ICT SYLLABUS

FOR ASSOCIATE NURSING PROGRAM

SENIOR 4, 5 & 6

FOREWORD

Rwanda Basic Education Board (REB) is honored to avail the ICT Syllabus as one of the subjects of the Associate Nursing Program. This document serves as an official guide to the teaching and learning of ICT subject in the Associate Nursing Program. This document ensures consistency and coherence in the delivery of quality education for the Associate Nurse that Rwanda wants.

Rwanda Basic Education Board (REB) has undertaken the task to introduce the Associate Nursing Program in the second cycle of secondary education level. The underlying principle behind the introduction of this program is to ensure that the curriculum is responds to the needs of the learners, the society, and the labor market.

ICT is one of subjects of the Competence-Based Curriculum that emphasizes equipping learners with required knowledge, skills, attitudes and values to produce well-trained learners for quality nursing care improvement.

High Quality Health Care is an important component of Health and Well-being of Rwandans as stated in the Rwanda Vision 2050, "The Rwanda We Want", that aims at transforming the country's socioeconomic status. It is only the healthy people who can significantly play a major role in this socioeconomic transformation journey. ICT subject teaches the theories, principles and skills that are of great importance in the exercise of the nursing profession.

I wish to sincerely appreciate all the people who contributed to the development of this syllabus, particularly the Ministry of Health and its Human Resources for Health Secretariat (HRHS) who contributed to the whole process right from its inception. Any comment and contribution would be welcome for the improvement of this syllabus.

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1. GENERAL INTRODUCTION

1.1. Background to the introduction of Associate Nursing Program in secondary schools

For a long time, nursing education around the World has taken different steps from the traditional apprenticeship, vocational, and hospital-based training model to a higher education academic model of teaching and learning (Gaberson & Oemann, 2010). This paradigm shift was driven by the increased demand of the professionalization of nursing, the changing illness patterns, and the expansion of the knowledge-based society requiring more improved and innovative education preparation of nursing professionals that is adapted to the context and specific health needs (Yam, 2004).

In Rwanda, the above-mentioned transformations in nursing education evolved overtime. Healthcare education in general started in 1933 with medical assistants "Assistants Médicaux" program, followed by the assistant midwives "Auxiliaires accoucheuses" in 1949 (Harelimana, et., 2015). From 1954 up to 1979, the A2 and A3 programs were established at secondary level. From 1979 to 2004, the program of nursing education was exclusively "A2" secondary level (Kabgayi School of Nursing and Midwifery, 2013). Nurses were mostly prepared for hospitals and health center-based health care provision, leaving out the community. This gap was later addressed by the introduction of the Community Health Workers (CHWs) in 1995 (MoH, 2012).

The Cabinet resolution of October 27th, 2004 phased out the A2 nursing program. A transition period was decided upon to move from nursing program A2 to Nursing Program A1 up to 2007. The purpose of this was to train nursing professionals at a tertiary level in order to produce highly-qualified professionals, thus improving quality health care service delivery. However, gaps in providing basic nursing care at different levels were continually observed.

Fourteen years later after the closure of A2 nurisng program , the Government of Rwanda has decided to introduce Associate Nursing Program as provided by the Article 58 of the Rwandan Law Determining Organization of Education No 10/2021 of 16/02/2021 (MoE, 2021).

Therefore, the Associate Nursing Program is being introduced to provide the support needed in basic nursing care provision, with the capacity to progress in different advanced health care professions. This decision aims at meeting the current and contextual health needs that present high demand at different levels of the Rwanda healthcare system, particularly in the community.

