4. కంప్యూటర్ విద్య – ఆవశ్యకత

Information and Communication Technology (ICT)

Introduction

The field of Information and Communication Technology (ICT) is evolving at such a pace, where concepts, technology and terminology are continuously changing. ICT helps to bridge the digital divide amongst students of various socio economic and other geographical barriers. Information and Communication Technology (ICT) is universally acknowledged as an important catalyst for social transformation and national progress.

Information and communication technology which is a by-product of science and technology explosion has revolutionized the world of learning. It is very essential to integrate the IT with education in order to have the advantage of ICT education.

Around the world, policymakers and educators have high hopes for ICT in the classroom as a springboard to students "21st century skills"—that combines the competencies of problem solving, critical thinking and managing their own learning is needed for success in the global workplace.

Information and Communication Technology (ICT) has dominated in every walks of life affecting right from bus & railway reservations, hotel industry, online money transfers , bill payments, in class room teaching and learning process, distance education, e-learning and film making etc..

The learning activities through ICT make a difference. Students are much more likely to learn to solve real-world problems and collaborate productively with their peers, if their learning activities are carefully designed to offer opportunities.

The aim of 21st Century education is being redefined. It is not only for employment generation but also to create a better world through understanding and development of human qualities.

In this context, the Government of India has announced 2010 – 2020 as the decade of Innovation. For which reasoning and critical thinking skills are essential. And these skills are to be inculcated at the school level for which ICT tools and techniques should be integrated into class room instructions right from the primary education level, so that the children develop the required skills. In this matter the web is an open source and the child should know how to grab it.

According to UNESCO education is important to achieve the Millennium Development goals; the following are reasons for which the ICT in education is a key aspect. i.e., '*More people would grow and develop; More people would learn and know; More people would be equal and just; More children would survive and live; More mothers would be healthier; More people would be able to combat illness; More people would think of the future; More people would work together.*"

The purpose of this material is to create awareness and practice among the student and teacher communities with a "diverse set of technological tools, resources used to communicate, create, disseminate, store, and manage information." These technologies include computers, internet, broadcasting technologies (radio and television) and telephony.

The relevant and contemporary content, lucid language, attractive illustrations and constructive exercises make the learning of computers more meaningful and enriching.

The journey of the student starts right from the ICT tools available in and around such as Radio, Tape recorder, TV, mobile and Computer. The students of primary level learn to draw by using MS & Tux Paint, learn to type small words, sentences, paragraphs, making documents by using typing tutor and MS Word. Moving away a little from these applications, the students can learn MS Excel for mathematical calculations & graphs and MS PowerPoint for making subject wise presentations. Further the students learn the concepts of Data Base Management System (DBMS), Internet, Networking and computer languages, maintaining the computers and its peripherals. The students are also introduced to learn about the Antivirus, Computer security and privacy and open source software technologies.

This material is useful in acquiring the concepts in a better way which make the student journey in learning more fruitful and engrossing. It has been developed in tune with the guidelines given by NCF-2005 and with various activity based methods. This will lay down a path to create interest to take up high level computer education courses in future and career.

The government had initiated Computer Education and Computer Aided Learning in selected Primary, Upper Primary and High Schools. A huge number of teachers in the State already had been trained to use computers in their regular class room transactions and a lot of computer aided learning material also has been developed and supplied to schools.

As part of Education Technology policy, the Education Department of Andhra Pradesh has been developing a large quantity of material in the form of Audio (Radio Programs under Vindam Nerchukundam), Audio and Video based programs (SIET and SAP Net) and Computer based programs(CDs) in collaboration with NGOs.

The Objectives of the ICT in School Education:

- To inculcate the ICT skills among the students of government schools.
- To bridge the digital divide between rural and urban students.
- To create computer awareness and literacy among students and teachers.
- To provide ICT environment in the schools to make teaching-learning process an effective and interesting
- To train the teachers on computer syllabi, emerging information and communication technologies.
- To develop confidence in students to use computers in future.

