation. Use Sound effects and custom path of animation effects in the presentation. Add Video Clips.
31	View Slides of PowerPoint presentation in a different way (for example outlining, slide shorter, etc.) Reorder Slides of PowerPoint presentation on the outline Tab in accordance with the necessity.
32	Preview a presentation and print from MS PowerPoint.
33	Customized a slide show setup for a particular audience. Set up a slide show, Rehashing and timing a of a presentation. Review and adjust Slide timing as per requirement.
34	Present a Slide Show.
35	Create an E-mail account (on yahoo, hotmail, etc.) for the first time. Check, compose, send and reply of e-mail message. Attach a file to an e-mail message and open an attached file.
36	Set-up an E-mail account first time using outlook. Check, compose, send and reply of e-mail message by Outlook. Attach a file to an e-mail message and open an attached file by Outlook.
37	Use contact/address book. Backup Outlook files.
38	Delete a message temporarily and permanently. Clean up mail box by managing junk e-mail. Email Sorting
39	Move messages to another folder. Create custom Folders to store custom emails. Creating Rules to manage automatic email folder arrangements in Outlook, Gmail, Yahoo, etc.

Subject: Programming Language Code: Credit-2(T)+2(P)=4

Chapter	Name of the Topics
1	Introduction to C The Structure of a C Program Some basic C Commands
2	For loop Symbolic constant Character input and output Logical AND and OR Array and Functions Call by Reference and call by Value

3	Variables and constants Data Types Operators Expressions
4	if switch Conditional Expressions while break and continue
5	Multi-file programs Scoping Recursion The C Pre-processor
6	Pointers and addresses Organization of Memory Pointers and Arrays Managing and manipulating memory Passing parameters to C programs Pointers to functions

PRACTICALS: Programming Language

Exp No.	Name of the Experiment
1	Write simple program to print "Hello World" to understand the environment.
2	Write code to understand input and output. (Ex. Integer, Char, String, etc) Understand code for symbolic constant. Understand and write code for call by reference and call by value.
3	Practice different data types, variables, operators, expression by writing codes.
4	Write code by using loop, while, do while.
5	Write code to understand Arrays. Perform several example codes.
6	Write code to understand flow control. Perform several examples code to understand if, switch, while, break, continue, conditional expressions.
7	Understand two dimensional arrays and perform example codes.
8	Understand multi file programs and perform example codes.
9	Understand recursion with several example codes.
10	Understand and write codes with pointers by performing example codes.
11	Writing codes by performing pointers and arrays, pointers to functions.
12	Write program by using all the above functions.
13	Information Technology related Project.

Subject: Data Structure & Algorithm Code: Credit-1(T)+1(P)= 2

Chapter	Name of the Topics
1	Basic Terminology (Data, Data Item, Group Items, Elementary Items, Attribute and Entity, Entity, Field, Record, File), Characteristics of a Data Structure, Correctness, Time Complexity, Space Complexity, Need for Data Structure, Execution Time Cases, Characteristics of an Algorithm.
2	Aysmptotic Analysis, Greedy Algorithms, Divide & Conquer, Dynamic Programming,

3	Array Data structure, Linked List, Doubly & Circular Linked list, Stack & Queue.
4	Linear Search, Binary Search, Interpolation Search,
5	Sorting Algorithm, Bubble sort, Insertion sort, Selection sort, Merge sort, Quick sort
6	Graph Data Structure, Tree Traversal, Binary Search Tree, Spanning Tree, Heap, Recursion Basics, Tower of Hanoi, Fibonacci Series

PRACTICAL: Data Structure & Algorithm

Exp No.	Name of the Experiment
1	Practice to write algorithm for different problems.
2	Practice different link list operations. (Code in C)
3	Practice Stack Operations. (Code in C)
4	Practice Queue Operations. (Code in C)
5	Practice different search operations. (Code in C)
6	Practice Recursion operations. (Code in C)
7	Practice Fibonacci series. (Code in C)

