

VOCATIONAL HIGHER SECONDARY COMPUTER APPLICATIONS (HUMANITIES)

TEACHER'S SOURCEBOOK

CLASS XII



**GOVERNMENT OF KERALA
Department of Education
SCERT – 2006**

**STATE COUNCIL OF EDUCATIONAL RESEARCH & TRAINING (SCERT)
VIDYABHAVAN, POOJAPPURA, THIRUVANANTHAPURAM -12
KERALA**

SOURCEBOOK

Higher Secondary Course

COMPUTER APPLICATION

Class XII

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Pref-

Dear Teacher,

We implemented the learner centered, activity based and process oriented approach for teaching and learning of Computer Applications in standard XI last year. It was a new experience for many of you and I hope you have owned the pedagogy in the real spirit. Due to many reasons, some of you may not have effectively applied this approach. But this year, all of you are expected to realise this approach in your classes in the true sense.

This source book will eliminate all of your ambiguities and apprehensions regarding the new approach. Since our children have to appear for the public examination this year, we should not go for any compromise in implementing the pedagogy.

This book has two parts. Part I begins with refreshing the basis and concerns of the approach concisely. In this part more stress is given to enlighten the learning activities that can be tried out in and outside the class. The list of curriculum objectives are given followed by the syllabus details. Detailing about the scheme and planning is provided. The details given for evaluation consists of the particulars of continuous evaluation (CE), practical evaluation (PE) and term-end evaluation (TE).

Part II of this book describes the suggested activities for the effective attainment of curriculum objectives through the transaction of topics related to each chapter in the syllabus. Being teachers in different school environments, you have the freedom to find and try out alternate activities. But, while choosing an activity or strategy, you should ensure the feasibility, students' involvement, possibility of development of process skills, time required, etc.

Suggestions as well as innovative learning activities are invited to improve the quality of the book and for the betterment of the learning process.

With regards,

Thiruvananthapuram
June - 2006

Dr. E. Valsala Kumar
Director,
SCERT, Kerala.

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PART I

**Approach to
Teaching and Learning of
Computer Application in
Standard XII**

1 Introduction

This Source Book is an important aid for teaching Computer Applications in standard XII. It is a ready reference for implementing the learner centered pedagogy. We introduced the learner-centered, process-oriented and activity based pedagogy in the higher secondary education of Kerala in the year 2005. It was implemented in standard XI and we teachers have become facilitators for our children who have been uplifted to the status of researchers of various topics under different subjects. Many teachers have enjoyed the new pedagogy while a very few may not have, due to the lack of infrastructure, undesirable strength of the students in the class, improper training or lack of understanding about the pedagogy etc. This source book will be of great help particularly for those teachers.

The prime objectives of this book are:

1. To refresh the new pedagogy and be well-planned before beginning the scholastic activities of the new academic year.
2. To get a brief and clear-cut idea about the teaching-learning strategies that can be implemented in standard XII for the effective attainment of the curriculum objectives and/or the transaction of concepts in and outside the class-room.
3. To conduct evaluation processes systematically and transparently without bias.

You are also provided with the curriculum objectives of the subject, syllabus and three levels of planning for the year, each unit and each day. Yet another resource given is the detailed description of the practical evaluation (external) as part of the term-end evaluation. Towards the end of this book, list of Reference Books and web site addresses are provided.

We begin this book by highlighting the characteristic features of the pedagogy to remind you of the approach to be used in Computer Applications education, the role of teachers in the changed classroom, and the strategies to be applied to develop the process skills and/or mental abilities of the students.

So let us clearly understand, own and share the pedagogy to build a dynamic and talented younger generation that possesses enhanced problem solving skills, other process skills, vivid kind of learning experiences and is rich in morale, social commitment, human values etc.

2

Approach to Teaching and Learning of Computer Applications in Std. XII

As the subject Computer Applications belongs to the Humanities stream, it is better to learn and teach the concepts through activities so that the learners will be enriched with sufficient problem solving skills and a variety of learning experiences. This could bring unexpected but great benefits to the learners and the society. Knowledge is the product of learning processes which may lead to developments and discoveries. Learning Computer Applications through process-oriented ways empower our children to play an important role in the developments and discoveries in the field of IT. We teachers should try to make sure that today's classrooms provide enough learning experiences through various processes by which the new concepts and ideas are constructed. There is sufficient opportunities for activities to enrich the problem solving skills and mental abilities of the learners. Here, the teacher is changing his/her role to that of a facilitator, friend, co-learner, guide, scaffolder, etc. In short, learning Computer Applications needs to be

- ◆ Activity based
- ◆ Process oriented
- ◆ Learner centered
- ◆ Life oriented

The learning approach of Computer Applications focuses on the the construction of knowledge through the following activities:

- ◆ Acquire the facts, ideas, principles and theories.
- ◆ Cultivate skills such as observing, classifying, charting, communicating, using number relationships, predicting, inferring, making operational definitions, interpreting, experimenting etc. to get acquainted with the concepts and principles.
- ◆ Apply and connect the concepts and principles in real-life situations and solving problems to enhance the process skills and mental abilities.
- ◆ Create new software products by identifying and defining problems, formatting hypothesis, finding solutions and developing software for the solutions.
- ◆ Utilise the knowledge to inculcate positive attitude and human values to realise the aims of education.

Theoretical Foundations of the New Approach

The basis of the new curriculum is derived from the developments in philosophy, psychology, anthropology and sociology taking place in India and other countries. The new curriculum gives

adequate thrust to the following:

- ◆ Constructivist Approach
- ◆ Multiple Intelligence
- ◆ Emotional Intelligence

The Constructivist Paradigm

The concept of learning has been changed radically in the past decades. The contribution of Piaget, Vygotsky, Bruner and others have given a new direction to the developments in this area. The following are important among these new concepts:

- ◆ Learning is construction of knowledge.
- ◆ Learning takes place as part of problem solving and other processes.
- ◆ Learning takes place by incorporating new elements of knowledge into the cognitive structure of the learner.

The important features of constructivism may be summarised as follows:

- ◆ Learners must be given opportunities to discover ideas and facts through inquiries.
- ◆ The possibilities of collaborative learning should be exploited by which the learning responsibilities are shared among the members of a group to attain a common objective.
- ◆ To inculcate human values as well as for the optimum utilisation of the resources, co-operative learning can be established, by which learners share their learning experiences and knowledge with others.
- ◆ The level of achievement that can be reached by the learners vary and hence by providing support from the peer group, teachers and others who can contribute to, the learners can reach their proximal level of development. According to Vygotsky, the area between the level achieved by own efforts and that which can be achieved with the help of others is termed as Zone of Proximal Development (ZPD).
- ◆ Teachers should provide help in completing the learning activities to the needy, but not taking over and doing it for the students. Teachers may provide hints, examples, evidences or ask questions to direct the thoughts to the right path. This kind of help, called scaffolding, is inevitable in constructivist paradigm.
- ◆ The learning process is made fully learner-centered, locally specific and life-related by making it interactive, problem based, activity based, project based, etc.

Multiple Intelligence

Modern theories recognise that, by giving suitable environments and through continued efforts, students can improve the intelligence related to a specific area. According to the theory

of Howard Gardner, human intelligence has different components and all these components are present in all individuals in different proportions. Some components may be more prominent in some individuals. We should try to provide opportunities to develop these components of intelligence while organising learning activities in and outside the classrooms. The components include the following:

- ◆ **Verbal/Linguistic intelligence**, that provides abilities for reading, writing, verbal production, speaking and lecturing and communicating effectively. This type of intelligence can be developed through activities such as preparing notes, assignments, seminar documents, observation book, project reports etc. and presenting the discussion points, seminars, etc.
- ◆ **Logical/Mathematical intelligence**, that supports abilities like logical thinking and finding out patterns and relations. This type of intelligence is developed through writing algorithms or programs, identifying errors, converting the code segments from one form to another, predicting outputs etc.
- ◆ **Visual/Spatial intelligence**, with which people will be able to design models, draw flowcharts and write readable source codes. Using and developing graphical software and developing presentations with animations will also help to develop this component.
- ◆ **Bodily-Kinesthetic Intelligence**, which is related to the ability to move various parts of the body. In computer education, typing skill, mouse movement skills, handling hardware components etc. will be more in those who have this kind of intelligence.
- ◆ **Musical Intelligence**, which is highly developed in people with the ability to distinguish the different elements in music, performing musicians, people who can hum tunes and those who can appreciate music. We can provide opportunities to design web pages to incorporate the musical sense of the learners.
- ◆ **Interpersonal Intelligence**, provides leadership qualities and such persons are able to interact in a positive way with others. Debates, role play and other group activities that ensure co-operative and collaborative learning, can be utilised to cultivate this intelligence.
- ◆ **Intra Personal Intelligence**, which is essentially the ability to understand oneself. Such people will have the ability to understand their abilities and shortcomings. We can make the children confident, in developing logic for programs and performing other learning activities, by proper scaffolding and encouragements. Their limitations are to be sympathetically considered and a friendly environment is to be created.
- ◆ **Naturalistic Intelligence**, which is characterised by a deep interest in nature, love for fellow beings and interest in spiritual and naturalistic phenomena. The effort to make the desktop of computer attractive, is an instance that reveals the taste of the students. Let us direct it properly.

Gardner also speaks about another dimension of intelligence called Existential Intelligence. Existential intelligence can be defined as the ability to be sensitive to deeper or larger questions about human existence, such as the meaning of life, why are we born, why do we die, what is consciousness, or how did we get here. Learners should be aware that a software is developed based on today's requirement and even after several enhancements it becomes obsolete after a certain period of time.

Emotional Intelligence and EQ

Recent researchers say that there is evidence for another area of intelligence, namely emotional intelligence. The teacher who aims at improving the emotional intelligence of students need to concentrate on the following.

(i) *Ability to take decisions*

Rather than imposing decision on students while planning and executing activities, the students may be allowed to take part in the decision making process. While conducting activities like quiz, class test, etc., determining the formats of assignments, project report etc., and fixing the date of submission of assigned works, tests, etc. It is better to take decisions through open discussion in the class and inviting students' suggestions.

(ii) *Ability to reach consensus*

When different opinions, ideas and positions arise, the students may be given the responsibility to reach a consensus. While developing logic, selecting the tools, constructs or facilities of the language, listing merits or demerits of some concepts, comparing similar concepts etc. students should be allowed to intervene in a healthy way to reach consensus.

(iii) *Ability to solve problems*

The teacher should make the students aware of the fact that any problem will have a solution and they can find the solution with continued efforts. Students are to be given chances for:

- finding reasons for problems.
- suggesting solutions through individual or group efforts.
- analysing the shortcomings in methods to solve problems.
- discussing the optimality of the solutions.

Daniel Goleman and some others have developed devices for measuring emotional intelligence and the unit of measurement is known as Emotional Quotient (EQ). The EQ is more relevant than the IQ in the process of learning and development. The fact, that one's EQ is the greatest factor affecting one's success in life, is now widely accepted.

Role of Teachers and Students

If the activities envisaged in the curriculum have to take place in the class room, teachers should take up the following roles as and when needed:

- An assistant who sympathetically solves the problems of students.
- A friend who simplifies and supports learning activities.
- A group leader who shows by example the democratic methods.
- A co-learner who actively participates in learning activities.

In addition to these, the new curriculum envisions the responsibilities of teachers as follows:

- Diagnose the learning activities and provide suitable experiences or remediations.
- Plan and provide challenging situations.
- Continuously evaluate the progress of learners.
- Promote divergent thinking.
- Facilitate inter-personal and intra-personal interactions.

The new approach also envisions the learner in a new perspective. In the learner centered activity oriented pedagogy, the learner :

- Actively participates in the learning process.
- Acts as a researcher.
- Shares information.
- Shares responsibilities.
- Collects information.
- Leads a group.
- Interacts in a group.
- Works as a co-participant.
- Observes and demonstrates.
- Experiments.
- Interprets and makes inferences.
- Judges the merits and demerits of an idea.

3 Teaching-Learning Strategies

Learning Computer Applications in the classroom takes place through activities like discussion, illustrations, observation, demonstration, quiz, preparation of notes, program writing, error corrections, output predictions, assignments, album preparation, seminars, lab work, class tests, project, etc.

Among these, assignments, notes preparation, question making for quiz and tests etc. are individual activities and could be done at home. But they have to be discussed and shared in the classroom. The group activities should ensure co-operative and collaborative learning. Though the students do the work, the teachers have a crucial role. They are expected to facilitate, encourage, help, guide and scaffold as and when required. The aforesaid activities can be classified in another perspective. The activities such as assignment, lab work, class test and project are considered for Continuous Evaluation process, but this does not mean that other activities need not be evaluated. There should be some means for evaluating all the classroom activities. For example, after a discussion to transact a new concept, the students may be asked to prepare notes by covering the points evolved, list the features of some facility, construct a comparison table or illustrate a concept.

The CE items are to be evaluated on the basis of uniform criteria and the scores obtained will be taken into consideration for fixing the grade during term-end evaluation. Being learning activities, they are briefly mentioned in this chapter, but will be detailed in chapter 7 of this book. Let us now see how these activities can be conducted in our classrooms.

Discussion

Discussion is the most commonly used medium for communication. To transact the concepts of Computer Applications and to develop logic for the programs, discussion is a very good learning activity. Effective discussion will stimulate the intelligence of the learner. It will make the absorption of knowledge easier. Discussion is neither merely asking questions and answering nor explanations given by teachers.

Classroom discussions will become effective only if it is systematically organised. The following points are to be considered while conducting a discussion.

- There should be a problem or a question or a topic that requires clarification or a decision.
- If possible, the topic of discussion should be informed in advance so that the students get an opportunity to think about it and study.
- There should be a self-attempt to communicate discussion points with others.
- The discussion can be within small groups or in the whole class.

- If it is in small groups, each individual shares his/her discussion points with others in the group and should reach a consensus after negotiations. Sufficient time should be provided and it should be time bound.
- If the whole class is involved in the discussion, strategies are to be used to make effective use of the available time.
- The discussion should be guided properly to make sure that the students are discussing the points that are intended to be covered. Questions or hints may be supplied to make the discussion in the right track.
- The ideas or concepts generated during the discussion within small groups should be presented in the class so that they are shared and refined.
- The teacher should consolidate the discussion and the students should be asked to make notes covering the points that evolved in the discussion.
- The notes prepared by the students may be evaluated in peer by presenting the points in the class in the prescribed format.

Quiz

Quiz is a better learning activity to brush up the ideas which are essential to proceed to a new topic. The demand for this activity should be naturally evolved so that it will be challenging, need based and motivative. There should be a planning session for the quiz in which the type of quiz, the topics to be covered, etc. are decided. Sample questions may be formed in the class itself and shared to get an idea about framing questions. There should be clarifications by the teacher for the questions and answers wherever necessary during the quiz. Different types of quiz can be conducted as described in the Source Book of standard XI.

Illustrations

When illustration is taken a learning activity, we mean that it is the picturisation of a new concept, establishment of the concept with real-life situations, or explanation of the concept with the help of example. Illustrations are best suited for transacting concepts like facilities or features of Desk Top Publishing, HTML and SQL, the syntax for their usage, their working etc. First of all a need for the new concept or construct is to be generated by issuing a problem and then the new concept is introduced as its solution with the help of an example. Then allow the students to try themselves to construct the syntax or to develop an operational or working definition of the concept. An open discussion may be conducted for the contribution of others and the teacher should consolidate the points evolved. More exercises may be given to the students for illustration to get a clear-cut idea about the new concepts or syntax.

Code Manipulations

Code manipulation is an activity that is applicable in learning Computer Applications. The understanding about the facilities of programming languages and their usage, logical reasoning, etc. can be enhanced by providing learning experiences through this activity. By code manipulation we mean error correction, output prediction, code conversion, code modification, code optimisation, etc. These activities ensure higher level thinking and enrichment of higher order mental processes. All activities under this category begins by issuing a program or code segment. The activities are performed individually and the products are compared within groups. The consolidated result or product is presented in the class, explaining their findings or its working. Other students or groups are given opportunities to express their opinion about the product and allow manipulations if required. Finally teacher consolidates or refines the findings and all the students take down notes.

Error Correction

Error correction is an effective learning process for acquiring a good understanding in programming aspects. Incorrect codes written in HTML is supplied by the teachers and asked the students to identify the errors and correct them without affecting the logic. The formalities of student participation are completed as described above. Note that whenever an error is identified, the reason should be presented and when correction is made, proper justification should be given.

Output Prediction

A program or code segment in HTML may be given to the students and asked to find the output. Similarly, by supplying tables of database and SQL statements, the students may be asked to find the output of the query.

Code Modification

A program for a specific purpose is given to the students and asked to modify the program so that it can be used for solving some other program. For example, a program to find the sum of the first 10 natural numbers may be given and can be asked to modify the program to find the factorial of 10 (A clue may be given by stating that factorial of 10 is the product of first 10 natural numbers).

Program Coding

After the transaction of each new concept or facility of DTP, HTML or SQL, problems should be given to write steps / code for the solution. A discussion may be initiated to define the

problem clearly and to develop the logic for the solution. Similar cases may be brought to the attention or hints may be given to frame the logic. Let the students try themselves individually, discuss in small groups and present the code segment and design forms. If none of them is able to develop the logic, more clues in the form of missing steps may be supplied and they may be asked to complete it. The consolidated steps having different logics may be compared and optimality may be identified. The logic developed in the class room should be completed individually in the observation book to get it done in the lab. More problems may be given for developing solutions as home assignments. Such work should be presented and discussed in the classroom.

Lab Work

Lab work is an essential learning activity for the better construction of the programming aspects. It is also considered as a CE component. However the proceedings in implementing this activity is described here in three stages: Preparation, Development and Recording. A book, called Record Book, plays an important role in all of these stages.

Record Book

The Record Book may be considered as a diary in which student records activities done in connection with the Lab Work. It will be evaluated by the external examiner during Practical Examination which is a part of TE. The students should be given maximum possible time in the lab to try out all the DTP documents / HTML pages developed in the class and at home. Let the learners do as many documents / pages as possible by ensuring that they are provided with problems that require the application of all the features or facilities. There should also be provision to execute SQL statements in the lab as there will be Practical Examination covering DTP, HTML and SQL. Teacher verifies and evaluates the contents in the book frequently and scores are recorded in his/her evaluation register.

Preparation

Before entering the computer lab, the students should have clarity about the work they intend to do. They should have their Record Book with them and it should contain the details of work to be done in the lab. In the case of DTP, the documents that are discussed in the class and the exercises executed at home should be available in the Record Book so that the work in the computer lab will be very easy and the lab time can also be effectively utilised. The students may be instructed to have a clear-cut idea about the logic and features to be used. In the case of HTML, students should draw the design of the web page and write the code for creating the page in the Record Book. In the case of SQL, they should have the structure of table and queries

for data manipulation in their Record Book. It should also contain the statements required for the queries that are discussed in the class or prepared at home.

Development

The web page design should not be mere typing of the ready-made code. Rather, the students understand the logic clearly and type the code without looking at the written code. The Record Book may be referred to, only if there is no other way. After the completion of coding, the knowledge about the language should be explored during viewing. Let us not correct the errors directly, but allow them to try individually and in group. Let us give them hints or clues. If we are correcting any error, the reason and remedy should be clarified to the students.

Recording

Corrections and modifications made in the procedure/steps are to be recorded in the Record Book after obtaining the correct output. If possible, sample output(s) can be noted down.

Assigned Works

In this section we will discuss some other activities such as preparation of notes, project report, assignments etc. which are done individually at home.

Notes Preparation

After conducting a discussion, the points evolved and consolidated must be written in the note book. The formats may be discussed in the class and they can be in tabular form, lists in bullets or numbers, schematic diagrams, hierarchical charts, brief descriptions etc. The notes prepared by the students may be evaluated in peer and often verified by the teacher. Remedial measures are to be taken for the defaulters.

Home Assignments

These are small works for practising the activities carried out in class. Exercises related to code manipulation activities can be executed at home in their notes or files. They should be shared and verified in the class.

Preparation of Assignment Document

The document in connection with the assignment taken for CE is also prepared individually at home by following the format prescribed in the class covering the points discussed. It should not be in the note book, but in separate paper for submission. The valued document may be returned to the students as it is their learning material.

Project Report Writing

A report is to be made as a part of the project work carried out by the students. It should reflect the stages and processes through which the students have completed their project. Even though the project is a group activity, the report should be written individually after each stage of the project, it should be compared with that of group members and verified by the teacher. After completing the project, the rough copy of the project report should be submitted to the teacher and finalisation is done only after the teacher's consent. It is desired to submit one copy from each group to the school library, as it can be a reference to others.

4

Curriculum Objectives

COMPUTER APPLICATIONS

(HUMANITIES)

1. Understand the concept of e-commerce through discussion, demonstration of an e-commerce transactions etc. and prepare notes.
2. Compare the traditional and electronic commerce through discussion and prepare a comparison table and list out the benefits of e-commerce.
3. Familiarise and share the experience of e-commerce site through lab demonstration and list out the names of e-commerce sites.
4. Analyse the various commercial activities through discussion, illustration etc. and list out the activities.
5. Understand the models of e-commerce through discussion, illustration etc. and prepare notes.
6. Familiarise the structure of e-commerce system through discussion and prepare notes.
7. Analyse e-commerce front end, website, product catalogue, shopping carts and e-commerce back-end through lab demonstrations and prepare notes on them.
8. Identify the need and use of back office support and order realisations through discussions, illustrations etc. and prepare notes.
9. Identify the use of electronic payment systems through discussions and list down the uses.
10. Analyse the organisation of payment systems through discussions and prepare notes.
11. Understand the primary requirements and related steps for web hosting through discussion, observation etc. and generate a list of requirements.
12. Formulate the concepts and identify the features of electronic Payment system and list out its merits and demerits.
13. Understand the various aspects of web portals, acquire knowledge in shopping mail through general discussion, observation etc. and prepare a note comparing portal sites and ordinary sites.
14. Understand the need for web security and acquire knowledge in related issues through group discussion, panel discussion, onsite observation etc. and prepare notes.

