

**VOCATIONAL HIGHER SECONDARY
FIRST YEAR**

COMPUTER APPLICATION

Teachers' Source Book



**Government of Kerala
Department of Education**

2005

State Council of Educational Research & Training (SCERT)
Vidyabhavan, Poojappura, Thriuvananthapuram-12, Kerala

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Government of Kerala

Prepared by :

State Council of Educational Research and Training (SCERT)

Vidyabhavan, Poojappura, Thiruvananthapuram - 12, Kerala

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Preface



Dear Teachers,

The children admitted in standard XI are coming with a different kind of learning experience. They have been learnt constructively and evaluated continuously in their High School classes according to a paradigm, named 'constructivist, learner centered and process oriented pedagogy'. The paradigm applied to these children in their secondary classes is to be continued in Vocational Higher Secondary level also. But, we know that most of the present Vocational teachers are not familiar with this paradigm. Hence for the first time we are introducing source books for all the subjects included in the Vocational Higher Secondary curriculum.

The source book for Computer Applications will be helpful to prepare yourself to be competent in the activity oriented pedagogy. It is complementary to the training you have undergone in the beginning of the academic year.

The source book has two parts. Part I gives you the general approach to the teaching and learning process of computer Application. It also covers the curriculum objectives and syllabus of the subject. The term wise distribution and time schedule of the syllabus will be helpful for proper planning to complete the syllabus in a time bound, but efficient and effective manner.

Towards the end of this part, the learning activities that can be applied are narrated and some of them are taken for continuous Evaluation (CE), and Vocational Competency Evaluation (VCE) as per the directions of the Vocational Higher Secondary Curriculum Committee. Evaluation indicators and guidelines for setting questions for written examination are also included in this part.

Part II of this book is again divided into three sections. Section A deals the unit wise learning activities of theoretical part (unit 1-12). Section B contain unit 1 to 6 which deals with the unitwise learning activities of practical part. The activities specified are apt and time bound. Being the teachers in different school situations you have the freedom to choose alternate activities, students involvement and time limits while selecting activities or strategies.

Suggestions are invited to improve the quality of the book as well as the teaching and learning process to attain the objectives of the new pedagogy.

With regards,

Thiruvananthapuram

25.11.05

Dr. E. Valsala Kumar

Director

SCERT, Kerala



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1. GENERAL APPROACH

Introduction

The ultimate aim of education is human refinement. Education should enable the learner to formulate a positive outlook towards life and to accept a stand which suits the well being of the society and the individual as well.

The attitude and potential to 'to work' has determined the destiny, progress and cultural development of the human race. As we all are aware, the objective of education to form a society and individuals having a positive work culture. The educational process expected in and outside our formal schools should concentrate upon inculcating concepts, abilities, attitudes and values in tune with these 'work culture.' Hence vocationalised education cannot be isolated from the main stream of education. In another sense, every educational process should be vocationalised. However, due to our inability to utilise the resources wisely, scarcity of job opportunities is a severe issue of the present society. For overcoming this deep crisis, emergent techniques have to be sorted out and appropriate researches have to be seriously carried out. It is in the sense that the content and methodology of vocational Higher Secondary Education have to be approached.

The Vocational Higher Secondary course was envisaged as a part of the National Policy on Education with the noble idea of securing a job along with education. The relevance of Vocational education is very great in this age of unemployment. This education system, which ensures a job along with higher education, stands aloof from other systems of education.

A learning environment which ensures vocational aptitude, vocational training, basic life skills, competencies related to different subjects, appropriate values and attitudes and existential readiness has to be provided here.

The curriculum should be one which recognises the specific personality of the learner and should develop it in a desirable way. It should provide opportunity to imbibe novel ideas to follow a critical approach and for learning through experiences.

The competency to transform ones own resources for the betterment of the society and the individual is to be ensured in each individual. Training in the sense of equality, democratic sense, environmental consciousness and devotion to the constitution is an inseparable factor of the curriculum.

The need of a systematic curriculum is prevailing in vocational subjects. A scientifically structured curriculum incorporating the unique features peculiarity of Kerala ensuring the possibility of higher education and utilising the national and international possibilities of employment is required.

The new curriculum should be capable of assimilating the life skills, scientific temper, attitude of coexistence, leadership qualities and mental health to face the challenges of life. It should be capable of strengthening the competencies imbibed by the learners up to the tenth class.

A curriculum for selecting vocational areas according to the aptitude of the students, learning it in depth, acquire general awareness in the basic areas and to secure jobs has become the social need of the day. A learner centered, process oriented, need based vocational curriculum is envisaged.

What is learning?

- Learning is construction of knowledge and so it is a live and continuous mental process.
- Learning is a process of advancement through adding and correcting in the light of comparing the new issue with the previously learned concepts.
- Learning takes place as a part of the effort to solve problems.
- Learning takes place by assimilating bits of knowledge into ones own cognitive structure.
- Learning is not a linear process. It is a spiral process growing deeper and wider.
- Learning is an intellectual process rather than the mere memorisation of facts. Learning is a conglomeration of a variety activities like problem analysis, elucidation, critical thinking, rational thinking, finding out co-relations, prediction, arriving at conclusions, applications, grouping for other possibilities and extracting the crux. When opportunities are provided for intellectual processes learning will become effective and intellectual ability will get strengthened.

Theoretical foundations of learning

Education is the best device that can be adopted for creation of a new society. It should be democratic in content and process and should acknowledge the rights of the learner. It should also provide opportunity for better citizenship training. The concept of equality at all areas should get recognition in theory and practice.

There should be conscious programme of action to develop nationality, humanness and love and against the encroachment of the sectarianism of caste

and religion.

The learner should be able to take firm steps and deferred against the social crisis like privatisation, liberalisation, globalisation etc. and against all kinds of dominations.

They should develop a discrimination to use the acquired learning as a liberative weapon.

They should be able to view education and life with the perspective of social well being.

They should get opportunity to recognise that co-operation is better than competition and that co-operation is the key to social life and culture.

A basic awareness of all the subjects needed for life essential for all students.

The remnants of perspectives formed in us during the colonial period still influence our educational philosophy. The solution to the present day perplexities of the society which approaches education on the basis of competitions and marketisation is only a comprehensive view of life.

It is high time that education was recognised on the basis of the philosophy of human education. The human approach to education has to reflect in its content, learning process and outlook. The perspective of 'learning to be ' and learning to live together as expressed by the UNESCO and the concepts of existentialist intelligence intrapersonal and interpersonal intelligence.

The basis of new approaches on curriculum, teaching- learning process are derived from the developments place in the east and west of the world.

When we begin to see the learner at the centre of the learning process, the teaching process has to be changed timely. It is the result of the rapid growth and development of Science and Technology and Pedagogy. If we want to undergo the changing process, we have to imbibe the modern hypothesis regarding learner, they have;

- Great curiosity
- Good imagination
- Numerous other qualities and interests
- Independent individuality
- Interest in free thinking and working in a fearless atmosphere.
- Have interest in enquiring and questioning.
- Ability to reach conclusions after logical thinking.
- ability for manifest and establish freely the conclusions arrived at.
- Interest for recognition in the society.
- Determination to face the interference of society and make components which is a part of social life.

-

When we consider the learning system, the domains to be stressed in education according to the modern development becomes relevant.

The **knowledge** domain consists of

- Facts
- Ideas
- Laws
- The temporary conclusions and principles used presently by scientists.

The learning is a process. The continuous procedures we undergo to reach a particular goal is process. The skills which are parts of the process to analyse the collected ideas and proofs and come to a conclusion is called *process skills*. Some important **process skills** are,

the skills;

- To observe
- To collect data and record
- To classify
- To measure and prepare charts
- To experiment
- To predict
- To recognise and control the variables
- To raise questions
- To generalis
- To form a hypothesis and check.
- To conclude
- To communicate
- To predict and infer
- To use tools.
-

Observation is the process of acquiring knowledge through the senses. It is purely objective oriented. Learning experiences which provide the opportunity to use all the senses may be used.

The process of grouping is known as **classifying**. Starting from simple groupings of data, it can extend to the level of classification into minute sub-groups.

In addition to this, consider the skills related to **creative domain** also, they are skills:

- To visualize

- To connect facts and ideas in new ways
- To find out new and uncommon uses of objects
- To fantasize
- To dream
- To develop creative isolated thoughts
-

Creativity is an essential component of process and activities. The element of creativity is involved in finding out problems, formation of hypothesis, finding 'solutions' to problems etc. Through activity oriented learning experiences, opportunities to express creativity can be created.

Again, the following factors consisting in the **Attitudinal domain** are also important as;

- Self confidence
- Love for scientific knowledge
- Attitude to know and value history
- Respect human emotions
- Decide with reasonable present problems
- Take logical decisions regarding personal values

'Hypothesis' is a temporary conclusion drawn using insight. Based on knowledge and experiences relating to the problems the causes and solutions can be guessed.

As regards the **application domain** the important factors are the ability to:

- observe in daily life examples of ideas acquired.
- take the help of scientific process to solve the problems of daily life.
- choose a scientific life style
- connect the ideas acquired with other subjects.
- integrate the subjects with other subjects.

Some basic stands have to be taken on the new scientific knowledge about intelligence learning and teaching. When such basic concepts are accepted changes are required in the following factors.

- The vision, approach, structure and content of the curriculum.
- The vision, approach, structure and content of the textbooks.
- Role of the teacher and the learner.
- Learner atmosphere, learning materials and learning techniques.

Some scientific perspectives accepted by modern world in educational psychology are given below.

Constructivism

This approach puts forward the concept that the learner constructs knowledge. New knowledge is constructed when ideas are examined and practiced in new situations relating them with the previously acquired knowledge and experience. That is assimilated into the cognitive structure of one's knowledge. This method which gives priority to critical thinking and problem solving provides opportunity for self-motivated learning.

Social Constructivism

Social constructivism is a sub-section of constructivism. Knowledge is formed, spread and imbibed and it becomes relevant in a social environment. Interactive learning, group learning, co-operative participatory learning, all these are concepts put forward by social constructivism.

The main propounders of constructivism are Piaget, Vygotsky and Bruner.

Discovery learning and interactive learning have prime importance. Learning takes place as a part of the attempt for problem solving. The activities of a learner who confronts cognitive disequilibrium in a learning situation when he tries to overcome it leads to the renewal of cognitive structure. It is through this process construction of new knowledge and the assimilation of them that learning takes place. Observation and enquiry are unavoidable factors. The learner advances towards new areas of acquisition of knowledge where he tries to compare his new findings with the existing conceptions.

Learning is a live mental process. Rather than the ability for memorisation of facts cognitive process has to be given emphasis. The process of problem analysis, elucidation, critical thinking, rational thinking, finding out co-relation, prediction, hypothesis formation, application, probing for other possibilities, extracting the crux and other processes are of critical importance in learning.

Constructivism gives greater predominance to co-operative learning. Social and cultural factors influence learning. Sharing of knowledge and experience among learners, collective enquiry, assessment and improvement, group activity and collaborative learning, by sharing responsibilities with the objective of public activity, provide opportunity for effective learning.

In learning internal motivation is more important than external motivation. The learner should have interest and initiative in learning. Learning situation should be capable of forming a sense of ownership in the learner regarding the learning process.

Learning is not a linear process. It progresses in a spiralled way advancing deeper and wider.

Learner-his nature and features

The learners in standard XI has undergone a learner centered and process oriented learning experience up to X standard. He is adequately competent to select vocational subjects according to his aptitude and interest and to acquire higher education and profession as he wishes. The aspirations about future life is framed in this particular age foreseeing national and international job oppurtunities. Some of the peculiarities of the learner at this stage are:

- Physical, intellectual an emotional planes are intensive changes during this age and their reflections can be observed.
- Ability to enquire, discover and establish cause-effect relationship between phenomena.
- Readiness to undertake challenges.
- Capacity to shoulder leadership roles.
- Attempt to interprest oneself.
- Susceptibility to different pressures.
- Doubts, anxieties and eagerness about sex.
- Longing for social recognition.

Needs of the learner

- To make acquaintance with a job through vocational education.
- To acquire more knowledge in the concerned area through higher education.
- To recognise and encourage the peculiar personality of the later adolescent period.
- To enable him to defend against the unfavourable circumstances without any help

Role of the Learner

- Active participant in the learning process.
- Acts as a researcher
- Sharer of information
- Sharer of responsibilities
- Collects information
- Takes leadership
- Involves in group work
- Acts as a co- participant
- Observes his environment
- Experiments and realises
- Makes interpretations and draws inferences.
-

Role of the Teacher

The teacher should;

- consider the 'Stress and strain' of the teenagers
- understand the socio- economic and cultural background of the students.
- promote and motivate the students to construct knowledge.
- arrange proper situations to interact in and outside of the classroom.
- guide the students by explanations, demonstrations etc.
- promote opportunity for co-operative learning and collaborative learning.
- facilitate interpersonal and intra-personal interactions.
- act as a democratic leader.
- act as a problem solver
- effectively guide the students for the selection and conduct of various continuous evaluation elements.
- continuously evaluate the progress of the learners.
- gives scaffolding/support wherever necessary.
- motivate for learning
- promote divergent thinking.
- act as a democratic group leader.
- act as a co-learner
- gives variety of learning experiences.
- be a constant student
- facilitate for reference/data collection
- have a clear understanding about the age, needs, peculiarities, abilities, nature, aptitude etc. of the learner.
- have the ability to motivate the learner in order to acquire and enrich their knowledge.
- be a guide to the learner in developing insights and creating responses on current affairs.
- be capable to lead the learner into a variety of learning methods and process based on curricular objectives.
- be a link between school and community.
- be a good organiser, guide, friend, philosopher and co-learner.
- have an inter disciplinary approach in learning activities.
- be able to guide the learner in his/her career prospects based on his interest aptitude and ability.
- be impartial and democratic.
- provide ample experiences to attain the basic values and objectives of the curriculum.
-

New Concepts of Learning

1. Discovery Learning-

The teacher has to create a motivating atmosphere for the learner to discover concepts and facts, instead of listening always. Creating occasion to progress towards discovery is preferred. Instead of telling everything before and compelling to initiate the models, situations are to be created to help the children act models as themselves.

2. Learning by discussion

That discussion leads to learning is Burner's theory. Here discussion is not opposing each other. It is a sharing on the plane of ideas. New ideas are arrived at by seeking explanations, by mutual giving and taking of ideas and by problem solving.

3. Problem solving and learning

Only when the learner feels that some thing is a problem to be solved that he takes the responsibility of learning it. It is an inborn tendency to act to solve a problem that causes cognitive disequilibrium in a particular area. It is also needed to have confidence that one is capable of doing it. The problems are to be presented in consideration of the ability and level of attainment of the learner.

4. Collaborative learning

This is the learning in which the responsibilities are distributed among the members of the group keeping common learning objectives. The common responsibility of the group will be successful only if each member discharges his duties. All the members will reach a stage of sharing the result of learning, equally through the activity with mutual understanding. The teachers who arrange collaborative learning will have to make clear the responsibilities to be discharged. This is possible through the discussion with the learners. Collaborative learning will help to avoid the situations of one person working for the whole group.

5. Co-operative learning

This is the learning in which the learners help one another. Those who have more knowledge, experience and competency, will help others. By this exchange of resources the learners develop a plane of social system in learning also. As there are no high ups and low ones according to status among the learners they can ask the fellow students doubts and for helps without any hesitation or in hesitation Care should be taken not to lead this seeking of help to mechanical copying. It should be on the basis of actual needs. So even while encouraging this exchange of ideas among the members of the group cautions acceptance is to be observed as a convention. There should be an understanding that satisfactory responses should come from each member and that the achievement of the group will be assessed on the basis of the achievement of all the members

6 Zone of Proximal Development

Vygotsky observes that there is a stage of achievement where a learner can reach by himself and another higher zone where he can reach with the help of his teachers and peers and elders. Even though some can fulfil the learning activity by themselves there is the possibility of a higher excellence. If appropriate help is forth covering every learner can better himself.

7 Scaffolding

It is natural that the learner may not be able to complete his work if he does not get support at the proper time. The learner may require the help of the teacher in several learning activities. Here helping means to make the learner complete the activity taking responsibility by himself. The teacher has to keep in mind the objective of enabling the learner to take the responsibility and to make it successful.

8 Learning: a live mental process

Learning is a cognitive process, only a teacher who has an awareness as to what the cognitive process is alone can arrange learning situations to the learner to involve in it. Learning can be made effectively and intellectual sharpness can be improved by giving opportunity for the cognitive processes like reminding, recognising, compromising, co-relating, comparing, guessing, summarising and so on. How is cognitive process considered in language learning? Take guessing and prediction for example.

- Guessing the meaning from the context.
- Guessing the content from the heading.
- Predicting the end of the story.
- Guessing the incident, story from the picture.
- Guessing the facts from indications.
- and other such activities can be given the following activities can be given for the cognitive process of summarisation.
- Preparation of blue print.
- Preparation of list.
- Preparation of flow chart.
- Epitomising in one word.
- Giving titles and so on.
- Symbols, performance of characters indications, lines of a poem, tables, pictures, concepts, actions, body language and such things can be given for interpretation. Process based language given for interpretation. Process based language learning has to give prime importance to the cognitive process.

