

**THE UNITED REPUBLIC OF TANZANIA**  
**MINISTRY OF EDUCATION AND VOCATIONAL TRAINING**



Field Support Programme For Second Year Diploma In Secondary  
Education

**SELF STUDY MODULE**  
**ICT**

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## **Introduction**

This self instructional module for Information and Communication Technology, ICT is prepared to guide and provide you, student-teacher with learning activities to perform during your field work. The activities are designed to cover all the topics and sub-topics learnt at college. After going through the activities you will have the ability to demonstrate the following competences;

- a) Demonstrating skills in the use of ICT facilities.
- b) Processing, interpreting and disseminating information.
- c) Creating simple computer programs.
- d) Designing and developing websites.
- e) Promoting the use of ICT in bringing about the development of the society.
- f) Keeping up to-date with the current development and issues related to every day use of ICT facilities.
- g) Using the ICS syllabus for teaching in the Ordinary secondary schools.
- h) Guiding learners to construct knowledge and skills by using ICT.
- i) Monitoring and improving students learning progress.
- j) Reflecting on teaching for further improvements.
- k) Using ICT materials for effective classroom teaching.

## **Organization of the module**

This module consists of 7 academic topics and 4 pedagogical topics put together to make a total of 11 topics. The topics are The Principles of Teaching and Learning ICS, Computer Laboratory Management Skills, Planning and Preparation for Teaching ICS, Information Technology, Computer Basics, Computer Applications, Multimedia, Internet, Socio-Economic and Cultural Aspects, Computer Programming and Assessment Procedure for ICS.

Each topic is organized in order of brief explanation, competence to be attained activities to support the attainment of the competence and a self assessment.

### **How to use the module.**

This module is designed in such a way that you will need to go through all the aspects of academic and pedagogical experiences in ICT and ICS respectively to attain the stated competences. The idea is to make interactions among the student-teachers, learners, teaching materials, teaching methods and the environment more meaningful and to the desired achievements.

Therefore you must find enough time to do intensive reading of all the topics as they appear in the ICT and ICS syllabi as well as doing all activities shown in the module.

**TOPIC ONE:**  
**PRINCIPLES OF TEACHING AND LEARNING ICS**

**Brief Explanation**

In this topic you are going to analyse the principles of teaching and learning ICS and find out how the principles differ with the significance of teaching and learning ICS. The analysis intends to equip you with deep understanding on how to use the principles of teaching and learning ICS appropriately.

**Competence**

Ability to differentiate between principles of teaching and learning ICS and the significance of teaching and learning ICS.

**Activities**

1. “What could the world look like without the use of Information and Communication Technology?” Attempt this question by citing the importance of ICT.
2. What things need to be considered in the teaching of ICS subject?

**Self assessment**

1. How does the concept of principles of teaching and learning ICS apply in the teaching field?
2. How group discussions can facilitate the teaching and learning of ICS?

**TOPIC TWO:**  
**COMPUTER LABORATORY MANAGEMENT SKILLS**

**Brief Explanation**

The following activities focus on understanding the elements and practices that can help to create good working environment and also being aware of health and safety precautions when using computers in the computer laboratory.

**Competence**

An ability to design a good computer laboratory.

**Activities**

1. As a head of ICS department in your school, what plans would you set to establish a good computer laboratory?
2. Set rules and regulations for the computer laboratory.
3. Why is it essential to use properly designed chairs when using computers in the computer laboratory?

**Self assessment**

1. In case there are limited facilities to design a good computer laboratory in your school, what creativity will you employ to have a reasonable computer laboratory?
2. What are the safety precautions that you should take to ensure that both the computer and the computer users are safe?

**TOPIC THREE:**  
**PLANNING AND PREPARATION FOR TEACHING ICS**

**Brief Explanation**

Dear student-teacher, you have already studied how to plan lessons and to prepare yourself before teaching. You are expected to use that knowledge to prepare yourself to teach ICS.

**Competence**

Ability to select and apply the appropriate ICS teaching and learning materials.

**Activities**

1. What criteria would you use for selecting appropriate materials for teaching and learning ICS?
2. Explore how the teacher's guide/manual/textbooks, syllabus and other supplementary materials can be used.
3. Use ICS syllabus to prepare a scheme of work and a lesson plan of any topic of your choice. Conduct a lesson to an appropriate class and identify difficulties encountered by the learners.
4. What do you propose for the solution to the difficulties in question 3 above?

