ABOUT THE COURSE

The COMPUTER SCIENCE AND INFORMATION TECHNOLOGY aims to equip students the knowledge, skills and attitudes to become productive employees in the area of computer science and technology. In this course, students will gain a perspective to become a successful entrepreneur in Computer Science & Information technology and allied sector. If one love the Internet and have a creative mindset, be a professional in *web designing*.

Scope of the Course

The Computer Science and Information Technology course also provide students with the foundation for higher studies. Computer science and Information technology is one of the most significant growth catalysts for the Indian economy. Computer science and Information technology not only influenced the employment prospects of the people but also affected the social lives of the people through networking and social web sites. CSIT course certificate is approved for various posts notified by Kerala Public Service Commission (KPSC). The major employment opportunities are Data Entry Operator, Graphic Designer, Hardware Technician, Hardware Engineer, DTP Operator, Multimedia Technician, Junior Programmer, Network Technician, Network Engineer and Network Administrator etc.

Relevance of the Course

Many job opportunities in CSIT are emerged across the world. Upon the completion of the course, students will acquire skill and competent to enter in the upcoming job market. Much of the CSIT related activities are entered on service in IT Field, Banking, Tele communication, Networking, Programming, Web designing, etc.

JOB ROLES (CAREER PATH)

Endless job opportunities

Become part of the Internet digital revolution that has completely altered our daily lives: smart phones, Internet TV and radio and social networks, transferring billions of bits per second and connecting billions of people anytime, anywhere. Computer Science and information technology as one of the best and "hottest" career fields available today. Be a leader in Computer industry that solves problems intelligently. Design and create software for everything. Software Programmer ranks as the best job in the world. Be a part of breakthrough research in computer graphics and visual communication. Graphics make complex data patterns visible and create wonders on the screen.

Career Guidance and Counselling Cell

The Career Guidance and counselling cell provides comprehensive services to all vocational higher secondary students, primarily in the development and implementation of career and educational plans. The Career Guidance and counselling cell can help you determine a major, find internships or full-time jobs, build your resume and covering letter, practice interview skills, or network with employers.

LIST OF JOB ROLES

Government/Private Sector	Self Employment
• Hardware Technician	To become an entrepreneur in:
• Laptop Technician	• Computer Sales and Service Unit
• Network Technician	• Digital Photo Studio
• System analyst	• Album Designer
• CCTV operator	• Akshaya Kendra
• DTP Operator	• Flex Printing Unit
• Data Entry Operator	• DTP Unit
• Computer Graphics Designer Advertisement Designer	• Internet Cafe
	• Freelance Web Designer
• Junior Programmer	• Computer Education Centre
• Database Administrator	
• Software developer	
• Web Designer	
• Web developer	

SUBJECT APPROACH

Course Nature

The main objective of Vocational Higher Secondary Education is to make a self reliance society who are capable of being self employed, acquiring skills to get job as well as to obtain higher studies. In tune with the modular approach, the CSIT course consists of 4 modules. Each module contains 4 units. 2 or more job roles are identified in each module. Upon the completion of each module, skill certificate is awarded to students.

During each module there is a slot for discussing current trends and technologies related to that module. This section may be handled by an industrial expert or a subject expert.

1) PHILOSOPHY AND METHODOLOGY OF THE SUBJECT

1. Activity oriented

Learners gather information concretely and process it actively. They use their senses well in experiencing life and apply this CSIT Course to the practical world around them. Their strength is their flexibility and their ability to move out into the world and achieve results. They like freedom to act and can be fun-loving and adventurous.

Activity oriented learners enjoy plenty of physical involvement and hands-on experience. Verbal and visual works are more helpful to them than pen and paper work. They learn well when there is plenty of variety and new material, and conversely are not stimulated by routine and detail. They enjoy extra-curricular activities and the communal aspects of school life.

Activity-oriented learners like to be on good terms with the teacher. If their classroom needs are not met, they may try to change the system or opt out and get on with their own thing. Of all the types, they are the least concerned with evaluations.

These learners encourage experiential learning and their classrooms have a creative atmosphere with plenty of variety. They like to get alongside their studies and help them achieve their own objectives. They may not keep to the curriculum. They motivate by their enthusiasm and are themselves motivated by improving the community. People with this learning preference are often found in the

entertainment world, in marketing and sales, among business people, and in the social professions.

2.   Learner centered

Learner-centered education broadly encompasses methods of teaching that shift the focus of instruction from the teacher to the student. In original usage, Learner-centered learning aims to develop learner autonomy and independence by putting responsibility for the learning path in the hands of students. Learner-centered instruction in CSIT course focuses on skills and practices that enable lifelong learning and independent problem-solving. Learner-centered learning theory and practice are based on the constructivist learning theory that emphasizes the learner's critical role in constructing meaning from new information and prior experience.

Learner-centered learning in CSIT course puts students' interests first, acknowledging student voice as central to the learning experience. In a Learner-centered classroom, students in CSIT course choose what they will learn, how they will learn, and how they will assess their own learning. This is in contrast to traditional education, also dubbed "teacher-centered learning", which situates the teacher as the primarily "active" role while students take a more "passive", receptive role. In a teacher-centered classroom, teachers choose what the students will learn, how the students will learn, and how the students will be assessed on their learning. In contrast, Learner-centered learning requires students to be active, responsible participants in their own learning and with their own pace of learning.

Usage of the term "Learner-centered learning" may also simply refer to educational mindsets or instructional methods that recognize individual differences in learners. In this sense, Learner-centered learning in this course emphasizes each student's interests, abilities, and learning styles, placing the teacher as a facilitator of learning for individuals rather than for the class as a whole

3.   Outcome Focused

CSIT course Curriculum adopts an outcome-based approach and identifies clear statements of learning outcomes.

Main focus areas

- Hardware Installation and maintenance
- Laptop maintenance
- Network configuration
- CCTV configuration

- DTP with Malayalam
- Graphics design
- Computer Programming
- Cloud computing
- Web design
- Web hosting

CSIT course curriculum development has evolved which is relatively simple in concept, and appears to be easy to comprehend by students, teaching staff and visitors from other institutions. It provides a practical framework to acquire a suitable job role for each student

4. Skill oriented

Skill-oriented Approach education in the present day scenario has become a major focus in training and learning enhancement for many fields of education. Skill-oriented computer science and information technology course education seems to be a new concept in the teaching and learning approach. In the costumed way of imparting the computer science subject, both theoretical and practical contents are driven by the new and latest technology in industries day by day. CSIT course consist of 4 modules which contain more than 10 number of skills, some of them are

- Trouble shooting skill
- Hardware skill
- Assembling skill
- Installation and Maintenance skill
- Network configuration skill
- CCTV configuration skill
- Malayalam typing skill
- Desk top publishing skill
- Photo editing skill
- Graphics designing skill
- Programming skill
- Database designing skill
- Web designing skill
- Hosting skill, etc

5. Learning environment

Many of the modern learning environments being built today promote and support a range of pedagogies including delivering, applying, creating, communicating and decision-making. They are often centered around a student 'home base' where a lot of the teaching and learning occurs, and these bases provide access to a variety of other learning spaces. Modern learning environments in CSIT course support strengths-based teaching and can offer students and teachers flexibility, openness and access to resources. Providing teachers with an open, flexible learning environment where inquiries are shared, interventions devised collaboratively and reflections based on both self and peer observations, can lead to the development of a robust, continuously improving community of practice

CSIT course is a practical oriented course contains 4 modules, each module contain 70% of lab works which gives a good practical experience to our students

6. Learning strategy

We can improve the conditions for learning by being aware of some of the ways the brain works. Although we do not need to know a great deal about the brain, understanding some basics can help us to make the most of our minds. Some of the optimal conditions for learning are common sense and good for our general health. Self-confidence has a major impact upon our ability to perform well. Spending long hours studying is not necessarily productive. It is possible to gain better marks by studying more effectively rather than for longer. Most of this resource looks at ways of studying in more effective ways. To study effectively, you can:

Identify what is really needed

Study each module in CSIT course carefully. Work out exactly what is required for jobs. Time spent in preparation is well spent.

Work strategically

Set yourself clear goals and work towards these.

Make the material meaningful

Looking for 'the meaning' or how things work, rather than focusing on remembering information. Work with the material, looking at how it fits together and applies to different circumstances. If you develop your

understanding of the subject, it will help you to take in future material more easily. This makes reading easier. It also improves your memory for the subject.

Look for links

Be active in searching out links between different aspects of the programme. Look also for links between what you are learning and the wider world. This helps to develop understanding and memory.

Work with others

Work with other students so that you share ideas and gain mutual support. You may be able to share some research tasks and clarify your lecture notes. Studying with others makes study more interesting, as you gain a different set of perspectives.

Set yourself SMART-F targets

Targets should be:

- strategic: they assist you to achieve your goals
- measurable: you can tell when you have completed them
- achievable: you are likely to succeed in meeting them
- realistic: they fit the circumstances
- time-bound: you have a set time to meet
- Flexible: you can adapt them if the circumstances change.

Look for shortcuts

Look for reasonable short-cuts that do not compromise your studies. For example:

- avoid unnecessary tasks such as writing notes out neatly
- use abbreviations in your notes
- write assignments onto a computer if possible rather than writing them out by hand and then typing them up
- Focus your notes around themes and questions rather than making long notes that you do not really need.

2) LEARNING RESOURCES

Learning resources in CSIT course are texts, videos, software, and other materials that teachers use to assist students to meet the expectations for learning defined by provincial or local curricula. Before a learning resource is used in a classroom, it must be evaluated and approved at either the provincial or local level. Evaluation criteria may include curriculum fit, social considerations, and age or developmental appropriateness.

3) USE OF ICT POSSIBILITIES

Our society raises some fundamental issues and questions whether ICT is suited to transmitting knowledge, particularly to students who are not already highly motivated to learn or well versed in the art of using and interpreting information. For his analysis, he takes as a point of

reference the world of business and offers a brief look at the changes brought to the sector by ICT. Likewise, despite schools having more and more access to ICT, new technologies are still scarcely used as part of the teaching methodology. Once again, it is the lack of training that creates difficulties: many teachers do not have the necessary IT skills and feel uncomfortable, nor do they have the specific training needed to be able to use the new resources in the classroom.

We can use the following ICT tools for CSIT course

- Slide presentation
- Projector
- Animated CDs
- Smart Class room
- Educational Videos, etc

ICT has already made an important impact, whether in terms of teaching, research or administration; however, despite some exceptions, there are few real examples with educational models that are based on this technology and there is still an important social preference for traditional educational models.

4) INCLUSIVE EDUCATION

By providing students with the opportunities to receive a high quality education regardless of their social or cultural background, inclusive education is a new area that goes beyond traditional integration approaches. These approaches hope to provide the educative system with the ability to adapt to the diversity of its students. Children who face physical and mental challenges and those who experience learning difficulties have Special Education Needs. These issues include hearing impairment, eye-sight disorders, limitations of cognition, loco-motor disabilities, learning disability, autism, cerebral palsy, and multiple disabilities, lack of emotional equilibrium and attention disorders.