9 Internal motivation

Internal motivation is given more importance than external motivation. The teacher has to arouse the internal motivation of the learner, A person internally motivated like this alone can immerse in learning and own its responsibility. How motivating is each of the activities is to be assessed.

10 Multiple intelligence

The Theory of Multiple Intelligence put forward by Howard Gardener has created a turning point in the field of education. The National curriculum document has recommended that the curriculum is to be designed taking into consideration of this theory.

Main factors of the intellect :

1. Verbal/linguistic Intelligence -

Ability to read and write, making linguistic creations , ability to lecture competence effective a communication , all these come under this . This can be developed by engaging in language games and by teaching others.

2. Logical /mathematical Intelligence

Thinking rationally with causes and effect relation and finding out patterns and relations come under this area, finding out relations and explaining things sequential and arithmetical calculations are capable of developing this area of intelligence.

3. Visual /spatial Intelligence

In those who are able to visualise models and bringing what is in the imagination into visual form and in philosophers, designers and sculptors this area of intelligence is developed. The activities like modelling using clay and pulp, making of art equipments, sculpture, and giving illustrations to stories can help the development of this ability.

4 Bodily Kinaesthetic Intelligence

The activities using body language come under this. This area of intelligence is more developed in dancers and actors who are able to express ideas through body movements and in experts in sports, gymnastics etc.

5 Musical Intelligence

This is an area of intelligence which is highly developed in those who are able to recognise the different elements of music in musicians and in those who can here and enjoy songs. Playing musical instruments, initiating the songs of musicians, listening silently to the rhythms and activities like this are capable of developing this area of intelligence.

6 Interpersonal Intelligence

Those in whom this area of intelligence is developed show qualities of leadership and behave with others in a noble manner. They are capable of understanding the thought of others and carrying on activities like discussion successfully.

7 Intrapersonal Intelligence

This is the ability to understand oneself. These people can recognise their own abilities and disabilities. Writing diaries truthfully and in an analysing way and assessing the ideas and activities of others will help developing this areas of intelligence

8 Naturalistic Intelligence

A great interest in the flora and fauna of the nature, love towards fellow beings interest in spiritual and natural factors will be capable of developing this area.

9. Existential Intelligence

The ability to see and distinguish ours own existence as a part of the universe, ability to distinguish the meaning and meaninglessness of life, the ability to realise the ultimate nature of mental and physical existences, all these are the peculiarities of this faculty of intelligence.

Emotional Intelligence

The concept of emotional intelligence put forward by **Daniel Golman** was used in framing the new curriculum. The fact that one's **Emotional Quotient (E.Q)** is the greatest factor affecting success in life is now widely accepted. The teacher who aims to focus on 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. Taking decisions through open discussion in the class, inviting students suggestions on common problems etc. are habits to be cultivated.

ii) Ability to reach consensus

- When different opinions, ideas and positions arise the students may be given the responsibility to reach a consensus.
- Imaging what would be the course of action in some situations, allowing to intervene in a healthy way in problems between individuals.

iii) Problem solving

- Developing the idea that there is reason and solution to any problem.
- Training in finding reasons for problems.
- Suggesting solutions through individual or group efforts.

- Discussing social problems.
- Analysing the shortcomings in methods to solve problems.

Whether plastic can be banned within school premises can be given as a problem. Group discussion will provide reasons and solutions. Problems which can influence classroom learning and for which the learner can actively contribute solutions need to be posed.

- Self criticism, evaluation
- Ability to face problem-situation in life
- Thinking what one would do if placed in the situation of others, how one would respond to certain experiences of others - All these foster the growth of emotional intelligence.

iv) Life skills

Life skills need to be given a prominent place in education. W.H.O. has listed ten skills required for success in life.

- Self awareness
- Empathy
- Inter personal relations
- Communication
- Critical thinking
- Creative thinking
- Decision making
- Problem solving
- Coping with emotion
- Coping with stress

The new curriculum addresses these areas.

Knowing the characteristics of the learner, role of the teacher and how to use the teachers handbook help the teacher to plan and effectively implement learning activities.

Objectives of the Vocational Higher Secondary Curriculum.

- To facilitate higher education while giving opportunity to enter in the field of employment.
- To develop environmental awareness, sense of national integration, tolerance and human values so as to ensure social and cultural improvement.
- To enable the learner to find on his own employment.
- To inculcate mental courage in the learner to face unfavourable situations.
- To make human resource development possible.
- To enable the learner to understand social problems and to react appropriately.

- To develop the learner to identify and develop his own competencies.
- To develop vocational aptitude, work culture and attitude in the learner so as to provide useful products and services to the society.
- To create an awareness about mental and physical health.
- To acquire awareness about different job areas and to provide backgrounds for acquiring higher level training in subjects of interest.
- To develop possibilities of higher education by creating awareness about common entrance examinations.
- To provide situation for the encouragement of creative thinking and organising training programmes in each area, creative abilities and to develop artistic talents.

Nature of Approach

The learning device is to be organised in the selected vocational subjects in such a way that adequate practical experience should be given, making use of the modern technology. The development in each area on the basis of information technology is to be brought to the learner. The work experience in the respective fields (OJT, Field trip, Production/Service training, Survey, Workshop, Exhibition, Youth festival, Physical fitness etc.) are to be adjusted suitable to the learning and evaluation process. The participation and leadership of the students in planning and execution is to be ensured through this kind of activities. Social service is to be made a part of the course.

Approach towards Vocational Higher Secondary Education

The learning methodology has to be organised so as the learning provide adequate practical thinking on the opted vocational subject utilising the new technology. The development of information technology should be made available in each sector. Work experience, OJT, Field trip production, Service cum training centre, Survey, Workshops, Exhibitions, Youth festivals, Physical fitness etc. should be systematised well appropriate to learning and evaluation. Learner participation should be ensured in the planning and implementation of these activities. Social service should be a part of the course. If a learner has to change his school, he should be provided an opportunity to continue his studies in the new school. While considering criteria for admission to higher courses, grades of vocational subjects should also be given due weightage. In tune with the changes in the Vocational Higher Secondary Education changes should be ensured in the field of higher education.

The teachers have to take special care in arranging learning activities for the development of all the faculties of intelligence.

Learning activities and learning atmosphere.

A proper learning atmosphere is essential for the betterment of learning activities.

They are:

- Proper physical environment
- Healthy mental atmosphere
- Suitable social atmosphere
- Active participation of PTA, Local bodies and SRG
- Reference materials and visual media equipments.
- Academic monitoring
- School Resource Group (SRG)

Part-1

1. General Approach
2. Subject Approach.
3. Curriculum Objectives.
4. Syllabus.
5. Planning.
6. Evaluation.

2. SUBJECT APPROACH

Introduction:

The main objective of vocational Higher Secondary Education is to make a self reliance society who are capable of being self employed as well as to make them fit for higher studies.

As you know, information technology (IT), has been made a compulsory subject in high school classes and it has been included as one of the subject for the SSLC examination.

So the students have previous knowledge in working on computer. They have undergone various learner centered activities like assignments, project, seminars etc, for the learning of IT. So the learning in VHS classes also should utilise such learner centered and process oriented methods which suite the constructive paradigm.

What is a Constructivist Paradigm?

The earlier method of teaching in which students are 'told' every thing, activities are 'explained' and teachers teach the children everything, is very familiar and convenient for the teachers. But we have seen over the years that this cannot make all students to reach heights of learning. Students will reach the higher levels of learning only if teachers follow an approach of continuous learning, planning the learning activities and sharing knowledge with the students as co-learner, co-researcher and facilitator.

What teachers should do is to arrange the facilities for the children to acquire knowledge by themselves and develop their creativity by involving in learning activities of interest.

On the approach to education, NCERT observes that we need a shift from the traditional learning atmosphere to a climate of values that encourages exploration, problems solving and decision making and from the prescriptive classroom teaching to participatory, decentralised interactive group learning.

We have to follow a method in Computer Application that would make it possible to attain the above objectives. The contents of computer application in VHSE is fixed in such a way that this method is unavoidable. The discussion in the class room takes place with the active participation of students. They learn through individual work, co-operative group work, interaction with different materials and find solutions themselves for the problems posed to them. They evaluate themselves and directly apply the learned skill in new and challenging situations. This process helps the students to create knowledge by themselves up to their optimal level. The teachers have to give only scaffolding to go up to their ZPD (Zone of Proximal Development)

Modern teaching philosophy respects teacher who give students a curriculum that stimulates thinking, freedom to select study methods and an opportunity to develop their own respectives. They give more importance to the process than to the content. The above detailed approach is that of constructivism. Computer Application also has to be approached on the basis of this pedagogy. The constructivist pedagogy promotes various processes like.

1. Discovery learning
2. Inquiry learning
3. Co-operative learning
4. Collaborative learning
5. Interactive learning
6. Problem based learning
7. Activity- oriented learning
8. Project based learning

The above processes help teachers to make teaching learner-centred, locally specific and life-related. Possibilities for using the above techniques according to learning situations have to be tried out in the classroom. A set of such activities are given in the concerned chapters on this source book.

What are the changes needed in the role and approach of teachers and students?

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

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

Every teacher who wishes to behave well with children and to earn their love and respect should examine whether they are constantly playing the above roles. What has been said here is about the attitude and approach the teachers should have

towards their students. Now let us think about the policy and approach, teachers should have towards teaching and learning . Obviously, such policy and approach are to be transformed into learning activities.

- Good teachers give more attention to how their students learn, in addition to what they learn
- Find learning also as a process.
- Give importance to learning to learn, self learning and construction of knowledge.
- Give prominence to learning instead of instructions
- Accept the personality and initiative of the students and promote them.
- Consider students to have well power and motivation.
- Encourage their natural inquisitiveness and desire to explore.
- Recognise the ways of thought, attitudes and mental makeup of students and accept them.

In addition to these, the new curriculum responsibilities of teacher is 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 visions 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 environment
- Experiments
- Interprets and makes inferences.

In short, teachers provide sufficient opportunities for the students to think, guess, tryout, experiment, find alternative ways, check, correct mistakes and produce outputs or arrive at conclusions.

Computer Application is a suitable subject to make use of all these teaching-learning strategies. This approach is helpful for meeting the objectives defined

by UNICEF as the 'four pillars of education', namely, learning to know, learning to do, learning to live together and learning to be. Also remember that the NCERT has given a directive that the curriculum should stand on the three pillars of relevance, equity and excellence.

In the background of these approach, let us examine how the learning methods mentioned in the beginning can be implemented in Computer Application.

Inquiry and discovery learning

In the inquiry and discovery learning, students learn as per the descriptions in the textbook and illustrations/ guidance of the teacher, finding out facts by themselves through various activities and comparing his/her own findings with others or those in the internet. Discussing with another student about some features that he/she discovered, and the ways he/she used or the logic used while preparing a program, can also be considered as discoveries. While finding out each source of knowledge, the confidence and authenticity of the student develops.

Co-operative Learning

The maximum possibility for co-operative learning exists in group learning activities. A group using the same computer/tools or doing project activities together will help in co-operative learning. The students gets convinced about his/her own abilities and inabilities and to appreciate others, and to improve himself /herself. Co-operative and collective learning become possible and the students experiences their advantages through sharing of experiences, seminars, projects and other group activities.

Interactive Learning

Shy students who withdrawn into themselves in the classroom can be seen to takes part with confidence in quiz and group discussions in computer application classes, especially when working in small groups. Discussion stimulates logical thinking, inquisitiveness and recognition. When a member of group suggest an action, other members of the group are stimulated to look for a better or more logical way. Each student accepts the challenge to re-examine his/her own rationality by presenting different points of view and debating with others. Discussion need not necessarily be oral. It could be through leaflets, posters, reports, email, chatting and mail groups or through publications. It thus provides opportunity for different kinds of interactions.

Activity Oriented Learning

Knowledge leads to activity and activity leads to new knowledge. This is a complementary process. Learning becomes practical, target-oriented and adaptable to different environments only when we learn through activities. Product or result, is a natural consequences of any activity. Therefore, learning process of computer application is activity oriented and product based. Through laboratory work, students acquires skills like ability to develop programs and

debug source code to achieve speed and precision and to acquire values like co-operation, sharing mentality, self correction and mutual help. They acquire a number of life skills through doing projects, seminars, assignments and practicals. Out of these activities, project itself gives opportunity for a number of subsidiary activities. Continuous evaluation strengthens activity based learning.

Activity based learning continuously increases experiences and inquiry. When each new practical experience is added to earlier experiences, new understanding and knowledge are created. A properly planned learning activity.

- Ensures the participation of all students
- Guides the students to think actively and develop logical conclusions
- Provide opportunities for self co-operative and/ collaborative works
- Uses and develops mental abilities of the students.
- Creates interest for self-learning and self-evaluation and peer-evaluation
- Provides opportunities for various interactions with peers, learning materials and teachers.
- Provides chances for any student to succeed and to proceed up to his maximum level.
- Provides chances for teacher to support, guide and enrich the students.
- Raises challenges for enquiry, discovery and further learning.

The teacher's success lies in designing such learning activities and giving them to students. This sourcebook will be really helpful to you in this regard.

Collaborative Learning

Another method based on constructivist theory is 'collaborative learning'. When all students together or in small groups, carryout activities, they are able to solve problems and meaningfully complete learning better than when they do it individually. This finding is the basic principle of collaborative learning. Computer Application is a subject that gives ample possibilities for this kind of learning. This is a method that emphasises group thinking and collective knowledge. This requires changes in the roles of students and teachers and in how they interact.

In a class, where collaborative learning takes place.

- Teachers and students mutually exchange knowledge
- Teachers share some authority and responsibility with the learners.
- Teachers act as links between students and learning
- Students will be divided into mixed groups.

The teacher's role in collaborative learning is as follows.

- Facilitates the activities of each child (facilitating)
- Shows necessary models (Modelling)
- Gives training in certian areas (Coaching)

Students also have some responsibilities in collaborative learning. A student in a collaborative class.

- Decide own learning target at each stage
- Takes up the responsibility for own study and complete it in a time-bound manner.
- Evaluates own learning. At the same time, evaluates the performance of the group also
- Improves own learning, helps others

In short it recognises the intrinsic talents of the learner, emphasises the thinking process; gives importance and opportunity for mutual interaction; accepts the role of society and culture in personality development; gives importance to discussion in learning; gives opportunity for self assessment and mutual assessment; encourages self learning. The teacher acts as an intermediary of learning. She/He finds experiences that are most suitable for learning and prepares them. She/He accepts the learners grasping power, self determination ability and learning strategies.

Multiple Intelligence

The modern studies on intelligence are especially relevant to computer education. The traditional view is that intelligence is hereditary and does not change. Because of this some students are considered to be deficient in logical thinking, mathematical operations and analytical skills and it is believed that such students cannot perform well in computer related subjects.

Modern theories however consider that given suitable environments, through continued efforts, students can improve the intelligence relating to the 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.

Components of Intelligence

1. Verbal / linguistic intelligence

The abilities for reading, writing, verbal production, speaking and lecturing and communicating effectively belong to this type. This type of intelligence can be developed through activities such as teaching, seminar, presenting report writing etc.

2. Logical/mathematical intelligence

Abilities like logical thinking and finding out patterns, and relations belong to this component. This type of intelligence is developed through finding correspondences, ordered explanations and mathematical operations.

3. Visual / Spatial intelligence

People with prominently visual/spatial intelligence will be able to design models and execute ideas they have. Architects, designers and sculptors will be strong in this type of intelligence model building , making of art materials, digital

painting and drawing, using and developing graphical software developing presentations with animation will help this component development.

4. Bodily- Kinesthetic intelligence

This is related to the ability to move various parts of the body. Dancers, actors, sports people and gymnasts who can move the body aesthetically and express emotions through body movement belong to this category. Activities involving dances, aerobics, sports and games help the development of this type of intelligence. In computer education, typing skill, mouse movement skills etc. will be more in those who have this kind of intelligence.

5. Musical intelligence

It is believed that this type of intelligence 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. Playing musical instruments, singing along with others, keeping rhythm etc. are activities that help the development of this component.

6. Interpersonal Intelligence

People who demonstrate leadership qualities and are able to interact in a positive way with others, will have a better developed interpersonal intelligence. They can understand the thinking of other intelligence. They can understand the thinking of others and can successfully involve in negotiation activities. Role play and group activities can be used to cultivate this intelligence.

7. Intra personal intelligence

This is essentially the ability to understand oneself. Such people will have the ability to understand their abilities and shortcomings. Analytical diary writing, assessment of ideas and activities of others and assignments can help the growth of this factor.

8. Naturalistic intelligence

This is characterised by deep interest in nature and the flora and fauna, love her fellow beings, interest in spiritual and naturalistic phenomena. This component can be strengthened through nature study and enjoying the beauty of nature. Gardner speaks about another dimension of intelligence, existential intelligence. But thus has not been elaborated sufficiently. The teachers may ensure that learning activities that cater to all the components of intelligence are provided to this students.

Emotional Intelligence and EQ

Recent researchers say that there is evident of having another area of intelligence and it is the emotional intelligence. Mr. Daniel Goleman and some others have developed devices for measuring the emotional intelligence. The emotional quotient (EQ) is more relevant than the IQ in the process of Learning and development.