- Student-centered pedagogies that promote personalized and powerful learning for students;
- Extending learning beyond the classroom in ways most relevant to knowledge-building and problem-solving in today's world; and
- ICT integration into pedagogy in ways that support learning goals. It is important to note that ICT use is not a goal in itself, but a tool to broaden and deepen learning opportunities.

Teaching Learning Process

The ICT material has been developed from class 1 to class 10. The teacher can act as a facilitator to help the students in their learning process. In every Unit the teacher explains the concepts and students do the activities/projects with ICT tools and finely able to integrate with their subjects.

Academic standards and Assessment

Academic Standards

- The students are able to operate and use the ICT tools
- Students are able to learn subject wise contents through the ICT tools

Assessment Process

At the end of the each chapter exercises and projects have been given. On the basis of the students performance appropriate grade may be awarded in summative assessment.

ప్రపంచానికి బోధించడానికి నావద్ద కొత్త ఏమీలేదు. సత్య, అహింసలు పర్వతాలంతటి ప్రాచీనమైనవి. సత్య, అహింసలే నా మతం. సత్యం నా భగవంతుడు. ఆయనను ప్రసన్నం చేసుకోవడానికి అహింస మార్గం. ప్రపంచంలోని మతాలన్నీ అనేక విషయాల్లో విభేదించవచ్చుగాక. కానీ సత్యము తప్ప మరేదీ జీవించజాలదని అవి సమిష్టిగా ప్రకటిస్తున్నాయి.

– మహాత్మా గాంధీ

నీతిమంతులైన తల్లిదండ్రులకు మించిన అధ్యాపకులు లేరు.

5. కంప్యూటర్‌విద్య – తరగతి వారీగా పాఠ్య ప్రణాళిక

CLASS I

I   Introduction to ICT Tools
1   What is ICT?
2   Benefits and limitations of ICT
3   Types of Tools
4   Types of Computers
5   Types of Mobiles, Projectors, Radios, Televisions.
6   Working of a PC – The I-P-O cycle
7   Parts of Tools
8   Turning ON and OFF ICT Tools

II   Input Devices
1   Mouse
2   Keyboard

III   Output Devices
1   Monitor
2   Speakers

IV   Care and Protection
1   Do's and Don't's of ICT Devices
2   Maintenance of Peripherals

V   Microsoft Paint
1   Introduction to Paint
2   Open and close Paint
3   Start a new Paint picture

CLASS II

I   Introduction to ICT Tools
1   What is ICT?
2   Benefits and limitations of ICT
3   Types of Tools
4   Types of Computers
5   Types of Mobiles, Projectors, Radios, Televisions.
6   Working of a PC – The I-P-O cycle
7   Parts of Tools
8   Turning ON and OFF ICT Tools

II   Input Devices
1   Mouse
2   Keyboard

III   Output Devices
1   Monitor
2   Speakers

IV   Care and Protection
1   Do's and Don't's of ICT Devices
2   Maintenance of Peripherals

V   Microsoft Paint
1   Open an existing Paint picture
2   Name and save a new Paint picture
3   Save an existing Paint picture
4   Close a Paint picture
5   Print a simple Paint picture
6   Basic painting techniques
7   Setting foreground and background colours
8   Using the painting tools
9   Draw pictures in different colours
10   Undo and redo actions
11   Add text, lines, or shapes to an image
12   Selecting and copying parts of an image
13   Filling an area with colour

CLASS III

I   Introduction to ICT Tools
1   What is ICT?
2   Benefits and limitations of ICT
3   Types of Tools
4   Types of Computers
5   Types of Mobiles, Projectors, Radios, Televisions.
6   Working of a PC – The I-P-O cycle
7   Parts of Tools

II   Input Devices
1   - Mouse
2   - Keyboard
3   Inputs for Television

III   Care and Protection
1   Do's and Don't's of ICT Devices
2   Maintainance of Peripherals

IV   Memory and Storage
1   Memory - RAM and ROM

V   Software and Applications
1   What is software?