15. Familiarise the different types of web security and the significance of protection methods through general discussion, panel discussion, onsite observation collecting enduser responses etc and prepare notes.
16. Familiarise various aspects of data and transaction security and differentiate between different encryption techniques through discussion, observation etc. and prepare notes.
17. Understand the concept of authentication techniques in e-commerce system through discussion and prepare notes comparing digital certificates and digital signatures.
18. Understand the significance of web security and familiarise the features of security standards like SET and SSL through discussion, observation etc. and prepare notes comparing them.
19. Familiarise the various aspects and scope of payment over internet through discussion, collecting expert opinions etc. and prepare a chart showing the overall process of online payment.
20. Understand the significance of HTML and different classifications of tags through discussion and prepare notes on the structure of HTML document.
21. Familiarise the basic HTML tags and the relevant attributes through illustration, observation, discussion etc. and prepare notes containing the list of tags, their use, associated attributes and their impact.
22. Understand different HTML tags for formatting text through illustration, discussion etc. and create simple web pages using them.
23. Familiarise the way of inserting images in an HTML page through observation, discussion, lab work etc. and create HTML pages containing images.
24. Familiarise different types of linking through observation, discussion, lab work etc. and create web pages.
25. Understand different types of lists in HTML through illustration, observation, discussion etc. and create web pages.
26. Familiarise how tables are formatted and placed in web pages through discussion, observation etc. and create web pages.
27. Familiarise how frames are placed in web pages through discussion, observation etc. and create web pages.
28. Familiarise forms and their uses through discussion, observations etc. and design web pages.

29. Integrate the features of HTML through a project and design an attractive web site.
30. Familiarise the features of advanced web designing tools like DHTML and XML through discussion, comparison etc. and prepare comparison table.
31. Understand the features and applications of scripting languages like JAVA script and VB Script through discussion and prepare notes by comparing them.
32. Understand the basic concepts of CGI and familiarise the application of ASP and JSP through discussion, comparison and prepare notes.
33. Familiarise the features, capabilities and applications of languages like PERL, JAVA and C# through discussion, comparison and prepare notes.
34. Acquire knowledge about traditional methods of publishing and familiarise the concept of Desk Top Publishing through discussion and list down the features of DTP.
35. Familiarise the advantages of DTP over conventional methods and study the features of DTP software in different languages through discussion and prepare notes.
36. Familiarise step by step activities in Desk Top Publishing through discussion, observation and prepare notes.
37. Familiarise the concepts of layout, page designing and text formatting features of DTP
38. Attain the capabilities for paragraph and page formatting using various features of DTP software through illustration, observation, lab work and prepare an invitation letter.
39. Acquire the competency in adding and editing visuals, applying text art, clip art, coloring, printing etc. through proper illustrations and lab assignments.
40. Understand the primary characteristics of a system so as to define it through general discussion.
41. Understand the primary characteristics of a system so as to define it through general discussion.
42. Establish the need and importance of system and design through discussion, illustration of real life examples etc. and prepare notes.
43. Understand the phases of system development life cycle (SDLC) and familiarize the various activities involved in system study and system analysis through group discussion, illustrations etc. and write notes on SDLC.

44. Familiarise various aspects of system design through discussion, illustration etc. and list down the components involved in system design.
45. Acquire knowledge in system implementation, maintenance and review through discussion, case study etc. and prepare notes.
46. Identify the advantages of DBMS over conventional system and recognize the components of DBMS through discussion and real life examples and write notes.
47. Understand the detailed structure of DBMS through illustration and prepare a chart.
48. Understand the various levels of database abstraction and the concept of data independence through observation, discussion etc. and prepare notes with diagrams.
49. Familiarise the different data models through discussion, comparison etc. and form a table showing the features of each model.
50. Acquire the concept of RDBMS and its terminologies through general discussion and prepare a glossary for RDBMS.
51. Understand various relational operations through problem solving, illustrations, discussion, and write statements for relational operations.
52. Understand the different processing capabilities of SQL and its appliaiton through discussion and list them.
53. Identify the various data types available in SQL through group discussion and prepare a table describing the SQL data types.
54. Familiarise different commands used in SQL and write an assignment to apply them for table creation and manipulation for various real-life situations.
55. Familiarise column constants and clauses in SQL through illustration, output prediction etc. and list out them.
56. Familiarise different SQL functions through illustration, output predictions etc. and use them for table manipulations.
57. Understand the concept of data communication and compare different modes of transmission through discussion, illustration etc. and prepare notes by comparing different modes.
58. Understand various types of communication through discussion, illustration etc. and prepare charts with proper examples.

59. Familiarise various communication channels through observation, comparison, diagrammatic representation etc. and prepare detailed notes.
60. Acquire knowledge about protocols and understand the various types of protocols through discussion.
61. Familiarise data access methods through discussion, role play etc. and prepare notes on different methods of access methods.
62. Understand features and application of various data communication devices through general discussion, and prepare notes on each device.
63. Familiarise various data communication terminologies related to Internet through observation, experimentation etc. and prepare notes.

5

The Syllabus and Contents

Detailed Revised Syllabus – Class XII (Humanities)

Module CA I - Computer Aided Business Applications

Chapter 1: Introduction to E-Commerce

Commercial Transaction, E-Commerce - Definition; Traditional Commerce V/s E-Commerce; Role of e-commerce in various Business Activities; Benefits of E-Commerce - Advertisements, Promotions and Options; Various E-Commerce Models- B2B, B2C;

Chapter 2: Structure of E-Commerce System

E-Commerce Frontend -Website, Product Catalogue; Shopping Carts; E-Commerce backend - Back Office Support, Order Realization(Collection, Processing); Electronic Payment System - Credit Cards, Debit Cards, E-cash, Merchants' Accounts, Payment Gateway, Payment Authorization; Organization for Payment Systems.

Chapter 3: Setting Up E-Commerce Website

Web Hosting - Website Development, Registration; Enabling Electronic Payment System; Portal Development; Web Portal; Shopping Mall.

Chapter 4: Web Security

Need for Security; Security Issues; Hackers and Crackers; Types of Web Security; Client Server Network Security - Protection Methods (Authorization, Authentication, Smart Cards, Biometric System, Firewalls); Data & Transaction Security - Encryption Techniques (Symmetric key Encryption, Asymmetric key Encryption, Hashing, Cyclic Redundancy Check), Digital Certificates, Digital Signature

Module CA II - Computer Aided Publishing

Chapter 5: Introduction to HTML

HTML - Definition; Empty and Container Elements; Structure Tags- <HTML> (Dir), <HEAD>, <TITLE>, <BODY> (Background, Bgcolor, Text, Link, Alink, Vlink, Leftmargin, Topmargin); Applying Column Tags - <P>(Align), <CENTER>, <H1> to <H6>, , <I>, <U>, <SUB>, <SUP>, <HR>(Size, Noshade, Width, Color),
, <BASEFONT>(Size, Face), (Size, Color, Face); Comments - <!--AND!-->; Special Characters (<, >, &); Linking - Internal, External; <A>(Href, Sending Email); Inserting Images (Src, Alt, Align, Height, Width); Lists - Ordered (Type, Start), Unordered (Type), Definition <DL>.

Chapter 6: Advanced HTML

Table - <TABLE>(Border, Border Color, Height, Width, Align, Cell Spacing, Cell Pading, Bgcolor, Frame), Table Rows <TR>(Align, Valign, Rowspan, Colspan, Bgcolor), Table Heading <TH>(Align, Rowspan, Colspan), Table Data <TD>(Align, Valign, Rowspan, Colspan, Bgcolor,

Background); Frames - <FRAMESET>(Cols, Size, Rows, Border, Color), <FRAME>(Scr, Scrolling, Name, Norsize, Width, Height, Marginheight, Marginwidth); Noframe <NOFRAME>; Forms - Use of forms <FORM>(Action, Method); <INPUT> (Type{Checkbox, Password, Text, Radio, Submit, Reset}, Value, Name, Size); <TEXTAREA>(Name, Rows, Cols), <SELECT>(Name, Size, Option, Optionselected), <LABEL>(For, Name, Value)

Chapter 7: Advanced Web Tools

(A general disussion of all topics without coding listed below)

DHTML, XML, Scripting Languages - Java Script, VB Script; PERL & CGI; ASP; JSP; Java; C#.

Chapter 8: Basic Concepts of Desk Top Publishing

Traditional Methods of Publishing; Definition of DTP; Advantages of DTP; Softwares used for DP; DTP in Different Languages; Activities in DTP.

Chapter 9: Objects and Operations in DTP

Familiarization of Screen Layout; Designing Pages and Layouts - Formatting texts (Font face, Size, Color, Alignments, Bullets, Indents), Headings, Line Spacing, Paragraph Spacing, Orphans, Windows, Kerning; Page Formatting - Size, Shape, Length, Page, Margins, Horizontal and Vertical Layouts, Columns and Grids; Adding Visuals- Scanning, Sizing and Manipulating Photographs; Text Art; Clip Art; Illustrations; Applying Colors; Printing.

Module CA III – DBMS and Data Communication

Chapter 10: System Analysis and Design

Definition of System; Need for System Analysis and Design; System Development Life Cycle – System Study (Preliminary Survey, Feasibility Study); System Analysis (Investigation and Fact Recording, Interviewing, Questionnaire, Onsite Observation); System Design (Input, Output, Files, Procedure); Implementation, Maintenance and Review.

Chapter 11: Concepts of DBMS

Databases; Advantages over Conventional file system; DBMS and its structure; Components of DBMS – Databases, DDL, DML, Users; Database Abstraction – Various Levels; Data Independence; Types of Users of Database; Data Models – Relational, Network, Hierarchical; Elementary Terminologies of RDBMS – Relation, Domain, Tuple, Attributes, Cardinality, Degree, Views, Keys (Primary, Candidate, Alternate, Super, Foreign); Relational Operations – Select, Project, Cartesian Product, Union, Intersection, Set Difference.

Chapter 12: Structured Query Language

Processing Capabilities; DDL; DML – Retrieving, Manipulating, Updating tables; SQL Data types – Numeric, Character, Date, Time; SQL Commands – CREATE TABLE, CREATE VIEW, DROP TABLE, ALTER TABLE, SELECT, INSERT, DELETE, UPDATE; Column Constraints – UNIQUE, PRIMARY KEY, NOT NULL, DEFAULT, CHECK; Clauses used

with SQL Commands – DISTINCT, INTO, FROM, WHERE, LIKE, GROUP BY, ORDER BY, HAVING, SET; SQL functions – AVG, COUNT, MAX, MIN, SUM.

Chapter 13: Data Communication

Concept of Data communication; Modes of Transmission – Digital V/s Analog, Serial V/s Parallel, Synchronous V/s Asynchronous; Types of Communication – Simplex, Half Duplex, Full Duplex; Modem; Communication Channels – Twisted Pair Cables, Coaxial Cables, Optical Fiber, Radio Waves, Micro Waves, Satellites; Communication Protocols – FTP, HTTP, TCP/IP; Data Access Methods - CSMA/CD and Token Passing; Data Communication Devices – Repeater, Bridge, Router, Gateway; Backbone Network; Data Communication Terminologies in Internet – WWW, Website, Web page, HTML, URL.

6 Planning

A proper planning is required for the implementation of the curriculum in the real sense. Planning is required in three levels - year plan, unit plan and daily plan. The year plan is given in this section, which may be modified conveniently in the School Resource Group for the effective implementation of the curriculum depending on your school environment. This will be helpful for planning the common programmes to be conducted in and outside the school as a part of the curriculum. Activities that are common for various subjects can be clubbed together so that the resources can be utilised to the maximum.

Year Plan

Term	Month	Chapter	Period	Total
I	Jun	1. Introduction to E-Commerce	8	32
		2. Structure of E-Commerce System	12	
		3. Setting up E-Commerce Website	12	
	Jul	4. Web Security	16	32
		5. Introduction to HTML	16	
	Aug	6. Advanced HTML	18	32
		7. Advanced Web Tools	8	
		8. Basic Concepts of DTP	6	
	Sept	8. Basic Concepts of DTP Contd.	13	16
		Project Planning	3	
II	Oct	9. Objects and Operations in DTP	20	32
		10. System Analysis and Design	8	
		Project - Analysis & Design	4	
	Nov	11. Concepts of DBMS	16	32
		12. SQL	16	
	Dec	Project Submission and Viva (for CE)	16	16
III	Jan	13. Data Communications	16	24
		Model TE	8	
	Feb	Practical Examination		

The unit plan is given along with the detailing of learning strategies of each chapter in Part II of this book. It is in a tabular format and it will help the teachers to capture the chapter at a glance and be prepared for the class. The format is given below:

Chapter No. & Name						
COs	Concepts	Process Skills	Learning Activities	Learning Aids/Materials	Evaluation / Product	Time (Pds)

The daily planning can be done by the teacher by himself/herself or in consultation with other computer science / applications teachers, if any. The planning is to be recorded in a notebook, say teaching manual, preferably in the following format:

Planning Page	Response Page
<p>Unit/Chapter/Topic: Review of Programming Fundamentals in VB</p> <p>Date & Period: June 1st week (8 Pds.)</p> <p>Objectives:</p> <ol style="list-style-type: none"> 1. Familiarise the properties, methods and events of Visual Basic controls through quiz. <p>Activities:</p> <ol style="list-style-type: none"> 1. Students are asked to prepare a list of questions for conducting Quiz by referring the notes, TB and OB of std. XI 2. Grouping into 3 3. Topic for each group is to be provided. 4. Sample questions are to be developed in the class. (Refer Activity 1.X.X in the SB) 	<p>Qns. could have been collected earlier so that students will come out with better questions.</p> <p>Some students are ready with qns. but not with answers..</p> <p>Some of them have no idea about methods. Remedial measures are to be planned.</p>

7 Evaluation

Evaluation helps to assess the rate of progress of the students and to recognise to what extent each student has achieved the study target. This is an assessment of how and to what extent the student has achieved the specified capabilities. These evaluation results are the basis on which the student, teachers, parents and society can assess the educational progress.

Components of Evaluation

In order to flourish continuous and comprehensive evaluation we make use of the following components of evaluation.

1. Continuous Evaluation (CE)
2. Practical Evaluation (PE)
3. Terminal Evaluation (CE)

Continuous and Comprehensive Evaluation (CE)

Most of our traditional evaluation methods are related only to the area of knowledge. There are criticisms about their comprehensiveness and usefulness precisely because of that. As of now, it is a weakness of our evaluation method that practical capabilities are not being assessed in any subject. It is to rectify this deficiency that the evaluation method is being changed to include assessment of practical capabilities, attitudes, products associated with study, and so on. It is through continuous evaluation that the knowledge related fields and products are evaluated. This is possible only that way. Through this every learning activity that takes place within an year can be subjected to continuous evaluation. Evaluation should be done not by the teachers alone. Students can evaluate themselves. Classmates can evaluate one an other. These should be considered as means of improving education.

The CE items are to be evaluated based on the standardised criteria. There are five criteria for each CE item depending on the nature of the activity. Each of the criteria is assigned with a maximum of 4 scores. That is, if a criterion is satisfied for a CE item, it can be given 1, 2, 3 or 4 scores depending on its quality. Usually each criterion is associated with each stage of an activity as there are different stages for the completion of each activity. Teachers are liable to record the score for each criterion or indicator of each CE item of each learner from time to time. The scoring is mainly intended for uplifting and scaffolding the weaker section and not for filtration.

By considering the practicability and the nature of the subject, the following tools are advised for continuous evaluation.

- | | | | |
|------------|---------------|---------------|----------------------|
| 1. Project | 2. Lab work | 3. Assignment | 4. Class test |
| 5. Seminar | 6. Collection | 7. Debate | 8. Model preparation |

Teachers have freedom to extend the list, but evaluation criteria should be fixed, transparent and objective.

When we look into these items we can see that grouping or categorizing of them is possible. Categorizing of the tools give freedom to the teacher in selecting the most suitable and appropriate tool for continuous evaluation. Let us group them under five heads as given below.

1. Investigative Activities

This category give stress to the following aspects.

- To inculcate spirit of inquiry and discovery
- To create research mind
- To induce spirit of investigation

The activities in this area include project and field study. But in Computer Application, it is proposed that a project to create a website is ideal.

2. Interactive Activities

The quality concerns in this category are

- Give scope to collect first hand information about specific issues/areas.
- Enable the learner to precise the idea about a theme.
- Enable the learner to present the ideas in a group and to answer the queries and issues raised in the discussions.

Items under interactive activities in our subject are seminar and debate.

3. Practical Work

The points to be focused here include:

- To enable the learner to apply the ideas/concepts in practical situations.
- To collect and use materials/data collected for practical work.

In Computer Application, items under practical work are Lab Work and practicals/experiments

4. Performance Based Activities

Focal point in this category is to exhibit performance in the various class based works/activities/programmes. We include class test under this category.

5. Assigned Tasks (Activities)

Quality concerns here are

- To enable the learner to collect additional information with regard to the area under study.
- To collect new information and utilize them for better understanding.
- To enable the learner for creative performance/presentation.

Items under assigned activity is assignment, collections and model preparation.

Distribution of CE Items

No.	Area	Items
1.	Investigative Activities	Project, Field study
2.	Interactive Activities	Seminar, Debate
3.	Practical Work	Labwork/Practicals
4.	Performance Based activities	Class Test
5.	Assigned Tasks	Assignment, Collection and Model Preparation

Note: Teacher should select any 4 areas (select suitable item from the selected area) from the given 5. There is absolute freedom to select one CE item from each area. Evaluation may be done on the basis of specific indicators and should record in the Student's Evaluation Profile (SEP) under the head CE.

How to Evaluate CE Items?

Let us discuss the evaluation activities to be considered in standard XII.

1. Assignment

Assignment is an activity to achieve the curriculum objectives undertaken by the students, in continuation with activities carried out in the class. It is a self learning cum evaluation activity and it should ensure that the work is completed within a stipulated time according to the teacher's directions by utilising the maximum capabilities of the students and exploring maximum possibilities. If same topic is given to all the students, the involvement of the student in his/her work should be assured using some tools like viva voce. If different tasks are assigned, the level of tasks should be uniform and evaluation indicators should be specified in advance. The activity begins in the class room with proper planning and preliminary discussion and carried out completely outside the class. In the planning session, the data to be collected, their sources, the format of assignment and the date of submission should be discussed and finalised. The collected data or information should be authenticated by consulting with the teacher. The document containing the assigned task should be submitted in time for the completion of evaluation. The document may be shared if it is relevant.

In standard XII, developing SQL statements for table creation and manipulation also may be given as assignment.

Evaluation Indicators:

1. Awareness of the content	4/3/2/1
2. Comprehensiveness of the content	4/3/2/1
3. Systematic and sequential arrangement	4/3/2/1
4. Observation/suggestions/views/judgments/evaluation	4/3/2/1
5. Timely submission	4/3/2/1
Total Score	20

2. Lab Work

Lab work is an activity by which the concepts acquired and observations noted are practically implemented in the lab thereby more clarity about the concepts and operational skills are achieved. The students are also convinced about the use of computer for problem solving with the help of user developed programs. This activity improves the students' ability to utilize computer for developing applications. The procedure of lab work is already explained the chapter 3 of this book. It should be ensured that all the students are involved in this activity and they are awarded scores for CE.

Designing web pages using HTML, designing documents using DTP and table manipulation with SQL statements can be given for lab work. Oracle, MS Access, SQL Server, MySQL, etc. may be used for practicing SQL statements. HTML may be practised using any text editor like Notepad. DTP can be practised using softwares like PageMaker.

Evaluation Indicators:

1. Preparation for the work (understanding the steps / procedure / statements)	4/3/2/1
2. Skills in using tools / facilities / features of the language	4/3/2/1
3. Accuracy in using syntax and specificity in variables	4/3/2/1
4. Format and accuracy of output	4/3/2/1
5. Recording of the work and its timely submission	4/3/2/1
Total Score	20

3. Class Test

Class Test is considered as a class-room activity in which the students have to play a vital role from the beginning till the end. Class tests are different from term end examinations. The score of term end examinations should not be considered as score for class test for CE. This is not simply a written test performed by using questions previously set by the teacher. In the changed class room situation, a class test can be conducted based on the following guidelines:

- ◆ After the completion of a unit, learners are assigned the task of framing multi level questions and their scoring indicators. Samples may be developed in the class.
- ◆ Questions brought by the learners may be modified in informal groups.
- ◆ Question bank thus developed by the learners is submitted to the teacher.
- ◆ Teacher selects or modifies or supplies questions based on selected COs for the test.
- ◆ Teacher conducts the test and discusses the scoring indicators by ensuring the participation

of learners. Scoring indicators may be written on the board (or in a chart).

- ◆ Peer evaluation must be adopted for giving scorings. Teacher should interfere wherever necessary.
- ◆ Execution of the test, discussion of scoring indicators and peer evaluation should not exceed one period.
- ◆ The class tests may be conducted for a maximum of 10 scores. The scores obtained by the students are converted into 20.
- ◆ In each term after conducting one or two class tests, the teacher and learner together decided in advance the unit from which the class test to be conducted for the purpose of recording.
- ◆ The average of scores obtained in the class test conducted in the two terms will be the final CE score for the item.

4. Project

In Computer Applications, software development is regarded as a project. As in the case of any project, a software development is a process oriented activity, in which there are different stages to be evaluated and a product in tangible as well as intangible form is evolved. It is a group activity through which a website is designed using HTML language or a document is designed in DTP.