The fact that one's Emotional Quotient (EQ) is the greatest factor affecting success in life is now widely accepted. 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. Taking decisions through open discussion in the class, inviting students suggestions on common problems etc. are habits to be cultivated.

II. Ability to reach consensus

When different opinions, ideas and positions arise, the students may be given the responsibility to reach a consensus. Imagining what would be the course of action in some situations, allowing to intervene in a healthy way in problems between individuals will help the students to reach consensus.

III. Ability to solve problems

Teacher should make the students aware of the fact that any problems will have a solution. Students are to be given chances for

- Finding reason for problems
- Suggesting solutions through individual or group efforts
- Discussing social problems
- Analysing the short comings in methods to solve problems.

Let us consider, for example the following cases. Whether the information technology enhances or worsen the human abilities?

Is it necessary to learn and promote free software?

Students should be given opportunity for group discussion and debate over these issues and let them come out with their own views and take decision. This kind of discussion will help the children to experience.

- Self criticism and self evaluation
- Problematic situations in life
- What one would do if placed in the situations of others
- How one would respond to certain experiences of others etc.

Improving the life skills

Life skills need to be given a prominent place in education. WHO has listed ten skills required for success in life. They are.

- Self awareness
- Interpersonal relations
- Critical thinking
- Decision making

- Coping with emotion
- Empathy
- Communication
- Creative thinking
- Problem solving
- Coping with stress.

The new curriculum addresses these areas.

General Aims of learning Computer Application

1. To obtain job in the field of I.T related and I.T enables Services.
2. To undergo higher education
3. To develop skills for self learning, continuous learning and communicating the ideas and concepts in the fields of computer application
4. To create interest among learners to study about computer application and undertake small learning projects for designing and research.
5. To acquire self employment
6. To develop skills for applying the knowledge of computer field for learning other subjects and solving the problems of daily life.
7. To develop skills for learning in a domestic knowledge based exploitation free, digital world by participating in co-operative, collective and creative way.

3. CURRICULUM OBJECTIVES

(THEORY)

1. To understand the characteristics of computer through discussion and prepare a list.
2. To understand the organisation of computer through observation and demonstration . then prepare a diagram
3. Identify different types of computers through observation and references. Then prepare a list of classification.
4. Familiarise different number systems through discussion and illustration
5. Acquire the ability to perform various operations in number system through discussion and familiarise conversion of numbers from one system to another through practice. Develop rules for conversion.
6. Identify the relevance of character representation code being used in computers through discussion and get an idea about memory storage.
7. Identify and familiarise various input/output devices through discussion, observation and demonstration and conduct a seminar
8. Familiarise and classify various types of primary and secondary storage devices through observation, demonstration and group discussion and prepare a chart.
9. Identify the internal components of PC through observation and prepare notes.
10. Familiarise and classify various type of software through discussion, demonstration and practical work then prepare a chart.
11. Differentiate Graphical user interface and character user interface using different operating system and list their features by observation and practice.
12. Understand the various features of Linux through practical work and prepare notes.
13. Familiarise different computer languages through discussion and prepare notes
14. Understand different types of translators through discussion and prepare an Assignment.
15. Familiarise Fields, record, File, Database and DBMS through discussion and prepare a note.

16. Understand RDBMS package thorough practice
17. Familiarise DDL, DML language through practice and acquire the ability to perform various operations.
18. To acquire various features of publishing through discussion and reference. Then preapre a comparision list between DTP and Conventional publishing.
19. To understand various features like frame, index, TOC, Threading through practice and discussion . Then prepare a multipaged publication.
20. To get an awareness about the more advanced features like library, Table,custom colours then prepare a logo on it.
21. To understand the advantages of computerised photoediting over conventional method through discussion and practice, prepare notes.
22. Familiarise basic photoediting features though practice and prepare an Assignment.
23. Familiarise advanced photoediting features through practice and develop skills. Prepare notes.

PRACTICAL

1. To familiarise character user interface through practice
2. To familiarise graphical user interface using windows through practice
3. To acquire the method of installing windows through practice
4. To acquire the knowledge of installing hardware component though practice
5. To familiarise linux operating system through practice
6. To understand RDBMS through practices
7. To acquire the method of installing a software through practice
8. To familiarise a desktop publishing package through practice and prepare a project.
9. To familiarise basis photo editing features through practice.
10. Familiarise advanced photoediting features through practice and develop skill.

4. SYLLABUS

FIRST YEAR (THEORY)

(DETAILED REVISED SYLLABUS)

First Term

1. **Computer Fundamentals** **10 hrs**
 1. Introduction
 2. Characteristics of computer (Advantages & Disadvantages)
 3. Organisation of computer
 4. Classification of computers- General Classification, Based on Application, Classification of digital computer (Micro,Mini, Main Frame, Super computer)
 5. Number System
Binary, Decimal, Octal, Hexa decimal
 6. Data Representation
Bit, Byte, ASCII, UNICODE
2. **Input- Output devices** **(5 hrs)**
 1. Introduction
 2. Input devices- Keyboard, Mouse, Scanner, Microphone, Webcam, OMR, Joystick, Barcode Reader
 3. Output devices- Monitor, Printer
 - a. Impact printer - Dot matrix.
 - b. Non Impact - Inkjet, Laser
3. **DATA Storage** **(5 hrs)**
 1. Introduction
 2. Primary memory- RAM
SRAM (Static RAM), DRAM (Dynamic RAM), SDRAM (Synchronous Dynamic RAM), DDRAM (Double Data Rate RAM),
ROM (PROM, EPROM, EEPROM)

3. Cache Memory

4. Secondary Storage

Magnetic Storage- Floppy Disk, Hard Disk

Optical Storage- CD,DVD

4. Hardware and Software (10 hrs)

1. Hardware- Internal configuration of computers

Mother board, Processor, RAM, PCI slots, Ports- USB, COM
Cable, Cards

2. Software- Types

System soft ware & Examples

Application software & Examples

Installation of software.

5. Operating System (10 hrs)

1. Introduction

2. Function

3. Modes

Batch processing, Real time, Time sharing, Distributed, Multi
programming

4. Case Study

a. Windows-

Basic elements, GUI elements, Windows Explorer

File and Folder Management

Control Panel, Printer settings, MS-DOS Prompt

b. DOS

Internal Commands- CLS, DATE, TIME, COPYCON, TYPE, DIR, CD,
MD, RD, VER, Copy

External Commands- CHKDSK, FORMAT, SYS, DISKCOPY,
DISKCOMP, XCOPY

Batch Files

c. GNU/Linux

Introduction, Hardware requirements, Linux File system structure,
File Management

Second Term

- 6. Computer Languages (5 hrs)**
1. Machine Language
 2. Assembly Language
 3. high level language
 4. 4 GL
 5. Translators
Compiler, Interpreter, Assembler
- 7. Concept of Data base (10 hrs)**
1. Introduction to Data Base, Field , Record, File, DBMS, RDBMS
 2. Uses of DBMS
 3. Functions of DBMS
 4. RDBMS
Relation, Domain, Tuple, Attributes, Cardinality, degree,
Primary key, Foreign Key
Normalization
Client/ Server Technology
- 8. RDBMS Package (20 hrs)**
1. Introduction to RDBMS package
 2. Data Types
 3. DDL- Create Table, Alter Table
 4. DML- Delete, Insert, Update, Select
 5. Commit- Roll back.
 6. Querying- simple Queries (using Distinct, Group by, Like, Orderby)
 7. Functions- sum, average, count, min, max.
- 9. Concept of DTP (10 hrs)**
1. Introduction
 2. Comparison between DTP & Coventional publishing
 3. WYSIWYG
 4. Document Planning

- 10. DTP Package (25 hrs)**
1. Menu
 2. Editors
 3. Tools
 4. Frames
 5. Threading
 6. TOC
 7. Index
 8. Table
 9. Libraries
 10. Style sheets
 11. Customs colors

Third Term

- 11. Graphics Editing Package - Part I (15 hrs)**
1. Menus
 2. Tools- a. Editing, b. Modification Tools
 3. Scanning
 4. Positioning- a. Rulers, b. Guides, c. Grids
 5. Cropping
 6. Scaling
- 12. Graphics Editing package Part II (15 hrs)**
1. Features of graphics Software
 2. Working with palettes
 - a. Arranging palettes
 - b. Grouping palettes
 - c. Choosing palette option
 3. Using Layers in the layer palatte
 4. Working with multiple layers
 5. Aligning and evenly distributing object
 6. Managing Layers
 7. Paths
 - a. Path Tools

- b. Drawing paths
 - c. Editing paths,
 - d. Converting path
8. Creating Text
 9. Formatting Text
 10. Formatting paragraph Text.
 11. Text effects
 12. Filters
 13. Applying quick mask

Computer Application
First Year Theory

Unit	Topic	Hours
1.	Computer Fundamental	10
2.	Input Output Devices	5
3.	Data Storage	5
4.	Hardware and Software	10
5.	Operating System	10
6.	Computer Language	5
7.	Concept of Data Base	10
8.	RDBMS Package	20
9.	Concept of DTP	10
10.	DTP Package	25
11.	Graphics Editing Package (Part I)	15
12.	Graphic Editing Package (PartII)	15
	Total	140

Computer Application First Year
Terms wise Distribution of units
Theory Paper

Terms	Units	Hours	Total Hours
I	1	10	40
	2	5	
	3	5	
	4	10	
	5	10	
II	6	5	70
	7	10	
	8	20	
	9	10	
	10	25	
III	11	15	30
	12	15	
		Total	140

FIRST YEAR (PRACTICAL) (DETAILED REVISED SYLLABUS)

First Term

(120 hrs)

1. Familiarising Dos

Internal Commands

CLS, DATE, TIME, COPYCON, TYPE, DIR, CD, MD, RD, VER, COPY, REN.

External Commands

CHKDSK, FORMAT, SYS, DISKCOPY, DISKCOMP, XCOPY

Batch file creation & Execution

2. Installation of Windows

Familiarising Windows Components

Control Panel

File Management

Print Manager

Internet Explorer

Installation of hardware components, Soundcard, Modem, CD Drive

3. Familiarising Linux

Managing Files

Familiarising Open Office

4. RDBMS Package

Introduction

Data Types

DDL- Create Table, Alter Table

DML- Delete, Insert, Update, Select

Commit, Roll back

Querying

Simple queries, (using distinct, Group by, Like, Orderby) functions
Sum, Average, Count, min , max

Second Term

(180 hrs)

5. DTP Package

1. Menu
2. Editors
3. Tools
4. Frames
5. Threading
- 6, TOC
7. Index
8. Table
9. Libraries
10. Style Sheets
11. Custom Colors

Creating time Table , Wedding Cards, Invoice, Biodata, Creating newspaper layout and advertisement, Develop a multipage publication with TOC, index, tables and graphics.

Third Term

(120 hrs)

6. Graphics Editing package

1. Introduction
2. Menus
3. Tools
 - a. Editing Tools b. Modification Tools
4. Selecting
5. Positioning
 - a. Rulers b. Guides c. Grids
6. Cropping
7. Scaling
8. Features of graphics Software.
9. Working with palettes
 - a. arranging palettes b. Grouping palettes c. Choosing palette position

10. Using layers in the layer palette
11. Working with multiple layers
12. Aligning and evenly distributing object
13. Managing layers
14. Paths
 - a. Path tools, b. Drawing paths c. Editing paths, Converting path.
15. Creating Text
16. Formatting Text
17. Formatting Paragraph Text
18. Text effects
19. Filters
20. Applying quick mask
- 21. Photo manipulation**
 - Changing the background of a photo
 - Changing the brightness & contrast of a photo
 - Repairing Images
 - Removing scratches in a photo
 - Cropping images

References

- Pagemaker 6.5 /7 bpb publication- David D.Buch
- Photoshop 6/ 7 Complete bpb publication
- Complete DTP course kit- Vikas Gupta

Computer Application
First Year Practical

Unit	Topic	Hours
1.	MS. DOS	20
2.	WINDOWS	30
3.	GNU/ Linux	30
4.	RDBMS	40
5.	DTP Package	180
6.	Graphics Editing Package	120
	Total	420

Computer Application
First Year
Terms wise Distribution of units
Practical

Terms	Units	Hours	Total Hours
I	1	20	120
	2	30	
	3	30	
	4	40	
II	5	180	180
III	6	120	120
		Total	420

5. PLANNING

Planning of Teachers

Teachers are expected to plan the learning activities. The planning should be done yearly, termly and monthly, and then report should be submitted in the school resource group, so that the available time in an academic year can effectively be utilised. This will be helpful for planning the common programmes to be conducted in and outside the school as 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.

The daily planning can be done by the teacher by himself /herself or in consultation with other computer 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: computer language</p> <p>Date period: August 3rd week (5hrs)</p> <p>Objectives:</p> <p>1. Brain storming on computer Language</p> <p>Activities:</p> <p>a. Learners are introduced to the term HLL and LLL</p> <p>b. Learners classify the computer languages and prepare a chart.</p> <p>c. Consolidation (Refer Unit VI, Activity I)</p>	<p>Better to list and categorise. All the students will participate in the categorization process. Almost all learners acquired the knowledge about computer languages.</p>

Hour Plan/ Class Plan

Name of Teacher :	Class :
Name of School :	division :
Subject :	Strength : 25
Unit :	Average Age : 15-16
Topic :	Duration : 1hr
Curriculum Objectives :	Material required :
Process Skills :	
Previous knowledge :	

Year Plan (Theory)

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

Month	Topic	Total HRs.	Co.Scholastic	Remarks
June				
July	1,2,3	20		
August	4,5	20	Seminar by outside prsonality	
Septemeber	6,7	15	NSS/ OJT	
October	8	20	Study tour/ Field Visit	
November	9,10	20	Technical Club	
December	10	15	NSS/ OJT	
January	11,12,	20	Physical Education	
			Club	
February	12	10	Seminar by Outside Personality	
March				

Co-Scholastic activities can be determined locally by school Resource group depending on the situation & facilities.

Year Plan (Practical)

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

Month	Topic	Total HRs.	Co.Scholastic	Remarks
June				
July	1,2,3	60		
August	3,4	60	Seminar by outside prsonality	
Septemeber	5	60	NSS/ OJT	
October	5	60	Study tour/ Field Visit	
November	5	60	Technical Club	
December	5	30	NSS/ OJT	
January	6	60	Physical Education Club	
February	6	60	Seminar by Outside Personality	
March				

Co-Scholastic activities can be determined locally by school Resource group depending on the situation & facilities.

Learning Strategies

Learning Computer application in the class room takes place through activities like reading individually and in groups, discussion, debate, quiz, seminars preparing notes, observation and program writing. Preparation for practical work also should take place in the class room. Preparation notes for laboratory work, design steps and data are some of the things that have to be developed in the class room before the practical work in the laboratory.

Among these, individual activities such as assignment and self-check questions given in the text book could be done at Home. But they have to be discussed in the class room. The students should also record such assignments in the note book. The teacher should give clear instructions as to what are the activities to be done at home and how they could be done.

On the Job Training (OJT) and Field visit have to be conducted and the report should be prepared by the students. The teacher should give clear instruction to prepare reports.

Observation book:

The student who comes to the computer lab to do practical work should be clear about the work he/she intends to do. He/she should also know the steps for doing the job using a computer, the software to be used, how it has to be operated, what the product should be, what should be its specifications, and so on. If the student has an observation book with him in which these things are clearly written down, then the work in the computer lab will be very easy so that lab time can be effectively utilised. The desired product will be correctly created. Corrections and modifications made in the programs/procedure/steps are to be recorded after obtaining the correct output. If possible, sample output(s) can be noted down.

Preparation for the lab work may be made at home or in the school. The students may be instructed to compare the notes they have prepared by others and to rectify the defects if any. It will be possible to prepare the notes if the students just read the text book carefully. Such notes will be helpful to tryout later what they have learned now. These observation notes are records to be considered for continuous evaluation.

Exercise No: _____

Aim _____

Related Chapter _____

Allotted time _____

Specifications of the activity/
product _____

Required facilities, software _____

Procedure/steps/programm code

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

File/ Folder/drive for saving _____

Observtions

To be written after activity:

Details and observation of completed activity / product
_____ (Reason, if not completed.)

Self Evaluation./(A/B/C/D)

Peer Evaluation _____ (A/B/C/D)

Teacher Evaluation _____ Excellent/Good/
Average/ Need improvement).

Date of Activity. _____ Time used _____ Signature

Classroom discussions

Discussion is the most commonly used medium for communication. This is a very good activity that can be used in the learning process. Effective discussion will stimulate the intelligence of the child. 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 required classification or a decision.
- If possible, the topic of discussion should be informed in advance. Then the students get an opportunity to think about it and study.
- Information about those who are interested in taking part in the discussion should be collected and every one should be given an opportunity. This is not possible for discussions that are planned there itself. Then either each person can be given a chance, or those who express a desire at that time to take part can be given an opportunity. Those who keep quiet also should be brought forward by asking them to give their opinion or according to their turn.
- If many people are participating in the discussion, strategies can be used to make effective use of the available time.
- When everyone has to speak, speak briefly. Limit may be specified for time, number of points, or sentences. Write down the important points that are mentioned in the discussion. Repetition of the same points are to be discouraged. Through this, methods of expressing ideas briefly, clearly and precisely may be familiarised.
- It is good to have a chairperson to control the discussion
- Allow only one person to talk and others should listen carefully.
- Proper arrangements should be made to write down the opinion that are raised during the discussion. Decisions and understandings arrived at in the discussion should be noted down.
- Students should be trained to stick to the timing themselves.
- Very different opinion may arise in the discussion, responses should be healthy and in a democratic spirit.

