MINISTRY OF EDUCATION AND SPORTS

# COMPUTER STUDIES TEACHING SYLLABUS

## Uganda Certificate of Education

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## Senior 1 - 4

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National Curriculum Development Centre
P.O. Box 7002 Kampala
UGANDA.

# NATIONAL CURRICULUM DEVELOPMENT CENTRE

# KYAMBOGO

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# COMPUTER STUDIES TEACHING SYLLABUS

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## UGANDA CERTIFICATE OF EDUCATION

## (SENIOR 1 – 4)

NCDC

**National Curriculum Development Centre – Kyambogo, Kampala – Uganda.**



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# ACKNOWLEDGEMENT

# FOREWORD

# INTRODUCTION

The computer studies curriculum is an imperative necessity. Computers and computer skills are an essential part of our life. Using computers enhances a number of activities such as study, information creation, storage, sharing, data analysis, problem solving and production.

The introduction of Computer Studies in the secondary education curriculum therefore is in accordance with the Vision 2035 which emphasis rapid economic growth based on maximum utilization of Information Technology. Though there has been Computer Studies in schools, there are variations from school to school in terms of scope and depth, content delivery timing, use of reference materials and deployment of technologies and resources.

# PURPOSE OF THE COMPUTER STUDIES SYLLABUS

1. The computer studies teaching syllabus serves to standardise the teaching of Computer Studies in all schools.
2. It also serves to leverage the use of software through suggesting solutions that can be achieved with use of more than one type of software.
3. The Computer Studies teaching syllabus intends to encourage a lot of practical work and hand-on practice and with much accommodation of changing and emerging technologies in ICT.
4. It also serves to provide a platform for easy assessment of skills and other areas of knowledge.
5. The Computer Studies syllabus serves to promote scientific, technical and cultural knowledge, skills and attitudes needed for development.

# AIMS OF TEACHING COMPUTER STUDIES

1. To lay a foundation for a learner to acquire knowledge and skills in the use of information and communication technology for enhanced productivity and development.
2. To promote creative skills for problem solving.
3. To promote critical and analytical thinking skills for proactive solutions.
4. To create awareness in a learner in regard to the developments and emerging issues concerning computing and society.
5. To foster a learner as a computer literate and capable citizen who can develop, communicate and implement innovative, practical and responsible ICT solutions to problems.

# TARGET

The Computer Studies teaching syllabus is for use by a qualified Computer Studies secondary school teacher.

# TIME ALLOCATION

Computer Studies is allocated three (3) periods per week for the 12 school weeks in a term from Senior One to Senior Four and thus has a total of 36 periods per term in the school calendar year. The time allocation given provides adequate time for hands-on practice. Therefore it is the duty of the teacher to make better use of this time by providing enough resources for practice to the learners.

# HOW TO USE THE COMPUTER STUDIES TEACHING SYLLABUS

This Computer Studies teaching syllabus is structured in three (3) main sections; the preliminary pages which provide introductory guidance on what is contained within and how it should be used, the detailed content structure which provides the scope and depth of the subject including how it should be delivered in the classroom and the appendices which are providing vital information that is necessary for the successful implementation of the subject.

The detailed subject content has been laid out in terms of topics as the main collective content headings appearing at the top of the content tables. Sub-topics that make up a particular topic have been drawn up in the first column of each matrix and numbered in order of their approach or teaching sequence in relation to the topic in question. In the third column of each matrix, is the detail of the content to be handled under each sub-topic, with some content being indicated under the respective content headings. However, where the teacher finds it difficult to comprehend the depth of content to be taught, he/she should consult with the following Teacher's Hints.

## Computers today:

- You should give guided introduction to aspects of computing, occupations and application
- You are encouraged to invite resource persons to enlighten students in the field of ICT.
- You should mention and show / demonstrate physical computer parts

## Evolution of Computers:

- Focus should be on characteristics of the era
    - Physical
    - Software
    - Set-backs
    - Technology

## Uses and functions of a Computer:

- Focus on identifying and describing the uses of the computer

## Computer care and safety:

- You should explain in the simplest terms possible or according to terms already learnt.
- On Maintenance: general guidelines for maintenance of computers should be discussed or taught

## Keyboard and Navigation:

- Utilize typing tutors and word pad, to develop skills of typing
- Tools e.g. Paint-brush, should be used to help students to develop skills in navigating and using the mouse
- Give as many examples of key-combinations especially the most important (2-key & 3-key combinations)
- Practical work on Keyboard skills and navigation should be given to every student and should be continuous.

## Categories of computers:

- Focus should be on the operations and examples of the categories.

## Classification of computers:

- Endeavour to provide more information on other classifications not mentioned here in the syllabus

## Computer system:

- Focus should be on distinguishing hardware, software, data and communication components.

## Components of computer hardware:

- When teaching storage devices, it is important to note and discuss Primary & Secondary storage components

## System software:

- Focus should be on general functions of systems software
- Observe that system software is not an Operating system.
- Students should practice on functions of system software.