The project begins with identifying the application area and the associated problems. The data involved in the processing and the information to be attained are recognised and procedures or steps are derived. The students explore possibilities of co-operative and collaborative learning and apply their problem solving skills using HTML language / DTP.

Once the group is formed, it is intimated to the teacher and initial planning is done in consultation with the teacher. The students are constantly in touch with the teacher throughout the stages of project work. A project diary is to be maintained by each group and the activities are to be recorded, which will be helpful in preparing project report.

After designing and testing the software, it should be verified by the teacher and preparation of project report with the specified format is begun. Each of the group member should have a copy of the report and one copy should be submitted to the teacher which will be kept in the library for reference. While setting the CE, the teacher may conduct a viva voce to ensure the involvement of the student in this activity.

Project Guidelines

1. A group consisting of 5 students can be chosen for a single project. (Such 10 groups)
2. Each group selects their topic and gets it approved from the teacher in charge.

3. The project development has to be evaluated by the teacher from time to time.
4. Separate reports have to be presented by each member in the group.
5. Report may be either in printed form or in hand written form. It can be attached either along with the OB or as a separate book but the teacher in charge should certify it.
6. This report has to be produced for during practical examination. (Otherwise teacher can take it for granted that the candidate has not done it)

Evaluation Indicators:

1. Problem Study & Planning (Problem definition, time scheduling, division of responsibilities)	4/3/2/1
2. Input, Output, and file design (Specifying the screen layouts for input /output design, file designing, if necessary)	4/3/2/1
3. Process design (Developing logic, efficiency in language/ tools for coding, debugging capabilities, format and accuracy of output)	4/3/2/1
4. Ability to prepare project report (Reflection of processes, Communicability and authenticity of the report)	4/3/2/1
5. Viva Voce (Knowledge of the content and process)	4/3/2/1
Total Score	20

Structure of Project Report

1. Cover Page (Project Title, Name of Students, Course and Duration)
2. Certificate
3. Preface/Abstract
3. Content
 - Introduction
 - Aims (Objectives)
 - Problem Study/Analysis
 - Development Tools and Facilities used
 - Source Code/Procedure/Steps
 - Outputs
 - Conclusion
4. Annexure (Sample data, data sheet etc.)
5. Bibliography

Projects

1. Using PageMaker, prepare a Brochure for your school youth festival.(3 Fold)
2. Using PageMaker design a Product Catalogue (Pictures, Prize, Features in a tabular form).
3. Using PageMaker, design an application form layout for plus one admission
4. Using PageMaker design a student evaluation profile to enter your academic records(Personal details,CE,PE,TE etc.).
5. Prepare the layout of a text book containing minimum 15 pages with all the relevant DTP features such as images, diagrams, tables, page number etc.
6. Using HTML, create a web site for your school.
7. Design a web site for your district using HTML.
8. Using HTML, create a web site for your state.
9. Design a web site on Tourist Places of your State.
10. Using HTML, design a web site for a super market.

Evaluation Indicators of other CE Items

Collection

1. Comprehensiveness	4/3/2/1
2. Relevance to the topic	4/3/2/1
3. Presentation	4/3/2/1
4. Awareness of the content	4/3/2/1
5. Timebound completion of the work	4/3/2/1
Total Score	20

Seminar

1. Planning and organisation (time, topics, sources of data, method of presentation)	4/3/2/1
2. Data collection (relevance, authenticity, variety of sources etc.)	4/3/2/1
3. Preparation of report (sequence in the presentation of the concept, (authenticity and clarity of ideas/views/concepts)	4/3/2/1
4. Awareness of the content (presentation of paper, participation in discussion, ability to substantiate own ideas/views)	4/3/2/1
5. Skill in communication (presentation of paper, participation on discussion)	4/3/2/1
Total Score	20

Debate

1. Participation at different stages	4/3/2/1
2. Democratic approach	4/3/2/1
3. Relevance and logic of the facts and concepts presented	4/3/2/1
4. Communication skill	4/3/2/1
5. Preparation of report	4/3/2/1
Total Score	20

Processing of CE Scores

Each CE item is evaluated to a score with a maximum of 20 as specified in the evaluation indicators. The score obtained will not be disclosed in numeric figure, rather it is converted into grade as follows:

Scores	Grade
16 - 20	A
12 - 15	B
08 - 11	C
04 - 07	D
Below 4	E

When CE is submitted for publishing the result, since there are four CE items for Computer Applications, the total score is calculated out of 80. This total score is divided by 4 and is fixed as CE score.

For example, if a student gets 16 marks in lab work, 17 marks in assignment, 15 marks in class test and 15 marks in project, the total is 63 out of 80. The CE is $63 / 4 = 15.75$ and is rounded to 16.

Practical Evaluation

Practical Evaluation (PE) is to evaluate the ability of the learner to develop DTP applications, Web pages using HTML and the skill in using SQL statements to create and manipulate database. Questions are framed in such a way that it should evaluate the learner's ability to develop and prepare formatted DTP documents, web page creation and problem solving skills. A bunch of questions have been given in the Source Book (SB) covering the syllabus and each learner has to do at least 20 programs from this list as per the directions of the teacher concerned. In DTP, they are supposed to do 8 questions in VB, 6 questions in HTML and 6 questions from SQL. These questions and their related interface, program code and all such details have to be written in the Record Book. This book has to be certified by the teacher

concerned before submitting for the Practical Examination, which will be conducted by the external examiner during the month of February every year. The duration of the Practical Examination is 3 hours.

During Practical Examination the examiner prepare a list of questions and each student be given a question randomly to develop and format text, to write program code/commands/statements for solving the problem. Students can design and write the entire procedure by using computer. Once that process is completed, the examiner checks the correctness; clarity and scores are awarded as per indicators given below. A maximum of 17 scores can be awarded to DTP, HTML or to an SQL statement and 3 scores for the viva. Total score is 20. Project is compulsory from this year onwards and viva questions can be based on project.

Evaluation Indicators

1.	Use of Proper controls and events /tags /Commands	:	4
2.	Correctness of Logic/Usage	:	10
3.	Accuracy/ Perfection of output	:	2
4.	Lab Diary	:	2
5.	Viva (1 x 2 questions)	:	2
	Total Scores	:	20

Chapters related to PE

Chapters 5,6,8,9 and 12 given in second year syllabus of Computer Application (Humanities) textbook.

Suggested Practical Questions

D T P

1. Using PageMaker prepare invitation letter for your school's Annual Day celebrations.
2. Using PageMaker prepare an Identity Card of your school.
3. Using PageMaker prepare Fees receipt of your school.
4. Using PageMaker prepare Student evaluation profile.
5. Using PageMaker prepare Marriage invitation Card.
6. Prepare an attractive greeting card to greet your teachers on Teachers' Day. (Use Clip Art)
7. Type the passage below and format it as directed.

'Everybody talks about it, but nobody does anything about it!'. If Americans humourist, Mark Twain, were alive today his quip would be about the 'Free and open' software linux, rather than about the whether.

But suddenly it seems in the first half of December the whether in the World Wide Web has changed – and after a decade of hype linux is finally 'Out in the open' and ready to enter the mass computer desktop. An unrelated series of global events in recent days may end up providing the final push for the operating system software that was touched as the only

challenger to the big brand name players who were perceived as triple P's: Pricy, Proprietary and Predatory.

- a. Give a heading Linux to this passage in bold, Font size 16, aligned centrally in capital letters.
 - b. The two paragraphs should be justified aligned.
 - c. Replace all linux with LINUX
 - d. Correct the spelling mistake if any using spell check.
 - e. Save the file as Linux
8. Type the passage in Question No. 4 and format it as directed below.
- a. Give a heading Linux to the passage aligned centrally with font size of 16, red in colour and in bold letters.
 - b. Set the left margin and right margin to 2 inches.
 - c. Set the header as Operating System
 - d. Find all occurrences of word 'software' in this passage and replace it with 's/w'
 - e. Save the document with the name linux.

MS Access/Oracle/SQL Server/MySQL

1. Create a table Student with fields

RollNo	Integer	Primary key
Name	Character(25)	
Sub1	Integer	
Sub2	Integer	
Sub3	Integer	
Total	Integer	

Write SQL Queries to

1. Insert data in the fields RollNo, Name, Sub1, Sub2, Sub3. (At least 10 Records)
2. Update field total with the sum of Sub1, Sub2 and Sub3.
3. Display highest marks in sub2.
4. Display the names in ascending order.
5. Display the highest total.

2. Create a table Student with fields

RollNo	Integer	Primary key
Name	Character(25)	
Batch	Character(20)	
Total	Integer	

Batch can have values COMMERCE, SCIENCE or HUMANITIES

Write SQL Queries to

1. Insert data in the fields RollNo, Name, Batch, Total (at least 10 records).

2. Display a list of students having mark < 400.
3. Display the number of students in each batch.
4. Display the highest and lowest mark in COMMERCE batch.

3. Create a table Student with fields

RollNo	Integer	Primary key
Name	Character(25)	
Batch	Character(20)	
Total	Integer	

Batch can have values COMMERCE, SCIENCE or HUMANITIES

Write the SQL Queries to

1. Insert data in the fields RollNo, Name, Batch, Total. (at least 10 records)
2. Display the Names of all students in COMMERCE batch.
3. Display the highest mark in the table.
4. Display the name of students in the descending order of total mark.
5. Display the details of students with RolNo from 4 to 7.

4. Create a table Employee with fields

EmpNo	Integer	Primary key
Name	Character(25)	
Designation	Character(20)	
Department	Character(25)	
BasicPay	Number(8,2)	
DA	Number(8,2)	
Gross	Number(8,2)	

Write SQL queries to

1. Insert data in the fields EmpNo, Name, Designation, Department and BasicPay. (at least 10 records).
2. Update DA in the table as 40% of BasicPay.
3. Update Gross as the sum of BasicPay and DA.
4. Display the EmpNo, Name of the employee with minimum Gross.
5. Display the details of the employee with maximum Gross.

5. Create a table Employee with fields

EmpNo	Integer	Primary key
Name	Character(25)	
Designation	Character(20)	
Department	Character(25)	
BasicPay	Number(8,2)	
DA	Number(8,2)	
Gross	Number(8,2)	

Write SQL Queries to

1. Insert data in the fields EmpNo, Name, Designation, Department and BasicPay, DA. (at least 10 records).
2. Update Gross as the sum of BasicPay and DA.
3. Display the Department wise listing of all employees in ascending order of name.
4. Display the total Gross salary paid to salesmen.
5. Display the details of the employees arranged in the order of designation.

6. Create a table Employee with fields

EmpNo	Integer	Primary key
Name	Character(25)	
Designation	Character(20)	
Department	Character(25)	
BasicPay	Number(8,2)	
DA	Number(8,2)	
Gross	Number(8,2)	

Write SQL Queries to

1. Insert data in the fields EmpNo, Name, Designation, Department and BasicPay, DA. (at least 10 records).
2. Update Gross as the sum of BasicPay and DA.
3. Display total salary paid in each Department.
4. Display average salary of Managers.
5. Display the details of the employee with maximum salary.

7. Create a table Deposit with fields

AccNo	Integer	Primary key
Name	Character(25)	
Branch	Character(20)	
Amount	Number(8,2)	Not Null

Branches can be CALICUT, COCHIN or TRICHUR.

Write SQL queries to

1. Insert data in all the fields (at least 10 records).
2. Display the total deposit in each branch.
3. Display the accounts branch wise in ascending order of AccNo.
4. Display the details of deposit with maximum amount.
5. Display the AccNo and Name of deposits in the branch CALICUT

8. Create a table Customer with fields

AccNo	Integer	Primary key
Name	Character(25)	
Branch	Character(20)	
Amount	Number(8,2)	Not Null

Branches can be CALICUT, COCHIN or TRICHUR.

Write SQL Queries to

1. Insert data in all the fields (at least 10 records).
2. Display the AccNo and Name of Customers.
3. Display the details of the Customer who has deposited exactly Rs. 10000.
4. Display the account no.'s of account holders who have deposited more than Rs. 10000 and less than Rs. 50000.
5. Display the names and AccNo. of depositors in Calicut branch who have more than 20000 as deposit.

9. Create a table Employee with fields

EmpNo	Integer	Primary key
Name	Character(25)	
Designation	Character(20)	
Department	Character(25)	
BasicPay	Number(8,2)	
DA	Number(8,2)	
Gross	Number(8,2)	

Write SQL Queries to

1. Insert data in all the fields. (at least 10 records).
2. Display the name of all Departments without repetition.
3. Update DA as 50% of the BasicPay.
4. Update Gross as the sum of BasicPay and DA.
5. Display the details of employees with gross between Rs.5000 and Rs.10000.

10. Create a table Customer with fields

AccNo	Integer	Primary key
Name	Character(25)	
Branch	Character(20)	
Amount	Number(8,2)	Not Null

Branches can be CALICUT, COCHIN or TRICHUR.

Write SQL Queries to

1. Insert data in all the fields (at least 10 records)
2. Display the details of Customers from AccNo 1 to 5
3. Display the list of Customers with Amount less than 100
4. Display the Name of Customers with maximum Amount in each Branch
5. Display the details of Customers in a Branch other than CALICUT

HTML

1. Write HTML code to create an attractive web page about Kerala. (Use alignments, font colour, background colour etc)
2. Write HTML code to create a web page about your school and save it with the name School. Prepare another web page with the address of your school and save it with the name Address. Now create a link in the web page 'School' to link to the web page address.
3. Create an HTML document that display the specifications of any three secondary storage devices in the form of definition list
4. Prepare an HTML document to display the following table

State Bank of India	Interest Rates		
	Less than Rs. 50,000	Between Rs. 50,000 & Rs. 1 Lakh	Above Rs. 1 Lakh
Less than 5 Years	8	8.5	9
Between 5 & 10 years	8.5	9	9.5
Above 10 years	9	9.5	10

5. Write HTML code to create a simple web page as shown below.

<p>Department of Tourism Kerala State</p> <p>Tourist attractions in Kerala</p> <ol style="list-style-type: none"> 1. Trivandrum <ol style="list-style-type: none"> a) Kovalam Beach b) Padmanabha Temple c) Museum 2. Ernakulam <ol style="list-style-type: none"> a) Bolghatty Palace b) Boating in Vembanad lake

6. Create a HTML frame that divides the page in the ratio 10:90 horizontally. The first frame Shows a welcome message and the second page displays the details of your school.
7. Prepare an application form to accept your bio-data using HTML. Details such as Name, Address, Nationality, Sex, Hobbies etc. should be entered.
8. Create a web page that display three images from different categories. At the top of the page, give hyper links to each image.

Terminal Evaluation

The TE is the written examination conducted by the Directorate of Higher Secondary Education, Kerala at the end of the academic year of standard XII. There will be questions for a maximum of 60 scores and the maximum time for writing examination is 2¹/₂ hours. The candidates will be provided with 15 minutes cool off time to get acquainted with the question paper and to plan themselves for giving their responses. The test items will be based on the selected COs of the subject. The weightage to the CO/content and the weightage to type of questions will be fixed by the question setters. There may be questions for 1 score, 2 scores, 3 scores and 5 scores, but there will not be separate sections for the type of questions. Most of the questions may have sub sections numbered as (a), (b) and (c). The questions having such subdivisions will mostly based on a CO or a cluster of related COs. Out of these sub divisions, the first question will be an easy question, the second will be an average difficulty level question and third one will be of comparatively high difficulty level. The questions will be arranged in the question paper in the ascending of their total score.

All questions may need to be answered, but some internal choices may be allowed. Still, the scores for choice questions will not exceed 25% of the total score. The questions with 1 score may not always be multiple choice, but it can be an answer that requires a word, phrase or a sentence. Most of the questions will be thematic and hence the students should be provided with such learning experiences. The important feature of the test items is that the questions are process oriented, requiring higher order mental processes. Sample questions will be available in the end of each chapter. Let us see the mental process from lower to higher order.

- 1 retrieve/recollects/retells information
 - 2 readily makes connections to new information based on past experiences and formulates initial ideas/concepts.
 - 3 detects similarities and differences.
 - 4 classifies/ categorises/ organises information appropriately.
 - 5 translates/ transfers knowledge or understanding and applies them in new situations.
 - 6 establishes cause-effect relationships.
-

- 7 makes connections/relates prior knowledge to new information/applies reasoning and draw inferences.
- 8 communicates knowledge/understanding through different media.
- 9 imagines/ fantasises/ designs/ predicts based on received information.
- 10 judges/appraises/evaluates the merits or demerits of an idea/develops own solutions to a problem.

Grading

Consider an achievement test of total score 100. There is a possibility of getting 0 score to 100 score for individuals. In other words, we can say that this is an 101 point scale. It is very difficult to distinguish a learner scored 89 with another learner who scored 90. There may not be any difference in the abilities of these two learners. To overcome such limitations a popular mode of evaluating students performance known as grading system has been evolved. It is used all over the world. At the higher secondary stage it is desirable to use nine point absolute grading to coordinate and record the evaluation. In Computer Applications, the scores obtained in CE out of 20, PE out of 20 and TE out of 60 are added and the total score is converted into percentage and appropriate letter grades are awarded corresponding to each score. This system is termed as absolute grading. The score percentage and corresponding letter grades are given below:

Score in Percentage	Grade
90 - 100	A+
80 - 89	A
70 - 79	B+
60 - 69	B
50 - 59	C+
40 - 49	C
30 - 39	D+
20 - 29	D
Below 20	E

PART II

**Chapter wise
Detailing of
Learning Activities**

1 Introduction to
E-Commerce

UNIT PLAN

Curriculum Objectives	Concepts/ Ideas	Process Skills	Learning Activities	Learning Aids/ Materials	Evaluation	Time (Periods)
Understand the concept of e-commerce	Concept of E-commerce.	Identifies, Communicates,	Discussion	Text books, Magazines	Notes Preparation	1
Comparison of traditional and electronic commerce	Traditional and electronic commerce	Identifies, Communicates,	Discussion	Text books, Magazines	Notes	1
.Identify the role of various e-commerce activities	Various e-commerce activities	Communicates, Explains	Discussion, Seminar	E-commerce sites, Magazines	Assignment Preparation	1
Understand the advantages of e-commerce	Advantages of e-commerce	Communicates, Explains	Discussion	Web sites, Magazines	Notes	1
Familiarize e-commerce models	E-commerce models	Identifies, Communicates, Explains	Discussion	E-commerce sites, Magazines	Notes	1

Introduction

This chapter aims to learn the difference between traditional commerce and electronic commerce. E-commerce helps the customers to access new markets, discover new sales opportunities and build a closer relationship between customer and business organisations which span all over the world through the Internet. They get familiar with the advantages of e-commerce in advertisement, sales promotion, auction and also main e-commerce models such as B2B and B2C.

Curriculum Objectives

1. Understand the concept of E-commerce through discussion.
2. Compare traditional commerce and electronic commerce through discussion.
3. Identify the role of E-commerce in various business activities.
4. Understand the advantages of E-commerce.
5. Familiarise various e-commerce models.

Content details

Commercial Transaction, E-Commerce-Definition; Traditional Commerce V/s E-Commerce; Role of e-commerce in various business activities ; Benefits of e-commerce- advertisements, Promotions and Auctions; Various e-commerce models-B2B, B2C.

Pre requisites

- Knowledge of commercial transaction.
- Idea about Web site, Web browsing, how to send e-mail etc.

Learning Activities

1.1. Discussion on browsing and sending E-mail (Prior knowledge testing) (30 mins.)

- 1.1.1. Problem: *Suppose you need to send an e-mail to a friend using the yahoo mail service. How do you do that?*
- 1.1.2 Students in each group discuss the matter and list their findings.
- 1.1.3 Groups present their findings in the class and the students discuss.
- 1.1.4 Consolidation by the teacher.

Note: The teacher is supposed to guide the students through web browsing (www.yahoo.com), concept of e-mail, sending e-mail etc.

1.2. Discussion on the concept of e-commerce. (15 mins.)

- 1.2.1. Problem : *A patient urgently* needs a medicine which is only available in England. How can you help him to get the same quickly?
- 1.2.2. Students in each group discuss and present their findings.
- 1.2.3 Teacher consolidates and introduce the concept of e-commerce.

1.3 Discussion on Traditional Commerce V/s E-Commerce. (45 mins.)

- 1.3.1. Problem: *What are the differences between traditional commerce and e-commerce?*
- 1.3.2. Students in groups are asked to discuss the differences and similarities, and prepare a comparison list.
- 1.3.3. Groups present its findings in the class and the students discuss.
- 1.3.4. The teacher consolidates the similarities and dissimilarities.
- 1.3.5. Students are asked to prepare a comparison chart. It includes the following matters

Tip: Information transfer methods, Benefit, Payment, Preparation of purchase order or invoice data and suitability

1.4. Assignment on role of E-Commerce in business activities. (45 mins.)

- 1.4.1. Problem: *What are the roles of e-commerce in various business activities?*
- 1.4.2. Each group collects information about the role of e-commerce. They can use resources from text books, library books and any other source available to them. Each group prepares a note explaining the role of e-commerce.
- 1.4.3. Each group present their findings in the class. All groups give their comments.
- 1.4.4. Consolidation : Teacher consolidates the findings of the groups. Students are asked to prepare a fair copy of their assignments.

1.5 Discussion on advantages of e-commerce (45 mins.)

- 1.5.1 Problem : *What are the advantages of e-commerce?*
- 1.5.2 General discussion is conducted and students list out their findings.
- 1.5.3 Groups present their findings.
- 1.5.4 Consolidation : Teacher consolidates the advantages and limitations. (Consolidation should include the limitations such as cannot verify the item physically, cannot reflect the latest changes, etc.)

Tip: Lower operating cost, Highly economical, Improves sharing of information, increases opportunities, new business model, advertisement, promotion and auction.