Debate

Debate is a hot and interesting activity. A debate can be organised only on a topic on which there is differences of opinion. Therefore a topic suitable for debate has to be found.

Debate can be on relevant topic that is different and interesting to the students and relevant to society. Students with different opinion have to be identified for the debate. Those who have similar opinion should join together to form a side. Those who hold the opposite view will form the other side. It would be good to

write down the topic of the debate on the black board in advance. There should also be a person to control the debate.

Children should be given opportunity to absorb the ideas obtained from debate, develop the ideas through reading and study and to express them through writing or other means. Only the opinion expressed in the debate needs to be paid attention

Quiz in the classroom

Quiz is an activity that is very much helpful for self-learning. Students should be instructed to read and classify the ideas, technical terms, methods of activity, definition, different procedures, etc. discussed in the text book. Quiz can be conducted in different ways as follows.

Team Quiz

Divide the class into two equal parts. These teams may be named. The points they receive can be marked on the black board in two columns. Points may be given in different ways. For instance a member from Team A asked a question aloud and a member of Team B is specified to answer the question. If he/she fails, this can be continued up to four other members. When all the five fail, then the author of the question will have to give the answer and 5 + marks will be added to Team A (5 marks for defeating five students). If the first student answers correctly, then team A gets no points. If the answer given by the student of Team A, who asked the question is not correct, then also Team A gets no points. The next question is asked by Team B by which they can get their marks.

Team quiz can be conducted in another way also. Here, when a student asks a question, it is the teacher who identifies the student who has to give the answer. Therefore the teacher will control the quiz. In the other case, all questions will be directed towards the weaker children in the opposite team. This will spoil the interest in the quiz.

It may also be stipulated that only the children sitting next to the student who was first asked can be given subsequent chances to answer the question. Then also the above problem arises that has to be avoided. The method and rules of conducting the quiz can be devised in consultation with the students.

Group Quiz

Divide the class into convenient groups. A group can consist of students sitting on one or two benches. Let group A ask a question and group B think and answer the question. The group quiz, marks go to the group that answers the question if group B gives the correct answer they get 10 marks otherwise the question goes to group C. If group C gives the answer, then they get 8 marks. Like this the question can be passed to the subsequent groups and marks are given accordingly. Now group B gets its chance to ask the question and the above process can be continued.

Queue quiz

Queue quiz is another form of team quiz. The students sit as two teams and the students in each team are numbered sequentially. The first student in Team A has to ask a question to the first student in Team B. If the student does not answer, then the others also can be asked in sequence. The team that asked the question will get marks according to the number of students in the other team who did not answer. Subsequently, the first student from team B asks a question to the first students of Team A. This can be continued by each student of a team asking a question to the corresponding student of the other team. Thus everyone gets a chance to ask a question and to answer. If description and interest are maintained quiz is a very good activity for learning.

For the special attention of the teacher while conducting a quiz.

Any quiz could become a very competitive game. There could be arguments and noise. Therefore announce the rules well in advance. Instruct them to maintain sportsman spirit along with team spirit. The teacher may have to tactically intervene to ensure that the same team does not always find success. Only then can be the quiz regularly conducted. What is important is whether everyone in the class is listening to and understanding the questions and answers since this is a learning activity. The teacher should explain the question and answers, as needed, and decide on points of argument. Only if the topic for the quiz is decided in advance the students can come prepared with the necessary questions. The objective of the quiz is to naturally promote self learning in the students. The competitive nature of the quiz maintains the interest of the children and also their team spirit. Even though this has a competition nature, it is also helpful for collaborative and co-operative learning.

On the Job Training (OJT)

OJT is an interesting and informative learning activity. OJT can be conducted yearly in the near by computer firm so as the learner gets an opportunity to acquire practical knowledge of the theory they have already learned. It is intended to be a two weeks programme. After the completion of the training programme, each learner has to be evaluated by the head/authority of the firm. The evaluation points should be limited to 20 points. These points must be considered for Vocational Competency Evaluation.

6. EVALUATION

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

Written examination based on the text book alone is not of much use. An evaluation that comprehensively assesses the abilities (practical skills) envisaged in the curriculum is required. Therefore continuous Evaluation (CE), Practical Evaluation (PE), Terminal Evaluation (TE) and Vocational Competency Evaluation (VCE) are required in computer applications. Written examinations for evaluating knowledge and practical examination for evaluating practical abilities are required in terminal evaluation. Practical examination consists of doing certain specified activities or developing an application within a specified time on the computer. Vocational Competency Evaluation judiciously evaluates the required value addition and the consequent capacity building in the selected vocational skills.

Continuous and Comprehensive Evaluation

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. 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 another. These should be considered as means of improving education. Activities in class room like discussion quiz, seminar, worksheet, preparation, symposium, debate, preparation of observation notes and preparation of subject diary should be evaluated by children also, along with the teacher. For this, evaluation rubric can be developed by the students themselves. Observe some indicators given below for this.

Discussion

- Presentation of ideas that are new, different and original (that gives clarity to the topic of discussion)
- Presenting one's own opinions in clear language.
- Waiting for one's turn and making use of it
- Listening carefully to what others say
- Speaking with mutual respect in respectable and moderate language.

Quiz

- Preparation of questions in the work book ensuring quality and comprehensiveness of the questions.
- Giving correct answers
- Obeying rules

Notes

- Comprehensiveness (inclusion of all important materials)
- Clarity (clear language, clear writing)
- Doing correctly according to instructions

Debate

- Speaking relevantly with out deviating from topic
- Presenting opinions with clarity in ideas
- Presenting logical arguments in friendly languages
- Accepting agreeable parts of opposite view points.

The items with the concerned indicators, to be considered for recording in continuous evaluation (CE) are given in a table in the coming section.

Curriculum Committee Decision on Evaluation

The terminal Evaluation of computer Applications is conducted by a public examination which consists of theory aspects . For Terminal Evaluation(TE) the maximum score is 80. In addition, there will be continuous evaluation (CE) for a maximum of 20 scores. The details of CE items are as follows.

Evaluation Activities for CE

The continuous evaluation may include the following activities;

1. Class Test
2. Assignment
3. Seminar/Symposium
4. Project
5. Collection/Records
6. Group discussion/Debate

CE items that has to be recorded for computer application course are;

1. Class test
2. Assignment
3. Seminar/Project

You can conduct any number of assignments and seminars/projects. But record any one of the assignments and seminars/projects for CE.

1. Class Test

The unit test or quarterly examinations are considered and the average marks obtained by the students are converted into 20 scores. Those who are absent in a list may be given a chance on his/her request, if it is found genuine.

2. 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 direction 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 students in his/her work should assure using some tools like viva-voce. If different tasks are assigned, the level of task should be uniform and evaluation indicators should be specified in advance. The activity begins in the classroom with proper planning and preliminary discussion and carried out completely outside the class. The document containing the activities should be submitted in time for the completion of evaluation. The document may be shared if it is relevant and there is demand if a student delivers more than one seminar the best is taken for CE reporting. Every student should be given a chance as it reflects his/her CE score.

3. Seminar

Seminar is a very effective self learning activity which helps to go deeper into the different aspects of a particular topic in the syllabus. The information collected from various sources with the guidance of teacher are systematically organised and presented in the class so that the information is shared among the student. The students from the audience side can raise doubts and questions regarding the content and even contribute to.

The topic and subtopics are to be emerged during discussion in the class room as a need to know more about the topic. If there are sufficient content for the subtopics each of them can be assigned to each student, but they should work in a collaborative manner. A seminar paper or notes is prepared and submitted to the teacher for verification and authentication. When the seminar is presented the other students record the points in their note books and each student prepare his/her own seminar paper of the same topic. At the same time the student who presents the paper also modifies his/her paper reflect the points emerged during the discussion. All the paper are compared and evaluated to ensure the

uniqueness of the efforts made by each student to acquire the information regarding the topic.

4. Project

In computer Applications, designing and development is regarded as project. As in the case of any project, designing is a process oriented activity, in which there are different stages to be evaluated and a product is evolved. It is group activity through which a work is developed using a package or any other development tool.

The project begins with identifying the application area and the associated problems. The elements involved in designing are recognised and procedure or steps are derived. The students explore possibilities of cooperative and collaborative learning and apply their problem solving skill using and development tool/package.

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 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.

Structure of Project Report

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

CE Item	Evaluation Indicators	Weightage	Score
1. Class Test	Average marks of all tests including Mid-Term and Quarterly (minimum three) converted into 20.		20
2. Assignment	1. Awareness of the content 2. Comprehensiveness of the content 3. Systematic and sequential arrangement 4. Observation/suggestions/Views Judgements/ Evaluation 5. Timely Submission	4/3/2/1 4/3/2/1 4/3/2/1 4/3/2/1 4/3/2/1	20
3. Seminar	1. Ability to plan and organise 2. Skills in the collection of data 3. Awareness of the content (presentation of the paper, participation in discussion, ability to substantiate the ideas and views) 4. Ability to prepare the report (sequence in the presentaionof the concepts, authenticity and clarity of ideas/views/concepts) 5. Quality of Seminar Document	4/3/2/1 4/3/2/1 4/3/2/1 4/3/2/1 4/3/2/1	20
4. Project	1. Ability to plan (Selection of the method for solution of the problem, identifying suitable tools, planning the various activities to be carried out in each stage) 2. Ability to collect data (sufficiency and Relevance of data. Classification and arrangement of data for analysis, reliability and authenticity of the Collected data.) 3. Ability to analyse the elements and procedure (Structuring of elements and developing logic. Efficiency in using the package/tool. Recognising design errors and correcting them) 4. Ability to prepare the project report (Reflection of the process skills. Communicability and authenticity of the report in relation with the Project diary 5. Viva Voce(Knowledge of the content and Process)	4/3/2/1 4/3/2/1 4/3/2/1 4/3/2/1 4/3/2/1	20

CE item calculation

Subject		item: Assignment					Total Score (20)
Sl. No	Name	Evaluation Indicators					
		I (4)	II (4)	III (4)	IV (4)	V (4)	
1	Anand	2	3	4	4	4	17
2	Shibu	4	3	4	4	4	19

Total CE calculation

Sl. No	Name	CE Items			Total (60)	Total CE Out of 20
		1 Class Test (20)	2 Assignment (20)	3 Seminar/ Project (20)		
1	Anand	18	17	19	54	18
2	Shibu	20	19	18	57	19

Terminal Evaluation (TE)

Terminal Evaluation is in written form. The test should not be aimed to test the memory alone. The terminal evaluation questions give more emphasis on application level, analysis and synthesis. The questions are framed so that the students are able to apply their different mental process. The maximum score is 80 and the minimum score of TE is 24 (30%).

Subject Consolidation

Sl. No	Name	CE (20)	TE (80)	Total CE+ TE (100)	Grade

The maximum score of CE + TE is 100 and the minimum score is 30(30%)

Practical Evaluation (PE)

The scholastic area includes those area in which the learner attain knowledge and skills based on the curriculum. This leads to create more interest on certain area of a subject. Emphasis should be given to each topic for learning activity and develop skills. In the practical Examination, the external Examiner is able to evaluate the skills that are attained by learning experiences. The practical Examination question paper is always activity based.

Practical Evaluation (PE) Items

Split up of Score

Indicators	Number of experiments	Score/ Experiment	Total score	Percentage
1. Identification & Handling of software	3	12	36	24%
2. Procedure	3	12	36	24%
3. Programming skill/ Designing Skill	3	10	30	20%
4. Result/ Output	3	6	18	12%
5. Viva			15	10%
6. Record			15	10%
		Total	150	100%

There should be minimum 3 experiments and each experiment should come from separate units.

Unit

1. OS/RDBMS-SQL
2. DTP PACKAGE
3. Graphic Editing Package

The maximum score of PE is 150 and the minimum score is 60 (40%)

Vocational Competency Evaluation (VCE)

Being a vocational course, a system to judiciously evaluate the required value addition and consequent capacity building in the selected vocational subject is highly essential. As the other evaluation components like CE, PE and TE cannot assess the vocational competencies and professional skills acquired by the students, an internship evaluation (IE) component has been introduced to meet

this requirement.

Internship evaluation should be done based on the following components.

I. Regularity and punctuality.

A regular presence and habit of time bound completion of task is a must for attaining maximum efficiency.

II. Value addition

Value addition can be evaluated through conducting field visits/survey. The experiences gained through field visit and survey increases the level of intrinsic motivation and positive attitude towards the vocational field and there by increase his value as a skilled semi- professional.

III. Capacity building

Capacity building can be evaluated through conducting the following activities.

1. OJT/Simulated experiment
2. Performance- Camp/ Exhibition/ Clinic.
3. Performance- Production/Service cum Training centre.

These components helps the students to practice the acquired skills in the real situation and there by increasing self confidence and promoting self reliance.

I. Regularity and Punctuality can be evaluated by 5 point grading system.

Rating scale

		1	2	3	4	5
1	Regularity	Never regular	Often regular	Usually regular	Most of the time regular	Always regular
2	Punctuality	Never Punctual	Often Punctual	Usually Punctual	Most of the time Punctual	Always Punctual

Regularity and punctuality can be assessed by using attendance of the student and time bound completion of tasks.

The aim of value addition is to measure the interest, devotion Group management, perseverance of the learner in specific areas Value addition can be evaluated from field visit, survey and simulated experiments.

Capacity building is aimed at measuring the skills of the learner from OJT/ production cum training centre/ research and development/graded area exposure.

The minimum score of VE should be 30. The VE score in the first year should be carried over to second year as vocational education is a continuous process.

VCE Item	Evaluation Indicators	Weightage	Score
1. Regularity and Punctuality			10
2. Value addition	<p>Field Visit</p> <p>1. Attitude and readiness towards the task.</p> <p>2. Capacity for observation.</p> <p>3. Data collection.</p> <p>4. Application of ideas.</p> <p>5. Documentation/ recording.</p> <p style="text-align: center;">OR</p> <p>Survey</p> <p>1. Planning.</p> <p>2. Data collection.</p> <p>3. Consolidation of data and analysis.</p> <p>4. Drawing inference.</p> <p>5. Reporting.</p>	<p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p>	20
3. Capacity building	<p>OJT/ Simulated Experiment</p> <p>1. Involvement/ Participation.</p> <p>2. Skills in doing work/ Communication skill.</p> <p>3. Time bound action.</p> <p>4. Capacity for observation, analysis and innovation.</p> <p>5. Documentation, Recording and display.</p> <p style="text-align: center;">OR</p> <p>Performance in camp/ Exhibition/ clinic</p> <p>1. Ability for planning and organising.</p> <p>2. Mastery of subject.</p> <p>3. Ability for communication.</p>	<p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p>	20

VCE Item	Evaluation Indicators	Weightage	Score
	4. Innovation.	4/3/2/1	
	5. Involvement/Social commitment.	4/3/2/1	
	OR		
	Performace in production/ service cum training centre (PSCTC)		
	1. Mastery of vocational skills.	4/3/2/1	
	2. Managerial capacity.	4/3/2/1	
	3. Promoting self confidence.	4/3/2/1	
	4. Innovative approach.	4/3/2/1	
	5. Promoting self - reliance.	4/3/2/1	

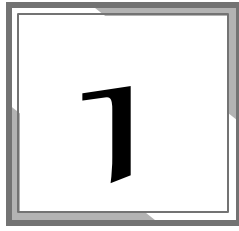
Vocational Competency Evaluation(VCE) Items (Internship Evaluation)

Items	Score
Regularity & Punctuality	10
Field visit/survey(any one)	20
OJT/simulated experiment	20
Performance- Camp/exhibition/ Clinic	
Performance- PSCTC (any one)	
Total	50

A minimum of 80% attendance is required for promotion to the second year. Those who have shortage of attendance should repeat first year. Those who have 80% and above attendance but failed to achieve 30% of internship evaluation (IE) will be promoted to the second year. He has to improve the component in which he performed poor. He has to attain the minimum by improving the particular component to get eligible for appearing second year public examination.

Section. A (Unit- wise Learning Activities; Theory)

1. Computer Fundamentals
2. Input Output devices
3. Data storage
4. Hardware and Software
5. Operating System
6. Computer language
7. Concept of DataBase.
8. RDBMS Package.
9. Concept of DTP
10. DTP Package.
11. Graphics Editing Package (Part-1)
12. Graphics Editing Package (Part-2)



COMPUTER FUNDAMENTALS

Introduction

Computer is a machine for making calculations automatically at a very high speed. It is used to control functioning of very complicated intelligent machines like robots, satellites etc. It has the ability to accept data, execute the program, perform mathematical and logical operations on data. The result of the operations can be reported as output. The learner is also introduced to the different classifications of computers. He/she should be able to classify the computer based on the basic features.

Curriculum Objectives

1. To understand the characteristics of computers through observation, discussion then prepare and present a list.
2. To understand the organisation of computers through observation and demonstration then, prepare a diagram.
3. To identify different types of computers through observation and references and, prepare a list of classification.
4. To familiarise different number systems and acquire the ability to perform various operations like conversions through practice. Develop methods for conversion through discussion and analysis.
5. To identify the relevance of character representation code being used in computers through discussion and get an idea about memory storage.