To make inclusive education a reality in the future by highlighting technological advances in applied e-learning, cognitive learning and education multimedia. Novel approaches to human-computer interaction are essential to make these contents available for every student regardless of their disabilities and learning styles.

5) APPROCH OF THE CONTENT

The students should undergo various learner-centered activities like assignment, project, lab work, seminar, field visit, and industry visit etc. for the learning of CSIT. For the teaching of CSIT course, utilize learner-centered and process oriented methods which suit the constructive paradigm. The CSIT course gives more importance to

acquire skill than to the content. The constructive pedagogy promotes various processes like

- Discovery learning
- Enquiry learning
- Co-operative learning
- Collaborative learning
- Introductive learning
- Problem based learning
- Activity oriented learning
- Project based learning

The above processes help learners to acquire skills and work culture and equip the learners with vertical mobility.

SYLLABUS

Module 1 : **Computer Hardware maintenance and Networking**

Unit No. : **1.1- Computer Fundamentals**

Role of computers, Characteristics of Computers, Evolution of Computers, Generations of Computer, Classification of computers, Organization of computers, Hardware Devices-(Input Devices, Output Devices, Memory Devices),Number system, Number conversion, Representation of: integer, floating point numbers ,characters, Different coding schemes, software, Types of Software, Operating system, Functions of Operating system, Examples of operating system platforms-(WINDOWS, LINUX, MAC, Android), E-Waste Handling, Green computing

Unit No. : 1.2 - Computer Installation & Maintenance

PC assembling, Basic electronic components in a PC-(IC chip, Diode, Resistors, Transistors, Capacitors),Identifying major Components of a PC-(Motherboard, Processor, Cooling Fan, RAM, Hard disk, DVD Drive Switch Mode Power supply (SMPS)), Steps for assembling a PC, Attaching Input output devices, Lap top servicing, Software installation(Various types of OS installation), Trouble shootingUnit No.

Unit No. : 1.3 - Network Configuration

Networking Concepts, Relevance of n/w, Needs of N/W, Types of N/W(LAN, MAN, WAN, Public N/w, Private N/w), Transmission Media-(Guided Media, Unguided Media), Networking Devices-(Modem, Switch, Hub, Router, NIC), N/W topology-(Bus, Star, Ring, Mesh, Hybrid), Networking Protocol-(TCP, UDP, FTP), IP addressing,IPV4/IPv6 addressing, IP address configuration, Subnet mask, Types of network configuration(Peer-Peer configuration, Client-Server Configuration), LAN configuration tools, Network Cables and connectors, Cable crimping and testing, Network interface devices(Ethernet card, Switch, Modem), Network configuration in windows OS, Network configuration in Linux OS, Trouble shooting

Unit No. : 1.4- Security System (CCTV) Configuration

Video Surveillance Systems, Selection of CCTV Camera, Indore & Outdoor CCTV cameras, Peripherals used-(Switch, DVR/NVR, Cables, IP Cams), Types of Transmission Media, CCTV Installation, Initial CCTV configuration, Network configuration of CCTV, trouble shooting

Module : DTP, GRAPHIC DESIGNING AND VISUAL COMUNICATION

Unit No. : 2.1 - Visual Communication

Introduction to Visual Communication, Need and importance of Visual Communication, Advantages & disadvantages of visual communication, Communication process, SMCR model of communication, Characteristics and functions of mass media communication, Types of visual aids, Applications of visual communications, Word processing package, Spread sheet package, Presentation package

Unit No. : 2.2- DTP- Package

DTP package basics, Conventional Publishing and DTP, WYSIWYG, Document Planning, DTP working Environment, Editors, Layout Editor, Story Editor, Formatting Text, Changing Font, Aligning Text, Frames& Threads, Working with graphics, Style sheet, Applying style, Libraries, Working with column, Table, Master Pages, Creating master page, TOC & Index, Document Preparation - Malayalam , Different Malayalam typing software, ISM Malayalam software, Keyboard Layout, Steps for preparing document in ISM, Managing and Printing a Publication

Unit No. : 2.3 - CorelDraw

CorelDraw basic, Images, CorelDraw Working environment(Title Bar, Menu Bar, Standard Tool Bar, Work area and Printable Area), Property Bar, Drawing Basic Geometric Figures-(Freehand lines, Joining free hand line, Bezier lines, Ellipse and circle, Rectangle and squares, Polygons) Views, Tool box, Selecting objects, Adding Effects-(Perspective Effect, Extrusion, Drop Shadow, Distortion, Transparency), Working with Text, Text Tool, Formatting Text, Text Editor, Working with images-(Importing, Resizing, rotating and skewing, Cropping, Adding effects, 3D effects, Art stroke, Blur, Colour transform, Distort, Noise, Sharpen, Exporting files to another application), mini project - news paper creation

Unit No. : 2.4 - Graphics editing package

Photo editing software, Colour Modes, changing colour modes, Graphics editing package program window (Title Bar, Menu Bar, Image Window, Image Title Bar, Status bar, Rulers, Palette, Tool box), Working

with Image Selection Tools, Transforming selection, Drawing and retouching tools, Painting tools, Drawing tool, Retouching tool, Working with text, Layers, Filters(Blur filter, Brush stoke filter, Distort filter, Noise filter, Lighting effects, Sharpen filter, Sketch filter),Printing, mini project - photo album design

LEARNING OUTCOMES

Upon completion of two modules, the learners will be able to:

Module 1 : Computer Hardware and Networking

Unit No. 1.1 : Computer Fundamentals

1.1.1	Identify the role of computers in different fields
1.1.2	Evaluate characteristics of a computer
1.1.3	Observe history of Computers
1.1.4	Observe generations of Computer
1.1.5	Analyze different types of computers
1.1.6	Analyze different types of computers
1.1.7	Classify various computers based on size and memory
1.1.8	Classify various computers based on application
1.1.9	Identify the functional units of a computer system
1.1.10	Discuss Input, Output and memory devices of computer
1.1.11	Understand different number system
1.1.12	Compare a number in one number system into a number in different number system
1.1.13	Understand different data representation in computer memory
1.1.14	Analyze different coding scheme
1.1.15	Discuss importance of software
1.1.16	Categorize various software
1.1.17	Understand needs and functions of an operating system
1.1.18	Analyze and compare different types of operating system
1.1.19	Debate the importance of e-Waste disposal and the learner's role in its disposal
1.1.20	Analyse the advantages of green computing

Unit No 1.2   : Hardware Assembling and Installation

1.2.1	Observe basic electronic components
1.2.2	Identify major parts in a PC
1.2.3	Understand the steps for assembling & attaching peripherals in a PC

1.2.4   Identify Diagnosing method & rectify Hardware and Software problems in laptop

1.2.5   Understand Installation of system software & application soft ware

1.2.6   Identify hardware & software problems and also rectify it.

Unit No 1.3   : Network Configuration

1.3.1   Understand the relevance of computer network

1.3.2   Classify different types of network

1.3.3   Discuss different features of each transmission media.

1.3.4   Analyze different types of communication devices

1.3.5   Compare different types of network topologies

1.3.6   Understand different types of network protocols and its use

1.3.7   Discuss the need for IP address

1.3.8   Classify the types of IP address

1.3.9   Compare IPV4 and IPV6 addressing scheme

1.3.10   Discuss IP address configuration and subnet masking

1.3.11   Discuss the importance   peer -peer Network communication and Client - Server configuration

1.3.12   Analyze different types of network configuration tools

1.3.13   Discuss the different colour codes

1.3.14   Apply cable crimping & cable testing

1.3.15   Understand different types of network devices

1.3.16   Apply network configuration in windows OS

1.3.17   Apply network configuration in Linux OS

1.3.18   Identify Diagnosing method& rectify problems in network

Unit No 1.4 : Security System (CCTV) Configuration

1.4.1   Discuss the Video Surveillance Systems and its area of usage

1.4.2   Analyze different configuration of CCTV Camera

1.4.3   Identify peripherals available in the Security Systems

1.4.4   Discuss transmission medias used in security systems

1.4.5   Analyze monitors and CCTV resolution

1.4.6   Analyze different connections of CCTV Camera

1.4.7	Discuss CCTV initial configuration
1.4.8	Apply network configuration of CCTV
1.4.9	Diagnose and rectify the problems in CCTV
1.4.10	Current trends and technologies in network configuration, Desktop and laptop
1.4.11	Trouble shooting and security systems

Module : 2. DTP AND GRAPHIC DESIGNING

Unit No. : 2.1 - Visual Communication

2.1.1	Discuss about visual communication
2.1.2	Understand the need and importance of visual communication
2.1.3	Analyze advantages and disadvantages of visual communication
2.1.4	Understand communication process
2.1.5	Understand SMCR model of communication
2.1.6	Discuss characteristics and functions of mass media communication
2.1.7	Classify types of visual aids
2.1.8	Discuss application of visual communication
2.1.9	Explore and work with different features of word processing package
2.1.10	Explore and work with different features of table management
2.1.11	Insert and work with pictures in a document
2.1.12	Sent same document to multiple addresses
2.1.13	Use basic formatting and data entry features in spreadsheet package
2.1.14	Discuss Formulas and functions in excel
2.1.15	Apply Work with graphics
2.1.16	Create and manipulate charts in excel
2.1.17	Discuss header and footer option
2.1.18	Setup page layouts and print worksheet
2.1.19	Create new presentation and apply basic formatting features in presentation Software
2.1.20	Understand the use of master slide

2.1.21   Create and manipulate table

2.1.22   Work with objects

2.1.23   Work with audio and video

2.1.24   Use special effects in presentation package

Unit No. : 2.2 - DTP Package

2.2.1   Differentiate conventional Publishing and Digital printing understand WYSIWYG concept

2.2.2   Apply the steps for prepare a document in DTP package

2.2.3   Familiarize the desktop environment of DTP Software

2.2.4   Differentiate the editors available in DTP package

2.2.5   Compare the functionalities of Layout editor and Story editor

2.2.6   Understand and apply formatting tools

2.2.7   Understand the importance and use of frames and threads

2.2.8   Apply graphic tools in DTP package

2.2.9   Understand and apply style sheet in DTP package

2.2.10   Analyze and apply libraries in DTP package

2.2.11   Prepare multi column documents

2.2.12   Understand and apply tables in DTP package

2.2.13   Understand the importance of master pages in DTP package

2.2.14   Create TOC and Index in DTP package

2.2.15   Discuss various regional language software

2.2.16   Understand installation of ISM software

2.2.17   Apply Malayalam keyboard layout

2.2.18   Expertise in Malayalam document preparation

2.2.19   Hand-on-experience on printing booklets in Malayalam

Unit No. : 2.3 - CorelDraw

2.3.1   Compare bitmap image and vector image

2.3.2   Understand and apply components available in Corel draw working Environment

2.3.3   Understand and analyze components of property bar

2.3.4   Hand-on-experience on drawing figures in Corel draw

2.3.5   Understand and Analyze views available in CorelDraw

2.3.6   Discuss different tools in Corel draw

2.3.7   Understand and Analyze selection tools

2.3.8   Apply various effects in Corel draw

2.3.9   Understand and analyze various text tools in Corel draw

2.3.10   Hand-on-experience on different effects and filters in Corel draw

2.3.11   mini project - news paper creation

Unit No. : 2.4 - Graphics editing package

2.4.1   Identify different photo editing software

2.4.2   Discuss different colour modes used in Graphics editing package

2.4.3   Understand components available in Graphics editing package working environment

2.4.4   Apply image properties

2.4.5   Understand and apply selection tools

2.4.6   Hands on experience in painting, drawing and retouching tools

2.4.7   Understand and apply various formatting text tools

2.4.8   Understand and apply with layers

2.4.9   Understand and apply various filters available in Graphics editing package

2.4.10   Apply printing booklet

2.4.11   Understand Current trends and technologies in visual communications, photo editing packages, Documents preparation software etc