1.2. Associate nurse leaver's profile

Upon completion of the Associate Nursing Program, the learner should have acquired knowledge, skills and attitudes to:

1. Provide support to individuals, families, groups, and communities when faced with life changing diagnoses;

2. Provide health education within her/his scope of practice;

3. Demonstrate understanding of the determinants of health that affect individuals, families, groups, and communities;

4. Demonstrate understanding of basic common health conditions affecting individuals of all age groups and their basic nursing care;

5. Assess individuals, families, groups and community needs and provide basic nursing care using evidence-based practice;

6. Collaborate effectively with multidisciplinary team members, clients and stakeholders in the provision of basic nursing care;

7. Demonstrate the values of responsibility , accountability, commitment, and patriotism in serving the nation;

8. Ensure the privacy, dignity and safety of individuals is maintained at all times;

9. Provide support on basic care in reproductive, maternal, neonatal and child health;

10. Explain scientific phenomena using correct scientific terminologies;

11. Demonstrate knowledge and skills required to progress to higher learning education;

12. Express themselves fluently, and with confidence, in speaking and writing using correct vocabulary and grammar appropriately;

13. Perform experiments using a range of scientific and medical tools and equipment and draw appropriate conclusions;

14. Demonstrate ability to manage data (collect, recording, processing, analysis, synthesis, and reporting) and take appropriate decision.

2. TEACHING AND LEARNING ICT

2.1. Rationale of teaching and learning ICT

In Rwanda, ICT is penetrating every aspect of every day's life including service delivery and the country is going towards an intensive integration of ICT in education, which is a key player in the development of a country. E-health, which is the use of Information and Communication Technology to provide and support health care service delivery is more and more penetrating the health sector in Rwanda. Students in the Associate Nursing Program have therefore a sound reason to study ICT topics namely Word Processing, Spreadsheet, Internet, and Database as they will develop in them inspiration and abilities to use ICT as a tool when they will be facilitating in community. This will ultimately allow students to actively participate in a world of communication, research and innovation for social and economic transformation.

2.1.1. ICT and society

Information and Communication Technology (ICT) is a diverse set of tools and resources used to create, store, disseminate and manage information. In Rwanda, Information and communication technology (ICT) has the purpose "to transform the Rwandan citizen into skilled human capital for the socio-economic development of the country by ensuring equitable access to quality education focusing on combating illiteracy, promotion of science and technology, critical thinking, and positive values. In Rwandan society, ICT is also the foundation for long term, sustainable and efficient government services, communication, economic development and financial transactions. ICT provides huge content and competence based methodologies which will allow students to well perform in their daily activities when exiting their colleges after three years and to conduct their future higher learning with excellent package.

2.1.2. ICT and student

ICT as a subject empowers students with a package of skills and exposes them to common application software such as word processing, spreadsheets and presentations, database, internet, which will develop in them inspiration and abilities to use ICT as a tool when they will be facilitating in health posts, health centers, referral hospitals and community in general. This will ultimately allow students to actively participate in a world of communication, research and innovation for social and economic transformation.

2.2. Competences

A competence is the ability to perform a particular task successfully, resulting from having gained an appropriate combination of knowledge, skills and attitudes. The national policy documents, based on the national aspirations, identify 'Basic Competences' alongside the 'Generic Competences' that will develop higher order thinking skills. Basic Competencies are addressed in the stated broad subject competences and in the objectives highlighted on yearly basis and in each of the syllabus units. Selecting types of learning activities must focus on what competencies the learners are able to demonstrate throughout and at the end of the learning process. The generic competencies that must be emphasized and reflected in the learning process are briefly described below and teachers will ensure that learners are exposed to tasks that help them acquire such skills.

2.2.1. Generic competences

Critical and problem solving skills: The acquisition of these skills will help learners think imaginatively and broadly to evaluate and find solutions to problems encountered in all situations.

Creativity and innovation: The acquisition of these skills will help learners take initiative and use imagination beyond the knowledge provided to generate new ideas and construct new concepts.

Research: This will help learners find answers to questions based on existing information and concepts and to explain phenomena based on findings from information gathered.

Communication in official languages: Even though they don't teach language, teachers will ensure the proper use of the language of instruction by learners which will help them to communicate clearly and confidently. They will also assist learners to convey ideas effectively through speaking and writing and by using the correct language structure and relevant vocabulary.