## Application software:

- You should not limit to only Office packages but others like Desktop Publishing, Imaging programs e.t.c.
- A clear distinction of types of application software is expected.
- Focus on types of application software should be on Off-shelf, Custom-tailored, Shareware, Freeware and Open-source.
- Emphasis should be placed on demonstrations

## Word processing:

- Focus is on document production with emphasis on skills outlined in the syllabus
- Much more practice should be done with related documents
- Creativity and maximum use of available features is encouraged at this level
- Tasks to students should be time-bound

## Presentations:

- Where options are provided, all the commands / tools should be used.
- The “School advert” and “short stories” are progressive activities that will generate / develop skills over a number of slides.
- The “School advert” should be handled / taught from scratch (black slides); templates and wizards should not be used at this stage.
- Using skills gained out of practice in the school advert and short stories, learners should be made to explore through the themes provided and make presentations in classroom / lab.
- You should encourage students to practice and gain skills in:

    a. Mail merge
    b. Hyper links
    c. Inter links

d. Mathematical features
e. Document security
f. Import and export options.

## System configuration:

- You should make use of the technical and user manuals provided with the computers and software respectively.
- Consult / Research more from the Internet
- A lot of hands-on practice should be given to students
- At least two (2) computers should be put aside for practice
- Extra periods have been allocated to system configuration and another 2 for Troubleshooting for purposes of providing students with more hands-on practice time in the classroom.

## Computer networks:

- You should limit configuration to dynamic IP addressing when setting up the SOHO Network
- You should cover as many terminologies as possible under computer communication.
- Internet will be treated on one of the types of Networks and the following should also be emphasised:
  - History of Internet
  - Uses of the Internet
  - Types of Internet connection
- You should demonstrate Internet use and endeavour to make students practice in the use of the Internet.

## Spread Sheets:

- Start off with a simple mark sheet and progressively move towards an advanced worksheet.
- Limit the learning scope to the following:

| Functions: | Operations: |
|---|---|
| SUM ( ) , AVG ( ) , COUNT ( ) , MIN ( )<br>MAX ( ) , IF ( ) , Cell referencing ,<br>Absolute (Fixed) , MODE , MEDIAN , | + ; - ; * ; / ; ∧ ; ( ) |

## Web design and publishing:

- A personal web page should have:
    1. A header
    2. Images and graphics
    3. Tables
    4. Bio-data
    5. Hyper links
- When conducting practice with other tasks, involve use of a resource person (like web designers / masters)
- Limit the scope of designing to the following areas:

**Web Page Components:**

a. Page titles
b. Text headings and main text content
c. Buttons and icons: navigation tools
d. Lists: ordered and unordered lists
e. Line separators
f. Graphics (images)
g. Tables
h. Frames
i. Specific relative text size and flow in a document.

**Linking Options:**

a. Relative pathnames and absolute pathnames
b. URLs
c. Integration of images into the page
d. Alternate text for images

e. Images as hyper links

**Colour Options:**

a. Specify a colour by name
b. Specify a colour by RGB Value
c. Colour of text, background and links

## Data base design:

- You should limit the design scope to a flat database file.
- You should make use of resource persons in database development and design.

## Trends in computing:

- In teaching "Developments in application" the following areas should be addressed:
    a. Growth of the Internet
    b. Virtual Reality
    c. Education
    d. Health
    e. Military
    f. Commerce
    g. Industry
    h. Home
    i. Government
- Computer Intrusion; the following should be taught,
    a. Hacking
    b. Electronic trespass
    c. Viruses
- Computer protection; the following should be taught,
    a. Firewalls
    b. Data encryption
    c. Physical protection
- You should limit the teaching to issues of copyright concerning computers, when handling Copyright Law in Uganda.

# MODE OF ASSESSMENT

Assessment of Computer Studies will be handled in two modes, that is, continuous assessment and summative assessment.

## CONTINUOUS ASSESSMENT:

This shall be carried out by the subject teacher within the provided teaching time in form of practical sessions or exercises, tests, class and student projects, study reports, open quizzes, oral questions and answers and experiments. For this subject, it is advised that assessment be done at the end of each subtopic, so that achievement of the specific objectives under question is adequately checked against each learner.

This mode of assessment shall be the core of assessment from senior one to senior four and thus no time for assessment or examining shall be put aside for this subject in the said period. It therefore means that all school terms with the exception of Senior Four - Term 2, shall carry continuous assessment marks.

## SUMMATIVE ASSESSMENT:

This shall be conducted at the end of four years of the ordinary level of education; in the same way as has been the practice over the years. The same examination formats that have been in existence shall still be maintained. Computer Studies shall be examined in two major papers, with Paper 1 covering theoretical and applied sections of the syllabus and Paper 2 covering the hands-on aspects of the syllabus.