Subject: Creative Graphic Design Code: Credit-0(T)+3(P)= 3

Practical: Creative Graphic Design

Exp No.	Name of the Experiment
1	Brief About Graphics design, how to develop skill on this field, focus on particular points.
2	Basic color concept development, color mixing idea, how to generate any color combination, type of color, Understand the measuring, type of measurement, where and how to use.
3	Introduce with Photoshop environment, what's kind of work can do via this application
4	Introduce with Photoshop environment, what's kind of work can do via this application
5	Introduce with Web interface design
6	Introduce with Mobile Apps UI design
7	To develop any HTML template, it's necessary to prepare all images as per HTML development requirement.
8	How to make Combination AI and PS, how to development design skill, how to generate idea to make a unique design, how to develop any design from scratch to finish.
9	Intro to the Photoshop Major Shortcut Keys

10	Understanding Layers Understanding what a layer is Changing the opacity of a layer Changing the stacking order/ Arrange Turning the visibility of layers on and off Deleting Layers Duplicating Layers Aligning Layers Group Layer Layer All style Basic Idea Layer Mask Layer Lock Lock Transparent Pixel Blending Option Clipping Mask Linking Layers Grouping Layers Linking Groups
11	Adding and Transforming Images History Panel Magic Wand Basics Smart Objects vs Normal Layers Canvas Size vs. Image Size Clipping & Masking Color Correction Clone Stamp
12	Clipping Path
13	Path selection Using pen tool to create path
14	Complex 1 Project based, how to do the work and one by one show the problem and fixing
15	Complex 2 - one by one show the problem and fixing
16	What should you need to start a design, how to work faster, how to handle/make perfect your working software environment Create a document. Start creating Shapes Coloring the shapes Difference tools/ Plates Create action, change color Make align using Alignment Plate
17	Practice Class Make logo similar to chrome Simple Business card with Safe and bleed Talk about related issues
18	Web interface design, primary focused on target audience and type of website. Color combination, related images used, source of images, font size, sections, how many sections min requirement etc.
19	Redraw PSD file from JPG Open JPG images in Photoshop Start Header part Save the file PSD format Finish all others works After Finish check with original design layout

20	New Layout for Web page Create a document 1200px Make Guide as per bootstrap Total 12 column and keep 30px gutter Guide make on 1170px Make canvas size 1920px Increase canvas height as per design requirement
21	Concept and compare in existing market apps and website, what compromise did on mobile apps.
22	Come up with a concept Live check the website and mobile view
23	Check existing Apps design Question and asking why and what etc. Check the used tools and content Redraw UI kit for Mobile
24	Create Apps UI kit Create a UI kit base on apps design Design a new apps from given concept Check and fixing problems
25	Trim the PSD Choose an image for slice. Slice the logo, icon, and images. Use the Copy Merge Function for copy images Use the Trim Function for easy picture size Use save for web PNG or JPG as per images requirement. Transparent Images only make PNG and others make jpg for make small file size.
26	Do a Project Check the full document and finalize which part you need to make images. Also check which Image need to make PNG and which image can make JPG. Make a folder give the name images/img for save all images.

Subject: Business English Code: Credit-1(T)+1(P)=2

Chapter	Name of the Topics
1	How to Write to Influence in your Business
2	Introducing Common Terms and Phrases
3	Idioms and colloquial language used professionally
4	Language to Avoid Hidden Negative Meaning
5	Giving instructions politely
6	Structure clear and concise Messages
7	Ways to make a message formal
8	Techniques to negotiate and persuade
9	Phrases used for apologies and assurance
10	Saying 'No' in a positive manner
11	Writing techniques to handle complaint/negotiation/persuasion email
12	Structuring the Report or business proposal
13	Pre-requisites for a successful conversation
14	Starting a conversation on a topic and switching to another

15	Asking Questions
16	Proper way of: • Greetings • Apologizing • Empathizing • Showing gratitude/thanking • Offering Assistance
17	Maintaining professionalism by setting the right tone
18	Ways to be Competent to Develop Oneself
19	Constructing Good Professional Relationships
20	Creating Motivation in a Team through Effective Communication

Practical: Business English

Exp no.	Name of the Experiments
1	Where and How to Send a direct message
2	Writing Techniques to send Difficult Messages to Your Clients
3	Appropriate reply picking verbs from the questions
4	Structuring a formal message: - Decide business situations where we can speak informally
5	Identify and avoid using the words with hidden negative meaning
6	Picking, discussing and correcting practical words and cases participants often have to use in their day-to-day business
7	Being able to Receive Messages by Identifying Body Language
8	Analyzing and Replacing "No" in statements
9	Adopting Extrovert Approach by Leaving Open ended Statements/Questions: distinguish cases for suitability of open and close ended questions
10	Making your Message Assertive
11	Making the Point in Your Message in Few Words
12	Overcoming Stress to Conquer Communication
13	Communication techniques for higher and lower tier