Cooperation, inter personal management and life skills: This will help the learner to cooperate with others as a team in whatever task are assigned and to practice positive ethical moral values and respect for the rights, feelings and views of others. These skills will also help learners to advocate for personal, family and community health, hygiene and nutrition and respond creatively to the variety of challenges encountered in life.

Lifelong learning: The acquisition of this skill will help learners to update their knowledge and skills with minimum external support and to cope with the evolution of knowledge advances for both personal fulfillment in areas that need improvement and development.

2.2.2. Broad ICT competences at the end of Advanced level

During and at the end of the three years, the students should be able to:

- Apply acquired technological skills for smooth working in ICT integrated environment and develop simple solutions to address the society needs,

- Act as a role model in taking care of computers in the school environment or any other location and demonstrate ethical use of ICT tools,

- Develop critical thinking and logical reasoning through computer web designing as to come up with possible solutions in order to address different issues related to service delivery,

- Apply acquired technical knowledge, skills and attitudes in teaching and learning process and manage information efficiently, effectively and appropriately so as to create solutions to information problems using a range of application software,

- Locate and access information and verify its integrity when investigating questions, topics or problems,

- Organize and manipulate information using common application software namely Word Processing, Spreadsheets, Presentations and Microsoft Access.

- Navigate resources available on the internet and use them in longlife daily learning.

2.2.3. ICT and developing competences

The national policy documents based on national aspirations identify some 'basic competences' alongside the 'generic competences' that will develop higher order thinking skills and help students learn subject content and promote application of acquired knowledge, skills, attitudes and values.

Through observations, applying ICT skills and presentation of information, the students will not only develop different ICT skills but also acquire deductive and inductive skills, creativity and innovation skills, cooperation and communication skills, critical thinking and problem solving skills.

The acquired knowledge, attitude and values while learning ICT should develop a responsible citizen who adapts to scientific reasoning leading to technological change and develops confidence in reasoning independently. The student should show concern of individual attitudes, interest in use of ICT tools and comply with the scientific method of reasoning. The scientific method should be applied with the necessary rigor, intellectual honesty to promote critical thinking while systematically pursuing the line of thought.

2.3. Pedagogical approach

The change to a competence-based curriculum is about transforming learning, ensuring that learning is deep, enjoyable and habit-forming. Learning is oriented on developing skills, attitudes and values.

2.3.1. Role of the student

In the competence-based syllabus, the student is the principal actor of his/her education. He/she is not an empty bottle to fill. Taking into account the initial capacities and abilities of the student, the syllabus suggests under each unit, some activities of the student and they all reflect active participation in the teaching and learning process.

The teaching/learning processes will be tailored towards creating a student-friendly environment basing on his/her capabilities, needs, experience and interests.

The following are some of the roles or the expectations from the students:

- Students construct the knowledge either individually or in groups in an active way. Therefore, the opportunities should be given to them to use ICT tools.
- Students work on one competence at a time to form concrete units with specific learning objectives (knowledge, skills, attitude & values).
- Students will be encouraged to do research and present their findings.

- Students are cooperative: They work in heterogeneous groups to increase interpersonal management.

- Students are responsible for their own participation and ensure the effectiveness of their work.

2.3.2. Role of the teacher

In the competence-based curriculum, the teacher is a facilitator, organizer, advisor, a conflict solver, ...The specific duties of the teacher in a competence-based approach are the following:

Teacher is:

- A facilitator: His/her role is to provide opportunities for students to meet problems that interest and challenge them and that, with appropriate effort, they can solve. This requires an elaborated preparation to plan the activities, the place where they will be carried out, and the required assistance;

- An organizer: His/her role is to organize the students in the classroom, the computer laboratory and engage them using participatory and interactive methods through the learning processes as individuals, in pairs or in groups. To ensure that the learning is personalized, active and participative, co-operative, the teacher must identify the needs of the students, the nature of the learning to be done, and the means to shape learning experiences accordingly;

- An advisor: He/she provides counseling and guidance for students in need. He/she comforts and encourages students by valuing their contributions in the class activities;

- A conflict-solver: Most of the activities are performed in groups. The members of a group may have problems such as attribution of tasks; they should find useful and constructive the intervention of the teacher as a unifying element.