VI   Impact and Trends of ICT on Society
1   Legal and ethical aspects of information
    technology

VII   Tux Paint
1   Introduction to Tux Paint
2   Opening and Closing
3   Understanding the Interface
4   Use of tools
5   Draw Diagrams

VIII Typing tutor
1   Introduction to Typing Tutor
2   Opening and Closing
3   Understanding the Interface
4   Placing figures
5   Practice

CLASS IV

I Introduction to ICT Tools

1. What is ICT?
2. Benefits and limitations of ICT
3. Types of Tools
4. Types of micro Computers - Portables, Desktop
5. Types of Mobiles, Projectors, Radios, Televisions.
6. Working of a PC – The I-P-O cycle
7. Parts of Tools

II Input Devices

1. Inputs for Television

III System Unit

1. Do's and Don't's off ICT Devices
2. Maintenance of Peripherals

IV Memory and Storage

1. Memory - RAM and ROM

V Software and Applications

1. What is software?

VI Impact and Trends of ICT on Society

1. Legal and ethical aspects of information technology

VII Tux Paint

1. Introduction to Tux Paint
2. Opening and Closing
3. Understanding the Interface
4. Use tools
5. Draw Diagrams

VIII Typing tutor

1. Introduction to Typing Tutor
2. Opening and Closing
3. Understanding the Interface
4. Placing fingures
5. Practice

శుభ్రమైన గాలి, స్వచ్ఛమైన నీరు, సాత్విక భోజనం, పరిశుద్ధ భావన ఈ నాలుగు మానవుడికి అవసరమైన ముఖ్య నియమాలు.

CLASS V

I Introduction to ICT Tools
1. What is ICT?
2. Benefits and limitations of ICT
3. Types of Tools
4. Types of microcomputers - Portables, Tablet, Handheld, Desktop
5. Types of Mobiles, Projectors, Radios, Televisions.
6. Working of a PC – The I-P-O cycle
7. Parts of Tools
8. Inputs for Projector
9. Inputs for Television

II System Unit

III Care and Protection
1. Do's and Don't's off ICT Devices
2. Maintenance of Peripherals

IV Memory and Storage
1. Memory - RAM and ROM

V Software and Applications
1. What is software?

VI Impact and Trends on Society
1. Legal and ethical aspects of information technology

VII Tux Paint
1. Using to Tux Paint
2. Opening and Closing
3. Understanding the Interface
4. Use tools
5. Draw Diagrams

VIII Typing tutor
1. Using to Typing Tutor
2. Opening and Closing
3. Understanding the Interface
4. Placing fingures
5. Practice

IX Microsoft Windows
Introduction to Microsoft Windows
1. What is an Operating System? And what it does?
2. Purpose and role of OS
3. Introduction to Windows
4. Login, Logout and Password
5. Shut down Windows
6. Identify parts of the screen (desktop, icons, etc.)

CLASS VI

I Introduction to ICT Tools
1 What is ICT?
2 Benefits and limitations of ICT
3 Types of Tools
4 Types of microcomputers - Portables, Tablet, Handheld, Desktop
5 Types of Mobiles, Projectors, Radios, Televisions.
6 Working of a PC – The I-P-O cycle
7 Parts of Tools

II Input Devices
1 - Scanner
2 Inputs for Projector
3 Inputs for Television

III System Unit

IV Output Devices
1 Printers and types of printers

V Input/Output Devices
1 Modem
2 Network Card

VI Care and Protection
1 Maintenance of Peripherals

VII Memory and Storage
1 Storage Capacity

VIII Software and Applications
1 What is software?
2 Multimedia, its benefits and uses

IX Networks and Communication
Impact and Trends on Society:
1 Legal and ethical aspects of information technology
2 Security and privacy

X Introduction to Microsoft Windows
1 Identify elements of a window (title bar; minimize, maximize, and close buttons; scroll bar; etc.)
2 Move and resize a window
3 Launch an application
4 Access Windows Help

XI Organizing Files and Folders
1 Need for organizing data
2 Find files
3 Create new folders
4 Check and remove trash with the Recycle Bin
5 Select files and folders

XII MSW Logo
1 Introduction to Logo
2 Starting and exiting Logo
3 Drawing a line by using the Logo Turtle
4 Changing the Turtle's direction
5 Clearing the contents on the screen
6 Hiding and showing Turtle