**PAPER I (2½ hours):** This shall be a theory and practical theory paper with three sections.

**Section A (20 Marks)**

Will consist of 20 multiple choice questions drawn from the whole syllabus

**Section B (60 Marks)**

Will consist of 6 structured questions drawn from the whole syllabus

**Section C (20 Marks)**

Will consist of three (3) equally weighted practical theory questions and a candidate will attempt only one (1) question carrying 20 marks; questions will be drawn from the following topics:

i. Elementary Programming
ii. Trends in Computing
iii. Systems Start-up and Configuration
iv. Computer Communication and Networking
v. Computer Hardware

**PAPER II (2½ hours):** This will be a practical paper with two sections.

**Section A (40 Marks)**

This section shall be compulsory and questions will be drawn from Word Processing and Spreadsheets

**Section B (60 Marks)**

This section will consist of three (3) equally weighted questions of which a candidate will attempt two (2) questions, each carrying 30 marks. The questions will be drawn from Databases, Web Design and Computer Presentations.

# COMPUTER STUDIES CURRICULUM SEQUENCE

| | | | |
|---|---|---|---|
| SENIOR 1 | TERM 1 – 2 | TOPIC 1: INTRODUCTION TO COMPUTERS | 1.1 Computers Today<br>1.2 Evolution of Computers<br>1.3 Uses and Functions of a Computer<br>1.4 Computer Care and Safety<br>1.5 Keyboard and Navigation<br>1.6 Categories of Computers<br>1.7 Classification of Computers<br>1.8 The Computer System |
| | TERM 2 – 3 | TOPIC 2: COMPUTER HARDWARE | 2.1 Components of Computer Hardware<br>2.2 Application of Hardware Components |
| SENIOR 2 | TERM 1 | TOPIC 3: COMPUTER SOFTWARE | 3.1 Introduction to Software<br>3.2 System Software<br>3.3 Application Software |
| | TERM 2 | TOPIC 4: WORD PROCESSING | 4.1 Introduction to Word Processing<br>4.2 Word Processing |
| | TERM 3 | TOPIC 5: COMPUTER PRESENTATION | 5.1 Introduction to Presentation Software<br>5.2 Presentations |
| SENIOR 3 | TERM 1 | TOPIC 6: SYSTEM START-UP AND CONFIGURATION | 6.1 Computer Booting<br>6.2 System Configuration<br>6.3 Software Installation<br>6.4 Computer Troubleshooting |
| | | TOPIC 7: COMPUTER COMMUNICATION AND NETWORKING | 7.1 Introduction to Computer Communication<br>7.2 Computer Networks |
| | TERM 2 | TOPIC 8: SPREADSHEETS | 8.1 Introduction to Spreadsheets<br>8.2 Spreadsheets |
| | TERM 3 | TOPIC 9: WEB DESIGNING | 3.1 Introduction to Web Design<br>3.2 Web Design |
| SENIOR 4 | TERM 1 | TOPIC 10: DATABASES | 10.1 Introduction to Databases<br>10.2 Database Design |
| | TERM 2 | TOPIC 11: ELEMENTARY COMPUTER PROGRAMMING | 11.1 Introduction to Programming<br>11.2 Developing a Simple Program |
| | TERM 2 – 3 | TOPIC 12: TRENDS IN COMPUTING | 12.1 Computer Integrity and Security<br>12.2 Computer Ethics<br>12.3 Computers and Society<br>12.4 Emerging Technologies<br>12.5 Systems Analysis<br>12.6 Computer Professions |

**CLASS:** **SENIOR ONE** **TERM:** **ONE** **DURATION:** **36 PERIODS**

**TOPIC 1:** INTRODUCTION TO COMPUTERS

**GENERAL OBJECTIVE:** To enable the learner understand the computer and its operations.

| SUB-TOPIC | SPECIFIC OBJECTIVES | CONTENT | DURATION |
|---|---|---|---|
| 1.1 Computers Today | a) To be able to define and explain characteristics of modern computers<br>b) To be able to explain terminologies and concepts as applied to computing today<br>c) To be able to explain the reasons for studying computers | a. Definition, characteristics of modern computers;<br>b. Terminologies and concepts;<br>c. Reasons for studying computers | 6 Periods |
| 1.2 Evolution of Computers | a) To be able to trace the origin and explain evolution of computers<br>b) To be able to identify and compare the different developments in the evolution computers | a. Origin of Counting<br>b. Mechanical era<br>c. Electro-mechanical era<br>d. Electronic era (including Computer Generations) | 9 Periods |
| 1.3 Uses and Functions of a Computer | To be able to:<br>a) identify the uses of a computer;<br>b) describe the different uses of a computer | a. Education<br>b. Research<br>c. Business<br>d. Health<br>e. Communication<br>f. Military/security<br>g. Home<br>h. Entertainment / leisure | 6 Periods |

| SUB-TOPIC | SPECIFIC OBJECTIVES | CONTENT | DURATION |
|---|---|---|---|
| 1.4 Computer Care & Safety | To be able to:<br>a) Explain and practice rules and regulations for the care of computers and computer laboratories<br>b) Manage computing environments<br>c) Maintain computers in good working condition<br>d) Explain and practice the required ethics and integrity in computer use | a. Rules and regulations<br>b. Management of computers<br>c. Maintenance of computers<br>d. Ethics and integrity in computer use | 6 Periods |
| 1.5 Keyboard & Navigation | To be able to use the Keyboard and Navigation tools | a. Pointing Devices:<br>i. Definition<br>ii. Types<br>iii. Uses<br>b. Keyboard:<br>i. Sections of the Keyboard & their uses<br>ii. Key combinations & their uses | 9 Periods *(Theory)* |