- Ethical and preaches by examples by being impartial, a role-model, caring for individual needs, especially for slow students

- and those with physical impairments, through a special assistance by providing remedial activities or reinforcement activities.

- Ensure the effective contribution of each member, through clear explanation and argumentation to improve the English literacy, **to develop sense of responsibility, and to increase self-confidence and public speech ability.**

2.3.3. Special needs education and inclusive education approach

All Rwandans have the right to access education regardless of their different needs. This implies that all citizens benefit from the same menu of educational programs. The possibility of this assumption is the focus of special needs education. The critical issue is that we have students who are totally different in their ways of living and learning as opposed to the majority. The difference can be caused by emotional, physical, sensory and intellectual learning challenges.

Detailed guidance for each category of students with special education needs is provided for in the guidance for teachers. The ICT teacher is advised to work closely with the teacher of Special Need and Inclusive Education to provide appropriate support to any identified student 's needs. Information and Communication Technology (ICT) has the potential to transform special needs students' learning experiences.

2.4. Assessment approach

Assessment is the process of evaluating the teaching/learning processes through collecting and interpreting evidence of individual student's progress in learning and to make a judgment about a student's achievements measured against defined standards. Assessment is an integral part of the teaching/learning process. In the competence-based curriculum, assessment must also be competence-based; whereby a student is given a complex situation related to his/her everyday' s life and asked to try to overcome the situation by applying what he/she learned.

Assessment will be organized at the following levels: school-based assessment, district examinations and national assessment (LARS).

2.4.1. Types of assessments

There are two major types of assessment namely formative and summative assessments. Any form of assessment should reflect the three domains of learning, which are Cognitive, Psychomotor and Affective. Assessment has to address all the components of the Competence Based Curriculum as follows:

- Knowledge and understanding: Does the student demonstrate an understanding of the ICT concept? Has the student mastered the ICT concepts? Indicators: correctness of answers, coherence of ideas, logical reasoning,

- Practical skills: How does the student perform on aptitude and practical tests? Indicators: typing skills, ease in text manipulation, capability of software installation, speed and efficiency in using a computer, capability to create elementary IT solutions involving databases and web design,

- Attitude and values: How does the student respond to a task or a situation? What is the student's behavior vis-a-vis computer use? How ethically does he/she use it?

a) Formative assessment

Formative assessment helps to check the efficiency of the process of learning. It is done within the teaching/learning process. This continuous assessment involves formal and informal methods used by schools to check whether learning is taking place. When a teacher is planning his/her lesson, he/she should establish criteria for performance and behavior changes at the beginning of a lesson. At the end of every unit and before moving to the next one, the teacher should ensure that all the students have mastered the specified key unit competences basing on the predefined criteria. The teacher will assess how well each student masters both the subject and the generic competences described in the syllabus as well as the professional practices. From this, the teacher will gain a picture of the all-round progress of the student. The teacher will use one or a combination of the following techniques: observation, pen and paper, oral questioning and practice using computers.

b) Summative assessments

When assessment is used to record a judgment of a competence or performance of the student, it serves a summative purpose. Summative assessment gives a picture of a student's competence or progress at any specific moment. The main purpose of summative assessment is to evaluate whether competences have been achieved. The results are used in ranking or grading students, deciding on progression, admitting into the next level of education and for certification. This assessment should have an integrative aspect whereby a student must be able to show mastery of all competences. College based summative assessment should take place once at the end of each term and once at the end of the year. This subject will not be part of External national examination which will take place at end of Senior 6. Only this subject will be assessed through the comprehensive assessment that takes place at all levels of studies.