**Self assessment**

1. How ICS curriculum materials differ from teaching and learning materials of other subjects?
2. What challenges do you get in finding curriculum materials for teaching ICS?
3. After going through the above activities, are you now able to plan and administer ICS lessons?

## **TOPIC FOUR: INFORMATION TECHNOLOGY**

### **Brief Explanation**

Dear student-teacher, below are the competences that you need to develop upon the completion of this topic. Go through the activities shown and then evaluate yourself to see how much you have attained the competences.

### **Competences**

An ability to:

1. differentiate between data and information and
2. identify different sources of information and the limitations of information dissemination.

### **Activities**

1. Take role as a class teacher! You are supposed to prepare your students' end of term report. Show what you would need and how you would go about preparing it so that it shows the ranking of all students in your class.
2. Show how you would go about getting information about the security status of your new home area that you have just moved to?
3. Assume that you are the head of your school and looking for students' opinion on whether you should have lessons on Saturday or not. Organize the polling results in the percentage form.
4. How would you go about creating awareness of the infectious disease e.g. cholera in your community?
5. What are the limitations of the information dissemination?

### **Assessment**

1. From the above activities, were you able to see the differences between data and information?
2. How many sources of information were you able to come up with?
3. If you have tested HIV positive, who will you share the information with among these people and why:
  - close relatives and friends,
  - fellow students,
  - nearby villagers,
  - entire public or
  - nobody?

## **TOPIC FIVE: COMPUTER BASICS**

### **Brief Explanation**

This topic exposed you in the use of computer by identifying various components of a computer and their functions. Now, what you are required to do is to use the knowledge to operate computer system, to observe whether the computer should be used as a teaching and learning resource.

### **Competences**

Ability to;

1. Identifying components of a computer and their functions
2. Connecting components of a computer
3. Operating a computer system

### **Activities**

1. Assemble the basic computer components i.e. the processor, monitor, keyboard, mouse and the printer and start the computer. What icons are displayed on the desktop?
2. What is the user interface of Microsoft windows, simple text mode or graphical mode?
3. Why secondary memory devices are also known as input/output devices?
4. What tasks are done by the operating system when the user runs a program, e.g. by clicking an icon or make a menu choice?
5. What tasks are done by the operating system when the user creates/deletes a file?

6. What happens in relation to the file attributes when a user
  - a. Renames a file?
  - b. Deletes all the contents of a file?
  - c. Displays the properties of a file?
  - d. Moves a file from the hard disk to a floppy or flash disk?
7. Prepare an end of term examination timetable for all subjects for your school and save the file on the computer where everyone can have access to it through his/her own account.
8. Log into computer A and work for a while and save your work. Logout and move to computer B and login. Can you access the same file saved while working on computer A? What is the reason behind?
9. Scan a floppy or flash disk in order to know whether or not it is infected by the computer virus?

### **Self assessment**

After going through all the activities above, what advice will you give to your head of school if he needs to buy an operating system for computers and also to establish a network at school? Why so?

## **TOPIC SIX: COMPUTER APPLICATIONS**

### **Brief Explanation**

In computer applications, the programs that you are dealing with are mostly applicable in our daily working activities. Besides the activities given below, you are expected to come up with other applications in real life situations.

### **Competences**

Ability to carry out computer applications.

#### **Activities**

1. Prepare a table of your historical background from primary school to date showing;
  - i) the time spent at each stage
  - ii) the award obtained
  - iii) name of the school/institution

In your work, show page numbering of each page, bold the time for each stage, underline the heading, use font size 12 and the font type Times New Roman. Print two copies with a portrait page setup.

2. You are the Deputy Head of school. Prepare a brief report for ten students by using Microsoft Excel, showing how much each student has paid out of 145,000/-. Enter a formula in the cell to calculate how much each student has paid, how much has been collected from students and the balance. Each student is supposed to pay the following;  
School fee 75,000/-  
Exam fee 25,000/-

Hostel fee 20,000/-

Health fee 5,000/-

Caution money 10,000/-

Majengo 10,000/-

3. Prepare a brief presentation by using Microsoft Power Point, on computer basics about components of a computer. Prepare slides with a heavy blue colour in the background and the white font colour.
4. Prepare a simple database by using MS Access for the 10 students in Q2 above, showing full name, year of study, subject option and the hostel name where the student lives. The name of the database should be Particulars.
5. Create a basic HTML skeleton; make the background of the page white, text blue and unviewed links red.