**Teaching and Learning Strategies:** Teacher should guide learners to discover on their own; Learning should be through observations by learners; Teacher should demonstrate to the learners to achieve learning; Learners should engage in self study; ***Practical work is a must for: 4. Computer Care & Safety and 5. Keyboard & Navigation***

**Assessment:** Written tests, Quizzes, Assignments, Oral Questions, Exercises *(Where practical work has been indicated, provide for practical tests or exercises)*

**CLASS: SENIOR ONE TERM: TWO DURATION: 36 PERIODS**

**TOPIC 1:** INTRODUCTION TO COMPUTERS (. . . continued)

| SUB-TOPIC | SPECIFIC OBJECTIVES | CONTENT | DURATION |
|---|---|---|---|
| 1.6. Categories of Computers | To be able to:<br>a) Distinguish the different categories of computers<br>b) Explain how the different categories of computers function | Categories (with examples)<br>a. Analog<br>b. Digital<br>c. Hybrid | 3 Periods |
| 1.7. Classification of Computers | To be able to:<br>a) Classify computers by size<br>b) Classify computers by the functions they perform | Ways of classifying computers (with examples)<br>a. Classification by size:<br>i. Super Computers<br>ii. Mainframes<br>iii. Mini Computers<br>iv. Micro Computers<br>b. Classification by function:<br>i. Stand-alone<br>ii. Networked<br>iii. Real-time Systems<br>iv. Integrated Systems | 4 Periods |
| 1.8. The Computer System | a) To be able to describe the set up of the different components of a computer system | Computer System: hardware, software, data and communication | 4 Periods |

**Teaching and Learning Strategies:** Teacher should guide learners to discover on their own; Learning should be through observations by learners; Teacher should demonstrate to the learners to achieve learning; Learners should engage in self study.

**Assessment:** Written tests, Quizzes, Assignments, Oral Questions, Exercises

**TOPIC 2:** COMPUTER HARDWARE

**GENERAL OBJECTIVE:** To enable the learner understand computer hardware, its operations and usage.

| SUB-TOPIC | SPECIFIC OBJECTIVES | CONTENT | DURATION |
|---|---|---|---|
| 2.1 Components of Computer Hardware | To be able to name and classify the various components of computer hardware | Classification of components *(with examples)*: input and output hardware components, storage components and processing components. | 7 Periods |

**Teaching and Learning Strategies:** Teacher should guide learners to discover on their own; Learning should be through observations by learners; Teacher should demonstrate to the learners to achieve learning; Learners should engage in self study.

**Assessment:** Written tests, Quizzes, Assignments, Oral Questions, Exercises

**NB:** **18 periods** in this term are reserved for Keyboard and Navigation practice as a follow up of the Keyboard & Navigation theory in Term One

**CLASS:** **SENIOR ONE** **TERM:** **THREE** **DURATION:** **36 PERIODS**

**TOPIC 2:** COMPUTER HARDWARE (. . . continued)

| SUB-TOPIC | SPECIFIC OBJECTIVES | CONTENT | DURATION |
|---|---|---|---|
| 2.2. Application of Hardware Components | To be able to describe the operation and usage of various computer hardware components | a. Processing Devices<br>b. Storage Devices<br>i. Primary Storage *(with examples)*<br>ii. Secondary Storage *(Optical, Magnetic and Optical-Magneto with examples)*<br>c. Input devices *(with examples)*<br>d. Output devices *(with examples)* | 22 Periods |

**Teaching and Learning Strategies:** Teacher should guide learners to discover on their own; Learning should be through observations by learners; Teacher should demonstrate to the learners to achieve learning; Learners should engage in self study; ***Practical work is a must when teaching / studying hardware components and their use.***

**Assessment:** Written tests, Quizzes, Assignments, Oral Questions, Exercises, Practical Tests or Exercises

**NB:** *Hands-on practice with the various components shall be carried out during this term in **14 periods**, in addition to the 22 periods allocated above.*

**CLASS: SENIOR TWO TERM: ONE DURATION: 36 PERIODS**

**TOPIC 3:** COMPUTER SOFTWARE

**GENERAL OBJECTIVE:** To enable the learner understand computer software and its application.

| SUB-TOPIC | SPECIFIC OBJECTIVES | CONTENT | DURATION |
|---|---|---|---|
| 3.1. Introduction to Software | To be able to:<br>a) Define and describe the types of software<br>b) Describe the characteristics of computer software | a. Types of software: *(definitions with examples)* Application & System Software<br>b. Characteristics of software | 6 Periods |
| 3.2. System Software | To be able to:<br>a) Identify and describe the different types of system software<br>b) Describe the characteristics of system software<br>c) Describe the functions of system software | a. Types of System software: *(definitions with examples)*<br>[Operating Systems, Programming Languages, Utility Programmes]<br>b. Characteristics of system software<br>c. Functions of system software | 15 Periods |
| 3.3 Application Software | a) To be able to identify and describe the different types of application software<br>b) Describe the characteristics of application software<br>c) To be able to explain the uses of application software | a. Types of application software: General purpose and Specialised *(define with examples)*<br>b. Characteristics of application software<br>c. Uses of application software | 15 Periods |