2.4.2. Record keeping

This is gathering facts and evidence from assessment instruments and using them to judge the student's performance by assigning an indicator against the set criteria or standard. Whatever assessment procedures used generate data in the form of scores which will be carefully recorded and stored in a portfolio. These scores are used in deciding remedial actions and alternative instructional strategy. They also serve as a feedback to a student so that he/she may improve learning strategies. The records also are important to parents to check the learning progress and to advise accordingly. Finally, the records are very essential to the final assessment of professional practice of the student at the end of the college.

This portfolio is a folder (or binder or even a digital collection) containing the student's work as well as the student's evaluation of the strengths and weaknesses of the work. Portfolios reflect work produced (such as papers and assignments and they are a record of the activities undertaken over time as part of student learning. Portfolios also serve as a verification tool for each student that he/she attended the whole learning before he/she undergoes the summative assessment for the subject.

2.4.3. Item writing in summative assessment

Before developing a question paper, a plan or specification of what is to be tested or examined must be elaborated to show the units or topics to be tested on, the number of questions in each level of revised Bloom's taxonomy and the marks allocation for each question. In a competence-based curriculum, questions from higher levels of Bloom's taxonomy should be given more weight than those from knowledge and comprehension level.

Before developing a question paper, the item writer must ensure that the test or examination questions are tailored towards competence based assessment by doing the following:

- Identify topic areas to be tested from the subject syllabus.
- Outline subject-matter content to be considered as the basis for the test.
- Identify learning outcomes to be measured by the test.
- Prepare a table of specifications.

- Ensure that the verbs used in the formulation of questions do not require memorization or recall answers only but also testing broad, subject and generic competences as stated in the syllabus.

ICT tools required for practical assessment

Assessment of ICT competences will require different types of equipment to ensure the development of the ability of learners. The computer will be the main tool used to test ICT skills during practical examinations. Different technological devices have been given an important role in this syllabus to offer competences required by society, thus upon availability of these tools the practical paper will use them.

2.4.4. Structure and format of the examination

ICT in Associate Nursing program is a subject which focus mainly on hands on skills. It will be assessed at school and District levels. Therefore there will be one written paper and one practical examination in ICT subject at advanced level. A written paper measures knowledge and understanding, and skills at all levels of Bloom's taxonomy while a practical examination will measure practical skills. Time will depend on the paper's items and procedure to be carried out and learner's special education needs.

Paper/ Practicalexam	Component	Weighting
Writtenpaper	The paper will measure both knowledge of the subject matter and acquisition of competences. The paper will consist of questions from all levels of Bloom's taxonomy. (100 marks)	40%
Practicalexam	This practical exam will measure practical skills.This exam is preferably done in the computer laboratory or any other environment provided that the ICT tools learned in ICT subject which are going to be used are available.	60%

2.5. Reporting to parents

The wider range of learning in the Competence Based Curriculum means that it is necessary to think again about how to share a learners' progress with their parents. A single mark is not sufficient to convey the different expectations of learning that are in the learning objectives. The most helpful reporting is to share what learners are doing well and where they need to improve. A simple scale of meeting expectations very well, meeting expectations, and not meeting expectations for each of knowledge/understanding, subject skills and competencies in a subject will convey more meaning than a single mark. For school based assessments these scores do not need to be added up.

2.6. Resources

2.6.1. Materials needed for implementation

The successful implementation of this ICT syllabus will require learners to have computers which are the standard equipment for this subject. Alongside computers, other ICT tools and application software have been identified and it is indicated in this syllabus where they will be needed. Various resources for the implementation of the ICT competence based curriculum are the following:

- **Computer laboratory:** Each learner works on a computer. Laptops are highly recommended where possible
- **Printer and scanner:** Needed when there are some documents to print or to scan
- **Projectors: Presentation** is a key element of the competence based curriculum where learners work. Teaching materials will be mostly displayed using a projector for ICT subject in order to assist teaching/learning
- **Teacher's laptop:** Teachers need to prepare learning and teaching materials and organize content so as to use the classroom time effectively.
- **Internet connectivity:** Research in the competence based teaching/learning approach is necessary and this can be done using books but also computers with internet connectivity