2.4.12   mini project - photo album design

SCHEME OF WORK

MONTH	NAME OF UNIT	PERIODS
Jun/Jul	Computer Fundamentals	50
July/Aug	Computer Installation &Maintenance	140
September	Network Configuration	100
October	Security system(CCTV) Configuration	50
November	Visual Communication	80
Nov/Dec	DTP Package&DTP(Regional Language)	90
January	CorelDraw	60
Jan/Feb	Graphics Editing Package	110

COURSE STRUCTURE

This course will consist of 4 modules such as:-

- **MODULE 1**
  - ➤ Computer Hardware and Networking
- **MODULE 2**
  - ➤ DTP , Graphic Designing and Visual Communication
- **MODULE 3**
  - ➤ Database Design and Object Oriented Programming
- **MODULE 4**
  - ➤ Web Designing

CLASSROOM ACTIVITIES

Classroom activities are an integral part of this programme and interactive teaching sessions, followed by discussions should be conducted. Teachers should make effective use of a variety of instructional aides, such as

- Product presentation through PowerPoint
- Videos
- Exhibits
- Handouts
- Recorded Compact Discs
- Demonstration
- Charts
- Diagrams
- Animated CDs
- Discussions
- Simulation
- Observation
- Seminar by outside personality

PRACTICAL ACTIVITIES

Activities that provide practical experience through

- Case Studies
- Lab Work
- Interaction with Industrial Experts
- Field visit
- Production-cum-training centre
- Job training
- Vocational Expo

ON THE JOB TRAINING

On-the-job training (OJT) occurs whenever more experienced employee or supervisor teaches less experienced person on how to do one or more tasks of a job. The training utilizes actual equipment and materials. OJT should be undertaken in a structured manner with a training plan under the supervision of an experienced trainer or supervisor. A training plan that reflects tasks to be performed and competencies to be imparted should be prepared and signed by the student, teacher, and supervisor at the workplace for training of the students in the organization/ industry. The trainer should break down all the steps of the job and train the students as per the training plan.

In a structured OJT the Instructor or the trainer tell, show, demonstrate, and explain. The trainer gives an overview of the task while explaining the constructional details and use of the tools, equipment, materials, etc. in performing the tasks. While demonstrating, the trainer explains why each step is done in the way it is done. It involves direct trainee participation. The trainer monitors the progress on a checklist of competencies and offers feedback and pointers where and when needed. The trainee practices with clearly defined targets for performance standards.

On the Job Training in CSIT

There should be one week OJT mandatory during each module. OJT firm should satisfy the needs of job role in each module.

OJT can be conducted in the following firms.

Government: Corporation, Panchayat, CDIT, KELTRON, ER&DC, CDAC, ISRO, VSSC, KMML

Private firms: Akshaya Kendra, Techno Park, Info Park, IT Parks, DTP Centre, Flex Printing Unit, Digital Studio, Graphic Designing centres, Internet Cafe, Advertising Agencies, News Paper, Medias and other private/public sector firms.

CERTIFICATION OF SKILLS IN EACH MODULE

- Skill Certificate in Computer Hardware, Networking and security systems(CCTV)
- Skill Certificate in DTP, Graphic Designing and Visual Communication.
- Skill Certificate in computer Programming and Database Designing
- Skill Certificate in Web Designing and hosting

MODULE 1

COMPUTER HARDWARE MAINTENANCE AND NETWORKING

340 Periods

OVERVIEW OF THE MODULE

This module imparts the computer fundamentals and equips the students to identify the different parts of a computer system. Upon the completion of this module, students will be able to assemble a new PC, troubleshoot desktop and laptop. Also he will be able to configure

Computer network and CCTV.

List of expected skills

- Hardware technician
- Laptop technician
- Network technician
- Network administrator
- CCTV technician#

Unit No.	Name of units	Periods
1.1	Computer Fundamentals	50
1.2	Computer Installation& Maintenance	140
1.3	Network Configuration	100
1.4	Security system(CCTV) Configuration	50
	TOTAL PERIODS	**340**

30% periods-theory sessions and 70% periods-practical activities

Module 1 : Computer Hardware Maintenance and Networking

Unit : 1.1- Computer Fundamentals   **(50 Periods)**

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
Role of computers **Skills** • Observing • Discriminating	• The learner will be able to: Identify the role of computers in different fields	• Discussion • Field Visit	• Notes in activity log
Characteristics of Computers **Advantages** • Speed • Accuracy • Storage • Reliability • Versatility • Diligence **Disadvantages** • No IQ • Lack of decision making capacity **Skills** Comparison	• Evaluate characteristics of a computer	• Group discussion	• Conclusion • Notes in activity log
Evolution of Computers • Abacus	• Observe history of Computers	• Teach	• Photographs

Module 1 : Computer Hardware Maintenance and Networking

Unit : 1.1- Computer Fundamentals (50 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment

• Analytical Engine
• Stored Program Concept
• ENIAC
• EDVAC
• EDSAC
• UNIVAC
Skills
• Observation
Generations of Computer
• First Generation computer
  Vacuum tubes
• Second Generation computer
  Transistors
• Third Generation computer
  IC chips
• Fourth Generation computer
  LSI, VLSI
• First Generation computer
  AI, Virtual Reality
	• Observe generations of Computer	• Teach	• Photographs

Skills • Observation • Classification • Comparison **Classification of computers** **General Classification** • Digital Computers • Analog Computers	• Analyze different types of computers	• Classify	• Chart

Module 1 : Computer Hardware Maintenance and Networking　　**Unit : 1.1- Computer Fundamentals**　　**(50 Periods)**

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
• Hybrid Computers Classification according to size and memory • Micro Computers • Mini Computers • Mainframe Computers • Super Computers Classification according to application • Special Purpose Computer • General Purpose Computers **Skill** • Analysis • Comparison	• Classify various computers based on size and memory • Classify various computers based on application		
Organization of computers • Input Unit • Memory Unit • CPU • Output Unit **Skills** • Analysis • Comparison	• Identify the functional units of a computer system	• Teach Discuss	• Diagram
Hardware Devices Input Devices • Keyboard • Mouse	• Discuss Input, Output and memory devices of computer	• List	• Notes in activity log photographs

Module 1 : Computer Hardware Maintenance and Networking

Unit : 1.1- Computer Fundamentals

(50 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
• Scanner • OMR • BCR **Output Devices** • Monitor • Printer • Speaker • Plotter **Memory Devices** **Primary Memory** • RAM • ROM **Secondary Memory** • Hard Disk • CD • DVD **Skills** **Analysis**			
Number system • Decimal • Binary • Octal • Hexadecimal **Skills** Observation Comparison	• Understand different number system	• Interactive lecturer Sketch	• Notes in the activity log illustration

Module 1 : Computer Hardware Maintenance and Networking

Unit : 1.1- Computer Fundamentals

(50 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
Number conversion • Decimal to binary • Decimal to Octal • Decimal to Hexadecimal • Binary to decimal • Octal to decimal • Hexadecimal to decimal • Binary to Octal • Binary to hexadecimal • Octal to binary • Hexadecimal to binary **Skills** Conversion Arithmetic	• Compare a number in one number system into a number in different number system	• Interactive lecturer • Presentation • Discussion • Practice	• Notes in the activity log Assignment book
Representation of: • integer • floating point numbers • characters **Skill** • Observing • Classifying	• Understand different data representation in computer memory	• Demonstration • Presentation • Observe	• Class test
Different coding schemes • Bit, Byte, Nibble • ASCII • EBSCIDIC • UNICODE **Skill**	• Analyze different coding scheme	• Interactive lecturer • Compare • Discussion	• Notes in the activity log

Module 1 : Computer Hardware Maintenance and Networking   **Unit : 1.1- Computer Fundamentals**   **(50 Periods)**

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
• Classifying • Introduction • Importance of software **Skills** • Classifying • Comparing **Types of Software** System Software • Operating System • Language Processors **Application Software** • Packages • Utilities **Skills** Classifying	• Discuss importance of software	• Predict • Write	
	• Categorize various software	• Categorize	• Practical work diary
• Operating system • Functions of Operating system **Skills** Communicating	• Understand needs and functions of an operating system	• Listen • Observe	• Activity log • Practical work diary • Assignment
•**Examples of operating system platforms** • WINDOWS • LINUX • MAC • Android **Skill** Classifying	• Analyze and compare different types of operating system	• Identify • Classify • Categorize	• Notes in the activity log • Assignment book • Practical work

Module 1 : Computer Hardware Maintenance and Networking

Unit : 1.1- Computer Fundamentals   (50 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment

• E-Waste Handling
  • Recycling
  • Benefits of recycling
  • Green computing
Skills
• Discrimination
• Observation
	• Debate the importance of e-Waste disposal and the learner's role in its disposal
	• Analyse the advantages of green computing
		• Discussion
		• Observe
			• Notes in activity log

Module : Computer Hardware Maintenance and Networking

Unit : 1.2- Computer Fundamentals

(140 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment

• PC assembling
 Basic electronic components in a PC
   • IC chip
   • Diode
   • Resistors
   • Transistors,
   • Capacitors
 Identifying major Components of a PC
 • Motherboard
 • Processor
 • Cooling Fan
 • RAM
 • Hard disk
 • DVD Drive
 • Switch Mode Power supply(SMPS)
 Skills
 • Observation
 • Comparison
	• The learner will be able to:
	 Observe basic electronic compon ents Identify major parts in a PC
		• Identification
		 • Demonstration
		 • Practice
			• Notes in the activity log
			 • Chart
			 • Practical work

Module : Computer Hardware Maintenance and Networking
Unit : 1.2- Computer Fundamentals
(140 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
Steps for assembling a PC • Fix SMPS in cabinet • Fix motherboard in cabinet • Fix Processor in Mother board • Pinning cooling fan over the processor • Fix RAM in Motherboard • Fix Hard Disk In the cabinet • Fix DVD writer in the cabinet • Connecting power supply cables to motherboard, Hard disk, DVD drive • Establishing data cable Connection for mother board, Hard disk & DVD drive • Fixing wires for power, restart switches • Fixing wires for power and hard disk LEDs • Fixing wires for USB and Audio connections	• Understand the steps for assembling & attaching peripherals in a PC	• Interactive lecturer • Demonstrate • Observe • Discuss • Practice	• Notes in the activity log • Practical work diary