**Teaching and Learning Strategies:** Teacher should guide learners to discover on their own; Learning should be through observations by learners; Teacher should demonstrate to the learners to achieve learning; Learners should engage in self study; ***Practical work is a must for system and application software.***

**Assessment:** Written tests, Quizzes, Assignments, Oral Questions, Exercises *(Where practical work has been indicated, provide for practical tests or exercises)*

**CLASS:** **SENIOR TWO** **TERM:** **TWO** **DURATION:** **36 PERIODS**

**TOPIC 4:** WORD PROCESSING

**GENERAL OBJECTIVE:** To enable the learner understand and use word processors.

| SUB-TOPIC | SPECIFIC OBJECTIVES | CONTENT | DURATION |
|---|---|---|---|
| 4.1. Introduction to Word Processing | To be able to:<br>a) Define terms used in word processing<br>b) describe and use features of word processing | a. Definition of terminologies<br>b. Features of a word processor & their uses | 4 Periods |
| 4.2. Word-processing | To be able to:<br>a) Use the standard features and commands of a word processor<br>b) Format a document using the format commands and features<br>c) Layout a document to the appropriate size and margins<br>d) Integrate external content into an active document appropriately<br>e) Save and print using several options | a. Letter:<br>• *Key in text*<br>• *Edit text*<br>• *Page format*<br>• *Text format*<br>• *Text alignment*<br>• *Saving*<br>• *Printing* | 6 Periods |
| | | b. News Article:<br>• *Key in text*<br>• *Edit text*<br>• *Page Columns*<br>• *Header & Footer*<br>• *Bulleting & Numbering* | 8 Periods |
| | | c. Time-table:<br>• *Inserting tables*<br>• *Formatting tables (Table, Columns, Rows & Cells)*<br>• *Key in text*<br>• *Cell alignment*<br>• *Editing* | 8 Periods |

| SUB-TOPIC | SPECIFIC OBJECTIVES | CONTENT | DURATION |
|---|---|---|---|
| | | d. Report (Integrated Document)<br>• *Opening existing documents*<br>• *Importing text*<br>• *Importing images*<br>• *Importing tables*<br>• *Layout (Page & Text)*<br>• *Saving Options*<br>• *Footnotes & Endnotes*<br>• *Page numbering* | 10 Periods |

**Teaching and Learning Strategies:** Teacher should guide learners to discover on their own; Learning should be through observations by learners; Teacher should demonstrate to the learners to achieve learning; Learners should engage in self study; ***Practical work is a must for Word-processing.***

**Assessment:** Written tests, Quizzes, Assignments, Oral Questions, Exercises, Projects and Practical tests or exercises.

**CLASS:** **SENIOR TWO** **TERM:** **THREE** **DURATION:** **36 PERIODS**

**TOPIC 5:** COMPUTER PRESENTATIONS

**GENERAL OBJECTIVE:** To enable the learner to understand and use computer presentation software.

| SUB-TOPIC | SPECIFIC OBJECTIVES | CONTENT | DURATION |
|---|---|---|---|
| 5.1. Introduction to Presentation Software | To be able to:<br>a) Define terms used in computer presentations<br>b) Describe and use features of presentation software | a. Definition of terminologies<br>b. Features of presentation software and their uses | 4 Periods |
| 5.2. Presentations | To be able to:<br>a) Use the standard features and commands of a presentation software<br>b) Format a presentation using the format commands and features<br>c) Layout a presentation to the appropriate size and margins<br>d) Animate and add effects to the presentation content<br>e) Make presentations using slide shows<br>f) Make print-outs of the presentations | a. School Advert:<br>• *Creating slides*<br>• *Textbox*<br>• *Format text*<br>• *Editing text*<br>• *Bullets & Numbers*<br>• *Background options*<br>• *Content layout*<br>• *Basic effects*<br>• *Transitions*<br>• *Saving options*<br>• *Printing options* | 6 Periods |
| | | b. Short Stories:<br>• *Import text*<br>• *Import images*<br>• *Design templates*<br>• *Advanced effects*<br>• *Slide & content animations*<br>• *Slide shows*<br>• *Export options* | 6 Periods |
| | | **Themes for making practice presentations:**<br>i. Business<br>ii. Education<br>iii. Health<br>iv. Awareness<br>v. Environment | 20 Periods |

| | |
|---|---|
| **Teaching and Learning Strategies:** | Teacher should guide learners to discover on their own; Learning should be through observations by learners; Teacher should demonstrate to the learners to achieve learning; Learners should engage in self study; ***Practical work is a must for Presentations.*** |
| **Assessment:** | Written tests, Quizzes, Assignments, Oral Questions, Exercises, Projects and Practical tests or exercises. |