1.6 Familiarisation of e-commerce models (45mins.)

- 1.6.1. Problem: *What are the steps involved in wholesale business and retain business?*
- 1.6.2. A discussion is conducted in the class room.
- 1.6.3 Groups present their findings.
- 1.6.4 Teacher consolidates and introduces the concept of B2B and B2C e-commerce models.
- 1.6.5 Students prepare notes on e-commerce models.

Sample Questions

- 1. A supermarket wants to launch an e-commerce web site. What are the benefits that the shop expects while opening it?

(3 Score)

Scoring indicators

Advantages of e-commerce (Lower operating cost, Highly economical, Improves sharing of information, increase opportunities new business model, advertisement, promotion and auction) -

(2 Score)

Explanation -

(1 Score)

- 2. Gopu is running an online computer shop and selling computers to the customers. He purchases the components of the computer from multinational companies. All business transactions are being made through Internet.

(a) Name the type of business Gopu is experiencing in his shop. (1 Score)

(b) Compare the business activities in Gopu's shop with that of popular on-line business models. (3 Score)

Scoring indicators

(a) E-commerce (1 Score)

(b) B2B, B2C (1 Score)

Explanation -

(2 Score)

2 Structure of e-commerce

UNIT PLAN

Curriculum Objectives	Concepts/Ideas	Process Skills	Activities	Learning Aids/ Materials	Evaluation/ Product	Time (Periods)
Structure of e-commerce system	e-commerce structure	Understanding	Demonstration Discussion Web browsing	Text book, web documents	Notes	2
Analyse e-commerce front end, website, product catalogue, shopping cart	Functional components of e-commerce site	Observation, understanding, prediction.	Discussion Web browsing	E-commerce site, Text Book, Web documents	Notes	2
Understand the need of e-commerce back end, use of back office and order realisation	Order processing Order realisation	Identification Understanding	Discussion and Role play	Text Book, Web documents	Notes	2
Identify the use of electronic payment system	on-line money transaction	Observation Identification	Discussion	Text book, Magazines	Notes	1
Organisation for payment system	e-com payment system	Understanding Identification	Discussion	Text book, Periodicals	Notes	1

Introduction

E-Commerce plays an important role in today's business arena. This chapter familiarises an e-commerce web site. It gives an idea regarding shopping through an e-commerce site (front-end activities like product catalogue, shopping cart). Back-end activities like Electronic payment system, back-office setup and order realization are also covered here. On completion of this chapter, the learner understands how purchases can be made through the Internet.

Curriculum Objectives

- Familiarise the structure of e-commerce system through demonstration, discussion, illustration etc and prepare notes
- Analyse e-commerce front-end, website, product catalogue, shopping carts and e-commerce backend through lab demonstrations and prepare notes.
- Identify the need and use of back office support and order realisations through role play, discussions and illustrations and prepare notes.
- Identify the use of electronic payment systems through discussions and list their uses.
- Analyse the organisation of payment systems through discussion and prepare notes.

Content Details

E-Commerce front-end website, product catalogue, shopping cart, e-commerce back-end, Electronic payment system, credit card, debit cards, E-cash, back-office support, merchant accounts, payment gateway, payment authorization

Pre requisites

- Knowledge about E-Commerce
- Advantages of E-Commerce

Learning Activities

2.1 Group discussion to check prior knowledge (30 mins.)

2.1.1. Problem: *A Supermarket wants to launch an e-commerce website. What are the benefits that the shop expects while doing this?*

2.1.2 Discussion about e-commerce by various groups

2.1.3 Each group presents its findings.

2.1.4 The teacher consolidates by presenting concept of E- Commerce and advantages of e-commerce

2.2 Demonstration of an E-Commerce site (60 mins.)

2.2.1 Demonstrate an e-commerce site in the lab and allow the students to familiarize with the options in the site.

2.2.2 Students list out the features they have identified in the site.

2.2.3 Students present their findings

2.2.3 Teacher consolidates the features of the e –commerce site

Note : The following question can be given for the schools where there is no Internet facility can choose the following activity.

Question: Your mother asked you to purchase household items like sugar 2 kg Lux 100gm, 2 packets of biscuits etc from the nearby computerized self service supermarket. Write down the steps you performed in the supermarket for the purchase.

i) Students discuss in groups

ii) Each group presents its findings.

iii) Teacher illustrates the features of e-commerce website and make a comparison for shopping cart with shopping bag and product catalogue with the shelf in the supermarket.

2.3 Discussion on Product Catalogue (20 mins.)

2.3.1 Problem: *What are the facilities for a customer to select the desired items from the bulk of items available in E –Commerce web site?*

2.3.2. Students discuss in groups

2.3.3. group presents their findings with explanation.

2.3.4. Teacher illustrates on Product Catalogue and learners prepare notes.

2.4 Discussion on Shopping Cart (25 mins.)

2.4.1 Problem:- How will you bring the selected items to the billing section in a super market?

2.4.2 Students present their ideas.

2.4.3 The idea of shopping cart should be mentioned, if necessary by the teacher.

2.4.4 Teacher illustrates on shopping cart and learners prepare notes.

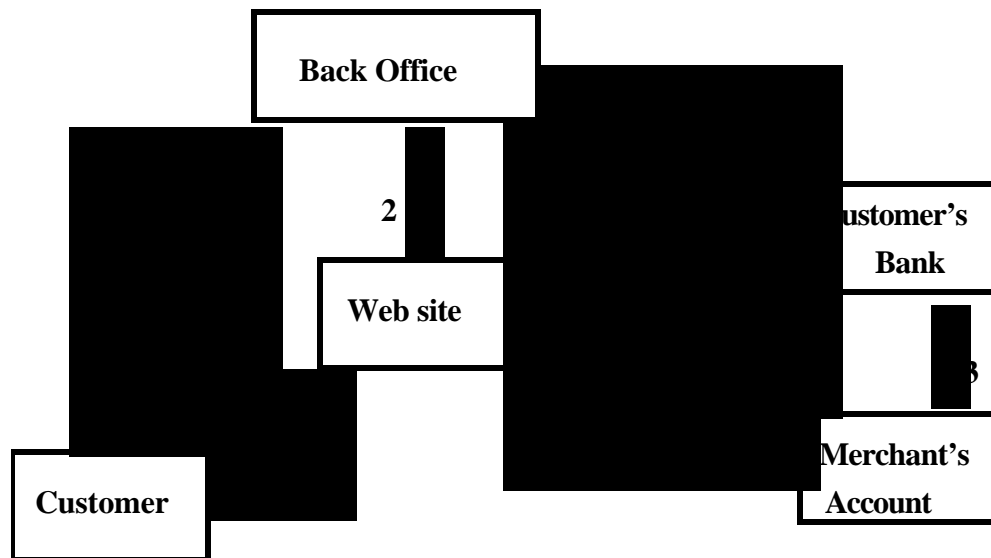
2.5 Group Discussion on Back-End of E-Commerce (30 mins.)

- 2.5.1 Problem:- *A customer selects a refrigerator through an e-commerce site, what are the steps required to complete the purchase?*
- 2.5.2 Discussion carried out in groups
- 2.5.3 Groups present their findings.
- 2.5.4 The Teacher consolidates the suggestions and illustrates the concepts of back-end of e-commerce and order realization and the learners prepare notes.

2.6 Roleplay on order realisation (45mins.)

- 2.6.1 A roleplay is conducted to dramatize the order realisation
- 2.6.2 5 students are selected and assigned to take roles as customer, e-commerce website, back office, customer's bank and merchant's account

2.6.3



Requirements for the Role play

- 1. Items list chart (product catalogue)
- 2. Selected items chart
- 3. Paper to enter credit card number
- 4. Payment token
- 5. An empty box (carton) as cover of item

Steps of order realisation

- 1. i. Customer visits the seller's web site
- ii. He selects the items he wishes to buy from the Items list chart (chart 1)
- iii. He gets the list of selected items with total amount (chart 2)

- iv Customer gave the confirmation of purchase
- v Website shows the paper to enter the credit card details and customer gives the details
- 2. The website person immediately informs back office about the order and customer's bank about the credit card details and amount simultaneously
- 3. Customer's bank person gave the payment token to merchant account
- 4. Back office asks merchant account about the confirmation of payment (orally)
- 5. Merchant account gives the confirmation
- 6. Back office makes the arrangement to execute the order (bringing box to customer)

2.6.3 Students discuss in groups the processes of e-commerce site.

2.6.4 Groups present their findings

2.6.5 The teacher consolidates and learners prepare notes.

2.7 Group Discussion on Electronic payment system (45 mins.)

2.7.1 Problem:- How will you pay for the refrigerator purchased from Samsung?

2.7.2 Students discuss in groups

2.7.3 Groups present their findings

2.7.4 The Teacher consolidates and introduces the concept of electronic payment system and illustrates the use of credit card, debit card, Electronic Fund Transfer and electronic cash.

2.7.5 Learners prepare notes.

2.8 Discussion on Merchant's Account (25 mins.)

2.8.1 Problem: *How does Samsung receive money from customer's account?*

2.8.2 Students list out their opinions and suggestions.

2.8.3 Students present their findings.

2.8.4 The Teacher illustrates the concept and need for merchant's account; learners prepare notes.

2.9 Discussion on Payment Gateway (20mins.)

2.9.1 Problem: *Are the transactions made by electronic payment secure and reliable? Justify.*

2.9.2 Students give their opinions.

2.9.3 The teacher illustrates the importance of security on electronic payment system, processes of Payment Gateway and payment authorization.

2.9.4 Learners prepare notes.

Sample Questions

1. a) Name the facility on an e-commerce site that displays all the items available on an e-commerce site. (3 score)

Scoring Indicators

- a. product catalogue (1 score)
b. features (2 score)

2. Give a comparison chart between front-end and back-end of e-commerce system (3 score)

Scoring Indicators

- front-end features (1½ score)
back-end features (1½ score)

3. Name the method designed to transfer a certain amount of money from one account to another account electronically. (1 score)

Scoring Indicators

- Electronic fund Transfer (1 score)

4. Suppose you are purchasing an item through e-commerce. Write down the processing steps in the order realisation. (3 scores)

Scoring Indicators

- steps of transactions of order realisation (3 scores)

5. Discuss the role of seller's account with a bank which allows the seller to accept payment from customer electronically. (2 score)

Scoring Indicators

- Merchant's account (1 score)
features (1 score)

6. Do you think the payment transaction through internet is safe? justify. (3 score)

Scoring Indicators

- Payment gateway (1 score)
Illustration (2 score)

3 Setting up an e-commerce website

UNIT PLAN

Curriculum Objectives	Concepts/Ideas	Process Skills	Activities	Learning Aids/ Materials	Evaluation/ Products	Time (Periods)
Understanding the primary requirements and related steps for web hosting through discussion and observation	web hosting	Observation	Discussion	Text book, web documents	Notes	2
Familiarise the concept and features of electronic payment system and list out its merits and demerits	Electronic payment system over Internet	Observation, Comparison	Assignment	E-commerce site, Text Book, Web documents	Notes	2
Understand the various aspects of web portals, acquire knowledge in shopping mall through general discussion .Prepare a note comparing portal sites and ordinary sites	Web portal sites e-market	Observation comparison prediction	Demonstration Discussion	Text Book, Web documents, Magazines	Notes	2
Identify the use of electronic payment system	Electronic payment system	Observation	Group Discussion, Panel Discussion.	Text Book, Web documents	Notes	2

Introduction

The students have already learned about e-commerce and its functioning. In this chapter, the learner understands about hosting a website, registration, processes in electronic payment, web portal etc.

Curriculum Objectives

- Understand the primary requirements and related steps for web hosting through discussion, observation etc. and generate a list of requirements.
- Formulate the concepts and identify the features of electronic Payment system and list out its merits and demerits.
- Understand the various aspects of web portals, acquire knowledge in shopping mall through general discussion, observation etc. and prepare a note comparing portal sites and ordinary sites.

Content Details

Web Hosting - Website Development, Registration; Enabling Electronic Payment System; Portal Development; Web Portal; Shopping Mall.

Pre requisites

- Knowledge of Internet.
- Knowledge of E-Commerce, Electronic payment.

Learning Activities

3.1 Discussion on Web Hosting (30 mins.)

- 3.1.1 Problem:-A team of students developed a website for their school, where there is Internet connection. But the site is not available on Internet. Why?
- 3.1.2 Students list out the reasons and suggestions.
- 3.1.3 Students present their findings.
- 3.1.4 Teacher consolidates their suggestions and illustrates on web hosting.
- 3.1.5 Learners prepare notes.

3.2 Discussion on creation of an e-commerce site (30 mins.)

- 3.2.1 Problem:- Suppose you are asked to design an E-commerce site for an organization. What are the points to be kept in mind while designing it? How will it be recognized as a commercial site?
- 3.2.2 Students give their suggestions.

3.2.3 Teacher consolidates and illustrates the points on the designing of e-commerce web site and registration of the domain name.

3.2.4 Learners prepare notes.

3.3 Discussion on types of web hosting (30 mins.)

3.3.1 Problem:- *Students are asked to explain the different methods of advertisement used today. (Posters/Banners in public places, boards on contract basis, fixing their own permanent board etc. are expected.) How do these methods differ? (First one is free, but no guarantee; second one is for a particular period; third one is expensive.) How can these strategies be extended to web hosting (Free hosting, Virtual hosting, Dedicated hosting)*

3.3.2 Students give their opinions.

3.3.3 The Teacher consolidates the points and illustrates different types of web hosting with their advantages and disadvantages.

3.3.4 Students prepare notes and make a chart that shows the strengths and weaknesses of different types of hosting.

3.3.5. Teacher gives an assignment on electronic payment system (Assignment should include the topic like credit card, debit card, e-cash, Netbill, EFT, etc.)

3.4 Demonstration of a Web portal (60 mins.)

3.4.1 Demonstrate a Web Portal in the lab.

3.4.2 Students note the difference between a web portal and a web site. (Differences like the services in a portal).

The schools without internet facility, can choose the following method

* Save the home page of any web portal from internet. Eg. manoramanonline.com

* Students get familiar with the homepage in the lab.

3.4.3 Students present the differences and services of a web portal with examples

3.4.4 Consolidation by the teacher. Students prepare notes.

3.5 Discussion on WAP (30 mins.)

3.5.1 Problem :- *What are the internet facilities available on mobile phones.?*

- 3.5.2 Students give their suggestions.
- 3.5.3 The Teacher introduces the concept of WAP
- 3.5.4 The Teacher illustrates WAP and its components and learners prepare notes.

Sample Questions

1. Mohan has developed a personal web site. How the site is available on Internet?
Write down the different ways to place wabsites on internet. (4 score)
Scoring Indicators
Web hosting (1score)
Types of web hosting (3score)

2. The part of address of the website that distinguish your site from other sites is.....
(1 score)
Scoring Indicators
Domain name (1 score)

3. How a web portal is differ from an ordinary website? write names of any two web protals.
(3 score)
Scoring Indicators
Illustration (2 score)
Examples (1 score)

4. Is there any relation between WAP and Mobile? Justify.
(2 score)
Scoring Indicators
Concept of WAP (2 score)

4

Web Security

UNIT PLAN

Curriculum Objectives	Concepts/Ideas	Process Skills	Activities	Learning Aids/ Materials	Evaluation/ Products	Time (Periods)
Identify the needs, types and issues related web security through discussion and prepare notes.	web security	Observation, Prediction	Discussion	Text book, web documents, Magazines.	Notes	1
Familiarise different methods or web security through discussion and prepare notes.	web security issues, Protection methods	Observation, Comparison, Discrimination	Seminar	Text Book, Web documents, Books on web security	Notes	1
Familiarise data transaction security techniques through discussion and prepare notes.	Data transaction security	Observation Inferring	Discussion	Text Book, Web documents, Magazines, Other related books.	Notes	1
Understand digital certificates, digital signature, SET and SSL through discussion and prepare notes.	Authentication techniques(SET, SSL, Digital signature, Digital certificate)	Observation, Comparison, Discrimination	Discussion	Text Book, Magazines, Other related books.	Notes	1

Introduction

At present, web based services, transactions etc are not fully secure. Various threats are there against communication systems and computers. To prevent such electronic threats, security measures are to be taken. This chapter deals with the various security threats towards computers and communication systems and with the security measures that are to be taken to protect the system from such threats.

Curriculum Objectives

1. Identify the needs, types and issues related web security through discussion and prepare notes.
2. Familiarise different methods for web security through discussion and prepare notes.
3. Familiarise data transaction security techniques through discussion and prepare notes.
4. Understand digital certificates, digital signature, SET and SSL through discussion and prepare notes.

Content Details

Need for security-Security issues-Hackers and Crackers, types of web security-client server network security-protection methods (Authorization, authentication, smart cards, bio-metric system, firewalls) Data and transmission security-Encryption techniques (Symmetric key encryptions, asymmetric key encryption, Hashing, Cyclic redundancy check), digital certificates, digital signature, SET, SSL; Comparison of SET and SSL; payment over internet.

Pre requisites

- Idea about internet and web browsing.
- dea of transaction through e-commerce sites.

Learning Activities

4.1 Discussion to check the pre-requisites (10 mins.)

- 4.1.1 Open discussion is conducted on Internet, web browsing and transaction through e-commerce sites.
- 4.1.2. The points are consolidated and notes are prepared.

4.2 Group discussion on the necessity of Web Security (30 Mins.)

- 4.2.1 A group discussion is conducted based on the following problem:
Do you think our present day web scenario is 100% secure? If no, what types of security problems are prevailing now?
- 4.2.2 Each group presents their findings.
- 4.2.3 The findings are then consolidated and notes are prepared.

Some Useful Tips

VIRUS

In computer security technology, a virus is a self-replicating program that spreads by inserting copies of itself into other executable code or documents. Thus, a computer virus behaves in a way similar to a biological virus, which spreads by inserting itself into living cells. Extending the analogy, the insertion of the virus into a program is termed infection, and the infected file (or executable code that is not part of a file) is called a host.

Worm

A computer worm is a self-replicating computer program, similar to a computer virus. A virus attaches itself to, and becomes part of, another executable program; however, a worm is self-contained and does not need to be part of another program to propagate itself. They are often designed to exploit the file transmission capabilities found on many computers. It infects additional computers typically by making use of network connections or through removable storage devices.

Spyware

Any software that covertly gathers user information through the user's Internet connection without his or her knowledge, usually for advertising purposes. Spyware applications are typically bundled as a hidden component of freeware or shareware programs that can be downloaded from the Internet. Once installed, the spyware monitors user activity on the Internet and transmits that information in the background to someone else.

Such a software will send information about your Web surfing habits to its Web site. Spyware is often installed without the user's knowledge or explicit permission in combination with a free download.

Adware

Any software that serves banner ads or pop-up ads to you while in use can be termed as an adware. It is a slightly less malicious form of Spyware which usually displays unwanted pop-up advertisements. Adware can do a number of different things to your system. It can monitor and profile your web usage and direct pop up ads based on your

4.3 Seminar on different types of web security issues and the significance of protection methods. (40 Mins.)

- 4.3.1 Seminar on Web security issues and the significance of Protection methods is conducted .
- 4.3.2 Students prepare detailed notes about web security issues and protection methods.
- 4.3.3 Explore web sites that describe the security threats and various protection methods and prepare notes on the basis of these activities.

4.4 Discussion on the concept of authentication techniques. (40 Mins.)

- 4.4.1 Students discuss the concept of authentication techniques in groups under the direction of the teacher. (While doing this, SET, SSL, Digital Signatures, Digital Certificates etc are to be highlighted by giving sufficient information and examples)
- 4.4.2 Prepare notes about SET, SSL, Digital Signatures and Digital Certificates.

4.5 Group Discussion to distinguish between digital signatures and digital certificates. (40 Mins)

- 4.5.1 *Problem: Is there any difference between digital signature and digital certificate?*

Discuss this and prepare a detailed list of similarities and differences between them.
- 4.5.2 Groups present their findings.
- 4.5.3 Teacher consolidates the discussion.
- 4.5.4 Students prepare detailed notes.

Sample Questions

1. When I try to view a secure page, the browser complains that it doesn't recognize the authority that signed its certificate and asks me if I want to continue. Should I? Explain. (3 score)

Scoring Indicators

Correct answer (Shall continue) with reason (1 score)

Correct explanation about the security settings of the browser (2 score)

2. “Even an e-mail message can harm your computer.”- Is it true? Justify your answer with proper reasons. (3 score)

Scoring Indicators

Yes (1 score)

Justification with proper reasoning (2 score)

3. Mr. Raju intended to buy an electric oven through an e-commerce site. He ordered for it and gave the number of his credit card to pay for it. After a month he realised that more money, more than the price of the electric oven, has been deducted from his account. He informed the authorities of the site about this but they made it clear that they had taken only the actual price of the electric oven.

a) What is your explanation for this situation? (1 score)

b) Suggest a good remedy for this. (2 score)

Scoring Indicators

For correct explanation (1 score)

Suggesting good remedy (2 score)

4. What is your opinion about using a firewall to protect your system from malware? Give proper justification supporting it. (3 score)

Scoring Indicators

- | | | |
|----|--|-----------|
| | Necessity of firewall | (1 score) |
| | Justification with proper example | (2 score) |
| 5. | What are the differences between spyware and adware? | (3 score) |

Scoring Indicators

- | | | |
|--|-----------------------------------|-----------|
| | Necessity of firewall | (1 score) |
| | Justification with proper example | (2 score) |

5 Introduction to HTML

UNIT PLAN

Curriculum Objectives	Concepts/Contents	Process Skills	Learning Activities	Evaluation	Time (Periods)
Understand the significance of HTML and the different classifications of tags	Empty tag, Container tag. HTML>, <HEAD>, <TITLE>, <BODY>	Observing, Classifying, Communicating.	Observation Discussion	Notes	2
Familiarize the basic HTML tags and the relevant attributes	Different HTML tags and their attributes.	Observing, Communicating.	Illustration Web page designing Discussion Lab work	Notes, Observation Book Chart	3
Understand the different HTML tags for formatting text	Logical and physical text formatting tags. Special characters	Observing, Comparing.	Illustration Web page designing Discussion Lab work Error Correction	Notes, Observation Book, Chart	3

UNIT PLAN

Curriculum Objectives	Concepts/Contents	Process Skills	Learning Activities	Evaluation	Time (Periods)
4. Familiarize the way of inserting image in an HTML page through observation, discussion, lab work etc. and create web pages containing images.	 Tag and its attributes	Applying, Observing, Communicating.	Illustration Web page designing Discussion Lab work	Notes, Observation Book	2
5. Familiarize different types of linking through observation, discussion, lab work etc. and create web pages.	Internal and External Linking	Applying, Observing, Discussion Communicating.	Illustration Web page designing Discussion Lab work	Notes, Observation Book	3
6. Understand different types of lists in HTML through illustration, observation, discussion etc. and create web pages.	Ordered, Unordered and Definition lists	Applying, Observing, Discussion Comparing.	Illustration Web page designing Discussion Lab work	Notes, Observation Book, Chart	3

Introduction

Now a days Internet is one of the most popular and easily accessible source of knowledge. Students are familiar with how web sites can be accessed and how information can be searched on Internet. This has already been covered in the Plus One class. Most documents on the Internet are created using Hyper Text Markup Language (HTML). This chapter introduces the use of HTML tags for creating web pages. At the end of this chapter students should be able to create simple formatted web pages and link them.