Module : Computer Hardware Maintenance and
           Networking   Unit : 1.2- Computer Fundamentals   (140 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
Attach add-on cards Attaching Input output devices • Keyboard • Mouse • Monitor • Printer • Speakers • Scanner **Skills** • Observation • Identifying • Diagnosing • Practical **Lap top servicing** • Fundamentals of laptop • Difference between Lap top & desktop • Upgrading memory like RAM, Hard disk, BIOS • Power Management of Laptop • Assembly and Disassembly of laptops	• Identify Diagnosing method& rectify Hardware and Software problems in laptop	• Demonstration • Experiment	• Practical work diary

Module : Computer Hardware Maintenance and Networking

Unit : 1.2- Computer Fundamentals   **(140 Periods)**

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
• BIOS settings • Testing using multi meter • Block diagram of motherboard of different laptops • Replacing various components of laptop • Replacing LED Display • Repairing keyboard **Skills** • Identifying • Diagnosing • Practical **Software Installation** • Various types of OS installation • Application software installation	• Understand Installation of system software & application soft ware	• Demonstrate • Practice	• Practical work diary
Skills • Identifying • Practical **Trouble shooting** • No display • Continues beep • Key board, mouse, speaker, printer not	• Identify hardware& software problems and also rectify it.	• Demonstration • Experiment	• Practical work diary

Module : Computer Hardware Maintenance and Networking

Unit : 1.2- Computer Fundamentals **(140 Periods)**

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
working • Booting problem • Power supply not working • Continuous restart • Hard disk failure **Skill** • Observation • Diagnose			

Module : : Computer Hardware Maintenance and   Unit : : 1.3- Network Configuration   (100 Periods)
Networking

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
Networking Concepts Relevance of n/w Needs of N/W **Skills** • Identifying • Observing • Discriminating	• The learner will be able to: Understand the relevance of computer network	• Identify • Field study	• Notes in the activity log

Types of N/W
• LAN
• MAN
• WAN
   * Public N/w
   * Private N/w
Skills
• Comparison
• Classification
	• Classify different types of network	• Group Discussion	• Chart

Transmission Media
• Guided Media
   * Twisted Pair Cable
   * Co-axial Cable
	• Discuss different features of each
	transmission media.
		• Demonstration
		• Discussion
			• Exhibition chart

Module :: Computer Hardware Maintenance and Networking   Unit :: 1.3- Network Configuration   (100 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
• Optical Fiber **Unguided Media** • Infra red • Blue tooth • Wi-Fi **Skill** • Observation • Communication			
Networking Devices • Modem • Switch • Hub • Router • NIC **Skill** • Understanding • Sharing Ideas	• Analyze different types of communication devices	• Discussion • Demonstration	• Assignments
N/W topology • Bus • Star • Ring • Mesh • Hybrid **Skill** • Visualizing • Classifying	• Compare different types of network topologies	• Role play • Discussion	• Chart • Notes in the activity log

Module : : Computer Hardware Maintenance and Networking

Unit : : 1.3- Network Configuration

(100 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
Networking Protocol • TCP • UDP • FTP **Skills** • Observation • Communication	• Understand different types of network protocols and its use	• Observation • Practice	• Chart • Notes in the activity log
IP addressing • Need for IP address • Public IP address • Private IP address • Address Class • IPV4/IPv6 addressing **Skills** • Observation • Comparison	• Discuss the need for IP address, Classify the types of IP address • Compare IPV4 and IPV6 addressing scheme	• Interactive lecture • Discussion	• Notes in the activity log • Assignment
IP address configuration **Subnet mask** • Subnet masking examples **Skills** • Observation	• Apply practical knowledge about IP address configuration	• Discussion • Experiment	• Work diary
Types of network configuration • Peer-Peer configuration •Client-Server Configuration **Skills** Discussion	• Discuss the importance peer - peer Network communication and Client - Server configuration	• Discussion • Demonstration	• Notes in the practical work diary

Module : : Computer Hardware Maintenance and Networking   Unit : : 1.3- Network Configuration   (100 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
LAN configuration tools • Crimping tools • Cable tester • Wire stripper • Wire cutter • Soldering iron	• Analyze different types of network configuration tools	• Discussion • Demonstration	• Notes in the activity log
Network Cables and connectors • Cat 5 & cat 6 cables • RJ-45 connectors **Cable crimping and testing** • Colour code • Straight cable crimping • Cross cable crimping • Cable testing	• Discuss the different colour codes • Apply cable crimping & cable testing	• Discussion • Experiment	• Notes in the practical work diary
Network interface devices • Ethernet card • Switch • Modem • Establish interconnection between network devices and computers	• Understand different types of network devices	• Observation • Practice	• Work diary
Network configuration in windows OS • Network and sharing center	• Apply network configuration in windows OS	• Discussion • Practice	• Notes in the practical work diary

Module : : Computer Hardware Maintenance and Networking

Unit : : 1.3- Network Configuration   (100 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
• Ip configuration • Home group • File sharing • Printer sharing			
Network configuration in Linux OS • Ip configuration • File sharing • Printer sharing	• Apply network configuration in Linux OS	• Discussion • Practice	• Notes in the practical work diary
Trouble shooting • Checking connectivity • Ip conflict	• Identify Diagnosing method& rectify problems in network	• Observation • Practice	• Notes in the practical work diary

Module :: Computer Hardware Maintenance and Networking   Unit :: 1.4- Security System (CCTV) Configuratio   (50 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
Video Surveillance Systems • Definition • Need • Area of Use **Skill** Communicating	**The learner will be able to:** • Discuss the Video Surveillance Systems and its area of usage	• Interactive lecture • Discussion	• Notes in the activity log • Assignment
Selection of CCTV Camera • Indore & Outdoor CCTV cameras **Skills** • Comparing • Observing	• Analyze different configuration of CCTV Camera	• Interactive lecturer • classify	• Notes in the activity log
Peripherals used • Switch • DVR/NVR • Cables • IP Cams **Skills** • Observing • Identify	• Identify peripherals available in the Security Systems	• List	• Diagram

Module :: Computer Hardware Maintenance and   Unit :: 1.4- Security System (CCTV) Configuratio   (50 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
Types of Transmission Media • Twisted Pair • Coaxial Cables • Fibre Optic Cables, • Wireless **Skills** • Classifying	• Discuss transmission medias used in security systems	• Classify	• Diagram
CCTV Installation • Cable crimping and cable testing • How to Connect Switcher with CCTV Cameras • How to Connect Switcher with monitor • How to Connect DVR/NVR with CCTV Cameras **Skills** Practical	• Analyze different connections of CCTV Camera • Discuss CCTV initial configuration	• Observation • Practice	• Notes in the activity log
Initial CCTV configuration • Installing hard disk • Setup date and time • Familiarise different menu options of DVR/NVR	• Apply network configuration of CCTV	• Discussion • Practice	• Notes in the practical work diary
Network configuration of CCTV • Network configuration • Setup DVR for remote viewing		• Discussion • Experiment	• Notes in the practical work diary

Module : : Computer Hardware Maintenance and
Networking

Unit : : 1.4- Security System (CCTV) Configuratio   (50 Periods)

CURRENT TRENDS AND TECHNOLOGIES

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Dia*Assessment*
Current trends and technologies • Software updating • Latest software • Latest hardware • New ideas • Needs • Practical Implementations **Skills** • Identification • Observation • Discussion	**The learner will be able to:** • Understand Current trends and technologies in network configuration, Desktop and laptop trouble shooting and security systems.	• Seminar taken by outside personality, • Discussion , • Field study	• Notes in the activity log

LIST OF PRACTICAL AFTER COMPLETION OF THE MODULE
LIST OF PRACTICAL ACTIVITIES

Lab Section 1.1:
- Familiarization of computer system and different peripherals
- Create practical awareness about E-waste and its impact

L.S. 1.2 Operating System Familiarization
- Windows
- Linux

L. S 1.3Keyboard Familiarization
- English
- Malayalam

PC assembling

L.S. 2 (Identify the computer peripheral parts)
- Familiarise the computer peripherals like monitor(CRT, TFT, LED), keyboard, mouse (ball mouse, optical), Printer (Dot metric , inkjet, laser)

L.S. 3 (Identify the computer hardware parts inside a CPU)
- Familiarise the computer parts like Motherboard, RAM, HDD, CD drive, DVD, floppy, Connectors (SATA, IDE), SMPS, ADDON cards(Audio, Video, internal modem)

L.S. 4 (Identify the electronic components in the motherboard)
- Study the functions and use of electronic components like transistor, capacitor, resistor, diode, ICs, PCB, etc.

L.S.5 (fix the components inside a cabin)
- How to place a motherboard into the cabin.
- How to place SMPS, RAM, and HDD into the cabin.

L.S.6 (place processor and connectors)
- How to place processor and its cooling fan
- Connecting power supply cables to motherboard, Hard disk, DVD drive
- Establishing data cable Connection for Hard disk & DVD drive
- Fixing wires for power switch, restart switch
- Fixing wires for power LED and hard disk LEDs
- Fixing wires for USB and Audio connections

L.S. 7 (connect the peripherals to the CPU)
- How to connect different peripherals like monitor, keyboard, mouse Printer, etc. to the CPU

L.S. 8 (printer maintenance)

- How to replace the cartridge of a printer

L.S.9 (Cleaning and maintenance)

- How to clean and repair the components inside a computer

LAPTOP SERVICING

L.S.10 (familiarisation)

- Familiarise the laptop components
- Familiarise   the difference between laptop and desktop components

L.S.11 (up gradation)

- How to upgrade the components like RAM, HDD, etc.

L.S. 12 (power management problems)

- How to diagnose problem related to power management

L.S. 13 (BIOS settings)

- Familiarise different BIOS settings

L.S.14 (testing using multi meter)

- Testing the different components using multi meter

L.S.15 (Identify ICs using lock diagram)

- Identify all chips and components of motherboard with the help of block diagrams.

L.S. 16 (replace inside components)

- How to replace processor, switches, speakers

L.S. 17 (add on cards)

- How to replace Bluetooth cards, WIFI cards, etc

L.S.18 (LCD screen repairing)

- How to replace LCD display of a laptop

L.S.19 (keyboard servicing)

- How to repair keys of a laptop keyboard

L.S.20 (trouble shooting)

- How to Identify hardware & software problems and rectify it
- No display
- Continues beep
- Key board, mouse, speaker, printer not working
- Booting problem
- Power supply not working
- Continuous restart

- Hard disk failure

L.S. 21 (bootable disk)

- How to create a bootable CD / USB

L.S. 22 (disk partitioning in windows)
- How to perform partitioning of HDD for windows
- Familiarise the file system of windows

L.S.23 (Windows installation)
- Steps for installation of windows OS

L.S. 24 (disk partitioning in linux)
- How to perform partitioning of HDD for Linux
- Familiarise the file system of Linux

L.S.25 (Ubuntu operating system installation)
- Steps for installation of Ubuntu

L.S.26 (Software centre)
- Familiarise the software centre and different applications of ubuntu.

