

**Federal Democratic Republic of Ethiopia
Ministry of Education**

**Information Communication Technology
Syllabus Grade 9**

2009

Participants

Addis Ababa and other Regions ICT (Teacher)

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Unit 1 Introduction to ICT (18 periods)

Unit Outcome: Students will be able to:

- Know the term data, information, technology and the source of information;
- Understand the differences b/n computers of one generation from the other;
- Recognize the types of computers used today and their difference
- Under stand the computer system

<i>Competencies</i>	<i>Contents</i>	<i>Suggested Activities</i>
<p><i>Students will be able to:</i></p> <ul style="list-style-type: none"> • Define data and information • Explain the term technology and information technology • List sources of information • List Computers generation • Compare the difference among each generation of computers • Classify types of computers used today • List the Characteristics of each type of computer • Explain how data is represented in the computer 	<p>1.1 Over view of ICT</p> <ul style="list-style-type: none"> • Data vs Information • Technology • Information Technology • Sources of Information • Documentary sources Primary documentary Secondary documentary Tertiary documentary Non-documentary: <p>1.2 Generation of Computers</p> <ul style="list-style-type: none"> • First , Second, Third, Fourth, and Fifth generation <p>1.3 Types of computer</p> <ul style="list-style-type: none"> • Super ,Mainframe, Mini., Micro, Desktop, Laptop and Palmtop • Characteristics of computer <p>1.4 Introduction to Data representation:</p> <ul style="list-style-type: none"> ▪ Number system (binary, octal, hexadecimal) ▪ Conversion numbers from number system to 	<ul style="list-style-type: none"> • Explain and demonstrate the terms data, information & technology • Students should define the terms data, information and technology • Students in group try to List and share their idea with their friends • Explain and demonstrate the different sources of information • Explain & demonstrate (pictorially or physically) each generation of Computers and introduction to Artificial Intelligence • This can be researched by the students and written as a report to be submitted to the teacher about computer generation • Explain that computers are categorized In terms of size, processing speed and capacity only • Give some uses of computers: eg traffic control system, ticket machines, cash machines in banks • Introduce an idea of the complexity of data representation in computer. It should be done qualitatively only. Such as representing 1 bit, Binary system, Letters and symbols: ASCII code and Bytes and associated quantities (KB, MB, GB, TB)

<i>Competencies</i>	<i>Contents</i>	<i>Suggested Activities</i>
<ul style="list-style-type: none"> Describe the computer system List major hardware components Define systems software and applications software Classify software as Systems or Applications software List and explain the uses of systems software Give examples and explain uses of some Applications software 	<p>the other</p> <ul style="list-style-type: none"> Computer coding system (BCD, ASCII, Unicode) <p>1.5 Computer system</p> <ul style="list-style-type: none"> Hardware Software <p>Hardware components:</p> <ul style="list-style-type: none"> Input devices Output devices System unit <p>Secondary storage devices</p> <ul style="list-style-type: none"> - Compact disc CD <p>Types of software</p> <ol style="list-style-type: none"> Systems software: <ol style="list-style-type: none"> Operating system SW Language SW <ol style="list-style-type: none"> Low level SW High level SW Compilers & interpreters Others <ul style="list-style-type: none"> - Program utilities - device drivers <p>Applications software:</p> <ul style="list-style-type: none"> - General purpose (eg. Microsoft word) 	<ul style="list-style-type: none"> Demonstrate and explain in brief that a computer system consists of hardware components and software components. (diagram) Define hardware and software in simple and understandable words Define hardware: the physical parts of the computer that can be seen and touched Define software: the sets of instructions that instruct the computer to do different tasks for example: word processing, games, painting, email, spreadsheets <ul style="list-style-type: none"> Use diagram to show the linkage between hardware components; explain each part of the diagram Students name all the input, output and storage devices that they know. <ul style="list-style-type: none"> Explain that some secondary storage devices are also input and output devices. Demonstrate some of these examples. System unit contains the motherboard, power supply, hard disc. The motherboard contains the ‘Central processing unit’, or CPU, the ‘brain’ of the computer, and RAM <ul style="list-style-type: none"> Explain that Systems Software keep the computer system working Explain that Applications Software allow the user to perform specific tasks Define and explain the difference between Systems Software and Applications Software. (Use diagram – see resources) <ul style="list-style-type: none"> Give broad definitions and outline of the function of each of these: Operating system is a bridge between the computer hardware and the user; Program Utilities carry out general tasks such as formatting discs, storing files, virus checking; Device drivers are programs which allow hardware devices such as the keyboard, printers to interface with the computer <ul style="list-style-type: none"> Demonstrate some of the features of as many of the applications software packages mentioned as possible. Such as word processing package, spreadsheet package, database package, desk top publishing package, email package and presentation package