Curriculum Objectives

1. Understand the significance of HTML and the different classifications of tags through discussion and prepare notes on the structure of HTML document.
2. Familiarise the basic HTML tags and the relevant attributes through illustration, observation, discussion etc. and prepare notes containing the list of tags, their use, associated attribute and their impact.
3. Understand the different HTML tags for formatting text through illustration, discussion etc. and create simple web pages using them.
4. Familiarise the way of inserting image in an HTML page through observation, discussion, lab work etc. and create web pages containing images.
5. Familiarise different types of linking through observation, discussion, lab work etc. and create web pages.
6. Understand different types of lists in HTML through illustration, observation, discussion etc. and create web pages.

Content Details

HTML - Definition; Empty and Container Elements; Structure Tags- <HTML> (Dir), <HEAD>, <TITLE>, <BODY> (Background, Bgcolor, Text, Link, Alink, Vlink, Leftmargin, Topmargin); Applying Column Tags - <P>(Align), <CENTER>, <H1> to <H6>, , <I>, <U>, <SUB>, <SUP>, <HR>(Size, Noshade, Width, Color),
, <BASEFONT>(Size, Face), (Size, Color, Face); Comments - <!-- and..-->; Special Characters (<, >, &); Linking - Internal, External; <A>(href, Sending Email); Inserting Images (Src, Alt, Align, Height, Width); Lists - Ordered (Type, Start), Unordered (Type), Definition <DL>.

Pre requisites

- ◆ General idea about Internet.
- ◆ Knowledge on website.

Learning Activities

5.1. Discussion on web pages. (45 Mins.)

- 5.1.1. Problem: *How will you access the web site www.yahoo.com?*
- 5.1.2 Teacher initiates a general discussion to recollect how a web page is created and how the code can be viewed using a browser.
- 5.1.3. Teacher consolidates the discussion giving stress to how pages are designed using HTML

5.2. Demonstration on tags and their attributes. (45 Mins.)

- 5.2.1. Teacher demonstrates the creation of a web page (use code given below) using an editor and view it using a browser in the lab.

```
<HTML>
<HEAD>
<TITLE>Hyper Text Markup Language</TITLE>
</HEAD>
<BODY bgcolor="yellow">
Welcome to HTML
<HR width="60%">
</BODY>
</HTML>
```

- 5.2.2. Through a general discussion teacher introduces the structure of a tag.
- 5.2.3 The learners are asked how the background colour of the web page can be changed to red.
- 5.2.4 Students present their idea and teacher consolidates by introducing the concept of attributes through more examples
- 5.2.3 Learners prepare notes on tags and attributes.

5.3 Discussion on classification of tags (45 Mins.)

- 5.3.1 Students are asked to prepare a list of tags in the above example individually in their note book.

- 5.3.2 One or two learners present their findings.
- 5.3.3 Teacher asks the learners to compare the structure of the different tags listed.
- 5.3.4 Students discuss and classify the tags into two groups
- 5.3.5 Teacher consolidates the discussion by naming the two groups as container tags and empty tags. Learners prepare a comparison table.
- 5.4 Discussion on the structure of a web page. (45 Mins.)**
- 5.4.1 Problem: *Identify the order in which the different tags are written in the HTML code given in Activity 5.2.*
- 5.4.2 Students discuss in groups and present their observations
- 5.4.3 Teacher consolidates by presenting the different sections in an HTML code.
- 5.4.4 Students prepare notes on the different sections.
- 5.5 Lab work on the creation of a simple web page. (45 Mins.)**
- 5.5.1 Learners are asked to create a web page using the code given in *Activity 5.2*.
- 5.5.2 Students are asked to change the background color by viewing the code.
- 5.5.3 Learners are asked to change the title of the page.
- 5.5.4 Learners make notes in the observation book.
- 5.6 Discussion on text formatting tags. (90 Mins.)**
- 5.6.1 Problem : *Students are provided with a raw text content. They are asked to prepare a neat format for the content using color, size, style etc. keeping in mind the different options available in any word processing software.*
- (When raw text is given it should contain the terms H₂O, X², etc. so that all the formatting tags can be introduced. Ask them to give headings, lines, etc.)
- 5.6.2 Each group present their formats and explain how this is done in any word processing software.
- 5.6.3 Teacher takes one of the above formats presented and introduces the text formatting tags in HTML used to format it in HTML.
- 5.6.4 Students prepare tags on each tag, its use, its attributes and the possible values for each attribute.
- 5.7 Demonstration on inserting images on web page. (45 Mins.)**
- 5.7.1 Teacher demonstrates a simple web page in which an image is inserted.
- 5.7.2 Students identify the tag and the attributes used for this from the HTML source.
- 5.7.3 Teacher consolidates image tag and its attributes.
-

5.8 Discussion on linking in HTML. (45 Mins.)

- 5.8.1 Problem : *How can you move from one page to another on Internet?*
- 5.8.2 Group discussion is conducted and each group present their findings.
- 5.8.3 Teacher consolidates the discussion and introduces the concept of internal linking and external linking by illustrating them using <A> tag and its attributes.
- 5.8.4 Students prepare notes and experiments <A> tag in the lab session.

5.9 Discussion on lists in a web page. (45 Mins.)

- 5.9.1 Students are asked to bring few samples of lists collected from various magazines or journals.
- 5.9.2 The students are asked to group the samples.
- 5.9.3 Teacher introduces the names for their lists, ordered, unordered and descriptive. The tags and attributes for creating the above lists are illustrated.
- 5.9.4 Learners write down the code for the lists in their samples.
- 5.9.5 Through a lab session they familiarise lists in HTML.

Sample Questions

1. Pick the odd man out
- a) BODY b) HTML c) CENTER d) ALIGN 1 Score

Scoring indicator : ALIGN , All others are tags. 1 Score

2. Find the errors from the following and correct it.

- a) <UL type= "A" start=5>
- b)
- c) <HTML>
 <HEAD> <TITLE> </HEAD> </TITLE>
 <BODY> This is a sample web page </BODY> 3 Score

Scoring indicators:

- a) UL has only Specified type and cannot start from a particular letter or number
- b) IMG has no size attribute, use height or width attribute.
- c) Close paired tags first 1 Score each

6

Advanced HTML

UNIT PLAN

Curriculum Objectives	Concepts/Contents	Process Skills	Learning Activities	Evaluation	Time (Periods)
Familiarize how tables are formatted and placed in a web page	Table tags and their attributes	Observing, Communicating.	Illustration Web page designing Discussion Lab work	Notes, Observation Book, Chart	3
Familiarize how frames are placed in webpages	<FRAME>, <FRAMESET> <NOFRAME> and their attributes.	Observing, Communicating.	Illustration Web page designing Discussion Lab work	Notes, Observation Book	4
Familiarize forms and their uses.	Form tags and their attributes	Observing, Applying, Communicating.	Illustration Web page designing Discussion Lab work	Notes, Observation Book	4

Introduction

The basic tags in HTML were discussed in the previous chapter. This chapter deals with some more advanced tags in HTML such as <TABLE>, <FORM> and <FRAMESET>. Tables are used for presenting data in a more understandable and precise form. Frames are meant for displaying different webpages in a single screen. Forms are used for interaction through webpages.

Curriculum Objectives

1. Familiarise how tables are formatted and placed in a web page through discussion and observation etc. and create web pages.
2. Familiarise how frames are placed in webpages through discussion, observation etc. and create web pages.
3. Familiarise forms and their uses through discussion, observation etc. and create web pages.

Pre requisites

- Knowledge in developing simple web page
- Usage of basic tags

Content Details

Table - <TABLE> (Border, Bordercolor, Height, Width, Align, Cellspacing, Cellpadding, Bgcolor, Frame), Table rows <TR> (Align, VAlign, Rowspan, Colspan, Bgcolor), Table Heading <TH> (Align, Rowspan, Colspan), Table data <TD> (Align, VAlign, Rowspan, Colspan, Bgcolor, background); Frames <FRAMESET> (Cols, Size, Rows, Border, Color), <FRAME> (Src, Scrolling, Name, Noresize, Width, Height, MarginHeight, Marginwidth); Noiframe <NOFRAME>; Forms - ((Type- Checkbox, Password, text, Radio, Submit, Reset), Value, Name, Size); <TEXTAREA> (Name, Rows, Cols), <SELECT> (Name, Size, Option, Optionselected), <LABEL> (For, name, Value).

Learning Activities

6.1 Discussion on need of tables in HTML. (45 Mins.)

- 6.1.1. Problem : How can you display Roll No., Name and Marks in three subjects of three students in a suitable way?
- 6.1.2. The learners are asked to make their own designs.
- 6.1.3. Presentation by each group.
- 6.1.4. Discussion on different designs.
- 6.1.5. Teacher consolidates the discussion by introducing table format as the ideal format for presenting this data.

6.2 Demonstration on table tags. (45 Mins.)

- 6.2.1 Teacher demonstrates a web page with the table mentioned in *Activity 6.1*. (<TABLE>, <TR>, <TD> and <TH> tags should be used to create the table)
- 6.2.2 Learners are asked to list out the various tags used for creating the table and their purpose in the above example.
- 6.2.3 One or two students are selected at random to present their views.
- 6.2.4 Teacher consolidates by introducing different table tags and students prepare notes on it.
Note: The table will not be displayed in the above example if the attribute 'border = 1' is not specified in the <TABLE> tag.

6.3 Demonstration on attributes of table tag. (45 Mins.)

- 6.3.1 Teacher modifies the above table by specifying values for the different attributes of the table tags.
- 6.3.2 Students observe the features and the effect of each attribute and prepare notes.
- 6.3.3 Teacher demonstrates the use of rowspan and colspan attributes by modifying the above table as given below.

Roll No.	Name	Marks		
		Sub1	Sub2	Sub3
100	Ravi	30	45	36
101	John	54	50	45
102	Hari	40	43	35

- 6.3.4 Students observe and compare the effect of rowspan and colspan attributes in a table and prepare notes.

6.4 Demonstration on frames in HTML. (45 Mins.)

- 6.4.1 Teacher demonstrates a web page with frames that consist of two web pages.
- 6.4.2 Students analyse the HTML source and identifies the tags used for creating frames.
- 6.4.3 Teacher illustrates the need and use of attributes of frame tags and students prepare notes.

6.5 Discussion on forms in HTML. (45 Mins.)

- 6.5.1 Problem: *How did you use Internet to view your SSLC results?*
- 6.5.2 Students discuss in groups and present the different steps.
- 6.5.3 Teacher asks the learners to recollect the contents of the page where they entered their register number.
- 6.5.4 Students discuss in groups and present the contents of the page.
- 6.5.5 Teacher consolidates the discussion by introducing the terms Text Box and Submit

Button. The concept of forms is introduced in connection with this web page. Teacher also introduces the other form controls, their tags and attributes.

6.5.6 Students prepare notes on different form tags and their attributes.

6.6 Create a complete web site as a project.

- a) The site should contain at least 5 pages.
- b) Should have a home page.
- c) There should be links to all pages from home page and vice versa.
- d) The pages must be visually appealing and interactive.
- e) Maximum utilization of all tags learned.

Sample Questions

1. Raju created a web page as follows

```
<HTML>
<HEAD> Sample table </HEAD>
<TITLE> My Page </TITLE>
<BODY>
<TABLE><TR> <TH> Roll. No. </TH> <TH> Name </TH></TR>
<TR> <TD> 1 </TD><TD> Raju </TD></TR>
<TR> <TD>2 </TD> <TD> Ramu </TD></TR>
</TABLE>
</BODY>
</HTML>
```

But he is unable to view any tabular format in the web page, when it is displayed in the browser. Find the reason for it and correct the same.

Scoring Indicators : Without 'border' attribute it never shows tabular form 1 Score
 : Border Attribute is missing <TABLE border=3> 1 Score

2. Write the tags to define the following

- a) Text box 1 Score
- b) Submit button 1 Score
- c) Reset button 1 Score
- d) Radio button 1 Score

Scoring Indicators

- a) <INPUT Type="Text" Name="txtName">
- b) <INPUT Type="Submit" Value="Send">
- c) <INPUT Type="Reset" Value="Clear">
- d) <INPUT Type="Radio" Name="Sex" Value="Male">Male
 <INPUT Type="Radio" Name="Sex" Value="Female">Female

7

Advanced Tools for Web Designing

UNIT PLAN

Curriculum Objectives	Concepts/Ideas	Process Skills	Activities	Learning Aids/ Materials	Evaluation	Time (Periods)
Familiarise the features of advanced web tools like DHTML and XML through discussion and comparison.	Static and Dynamic web pages	Classifying Observing	Demonstration, Observation	Text book Computer Internet	Notes	1
Understand the features and applications of scripting languages like java script and VB script through discussion and prepare notes by comparing them.	Java Script, VB Script	Classifying Observing	Demonstration, Discussion, Observation	Text book Computer	Notes	2
Understand the basic concepts of Perl and CGI and familiarise the application of ASP and JSP through discussion, comparison and prepare notes.	Perl, CGI, ASP, JSP	Classifying Observing	Discussion, Observation	Text book Computer	Notes Chart	2
Familiarise the features, capabilities and applications of languages like Java and C# through discussion and comparison and prepare notes.	Java, C# , .NET	Classifying Identifying	Demonstration, Discussion	Text book Computer	Notes	2

Introduction

Web designing refers to the presentation of specific content in terms of web pages. Web sites can be developed with HTML, but HTML alone will not serve the purpose of making it interactive. To make it interactive, one has to take advantage of advanced tools like DHTML, ASP, JSP, XML etc. This chapter gives a brief narration of those trends in the field of Web technology.

Curriculum Objectives

1. Familiarise the features of advanced web tools like DHTML and XML through discussion and comparison.
2. Understand the features and applications of scripting languages like java script and VB script through discussion and prepare notes by comparing them.
3. Understand the basic concepts of Perl and CGI and familiarise the application of ASP and JSP through discussion and comparison and prepare notes.
4. Familiarise the features, capabilities and applications of languages like Java and C# through discussion and comparison and prepare notes.

Content Details

DHTML, XML, Scripting Languages - java script, VB script; Perl & CGI; ASP; JSP; Java; C#, .NET

Pre requisites

- HTML topics
- Advanced HTML

Learning Activities

7.1 Discussion on Dynamic WebPages

(45 mins.)

- 7.1.1 Problem: *When SSLC results are being published in the website of education department you are able to view your result as a web page. This is the case with all the 5 lakhs students who have appeared for the exam. How is this possible?*
- 7.1.2 Students individually note down their own views.
- 7.1.3 One or two students are selected at random and they are asked to present it in the class.
- 7.1.4 Teacher consolidates by introducing the concept of dynamic web tools.
- 7.1.5 Students prepare notes.

7.2 Demonstration on DHTML (45 mins.)

- 7.2.1 Teacher demonstrates a simple DHTML page in the school lab.
- 7.2.2 Each student individually writes the features of DHTML page.
- 7.2.3 One or two students present their findings.
- 7.2.4 Teacher consolidates by introducing the concept and features of DHTML.
- 7.2.5 Students prepare notes on the advantages of DHTML over HTML.

7.3 Discussion on XML (45mins.)

- 7.3.1 Problem: *Can you create a new tag with features of your choice on your own in HTML?*
- 7.3.2 A group discussion is conducted on its advantages and uses and groups present their findings.
- 7.3.3 Teacher consolidates by introducing the concept and features of XML.
- 7.3.4 Students prepare notes on XML

7.4 Demonstration on client side scripting (45 mins.)

- 7.4.1 Teacher demonstrates a simple web page containing a java script program that performs form validations.
- 7.4.2 Each group discusses and collects information about the need and use of validations.
- 7.4.3 Teacher consolidates by introducing the features and advantages of Java script and VB script.
- 7.4.4 Students prepare notes on Java script, VB script and prepare a comparison chart of VB script with java script.

7.5 Discussion on server page technology (45 mins.)

- 7.5.1 Problem: *In activity 7.1, we get the marklists of all the 5 lakhs students. Does it mean that all the 5 lakhs webpages have been created well in advance?*
- 7.5.2 Each group presents the need and use of server page technology to make a web page interactive.
- 7.5.3 Teacher consolidates by introducing the features and advantages of ASP and JSP.
- 7.5.4 Students prepare notes on ASP, JSP and prepare a comparison chart of java script with VB script.

7.6 Discussion on PERL and CGI (45mins.)

- 7.6.1 Problem: *What is the relevance of platform independent server side technology?*
- 7.6.2 Each group collects information about the need and use of platform independent server side technology and presents it in the class.
- 7.6.3 Teacher consolidates by introducing the concepts and advantages of PERL and CGI.

7.6.4 Students prepare notes on it.

7.6.5 Students prepare a list by comparing server pages and CGI technology.

7.7 Discussion on platform independent programming technology (45 mins.)

7.7.1 Problem: *Is it possible to run a VB program which you have developed, in a Linux Operating System?*

7.7.2 Each group collects information about the need and use of platform independent programming languages.

Hint: Suitable reference materials like text books, Web resources etc. may be used

7.7.3 Teacher consolidates by introducing the features and advantages of Java, C# and .NET.

7.7.4 Students prepare notes on Java, C# and .NET.

Sample Questions

1. Select the statements relevant to applications of DHTML. (1 score)
- a. Create table b. Set a background color
c. Display an important form d. Shows animation

Scoring Indicator

Shows animation (1 score)

2. The website of a supermarket is provided with an online order form in which a text box is provided for entering product code. The merchant is planning to allow submission of the form only on entering the product code. Discuss a technology that can carry out this need? (3 score)

Scoring Indicators

VB script or java script (1 score)

Features (2 score)

3. Select the application that runs in the server side only. (3 score)
- a. Java Script b. C G I
c. Java Applet c. DHTML

Scoring Indicator

CGI (1 score)

4. Select the language that is widely used in web programming. (1 score)
a. C# b. Cobol c. Basic d. Pascal

Scoring Indicator

C# (1 score)

5. i. Which of the following web pages can be considered as a dynamic web page? (1 score)
a. A page with hyperlink to a portal.
b. A page with a table
c. A page with an image in the background
d. A page that display stock details when a product code is entered.
ii. Give reasons that support your answer. (2 score)

Scoring Indicator

i. A page that displays stock details when a product code is entered (1 score)

ii. All others can be created using HTML. Stock details have to be taken from database and then displayed as a web page. This requires server side scripting (2 score)

6. Following are the requirements needed in an HTML order form page. Discuss the tags / technologies that can be used for implementing each. (3 score)
- a. Clear the content of a form.
b. Display the product name corresponding to the product code entered.
c. Display a confirmation message for the order.

Scoring Indicators

a. Submit button (1 score)

b. ASP / JSP (1 score)

c. Java script / VB script (1 score)

7. The result of the Terminal Evaluation of your school is available on your school website. On entering the admission number, the result of that particular student is displayed as a web page. Discuss any two technologies in addition to HTML, required to implement this website.

Scoring Indicators

ASP / JSP / Perl (1½ score each)



Basic Concepts of Desk Top Publishing

UNIT PLAN

Curriculum Objectives	Concepts/Ideas	Process Skills	Activities	Learning Aids/ Materials	Evaluation	Time (Periods)
Acquire a thorough knowledge about traditional methods of publishing and familiarise the concept of Desk Top Publishing.	Publishing- Conventional Vs. Electronic	Observation, Analysis, Communication Skills.	Discussion, Observation	Text book, library books, old printed material.	Notes on tradi- tional methods of Publishing.	2
Familiarise the advantages of DTP over conventional methods and study the features of DTP software in different lan- guage.	Advantages and Disadvantages of DTP	Observation, comparison, judge.	Discussion observation.	Text Book, Differ- ent types of Pub- lished Material (Old and new ones)	Comparison table listing the advan- tages and disad- vantages of Tradi- tional and Desk Top Publishing.	2
Familiarise the step by step ac- tivities in DTP.	Steps in DTP	Observation, Communication Skills.	Discussion and visiting DTP Centers.	Text book.	Notes describing the various steps in DTP.	2

Introduction

Computers have made revolutionary changes in the field of publishing. DTP has its own importance in the field of printing news papers, weeklies, text books, visiting cards, etc. By the end of this chapter learners will develop a basic idea about DTP and its advantages. Observation, discussion, lab exercises are the important activities that are used for the teaching learning process.