Semester 2

Subject: Data Communication & Networking Code: Credit-2(T)+3(P)= 5

Chapter	Name of the Topics
1	Data communication Networks Network Topologies Network categories The internet
2	The layers and their functions IPv4 & IPv6
3	Digital signals Analog signals Composite signals

4	Twisted Pair. Coaxial Cable. Fiber-Optic Cable. Radio Waves. Microwaves. Infrared.
5	Digital Transmission. Analog Transmission.
6	Types of errors , Redundancy Detection Versus Correction Error Detection, Error Correction. Hamming Code. Cyclic Redundancy Check. Checksum and Its idea.
7	Random access Controlled access Channelization
8	LAN protocol architecture Bridge Layer 2 & layer 3 switches
9	Ethernet Fibre channel
10	Main concept Bluetooth

PRACTICALS: Data Communication & Networking

Sl.No.	Name of the Experiment
1	Learn Sub-netting with IPv4
2	Understanding the OSI and TCP/IP Models Understand the layers Wireshark displays Understand basic terminology in Wireshark and networking systems. Learn how to install and setup Wireshark on different devices. Learn how to monitor varying traffic in Wireshark and use Wireshark filters. Learn how to remotely capture with Wireshark.
3	Learn UTP Cable Color Code Prepare patch cord Perform clipping with RJ45 Connector
4	**Packet Tracer**
5	Introduction and getting know the Software Learn how to install and setup IP Addressing Designing Network

Subject: Database Management System Code: Credit-1(T)+3(P)= 4

Chapter	Name of the Topics
1	File Systems Organization, Sequential, Pointer, Indexed, Direct, Purpose of Database System, Database System Terminologies, Database characteristics, Data models, Types of data models, Components of DBMS, Relational Algebra. LOGICAL DATABASE DESIGN: Relational DBMS, Entity Relationship model , Extended ER Normalization , Functional Dependencies, Anomaly, 1NF to 5NF, Domain Key Normal Form, De-normalization.
2	SQL Standards Data types, Database Objects. Embedded SQL, Static Vs Dynamic SQL. Query Processing and Optimization, Heuristics and Cost Estimates in Query Optimization.
3	Introduction, Properties of Transaction, Serializability, Concurrency Control, Locking Mechanisms, Two Phase, Commit Protocol, Dead lock. Effective Design of Forms and Reports Reports Data on Forms - Programs to Retrieve and Save Data - Error Handling. Table Operations Data Storage Methods - Data Clustering and Partitioning.
4	Database Administration - Development Stages - Application Types - Backup and Recovery - Security and Privacy - Distributed Databases - Client/Server Databases Web as a Client/Server System Data Classification, Threats and risks, Database access Control, Types of Privileges, Cryptography, Statistical Databases, Distributed Databases, Architecture, Transaction Processing, Data Warehousing and Mining, Classification, Association rules, Clustering, Information Retrieval, Relevance ranking, Crawling and Indexing the Web, Object Oriented Databases, XML Databases.

PRACTICALS: Database Management System

Exp No.	Name of the Experiment
1	Data Definition, Table Creation, Constraints,
2	Insert, Select Commands, Update & Delete Commands
3	Nested Queries & Join Queries
4	Views
5	High level programming language extensions (Control structures, Procedures and Functions).
6	Front end tools
7	Forms
8	Triggers
9	Menu Design
10	Reports
11	Database Design and implementation (Mini Project). (Common to Information Technology & Computer Science Engineering)