L.S. 27 (Multi OS)
- How to install multiple operating system in a single system

L.S. 28 (Server Operating system)
- How to install server OS
- Familiarise the services like RAID, DHCP, etc

L.S.29 (Application software)
- Familiarise different application software

L.S.30 (trouble shooting)
- How to install drivers for different peripherals like display, audio, etc.
- Diagnose different problems and trouble shooting

Network Configuration

L.S. 31 (Familiarisation)
- Familiarise the different network components like switch, Router, modem, RJ45, etc

L.S.32 (cable crimping)
- Practice straight cable crimping
- Practice cross cable crimping

L.S.33 (Cable checking)
- Cable checking using checking tool

L.S. 34 (network configuration in windows)

- ip configuration in windows

L.S.35 (network configuration in Ubuntu)

- Network configuration in Ubuntu

L.S.36 (internet sharing)

- How to identify different systems connected to the network and perform internet / file sharing

L.S. 37 (printer sharing)

- How to perform Printer sharing in different operating systems

L.S.38 (Socket programming)

- Implement the client-server communication using TCP
- Implement the client-server communication using UDP

CCTV

L.S. 39 (familiarisation of components)

- Familiarise of different components related to CCTV

L.S.40 (familiarisation of system ports and connections)

- Familiarise different DVR / NVR system ports
- How to making connections between camera, DVR & power supply

L.S.41 (initial configuration)

- Installing hard disk inside a DVR
- Set date, time & format HDD

L.S. 42 (menu)

- Familiarise different menu options of DVR

L.S.43 (scheduling & alerts)

- How to activate different types of alerts

L.S.44 (network configuration)

- How to configure the network settings of DVR systems

L.S.45 (remote viewing)

- How to setup DVR for remote viewing

MODULE 2

DTP, Graphic Designing and Visual Comunication (340 Periods)

Now a day's Visual Communication programs put more emphasis on graphic design and give more tools for designing pages. Office Packages supply more help with text manipulation. In this module we discuss about Office Package and 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 colors on a page. So the learners are able to handle complex designs easily. The students will also able to prepare presentation using presentation package.

List of expected skills

- DTP operator
- Graphic Designer
- Photo Editor
- Advertisement Designer

Unit No.	Name of units	Periods
2.1	Visual Communication	80
2.2	DTP package & DTP package (Regional Language)	90
2.3	CorelDraw	60
2.4	Graphics Editing Package	110
	TOTAL PERIODS	**340**
30% periods-theory sessions and 70% periods-practical activities		

Module : : DTP, GRAPHIC DESIGNING AND VISUAL COMUNICATION   **Unit : : 2.1 - Visual Communication**

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
• Introduction to Visual Communication **Skill** • Discussion	• Discuss about visual comm unication	• Ask	• Notes in the activity log
• Need and importance of Visual Communication **Skills** • Observing	• Understand the need and importance of visual communi cation	• Write	• Recipe
• Advantages & disadvantages of visual communication **Skills** Discriminating	• Analyze advantages and disadv- antvages of visual communicat ion	• Separate	• List
Communication process • Sender • Receiver • Message • Channels • Encoding • Decoding **Skills** Identifying	• Understand communication proceSS	• Ask	• Notes in the activity log

Module :: DTP, GRAPHIC DESIGNING AND VISUAL COMUNICATION   Unit :: 2.1 - Visual Communication

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
SMCR Model of Communication **Skills** Listening	• Understand SMCR model of communication	• Listen	• Records
Characteristics and functions of mass media communication **Skills** Discussing	• Discuss characteristics and functions of mass media communication	• Discuss	• Notes in the activity log Seminar
Types of visual aids • Objects • Models • Graphs • Maps • Tables • Photographs • Drawings or diagrams **Skills** Observing Applying	• Classify types of visual aids	• List	• Notes in the activity log Quiz
Applications of visual communications: • Business communications • Visual communications in education • Telepresence • Content sharing • Advertising	• Discuss application of visual communication	• Classify	• Report Chart

Module :: DTP, GRAPHIC DESIGNING AND VISUAL COMUNICATION　　　**Unit :: 2.1 - Visual Communication**

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
• Digital media • Graphic design **Skills** **Word Processing Package** • Menu & Taskbar • Table Manipulation • Data Sort • Pictures in word • Mail Merge • Printing documents **Skills** Observation Typing Distinguishing	• Explore and work with different features of word processing package • Explore and work with different features of table management • Insert and work with pictures in a document • Sent same document to multiple addresses	• Discussion • Demonstration • Practical work	• Practical work diary
Spread sheet package • Data, cell address, Local data types, concepts of hyperlink • Worksheet and work book • Formulas and functions • Common functions • Types of graphics: 　Word art, shapes, image • Chart • Printing 　* Page set up	• Use basic formatting and data entry features in spreadsheet package • Discuss Formulas and functions in excel • Apply Work with graphics • Create and manipulate charts in excel • Discuss header and footer option • Setup page layouts and print worksheet	• Discussion • Presentation • Illustration • Practical work	• Activity log • Practical work diary • Assignment

Module :: DTP, GRAPHIC DESIGNING AND VISUAL COMUNICATION   **Unit :: 2.1 - Visual Communication**

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
• print area • margins • header • footer **Skills** • Analysing • Distinguishing • Summarising • Classifying **Presentation** • Outline of an effective presentation • New presentation and saving a work • New slides, working with textboxes • Slide layout-applying a theme, changing colours, fonts and effects, creating and managing custom colour and font, themes, changing the background • Managing slide master • Word art and styles • Formatting bullet list and numbered list • Handling objects • Drawing tools " Embed a video, link to a video, size a video, video playback option • Configuring a sound play back • Skills • Presentation skill **Skill** Presentation	• Create new presentation and apply basic formatting features in presentation Software • Understand the use of master slide • Create and manipulate table • Work with objects • Work with audio and video • Use special effects in presentation package	• Demonstration • Discussion • Practice 1 • Illustration	• Notes in the activity log • Assignment book • Practical work

Module : : DTP AND GRAPHIC DESIGNING   **Unit : : 2.2- DTP Package**   **(90 Periods)**

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
DTP package basics: • Conventional Publishing and • DTP • WYSIWYG **Skills** • Communicatin	**Students will be able to:** • Differentiate conventional Publishing and Digital printing • Understand WYSIWYG concept	• Compare • Observe	• Notes in the activity log • Record book
Document Planning • Page layout • Margins • Header and Footer Fonts • Styling **Skills** • Practical	• Apply the steps for prepare a document in DTP package	• List	• Notes in the activity log • Lab work • Record book
DTP working Environment • Title Bar • Menu bar • Tool Bar • Ruler • Palette • Styles/Colours Palette • Control Palette • Tool Box • Pasteboard • Page	• Familiarize the desktop environment of DTP Software	• Observation • Experiment	• Lab work • Record book

Module : : DTP AND GRAPHIC DESIGNING　　　　Unit : : 2.2- DTP Package　　　　(90 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
• Page Bar ' • Master Page • Scroll Bars **Skills** • Practical • Observing **Editors** **Layout Editor** • Insert and remove pages • Multicolumn pages • Auto flow option etc **Story Editor** • Find • Search • Replace • Checking spelling **Skills** • Observing • Classifying **Formatting Text** • Changing Font • Size, Type, Bold, Italics, Underline	• Differentiate the editors available in DTP package • Compare the functionalities of Layout editor and Story editor • Understand and apply formatting tools	• Identify • Compare • Apply • Observe • Experiment	• Report • Practical work • Record book • Practical work • Record book

Module :: DTP AND GRAPHIC DESIGNING   Unit :: 2.2- DTP Package   (90 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
Aligning Text • Tracking • Kerning • Leading **Skills** • Practical			
Frames& Threads **Frames** • To convert object into frame • To convert text block/graphics to frame • Converting frames to graphic objects • Deleting the content of a frame **Threads** • Threading Text • Disconnect a frame from a thread **Skills** • Observing • Practical	• Understand the importance and use of frames and threads	• Identify • Experiment	• Practical work • Record book
Working with graphics • Tool Bar • Adding Text to the graphic	• Apply graphic tools in DTP package	• Identify	• Practical work

Module :: DTP AND GRAPHIC DESIGNING   Unit :: 2.2- DTP Package   (90 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
• Wrapping text around the graphics • Importing graphics • Resizing • Moving • Adding Caption • Cropping • Grouping & Ungrouping • Links **Skills** • Practical • Observing **Style sheet** **Define Styles** • New • Edit • Remove • Import **Applying Style** **Skills** Practical Observing **Libraries**		• Experiment	• Record book
	• Understand and apply style sheet in DTP package	• Observe • Experiment	• Practical work • Record book
	• Analyze and apply libraries in DTP package	• Compare	• Practical work

Module :: DTP AND GRAPHIC DESIGNING **Unit :: 2.2- DTP Package** **(90 Periods)**

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
• Creating a new library • Open an existing Library • Deleting a library **Skills** • Practical	• package	• Experiment	• Practical work
Working with Column • Creating columns **Skills** • Practical	• Prepare multi column documents	• Identify • Experiment	• Practical work • Practical work diary
Table • Create and manipulate tables **Skills** • Practical	• Understand and apply tables in DTP package	• Observe • Experiment	• Practical work • Practical work diary
Master Pages **Placing Elements on master pages** • Guidelines • Header, Footer & Page number **Creating master page** • Adding Header • Removing master page • Editing a master page **Skills** • Observing • Practical	• Understand the importance of master pages in DTP package	• Identify • Experiment	• Practical work • Practical work diary • Assignment

Module : : DTP AND GRAPHIC DESIGNING   **Unit : : 2.2- DTP Package**   **(90 Periods)**

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
TOC & Index **Table of Content** • Create a TOC **Index** • Creating Index entries • Editing and generating new index entries **Skills** • Communicating • Practical	• Create TOC and Index in DTP package	• Observe • Identify • Produce	• Practical work • Practical work diary • Seminar
Document Preparation - Malayalam • Different Malayalam software • ISM Malayalam software **Skills** • Observing • Practical	• Discuss various regional language software's	• Identification	• List
ISM Installation **Skills** • Practical • Observing	• Understand installation of ISM software	• Observe • Experiment	• Practical work • Practical work diary
Keyboard Layout **Skills** • Practical • Identifying	• Apply Malayalam keyboard layout	• Observe • Experiment	• Practical work • Practical work diary

Module : : DTP AND GRAPHIC DESIGNING   Unit : : 2.2- DTP Package   (90 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
Steps for preparing document in ISM **Skills** • Practical • Observing **Managing and Printing a Publication** • Orientation • Page Numbering • Page Size • Dimension • Margin **Skills** • Practical • Observing	• Expertise in Malayalam document preparation • Hand-on-experience on printing booklets in Malayalam	• Observe • Experiment • Observe • Experiment	• Practical work • Practical work diary • Practical work • Practical work diary • Demonstration