<i>Competencies</i>	<i>Contents</i>	<i>Suggested Activities</i>
<ul style="list-style-type: none"> • Manipulate their files and folders on a computer • Transfers files from one folder to another • Find a file or folders using a ‘search’ facility • Customize their computer desktop 	<ul style="list-style-type: none"> – Specialty SW (e.g. Peachtree) – Entertainment of Educational SW • Features of Operating system – Creating folders, – Copying Files and Folders – Moving Files and Folders – Rename Files and Folders – Deleting Files and Folders – Searching Files and Folders – Customize computer desktop 	<ul style="list-style-type: none"> • Organize a logical filing system on a personal computer or laptop. • Search for a file containing particular string. • Rename a file to include the author’s initials and date • Change the desktop wall paper, screen saver, etc.

Assessment: Assessment

The teacher should assess each student’s work continuously over the whole unit and compare it with the following description, based on the specific objectives, to determine whether the student has achieved the minimum required level.

A student working at the minimum requirement level will be able to: List sources of information, Identify the dominating circuit element of each generation , Classify types of computers used today, explain how data is represented in the computer, Describe the computer system, List major hardware components, Classify software as Systems or Applications software, Give examples

and explain uses of some Applications software and Manipulate their files and folders on a computer

Students working above the minimum requirement level should be praised and their achievements recognized. They should be encouraged to continue working hard and not become complacent.

Students working below the minimum requirement level will require extra help if they are to catch up with the rest of the class. They should be given extra attention in class and additional lesson time during breaks or at the end of the day.

Unit 2. Application software (15 periods)

Unit Outcome: Students will be able to:

- Understand how to open word processing software, and create, and save a document,
- Recognize how to Format a document in a desired way;
- Apply any of formatting features in their document;
- Understand how to open presentation software , and create, and save a document;
- Recognize how to create a slide show using animation and sound.

<i>Competencies</i>	<i>Content</i>	<i>Suggested Activities</i>
<p><i>Students will be able to:</i></p> <ul style="list-style-type: none"> • Create and save the word processing document • Format a character as required • Index a paragraph • Index text in desired direction • Align text by using icons on the menu bar and by selecting paragraph from formatting menu • Apply bullets and numbers to display ordered or unordered list • Change the styles of bullets and numbers effectively • Insert and delete a page break and page number in a document. • Add and delete headers and footers in a document • Protect their document from unauthorized access • use tables and pictures by inserting 	<p>2.1 Word Processing</p> <ul style="list-style-type: none"> • Open word processing • Creating new document • Saving a document • Closing a document • Editing a document • Formatting a document <ul style="list-style-type: none"> - Character Formatting - Paragraph Formatting - Page formatting - Spell checking - adding tables - adding pictures - inserting tables - inserting pictures (clipart, drawing object) 	<ul style="list-style-type: none"> • Students should Locate where the word processing software in the computer and create, save and close the document • Students should insert, remove unwanted items and/or changing existing ones in the document and also apply Undo and Redo • Explain and demonstrate how to change the appearance of text Changing Font, style, Size, Color and changing font style • Students should apply paragraph format such as alignment, indent, line spacing, bullets and numbers, and drawing boarders around paragraphs • Demonstrate setting text and paragraph alignment Left, Right, Centre, Justify • Explain and demonstrate powerful formatting features including header and footer, margins and the steps involved to insert and delete bullets, a page break, a header and footer, page numbers and date and time on a document that they have already produced • Student should check spell of paragraph and page and identify color application

<i>Competencies</i>	<i>Content</i>	<i>Suggested Activities</i>
<ul style="list-style-type: none"> • Create a presentation • Prepare and present a slide show • Create a presentation using design techniques • Create a slide show 	<p>2.2 Presentation software and Techniques</p> <ul style="list-style-type: none"> • Features of a presentation package: • Creating slides using text and images • Formatting text and background • Inserting and deleting slides • Presenting a slide show • Create a slide show using animation and sound • Change slide layout 	<ul style="list-style-type: none"> • Student should use tables and pictures by inserting • The students should make slides using each feature as it is explained and demonstrated such as creating slides, inserting text, formatting text, inserting clipart, formatting background, inserting slides, deleting slides and inserting images from other files • Explain various design techniques listed such as design templates, animation scheme, colour schemes and adding sound • Each group of students to presents their slide shows to the class, giving explanations as necessary. presentation software, spare paper, magazines, newspapers, reference books etc

Assessment

The teacher should assess each student’s work continuously over the whole unit and compare it with the following description, based on the specific objectives, to determine whether the student has achieved the minimum required level.