- **Software:** in most cases skills expected from this competence based curriculum do not rely on any version of operating system or application software. However, the latest version of most software at the time of implementation will be used. Some of the needed software are:

    - **Operating system:** licensed copy of the most recent Windows Operating System

    - Word processing, spreadsheets and presentation software and database software

    - **Graphics and multimedia:** digital camera, Photoshop, Microsoft Picture Manager, and Movie Maker.

    - **Browsers:** Chrome, Mozilla Firefox, internet explorer, Opera, Microsoft edge

    - Textbooks and supplementary reading materials

Where the teacher is not familiar with the needed software and tools, it is recommended that he/she learns before using them in order to save time while teaching. Also, the listed software don't replace the role of the teacher.

2.6.2. Human resource

The effective implementation of this curriculum needs a joint collaboration of educators at all levels. Given the material requirements, teachers are expected to accomplish their noble role. The staff in charge of education at District and Sector level should ensure overall support to schools with this program for a successful implementation. On the other hand, Principals and Deputy Principals are required to make a close follow-up and assess the teaching/learning of this subject by making sure all that is planned to be learned is imparted appropriately. These combined efforts will ensure bright future careers and lives for students as well as the contemporary development of the country.

In a special way, the teacher of ICT at secondary school level should have a firm understanding of ICT concepts and pedagogical content of teaching ICT at secondary levels. He/she should be qualified in ICT related options and have a firm ethical conduct. The teacher should possess the qualities of a good facilitator, organizer, problem solver, listener and adviser. He/she is required to have basic skills and competence of guidance and counseling because students may come to him or her for advice.

The teacher of ICT should have the following skills, values and qualities:

- Inspire students and the community to get devoted to learning and using ICT
- Engage students in a variety of learning activities
- Use multiple teaching and assessment methods
- Adjust instruction to the level of the students
- Have creativity and innovation in the teaching/learning process
- Be a good communicator and organizer
- Be a guide/ facilitator and a counselor
- Make useful link of ICT with other Subjects and real-life situations
- Have a good mastery of the ICT Content as well as pedagogical knowledge enabling him/her to deliver that content.
- Have good classroom management skills

3. SYLLABUS UNITS' DEVELOPMENT

3.1. Presentation of the structure of the ICT syllabus units

The ICT subject has to be taught in all levels of Associate Nursing Program. At every grade where it is taught, the ICT syllabus is structured in Topic Areas. Topic Areas are themselves broken down into Sub-Topic Areas while Sub-Topic Areas are in turn made up of Units.

As for Units, they have the following features:

1. Each unit is aligned with the number of periods that are expected to be taught.

2. Each unit has a key unit competency whose achievement is pursued by all teaching and learning activities undertaken by both the teacher and the learners.

3. Each unit's key competence is broken down into learning objectives as follows:

     a. Learning objectives relating to knowledge and understanding tend to use lower order thinking skills. They are actually considered to be prerequisites to learning objectives relating to skills, attitudes and values.

     b. Learning objectives relating to Skills, Attitudes and Values are also known as Higher Order Thinking Skills. These learning objectives are actually considered to be the ones targeted by the present developed curriculum.

4. Each unit contains detailed content that is to be covered.

5. Each unit is provided with learning activities that are expected to engage learners in the learning process as interactively as possible (learner centered and participatory approach).

6. Finally, each unit contains links to other subjects, assessment criteria and the materials (or resources) that are expected to be used in its teaching and learning.