Syllabus

1. Introduction
2. Characteristics of computers- Advantages and Disadvantages
3. Organisation of computers
4. Classification of computers
 - i. General classification
 - ii. Classification based on Application
 - iii. Classification of Digital computers- Micro, Mini, Mainframe, Super

5. Number System

- i. Decimal
- ii. Binary
- iii. Octal
- iv. Hexa Decimal

6. Data representation- Bit, Byte, ASCII

Pre requisites

- Generic idea about data and information
- Basic knowledge about computer
- Concept of placevalue and Base.

Activities

1. Discussion on computers and its characteristics (1 hour)

- a. Problem: What is computer? What are the capabilities and in-efficiencies?
- b. Learners discuss in groups and defines computer. Then the characteristics are listed in terms of its capabilities and inefficiencies. Different points are noted on the board.
- c. Consolidation: The facilitator consolidates the discussion based on the following tips.

"Computer is an electronic device which accept data process data, gives out useful result"

Storage, speed, Accuracy, Reliability, Versatility, Diligence, No.I Q.

- d. Product: Subject Diary

2. Discussion on different units of computers (2 hours)

- a. Problem: What are the different units in a computer system?
- b. Learners list the units of the computer system individually.
- c. One or two students present their list and others add to it. The lists are supplemented with units that are not mentioned by the student.
- d. Consolidation: The facilitator consolidates the points.

In put unit, Processing unit. Out put unit, Memory unit

- e. Product; Subject diary.

3. Discussion on classification of computers (1 1/2 hours)

- a. Problem: Classify the computers generally and based on application. What are the types of digital computer?
- b. Learners discuss in groups and observe different computers used and the distinct points are presented (like computers in STD booth, supermarket etc)

- c. Consolidation: The facilitator consolidates the discussion point.

General - Digital, Analog, Hybrid
 Based on application - Special purpose, general purpose
 Digital Computer - Micro, Mini, Main Frame, Super

- d. Product; Subject Diary

4. Discussion on number system (20 mins)

- a. Class is divided into groups
- b. Each group is given a task to list out various number system, their base, positional value etc.
- c. Each group prepares the list and present it, then consolidate the entire findings in a chart.

Decimal
 Binary
 Octal
 Hexa decimal

- d. Product; Subject Diary

5. Familiarisation of place value concept in Decimal number system (15 mins)

- a. A decimal number is given to the class.
- b. Learners are asked to write the digits in its unit place, tens place and so on.
- c. List the MSD and LSD.
 Rewrite the number in terms of the digits and corresponding place value.

egs: - $168 = 1 \times 10^2 + 6 \times 10^1 + 8 \times 10^0$

- d. Product; Subject Diary

6. Discussion on conversion of Decimal to Binary (15 mins)

- a. Discussion on converting decimal to binary number through practice.
- b. A decimal number is given and the learners convert it into binary.

Eg. $4_{(10)} = 100_{(2)}$

2	4	
2	2	→ 0
2	1	→ 0
	0	→ 1

↑

- Class assignment on decimal to binary conversion.
- Develop conversion method.

- 7. Discussion on conversion of binary to decimal (20 mins)**
- Discussion on converting binary to decimal number through practice.
 - Learners convert binary number to decimal numbers.

(For eg- $1101_2 = 1 \times 2^3 + 1 \times 2^2 + 0 \times 2^1 + 1 \times 2^0$ and realise the role of 2 and find the sum)

 - Class Assignment on binary to decimal conversion
 - Develop the conversion methods
 - Product; Subject Diary, Assignment.
- 8. Binary number game (20 mins)**
- A group of 5 members is selected as number representation group. Members from other group suggest a number and accordingly this group represents the binary equivalent (By those who are in the 1's place standing and those who are in 0's place sitting)

Learners can easily practice the game during free period.
- 9. Discussion on decimal fraction to binary (20 mins)**
- Learners already know that a number say $(79.128)_{10} = 7 \times 10^1 + 9 \times 10^0 + 1 \times 10^{-1} + 2 \times 10^{-2} + 8 \times 10^{-3}$ and also the conversion of decimal number to binary. In the case of fractional part of the decimal number, keep on multiplying by 2 and collect the integer part of the product obtained. Finally read down (top to bottom)
Collect all such integer part (Note the difference in the case of ordinary decimal to binary it is reading up)

- Class assignment on decimal fraction to binary fractions
 - Develop conversion method
 - Product; Subject Diary, Assignment.
- 10. Discussion to convert binary fraction to decimal (20 mins)**
- As in activity 9 a, the decimal equivalent of 1101.101_2 is $1 \times 2^3 + 1 \times 2^2 + 1 \times 2^0 + 1 \times 2^{-1} + 0 \times 2^{-2} + 1 \times 2^{-3}$
 - Learners simplify such expressions and get decimal equivalent of a binary number.

- Class assignment on binary fraction to decimal fraction.
 - Develop conversion methods.
 - Product; Assignment
- 11. Discussion on decimal to octal conversion (15 mins)**
- Same way as that of decimal to binary conversion
 - Discuss the case of decimal to octal conversion, Learners reveal the fact that instead of division by 2, here it is 8 (the possible digits in the answer

are from 0 to 7)

- Class assignment on decimal to octal conversion.
- Develop conversion method.

c. Product; Subject Diary, Assignment

12. Discussion on octal to decimal conversion (15 mins)

- a. As in Activity 7 they easily conceive the idea through the discussion.
- b. Try to workout questions of this type.

- Class assignment on octal to decimal conversion.
- Develop conversion method.

c. Product; Assignment

13. Discussion on decimal to hexadecimal conversion (15 mins)

- a. In the same way as that of Activity 11, learners are able to convert a decimal number to its corresponding hexadecimal number.
- b. They note and list the points that the base is 16 and letter A to F represents 10 to 15 respectively.
- c. They also reveal the fact that when the base increases, less number of digits are enough to represent a quantity.

- Class assignment on decimal to hexadecimal conversion.
- Develop conversion methods.

14. Discussion on Hexadecimal to decimal conversion (15 mins)

- a. As in activity 7, they easily conceive the idea through the discussion.
- b. Try to workout questions of this type.

- Class assignment on hexa decimal to decimal conversion.
- Develop methods.

c. Product; Assignment

15. Discussion on conversion from binary to octal and hexadecimal number (20 mins)

- a. Learners know the fact that any octal digit can be represented by 3 bits and any hexadecimal digit can be represented by 4 binary bits.
- b. They list the grouping rules, eg: from right to left take 3 bits at a time to convert that binary number to its equivalent octal number.
- c. This process has to be continued till they reach the left most bit in the binary number (In the case of numbers without fractional part)
- d. In a similar fashion, take the group of 4 bit from right to get the hexadecimal equivalent of a binary number.

- Class assignment to convert many binary numbers to octal and hexadecimal numbers.
- Develop methods for conversion.

e. Product; Assignment

16. Discussion on coding system (1 hour)

- a. Identify the problem in representing characters within the computer.
- b. Introduce the possibility of designing binary codes for characters and introduce ASCII codes, Unicode.
- c. Facilitator consolidates the various coding systems.

Bit, Byte, Nibble, ASCII, Unicode.

d. Product; Subject diary.

Uni code

Unicode provides a consistent way of encoding text in many languages. The design of unicode is based on the simplicity and consistency of ASCII, but goes far beyond ASCII's limited ability to encode only the Latin alphabet. The unicode standard provides the capacity to encode all of the characters used in the written languages of the world. To keep character coding simple and efficient, the unicode standard assigns each character a unique numeric value and name. The unicode standard further includes punctuation marks, mathematical symbols, technical symbols, arrows etc. The unicode standard also reserves code for private use. Software vendors or users can assign these internally for their own characters and symbols or use them with specialised fonts.

The unicode standard defines three encoding forms that allow the data to be transmitted in a byte, word, or double word oriented format (ie, 8, 16, 32 bits per code) and can be efficiently transformed into one character without loss of data. All three encoding forms need at most 4 bytes (32 bits) of data for each character.

17. Discussion on measurement unit (1 hour)

- a. Problem: Identify the measurement units in computer.
- b. Learners discuss on various measuring units such as km, meter, kg, gram.
- c. Facilitator directs the findings to computer related measuring unit and consolidates

KB, MB, GB, TB and other relationship

Subject : Computer Application
Unit. 1 : Computer Fundamentals

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids	Products	Evaluation	Time
1. To understand the characteristics of computers through observation, discussion then prepare and present a list.	Speed Accuracy Storage Reliability Versatility Diligence No IQ	Observing Communicating Inferring.	Observing a working computer. Discussion Preparation and presentation of notes.	Computer	Subject diary	Participation in discussion	10 Hours
2. To understand the organisation of computers through observation and demonstration then prepare a diagram.	Input unit Processing unit Output unit Memory unit (Primary and secondary)	Observing Analysing Inferring	Discussion Demonstration	Computer	Diagram	Observing ability	

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids	Products	Evaluation	Time
3. To identify the different types of computers through observation and references then prepare a list of classification.	General Based on purpose. Classification of digital computers.	Observing. Searching. Classifying. Comparing.	Observation Reference. Comparison.	Computer. Pictures. Reference books.	Subject diary	Observing ability	
4. To familiarise different number system and acquire the ability to perform various operations like conversions through practice. Develop methods for conversion through discussion and analysis.	Various number system. Number conversion from one system to another.	Communicating. Analysing. Predicting. Inferring.	Discussion. Problem solving. Analysis.	Reference books.	Developing methods. Assignments.	Solving problems.	
5. To identify the relevance of character representation code being used in computers through discussion and get an idea about memory storage.	Bit, Nibble Byte ASCII Unicode	Communicating. Measuring.	Reference. Discussion.	Reference book.	Subject Diary.	Participation in discussion.	

2

INPUT AND OUTPUT DEVICES

Introduction

The learners have already learned about the organisation of computer system. In this unit computer peripherals have to be introduced. Learners have to identify various functions of these devices. He/she should be able to classify peripherals into various categories.

Curriculum Objectives

1. To identify and familiarise various input/output devices through discussion, observation and demonstration and conduct a seminar.

Syllabus

1. Introduction
2. Input devices
 - i. Key board
 - ii. Mouse
 - iii. Microphone
 - iv. OMR
 - v. Scanner
 - vi. Web camera
3. Output devices
 - i. Monitor
 - ii. Printer
 - a. Impact
 1. Dot Matrix
 - b. Non Impact
 1. Inkjet
 2. Laser

Pre requisites

- Basic knowledge about I/O Devices

- Function of I/O Devices.

Activities

1. Identify Input/Output Devices (1 hour)

- a. Problem: What are the input/Output devices that you have heard of?
- b. Each learner prepares a classified list of devices (input and output) in his book.
- c. One or two learners present their list and others add to it. The list are supplemented with the devices that are not mentioned.
- d. Facilitator consolidate the list.

In put devices	- Key board, Mouse, Scanner, Mic, Web camera, OMR, Joystick, Barcode Reader.
Output devices	- Monitor, Printer
Printer	- Impact Printer- Dotmatrix Non impact printer- Inkjet, Laser

- e. Product; Subject Diary

2. Seminar on input/output devices (3 hours)

- a. The uses and features of all devices should be presented by learners.
- b. Each learner, taking a seminar and prepare a seminar report and approval obtained before seminar presentation.
- c. After each seminar the uses and features of each device is consolidated and all learners prepare reports on it.

Learners observe the working of all input and output devices available in the computer industry.
--

- d. Product; Seminar Report

3. Discussion on difference between impact and non- impact printers

(1 hour)

- a. Learners distinguish between impact and non impact printers from real life experience and discussion.
- b. Facilitator consolidates the printing technologies.
- c. Consolidation: The facilitator consolidates the discussion point.

Impact	- Mechanical contact Slow process Low quality Much noisy
Non- impact	- No direct contact Fast process Good quality Less noisy

- d. Product; Subject Diary

Subject : Computer Application
Unit.2 : Input and Output Devices

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids	Products	Evaluation	Time
1. To identify and familiarise various Input/ Output devices through discussion, observation and demonstration and conduct a seminar.	Input/output devices	Communicating. Observing. Searching. Experience.	Observation. Discussion. Classification. Seminar. Demonstration.	Various Input/ Output devices. Reference Book.	Subject diary Seminar report	Participation in discussion. Observing ability. Presenting ability. Subject knowledge	5 Hours

3

DATA STORAGE DEVICES

Introduction

In the previous unit we had introduced some peripheral devices. Here Memory devices are presented through discussions and demonstrations so that the learner is able to distinguish them based on their uses and features.

Curriculum Objectives

1. To familiarise and classify various types of primary and secondary storage devices through observation, group discussion and prepare a chart.

Syllabus

1. Introduction
2. Primary Storage
 - i. RAM
 - a. SRAM
 - b. DRAM
 - c. SDRAM
 - e. DDRRAM
 - ii. ROM
 - a. PROM
 - b. EPROM
 - c. EEPROM
3. Cache Memory
4. Secondary Storage
 - i. Magnetic Storage
 - a. Floppy Disk
 - b. Hard Disk
 - ii. Optional Storage
 - a. CD
 - b. DVD

Pre requisites

- Basic knowledge of memory.
- General idea about secondary storage.

Activities

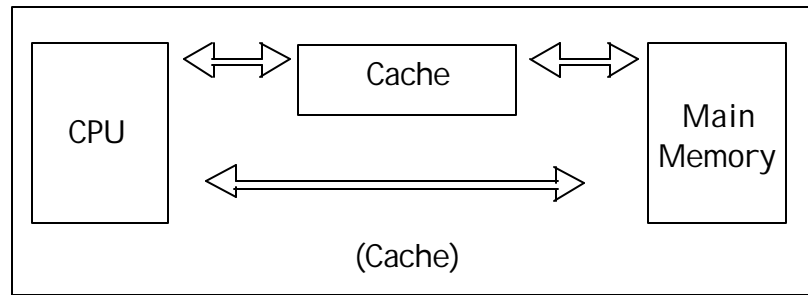
1. **Brain storming on memory** (1 hour)
 - a. Problem: How data is stored in computer? Where is it stored? How does it work?
 - b. After a group work one or two groups present their answer and other groups supplement to it.
 - c. Learners prepare notes on memory and a chart about various memories (Primary memory and secondary memory)
 - d. Product; Subject Diary

2. **Discussion on primary memory** (1½ hours)
 - a. In comparison with real life objects, facilitator introduces features and purpose of different categories of primary memory.
 - b. Learners prepare a list on different types of primary memory.
 - c. Facilitator consolidates the points.

Primary Memory	- RAM, ROM
RAM	- SRAM, DRAM, SDRAM, DDRAM
ROM	- PROM, EPROM, EEPROM
Volatile	- The term used for loss of data from memory, when power is off.
Non- Volatile	- The term used for retaining the data in the memory, when power is switched off.

- d. Product; Subject diary
3. **Discussion on RAM, ROM and CACHE** (½ hour)
 - a. Identify and list the difference between RAM and ROM.
 - b. Identify the role of cache memory through a diagram.
 - c. Learners prepare notes about cache memory.

RAM	- Volatile, Read/ write.
ROM	- Non volatile, Readonly.



d. Product; Subject Diary

4. Discussion on secondary memory (2hrs)

- a. Problem: Prepare a chart of permanent storage devices that is known to you. Mention their features.
- b. Learners listout the features of magnetic storage devices (Floppy Disk, Hard Disk) and optical storage Devices (CD, DVD) from the previous knowledge.
- c. Two or three Learners present their chart and list it.
- d. Consolidation: Facilitator consolidates the work.

- Magnetic Storage - Floppy Disk, Hard Disk
- Optical Storage - Compact Disk, DVD

e. Product; Subject Diary, Chart

Subject : Computer Application
Unit. 3 : Data Storage Devices

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids	Products	Evaluation	Time
1. To familiarise and classify various types of primary and secondary storage devices through observation, demonstration, group discussion and prepare a chart.	Primary storage. Cache. Secondary storage.	Observing Communicating. Classifying. Comparing.	Observation. Demonstration. Group Discussion. Comparison. Preparation of chart.	Reference book. Various storage devices.	Chart Notes	Observing ability. Ability to conduct group discussion.	5 Hours

4

HARDWARE AND SOFTWARE

Introduction

Computer is an electronic device. Learners have to identify various electronic components(Hardware) present inside the computer. Let them identify and present various hardware components. Learners also have to identify various categories of software. He/she must understand how these softwares helps to run or control hardware.

Curriculum Objectives

1. To identify the internal components of a computer through observation, demonstration.
2. To familiarise and classify various types of softwares through discussion and prepare a chart.

Syllabus

1. Hardware
 - i. Internal Configuration of Computer.
 - a. Mother board
 - b. Processor
 - c. RAM, ROM
 - d. PCI, Slots
 - e. Ports (USB,COM ports)
 - f. Cable, Cards
2. Software
 1. Types
 - a. System software and examples
 - b. Application software and examples
 - c. Installation

Pre requisites

- Basic knoweldge about Hardware and Software.