A student working at the minimum requirement level will be able to: Create and save the word processing document, Format a character as required Index a paragraph, Index text in desired direction, Apply bullets and numbers to display ordered or unordered list, Insert and delete a page break and page number in a document, Add and delete headers and footers in a

document, Create a presentation, Prepare and present a slide show and Create a presentation using design techniques

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Unit 3 Information and computer security (3 periods)

Unit Outcome: After learning this unit students will be able to

- Understand the responsible behavior in the Computer Laboratory;
- Recognize the nature of computer virus and measure to protect

<i>Competencies</i>	<i>Content</i>	<i>Suggested Activities</i>
<p><i>Students will be able to:</i></p> <ul style="list-style-type: none"> • Identify responsible behavior in the Computer Laboratory • Identify safe on-line behavior ▪ Identify the school ICT police and live with it • Describe computer virus • Identify the measure to protect computer virus 	<p>3. Information and computer security</p> <ul style="list-style-type: none"> ▪ Responsible behaviour in the computer Lab ▪ School ICT Policy ▪ Nature of computer Viruses <ul style="list-style-type: none"> ○ Measures protect 	<ul style="list-style-type: none"> • Explain that the laboratory contains delicate and expensive equipment; students must behave in a calm manner and not damage any machines or furniture; they must not touch any electrical connections for any reason • Explain that students should not give either their own or another’s personal data to anyone; email addresses should not be given to anyone • Explain and demonstrate some of the school ICT polices which means rules prepared by the school ▪ Discuss what a computer virus can do to a computer system and show the students how the computers they use have been protected against virus

Assessment

The teacher should assess each student’s work continuously over the whole unit and compare it with the following description, based on the specific objectives, to determine whether the student has achieved the minimum required level.

A student working at the minimum requirement level will be able to: Identify responsible behavior in the Computer Laboratory, Identify safe on-line behavior, Identify the school ICT police and live with it, Describe computer virus and Identify the measure to protect computer virus

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Unit 4 Application software (15 periods)

Unit Outcome: Students will be able to

- Recognize the uses of spreadsheets;
- Understand the screen elements in the spreadsheet window;
- Recognize how to create and use simple spreadsheet using text and numbers

- Understand how to format Worksheets
- Recognize to use built in functions and create custom formula

<i>Competencies</i>	<i>Content</i>	<i>Suggested Activities</i>
<p><i>Students will be able to:</i></p> <ul style="list-style-type: none"> • Identify the purpose of a spreadsheet • Identify the screen elements in the spreadsheet window • Manipulate rows and columns • Manipulate data in a cell • save the worksheet • Use auto sum • Use mathematical operators on data to perform addition, sum and others • use the function of the Fill handle • Apply different effects to a cell and its contents 	<p>4.1 Spreadsheets</p> <ul style="list-style-type: none"> • Introduction • Starting spreadsheets • Screen elements of spreadsheets: • Create and use a simple Spreadsheet: • Entering and editing text • Saving the worksheet • Using the four mathematical operators on data to create custom formula: <ul style="list-style-type: none"> • Addition • Sum (dragging) • Entering a formula into a cell • Copying by using the Fill handle 	<ul style="list-style-type: none"> • Explain that a spreadsheet is a document which helps you organize data in rows and columns that intersect to form cells. • Students should identify each cell can contain words, a number, or a formula. • Students should recognize Screen elements of spreadsheets: such as Title bar, Menu bar, Formula bar, Standard tool bar, Worksheet, Inserting, Renaming, Deleting, Move or Copy, Columns, Rows, Cells, Fill handle and Cell address • Show examples of spreadsheets • Explain and demonstrate title bar etc. it can be seen that there are screen similarities with Word and other MS products; main differences in a spreadsheet are i) the formula bar which is used for operations on cells such as calculations ii) the working area • Explain that the cell address is (column letter, row number) • Explain and demonstrate: can adjust either freehand or using format box from format menu, how to insert rows and columns and deleting rows or columns • Instruct students to open a work book and in sheet one to enter three digit numbers in few cells horizontally or vertically. They should calculate the sum manually (on paper) • Explain and demonstrate how to calculate the sum (total) • Explain and demonstrate how to calculate sum (total) using auto sum • Explain and demonstrate formatting text and numbers in a cell using the Cell dialogue box from the Format menu • Adding background to a worksheet, Formatting Cells, Number, Alignment, Font, Borders, Pattern and Cell reference: and - Absolute Relative

<i>Competencies</i>	<i>Content</i>	<i>Suggested Activities</i>

Assessment

The teacher should assess each student’s work continuously over the whole unit and compare it with the following description, based on the specific objectives, to determine whether the student has achieved the minimum required level.