Subject:	Web & Mobile Application Development	Code:	Credit-1(T)+4(P)= 5

Chapter	Name of the topics
1	Overview of Web Development How to keep a variable in computer memory. Naming convention of PHP code Understand how a program is run in a computer in PHP environment
2	Understand array mechanism for keeping a series of data in computer memory Apply linear search for finding a particular item from a series Apply quick sort algorithm for ascending or descending ordering of a series of data How to keep data in an array and find them later
3	Work with collection classes: Array List, Array to get benefits over array Use Stack, Queue data structure for solving particular problem
4	Encapsulate your data and its functionality Define association relationship Understand the essence of inheritance relationship
5	Find an object from problem domain Keep some field, property, method inside a class Understand a class with the collection of another class in its field Define static class and method from real life example Understand user defined type and create object from it
6	Understand association relationship between two classes Understand inheritance relationship between classes
7	How web works. Understand HTML and The Web, HTML Document Structure What and why: CSS, Why do we need JavaScript HTML5 Fundamentals, HTML Foundations HTML5 Features
8	CSS Basic, Up and Running with Selectors, CSS Position CSS Text, Managing Details in Style Sheets CSS3 And Modern Web Design, Building A Solid Cross- Browser Template Create a HTML template by an editor and open it by any of browser application
9	Put some HTML Tags (for heading, paragraph, break, bold, italics, HTML lists) in a HTML page Create a menu using using HTML tags
10	Validate logic using JavaScript
11	Understand Web design fundamentals Understanding aggregate function and advanced queries Use PHP server side controls in your web application
12	State management of PHP How to put JavaScript in web page Working with server side programming
13	Discuss the history of Apps Development Technology stack needed for android apps development Understand main building block of Android apps

PRACTICALS: Web & Mobile Application Development

Exp No.	Name of the Experiment
1	Declare and assign a string type variable.
2	Show value of a variable in browser
3	Take input from user and display it in browser application.
4	Take user name from user and show it in a message box
5	Control business logic using if-then-else
6	Make a simple arithmetic calculator by which user can add, subtract, divide and multiply two number.
7	Make an application where user will input data in a range and the data between this range will be shown in list box
8	Create an application where user will enter as many name as (s)he wants. After that user will search any of given input data.
9	Create an application where user will input some persons' name and after that user will want to sort these name in ascending or descending order
10	Create an application which will keep persons' name in a file and show these in a list box
11	Update the above application so that user can search a name and edit it, if (s)he wants
12	How PHP works? Demonstrate, session and cookie
13	Make UI layout for student information entry
14	Make a web application for keeping and searching student information. Use three layer architecture concept in your application.
15	Make an application for user sign up, sign in, sign out. Use three layer architecture concept in your application.
16	Make your above application responsive
17	Setup Android Apps Development Environment in your computer
18	Create an activity
19	Understand Intents and Service
20	Understand Content Providers, Broadcast receivers and Application context

Subject: Internet & Web Technology, Online Outsourcing Code: Credit- 1(T)+2(P)= 3

Chapter	Name of the topics
1	How to use Internet What is Session, Session Data, Practical Example of using Session Understanding Cookie
2	Email Overview
3	What is Web 2.0 Technology Understanding Domain Name Server
4	Understanding Domain, Hosting, cPanel, WHM, Plesk Panel, phpmyadmin
5	Web Server Overview, Windows and Linux Web Server overview, characteristics.

6	Introduction on online marketplace Overview on Skill Test importance and 100% Profile ready Bidding process on Project Way to Interview How to do Client Communication Payment System Overview
7	Social Media Overview Understand Email Marketing Learn about Affiliate Marketing
8	Instant messaging overview
9	File Sharing knowledge
10	Understanding Internet of Things (IoT) Benefits of IoT Example of WiFi Lightbulb Examples of Internet connected items Problem with IoT

PRACTICAL: Internet & Web Technology, Online Outsourcing

Exp No.	Name of the Experiment
1	Internet and Social media related software setup Working with session and cookie.
2	Google Search Techniques with several examples
3	Email Communication (gmail, yahoo, outlook, etc)
4	Social Media Profile Creation and activities (Facebook, Twitter, Google Plus, Linkedin, etc)
5	Instant Messaging Practice
6	Profile on online marketplace Skill Test 100% Profile ready Bidding on Project Interview facing Working on Project Client Communication Payment System
7	File sharing with FTP (FileZilla, Firebug, etc)
8	Working with phpmyadmin
9	Creating user/database on hosting space