Activities

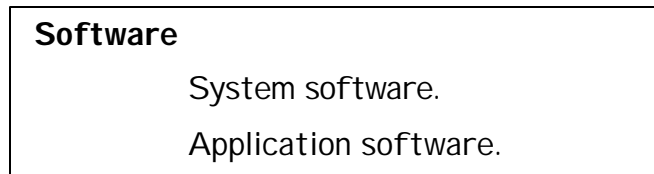
1. Demonstration and Observation of Hardware (5 hours)

Learner examines and identifies the following.

- Internal configuration of a computer system.
- Connection between different hardware components.
- Observe the Cable, Ports, Slots etc.
- Product; Notes

2. Discussion on types of software (3 hours)

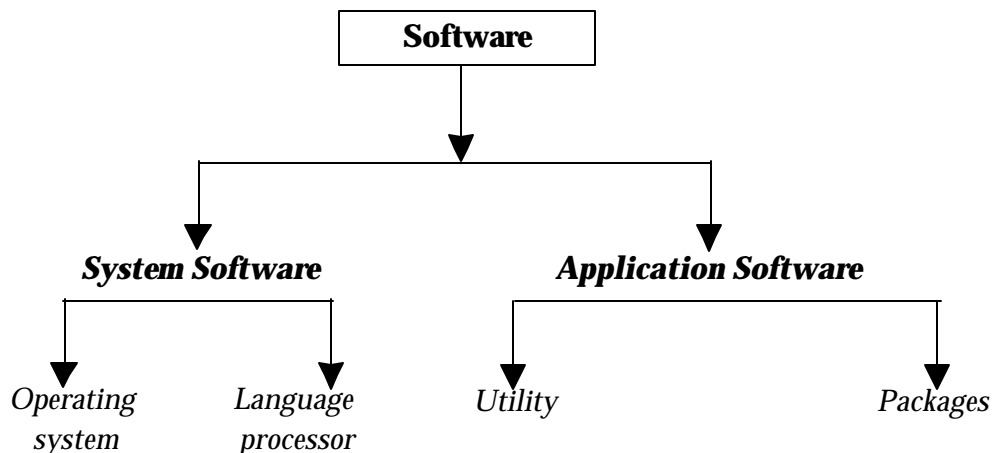
- Problem: Prepare a list individually in their books.
- Learners prepare a list individually in their books.
- Two or three learners present their list on the blackboard, which is supplimented by others and the facilitator. (as the list in reference book)
- Facilitator guides the learners. Broadly classify the lists into system software and application software and two separate list are prepared.
- Consolidation: The features of the two classification are;



- Product: Subject Diary

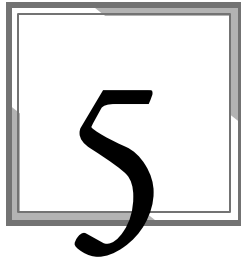
3. Discussion on various categories of system software and application software (2 hours)

- Let the learners suggest some names of softwares.
- Ask them to classify them into two categories.
- Facilitator defines operating system, language processors etc.
- Facilitator consolidates.



Subject : Computer Application
Unit . 4 : Hardware and Software

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids	Products	Evaluation	Time
1. To identify the internal components of a computer through observation and demonstration.	Hardware Software	Classifying Observing	Observation. Demonstration.	Various hardware components.	Notes	Observing ability.	10 Hours
2. To familiarise and classify various types of softwares through discussion and prepare a chart.	Type of software	Communicating	Classification. Preparation of chart.	Reference book.	Chart.		



OPERATING SYSTEM

Introduction

Computer works through system software namely operating system. Learners already know the importance and necessity of operating system. He/she must be able to identify various operating systems and observe their features.

Curriculum Objectives

1. To differentiate graphical user interface and character user interface using different operating systems and list their features by observation and practice.
2. To understand the various features of Linux through practical work and prepare notes.

Syllabus

1. Introduction
2. Functions
3. Modes
 - i. Batch processing
 - ii. Time sharing
 - iii. Real time
 - iv. Distributed
 - v. Multiprogramming
4. Case study
 - i. Dos
 - a. Internal commands
CLS, DIR, CD, MD, RD, Date, Time, VER, COPYCON, COPY, Type.
 - b. External commands
CHKDSK, Format, SYS, DISKCOPY, X COPY, DISKCOMP.
 - c. Batch files.
 - ii. WINDOWS

- a. Basic Elements
- b. GUI Features
- c. Windows Explorer
 - i. File and Folder management
 - ii. Editing
- d. Control Panel
- e. Printer Settings
- f. MS DOS Prompt
- iii. GNU/ Linux
 - a. Introduction
 - b. Hardware Requirements
 - c. File system structure

Pre requisites

- General idea about operating system.
- Basic knowledge about various operating systems.

Activities

1. Familiarising Operating system throug discussion (1 hour)

- a. Problem: List the features and functions of the operating system. Discuss about different modes of operating system.
- b. One or two learners present their notes. Other students suppliment it.
- c. Consolidation: The facilitator consolidates the list.

OS - Provide an interface, Assigning priorities, Managing I/O devices, Protecting hardware and software, file management.

Modes - Batch processing, Time sharing, Real time, Distributed multiprogramming.

- d. Product; Subject Diary

2. Familiarisation of character user interface (2hrs)

- a. Learners prepare notes about two types of DOS commands. They specify which are the internal commands and external commands.
- b. Learners identify the features of CUI and understands Batch files.
- c. Consolidation: Facilitator consolidates the list.

CUI - Non- graphical, command- driven, line - oriented.

Dos commands- Internal commands - commands in COMMAND.COM.

External commands - Independent executable files.

d. Product; Subject Diary

3. Familiarisation of GUI (1 hour)

- a. Learners listout GUI features.
- b. Consolidation: Facilitator consolidates the list.

GUI - Graphical, Menu driven, user friendly.

c. Product; Subject Diary

4. Practicing Installation of Windows (2 hours)

- a. Learners understand the installation through practice and understand file management, folder creation, windows explorer etc.
- b. Consolidation: Facilitator consolidate the above activity and give suitable guide lines to learners and then prepare notes.
- c. Product; Subject Dairy

5. Familiarisation of Linux operating system (1 hour)

- a. Discuss about history, hardware requirement and file system structure of GNU/Linux.
- b. Learner understands the above features and prepare subject diary.
- c. Consolidation; Facilitator consolidates above features.
- d. Product; Subject Diary.

6. Discussion on Multiuser environment in Linux (1 hour)

- a. Discuss about password settings, Home directory and file permissions.
- b. Learner understands the above features and prepare subject diary.
- c. Consolidation; Facilitator consolidates above features.

Pass word setting.
Home directory
File permission

d. Product; Subject Diary.

7. Familiarisation of File management in Linux. (1hour)

- a. Learners understand file management system through practice and list down the steps.
- b. Consolidation: Facilitator consolidates the above activity and give suitable guide lines and learners prepare notes.
- c. Product ; Subject Diary

8. Supporting Activity- debate. (1hour)

Topic - Free software v/s Proprietary software.

- Facilitator is the Moderator.
- Interested students can express their ideas.
- Participation is to be encouraged.
- Consolidates.
- Ask the students to list the advantages of free software.

b. Product; Report- Conclusion.

6

COMPUTER LANGUAGE

Introduction

In the previous unit we already discuss about different types of softwares. These softwares are developed using computer language. This unit covers the generation of computer languages and various translators. After completing this, learners will get an idea about languages and their translations.

Curriculum Objectives

1. To familiarise different computer languages through discussion and prepare notes.
2. To understand different types of translators through discussion and prepare an assignment.

Syllabus

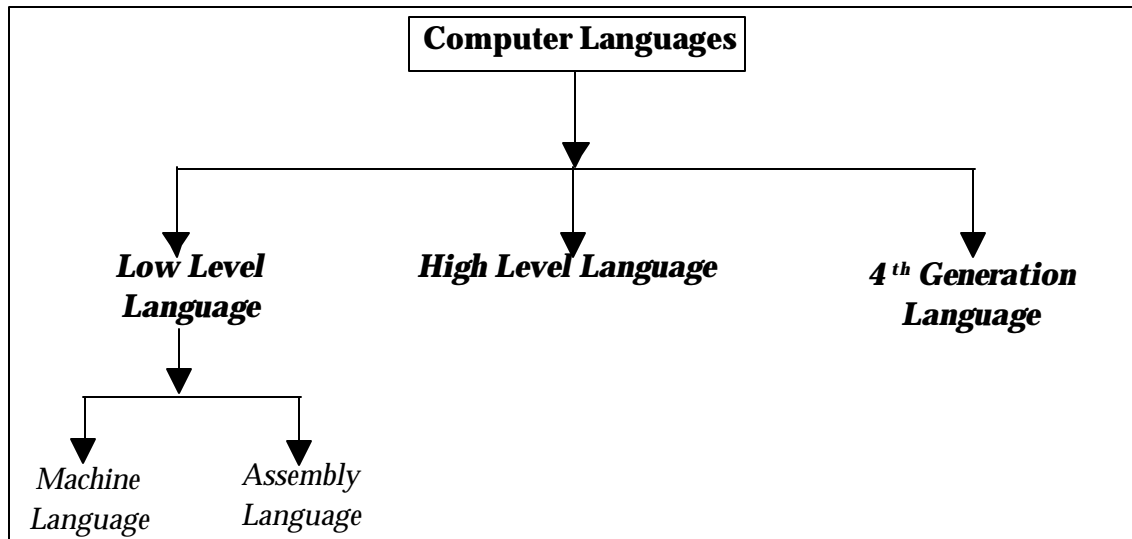
1. Low level language- Machine Language, Assembly language
2. High Level Language.
3. 4th Generation Language. (4GL)
4. Translators- Assembler, Interpreter, Compiler.

Pre requisites

- Basic Knowledge about computer languages.
- General idea about translators.

Activities

1. **Brainstorming on computer Languages (2 hours)**
 - a. Learners are introduced to the term High Level language and low level language.
 - b. Learners classify the computer languages and prepare a chart.
 - c. Consolidation



d. Product; Subject Diary, Chart.

2. Discussion on Language Processors (2hrs)

- Facilitator introduces compiler, assembler and its working through a discussion in comparison with interpreter.
- Learners prepare notes on interpreters.
- Consolidation points.

Compiler	- Translate whole programme.
Interpreter	- Line by Line translator.
Assembler	- Translate the assembly language programme.

d. Product; Subject Diary

3. Distinguishing Interpreter and compiler (1 hour)

- Problem: Differentiate the working of compiler and interpreter.
- Learners are divided into groups. They discuss and list the differences.
- A group is selected at random and a presentation is made. Other groups share their ideas and the list is consolidated by the Facilitator.

Compiler	Interpreter
• Scan the entire program	• Line by line translation
• Execution time is less	• Execution time is more
• Translation taken place only once.	• Object code cannot be stored in the hard disk.
• Slow debugging	• No. of translation = No.of Execution.
• Object code can be stored in the hard disk	• Fast Debugging.

d. Product; Subject Diary, Assignment

Subject : Computer Application**Unit: 6 : Computer Language**

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids	Products	Evaluation	Time
1. To familiarise different computer languages through discussion and prepare notes.	Computer languages. Machine language. Assembly language. High level language. 4 th Generation language. Translators.	Communicating	Discussion.	Reference book.	Notes Assignments.	Participation in discussion.	5 Hours
2. To understand different types of translators through discussion and prepare an assignment.		Classifying. Searching.	Comparison				



CONCEPT OF DATA BASE

Introduction

Today's organisations increasingly require complex analysis and reporting of data from different sources. Most of the data processing business organisations are file based, ie, the data are accumulated in files. In order that all the users can access the data with same quality and security, the duplication of files is kept to a minimum level. Normally all the files are integrated in the form of a database. Learners must have discussion on DBMS, field, record, relations, normalisations. This must provide a thorough idea about the management of database. So the learners are capable for handling huge amount of data manipulations.

Curriculum Objectives

1. To familiarise DBMS, field, record, file and database through discussion and prepare a note.

Syllabus

1. Introduction to Data, Database, DBMS, Field, Record, File.
2. Functions of DBMS.
3. Characteristics of DBMS.
4. RDBMS.

Relations, Domain, Tuple, Attributes, Cardinality, degree, primary key, Foreign Key, Null, Normalisation, Client/ Server Technology.

Pre requisites

- Precise knowledge about data and information.
- Idea related to the database application in Real life.

Activities

1. **Discussion on data base** **(1 hour)**
 - a. Problem: What is meant by data base.
 - b. A group of 5 learners are formed and teachers gives different topics like admission details, student details, staff details, score details, Course

details, SSLC details etc to each group and ask them to find out the fields.

- c. Each group discuss the details and present the fields to the class.
- d. Facilitator consolidate information in a table form. The table may contain:-

1. Admission details	- Application number, Name, Admission number, Date of Birth, House name, Joining date, Caste, Course, Parent name, Parent occupation.
2. Staff details	- Staff code, Name, Subject, designation.
3. Score details	- Admission number, class number, Total score.
4. Student details	- Class Number, Name, Date of Birth, parent name, House Name, Phone number, Course.
5. Course details	- Course code, Course name, Course head.
6. SSLC details	- SSLC reg.no, Name, Caste, Date of Birth, School name, Grade etc.

- e. Product; Presentation
- f. Learners list the difficulties (like repetition, data access delay) and comes out with computer based record keeping as a solution.
- g. Facilitator consolidate the discussion by defining database.

Data base- a collection of interrelated data.
Explain record, field, field name through example.

- h. Product; Subject Diary

2. Discussion on DBMS (1½ hrs)

- a. Problem: Define DBMS and explain its use.
- b. General discussion about the use of data base from the activity 1 of unit. 7.
- c. Facilitator consolidate with the following points

1. Database development
2. Database Integration
3. Database Maintenance
4. Application development

- d. Facilitator then define DBMS as,

Set of programs that enables user to develop, maintain, and integrate the database and helps in application development.
--

e. Product; Presentation and subject diary.

3. Discussion on function of DBMS (1 hour)

- a. Problem: Find out various functions of DBMS.
- b. Discuss the major functions of DBMS through any database package.
- c. Facilitator consolidate functions of DBMS as

1. Organise the data
2. Integration of data
3. Controlling the data storage
4. Data retrieval
5. Security

4. Discussion on the Relational Database (1½ hour)

- a. Conceptualisation of relation.
- b. Consider the activity 1 of unit. 7.
- c. Ask the learner to find out link between the tables. ie, find out similar columns in different tables.
- d. Ask the learner to give the same name for these columns. Let consider the whole table as a single object(database) and each table is considered as the element of that object.
- e. Each data item in a row is related to other data item in that row (All data item present in a row of course details table is a detail of one course)
- f. Ask the learners that how to indicate 'no value' (null) in the table (eg: Phone number.....)
- g. Facilitator consolidates

1. The linked table is known as relation
2. A row in a relation is known as tuple.
3. Number of tuples present in a relation is called cardinality of the relation.
4. Cardinality of a relation changes over time due to insertion and deletion of tuples.
5. NULL is a data item used to indicate unknown value.

h. Product; Subject Diary

5. Discussion on various keys present in RDBMS (1½ hours)

- a. Conceptualisation of Keys.
- b. Consider the above activity.
- c. Let the learners think about the role of column Staff number in 'Staff details' table, course code in 'Course details', admission number(or) Application number in 'admission details'.

- d. Let the learners say that the data item of those columns uniquely identifies the rows (tuples) in that relation.
- e. Facilitator consolidates

- Primary key is a column or a set of columns that uniquely identify the rows(tuples) in a relation.
- Primary key column cannot contains duplicate items.
- Null is not allowed in primary key.
- A column(or) set of columns in a relation that serves as primary key of another relation is known as foriegn key.
- The primary key and foreign key are used to link relations in a database.

- f. Product; Subject Diary.

6. Discussion on Normalisation (1hour)

- a. Conceptualisation of Normalisation
- b. Consider the activity 4 of unit. 7.
- c. Let the students findout repeated columns in the relational database.
- d. Let them findout learners name, course name, Parent name, date of birth etc. in two or more relations.
- e. Ask them to findout primary keys and foriegn keys in these relations.
- f. Ask them to link the relations without loosing any data or meaning.
- g. Facilitator consolidates;

- Un normalised relations causes redundancy and inconsistency.
- Give the normalised form of the Database.

- h. Prodcut; Subject Diary.

7. Discuss the meaning of RDBMS (1½hours)

- a. Conceptualisation of the relational Database and RDBMS.
- b. By considering the above concepts, Ask the learners about relational Database and “R” in RDBMS.
- c. Facilitator consolidate the relevent points.

- Relational database is a collection of time varing, normalised, independent relations each of which asigned to a unique name with a well defined structure. (ie, rows and comlumn)
- RDBMS is a set of programs used to manage Relational database.

8. Discussion on client- server technology (1 hour)

- a. Learners identify the concept of client server from real life. (eg. master-slave relationship in olden days)
- b. Learner writes notes about client server technology.
- c. Facilitator consolidates the relevant points.

- Client
- Server
 - File server
 - Web server

- d. Product; Subject Diary.