**CLASS: SENIOR THREE TERM: ONE DURATION: 36 PERIODS**

**TOPIC 6: SYSTEM START-UP AND CONFIGURATION**

**GENERAL OBJECTIVE:** To enable the learner to understand and acquire skills for computer setup and maintenance.

| SUB-TOPIC | SPECIFIC OBJECTIVES | CONTENT | DURATION |
|---|---|---|---|
| 6.1. Computer Booting | To be able to:<br>a) Define booting<br>b) Describe the types of booting<br>c) Explain when booting can be done<br>d) Describe the process of booting | a. Define booting<br>b. Types of booting<br>c. Application of booting<br>d. Step-by-step process of booting | 2 Periods |
| 6.2. System Configuration | To be able to:<br>a) Determine and interpret specifications of a computer<br>b) Describe the parts of a computer<br>c) Connect and setup hardware components<br>d) Explain and perform disk formatting | a. System specifications<br>b. Computer parts<br>c. Connection and setup of hardware components<br>d. Formatting disks | 7 Periods |
| 6.3. System Installation | a) To be able to install and uninstall computer software | a. Installing Operating Systems<br>b. Installing application and utility software<br>c. Uninstalling software<br>d. Installing device drivers | 6 Periods |
| 6.4. Computer Trouble-shooting | a) To be able to identify and explain software and hardware problems<br>b) To be able to provide solutions to the problems | a. Computer alerts and error messages<br>b. Computer lights<br>c. System freeze & bugs<br>d. System performance | 6 Periods |

**Teaching and Learning Strategies:** Teacher should guide learners to discover on their own; Learning should be through observations by learners; Teacher should demonstrate to the learners to achieve learning; Learners should engage in self study; ***Practical work and hands-on practice is a must for this topic.***

**Assessment:** Written tests, Quizzes, Assignments, Oral Questions, Exercises, Projects and Practical tests or exercises.

**TOPIC 7:** COMPUTER COMMUNICATIONS

**GENERAL OBJECTIVE:** To enable the learner to understand and acquire skills for computer connections and communication.

| SUB-TOPIC | SPECIFIC OBJECTIVES | CONTENT | DURATION |
|---|---|---|---|
| 7.1. Introduction to Computer Communication | To be able to:<br>a) Define terms used in computer communication<br>b) Explain the importance and limitations of computer communication | a. Definition of terminologies<br>b. Importance of computer communication<br>c. Limitations of computer communication | 3 Periods |
| 7.2. Networks | To be able to:<br>a) Explain the different types of networks<br>b) Explain the different forms of data transmission<br>c) Setup & configure a Small Office/Home (SOHO) network | a. Types of Networks:<br>• *Definitions*<br>• *Features*<br>• *Advantages & disadvantages*<br>b. Forms of Data Transmission<br>• *Definitions*<br>• *Advantages & disadvantages*<br>c. Network setup & configuration<br>• *Setup and configure a SOHO network* | 12 Periods |

**Teaching and Learning Strategies:** Teacher should guide learners to discover on their own; Learning should be through observations by learners; Teacher should demonstrate to the learners to achieve learning; Learners should engage in self study; ***Practical work and hands-on practice is a must for this topic.***

**Assessment:** Written tests, Quizzes, Assignments, Oral Questions, Exercises and Practical tests or exercises.

**CLASS: SENIOR THREE** **TERM: TWO** **DURATION: 36 PERIODS**

**TOPIC 8:** SPREADSHEETS

**GENERAL OBJECTIVE:** To enable the learner to understand and use spread sheet software.

| SUB-TOPIC | SPECIFIC OBJECTIVES | CONTENT | DURATION |
|---|---|---|---|
| 8.1. Introduction to Spreadsheets | To be able to:<br>a) Define terms used in spreadsheets<br>b) describe and use features of the spreadsheet software | a. Definition of terminologies<br>b. Features of spreadsheet software and their uses | 3 Periods |
| 8.2. Spreadsheets | To be able to:<br>a) Use the standard features and commands of a spreadsheet software<br>b) Format spreadsheet content using the format commands and features<br>c) Layout a spreadsheet to the appropriate size and margins<br>d) Use and manipulate formula and functions in spreadsheet software<br>e) Use the save and print options of the spreadsheet software | a. Mark-sheet:<br>• *Data entry*<br>• *Borders*<br>• *Functions & formula*<br>• *Charts & graphs*<br>• *Formatting options*<br>• *Printing options*<br>• *Editing options*<br>• *Import / Export*<br>• *Saving option*<br>• *Filtering / sorting* | 12 Periods |
| | | b. Invoice / Receipt:<br>• *Data entry*<br>• *Layout / Design*<br>• *Import / Export*<br>• *Advanced use of formula*<br>• *Functions*<br>• *Multiple worksheets*<br>• *Printing options* | 9 Periods |
| | | **Themes for practicing spreadsheets:**<br>i. Payroll<br>ii. Inventory<br>iii. Sales-sheets<br>iv. Simple budgets | 12 Periods |