The table below shows an overview of the number of topic areas, sub-topic areas and units for ICT per year

	S4	S5	S6
Topic Areas	3	2	2
Sub-Topic Areas	4	3	2
Units	4	3	2

3.2. ICT Syllabus for S4

3.2.1. Key competences by the end of S4

By the end of S4, Students will have acquired the following competences:

- To maintain a computer in good working condition and describe the role of each of its compontents
- Apply advanced skills to create and format Word documents
- Use ethically the internet in carrying out researches aimed at improving knowledge and skills practice
- Apply conditional formatting and filtering and integrate spreadsheet to other applications.

3.2.2. Table units for S4

Subject: ICT			S4	Associate nursing program
TOPIC AREA: COMPUTER MAINTENANCE			**Sub Topic:** Computer components and troubleshooting	
Unit 1: Computer maintenance			**No. of periods: 11**	

Key Unit competence: To maintain a computer in good working condition and describe the role of each of its compontents

Learning Objectives			Content	Learning Activities
Knowledge and understanding	**Skills**	**Attitudes and values**		

– Describe elements of the computer system unit and their roles
 	
– Discuss computer maintenance principles
 	
– Recognize and explain computer hardware issues
	– Evaluate the capacity of processor, RAM and HDD
	
	– Apply computer maintenance principles to ensure it is in good working condition
		– Appreciate the role and function of elements of the computer system unit	**HARDWARE:**
			Elements of the computer system unit and their roles: Power supply, Video card, Hard disk, Mother board, CPU, RAM.
			– Computer maintenance principles
			– Computer capacity
			  • Storage size (bit, byte,)
			  • processing speed
			– Identifying and addressing hardware issues
			– Assembling a computer
			– Disassembling a computer
				– Work in groups to discuss about elements of the computer system unit and their role. Present findings to the class
				
				– In groups and with the guidance of the teacher, students open computer system unit, disconnect each element from its place and reconnect it.

– Identify software installation principles
– Identify software issues
– Explain different steps for Windows OS installation
– Explain different steps to install an application software
	– Apply diagnostic principles to identify computer hardware issues
	– Format and install an Operating System
	– Install different computer applications
	– Apply computer diagnostic principles to identify software issues
		– Show awareness of the behaviors to have before and during computer maintenance
		– Develop a behavior to scan every external memory connected to a computer before using it
		– Acquire a behavior to install software for which one knows the origin
			SOFTWARE:
			– Software installation principles
			– Computer software issues**:**
			  • OS issues
			  • Applications issues
			  • Viruses
			– Computer software installation
			  • Installation of an OS
			  • Installation of an Application software
				– In groups and guided by the teacher, students identify different hardware issues and fix them
				– Students work in groups to brainstorm about software issues and present findings to the class
				– Guided by the teacher, in groups students format a computer, install OS and other applications such Ms. office, antivirus, etc. Each student takes turn.
				– At the end of the formatting lesson, students identify steps to install OS and the importance of each

Assessment criteria: Students can successfully assemble and disassemble a computer and install software

Links to other Subjects: English: gain new vocabulary in English. Mathematics: by doing measurements of the computer capacity

Materials: Computers, Projector, Tools box for computer maintenance, screen projector

Subject: ICT	S4	Associate Nursing program
TOPIC AREA: APPLICATION SOFTWARE	**Sub Topic:** Word Processing	
Unit 2: Advanced Word Processing	**No. of periods: 11**	
Key Unit competence: To apply advanced skills to create and format Word documents		

Learning outcomes

Knowledge and understanding	Skills	Attitudes and values	Content	Learning Activities

– Describe different way of formatting a text
– State the steps of creating and updating a table of content, referencing, and protecting a document
	– Apply different methods to format a text of a word document
	– Create and insert footnotes and endnotes
	– Create and update a table of content
	– Make page set up by putting margin, page orientation and column
	– Practice the way of protecting documents from unauthorized changes and authorize reviewer to insert comment and tracked changes only
		– Show interest in creating good looking word documents
		– Show concern to care for documents so as to protect them from unauthorized access
			– Formatting a document
			  • Font group options
			– Paragraph group (Indent, spacing, bullets, numbering, alignment)
			– Referencing a word document:
			  • Header and footer
			  • Creating and inserting footnotes and endnotes
			  • Converting footnotes to endnotes
			  • Creating and updating a table of contents
				– Practical exercises on a given text, format it (bold, italic, underline, color, format painter, font case) and align a paragraph.
				– Individually and guided by the teacher, students insert header, footer, page numbers and footnotes in a document.
				– Facilitated by teacher, students create a table of content and update it when they make any change.