Module : : DTP AND GRAPHIC DESIGNING   Unit : : 2.3- CorelDraw   (60 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
CorelDraw basic **Images** • Bitmap Images • Vector Images **Skills** • Identifying	**Students will be able to:** • Compare bitmap image and vector image	• Compare • Observe	• Notes in the activity log • Practical work diary
CorelDraw Working environment • Title Bar • Menu Bar • Standard Tool Bar • Work area and Printable Area **Skills** • Observing	• Understand and apply components available in Corel draw working environment	• Observe • Experiment	• Practical work • Practical work diary
Property Bar • Page counter Bar • Dockers Window • Colour Palettes • Tool Box • Status Bar	• Understand and analyze components of property bar	• Observe	• Practical work • Practical work diary

Module : : DTP AND GRAPHIC DESIGNING **Unit : : 2.3- CorelDraw** **(60 Periods)**

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
Drawing Basic Geometric Figures • Freehand lines • Joining freehand line • Bazier lines • Ellipse and circle • Rectangle and squares • Polygons **Skills** • Practical • Observing	• Hand-on-experience on drawing figures in Corel draw	• Observe • Experiment	
Views • Normal • Full screen • Simple wire frame and fire frame • Draft view • Enhanced view • Page sorter view **Skills** • Observing • Identifying	• Understand and Analyze views available in CorelDraw	• Observe • Experiment	• Practical work
Tool box • Pick tool • Shape tool • Zoom tool • Freehand tool, Smart Drawing tool	• Discuss different tools in Corel draw	• Observe • Experiment	• Practical work • Practical work diary • Assignment

Module : : DTP AND GRAPHIC DESIGNING   Unit : : 2.3- CorelDraw   (60 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
• Rectangle tool, Ellipse tool • Graph Paper tool • Basic Shapes • Text tool • Interactive Blend tool • Eyedropper tool • Outline tool • Fill tool • Interactive fill tool **Skills** • Practical **Selecting objects** • Selecting • Resizing • Moving • Changing the shape • Combining • Skewing • Welding • Blending • Rotating • Grouping **Skills** • Practical • Discussing	• Understand and Analyze selection tools	• Identify • Experiment	• Practical work • Practical work diary • Assignment

Module : : DTP AND GRAPHIC DESIGNING   Unit : : 2.3- CorelDraw   (60 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
Adding Effects • Perspective Effect • Extrusion • Drop Shadow • Distortion • Transparency **Skills** • Practical • Identifying	• Apply various effects in Corel draw	• Identify • Experiment	• Practical work • Practical work diary • Assignment
Working with Text **Text Tool** • Artistic text • Paragraph text **Formatting Text** • Changing font size, type • Applying bullets • Web dings **Text Editor** • Opening the editor • Changing alignment • Spell check, grammar check • Searching synonyms • Search, find and replace • Kerning • Drop Cap a character	• Understand and Analyze various text tools in Corel draw	• Observe • Identify • Experiment	• Practical work • Practical work diary • Assignment

Module : : DTP AND GRAPHIC DESIGNING   Unit : : 2.3- CorelDraw   (60 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment

Skills
• Identifying
• Analyzing
• Practical
 	
Working with images
• Importing
• Resizing, rotating and skewing
• Cropping
• Adding effects
  * 3D effects
  * Art stroke
  * Blur
  * Colour transform
  * Distort
  * Noise
  * Sharpen
• Exporting files to another application
Skills
Observing
	• Hand-on-experience on different effects and filters in Corel draw	• Observe
		• Identify
		• Experiment
			• Practical work
			• Practical work diary
			• Assignment

Module : : DTP AND GRAPHIC DESIGNING   Unit : : 2.4 - Graphics editing package   (110 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
Photo editing software **Skill** • Discussing	**Students will be able to:** • Identify different photo editing software	• Observe • Compare	• Notes in the activity log • Record book
Colour Modes • RGB • CMYK • HSB • Gray Scale **Changing colour modes** **Skill** • Observing • Practical	• Discuss different colour modes used in Graphics editing package	• Observe • Compare • Experiment	• Practical session • Notes in activity log
Graphics editing package program window • Title Bar • Menu Bar • Image Window • Image Title Bar • Status bar • Rulers	• Understand components available in Graphics editing package working environment	• Observe • Experiment	• Practical session • Practical record

Module :: DTP AND GRAPHIC DESIGNING　　　　　Unit :: 2.4 - Graphics editing package　　　　　(110 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
• Palette • Tool box **Skills** • Observing • Demonstrating • Practicing **Working with Image** • Image size, resolution and changing resolution • File formats **Skills** • Practical **Selection** **Selection Tools** • Moving a portion of an image • Editing Selection **Transforming Selection** • Scale • Rotate • Distort • Skew • Perspective • Wrap **Skills** • Practical	• Apply image properties • Understand and apply selection tools	• Observe • Practice • Observe • Hands-on-experience	• Practical session • Practical record • Practical session • Practical record

Module : : DTP AND GRAPHIC DESIGNING   Unit : : 2.4 - Graphics editing package   (110 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
Painting, Drawing and retouching tools **Painting tools** • Brush tool • Pencil tool • Colour replacement tool • History brush tool • Art history brush tool • Gradient tool • Paint bucket tool **Drawing tool** • Rectangle tool • Custom shape tool • Pen tool • freeform pen tool • path selection tool **Retouching tool** • Healing brush tool • Patch tool • Red eye tool • Clone stamp tool	• Hands on experience in painting, drawing and retouching tools	• Observe Hands-on-experience	• Practical session • Practical record

Module :: DTP AND GRAPHIC DESIGNING   Unit :: 2.4 - Graphics editing package   (110 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
• Pattern stamp tool • Eraser tool • Blur tool • Sharpen tool • Smudge tool • Dodge tool • Burn tool • Sponge tool **Skills** • Practical • Observing			
Working with text • Creating text • Formatting text • Formatting paragraph text • Text effects **Skills** • Practical • Observing	• Understand and apply various formatting text tools	• Observe • Hands-on-experience	• Practical session • Practical record
Layers • Layers palette • Creating a new layer • Hiding/showing layers	• Understand and apply with layers	• Observe • Hands-on-experience	• Practical session • Practical record

Module :: DTP AND GRAPHIC DESIGNING

Unit :: 2.4 - Graphics editing package

(110 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
• Hiding/showing layers • Deleting layers • Moving layers b/w images • Layer effects **Skills** • Practical • Observing			
Filters • Blur filter • Brush stoke filter • Distort filter • Noise filter • Lighting effects • Sharpen filter • Sketch filter **Skills** • Practical • Observing	• Understand and apply various filters available in Graphics editing package	• Observe • Hands-on-experience	• Practical session • Practical record
Printing • Page setup • Various print commands **Skills** • Practical • Observing	• Apply printing booklet	• Observe • Hands-on-experience	• Practical session

Module :: DTP AND GRAPHIC DESIGNING   Unit :: 2.4 - Graphics editing package   (110 Periods)

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
Current trends and technologies • Software updation • Latest software • Latest hardware • New ideas • Needs • Practical Implementations **Skills** • Identifying • Observing • Discussing • Discriminating	**The learner will be able to:** • Understand Current trends and technologies in visual communications, photo editing packages, Documents preparation software etc	• Seminar taken by outside personality, • Discussion , • Field study	• Notes in the activity log

LIST OF PRACTICAL ACTIVITIES AFTER COMPLETION OF THE MODULE

L.S 2: (Word processing package)

- Familiarization of Word processing package, Opening new documents, Existing documents, Recently used files
- Practice on exporting and importing files
- Practice on setting up pages, size, Orientation
- Practice on setting margins, controlling page breaks
- Practice on creating sections, Inserting a section break, Formatting sections Viewing sections
- Practice on numbering pages and saving files
- Familiarization of short cut keys

L. S 3: (Word processing package)

- Practice on formatting characters, font appearance
- Practice on formatting paragraphs, Aligning paragraph
- Practice on setting tabs, changing line spacing, adding border and shading
- Practice on creating a bulleted list, Numbered list

L.S 4: (Word processing package)

- Practice on finding and replacing text
- Practice on checking spelling and grammar
- Practice on creating header and footer

L.S 5: (Word processing package)

- Practice on creating bio data

L. S 6: (Word processing package)

- Practice on enter and edit data in a table
- Practice on add border and shading of table

L.S. 7: (Word processing package)

- Practice on adding clip art to a document

L. S 8: (Word processing package)

- Practice on Mail merge

L.S 9: (Word processing package)

- Design an advertisement for newspaper using MSWord.

SPREAD SHEET PACKAGE

L. S 10 (Spread Sheet Package)
- Familiarization of short cut keys
- Introduction to Excel-Menu and tool bar, Work sheet, Work book

L.S. 11 (Spread Sheet Package)
- Cell- Practice on Cell address, Excel Data types Concept of hyperlink

L. S 12 (Spread Sheet Package)
- Practice on formatting numbering text and date formatting

L.S 13 (Spread Sheet Package)
- Practice on using formulas and functions
- Practice on using common Excel functions(Sum(), Average(), min(), max(), date(), sqrt(), power(), sort(), etc

L. S 14 (Spread Sheet Package)
- Practice on adding word art, auto shapes and images

L. S 15 (Spread Sheet Package)
- Practice on using different types of charts

L.S 16 (Spread Sheet Package)
- Practice on printing- Print area, margins and other page setup options

PRESENTATION PACKAGE

L. S. 17 (Presentation Package)
- Familiarization of short cut keys
- Demonstrate the outline of an effective presentation, starting a new presentation and saving work

L. S. 18 (Presentation Package)
- Practice on creating new slides, Adding effects

L.S 19 (Presentation Package)
- Practice on working with templates
- Practice on changing slide layout, Apply themes, changing background

L. S 20 (Presentation Package)
- Practice on working with word art
- Practice on changing fonts, size, font colour

- Practice on formatting bullets, Lists and spell check

L. S 21 (Presentation Package)

- Practice on creating and editing tables
- Practice on working with objects

L.S. 22 (Presentation Package)

- Working with video and audio, embedded a video, link a video, video play back options
- Practice on adding sound

L. S. 23 (Presentation Package)

- Prepare an attractive PRESENTATION PACKAGE present ation about your school

DTP PACKAGE

L.S. 24 (DTP package Setting pages)

- Practice on setting pages, margins, Page size, Orientation, Page numbers.
- Practice in using rulers and guides.
- Practice on adding guidelines aligning guidelines, displaying guidelines, and locking guidelines.

L. S. 25 (Adding text)

- Practice on entering and modifying text - fonts, type, face, character specification, type leading, character width and tracking.
- Practice on saving document- new, existing, to another format, reverting a previously saved.

L.S. 26 (Formatting paragraph)

- Practice on formatting a paragraph - changing indents, space around paragraph, paragraph alignment, paragraph break between pages and columns, adding lines above or below paragraph

L.S 27 (Frames and Threading)

- Practice on creating a frame - converting other objects to frames, selecting text and dragging text, editing text, cut, copy and paste text using undo and revert
- Practice on Threading - connect the text blocks of the different pages using threading, disconnect a frame from a thread.