CLASS VII

I   Introduction to ICT Tools
1 What is ICT?
2 Benefits and limitations of ICT
3 Types of Tools
4 Types of microcomputers - Portables, Tablet, Handheld, Desktop
5 Types of Mobiles, Projectors, Radios, Televisions.
6 Working of a PC – The I-P-O cycle
7 Parts of Tools and connections

II   Input Devices
1 Scanner
2 Inputs for Television

III   System Unit

IV   Output Devices
1 Printers and types of printers

V   Input/Output Devices
1 Modem
2 Network Card

VI   Care and Protection
1 Maintenance of Peripherals

VII   Memory and Storage
1 Storage Capacity

VIII   Software and Applications
1 What is software?
2 Multimedia, its benefits and uses

IX   Impact and Trends of ICT on Society
1 Legal and ethical aspects of information technology: intellectual property
2 Security and privacy

X   Organizing Files and Folders
1 Create new folders
2 Check and remove trash with the Recycle Bin
3 Select files and folders
4 Move and copy between folders
5 Delete items
6 Arrange items on the desktop
7 Copy and move files and folders to and from Storage devices

XI   Running Applications
1 Use Calculator, Clock & Calender

XII   Playing with the MSW Logo Pen
1 Erasing lines
2 Moving the Turtle
3 Changing the background colour
4 Changing the colour of the pen
5 Changing the size of the pen
6 Repeating commands

XIII   Microsoft PowerPoint
1 Open and close PowerPoint
2 Open a new PowerPoint presentation
3 Open an existing PowerPoint presentation
4 Name and save a new PowerPoint presentation

5   Save an existing PowerPoint presentation

6   Close a PowerPoint presentation

7   Print a simple PowerPoint presentation

XIV   MS Word

1   Print a simple Word document

2   Switch between open documents

3   Insert text

4   Select text

5   Edit and delete text

6   Navigate a document

7   Undo and redo actions

8   Cut, copy, and paste text

9   Change font size and style

XV   Microsoft Excel

1   Start and exit Excel

2   Explore the Interface elements in the Excel window

3   Create and save a new Excel workbook

4   Rename an Excel workbook

5   Close an Excel workbook

XVI   Internet

1   Open Internet explorer browser

2   Be aware of the dangers of infecting the computer with a virus from a downloaded file

3   Knowing what a search engine is and its use

4   Formulate a basic search on the Web

ఏ దేశంలో త్యాగం అనే గుణం అపారంగా ఉంటుందో ఆ దేశం ఉన్నత లక్ష్యాలను అందుకోవటం ఖాయం. త్యాగం ఎంత నిస్వార్థంగా ఉంటే అభివృద్ధి అంత ఎక్కువగా ఉంటుంది. కష్టాలను తప్పించుకునే వారికంటే వాటిని అధిగమించేవాళ్ళే విజయం సాధించగలరు. జ్ఞానానికి చరమ లక్ష్యం ఉత్తమ శీల నిర్మాణం.

<div align="right">– మహాత్మా గాంధీ</div>

ధ్యేయం పవిత్రమైనది కావడంతోపాటు, ఆ ధ్యేయాన్ని సాధించడానికి అవలంభించే మార్గాలు కూడా పవిత్రమైనవి కావాలి.