**Teaching and Learning Strategies:** Teacher should guide learners to discover on their own; Learning should be through observations by learners; Teacher should demonstrate to the learners to achieve learning;

| | |
|---|---|
| | Learners should engage in self study; ***Practical work and hands-on practice is a must for this topic.*** |
| **Assessment:** | Written tests, Quizzes, Assignments, Oral Questions, Exercises, Projects and Practical tests or exercises. |

**CLASS: SENIOR THREE TERM: THREE DURATION: 36 PERIODS**

**TOPIC 9:** WEB DESIGNING

**GENERAL OBJECTIVE:** To enable the learner to understand and use web design tools.

| SUB-TOPIC | SPECIFIC OBJECTIVES | CONTENT | DURATION |
|---|---|---|---|
| 9.1. Introduction to Web Design | To be able to:<br>a) Define terms used in web designing<br>b) Describe and use features of a web authoring software<br>c) Explain the features of a website<br>d) Explain the importance and limitations of a website<br>a) | a. Definition of terminologies<br>b. Features of the web authoring software<br>c. Features of a website<br>d. Importance of a website<br>e. Limitations of a website | 4 Periods |
| 9.2. Web Design | To be able to:<br>a) demonstrate skills in designing a website<br>b) package a designed website ready for uploading | a. Personal Webpage:<br>• *Planning*<br>• *Compilation of media elements*<br>• *Creation of a web page*<br>• *Designing a layout*<br>• *Generating & activating links*<br>• *Saving & Printing options* | 8 Periods |
| | | b. School Website *(with at least 5 pages)*:<br>• *As in "a" above*<br>• *Advanced design layout*<br>• *Linking files* | 10 Periods |
| | | **Themes for web design practice:**<br>i. Business<br>ii. Health<br>iii. Broadcasting<br>iv. Advertising<br>v. Governance | 12 Periods |

**Teaching and Learning Strategies:** Teacher should guide learners to discover on their own; Learning should be through observations by learners; Teacher should demonstrate to the learners to achieve learning; Learners should engage in self study; ***Practical work and hands-on practice is a must for this topic. A resource person can be used in this topic to supplement the teacher's input.***

**Assessment:** Written tests, Quizzes, Assignments, Oral Questions, Exercises, Projects and Practical tests or exercises.

**CLASS: SENIOR FOUR TERM: ONE DURATION: 36 PERIODS**

**TOPIC 10:** DATABASES

**GENERAL OBJECTIVE:** To enable the learner to understand and use data base development software.

| SUB-TOPIC | SPECIFIC OBJECTIVES | CONTENT | DURATION |
|---|---|---|---|
| 10.1. Introduction to Databases | To be able to:<br>a) Define terms used in database design<br>b) Describe and use features of a database development software<br>c) Explain the features of a database<br>d) Explain the importance and limitations of a database | a. Definition of terminologies<br>b. Features of a database development software<br>c. Features of a database<br>d. Importance of a database<br>e. Limitations of a database | 6 Periods |
| 10.2. Database Design | a) To be able to demonstrate skills in designing and developing a database | a. Class Register:<br>• *Planning*<br>• *Compiling data*<br>• *Layout design*<br>• *Data entry*<br>• *Database manipulation (Forms, Queries & Reports)*<br>• *Printing & Saving options* | 15 Periods |
| | | **Tasks for database design practice:**<br>i. Address book<br>ii. School register<br>iii. Medical register<br>iv. Company staff profile | 15 Periods |

**Teaching and Learning Strategies:** Teacher should guide learners to discover on their own; Learning should be through observations by learners; Teacher should demonstrate to the learners to achieve learning; Learners should engage in self study; ***Practical work and hands-on practice is a must for this topic. A resource person can be used in this topic to supplement the teacher's input.***

**Assessment:** Written tests, Quizzes, Assignments, Oral Questions, Exercises, Projects and Practical tests or exercises.

**CLASS:** **SENIOR FOUR** **TERM:** **TWO** **DURATION:** **36 PERIODS**

**TOPIC 11:** ELEMENTARY COMPUTER PROGRAMMING

**GENERAL OBJECTIVE:** To enable the learner to understand basics of elementary programming.

| SUB-TOPIC | SPECIFIC OBJECTIVES | CONTENT | DURATION |
|---|---|---|---|
| 11.1. Introduction to Programming | To be able to:<br>a) Define terms used in programming<br>b) Describe and use features of a programming language<br>c) Explain the features of a program<br>d) Explain the importance and limitations of programming | a. Definition of terminologies<br>b. Features of a programming language<br>c. Features of a program<br>d. Importance of programming<br>e. Limitations of programming | 6 Periods |
| 11.2. Developing a Simple Program | a) To be able to demonstrate skills in programming and packaging simple programs | a. Output a Sentence:<br>• *Planning*<br>• *Selecting the language to use*<br>• *Writing the code*<br>• *Compiling / Executing the code*<br>• *Saving & Printing options* | 4 Periods |
| | | b. Output Roots of a Quadratic Equation:<br>• *Planning*<br>• *Selecting the language to use*<br>• *Identify & relate variables*<br>• *Writing the code*<br>• *Compiling / Executing the code*<br>• *Test the program*<br>• *Saving & Printing options* | 10 Periods |
| | | **Supermarket Bill & other programming tasks:**<br>i. Skills as indicated in "b" above | 10 Periods |

**Teaching and Learning Strategies:** Teacher should guide learners to discover on their own; Learning should be through observations by learners; Teacher should demonstrate to the learners to achieve learning; Learners should engage in self study; ***Practical work and hands-on practice is a must for this topic. A resource person can be used in this topic to supplement the teacher's input.***

**Assessment:** Written tests, Quizzes, Assignments, Oral Questions, Exercises, Projects and Practical tests or exercises.