Curriculum Objectives

1. Familiarise the screen layout, Page Designing and Text formatting features of DTP Software through discussion, illustration and example.
2. Attain the capabilities for paragraph & page formatting using various features of DTP software through illustration and suitable examples; also prepare notes on keywords like orphans, kerning etc.
3. Acquire the competency in adding & editing visuals, applying Text Art, Clip Art, colouring, printing etc. through proper illustrations and lab assignments.

Content Details

Familiarisation of Screen Layout; Designing Pages and Layouts - Formatting texts (Font Face, Size, Colour, Alignments, Bullets, Indents), Headings, Line Spacing, Paragraph Spacing, Orphans, Windows, Kerning; Page Formatting - Size, Shape, Length, Page, Margins, Horizontal and Vertical Layouts, Columns and Grids; Adding Visuals - Scanning, Sizing and Manipulating Photographs; Text Art; Clip Art; Illustrations; Applying Colors; Printing.

Pre requisites

- Working knowledge on Windows Operating System.
- Working knowledge on any Text Editor or Word Processor.
- Advantages of DTP and various steps involved DTP

Learning Activities

8.1. Discussion on Traditional Methods of Publishing and its limitations.

(90 mins.)

8.1.1 Problem: *Have you ever visited any traditional printing press? How is printing done in such presses? What are the limitations of such printing? (The teacher can issue Text Book as an additional reference for the discussion. The teacher can also issue very old printed material just to understand the limitations of the printing technology of those days.)*

8.1.2 Groups present their findings.

8.1.3 Teacher consolidates the findings by adding the missing points. Teacher also presents the concept of DTP as WYSIWYG.

8.2 Discussion on advantages and disadvantages of DTP over conventional methods.

(90 mins.)

8.2.1 Problem: *What are the advantages and disadvantages of DTP over conventional method? (The teacher can issue very old printed magazines and dailies and new ones for comparison. Learner can also use Text Book for discussion. Instead of the same group doing both advantages and disadvantages, some group may work on the task of finding the advantages and some others on the task of finding the disadvantages)*

8.2.2 Groups present their findings.

8.2.3 The teacher consolidates the findings by making necessary corrections and additions. The teacher can also elicit from the learners, the important Softwares that are used for Desk Top Publishing and allow the learners to make notes on them.

8.3. Group Discussion on Steps in DTP.

(90 mins.)

8.3.1 Problem: *How is a print ready copy is prepared in DTP? What are the various steps needed for this? (Text Book can be used as a reference. If possible, they may also visit any of the DTP centers for getting details. In such case, the discussion topic can be given in advance and separate group can visit the centres and prepare discussion points)*

8.3.2 Randomly select some of the groups to present their findings. Groups members and other groups can add to it.

8.3.3 Teacher consolidates the various steps in DTP.

Sample Questions

1. There is a very old printing press in your locality. Your brother was planning to print his marriage invitation latter in that press. But his friend Raju adevised him to approach a DTP centre. Do you agree with Raju? Justify. (3 score)

Scoring Key:

Yes (1 score)

Any four advantages of DTP as justification. (2 score)

9

Objects And Operations In DTP

UNIT PLAN

Curriculum Objectives	Concepts/Ideas	Process Skills	Activities	Learning Aids/ Materials	Evaluation	Time (Periods)
Familiarise the screen layout, page designing and text formatting features of DTP software.	PageMaker Screen Layout, various palettes. (Tool Box, Control Box, Colour Palette, etc.)	Observation, analysis	Demonstration, discussion, labwork	Text book, Computer, very old and new printed materials, Resource CD, charts	Notes on screen layout and Text Formatting features, Saved document., charts	6
Attain the capabilities for paragraph and page formatting using various features of DTP software.	Formatting techniques-using control box, using dialog box, Templates, Page layout.	Observation, design	Demonstration, Discussion, lab work.	Text Book, Computer, Different types of printed material, visiting cards, invitation letters, notices, Resource CD, etc.	Notes on paragraph and page formattings, Saved Document.	12
Acquire the competency in adding and editing visuals, applying Text Art, Clip Art, colouring, printing.	Inserting Clip Arts and images.	Observation, design	Demonstration, Discussion, lab work.	Text Book, Computer, Different types of printed material, Resource CD.	Notes Clip Art handling techniques, Saved document.	2

Introduction

Adobe PageMaker is one of the most commonly used DTP Softwares. This chapter enables the learners to work on PageMaker. In this chapter the various formatting techniques, use of templates, inserting Clip Arts are discussed in details. By the end of this chapter, they will be able to prepare different types of publishing materials. They will be able to format text in different ways, add relevant pictures, place them in different locations, adjust the paper size, take printouts etc. This chapter gives more important on Lab Exercises than the theory classes. All things that are studied in the class rooms are to be practiced in the Computer Lab.

Curriculum Objectives

1. Familiarise the screen layout, Page Designing and Text formatting features of DTP Software through discussion, illustration and example.
2. Attain the capabilities for paragraph & page formatting using various features of DTP software through illustration and suitable examples; also prepare notes on key-words like orphans, kerning etc.
3. Acquire the competency in adding & editing visuals, applying Text Art, Clip Art, colouring, printing etc. through proper illustrations and lab assignments.

Content Details

Familiarisation of Screen Layout; Designing Pages and Layouts - Formatting texts (Font Face, Size, Colour, Alignments, Bullets, Indents), Headings, Line Spacing, Paragraph Spacing, Orphans, Windows, Kerning; Page Formatting - Size, Shape, Length, Page, Margins, Horizontal and Vertical Layouts, Columns and Grids; Adding Visuals - Scanning, Sizing and Manipulating Photographs; Text Art; Clip Art; Illustrations; Applying Colors; Printing.

Pre requisites

- Working knowledge on Windows Operating System.
- Working knowledge on any Text Editor or Word Processor.
- The advantages of DTP and various steps involved in DTP

Learning Activities

9.1. Demonstration on PageMaker Screen Layout. (90 mins.)

- 9.1.1. After giving a brief introduction about the PageMaker , learners are given the task of familiarising the PageMaker Screen Layouts in the Lab. They should see the Title Bar, Menu Bar - various menu items and the Tool Bar. They are asked to write the names of menu items and its purpose. They should also draw the various icons in the Tool bar and note its purpose against each. The purpose can be based on guessing and can be corrected later by other groups or the teacher.
- 9.1.2. Groups present their findings in the next class.
- 9.1.3. Teacher consolidates the presentation by giving necessary modification. Some of the groups should prepare charts on various menu items and their use and the other groups should prepare charts on various items available in the tool bar and their use.

9.2. Demonstration and Practice various items in the ToolBox Palette. (90 mins.)

- 9.2.1. Observe the various tools available in the Tool Box Palette, practice them in the Lab; and each group prepares notes on the various tools and their uses.
- 9.2.2. Each group presents the use of each tool, in the next class.
- 9.2.3. Teacher consolidates. (Each group can also present a chart showing various items in the tool box and their uses).

9.3. Demonstration and Practice of the various features in the Control palette. (90 mins.)

- 9.3.1. Observe the various features available in the control Palette and practice them in the lab, and prepare notes on their use of them.
- 9.3.2. Various groups present their findings in the next class.
- 9.3.3. Teacher consolidates their presentation by making necessary modifications.

9.4. Practicing various formatting techniques in the lab. (90 mins.)

- 9.4.1. Resource CD contains a formatted page. (in the folder with the chapter name). The printed page can be shown to the learners and they should prepare the same.

9.4.2. If needed, the text matters (unformatted) can be given to them, which is available in the resource CD. They must format this text as required and save them in their folder.

(This can be given as an assignment work)

9.5. Group Discussion on Use of Templates. (60 mins.)

9.5.1. The teacher shows various printed models like visiting cards, invitation letter, notices, resume, etc to them. Each group is given one of the items and they are asked to explain how this type of one is prepared in PageMaker.

9.5.2. Groups present their findings.

9.5.3. The teacher consolidates by explaining the use of templates in PageMaker.

9.6. Create a new document using Template Palette. (90 mins.)

9.6.1. Observe the various templates available in the PageMaker.

9.6.2. Create a new document using any of the templates. (It can be a visiting card or marriage invitation card preparation). Teacher can give instructions and help, wherever necessary.

9.6.3. The final document can be saved in their folder.(Model of the document can be given by the teacher. Necessary instructions to create the document can be given in the lab.Some models are given in the Resource CD)

9.7. Create a new document using Document Setup. (Lab Work)

9.7.1. Create a new document using Document Setup in the lab.

9.7.2. Observe the various features available in the Document Setup Dialog Box and prepare notes on them.

9.7.3. Save the file in their folder.

9.7.4. Present the notes in the next class and the teacher consolidates.

9.8. Creating Text Columns.

(Lab Work)

9.8.1. Resource CD includes document that contains multiple columns and grid. Printed form of this can be given to the students. The plain text is included in the CD. This text can be given to them. They have to format the text as required. They prepare notes on creating text columns.

9.8.3. The resultant document can be saved in their folder.

9.9. Practice Text Frame and various formatting techniques

(Lab Work)

9.9.1. Resource CD contains models that uses Text Frame and various formatting techniques. Different groups can be given different models to work.

9.9.2. Teacher can provide necessary instructions.

9.9.3. They must prepare notes on various ways to format text. (using Character Specification Dialog Box, using Size Menu, using Control Palette)

9.9.4. Different group present their notes in the next class.

9.9.5. Teacher consolidates the presentation.

9.10. Practice on Bullets, Numbering, Indents and Tab.

(Lab Work)

9.10.1. Resource CD contains document that use bullets, numbering, indents and Tab. Printed copy of this can be given to the students for reference.

9.10.2. They should prepare one which is given as the reference. Teacher can give instructions.

9.10.3. The final document can be saved in their folder.

9.10.4. They should prepare notes on various kinds of indents.

9.10.5. The notes can be presented in the next class. Teacher consolidates.

9.11. Observation of various paragraph setting techniques and practice them in the lab. (90 mins)

- 9.11.1. Observe the various paragraph settings, kerning etc. in the lab.
- 9.11.2. Each group practice the paragraph settings, kerning.
- 9.11.3. Prepare document that implement paragraph and kerning techniques.
- 9.11.4. Each group prepare notes on various kerning techniques.
- 9.11.5. Present the notes in the next class.
- 9.11.6. Teacher consolidates.(Resource CD Contains a document that contains different paragraph settings. The printout can be shown to the student as a model)

9.12. Demonstration of various Page Formatting techniques in the lab. (45 mins.)

- 9.12.1. Each group practice various page formatting techniques.
- 9.12.2. Prepare a document and convert it into different page formats.
- 9.12.3. Save them in their folder.

9.13. Practicing Clip Art Insertion. (90 mins.)

- 9.13.1. Demonstrate the method of inserting Clip Art in a document.
- 9.13.2. Prepare a document that contains Clip Art.
- 9.13.4. Resource CD Contains some models, that contains Clip Arts. The print out of these models can be shown to them. The learners should prepare the same.

(This can be given as an assignment)

9.14. Group Discussion on Printing. (45 mins.)

- 9.14.1. Assign the topics “Points to be noted for Printing”, “Importance of proof reading”, “Why Laser Printer is best suited for DTP?” to different groups.
- 9.14.2. Each group present their findings about the topics.

9.14.3. Teacher consolidates the presentation by making necessary addition and modification.

Sample Questions

1. An IT Exhibition is going to be conducted in your school. You want to prepare a brochure for that.

a) Name the software that will help you prepare the Brochure? (1 score)

b) What are the features available in this software? (2 score)

Scoring Key:

a) PageMaker (1 score)

b) Any four features of PageMaker (2 score)

2. You are preparing a document in PageMaker. Two paragraphs have been already entered. When you delete the first paragraph, the second paragraph remains in the same position. What could be the possible reason? (2 score)

Scoring Key:

The two paragraph have been entered by using two independent Text Objects. (2 score)

3. That last line of a very lengthy paragraph contains a single word. You want to adjust the single word to the previous line. How will you do this in PageMaker? (3 score)

Scoring Key:

By adjusting the kerning. (1 score)

Explain the method for adjusting the kerning. (2 score)

4. You have inserted an image in your document. Later on, you wanted to change the position of the image and you tried to drag the image by using select tool. But the image does not move from there. What could be the possible reason? Explain the method for moving such images to desired location.

Scoring Key:

The image is inserted as inline. (1 score)

Cut the image, Select the Select tool, paste the image in the scratch area, drag the image in the desired location (2 score)

10

Systems Analysis and Design

UNIT PLAN

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids/ Materials	Evaluation/ Products	Time (Periods)
Understand the concept of system.	Concept of system	Identification, Comparison, Communication	Discussion	Text Book Magazines	Note	1
Establish the importance of System analysis and design.	Importance of System Analysis and Design.	Identification, Comparison Interpretation	Discussion Seminar	Text Book Magazines	Seminar Document	2
Understand the phases of system development life cycle.	Phases of system development life cycle.	Identification, Comparison Inference	Discussion	Text Book	Notes	1
Familiarize activities involved in system analysis and design.	Activities involved in system analysis and design.	Identification, Comparison	Discussion Seminar	Text Book, Web document	Seminar Document	8
Acquire knowledge in system implementation, maintenance and review.	System implementation, maintenance and review.	Identification, Comparison.	Discussion	Text Book Magazines	Notes	1

Introduction

Students are familiar with the concept of a system, concept of office automation and use of different computer softwares. System analysis and design is a new concept that aims at developing a new system or modifying an existing system. It also helps to give the right direction to students in preparing and designing softwares for future needs. After the completion of this topic the learner is expected to have acquired ideas about various stages in developing a software project. These ideas are to be conveyed through group discussion and by preparing assignments.

Curriculum Objectives

1. Understand the primary characteristics of a system.
2. Identify the need and importance of system analysis and design in real life.
3. Understand the phases of System Development Life Cycle (SDLC) and various activities involved in System Analysis and Design.
4. Familiarise the various aspects of system design.
5. Identify the major activities involved in system implementation, maintenance and review.

Content Details

Definition of a system, Why system analysis and design, system development life cycle- system study, system analysis (Investigation and fact recording), Interviewing, Questionnaire, On-site Observation, System Design (Input, output, files, procedure), Implementation and maintenance.

Pre requisites

- Knowledge of system concept and computer as a system.
- Idea about office automation.

Learning Activities

10.1 Brainstorming on computer as a system and its characteristics (40 Mins.)

10.1.1 Problem: *Prepare a list of real life systems and mention their elements.*

10.1.2 Students list the systems and its elements in groups after discussion.
(human system, school system, transportation system etc.)

10.1.3 The groups present their idea of a system and discuss in the class.

10.1.4 The teacher consolidates the discussions and presents the concept of a system.

10.1.5 Problem: *What are the general features of the systems mentioned?*

10.1.6 Students prepare a list of characteristics of systems in the groups and present in the class for further discussion.

10.1.7 Consolidation: The teacher consolidates the characteristics of system, students prepare notes on it.

10.2 Discussion on concept of system analysis (40 Mins.)

10.2.1 Teacher asks the students in groups to prepare a list of daily activities in their school office and to identify the requirements and problems if any.

10.2.2 Through a group discussion, and with the help of the teacher they list a series of activities such as school admission, rank list, preparation of admission, fee collections, preparation of reports, maintaining the details of staff and students etc.

10.2.3 The teacher asks the groups to identify the related problems and suggestions for improving the functioning of the office.

10.2.4 The groups present their findings in the class.

Note: The method of determining the problems as well as solution is termed system analysis. (identifying problem, examining the strength and weaknesses of the old system).

10.2.5 The teacher consolidates the discussion by introducing the concept of system analysis.

10.3 Discussion on the concept of system design (40 Mins.)

10.3.1 Teacher asks the groups to list out the steps and a method to improve the efficiency of the school office.

10.3.2 The groups discuss the matter and list out their findings.

10.3.3 Two or three students are selected at random and they present their findings in the class.

10.3.4 Finally the teacher consolidates the discussions and presentations by introducing the concept of system design.

TIP: The efficiency of school office can be improved by introducing computers, printers, barcode readers etc. and relevant softwares.

10.4 Discussion on the activities involved in System Development Life Cycle (40 Mins.)

10.4.1 Suppose you are in charge of introducing a new system design in your school office. List the set of activities to be performed for accomplishing this task.

10.4.2 Students in groups list their suggestions of activities.

10.4.3 Groups are asked to present their findings.

10.4.4 The teacher consolidates the activities as listed below and explains SDLC diagram.

Preliminary survey,	Feasibility study,	Investigation and fact recording,
System Analysis,	System Design,	Implementation,
Maintenance and Review.		

10.5 Interview with an end-user as a part of Preliminary Survey (90 Mins.)

10.5.1 Problem: *A new system for the school office is to be developed. As a preliminary study, we need to consult the staff concerned. List out the important points to be noted for collecting information.*

10.5.2 Groups are asked to discuss on the list of queries based on issues they face and their suggested solutions.

10.5.3 Students in groups present their findings and discuss in the class.

Tip: Office staff should be informed at least one day before the interview date

10.5.4 The teacher consolidates the discussions.

10.5.5 Interview: An interview is conducted in the class with the office staff using the queries prepared and collect the responses

Tip: One or two office staff members may be invited

10.5.6 The students summarise the results obtained from the interview.

10.5.7 The groups present their summarised results in the class and discuss.

10.5.8 The teacher consolidates the issues and suggestions about the present system considering the volume of work, time taken to process data etc.

10.6 Brainstorming on feasibility study (40 Mins.)

10.6.1 Discussion is conducted on the summarised facts of the interview to fulfill the requirements of the user.

10.6.2 Students discuss in groups the issues faced and suggest a variety of solutions.

10.6.3 Each group presents its findings and other groups debate upon its feasibility.

10.6.4 The Teacher consolidates the discussions on the cost-benefit analysis and introduces the process known as feasibility study and its different types. The most feasible solution is selected for implementing.

10.7 Discussion on investigation and fact recording (40 Mins.)

10.7.1 Consider that the solution selected in the above activity is granted approval for implementation. What are the methods and techniques that can be adopted to determine the exact requirements of the user?

10.7.2 Students discuss in groups and prepares some suggestions.

10.7.3 Groups present their ideas in the class and discuss them.

10.7.4 Teacher consolidates the suggestions keeping in mind the different tools such as interviews, questionnaire, on-site observation etc.

10.7.5 Students are asked to prepare notes on each method with the help of text book and present it.

10.8 General Discussion on the tools used in system analysis (40 Mins.)

10.8.1 Problem: *The Teacher asks the groups to draw a diagram to represent the different stages of admission procedure for Plus-I class.*

Tip: Expected ideas may be like: *Admission Notification → Issuing Application forms → Receiving Application forms → Preparing ranklist → Interview → Selection and Admission*

10.8.2 Each group presents its views through diagrams.

10.8.3 Some students may be asked to present it on the black board and discuss it.

10.8.4 Consolidation: The Teacher consolidates the discussion through various tools such as Flow Chart, Data Flow Diagram, Decision tree, Decision Table, Data Dictionary etc.

10.8.5 Teacher asks the students to prepare an assignment on different tools.

10.8.6 At this stage the teacher introduces a document called 'Requirement Specification' that is prepared using the above tools and consists of specifications completely and accurately.

10.9 Discussion on qualities and skills of system analyst (40 Mins.)

10.9.1 Imagine that you are appointed as a system analyst in a company. From the above discussions, list out the desirable qualities that you need to become a good system analyst.

10.9.2 Each student individually lists out his/her views and suggestions.

10.9.3 A few students are asked to present their suggestions and others supplement it.

10.9.4 The teacher may consolidate the attributes and skills such as communication skill, business and technical knowledge etc.

10.9.5 Ask students to prepare notes with the help of text book or other materials.

10.10 Discussion on activities involved in system design (40 Mins.)

10.10.1 Problem: *Once the system specifications are determined, how will you design the system according to the user's needs?*

10.10.2 Ask the students to discuss their views in groups.

10.10.3 Groups present their views in the class and discuss.

Tip: The teacher is expected to guide the discussion highlighting the activities such as output design, input design, file design, program design etc.

10.10.4 Teacher consolidates the discussion and the students to prepare notes as home assignment.

10.11 Discussion on system implementation, system maintenance and review (40 Mins.)

- 10.11.1 Problem: *Once the system is designed, what are the subsequent steps for its implementation?*
- 10.11.2 Guide the groups to go through the activities such as program module preparation, file conversation, system change over, user training etc.
- 10.11.3 The teacher introduces the need of system maintenance, reviews and its importance.
- 10.11.4 Teacher consolidates the discussion and students prepare notes.