CLASS VIII

XIV   Working with Procedures in MSW Logo

1   Defining a procedure

2   Creating and saving procedures

3   Creating and saving sub procedures

4   Loading procedures

5   Editing procedures

6   Erasing procedures

7   Creating procedures by using variables

XV   Microsoft PowerPoint

1   Switch between open PowerPoint presentations

2   Understand the uses of different presentation view modes

3   Select built-in design template

4   Insert, edit, and format slide text

5   Run Slide Show

6   Modify headers and footers in the Slide Master

XVI   Microsoft Word

1   Change case

2   Change line spacing

3   Format paragraphs

4   Insert bullets and numbered lists

5   Customize bullets and numbered lists

XVII   Inserting and Modifying Text in Word

1   Apply and modify text formats

2   Align text

XVIII   Microsoft Excel

1   Switch between worksheets

2   Navigate a worksheet

3   Insert, delete, and move cells

4   Enter and edit cell data, including text and numbers

5   Move and copy labels and values

XIX   Internet

1   Formulate more complex searches

2   Understanding and usage of Social Media Network

XX   Microsoft Access

1   The DBMS

2   Database Components

3   Designing a Database

4   Access Features

5   Primary and Foreign Keys

6   Primary Key

7   Foreign Key

CLASS IX

I   Introduction to ICT Tools
1   What is ICT?
2   Benefits and limitations of ICT
3   Types of Tools
4   Types of microcomputers - Portables, Tablet, Handheld, Desktop
5   Types of Mobiles, Projectors, Radios, Televisions.
6   Working of a PC – The I-P-O cycle
7   Parts of Tools

II   Input Devices
1   - Web Camera
2   - Microphone
3   Inputs for Television

III   System Unit

IV   Input/Output Devices
1   Modem
2   Network Card

V   Processing Devices
1   Motherboard
2   Video Card
3   Sound Card

VI   Memory and Storage
1   Data storage
2   Computer system performance factors: Speed of Microprocessor, Storage Capacity of RAM, Clock Rate
3   Performance factors of monitors

VII   Networks and Communication
1   Computer networks and telecommunications

VIII   Impact and Trends of ICT on Society
1   Legal and ethical aspects of information technology: intellectual property, copyright, fair use

2   Security and privacy
3   Viruses and Anti Viruses

IX   Organizing Files and Folders
1   Compress files and extract compressed files
2   Using Cut, Copy, and Paste commands with files and folders
3   Rename documents and folders

X   Running Applications
1   Create shortcuts
2   Customize taskbar
3   Use Calculator, Clock & Calender

XI   Using Resources on the Network
1   Add a printer to the computer
2   Find the computer name

XII   Creating a Presentation in PowerPoint
1   Add slides to or delete slides from presentations
2   Duplicate, Rearrange and hide slides
3   Add Title slide, Bulletted List Slide, Column Text slide and Text & Clipart Slide
4   Create a bulleted/numbered list in different formats

XIII Inserting and Modifying Text in Word
1   Enter and format date and time
2   Search and replace text, format elements

XIV Creating and Modifying Paragraphs in Word
1   Modify paragraph formats
2   Set and modify tabs
3   Apply paragraph styles
4   Run spelling and grammar checker

CLASS X

I Introduction to ICT Tools
1 What is ICT?
2 Benefits and limitations of ICT

II Networks and Communication
1 Computer networks and telecommunications
   LAN,WAN and Internet

III Impact and Trends of ICT on Society
1 Legal and ethical aspects of information technology: intellectual property, copyright, fair use
2 Security and privacy
3 Viruses and Anti Viruses
4 Cybercrime (Hacking and Identity theft)

IV Organising files and folders
1 Switching tasks
2 Display contents of my computer
3 Set background & screen saver

V Using Resources on the Network
1 Share folders and printers on the network
2 Access shared folders
3 Use Active Desktop, Control Panel, Quick Launch bar

VI Inserting and Modifying Visual Elements
1 Add clip art to slides
2 Customize slide backgrounds

VII Modifying Presentation Formats
1 Apply animation schemes
2 Apply slide transitions

VIII Printing Presentations
1 Preview and print slides, outlines, handouts, and speaker notes

IX Formatting Documents in Word
1 Create and modify a header and footer
2 Create, modify and delete tables
3 Change page views
4 Preview and print documents
5 Insert page breaks

X Creating and Revising Formulas in Excel
1 Create and revise formulas
2 Cell reference in formulas
3 Copy and move formulas
4 Use date and time in formulas

XI Creating and Modifying Graphics in Excel
1 Create, modify, position, and print charts

XII Internet
1 Understand and usage of Social Media Network

XIII Microsoft Access
1 Working with Queries
2 Creating a Query
3 Using the Query Wizard
4 Using Design View
5 Saving a Query
6 Running a Query
7 More Query Functions
8 Sorting Records in a Query

* * *

ధైర్యం లేనివాడు స్వాతంత్ర్యాన్ని సంపాదించుకోలేడు. ఒకవేళ అది లభించినా దాన్ని నిలుపుకోలేడు.