**TOPIC 12:** TRENDS IN COMPUTING

**GENERAL OBJECTIVE:** To enable the learner to understand and appreciate contemporary issues and developments in computing.

| SUB-TOPIC | SPECIFIC OBJECTIVES | CONTENT | DURATION |
|---|---|---|---|
| 12.1. Computer Integrity and Security | a) To be able to observe and respect computer integrity and security | a. Software Integrity<br>b. Hardware Integrity<br>c. Computer Intrusion<br>d. Computer Protection | 3 Periods |
| 12.2. Computer Ethics | a) To be able to observe and respect computer ethics | a. Code of Conduct<br>b. Computer Piracy<br>c. Copyright law in Uganda | 3 Periods |

**Teaching and Learning Strategies:** Teacher should guide learners to discover on their own; Learning should be through observations by learners; Teacher should demonstrate to the learners to achieve learning; Learners should engage in self study; ***a resource person can be used in this topic to supplement the teacher's input.***

**Assessment:** Written tests, Quizzes, Assignments, Oral Questions, Exercises and Projects.

**CLASS: SENIOR FOUR TERM: THREE DURATION: 15 PERIODS**

**TOPIC 12:** TRENDS IN COMPUTING (. . . continued)

| SUB-TOPIC | SPECIFIC OBJECTIVES | CONTENT | DURATION |
|---|---|---|---|
| 12.3. Computers and Society | a) To be able to explain the impact of computers on society | a. Impact of Computers | 3 Periods |
| 12.4. Emerging Technologies | a) To be able to appreciate and describe developments in hardware, software and application of computers | a. Developments in Hardware<br>b. Developments in Software<br>c. Developments in Application of computers | 6 Periods |
| 12.5. Systems Analysis | To be able to:<br>a) Define terms used in systems analysis<br>b) Explain the importance of systems analysis<br>c) Describe the phases used systems analysis | a. Definition of terms<br>b. Importance of Systems Analysis<br>c. Phases of Systems Analysis | 3 Periods |
| 12.6. Computer Professions | a) To be able to identify a career path in the field of computing | Computer professions in the field of computing *(Information and Communication Technology)* | 3 Periods |

**Teaching and Learning Strategies:** Teacher should guide learners to discover on their own; Learning should be through observations by learners; Teacher should demonstrate to the learners to achieve learning; Learners should engage in self study; ***a resource person can be used in this topic to supplement the teacher's input.***

**Assessment:** Written tests, Quizzes, Assignments, Oral Questions, Exercises and Projects.

# APPENDIX 1: BASIC REQUIREMENTS FOR TEACHING COMPUTER STUDIES

For a school to teach and successfully implement the O-Level Computer Studies curriculum and for the students to attain and achieve the expected skills and competences in computing, the following basic or minimum requirements need to be instituted in the computer lab and/or in classroom.

1. Desktop Personal Computers or Laptops *(for students' and teachers' use)*
    - Intel Pentium 3 / 4 (1.0GHz +) or AMD processor (1.5 GHz +)
    - 256 MB RAM
    - 80 GB HDD
    - DVD / CD-RW Combo Drive
    - 17" / 19" CRT Monitor
    - Computer Speakers / Keyboard / Mouse
2. A closed and simple computer network with at least one (1) network hub.
3. Computer maintenance tools and/or kit
4. Fire Extinguisher
5. Safe Electrical installations *(provide a socket for each computer set)*
6. Uninterruptible Power Supply (UPS) Units

It is important to keep the ratio of computers to students as low as possible *(recommended for this subject is a ratio of 1:5 per stream)*

Note also that this syllabus requires a school to have computers (old or obsolete and working but not used for student software practice) for teacher's demonstration and students' hands-on practice in classroom / computer lab. These will cater for hardware setup and configuration, software installation, troubleshooting, and other hardware demonstrations the teacher has to do.

# COMPUTER STUDIES REFERENCE BOOKS


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5. Hutchinson, S. And Coulthard, G (2004) Microsoft Office 2003 Professional, Boston, MA McGraw-Hill, Boston. (Latest: Microsoft Office 2007 Professional)

6. Kulcullen John (2003), Teach Yourself Microsoft PowerPoint 2003, IDG Books Worldwide, Inc., Foster City, C.A. (Latest: Microsoft PowerPoint 2007)

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19. Brendan Munnelly and Paul Holden ECDL: The Complete Coursebook, Pearson.

20. Sarah E. Hutchinson and Stacey C. Sawyer Computers, Coomunication and Information, 7th Edition, McGraw Hill (www.mhhe.com/it)