Subject : Computer Application**Unit.7: Concept of DataBase**

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids	Products	Evaluation	Time
1. To familiarise DBMS field, record, file and database through discussion and prepare a note.	DBMS. Uses. Function. Relation. Keys. Normalisation. Client/server technology.	Inference Communi- cating.	Discussion. Preparation of notes.	Reference books.	Subject Diary	Participa- tion in discus- sion. Notes prepara- tion.	10 Hours

8

RDBMS PACKAGE

Introduction

Database system is a computer based record keeping system. It acts as a backbone of any data processing activity. This unit explains how to create a database system using Oracle SQL. The features of SQL make creation and data manipulation easier. Data security is the corner stone of any database system. Through this unit learners are able to explain how data is stored and processed in a computer based information system. Learners are expected to apply this knowledge for the creation of a customised data base application like marklist.

Curriculum Objectives

1. To understand RDBMS Package through practice and discussion.

Syllabus

1. Introduction to RDBMS Package.
2. Data types.
3. DDL- Create, Alter.
4. DML- Delete, Insert, Update Select
5. DCL- Commit, Rollback
6. Querying
 - Distinct
 - Group by
 - Like
 - Order by
7. Simple Query
8. Function- Sum, average, count, min, max.

Pre requisites

- Basic knowledge about data base.

Activities

- 1. Need of database** (1/2 hour)
- Discussion on the need of database by posing real life problem(manual record keeping and its problem)
 - Facilitator list the difficulties(like repetition, data access delay etc) and come out with computer based record keeping as a solution.
 - Learner consolidates the discussion by defining database.
 - Product prepare subject diary.

- 2. Data collection** (1/2 hour)
- Learner collect information from the activity 1 of unit.7.
 - They write their own details in the book.
 - Write details on black board in tabular form.
 - Recollect the terms data, field, Record and introduce table.
 - Learner prepare subject notes.

- 3. Discussion on data types** (2 hours)
- Consider admission details from activity 2 of unit 8.
 - Facilitator ask learners to classify them according to the types.
 - Two or more learners present their list in the class.
 - Facilitator consolidates different data types.

- Char
- Varchar
- Longchar
- Date
- Decimal
- Float
- Number
- Smallint
- Integer
- Number

- e. Product: Subject Diary

- 4. Operation on DDL commands** (2 hours)
- Facilitator demonstrates creation, Insertion, deletion and modification of structure of table.
 - Learners practice it with example.

- Create table
- Alter table
- Drop table

- c. Product: Subject diary
- 5. Operation on DML commands (3 hours)**
- a. Facilitator demonstrate select, insert, update, delete operations in the content of a table.
- b. Learner practice it with example.
1. Select
 2. delete
 3. update
 4. Insert
- c. Product: Subject Diary
- 6. Operation on DCL (3hours)**
- a. Facilitator demonstrates commit, Rollback commands.
- b. Learner identify the working and features of these commands.
- c. Facilitator consolidates.
- Commit
Rollback
- d. Product: Subject Diary
- 7. Discussion on sorting and grouping (3 hours)**
- a. Learners recall sorting and grouping
- b. They compares it with the class attendance register.
- c. They also identify the idea of grouping learners seperately.
- d. Facilitator consolidate the discussion with commands.
- Distinct
Groupby
Like
Order by
- e. Product: Subject Diary
- 8. Discussion and Demonstration on queries (3 hours)**
- a. Discussion on difficulties in getting response in real life.
- b. Facilitator consolidates the discussions by introducing the term.
- c. Learner write different queries for database from reallife.
- d. Facilitator demonstrates queries in the lab.
- c. Learner practice query and prepare subject diary.
- 9. Discussion and demonstration on function (3 hours)**
- a. Discussion on mathematical learning
- b. Demonstration of functions in Oracle.

- c. Learner practice in the lab.
- e. Facilitator consolidates

Sum
average
count
min
max

Subject : Computer Application
Unit : 8 RDBMS Package

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids	Products	Evaluation	Time
1. To understand RDBMS Package through practice and discussion.	DDL. DML. DCL. Simple Query functions.	Experience. Communi- cation.	Discussion. Practice. Preparation of Queries.	Com- puter. RDBMS Package	Subject Diary	Practical knowl- edge and ability.	20 Hours

9

CONCEPT OF DTP

Introduction

DeskTop Publishing is undergoing a very significant development. Improvements in the technology of printers have made desktop publishing more practical. DTP is useful to produce high quality documents and the main advantage is the creative freedom. This unit deals with the basic concepts of Desktop publishing. So the learner should get a deep knowledge about document planning.

Curriculum Objectives

1. To acquire various features of publishing through discussion and reference. Then prepare a comparison list between DTP and conventional publishing.

Syllabus

1. Introduction.
2. Comparison between DTP and conventional publishing.
3. WYSIWYG.
4. Document planning.

Pre requisites

- Basic knowledge in DTP and conventional publishing.

Activities

1. **Discussion on conventional publishing and DTP (3 hour)**
 - a. Learners are divided in to groups.
 - b. Each group conduct a discussion about conventional publishing and DTP.
 - c. Each group present their conclusion.
 - d. Facilitator consolidates the conclusion with relevant points

Conventional Publishing

- Steps
- Advantages and Disadvantages

DTP

- Steps
- Advantages and disadvantages

e. Product: Conclusion report of Group discussion.

2. Identify the feature WYSIWYG (3 hours)

- Learner find out the WYSIWYG feature through observation.
- List down the findings in the subject diary.
- Facilitator consolidate the findings with relevant points.

WYSIWYG

What you see is What you get

d. Product : Subject Diary

3. Discussion about Document planning (4 hours)

- Learner identify the steps of document planning through discussion.
- Learners prepare a list about the steps.
- Facilitator consolidate the list with the following tips.

1. Document planning

Page layout

Margins

Header and Footer

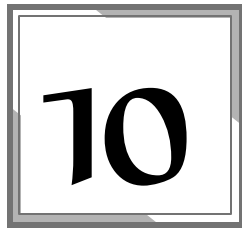
Fonts

Styling

d. Product : List.

Subject : Computer Application**Unit : 9 Concept of DTP**

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids	Products	Evaluation	Time
1. To acquire the various features of publishing through discussion and reference. Then prepare a comparison list between DTP and conventional publishing.	Conventional publishing. DTP. WYSIWYG. Frames. Document planning.	Communicating. Searching.	Discussion. Comparison.	Reference book.	List.	Participation in discussion.	10 Hours



DTP PACKAGE

Introduction

Now a days desktop publishing programs put more emphasis on graphic design and give more tools for designing pages. DTP packages supply more help with text manipulation. In this unit we discuss about a DTP package. This package automates all the steps in developing a printed document. It gives an idea about the process of laying out text and graphics, lines, boxes, pictures, drawing and colours on a page. So the learners are able to handle complex designs easily.

Curriculum Objectives

1. To understand various features like frame, Index, threading and TOC through practice and discussion. Then prepare a multipaged publication.
2. To get an awareness about the more advanced features like library, Table, Custom colours then prepare a logo on it.

Syllabus

1. Menu
2. Editors
3. Tool boxes
4. Frames
5. Threading
6. Style sheet
7. TOC
8. Index
9. Libraries
10. Table

Pre requisites

- General idea about designing
- Knowledge about DTP software.

Activities

1. Identify the Menu, Tools and editors of DTP Package (5 hours)

- a. List down Menu and Tools through practice.
- b. Find out the editors used in the package through observation.
- c. Learners submit the above list and notes.
- d. Facilitator consolidate the list and findings with required points.

Menu	- File, Edit, Layout, Type, Element, Utilities, Story, View
Tools	- Rotating, Cropping, Line, Constrained line, Rectangle, ellipse, polygon.
Editors	- Layout Editor, Story Editor

- e. Product : Subject Diary

2. Prepare an assignment on frames and threading (5 hours)

- a. Give the topic to the learner.
- b. Learner acquire the knowledge about frames from tools.
- c. They observe the idea about threading using long documents.
- d. Each learner should submit the assignments.
- e. Facilitator consolidates the assignment with required points.

Frame	- container for Text & graphics
Threading-	Concept of connecting the text blocks of different pages.

- f. Product: Assignment

3. Familiarising style sheet (5 hours)

- a. Learners prepare a list of different styles by discussion.
- b. Identify the method of defining new style through practice.
- c. Learners submit a note about style sheet generation based on the above knowledge.
- d. Facilitator consolidates the relevant points.

- | |
|--|
| <ol style="list-style-type: none"> 1. Head line or Heading style 2. Header and Footer styles 3. Bullet style for lists 4. Drop cap or Initial capstyle |
|--|

- e. Product: Subject Diary

4. Distinguish index and table of contents and Discuss Table (5 hours)

- a. The learner identifies the difference between index and TOC from real life experience.
- b. Learner recall the previous experience about table and practice it.
- c. Learner write notes about TOC, index, table in the subject diary.
- d. Facilitator consolidates the above things with relevant points.

- Index
- TOC
- Table

Discussion on libraries and custom colours

(5hours)

- a. Problem: How can we create a new library, opening an existing library and deleting a library?
- b. Learner understands custom color through practice.
- c. Learners are divided in to 5 or 6 groups and conduct a group discussion about libraries.
- d. Each group submit their findings.
- e. Facilitator consolidates the findings of different groups with required points.

- Libraries
 - Creation of new library
 - Opening an existing library
 - Deleting library
- colour palette
- custom colours

- f. Product : Subject Diary.

Subject : Computer Application**Unit : 10 DTP Package- I**

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids	Products	Evaluation	Time
<p>1. To understand various features like frame, index, TOC, threading through practice and discussion. Then prepare a multipaged publication (practical work)</p> <p>2. To get an awareness about the more advanced features like library table, custom colours then prepare a logo on it (Practical work)</p>	<p>Menus Editors Tools Features</p>	<p>Communicating. Experiencing</p>	<p>Discussion. Practice. Assignment.</p>	<p>Computer. DTP Package. Reference book.</p>	<p>Assignment. Multipaged publication Logo.</p>	<p>Participation in discussion. Subject knowledge.</p>	<p>25 Hours</p>



GRAPHICS EDITING PACKAGE PART-I

Introduction

Today's graphics editors has changed the nature of drawing and designing just as word processing software has changed the mechanics of writing. Graphics editors has become an essential tool in many industries. They are the part of the complex process of making colour separation, colour correction and photo retouching. In design field graphics editors are essential for producing illustrations. This unit will give a good start to the learners in the design field.

Curriculum Objectives

1. To understand the advantages of computerised photoediting over conventional method through discussion, observation and practice and then prepare a note.
2. To familiarise basic photoediting features through practice and prepare an assignment.

Syllabus

Graphic Editing Package Part- 1

Introduction

1. Menus
2. Tools
 - a. Editing Tools
 - b. Modification Tools
3. Scanning
4. Positioning
 - a. Rulers
 - b. Guides
 - c. Grids
5. Cropping

6. Scaling

Pre requisites

- Basic idea about conventional and computerised graphics editing.

Activities

1. Distinguish conventional & computerised photo editing (1 hours)

- a. Observe conventional and computerised photo editing.
- b. List down the difference in subject diary.
- c. Facilitator consolidates the observation points.

- Computerised photo editing
 - Speed
 - Perfection
 - Clarity
 - no chemical processing

- d. Product : Subject Diary

2. Discussion on Computer Graphics (2 hours)

- a. Learners identify differnt graphic method
- b. Learners identify the application of raster graphics
- c. Facilitator consolidates.

- Vector and Raster Graphics
- Application of Raster Graphics
 - digital photography
 - Web designing
 - Cinema
 - animation

- d. Product : Subject diary

3. Discussion on Raster graphics (2 hours)

- a. Learners identify common applications, file formats
- b. Learners identify the colordepth, Resolution
- c. Facilitator consolidates

Application
 Gimp/ photoshop
 File Format
 gif, png, Jpeg, Tiff
 Resolution
 dpi
 conversion
 Tip for 600 x 800 dpi screen and 200 dpi print

 Conversion is done as $\frac{600}{200} \times \frac{800}{200}$
 Colour depth
 8 bit, 24bit, 32 bit etc.

d. Product : Subject Diary

4. Discussion on digital colour models (2 hours)

- a. Learners identify the need of colour models, different colour models and the application
- b. Facilitator consolidates

Colour model
 RGB/ CMYK/ HSV (Hue, Saturation, Value) etc.
 Application of each models

c. Product : Subject Diary

5. Familiarisation of basic menus in photo editing (3 hours)

- a. Learners familiarise basic menus through practice.
- b. Learners list down the menus in subject diary.
- c. Facilitator consolidates the points.

Menus - File, edit, image, layer, select, filter, view, window, help.

d. Product : Assignment

6. Familiarisation of basic Tools in Photoediting (5 hours)

- a. Learners familiarise basic tools through practice
- b. Larners list down the tools in subject diary.
- c. Facilitator consolidates the points.

Tools - Marquee, Lasso, Crop, Stamp, Eraser, Blur, Selection, pen, Notes, Hand, Move, Magic wind, Slice, Brush, History brush, Gradient, Dodge, Type, Polygon, Eyedropper, Zoom etc.

d. Product : Assignment

Subject : Computer Application
Unit : 11 Graphics Editing Package Part- I

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids	Products	Evaluation	Time
<p>1. To understand the advantages of computerised photoediting over conventional method through discussion, observation and practice and then prepare a note.</p> <p>2. To familiarise basic photoediting features through practice and prepare an assignment.</p>	<p>Menus Tools Positioning Cropping Scaling</p>	<p>Communi- cating. Experience. Observa- tion.</p>	<p>Discussion. Practice.</p>	<p>Refernce Book. Photo Editing software.</p>	<p>Subject diary. Assign- ment. Print outs.</p>	<p>Participa- tion. Practical ability. Observ- ing abil- ity.</p>	<p>15 Hours</p>



GRAPHICS EDITING PACKAGE PART-II

Introduction

Now learners already know the basic features and how to do routine image editing tasks with graphics editor. They know their way around most of the menus, majority of the tools and perhaps a few more advanced features. This unit gives some expanded capabilities to the learners. So the learners will become a professional designer.

Curriculum Objectives

1. To Familiarise advanced photo editing features through practice and develop skills .

Syllabus

Graphic Editing Package Part- 2

1. Features of graphics editing software
2. Working with palettes
 - a. Arranging palettes
 - b. Grouping palettes
 - c. Choosing palettes option.
3. Using layers in the layer palette
4. Working with multiple layers.
5. Aligning and evenly distributing object.
6. Managing layers.
7. Paths
 - a. Path tools
 - b. Drawing paths
 - c. Editing paths
 - d. Converting paths
8. Creating Text
9. Formatting Text

10. Formatting Paragraph Text
11. Text effects
12. Filters
13. Applying quick mask

Pre requisites

- Basic knowledge about graphics editing software.

Activities

1. Familiarisation of palettes and layers (5 hours)

- a. Learners familiarise palettes and layers through practice.
- b. Learners prepare subject diary on working with palettes and layers.
- c. Facilitator consolidate the features.

Palettes	- Arranging palettes Grouping palettes Choosing palette options
Layers	- Managing layers Multiple layers

- d. Product : Subject Diary

2. Discussion on path and Text (5 hours)

- a. Learners familiarise different types of paths and Text formatting through discussion and practice.
- b. Learners prepare a subject Diary on Text effect.
- c. Facilitator consolidates the features.

Path	- Path Tools, Drawing paths, Editing paths, Converting paths.
Text	- Creating Text, Formatting Text, Formatting paragraph Text, Text effects.

- d. Product : Subject Diary

3. Familiarisation of Filters (5 hours)

- a. Learners familiarise different types of filters through practice.
- b. Learners prepare subject diary on filters.
- c. Facilitator consolidates the points.

Filters - Blur
Distort
Render
Sharpen

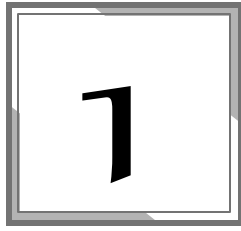
d. Product : Subject Diary

Subject : Computer Application
Unit : 12 Graphics Editing Package Part- II

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids	Products	Evaluation	Time
1. To understand advanced photoediting features through practice, discussion and develop skills .	Palettes layers Path Text Filters	Experience. Communi- cation.	Practice.	Reference Book.	Subject diary. Print out.	Participa- tion. Practical ability.	15 Hours

**Section. B (Unit- wise Learning
Activities; Practical)**

1. MS- DOS
2. W I N D O W S
3. GNU/ Linux
4. RDBMS
5. DTP Package
6. Graphics Editing Package



MS DOS

Introduction

Microsoft Disk Operating system is a non-graphical, line oriented- command-driven one. The DOS is introduced to manage the transfer of data from one disk to another. This section provides a basic knowledge about DOS commands and also deals with batch files. After completing this section, the learner is able to perform Operating System operations like file manipulations and application management.

Curriculum Objectives

1. To familiarise character- user interface through practice.

Syllabus

1. Internal commands
CLS, DIR, CD, MD, RD, DATE, TIME, VER, COPYCON, COPY, TYPE, REN.
2. External commands
FORMAT, CHKDSK, DISKCOPY, XCOPY, DISKCOMP, SYS.
3. Batch file creation and Execution.

Pre requisites

- Basic knowledge about operating system.
- Idea about basic computer operation.