Sample Questions

- 1. An organization is facing difficulty to run their daily activities due to the incapability of the existing system. It decides to go for an alternative arrangement.
 - (a) What is the the solution of this problem? (1 score)
 - (b) What are the steps involved in identifying the exact nature of difficulty and requirements of the organization. (2 scores)
 - (c) Suggest the methods which will solve the problem in an effective way? (2 scores)

Scoring Indicators :

- (a) Designing a new system. (1 score)
- (b) Fact finding tools and explanation (2 scores)
- (c) System analysis and design -explanation (2 scores)

- 2. Due to the lack of time and the large number of applicants for HSE admission, it is difficult to prepare an admission list manually. As a computer student the Principal seeks your help for introducing a new system design. What type of activities do you select before going to introducing a new system? (5 scores)

Scoring Indicators :

- System development life cycle (1 score)
- Steps (2 scores)
- Explanation (2 scores)

11 Concepts of DBMS

UNIT PLAN

Curriculum Objectives	Concepts/Ideas	Process Skills	Activities	Learning Aids/ Materials	Evaluation/ Products	Time (Periods)
Identify the advantages of DBMS over conventional record keeping system and recognize the components of DBMS	Conventional record keeping system, DBMS	Observation, Comparison, Inference.	Discussion	Text book, Magazines.	Notes	1
Understand the detailed structure of DBMS	Databases, DDL, DML, users.	Observation	Discussion, Drawing chart.	Text Book, Books on DBMS	Notes Chart	2
Understand the various levels of database abstraction and the concept of data independence.	Data abstraction, Physical, Logical and View level, Data independence	Observation Comparison Inference	Discussion	Text Book, Magazines	Notes	2
Familiarize the different data model.	Heirarchical, Network and Relational models,	Inference, Observation, Comparison	Discussion	Text Book, Magazines.	Notes, Assignment	2
Acquire the concept of RDBMS and its terminologies	Relation, Domain, Tuple, Attributes, Cardinality, Degree, Views, Keys	Observation, Comparison, Inference	Discussion	Text Book, Magazines.	Notes	1
Understand the various relational operations	Select, Project, Cartesian product, Union, Intersection, Set difference.	Observation Problem solving.	Discussion	Text Book, Magazines.	Notes, Assignment	2

Introduction

This chapter aims at introducing the concept of DBMS as opposed to the conventional file keeping system. This covers different data models, levels of data abstraction and data independence in brief. Also the chapter discusses the relational model or the RDBMS. RDBMS is now being used in numerous applications and has established itself as a primary data model for commercial data processing applications.

Curricular Objectives

1. Identify the advantages of DBMS over conventional record keeping system and recognise the components of DBMS through discussion and real life examples.
2. Understand the detailed structure of DBMS through illustration and prepare a chart.
3. Understand the various levels of database abstraction and the concept of data independence.
4. Familiarize the different data models through discussion, comparison etc. and form a table showing the features of each model.
5. Acquire the concept of RDBMS and its terminologies through general discussion and prepare a glossary for RDBMS.
6. Understand the various relational operations through problem solving, illustrations, discussion, and write statements for relational operations.

Content Details

Data bases, advantages over conventional file system, DBMS and its structure, components of DBMS-Databases - DDL, DML, users, Database abstraction - Various levels, data independence, types of users of database, Data models - Relational model, network, heirarchical; Elementary terminologies of RDBMS, Relation, Domain, Tuple, Attributes, Cardinality, Degree, Views, Keys (Primary, Candidate, Alternate, Super, Foriegn) Relational operators - select, project, cartesian product, union, intersection, set difference.

Pre requisites

- Idea of data and data processing concepts.
- General idea about the relationship between data and information.

Learning Activities

11.1 Quiz on various aspects of data processing (40 Mins.)

- 11.1.1 Planning: Students are asked to prepare questions from chapter 1 (Principles of Data Processing) of standard XI Computer Science.

11.1.2 Questions prepared by each group are consolidated and finalised within the group and teacher adds questions if required.

11.1.3 Group quiz is conducted and the current level of the students in the topic is assessed. Remedial measures are taken if necessary to assure the awareness of the students about the terminologies and concepts related to data processing, its components and the advantages of electronic data processing over manual data processing.

11.2 Discussion on centralised data processing (40 Mins.)

11.2.1 Problem: *List down the data handled and processed in a school office and the information required for various purposes.*

11.2.2 Students individually identify the data processed and information to be generated, consolidate within the groups and present the findings.

11.2.3 Teacher consolidates the findings covering the following aspects:

- Data are to be collected and processed during admission, examination, fee collection etc.
- Details of staff related to teaching, salary etc. are to be maintained.
- Information reflecting the roll list, progress report, list of students having fee concession, amount collected as fee from various classes, list of fee defaulters etc. may be required.

11.2.4 Through an open discussion, teacher lists out the registers or files used for keeping the data and the activities carried out for processing them to generate desired information.

11.2.5 Through proper questions students are asked to identify the difficulties to be faced while performing the above activities.

11.2.6 The responses from the students are to be consolidated as follows:

- Related data are to be kept separately in suitable formats.
- The data as well as information should be maintained at one place, but they should be available to the concerned.
- While making data and information sharable, proper security must be ensured in order to avoid any misuse or malfunctioning.

11.3 Discussion on the need for database and DBMS (40 Mins.)

11.3.1 Teacher highlights the consolidation points of the above activity (11.2) and introduces the idea of database and DBMS.

11.3.2 Students may be asked to read the relevant topics from the text book or they may be provided with handouts containing the details of database and DBMS.

11.3.3 A discussion based on the contents provided is conducted within the group and the idea formulated is presented.

11.3.4 Teacher consolidates the features and advantages of database and DBMS; and students prepare notes.

11.4 Discussion on the components of DBMS (40 Mins.)

11.4.1 Problem: *Consider a familiar database management system from real-life (for example, telephone inquiry system of Telephone Department). Identify and list down various components (or, requirements for the working) of such a system.*

11.4.2 Through group discussions, students present their findings.

11.4.3 Teacher consolidates the findings as:

- Details of telephone subscribers
- Computer and software
- Users or operators

11.4.4 Teacher introduces the components of DBMS by correlating with the above findings as follows:

- Details of telephone subscribers to database
- Methods for creating files and storing the details to storage manager (DDL)
- Retrieving required information to query processor (DML)
- Users like public, operators and managers to users

11.4.5 Students prepare detailed notes and identify the components of similar systems.

11.5 Discussion on database abstraction (20 Mins.)

11.5.1 Teacher introduces some real life entities like electric switch board, dash board of a car etc. and asks the students to list down the reason for the simplicity, usability and compactness of these.

11.5.2 The discussion is to be directed to get the idea of abstraction by raising suitable questions.

11.5.3 Students present their findings and teacher consolidates as follows:

The complex circuits are kept hidden by providing necessary switches, levers, knobs in switch boards and dashboards.

11.5.4 Students prepare notes on database abstraction.

11.6 Discussion on levels of data abstraction and data independence (30 Mins.)

11.6.1 A case is introduced and problems are posed as follows:

A computer system is made up of physical and logical components. The peripheral devices like monitor, system unit (CPU), keyboard, mouse etc. may be considered as the physical components and operating system and other software as logical components.

How do these components interact each other? How are they dependent one another? What is the role of software? What are the different types users of the computer system?

- 11.6.2 Through group discussion, students present their findings.
- 11.6.3 Teacher guides the discussion in such a way that the idea of levels of abstraction, independancy of peripheral units and the types of users working with computer etc. are elicited.
- 11.6.4 Teacher consolidates the discussion by correlating the concepts of levels of abstraction and data independence with the findings of the above case as follows:
- At the user's level, he/she is provided with switches, keys, buttons etc. to operate the machine.
 - Software is in-charge of interpreting and activating the computer to work for the user.
 - The electronic circuits associated with the hardware are responsible for carrying out the tasks instructed.
 - The three levels of abstraction may be introduced by setting analogy to the above three cases.
 - Similarly by setting analogies, the concepts of data independence and types of users may be introduced.
 - The keyboard, mouse etc. are independent of the OS and the OS is independent to hardware circuitary of the machine.
 - The different types of data base users may be introduced analogous to ordinary users, software developers, hardware engineers of computers.
- 11.6.5 Students prepare notes on levels of data abstraction, data independence and types of users with the help of suitable diagrams.

11.7 Discussion on different data models (40 Mins.)

- 11.7.1 A task is given to the learners to collect the details like roll no., name, age, course and grade of Computer Science in an examination of the group members and organize them in a most appropriate format and present it.
- 11.7.2 Through group discussion, the data organised in an appropriate form is presented.
- 11.7.3 Teacher consolidates the format into tabular form and introduces the relational data model.

11.7.4 Students are provided with the concept of network data model and hierarchical data model through the text book or handout.

11.7.5 The idea formulated within the group is presented and teacher introduces the other two data models ask the students to convert the relation framed by them into network and hierarchical data models.

11.8 Group discussion on RDBMS (40 Mins.)

11.8.1 Students are provided with the terminologies related to RDBMS through text book or handout and ask them to identify and mark the terminologies in the 'student relation' prepared in activity 11.7.3.

11.8.2 During the presentation of groups, other groups and teacher interfere when and where required and the RDBMS terminologies are familiarised to the students.

11.8.3 More relations from real life are provided to identify the terminologies and evaluated in peer.

11.9 Group discussion on various relational operations (40 Mins.)

11.9.1 Using the activity similar to 11.8, the relational operations are introduced and evaluated by giving exercises.

Sample Questions

1. Gopal argued that using the conventional system of record keeping is better than using DBMS. Do you agree with him? Justify by giving proper reasons. (3 scores)

Scoring Indicators:

Features of conventional system	1 score
Features of DBMS	1 score
Comparative study with examples	1 score

2. When the rank list for Plus one admission is prepared manually, some records are found repeated twice or thrice. Can you suggest a good remedy to avoid such repetitions?

Scoring Indicators:

Concept of data redundancy	1 score
Remedy by using DBMS with proper explanation	1 score

3. What is relational algebra? Explain various relational operators with examples.

Scoring Indicators:

Definition of relational algebra	1 score
Explanation of relational operators with examples	4 scores

12 Structured Query Language

UNIT PLAN

Curriculum Objectives	Concepts/Contents	Process Skills	Learning Activities	Learning Aids/ Materials	Evaluation/ Products	Time (Periods)
Understand the different processing capabilities of SQL and its application	Database softwares like MS-Access or Oracle or SQL Server	Observation	Discussion	Text Book, Web documents	Notes	2
Identify the various data types available in SQL	SQL data types (Numeric, Character, Date, Time)	Observation, Comparison.	Discussion, Assignment, Lab work, Experimentation	Text Book, Web documents, Lab Diary	List, Notes, Assignments	1
Familiarize different commands used in SQL and identify their functions	SQL commands - DDL and DML	Observation Classification Comparison	Discussion, Lab work, Assignment	Text Book, Lab Diary	Query results, Assignments	7
Familiarize column constraints and clauses in SQL	Column constraints, Clauses used in SQL commands	Observation, Classification	Discussion, Illustration, Lab work, Assignment	Text Book, Lab Diary	Query results, Assignments	4
Familiarize different SQL functions used with SQL commands	Built-in functions in SQL - AVG, COUNT, MAX, MIN, SUM Creating tables, data entry, retrieval etc.	Observation, Classification, Comparison Realization	Discussion, Illustration, Assignment, Output Prediction, Lab work	Text Book, Lab Diary	Query results, Assignments	2

Introduction

In the last two chapters students have learned about various aspects of Data Base Management System. To work with a Relational Database a suitable and powerful tool is required. Structured Query Language is such a tool using which one can effectively handle relational databases. It is an elegant and almost machine independent language which supports popular relational database technology. We generally follow ANSI (American National Standard Institute) standard for SQL. After learning this chapter the learner is expected to work with database operation like creation/ modification/ deletion of database files, entering data, editing, updating, retrieval, deletion etc. using suitable queries. Irrespective of the database software used, the learner should be able to use SQL in various database operations. The content can be transacted to the learners by way of discussion, illustration, lab work, assignments etc.

Assignment as CE item

An assignment can be given to acquire competency in handling database related problems using SQL queries, and it may be taken as a CE item.

Curriculum Objectives

1. Understand the different processing capabilities of SQL and its application through discussion and list them.
2. Identify the various data types available in SQL through group discussion and prepare a table describing the SQL data types.
3. Familiarize different commands used in SQL and write an assignment to apply them for table creation and manipulation for various real-life situations..
4. Familiarize column constraints and clauses in SQL through illustration, output prediction etc. and list out them.
5. Familiarize different SQL functions used with SQL commands through illustration and examples; learners solve related problems.

Content Details

Processing capabilities; DDL, DML - retrieving, Manipulating, Updating tables; SQL data type - Numeric, Character, Date, Time, SQL commands- CREATE TABLE, CREATE VIEW, DROP TABLE, ALTER TABLE, SELECT, INSERT, DELETE, UPDATE, COLUMN constraints UNIQUE, PRIMARY KEY, NOT NULL, DEFAULT, CHECK; clauses with SQL commands - DISTINCT, INTO, FROM, WHERE, LIKE, GROUP BY, ORDER BY, HAVING, SET; SQL functions- AVG, COUNT, MAX, MIN, SUM.

Pre requisites

- Awareness about the need for computer programming languages.
- Knowledge in Database Management Systems.
- Idea about different types of data.
- Thorough knowledge in Relational Operations.
- Concept of Table/Attribute/Tuple/Primary key.

Learning Activities

12.1 Team Quiz to refresh the knowledge in DBMS (20 Mins.)

12.1.1 Planning: The whole class is divided into two teams, say Team A and Team B. Students are asked to prepare questions based on chapter 11 (concept of DBMS) Teacher explains the rules and regulations to conduct a team quiz.

Example: Each team can ask around 10 questions. Each learner should be given chance to ask questions and answer questions. Each and every student should prepare questions and questions should be presented in teams and select apt questions for the quiz.

Tip: The quiz programme should not take more than 20 minutes. Both the teams should participate in the quiz without losing the real spirit.

12.1.2 The teacher evaluates the quiz, and assesses the knowledge level of students before going to the details of the current topic.

Tip: If needed teacher can take remedial measures so as to clarify certain points. Planning session may be conducted one day before the quiz.

12.2 Discussion on working with a real life database (20 Mins.)

12.2.1 Problem: *Suppose you have an address book which contains the details of your friends. What are the activities you may do with the content of the book?*

12.2.2 Learners discuss in groups and list out their findings.

12.2.3 At random groups are allowed to present, other groups contribute.

Tip: Commonly performed activities like adding a new address, taking an existing one, changing a phone number, need for arrangement in the alphabetic order etc. are expected from the learners. Teacher may take care to elicit such points from the student side.

12.2.4 Consolidation: The teacher consolidates the discussions by highlighting the utility of an address book or similar databases, like writing a new address into the book, searching and picking out a particular address of your friend when needed, removing an address or phone number which is invalid, from the book etc.

12.3 Discussion on functionality of SQL (40 Mins.)

12.3.1 Problem: *You need to store the details of students in your class in a database file and manipulate it as and when needed. What are the capabilities or qualities expected from SQL as an efficient tool to manage a database?*

12.3.2 Students form groups and discuss among themselves. Let the learners come up with the need for creating a database file, entering data, editing data etc.

12.3.3 A group can be selected at random for the presentation of their findings. Other groups supplement their ideas and list the points.

12.3.4 Consolidation: Teacher consolidates the discussion by highlighting the DDL / DML features of SQL. Examples can be cited to clarify the above functions.

12.3.5 Students prepare short notes on the processing capabilities of SQL

12.4 Discussion on various data types in SQL (40 Mins.)

12.4.1 Problem : *Teacher writes the following data on the black board and asks the students to identify the categories*

SURESH KUMAR

T.C 11/1053

NEW STREET

EAST FORT

TRIVANDRUM

PIN 695001

10/04/2006 10:25:38

12.4.2 Students discuss the problem in groups and try to categorize the data items using their prior knowledge.

12.4.3 Teacher invites one or two groups to the present their findings.

12.4.4 Group representatives come to the stage write their classification on the board. Other groups contribute to complete the task.

12.4.5 Consolidation : Teacher consolidates the discussion and presentation by explaining the different data types available in SQL and helps the students to categorize the given data under suitable data types

Tip: Teacher is expected to explain the various standard data types available in SQL.

12.4.6 A sentence can be given to the students as below

“Rahul is a boy of age 17 born on 18/9/2004, 9:00:00 am at Ernakulam”

12.4.7 Students differentiate one data type from another and prepare a categorized list of given data items.

12.5 Discussion on SQL commands (225 Mins.)

12.5.1 Problem: *Design the structure of a table to store the details of students in the class. How do you create the table? Is it possible to modify its structure? How do you delete such a table, if needed?*

12.5.2 Students discuss in groups and write down the structure of a suitable table. Let them feel the need for a set of commands to do various operations on a table.

12.5.3 Teacher introduces the solution by introducing SQL-DDL commands for creating a table, modifying, deleting etc..

12.5.4 Teacher illustrates the commands using certain examples on the board.

Tip: Here the teacher is expected to explain all the commands like CREATE TABLE, ALTER TABLE and DROP TABLE with its syntax through suitable illustrations.

12.5.5 Teacher poses another problem: How do we enter the details of students into the table which is created? Is it possible to correct a mistake in the name of a student after entering into the table? A student has transferred to some other school, can we remove his / her record from the table? etc.

12.5.6 Discussion is conducted and the learners may come out with some solutions without using SQL commands (eg. enter records directly into the table using the respective database software) .Guide the discussions in such a way that the students feel the need for a set of SQL commands to perform the above tasks.

12.5.7 Consolidation: Teacher consolidates the discussions by explaining the SQL-DML commands to perform the tasks through illustrations.

12.5.8 The teacher gives a problem which include DDL/DML command operations as an assignment

(This can be taken as a CE item for evaluation)

Tip: The teacher is supposed to explain the SQL commands like SELECT, INSERT, DELETE and UPDATE with its syntax through suitable illustrations. Class assignments can be given

12.6 Discussion on Views (40 Mins.)

12.6.1 Problem: *The details of all the items in a Margin free shop are kept in a database table. The manager of the shop may ask several queries about the data and the computer operator has to supply it. But it is not always advisable to use the table which contains the data because a slight mistake may cause problems to the database. How can we solve the above problem?*

12.6.2 Students form groups and discuss. The need for a duplicate table for performing the query operations is to be elicited from the students. Students may come out with some solutions (taking copy the data table, taking printout of the table contents etc. are expected).

12.6.3 Consolidation: The teacher consolidates the discussions by introducing the concept of Virtual table or Views through illustrations. The need and working of views are explained.

12.6.4 Learners solve certain related problems and prepare notes.

Tip: The teacher is expected to explain the CREATE VIEW command to create a view and give suitable problems to solve.

12.7 Discussion on column constraints (90 Mins.)

12.7.1 Problem: *How do we restrict certain data from not entering into the table? Is there any advantage?*

Eg: In the case of student table, same Register number should not be given for more than one student.

Age should not be above 20, etc.

12.7.2 Students discuss and list out the problems with faulty data entry. At random students are asked to present their ideas. Guide the discussions further in such way that the learners realize the need for imposing some pre-defined standard on data to be entered.

12.7.3 Consolidation: Teacher consolidates by demonstrating constraints through illustrations on the board.

Tip: The teacher is expected to give suitable problems to the students so as to understand the applications of column constraints in SQL like UNIQUE, PRIMARY KEY, NOT NULL etc.

12.7.4 Learners are given class assignments to familiarize the usage of different column constraints in SQL

12.8 Lab work on solving SQL problems (90 Mins.)

12.8.1 A problem is given to the students.

Eg: The details of employees in company are to be stored in a data base file (table) The details include, Employcode, Employname, Address, Basicpay, Dateof_join etc.

Certain constraints can be given like Employcode should not repeat, Employname should not be blank, Basicpay should not be zero etc.

Sample records are given for data entry.

Certain queries can be given for retrieving the data based on conditions

Eg: How many employees are having basic pay more than 5000

How many employees are going to retire this year etc..

12.8.2 Let the learners design and write queries to create the table, and retrieve data.

12.8.3 Written queries are experimented at the lab.

12.8.4 Learners note down the observations and results of the queries in their Lab Diary.

12.9 Problem solving and group discussion on clauses in SQL (90 Mins)

12.9.1 Problem: *Suppose the details of all the plus-2 students in our school are kept in a table named 'EXAM'. The table is having fields like RegNo, Name, Batch, Term, Sub1, Sub2, Sub3, Sub4, Sub5, Sub6, Total and Passed (logical field). The Principal wants some information as given below. How can you retrieve the details from the database using SQL commands?*

The queries can be like the following:

- (i) Prepare a list with RegNo, Name and Total of all the students studying in the SCIENCE batch.
- (ii) Prepare a list with the details of students studying in the COMMERCE batch arranged in the alphabetic order of their names.
- (iii) Prepare a list of students with their names arranged in the alphabetical order.

12.9.2 Students discuss the problem in groups. They write the queries for displaying all the students in the school and the names of all the students in the unsorted order. Let them feel the difficulty in filtering the records for a particular batch and the alphabetic arrangement of names.

12.9.3 Students at random are invited to present the issues or difficulties they face during solving the problem.

12.9.4 Teacher introduces the certain clauses which can be used along with SQL commands and their need through illustrations.

Tip: Teacher is expected to explain the clauses like FROM, WHERE and ORDER BY used to solve the above problem in detail in this context. Also it is to be noted that the teacher explains the various operators like Relational, Boolean, Special operators etc. and give problems involving that.

12.9.5 Let the learners write the required queries using the clauses explained by the teacher.

12.9.6 Consolidation: Teacher consolidates the discussions by familiarizing other clauses also through illustrations, class assignments etc.

Tip: Teacher is expected to introduce and explain all the clauses in SQL like DISTINCT, INTO, GROUP BY, SET, LIKE etc using suitable examples and illustrations.

12.9.7 Learners are given class assignments in the form of problems which require application of various clauses used in SQL statements.

12.10 Discussion on SQL aggregate functions (90 Mins.)

12.10.1 Problem: A company having more than 500 employees. The details are kept in a database table. How do you find the total salary paid to all the employees? How do you find the average salary of an employee?

12.10.2 The students form groups and discuss the problem

12.10.3 At random groups are allowed to present their findings and difficulties faced. Other groups contribute (manual methods to add the individual salaries of all the employees, calculate the average etc. are expected from student side).

12.10.4 Consolidation: teacher consolidates the discussions by introducing the built-in aggregate functions of SQL to simplify the types of tasks through illustrations.

12.10.5 Teacher gives similar problems and asks the learners to write solutions which involve aggregate functions.

12.10.6 Learners prepare notes or tables showing the syntax and usage of the aggregate functions.

12.10.7 Learners are given class assignments in the form of problems which require application of various aggregate functions in SQL.