### **Self assessment**

1. How do you feel now after completing the activities above? Why so?
2. Do you think the competence attained through doing the activities above will help you make a good lesson presentation? Can you organize your day to day activities at work now?

## **TOPIC SEVEN: MULTIMEDIA**

### **Brief Explanation**

In this topic, you are expected to make use of different media in the teaching and learning of ICS.

### **Competence**

Ability to use multimedia with a computer.

### **Activity**

1. Assume that 20 photographs of different objects have been taken by using a digital camera. Explain how you can copy photos onto the computer and how you can start a slide show on the screen by using a projector.

### **Self assessment**

1. Dear student-teacher, after going through the activity above, can you show how multimedia can help you enhance your lesson presentation to your students through the use of multimedia?
2. Can you summarise the study of the multimedia? What key questions will your summary respond to?

## **TOPIC EIGHT: INTERNET**

### **Brief Explanation**

The competences below focus on the use of internet in communicating and also for obtaining different useful information and materials for teaching and learning ICS.

### **Competences**

Ability to;

1. use email services; and
2. Use different search engines to obtain information from the internet.

### **Activities**

1. Open an email account with Yahoo, add your friend's contact into your address book, compose an email to him/her with any MS word attachment from My Documents and send it.
2. By using Google search engine, search for the Universities in Tanzania that offer Education degree at an undergraduate level. How many and what are they?

### **Self assessment**

1. Show how you could exchange lesson notes with your friend who is teaching in another region different from yours? Also show how you could refer him to a website where he can find images for his Biology lesson.

## **TOPIC NINE:**

### **SOCIO-ECONOMIC AND CULTURAL ASPECTS**

#### **Brief Explanation**

In this topic, you are expected to come up with the social, economic and cultural impacts which were caused by the advancement in Information and Communication Technology in the Tanzanian society and the contributions made to the education sector.

#### **Competence**

Ability to update oneself to the current development and issues related to everyday use of ICT facilities.

#### **Activities**

1. By using the internet, look for the cheapest accommodation from any of the 5 National Parks in Tanzania of which you would wish to visit. The parks are Mikumi, Manyara, Serengeti, Selous and Ruaha.
2. Prepare lesson notes on computer networking, by downloading images and text materials from the internet.
3. Identify the positive and negative impacts brought by ICT in the society.
4. Explain the problems surrounding the “year 2000 bug” that occurred at the start of this millennium?

**Self assessment**

1. Can you show/explain the differences between the lesson prepared from the text books and the one prepared through the help of information from the internet?
2. Why do you need to know about internet? Do secondary school pupils need this knowledge?

## **TOPIC TEN: COMPUTER PROGRAMMING**

### **Brief Explanation**

Dear student-teacher, in this topic you are expected to write simple programs to run on the computer. You have to focus on things which are familiar to you such as a program to list all the consonants.

### **Competence**

1. Ability to develop simple programs to give a certain output.

### **Activities**

1. Write a flow chart to list even numbers less than 22.
2. How can you enable your students develop the concept of computer programming using the following steps;
  - defining the problem
  - design the program
  - coding program

### **Self assessment**

1. Use the knowledge of computer programming to design different programs to run on a computer. How are the programs made are associated with student's daily life.
2. How do you find the learning of computer programming? Does it have any use in the teaching and learning environment?

**TOPIC ELEVEN:  
ASSESSMENT PROCEDURE FOR ICS**

**Brief Explanation**

Dear student-teacher, in this topic, you are expected to assess your students by using the assessment skills learnt at college and give decisions basing on their academic performance.

**Competences**

Ability to;

1. monitor students' learning progress
2. make the teaching reflective.
3. set standard tests.

**Activity**

1. Set test items of your subject by using table of specification.
2. Prepare a marking guide.
3. Standardize the test scores
4. Interpret the test scores and make a decision in respect to pass rates.

**Self assessment**

1. What can you tell about raw scores and standardized scores?
2. What observations and/or comments can you make about standardizing scores?