Subject: System Analysis & Design Code: Credit-1(T)+0(P)= 1

Chapter	Name of the topics
1	System definition and concepts: Characteristics and types of system, Manual and automated systems, Real-life Business sub-systems: Production, Marketing, Personal, Material, Finance Systems models types of models: Systems environment and boundaries, Real-time and distributed systems, Basic principles of successful systems.
2	Systems analyst: Role and need of systems analyst ,Qualifications and responsibilities ,Systems Analyst as an agent of change. Introduction to systems development life cycle (SDLC) : Various phases of development :Analysis, Design, Development, Implementation, Maintenance. Systems documentation considerations: Principles of systems documentation, Types of documentation and their importance, Enforcing documentation discipline in an organization.
3	**System Planning**
4	Data and fact gathering techniques: Interviews, Group communication, Presentations, Site visits. Feasibility study and its importance Types of feasibility reports System, Selection plan and proposal Prototyping, Cost-Benefit and analysis: Tools and techniques
5	Process modeling, Logical and physical design, Design representation, Systems flowcharts and structured charts, Data flow diagrams, Common diagramming conventions and guidelines using DFD and ERD diagrams. Data Modeling and systems analysis, Designing the internals: Program and Process design, Designing Distributed Systems.
6	Classification of forms: Input/output forms design, User-interface design, Graphical interfaces.
7	Module specifications ,Module coupling and cohesion , Top-down and bottom-up design
8	Introduction to Object Oriented Analysis and design life cycle, object modeling: Class Diagrams, Dynamic modeling: state diagram, Dynamic modeling: sequence diagramming.
9	Planning considerations, Conversion methods, producers and controls, System acceptance Criteria, System evaluation and performance, Testing and validation, Systems qualify Control and assurance, Maintenance activities and issues.
10	Computer system as an expensive resource: Data and Strong media Procedures and norms for utilization of computer equipment, Audit of computer system usage, Audit trails, Types of threats to computer system and control measures: Threat to computer system and control measures, Disaster recovery and contingency planning.

LIST OF EQUIPMENT FOR Computer Technology (10 Students)

a. Equipment

Tools	Quantity
Personal Computer System and Accessories	10
Scanner	01
Printer	01
Projector	01
UPS	10
Modem	10
Wireless LAN Card	10
RJ 45 Connector	100
Twisted pair cable Cat 5/6	100 Meter
Network Clipping Tools	10
Switch (16 port)	01
Wireless Router	01
DVD Read/Writer	10
MS Office latest version CD	10
Windows 7/10 DVD	10
Ubuntu Desktop latest version DVD	10
Type Tutor CD	01
Bangla Type Writing Software latest version CD	01
Wireshark Software CD	10
Packet Tracer CD	10
Programming Software CD	10
Database Software CD	10
XAMPP/WAMPP/MAMP/LAMP CD	10
Adobe Photoshop, Illustrator CD/DVD	10
Dreamweaver/Notepad++	10
FTP Software (FileZilla, Firebug, etc) CD	10
Internet Connection	01(Broadband/Dial up) All PC Should be connected
First Aid Kit	01

REFERENCE BOOKS

Name of the books	**Author / publisher**
Teach Yourself c – Latest edition	**Herbert Schildt**
সবার জন্য কম্পিউটার প্রোগ্রামিং ল্যাংগুয়েজ: C	মোঃ কামরুজ্জামান নিটন
Computer networks	Andrew S. Tanenbaum
Computer Networking: A Top-Down Approach, 6th ed.	J.F. Kurose and K.W. Ross
কম্পিউটার নেটওয়ার্কিং	কে এম আলী রেজা
Database System Concepts, Latest Edition.	Abraham Silberschatz, Henry F. Korth and S. Sudharshan
Computer Fundamentals	Dr. Mohammad Lutfor Rahman
প্র্যাকটিক্যাল হার্ডওয়ার	ওমর ফয়সাল
operating system	william stallings
কম্পিউটার অপারেটিং সিস্টেম	বিজ্ঞান একাডেমী
http://gaia.cs.umass.edu/wireshark-labs/	

Training Facilities for each group of students:

Physical facilities	**Size(in ft)**	**Area (in Sq. ft)**
Class Room cum Laboratory	15X 20	300
Office Room cum Library	15X20	300
Wash room	4X7	28

Entry Qualification-minimum Degree or equivalent pass.