Tip: The teachers are supposed to explain the aggregate functions in SQL like AVG, COUNT, MAX, MIN and SUM using suitable examples

Sample Questions

1. As a part of the Project work, the details of products in a shop are to be stored in a database table. The following tasks are to be done
 - i. Make a table with fields ProdID, ProdName, UP, Stock
 - ii. Enter records

- iii. Add one more field to the table as Remarks
- iv. Remove a record.
- (a) Name a commonly used database software using which we can store the product details. (1 score)
- (b) Write suitable SQL commands to perform the above tasks (1 score)
- (c) Write the syntax of the above commands using example (4 scores)

Scoring Indicators:

- (a) MS-ACCESS, Oracle, SQL-Server etc (1 score)
 - (b) Correct commands (CREATE, INSERT INTO, ALTER TABLE, DELETE) (1 score)
 - (c) Correct syntax of the above commands (4 scores)
2. The details of applicants of plus1 admission in a school are to be entered in a database table. The following are some conventions adopted during the design of the table
- i. Each applicant should be given a unique number.
 - ii. The age of the applicant should be less than or equal to 20
 - iii. The name should not be omitted
 - iv. The content for the SEX field should appear as 'Male' and allows editing.
- (a) How do we impose some validations while data entry? (1 score)
 - (b) Identify the suitable keywords in SQL and write. (2 scores)
 - (c) Explain shortly on each of the above used keywords (2 scores)

Scoring Indicators:

- (a) Column constraints (1 score)
 - (b) Identification of correct constraint (2 scores)
 - (c) Correct explanation of the usage of each constraint (2 scores)
3. The following are some situations where a SQL command or a clause or an operator is to be used
- i. From the STUDENT table list out the Names of all the students starting with the letter 'A'
 - ii. List the Names of students in the above table studying in the SCIENCE and COMMERCE batches.
 - iii. From the EMPLOY table display the Empcode and Name of all the employees having Basicpay in the range of 5000 to 8000

- iv. Find the total number of employees working in the ACCOUNTS department in the above table.
- v. Delete a View having name 'Sample'
- (a) Identify and write the command or clause or operator appropriate for the above cases (2½ scores)
- (b) Write the SQL query statement for each of the above (2½ scores)

Scoring Indicators:

- (a) LIKE, IN or OR, BETWEEN, COUNT, DROP VIEW $\frac{1}{2} \times 5 = 2\frac{1}{2}$ scores
- (b) Correct statement $\frac{1}{2} \times 5 = 2\frac{1}{2}$ scores

13 Data Communications

UNIT PLAN

Curriculum Objectives	Concepts/Contents	Process Skills	Activities	Learning Aids/ Materials	Evaluation/ Products	Time (Periods)
Understand the concept of data communication and compare different modes of transmission	Networking and data communication, Serial, Parallel, Digital, Analog, Synchronous, Asynchronous	Observation, Comparison	Quiz, Discussion etc.	Text Books, Web documents etc.	Notes, Chart	2
Understand the various types of communication	Simplex, Half duplex, Full duplex	Comparison, Classification	Discussion, Illustration etc.	Text Books, Web documents etc.	Notes, List	3
Familiarize various communication channels	Twisted pair, Coaxial, Optical cables, radiowaves, microwaves and satellites	Identification, Classification, Comparison	Discussion, Exhibition etc.	Text Books, Web documents, IT magazines etc.	Notes, Chart	3
Acquire knowledge about protocols and understand the various types of protocols	TCP/IP, FTP, HTTP	Observation, Classification, Comparison	Group discussion, Panel discussion etc.	Text Books, Magazines.	Notes, List	1
Familiarize different data access methods	CSMA/CD, Token Passing	Visualization, Classification, Comparison	Discussion, Demonstration, Role Play etc.	Text Books, Magazines, Web Resources.	Notes, Chart, List	2
Understand the features and applications of various data communication devices	Bridge, Router, Repeater, Gateway, Backbone	Observation, Classification, Comparison	Discussion, Showcasing etc.	Text Books, Magazines, Web documents etc.	Notes, List, Charts	3
Familiarize the various data communication terminologies related to Internet	WWW, Websites, Webpages, HTML, URL	Observation, Realization	Lab demonstration	Computer magazines, Text Books etc.	Notes	2

Introduction

Learners are already familiar with computer networks. One of the important applications of networking is data communication. Data Communication technology is improving day by day with the help of rapidly evolving computer technology. Even though the process of communication originated from non-verbal / verbal communication, now it is advanced to bluetooth wireless technology.

At the end of this chapter, the learner is expected to be well versed with modes and types of communication, communication protocols and devices, Internet, mobile technology etc. The whole topic can be transacted through classroom activities like discussion, quiz, demonstration, panel discussion, showcasing etc.

Curriculum Objectives

1. Understand the concept of data communication and compare different modes of transmission through discussion, illustration etc. and also prepare notes by comparing different modes.
2. Understand the various types of communication through discussion and illustration; prepare charts with proper examples.
3. Familiarize various communication channels through observation, comparison, diagrammatic representation etc. and prepare detailed notes.
4. Acquire knowledge about protocols and understand the various types of protocols through discussion.
5. Familiarize different data access methods through discussion, role play etc. and prepare notes on each of the access methods.
6. Understand the features and applications of various data communication devices through general discussion and prepare notes on each device.
7. Familiarize the various data communication terminologies related to Internet through observation, experimentation etc. and prepare notes.

Content Details

Concept of Data Communication, Modes of Transmission -Digital Vs Analog, Serial Vs Parallel, Synchronous Vs Asynchronous; Type of Communication - simplex, Half Duplex, Full Duplex; Modem; Communication channels - Twisted pair cables, Coaxial cables, Optical Fiber, Radio Waves, Satellites; Communication Protocols- FTP, HTTP, TCP/IP; Access Methods - CSMA/CD and Token Passing; Data Communication Devices- Repeater, Bridge, Router, Gateway, Back one Network; Data Communication Terminologies in Internet – WWW, Website, Web page, HTML, URL.

Pre requisites

- Overall idea about computer networking
- Knowledge of terms like Data, Information, Signal etc.
- General awareness about Internet, e-mail
- Idea about traditional methods of communication.

Learning Activities

13.1 Quiz to test prior knowledge on networking (20 Mins.)

13.1.1 Teacher places a small box on the table, which contains some folded bits of paper. Each paper bit has a keyword written on it.

eg: Data, Information, Network, Internet, E-mail etc.

13.1.2 Teacher invites the learners in random order to come and pickup a paper bit.

13.1.3 The learner explains / defines the keyword written on that paper.

Chances can be given to other students to complete the explanation if one fails.

Tip : Teacher can elaborate certain points if really needed

13.1.4 Teacher evaluates the performance / responses of the students and assesses the current knowledge level in the topic to be discussed.

13.2 Discussion on the concept of data communication (25 Mins.)

13.2.1 Problem: *Teacher calls one of the students, say Raju, sitting in the first row and tells him a sentence.* Eg: “Tomorrow is a Holiday”

13.2.2 The learner is asked to communicate this message to his friend, say Anil, sitting in the last row.

The problem is opened to all the students in the class

13.2.3 The students list out various methods for communicating such a message from one point to another. Each one has to identify the sender, target and medium of communication.

13.2.4 One or two students present their ideas. Teacher points out the merits and demerits.

13.2.5 Consolidation: Teacher consolidates the discussions, by explaining the terms like source, target, channel or medium of communication. Related to the above problem the source and target are two students and the medium may be by air (verbal) or by way of jesters (non-verbal) or by sight (showing a banner) or by passing the message from pupil to pupil or any other method.

13.3 Role-play to illustrate the modes of transmission (40 Mins.)

13.3.1 Teacher asks six students in the class to come up to the platform. Each of these students has to act as a data bit. The problem is, these students have to move from one end of the class room to the other end. Teacher wants all the students to watch the play and comment on it.

First of all, teacher asks the learners to move one after the other in a queue fashion (serial).

As another method, teacher allows the learners to move in two or three rows (parallel).

13.3.2 Learners are asked to discuss the two modes of data transmission in terms of their speed, time taken, merits or demerits etc.

13.3.3 Each group presents its opinion about the tried out modes.

13.3.4 Consolidation: Teacher consolidates the discussions and presentations by introducing the Serial and Parallel modes of communication.

13.3.5 Teacher introduces and familiarizes the other modes of transmission like Synchronous / Asynchronous and Digital / Analog.

Tip :The teacher is expected to explain the different modes of transmission in detail with suitable illustrations

13.3.6 The teacher illustrates the different modes of transmission with the help of diagrams.

13.3.7 Students are asked to prepare notes and comparison charts showing the different modes of transmission.

13.4 Discussion on various types of communication (90 Mins.)

13.4.1. Problem: *The teacher presents three cases in front of the learners.*

The first case is a person watching a Television programme.

The second case is a police man talking over wireless equipment (Walkie-talkie).

The third case is a person conducting conversation over telephone or mobile phone.

(This can be shown with the help of charts or diagrams on the board etc.)

13.4.2 The teacher asks the students to compare the above three cases and comment on each, on account of their nature, properties, advantages, disadvantages etc., in groups through discussions.

13.4.3 Let the group leaders present their findings and try out differentiating the above three cases.

13.4.4 Consolidation: Teacher consolidates the discussions and presentations by introducing the three types of communication.

Tip: The teacher is expected to explain the types of communications like Simplex, Half-Duplex and Full duplex. He / She should correlate these with the cases he/she presented earlier.

- 13.4.5 The learners are asked to prepare notes and draw block diagram on each type of communication and present in the class.

13.5 Discussion and chart making on communication path (40 Mins.)

- 13.5.1 Problem: *How do the data travel from the sender computer to the receiver computer? Is there any need for converting data from one form to another? eg. An e-mail communication*

- 13.5.2 The learners discuss in groups and present their beliefs on the path of data from source to target.

- 13.5.3 Consolidation: Teacher consolidates the discussions by introducing the device, Modem, and its functions through illustration.

- 13.5.4 Learners are asked to prepare a chart (as a group activity) in the class room itself which shows the diagrammatic representation of the process and path of communication including devices like Computers, Modem etc.

Tip: Teacher can ask the groups to bring chart paper beforehand. Make sure that the whole work takes not more than 45 minutes.

13.6 Discussion on different types of communication media (135 Mins.)

- 13.6.1 Problem: *What are the different types of communication cables you are familiar with in your daily life? List out them.*

- 13.6.2 Students discuss and list out the various types of cables they are familiar with.

Tip : The ordinary wires used in telephone, flat and round cables used for cable-TV etc are expected here. Teacher should guide the learners to come up with such items from their day to day life.

- 13.6.3 Consolidation: Teacher consolidates the discussion by explaining the teachers of guided and unguided media for communication.

Tip: The teacher is expected to explain different types of communication channels in detail here. Home assignments can be given. Let each group present more details on each channel.

- 13.6.4 Teacher conducts a demonstration of different types of communication channels like Twisted pair, Co-axial cables, Fiber optic cables etc.

Tip: Teacher is expected take steps to collect the samples of different communication channels through reliable sources.

- 13.6.5. Students observe and notedown points on each medium comparing their merits and demerits.

Supplementary Activity

13.6(a) Album preparation and exhibition (40 Mins.)

Planning: Each communication channel is assigned to each batch. An album is to be arranged. It can be a big sized note book or a bundle of papers filed or something similar which serve the purpose. The learners are asked to collect maximum details on each item assigned to them. Sources may be specified by the facilitator such as library reference, IT magazines, Telecommunication journals, web browsing, text books etc. Time may be pre-defined and measures to be taken for participation of all the students. Students can consult the teacher and review the matter before the preparation of album

- Each group collects, classifies and prepare detailed description with diagrams or samples.
- An album is developed in the class room by the learners. Each group contribute to the work.
- The album is completed exhibited in the class. Each group is allowed to present their work, others listen and clarify doubts.
- Learners complete their notes by referring to the album.

13.7 Discussion on communication protocols (40 Mins.)

13.7.1 Problem: *What are the traffic rules that you obey when walk through a road? Are they really needed? Why?*

13.7.2 Students form group and discuss the need for rules on road.

13.7.3 Ask the learners to suggest the logic used in formulating traffic rules.

13.7.4 Teacher guides the students to correlate this with a set of rules and regulations in the data communication system.

13.7.5. Consolidation: Teacher consolidates the discussions by explaining the different types of communication protocols.

Tip: The teacher is expected to define the term protocol and explain the different communication protocols like TCP/IP, FTP etc.

13.7.6 Students prepare a comparison table on different types of protocols.

13.8 Roleplay to simulate Access Methods (45 Mins.)

- 13.8.1 Planning : Teacher invites 8 students to come on to the platform and explains the role to be done by each participant. Each student plays the role of a node in a network. Other students in the class must observe the play and comment on it.
- 13.8.2 Students form a circle as a simulated human network. Teacher gives two small paper boxes or a paper packets to two different students in the network. The paper box/ packet is supposed to be the data to be sent.
- 13.8.3 Students pass the boxes in opposite directions so as to reach a particular destination. Before reaching the respective target, the boxes meet at some point and faces a collision. Teacher poses a question to the class. How can we avoid such a situation of data collision ?
- Tip: The play can be repeated if needed.
- 13.8.4 Students form groups and discuss, list out solutions. Best possible solution is discussed in groups and consolidated.
- 13.8.5 One or two students present their findings in the class, and the play is conducted once again as per the solution.
- 13.8.6 Teacher allow the students to highlight the merits and demerits
- Tip: One or more methods of sending data may be expected from the students.
- 13.8.7 As a final solution teacher following the most appropriate techniques accessing data in a network.
- Technique 1: Suppose student at position 1 wants to send the paper box to the student at position 7. Before sending the box, the student at position 1 has to listen and make sure that no other box is passing the network.
- Technique 2: Apart from the paper boxes an additional red coloured small box is required. This red coloured box is acting as a token and it is to be circulated always in the network. When a student wants to send his paper box to some destination, he must first collect the red box from the network, and then send his box, thus avoiding the chances of collision.
- 13.8.8 Students perform the role play as per the above two techniques and realise the algorithm.
- 13.8.9 Teacher consolidates the discussion and simulations by presenting the two data access methods in a network as CSMA/ CD and token passing.
- 13.8.10 Students note down points by finalizing the comparison table

13.8.11 Students prepare notes on each method.

13.8.12 A class assignment is given to prepare a chart showing the two access methods using block diagrams and comparison table

13.9 Discussion on access methods (45 Mins.)

13.9.1 As a continuation to the activity the teacher initiate a group discussion about access methods in the class with the help of hand outs or text books

Problem : Compare the two access methods namely CSMA/ CD and Token passing then list down the features of each.

13.9.2 Students discuss the two different methods in groups and list out the findings

13.9.3 One or two groups present relevant product in the class, relevant points are noted on the black board.

13.9.4 Teacher consolidates the discussion by finalising the comparison table.

13.9.5 Students prepare notes on each access methods.

13.10 Discussion on communication devices (90 Mins.)

13.10.1 *Problem: We send data from a computer placed in India to a computer in USA. We need to connect one network to another. How is this possible? We know that when the cable-TV connection is extended to many users the signal strength becomes weak and the last ones get poor reception. What is the remedy for this?*

Tip: Discussion can be started by posing certain questions like this.

13.10.2 Students form groups and discuss. Teacher the guide the students to think and list out solutions. Let some of the students present their ideas and beliefs.

13.10.3 Consolidation: Teacher consolidates the discussions by presenting the details on communication devices.

Features of each device are discussed and the learners are asked to note down points.

Tip: The teacher is expected to explain the devices like Bridge, Router, Gateway, and Repeater etc. with their need and application in detail

13.10.4 Let the learners to clarify their doubts if any and they prepare separate short notes on each devices.

13.11 Showcasing still models of communication devices (40 Mins.)

13.11.1 Planning Session :

The whole class is divided into 4 to 5 groups and each communication device assigned to each batch. A still model of a device is to be developed and presented with appropriate explanations. Thermocol or cardboard can be used to make

the models. The teacher can allow the students to do this work at home. A time limit is to be given.

Tip: Make sure that the students are not taking much time on the beautification of the models.

13.11.2 Each batch develops the model of the devices assigned to them with a detailed description in the form a chart.

13.11.3 Each group is allowed to observe and understand the details collected by other groups.

13.11.4 Each batch is allowed to prepare notes on the model developed by the other batches.

13.11.5 Teacher evaluates the performance of each group and gives credit accordingly.

Tip: Teacher can ask the learners to display their models in the class itself for some days so that the one can clearly distinguish each device from other.

13.12 Panel discussion and note making (40 Mins.)

13.12.1 Planning: Students are asked to prepare questions based on topics, which need more explanations in the closing chapter.

13.12.2 The questions are pooled and categorized in groups. The selected questions are to be kept ready well in advance.

Tip: The date and time of conducting the panel discussion can be announced earlier. The computer science, computer application teachers of the same school or from nearby schools or experts from outside can be the panelists.

13.12.3 Students ask selected questions to the expert panel members and note down points.

13.12.4 Students prepare detailed notes on each and present in the class.

13.13 Discussion on Internet terminologies (40 Mins.)

13.13.1 Problem: *What is Internet? Can you say some of the Internet services? What is a homepage?*

13.13.2 A group discussion can be started by posing such problems. Students discuss about Internet and related terms in groups.

13.13.3 The discussion can be guided in such way that the teacher can elicit the terms and concepts related to Internet from the student side to the maximum.

13.13.4 Teacher ask some of the students from different groups to speak out, others contribute.

13.13.5 Consolidation: Teacher consolidates the discussions by familiarizing the terminologies Internet like WWW, Website, Webpage, Web browser, Homepage, URL etc.

13.13.6 Students prepare notes on each item.

Supplementary Activity

13.13 Live demonstration of browsing Internet (40 Mins.)

13.13.1 After imparting overall knowledge about Internet the students can be directed to the lab for a live demo of web browsing.

13.13.2 Task: The students are asked to collect some details about 'TSUNAMI' from the Internet and prepare a note.

Tip: Hints can be given to the students about the idea of search engines, names of popular search engines or teacher can demonstrate as per the situation demands.

13.13.3 Learners search the Internet using Google, Yahoo etc search engines and collect details.

13.13.4 The teacher ask the learners to identify the Homepage, URL, WWW etc while browsing.

13.13.5 Learners write their findings in the observation book and prepare notes on required items.

Tip: Hints can be given to the students about the idea of search engines, names of popular search engines or teacher can demonstrate as per the situation demands.

13.13.6 Learners search the Internet using Google, Yahoo etc search engines and collect details.

13.13.7 The teacher ask the learners to identify the Homepage, URL, WWW etc while browsing.

13.13.8 Learners write their findings in their observation book and prepare notes on required items.

Sample Questions

1. In a city the following traffic rules are implemented for reducing the traffic block.

In road A, the vehicles can go from East to West only; in road B, the vehicles can pass only in one direction at a time; in road C, the vehicles are free to move in both the directions at the same time.

- (a) How do you correlate the above type of traffic system with that of data communication?
- (b) Explain each with examples and block diagrams. (2 + 3 = 5)

Scoring Indicators:

- (a) Types of communication , Simplex, Half duplex and Full duplex 2 scores
- (b) Explanation of the above three types with block diagram 3 scores

2. Telecommunication department has to setup some network connections in a metro city. The following are the tasks to be done
- i. Connect Server computer in the ground floor of a building to the Nodes placed in the first floor.
 - ii. Send huge volume of data from the central exchange to local exchange situated about 5 kms away.
 - iii. Send data from the central office to the zonal office situated about 50 Kms away.
 - iv. Send data to the network station located abroad.

- (a) Suggest the most suitable communication channel that can be used for each of the above situations. (1 score)
- (b) Justify your selection by listing out the features of each. (4 scores)

Scoring Indicators:

- (a) Coaxial cable, Optical fiber, Microwave and Sattellite communication respectively (1 score)
- (b) Listing out features of each media (4 scores)

3. Analyse the following situations related to data communication
- i. The data from a computer is to be send through telephone wires
 - ii. While sending data to distant places the signal strength becomes weak
 - iii. Connect a LAN with Internet
 - iv. Browse a website while travelling in a train or bus
- (a) Suggest the most appropriate communication device that can be used for the above purposes (1score)
 - (b) Justify your selection with proper explanations (4 scores)

Scoring Indicators:

- (a) (i) Modem, (ii) Repeater, (iii) Gateway (iv) Mobile phone with sufficient technology (1 score)
- (b) Explanation of each of the above items (4 scores)

4. The following are certain terms related to data communication:

Gateway, Computer, Router, Modem, Internet, Cable

- (a) Which of the above items is not a device? (1 score)
- (b) Arrange the above given devices in the most suitable way so that the e-mail goes from sender to the receiver. (2 scores)
- (c) Simply describe the reason for such a connectivity (2 scores)

Scoring Indicators:

- (a) Internet (1 score)
- (b) Computer-Modem-Cable-Router-Gateway-Internet (2 scores)
- (c) Digital data from the computer is converted analog and send through the cable, go via router and gateway to get into the Internet and follows the similar path to reach the destination. (2 scores)

References

1. **E-commerce Developer's Guide to Building Community & using Promotional Tools**
(BPB Publications)
2. **Instant E-Commerce**
(BPB Publications)
3. **HTML Complete**
(BPB Publications)
4. *Ann Navarro*, **Effective Web Designing**
(BPB Publications)
5. **Hands-on HTML**
(BPB Publications)
6. *Kendall & Kendall*, **Systems Analysis and Design**
(Printice Hall India)
7. *Henry F. Korth*, **Introduction to DBMS**
(McGraw Hill Publishers)
8. **Understanding SQL**
(BPB Publications)
9. *Achyut S. Gobbale*, **Data Communication and Networks**
(Tata McGraw Hill Publishing Company)
10. **Relational Database - Theory and Practice**
(BPB Publications)