L.S.28 (Indents and Tabs)

- Practice on inserting and removing pages
- Practice on adjusting indents and tabs
- Practice on create header and footer

L. S 29 (Adding shapes)

- Practice on adding shapes
- Practice on changing lines, full specification and round corner

L. S 30 (Styles)

- Practice on define styles- new styles, editing styles, removing style, copying style, apply style to text, changing style

L. S. 31 (Colours)

- Practice on using colour - opening a colour palette, adding colour to text , defining a custom colour

L. S. 32 (Library)

- Practice on library - creating a new library, opening an existing library, deleting libraries.

L. S. 33 (Index and TOC)

- Practice on creating TOC for a publication. - Mark paragraph for inclusion in a table of contents, Generate the table of contents.
- Practice on creating Index for a publication - Add Index entry, generate index

L.S. 34 (Printing)

- Practice on printing - printing documents, printing proof copies, setting paper option

L. S 35 (DTP Package Works)

- Prepare class time table using table
- Prepare wedding cards
- Create a professional CV in DTP package.
- Design a part of a news paper usinga multi page publication
- Create a publication about your school - using story editor, switch between story editor and layout editor, checking spelling using find feature, closing the story editor and placing the story
- Prepare a brochure about CSIT course in DTP package

- Prepare magazine.
- Create a brochure of a company or computer institute in DTP package.
- Create a month calendar in table format using adobe table.
- Create a library in DTP package and add pictures to this library and create a Christmas card using the pictures from the library.

COREL DRAW

L.S. 36(Corel Draw Introduction)

- Introduction to CorelDraw menus.
- Practice on Corel Draw Window Components - Standard Toolbar, Property Bar, Tool Box, Rulers, Colour Palette, Status Bar, Page Navigator, Docker Tabs.

L.S. 37(Corel Draw Tools)

- Practice on Corel Draw tools- Pick Tool, Shape Tool, Knife Tool, Eraser Tool, Free transform Tool, Zoom Tool, Pan Tool, Freehand Tool, Bezier Tool, Artistic media tool, Dimension tool, Interactive connector tool, Rectangle tool, Ellipse tool, Polygon tool, Spiral tool, Graph paper tool, Basic shapes tool, Arrow shapes tool, Flowchart shapes tool, Stars shapes tool, Callout shapes tool, Text tool, Eyedropper tool, Paintbucket tool, Outline tool, Fill tool

L.S. 38(Corel Draw Interactive Tools)

- Practice on Corel Draw Interactive tools for fast changes - Interactive Blend tool, Interactive Contour tool, Interactive Distort tool, Interactive Envelope tool, Interactive Extrude tool, Interactive Drop shadow tool, Interactive transparency tool, Interactive fill and Interactive mesh tool.

L.S. 39(Align and Distributing, Ordering, Grouping and Combining Objects)

- Practice on Align and distributing objects
- Practice on Ordering Objects.
- Practice on layering, combining and grouping objects, stacking order, aligning object.
- Practice on Welding, Trimming Objects.

L.S. 40(Artistic Text and Paragraph Text)

- Practice on typecasting, typeface or font, types of typeface.

- Proactive on using and manipulate type in CorelDraw.
- Practice on using fonts in your drawing and in other documents.
- Practice on.

L.S. 41 (Colours)

- Practice on colour - colour and fills, colour scheme, colour models, using colour in your document, using colour in presentation, using fill, using texture, using patterns.
- Practice on special effects - using envelopes, using extrude, using blend, using lenses, using perspective.

L.S. 42 (Selecting, Resizing, Rotating and Skewing Objects)

- Practice on Selecting, Resizing objects.
- Practice on rotating and skewing object with transform Roll-up, stretching and mirroring.

L.S. 43 (Manipulating Objects)

" Practice on Manipulating objects - Reshaping Objects with nodes (Add, Delete, Join, Break Apart, To Curve, Cusp etc.)

L.S. 44 (Printing, Saving and Exporting Drawings)

- Practice on printing a document.
- Practice on save, close and open a file.
- Practice on export a file.

L.S. 45 (Corel Draw Works)

- Create a visiting card
- Identity card for students with student name, roll no, course, photo etc
- Create logos for an engineering college or arts and science college
- Year calendar
- Month planner
- Design a cover page for CSIT text book.
- Create a greeting card for Onam /Holi/ Christmas/New Year
- Create an advertisement
- Create a house with compound wall, gate, trees etc.
- Create Labels for Pickles, Jams, Jelly, Squashes, Wines etc.
- Design Cover for Facial Powder, Henna Powder etc.
- Cover Design for Bath soap, Bar soap, Washing powder etc

GRAPHICS EDITING PACKAGE

L.S. 46 (Graphics Editing Package)

- Introduction to Graphics editing package
- Practice on creating a new file
- Main sections.
- Picking colour.
- Filling selection with colour.
- More ways to choose colours and fill selections.
- Practice on printing document frames.
- Practice on saving a file as a JPEG, TIFF, GIF, PNG

L.S. 47 (Colours)

- Practice on colour mode - Gray scale, RGB, CMYK, Bitmap, lab Colour and Preference.
- Practice on adding fills and gradients - filling with paint bucket tool, filling type with gradient fills
- Practice on Foreground and Background - Changing foreground and Background colours using large colour selection boxes and small colour swatches, changing the foreground colour while using a painting tool.

L.S. 48 (Graphics editing package Tools)

- Practice on Graphics editing package Tools - Marquee Selection Tools (Rectangle, Elliptical, Single row and Single column), Move Tool, Lasso Tools, Magic Wand Tool, Crop Tool, Slice Tool, Slice Selection Tool, Healing Brush Tool, Patch Tool, Brush Tool, Pencil Tool, Clone Stamp Tool, Pattern Stamp Tool , History Brush Tool , Art History Brush Tool , Eraser Tool, Background Eraser Tool, Magic Eraser Tool, Gradient Tools, Paint Bucket Tool, Blur Tool , Sharpen Tool, Smudge Tool, Dodge Tool, Burn Tool, Sponge Tool, Path Selection Tool, Direct Selection Tool, Type Tools (Horizontal Type Tool, Vertical Type Tool , Horizontal Type Mask Tool , Vertical Type Mask Tool), Pen Tool And Free Form Pen Tool, Rectangle Tool, Rounded Rectangle Tool, Ellipse Tool, Polygon Tool, Line Tool, Custom Shape Tool, Notes Tools, Audio Annotation Tool, Eye Dropper Tool, Colour Sampler Tool, Measure Tool, Hand Tool, Zoom Tool.

L.S. 49 (Graphics editing package Brushes and Rubber Stamp)

- Practice on using brushes- selecting the brush shape, drawing a vertical and horizontal straight lines with any brush, drawing and connecting straight lines, creating a new brush, saving brushes, loading brushes, creating custom brushes, using the painting modes, fade, airbrush option, pencil option
- Practice on Rubber Stamp Option - rubber stamping an aligned clone, impressionist style, using line tool

L.S. 50(Editing and Selection Tools)

- Practice on using the editing tool - the smudge tool, the blur and sharpen tool, the dodge/ burn tool, shadows, mid tones and highlights.
- Practice on using selection tools- making rectangular and square selections, feathering a selection, lasso tool making selection by colour or gray scale using magic wand, changing shape of curve, adding and removing anchor points.

L.S. 51 (Layers)

- Practice on layers - creating and editing new layers, adding a background, layer masks, adjustment layers, adding text or images in layers

L.S. 52 (Filters)

- Practice on applying filters - Artistic filters , Blur filters, Brush Stroke filters, Distort filters, Noise filters, Pixel filters, Render filters, Sharpen filters, Sketch filters, Stylize filters, Texture filters, Video filters, Digimarc filters and Other filters

L.S. 53 (Palettes)

- Practice on palettes - Colour, Swatches, Styles, History, Actions, Layers, Channels, Paths, Brushes, Character, Paragraphs

L.S. 54 (Mask)

- Practice on Masking Objects

L.S. 55(Graphics editing package Works)

- Take a photo and Change the background of image, brightness and contrast of image
- Removing scratches, wrinkles and red eye of an image.
- Create a birthday cards for your parents or Teacher's day card.
- Bookmark with nice wordings and year calendar on back.
- Welcome card for new comers to school with photo of our school
- Wallpaper with pictures and good wordings
- Name slip with attractive images and layout
- Design an album with snaps of your tour. Change Backgrounds. Apply filters. Remove red eyes etc to create a professional album.
- Design Album of Vocational Expo Conducting in your school/ NSS Album/SPC Album

DETAILED ANALYSIS OF UNIT 1

Overview

Computer is an electronic device used in almost every field; even where it is most unexpected. Now we cannot imagine a world without computers. These days, computers are used extensively by engineers and scientists and also by millions of people around the world. That is why this age is called as the era of INFORMATION TECHNOLOGY (IT).

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 and perform mathematical and logical operations on data. The result of the operations can be reported as output. The learner is introduced to the characteristics of computers, evolution of computers, generations of computers and different classifications of computers. He/she should be able to classify the computer based on the basic features. The learners also learned about the organisation of computer system. Computer peripherals such as various input devices, output devices and memory have also to be introduced. Learners have to identify various functions of these devices. He/she should be able to classify peripherals into various categories. Here various devices are presented through discussions and demonstrations so that the learner is able to distinguish them based on their uses and features. Another section, e-waste and e-waste handling is introduced in this unit, so that learner should be aware of e-waste hazardous and e-waste re-cycling methods.

UNIT FRAME

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
1.1.1 Role of computers **Skills** • Observing • Discriminating	**The learner will be able to:** • Identify the role of computers in different fields	• Discussion • Field Visit	• Notes in activity log
1.1.2 Characteristics of Computers **Advantages** • Speed • Accuracy • Storage • Reliability • Versatility • Diligence **Disadvantages** • No IQ • Lack of decision making capacity	• Evaluate characteristics of a computer	• Group discussion	• Conclusion • Notes in activity log
Skills • Comparison **1.1.3 Evolution of Computers** • Abacus • Analytical Engine • Stored Program Concept	• Observe history of Computers	• Teach	• Photographs

UNIT FRAME

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
• ENIAC • EDVAC • EDSAC • UNIVAC **Skills** • Observation			

1.1.4 Generations of Computer
• First Generation computer
  Vacuum tubes
• Second Generation computer
  Transistors
• Third Generation computer
  IC chips
• Fourth Generation computer
  LSI, VLSI
• First Generation computer
  AI, Virtual Reality
Skills
• Observation
• Classification
• Comparison
	• Observe generations of Computer	• Teach	• Photographs

UNIT FRAME

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
1.1.5.2 Classification according to size and memory • Micro Computers • Mini Computers • Mainframe Computers • Super Computers **1.1.5.3** Classification according to application • Special Purpose Computer • General Purpose Computers **Skill** • Analysis • Comparison	• Analyze different types of computers		
1.1.6 Organization of computers • Input Unit • Memory Unit • CPU • Output Unit **Skills** • Analysis • Comparison **1.1.7** Hardware Devices **1.1.7.1** Input Devices	• Identify the functional units of a computer system	• Teach • Discuss	• Diagram