A student working at the minimum requirement level will be able to: Identify the screen elements in the spreadsheet window, Manipulate rows and columns, Manipulate data in a cell, save the worksheet, Use some built-in functions to calculate totals and averages, use the function of the Fill handle and Apply different effects to a cell and its contents

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Unit 5 using Internet (10 periods)

Unit Outcome: Students will be able to

- Understand the internet as a global network;
- Recognize the meaning of some basic terms related to the Internet;
- Recognize the work with a search engine to search for items;
- Understand hotspots and hyperlinks;
- Comprehend the meaning of some common email terms.

<i>Competencies</i>	<i>Content</i>	<i>Suggested Activities</i>
<p><i>Students will be able to:</i></p> <ul style="list-style-type: none"> • Identify the internet and the world wide web • explain how Internet and WWW are used • Define website, webpage • Define a browser • List and describe some different types of browser • Open a browser and identify the screen elements • Use web addresses to access websites • describe some different types of browser <ul style="list-style-type: none"> • Store Favorite addresses • create an email account <ul style="list-style-type: none"> • Compose and send an email <ul style="list-style-type: none"> • Receive and open an email 	<p>5.1 using Internet</p> <ul style="list-style-type: none"> • Definition of Internet • Uses and Services available on the Internet • Terms: • Types of browsers SW: • Screen elements of Internet Explorer • Using Internet <ul style="list-style-type: none"> • Browsing information • Saving document • Saving images • Printing documents • Searching information <p>5.2 Using Email</p> <ul style="list-style-type: none"> • Creating an email account • Composing and sending an email • Receiving and replying to an email 	<ul style="list-style-type: none"> • Explain the difference between a website and web pages; show some sites and pages • Define browser • List, describe and demonstrate the different types of browsers • Explain and demonstrate the screen elements of a browser • Explain that each website has a unique address; a website holds information; creation of websites briefly; there may be a few or many pages on the website • Explain and demonstrate some hyperlinks, and returning back to the original web page • Students practice accessing websites using addresses • Students will investigate four search engines (for example, AltaVista, Lycos, and Google. Yahoo), explaining the features of search engines, and write a report on their preferred search engine, giving reasons why they prefer it <ul style="list-style-type: none"> • Identify functions on the compose email page; students compose and send email • Identify and explain the outbox/sent items • Explain the facilities in the email system • Explain why distribution lists are useful; and demonstrate how to implement • Explain and demonstrate how to attach a file to an email, and how to open an attachment on an incoming email <p>The teacher will check that each student:</p>

<i>Competencies</i>	<i>Content</i>	<i>Suggested Activities</i>
<ul style="list-style-type: none"> • Use the facilities provided in the email system 	<ul style="list-style-type: none"> • Facilities of an email system • Distribution list • Attachments: <ul style="list-style-type: none"> - sending - receiving • Auto reply 	<ul style="list-style-type: none"> • has an email address and has received and sent mail (by checking inbox and sent items) • can create a folder for filing the same kind of mail • can create a distribution list • can attach a file to an email

Assessment

The teacher should assess each student’s work continuously over the whole unit and compare it with the following description, based on the specific objectives, to determine whether the student has achieved the minimum required level.

A student working at the minimum requirement level will be able to: Identify the internet and the world wide web, define website, webpage, and browser, describe some different types of browser, Open a browser and identify the screen elements, Use web addresses to access websites, Store Favorite addresses, identify types of search engines, create an

email account, Compose and send an email and receive and open an email.

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Unit 6 control and learning with logo (7 periods)

Unit Outcome: Students will be able to:

- Understand the logo language
- Recognize to produce a variety of diagrams using the logo language

<i>Competencies</i>	<i>Content</i>	<i>Suggested Activities</i>
<p><i>Students will be able to</i></p> <ul style="list-style-type: none"> • Use the logo primitives to draw a variety of shapes • Write procedures to include repeat and RND 	<p>6. control and learning with logo</p> <ul style="list-style-type: none"> • Using primitives • Writing procedures <p style="text-align: center;">Using RND</p>	<ul style="list-style-type: none"> • Draw equilateral triangles using the primitives • Write a procedure to draw on equilateral triangles • Write a procedure to draw an equilateral triangle • Write a procedure to include a random number generator e.g. throwing a die • Teacher will observe printed version and dribble file and necessary • Use Full version of logo language

Assessment

The teacher should assess each student’s work continuously over the whole unit and compare it with the following description, based on the specific objectives, to determine whether the student has achieved the minimum required level.

A student working at the minimum requirement level will be able to:
Use the logo primitives to draw a variety of shapes and Write procedures to include repeat and RND

Students working above the minimum requirement level should be praised and their achievements recognized. They should be encouraged to continue working hard and not become complacent.

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