Activities

1. **Demonstration of Internal Commands (4 hours)**
 - a. The learner practice different internal commands like CLS, DIR, CD, MD, RD, DATE, TIME, VER, COPYCON, COPY, TYPE, REN.
 - b. Prepare a table showing the functions of the above commands.
2. **Exercise on Internal Commands (4 hours)**
 - a. Problem: Create a directory structure which shows different departments in a school and let them create a file in any one of the directory and copy the file to another directory.

- b. Learners write commands for the above activity and submit.
 - c. Facilitator consolidate the practice with suitable guidelines.
 - d. Product; Record Book.
- 3. Demonstration of External commands (4 hours)**
- a. The learner practice different external commands like FORMAT, CHKDSK, DISKCOPY, XCOPY, DISKCOMP, SYS.
 - b. Prepare a table showing the functions of the above commands.
- 4. Exercise on External commands (4 hours)**
- a. Using a floppy disk, learner perform different external commands.
 - b. Facilitator consolidates the practice through relevant points.
- 5. Understanding Batch files (4 hours)**
- a. Learner create a batchfile for displaying “Hello World” on the Screen.
 - b. Facilitator consolidates the practice with suitable guidelines like executing a batchfile and features of AUTOEXEC.BAT.
 - c. Product; Recod Book

Subject : Computer Application (Practical)

Unit: 1 : MS DOS

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids	Products	Evaluation	Time
1. To familiarise character user interface through practice.	Internal commands CLS, DIR, CD, MD, RD, DATE, TIME, VER, COPY, COPYCON, TYPE, REN. External commands. FORMAT, CHKDSK, SYS, DISKCOPY, XCOPY, DISKCOMP. Batch files.	Experience.	Demonstration	Computer MS DOS	Record book.	Practical ability.	20 Hours



WINDOWS

Introduction

Graphical user interface is one of the most revolutionary changes that has taken place in modern computing system. It changed the use of computer from the concept of character- oriented- system to the more graphics- oriented system. Microsoft developed a graphical user interface WINDOWS which increases the accessibility and usability of computer system to the public. Windows being a graphical environment provides a more attractive interface because of its consistency across all application running under it. Learning this unit means knowing the essentials for using any other windows application.

Curriculum Objectives

1. To familiarise graphical user interface using windows through practice.
2. To acquire the method of installing windows through practice.
3. To acquire the knowledge of installing hardware component through practice.

Syllabus

1. Installation of WINDOWS.
 - Control panel
 - File management
 - Print manager
 - Internet explorer
2. Installation of Hardware components.
 - Sound card.
 - CD drive
 - Modem.

Pre requisites

- Basic knowledge of operating system.

Activities

- 1. Practice on file management (6 hours)**
 - a. Practice folder creation, folder and file copying, deleting file and folder, creating shortcuts, using my computer and windows explorer.
 - b. Facilitator consolidate the different activities available in windows.
 - c. Product; Record Book
- 2. Assignments on key board shortcut (6 hours)**
 - a. Ask the learners to listout the keyboard shortcut in windows operating system and its application.
 - b. Facilitator consolidate the list with commonly available keyboard shortcuts in windows.
 - c. Product; Record Book.
- 3. Practice on windows installation (6 hours)**
 - a. Facilitator demonstrate windows Installation and ask the learner to note the procedure.
 - b. Learner observes and practice it.
 - c. Product; Record book.
- 4. Practice hardware installation (6 hours)**
 - a. Facilitator demonstrates sound card, modem, CD drive installations and ask the learners to note seperate procedure for each installation.
 - b. Learner observes and practice it.
 - c. Product; Record Book.
- 5. Practice in Printer Installation (6 hours)**
 - a. Facilitator demonstrates printer installation and ask the learners to note the procedure.
 - b. Demonstrate network printer Installation and ask learner to make notes about it.
 - c. Learner observes and practice it.
 - d. Product; Record Book.

Subject : Computer Application (Practical)**Unit.2 : WINDOWS**

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids	Products	Evaluation	Time
<ol style="list-style-type: none"> To familiarise graphical user interface using windows through practice. To acquire the method of installing windows through practice. To acquire the knowledge if installing hardware component through practice. 	<p>Windows components.</p> <p>Control panel.</p> <p>File management.</p> <p>Print management.</p> <p>Intenet Explorer.</p> <p>Installation.</p> <p>Sound card</p> <p>Modem</p> <p>CD Drive.</p>	Experience.	Practice.	Computer Installation CD's.	Record book.	Practical ability.	30 Hours

3

GNU/Linux

Introduction

Learner already know about operating software like Windows, Disk Operating System. These are proprietary (copyright) operating system. In this unit we deal with a free operating system in Linux. Linux provide multiuser, multi tasking enviornment. After completing this unit learner will get an idea about free operating system and its operation.

Curriculum Objectives

1. To familiarise Linux operating system through practice.

Syllabus

1. Managing files.
2. Familiarising open office.

Activities

1. **Familiarizing with GNU/Linux operating system** (8 hours)
 - a. Navigating desktop
 - b. Starting/ using simple applications
 - c. Customising desktop
 - Changing Wall paper
 - Font
 - Themes
 - d. Facilitator consolidates the above activities
2. **Practice on file management** (7 hours)
 - a. Practice folder creation and file creation. copying, deleting file and folder, file permissions.
 - b. Facilitator consolidate the different activities available in Linux.

-
- c. Product; Record Book
- 3. Practice on Open Office (15 hours)**
- a. Practicing to create a document in open office.
 - b. Understanding writer, impress and calc.
 - c. Facilitator consolidate the different activities available in Linux open office.
 - d. Product; Record Book.

Subject : Computer Application (Practical)

Unit.3 : LINUX

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids	Products	Evaluation	Time
1. To familiarise Linux operating system through practice.	File management. Open Office.	Experience.	Practice.	Computer Reference book.	Record book.	Practical ability.	30 Hours

4

RDMBS PACKAGE

Introduction

Learner already have an idea about system software. In this unit learner goes through fourth generation language. Quick retrieval of information from huge table is a characteristic of an RDBMS. Data can be managed by the concept of RDBMS. This concept lead to the development of a variety of RDBMS package. By practising this package learner can able to manage large amount of data and tables which are related.

Curriculum Objectives

1. To understand RDBMS through practice.

Syllabus

1. Introduction
2. Data types
3. DDL - create table, Alter table.
4. DML - Delete, Insert, Update, Select.
5. Commit, Roll back
6. Quering- Simple (Queries)
Using Distinct, Group by, Like, Order by
7. Function
Sum, average, count, min, max.

Activities

1. **Exercise on DDL command** **(6 hours)**
 - a. Problem: Create a table with admission details.
 - b. Learner write commands for the activity and submit it.
 - c. Facilitator consolidate the practice with other suitable examples.
 - d. Add a new field using alter command.
 - e. Facilitator verify the practice.
 - f. Product; Record Book

- 2. Exercise on DML command (7 hours)**
 - a. Problem: Insert, delete, select the contents of a table used in above activity
 - b. Learner write the command for the activity.
 - c. Facilitator consolidate the practice.
 - d. Facilitator gives more examples for practice.
 - e. Facilitator verify the outputs.
 - f. Product; Record Book.

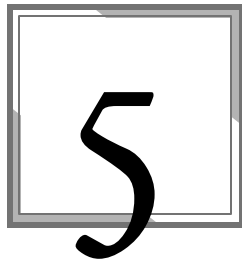
- 3. Exercise on COMMIT and Roll back (7 hours)**
 - a. Identify the working of COMMIT and Rollback.
 - b. Learner write the commands for the activity and submits it.
 - c. Facilitator consolidate the practice.
 - d. Product; Record Book.

- 4. Exercise on various Queries (10 hours)**
 - a. Problem: Various Queries with clauses.
 - b. Learner works on computer using various queries with groupby, distinct, where, like, orderby commands.
 - c. Facilitator verify the outputs.
 - f. Product; Record Book.

- 5. Exercise on functions (10 hours)**
 - a. Problem: working with functions.
 - b. Learner works with sum, average, count, min, max, functions.
 - c. Facilitator verify the output.
 - f. Product; Record Book.

Subject : Computer Application (Practical)
Unit. 4 : RDBMS Package

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids	Products	Evaluation	Time
1. To understand RDBMS through practice.	DDL command. Commit and Roll back. DML command. Clauses functions.	Experience.	Practice.	Computer. Software. Reference book.	Record book. Print-outs	Practical ability.	40 Hours



DTP PACKAGE

Introduction

DTP is useful to design and print professional quality type set document using personal computer. Here DTP package allows to specify the layout in great detail. DTP package handles all things of providing a camera ready printing. DTP package awards the designer boundless freedom in developing the document. By practicing this package, learner is able to create attractive and sharp product with accuracy.

Curriculum Objectives

1. To acquire method of installing a package through practice.
2. To familiarise a desktop publishing package through practice and prepare a project.

Syllabus

1. DTP package.
 - i. Menu
 - ii. Editors
 - iii. Tools
 - iv. Frames
 - v. Threading
 - vi. TOC
 - vii. Index
 - viii. Table
 - ix. Library
 - x. Style sheet
 - xi. Custom color
2. Creating Time Table
3. Wedding card creation.
4. Invoice creation.
5. Biodata creation.
6. Create news paper layout and advertisement.
7. Develop a multipage publication with TOC, Index, Tables and graphics.

Activities

1. **Practice on DTP package installation (10 hours)**
 - a. Provides DTP package installation CD to the learner.
 - b. Let the learner install the package using the CD.

- c. Facilitator examines and help them to install it properly with different methods. (custom, typical, compact installation.)
- 2. Demonstrate tools and features in DTP package (30 hours)**
 - a. Let the learner finds some features and tools available in DTP package and submit a list.
 - b. Facilitator consolidate all the findings of the learner and demonstrate extra tools or features available in the package.
- 3. Preparation of Biodata (20 hours)**
 - a. Learner design his/her biodata.
 - b. Learner collect the details needed in the biodata, design it and submit it to the facilitator.
 - c. Product; Record Book.
- 4. Preparation of Wedding Card (20 hours)**
 - a. Problem: design a given wedding card.
 - b. Learner designs the card given.
 - c. Facilitator verifies the output.
 - d. Product; Record book.
- 5. Invoice form of a company (20 hours)**
 - a. Problem: design a Invoice form of a company.
 - b. Learner design the form given.
 - c. Facilitator verify the output.
 - d. Product; Record book.
- 6. Creating Time table (20 hours)**
 - a. Facilitator provide knowledge about the table creation.
 - b. Ask the learners to develop the class time table.
 - c. Facilitator should encourage learner for much more modification.
- 7. Project: Preparation of booklet (30 hours)**
 - a. Problem: Prepare a note on DTP package used in your lab and make it as a booklet which containing TOC and Index.
 - b. Design the page with needed text, graphics etc.
 - c. Insert table of contents in the first page and Index in the last section of the booklet.
 - d. Product; Project report.
- 8. Project: News paper layout creation (30 hours)**
 - a. Problem: Prepare a news paperlayout in your lab.
 - b. Design the page with a sample news paper.
 - c. Facilitator verify the output.
 - d. Product; Project Report.

Subject : Computer Application (Practical)
Unit.5 : DTP Package

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids	Products	Evaluation	Time
<ol style="list-style-type: none"> To acquire the method of installing a software package through practice. To familiarise a DeskTop publishing package through practice and prepare a project. 	Installation. Tools. Frames. TOC. Index. Table. Libraries. Style sheets. Custom colours.	Experience.	Practice. Designing.	DTP software. Reference book.	Record Book. Project Report. Print outs.	Practical ability. Designing ability.	180 Hours

6

GRAPHICS EDITING PACKAGE

Introduction

Graphic editors have changed the nature of drawing and designing. Graphic editors has become an essential tool in many industries. They are important for producing illustrations. Graphics editing deals with complex processes like color seperation, colour correction, photomanipulation and photo retouching. This unit willl give a good exposure to the learners in the design field.

Curriculum Objectives

1. To familiarise basic photo editing features through practice.
2. To familiarise advanced photo editing features through practice and develop skills.

Syllabus

1. Introduction.
2. Menus.
3. Tools.
 - a. Editing Tools.
 - b. Modification Tools.
4. Selecting.
5. Positioning.
 - a. Rulers
 - b. Guides
 - c. Grids.
6. Cropping
7. Scaling.
8. Features of graphics software.
9. Working with palettes.
 - a. Arranging palettes.
 - b. Grouping palettes

- c. Choosing palette position.
- 10. Using layers in the layer palette.
- 11. Working with multiple layers.
- 12. Aligning and evenly distributing object.
- 13. Managing layers.
- 14. Paths.
 - a. Path Tools.
 - b. Drawing paths.
 - c. Editing paths.
 - d. Converting path.
- 15. Creating Text.
- 16. Formatting Text.
- 17. Formatting paragraph Text.
- 18. Text effects.
- 19. Filters.
- 20. Applying quick mask
 - Photo manipulation
 - Changing the background of a photo.
 - Changing the brightness and contrast of a photo.
 - Repairing Images.
 - Removing scratches in a photo.
 - Cropping Image.

Activities

- 1. Demonstration of tools and menu's (20 hours)**
 - a. Learners familiarise basic menus and tools through practice.
 - b. Facilitator consolidate the practice.
 - c. Product; Record book.
- 2. Familiarisation of advanced photoediting features (30 hours)**
 - a. Learners familiarise advance features through practice.
 - b. Facilitator consolidate the practice.
 - c. Product; Record book.
- 3. Changing the background of an Image (10 hours)**
 - a. Learners practice to change the background of an image by applying the Activities 1 and 2.
 - b. Facilitator verify the output.
 - c. Product; Record book.

- 4. Changing the brightness and contrast of an image (15 hours)**
 - a. Learners familiarise to change the brightness and contrast of an image by applying the activities 1 and 2.
 - b. Facilitator verify the output.
 - c. Product; Record book.
- 5. Removing scratches, wrinkles and red eye (15 hours)**
 - a. Learners practice to remove scratches, wrinkles and red eye by applying the activities 1 and 2.
 - b. Facilitator verify the output.
 - c. Product; Record book.
- 6. Editing the sky in different ways (15 hours)**
 - a. Learners familiarise to edit the sky in different ways by applying the activities 1 and 2.
 - b. Facilitator verify the output.
 - c. Product; Record book.
- 7. To wrap an Image around a 3D object (15 hours)**
 - a. Learners familiarise to wrap an image around a 3D object by applying the activities 1 and 2.
 - b. Facilitator verify the output.
 - c. Product; Record book.

Subject : Computer Application (Practical)**Unit.6 :Graphics Editing Software**

Curriculum Objectives	Concepts/ Ideas	Process Skills	Activities	Learning Aids	Products	Evaluation	Time
<ol style="list-style-type: none"> To familiarise basic photo editing features through practice. To familiarise advanced photo editing features through practice and develop skills. 	<ul style="list-style-type: none"> Menus and Tools. Palettes. Layers. Path. Text. Filters. 	Experience.	Practice.	<ul style="list-style-type: none"> Computer. Graphic Editing Software. Reference Book. 	<ul style="list-style-type: none"> Record Book. Print outs. 	<ul style="list-style-type: none"> Practical ability. Designing ability. 	120 Hours

MINIMUM REQUIRMENTS

Hardware

Pentium IV (1.7-2.4 MHz)

RAM- 128/256 MB

HDD- 40 GB

FDD- 3. 5''

CD Writer- 52x

Scanner

Monitor - colour 14''/15''

Multimedia - Keybord

Speaker, Mic, Head phone

Networking Lab (ethernet card, Hub)

Internet Facilities

NB: Hardware must be compatible with MS windows & GNU/Linux operating system

Software

DOS

Windows 98/ 2000/XP

GNU/Linux

Open Office

RDBMS- Oracle/MySQL

DTP Package- Pagemaker/open office

Graphic Editing - photoshop/GIMP

Part-2

Section. C

Sample Questions

SAMPLE QUESTIONS

1. Mr. Rajesh started a DTP centre list down the hardware and software facilities needed.
2. Can you change a primary key. Justify your answer.
3. While executing a BASIC program, the screen discribed only the partial output. List out the causes.
4. Write down the steps to insert photos or pictures in to a publication.
5. Explain the method of creating an ASCII file in MS- DOS.
6. Usually databases are not kept in optical storage devices. Discuss about the statement.
7. Output of a printer is called 'hardcopy'. Discuss the statement.
8. Compare a manual process and computerised process.
9. Compare LCD monitor and CRT monitor.
10. Primary memory is called internal memory and secondary memory is called external memory. Discuss the statement.
11. List the devices which helps us to get the result of operation from a computer.
12. Mr. Alex want to produce three printouts of his biodata. One orginal and Two carbon copy. Which printer he will select and why?
13. Dynamic Ram contain refresh circuits. Why?
14. Mr. Jestin want to transfer some information from his computer to office computer. List out the method he can prefer.
15. List the devices which helps us to provide data for processing in computer.
16. Mrs. Manju wants to store, 1.5 MB of data in floppy disk. Is it possible. Justify your answer.
17. Write steps to install DTP package in a system having less hard disk capacity.
18. Mr. Liju want to store 1GB of data in a storage device. Which types of storage device he will prefer.
19. Write down steps to define styles for 'header and footers' in a DTP package.
20. Write down steps to fit an image on a 3D graphics.
21. Structure the table required to computerise a medical shop.