UNIT FRAME

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
• Keyboard • Mouse • Scanner • OMR • BCR **1.1.7.2** Output Devices • Monitor • Printer • Speaker • Plotter **1.1.5.3** Memory Devices **1.1.5.3.1** Primary Memory • RAM • ROM **1.1.5.3.2** Secondary Memory • Hard Disk • CD • DVD **Skills** • Analysis			
1.1.8 Number system • Decimal • Binary • Octal • Hexadecimal **Skills** • Observation • Comparison	• Understand different number system	• Interactive lecturer • Sketch	• Notes in the activity log illustration

UNIT FRAME

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
1.1.9 Number conversion • Decimal to binary • Decimal to Octal • Decimal to Hexadecimal • Binary to decimal • Octal to decimal • Hexadecimal to decimal • Binary to Octal • Binary to hexadecimal • Octal to binary • Hexadecimal to binary **Skills** • Conversion • Arithmetic	• Compare a number in one number system into a number in different number system	• Interactive lecturer • Presentation	• Notes in the activity log • Assignment book
1.1.10 Representation of: • integer • floating point numbers • characters **Skill** • Observing • Classifying	• Understand different data representation in computer memory	• Demonstration • Presentation • Observe	• Class test

UNIT FRAME

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
1.1.11 Different coding schemes • Bit, Byte, Nibble • ASCII • EBSCIDIC • UNICODE **Skill** • Classifying	• Analyze different coding scheme	• Interactive lecturer • Compare • Discussion	• Notes in the activity log
1.1.12 Introduction 1.1.13 Importance of software **Skills** • Classifying • Comparing	• Discuss importance of software	• Predict • Write	• Practical work diary
1.1.14 Types of Software **1.1.14.1** System Software • Operating System • Language Processors **1.1.14.2** Application Software • Packages • Utilities **Skills** • Classifying	• Categorize software's	• Categorize	• Activity log • Practical work diary • Assignment
1.1.15 Operating system 2.1.15.1 Functions of Operating system **Skills** • Communicating	• Understand needs and functions of an operating system	• Listen • Observe	

UNIT FRAME

Ideas/Concepts/Skill	Learning Outcomes	Suggested Activities	Assessment
1.1.16 Examples of operating system platforms • WINDOWS • LINUX • MAC • Android **Skill** Classifying	• Analyze and compare different types of operating system	• Identify • Classify • Categorize	• Notes in the activity log • Assignment • Practical work
1.1.17 E-Waste Handling • Recycling • Benefits of recycling • green computing **Skills** • Discrimination • Observation	• Debate the importance of e-Waste disposal and the learner's role in its disposal • Analyse the advantages of green computing	• Discussion • Observe	• Notes in activity log

DETAILING OF ACTIVITIES

1. ## Discussion on role of computers in different fields (1 period)

   a. Problem: What are the roles of computers in different fields?

   b. Learners discuss in group and enlist various roles.

   c. Consolidation: The facilitator consolidates the discussion and noted on the board.

   Describe the role and importance of computers in bank, communication, business, medical science, healthcare, education, media, travel and ticketing, weather prediction, sports, arts and entertainment, social media, mobile computing, research, publishing, etc.

   d. Product: List prepared in the activity log

2. ## Discussion on characteristics of computers (2 periods)

   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"

Advantages

Storage, speed, Accuracy, Reliability, Versatility, Diligence

Disadvantages

Lack of decision making capacity

No.IQ.

e. Product: Notes in the Activity Log

3. Discussion on evolution of Computers (2 periods)

   a. Problem: Describe the evolution of computer.

   b. Learners list the evolution of the computer.

   Display the chart of evolution and learners are identified them. The lists   are supplemented with name of computers that are not mentioned by the student.

   d. Consolidation: The facilitator consolidates the points.

- Abacus
- Analytical Engine
- Stored Program Concept
- ENIAC
- EDVAC
- EDSAC
- UNIVAC
  e. Product: Chart.

4. Discussion on generations of computers (2 periods)

a. Problem: Classify the computers according to the generation.

b. Learners discuss in groups and identified the features of computers in each generation

c. Consolidation: The facilitator consolidates the discussion point.

- First Generation computer

      Vacuum tubes

- Second Generation computer

      Transistors

- Third Generation computer

    IC chips

- Fourth Generation computer

  LSI, VLSI

- First Generation computer

  AI, Virtual Reality

d. Product; Subject Diary

5. Discussion on classification of computers (3 periods)

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

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

6. Discussion on organization of Computers (2 periods)

a. Problem: Discuss the parts of computers and prepare a block diagram of computer's organization.

b. Learners discuss in groups, observe different parts of computer and prepared block diagram of computer.

Consolidation: The facilitator consolidates the work.

- Input Unit
- Memory Unit
- CPU
- Output Unit

e. Product; Subject Diary

7. Discussion on Hardware device (4 periods)

a. Problem: What are the input, Output and memory devices that you have heard of?

b. Each learner prepares a classified list of devices (input, output and output) in his book.

c. One or two learners present their list and others add to it. The lists are supplemented with the devices that are not mentioned.

d. Facilitator consolidates the list. and demonstrate h/w devices

Input Devices

- Keyboard
- Mouse
- Scanner
- OMR
- BCR

Output Devices

- Monitor
- Printer
- Speaker
- Plotter

Memory Devices

Primary Memory

- RAM
- ROM

Secondary Memory

- Hard Disk
- CD
- DVD
- e. Product; Subject Diary

8. Discussion on number system (2 periods)

- a. Class is divided into groups
- b. Each group is given a task to list out various number systems, 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

  Hexadecimal
- d. Product: Notes in activity log

8.1 Familiarisation of place value concept in Decimal number system (1 period)

- 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.
- d. Product: Notes in activity log

9. Practice on Number system conversion (7 periods)

9.1 Discussion on conversion of Decimal to Binary

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

  Eg. $4_{(10)} = 100_{(2)}$
- c. Product: Class assignment on decimal to binary conversion. Develop conversion method.

9.2 Discussion on conversion of binary to decimal

- a. Discussion on converting binary to decimal number through practice.

b. Learners convert binary number to decimal numbers.

Develop the conversion methods

c. Product; Subject Diary, Assignment on conversion.

9. 3 Discussion on decimal fraction to binary

a. Learners already know that a number say $(15.11)_{10} = 1 \times 10^1 + 5 \times 10^0 + 1 \times 10^{-1} + 1 \times 10^{-2}$ 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

b. Product; Subject Diary, Assignment.

9.4 Discussion to convert binary fraction to decimal

a. As in activity 9 a, the decimal equivalent of 100.10 is $1 \times 2^2 + 0 \times 2^1 + 0 \times 2^0 + 1 \times 2^{-1} + 0 \times 2^{-2}$

b. Learners simplify such expressions and get decimal equivalent of a binary number.

c. Product: Assignment

9.5 Discussion on decimal to octal conversion

a. Same way as that of decimal to binary conversion

b. 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

9.6 Discussion on octal to decimal conversion

a. As in Activity 9.4 they easily conceive the idea through the discussion.

b. Try to work out questions of this type.

Develop conversion method.

c. Product; Assignment

9.7 Discussion on decimal to hexadecimal conversion

a. In the same way as that of Activity 9.5, 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.

9.8 Discussion on Hexadecimal to decimal conversion

a. As in activity 9.4, they easily conceive the idea through the discussion.

b. Try to work out questions of this type.

Develop methods.

c. Product; Assignment

9.9 Discussion on conversion from binary to octal and hexadecimal number

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.

Develop methods for conversion.

e. Product; Assignment

10. Representation of integer (1 period)

  a. Identify the problem in representing integer within the computer

  b. Introduce the possibility if designing binary codes integers

  c. Facilitator consolidates the various representation methods.

  d. Product; Subject diary.

11. Discussion on coding system (1 period)

  a. Identify the problem in representing characters with in the computer.

  b. Introduce the possibility if designing binary codes for characters and introduce ASCII codes, EBCIDIC and Unicode.

  c. Facilitator consolidates the various coding system.

  Bit, Byte, Nibble, ASCII, EBSCIDIC & Unicode.

  d. Product; Subject diary.

12. Discussion on

I. E-Waste and handling of E-Waste. (4 periods)

II. Green Computing

I.

  a. Problem: What is an E-Waste and methods for disposing E-Waste?

  b. Awareness about Green computing

  c. Learners discuss in groups, identify Electronic waste in their surroundings, lab etc and suggest method for disposing it.

  Consolidation: The facilitator consolidates the work.

  - Dispose e-Waste according to central, state and
    d. Product: Subject Diary, Assignment

  d. Product: Subject Diary, Assignment.

II. Discussion on Green Computing. (2 periods)

    a.   Problem: Discuss on green computing and work habits of computer users to promote green computing.

    b.   Learners discuss in groups, identify steps to be taken to promote energy efficiency.

    c.   Consolidation: The facilitator consolidates the points such as

    d.   Product: Subject Diary, Assignment

1.   Steps to be taken

·   Turn off computer when not in use.

·   Power-on the peripherals such as laser printers only when needed

·   Use power saver mode.

·   Use laptop computers rather than desktop computers whenever possible.

·   Take printouts only if necessary.

·   Use Liquid Crystal Display (LCD) monitors rather than Cathode Ray Tube (CRT) monitors.

·   Use hardware/software with Energy Star label.

·   Dispose e-Waste according to central, state and local regulations.

·   Employ alternative energy sources like solar energy.

2.   Complimentary approaches

·   Green Design

·   Green Manufacturing

·   Green Use

·   Green Disposal

LIST OF REFERENCE BOOK

- Fundamentals of computers - V. Rajaraman, PHI
- Computer Networks, 4th Edn - Andrew S Tanenbaum, PHI
- Data Communications and Networking, 4th Edn - Behrouz A Forouzan, Tata McGraw Hill
- Data and Computer Communications , 8th Edn. - William Stallings, PHI.
- PC Technician's Troubleshooting Pocket Reference (Hardware S) - Stephen Bigelow
- CCTV for Security Professionals-Alan R. Matchett
- Comdex Desktop Publishing Course Kit - Vikas Gupta
- Adobe Photoshop CS6 Digital Classroom - Jennifer Smith , AGI Creative Team
- CorelDRAW X6 The Official Guide - Gary David Bouton
- Advances in Visual Data Compression and Communication: Meeting the Requirements of New Applications (Multimedia Computing, Communication and Intelligence)

  - Feng Wu

LIST OF TOOLS USED

- Premium Computer & Laptop Tool Kit
- Coax Cable Stripper - RG59 or RG6 Cable
- Pocket Sized Economical Digital Volt Meter / Multimeter
- RCA & BNC Compression Tool for RG59 & 6 Cable
- RJ45-1, RJ11 RJ12 & RJ45 Crimping Tool with Wire Stripper & Cutter
- 4 Camera/ 8 camera Digital Video Recorders
- 4 Channel Complete Security Camera Systems - 4x Dome Cameras
- Smart classroom
- adobe pagemaker 7.0
- InDesign
- Office package-2007
- ISM-PRO 1.0 Download
- adobe coreldraw 7.0
- Adobe Photoshop CS6