	– Authorize reviewers to insert comments and tracked changes only		– Page layout tab command
			  • Page set up group
			    – Margin
			    – Orientation
			    – Column
			– Protecting a document from unauthorized changes
			  • Setting a password to open and modify a document
			  • Restricting formatting and editing of a document
			  • Allowing editing in a protected document
			  • Authorizing reviewers to insert comments and tracked changes only
			  • Authorize reviewers to insert comments only
			  • Removing document protection
				– Students practice different exercises on page setup and paragraph such as setting the margin, page orientation and columns
				– With the support of the teacher, students practice how to protect a document by putting and removing protective password.

Assessment criteria: Students can apply formatting of text, insert table of content and protect a document.

Links to other Subjects: English: presentation of extended writing, punctuation and spelling.

Materials: Computers, projector, soft documents, text books, and the internet

Subject :ICT	S4	Associate nursing program
TOPIC AREA : Application Software	Sub Topic : Spreadsheet	

Unit 3: Advanced Spreadsheet I	No. of periods: 8

Key Unit competence: Apply conditional formatting and filtering and integrate spreadsheet to other applications

Learning Objectives			Content	Learning Activities
Knowledge and understanding	**Skills**	**Attitudes and values**		
– Explain the use of different advanced Excel formula and functions. – Explain the importance of using charts in Excel sheets	– Apply conditional formatting to cells – Use filters – Create and format charts, labels and axes – Interpret a chart – Use Advanced Spreadsheet functions and formula. – Export data to other applications	– Show an interest in formatting Excel data by using advanced Spreadsheet format options. – Appreciate the role played by advanced Spreadsheet options in manipulating Excel data in daily life.	– Conditional Formatting (highlight cell rule, top/bottom rule, …) – Charts – Data organization (sorting, filter) – Integrating with other applications – Exporting data to another file type (pdf, xps, …)	– Individually student enter data in Excel that they will later use in formatting, and creating charts. – Individually and with the guidance of the teacher, students format data using conditional formatting, and practice sorting and filtering data. – From the file they have already created, students create charts, label them, format axes and interpret them – Students export data to other applications

Assessment criteria: Students can accurately manipulate worksheet data using conditional formatting.

Links to other Subjects: **Mathematics** (Logic and Statistics.)

*Resources :*Computers, Projector and Excel applications

SUBJECT: ICT				S4	Associate nursing program
TOPIC AREA: INTERNET			Sub Topic: INTERNET USE		
Unit 4: Searching the internet				No. of periods:7	

Key Unit competence: To use ethically the internet in doing researches

Learning objectives			Content	Teaching / Learning Activities
Knowledge and understanding	**Skills**	**Attitudes and values**		
– Identify and explain components of URL – Explain the internet search strategies for better search results	– Use the internet efficiently and effectively to search for information – Apply internet search techniques so as to get better search results – Apply acquired knowledge to request for a service online	– Show interest in using internet appropriately by respecting all the related ethic principles – Demonstrate an awareness of copy right issues while searching for resources from the internet – Show a sense of respect while using online platforms	– Introduction to internet – Internet ethics – Web security (spyware, hacking, firewall) – URL and its parts (protocol, host name, domain name, sub domain) – Search on the internet – Strategies for better search results: • simple search techniques (keyword searching) • advanced search techniques (Boolean operators, quotation marks, tilde sign…) • Searching for documents, books, images, video on the internet • Searching by image	– Students discuss what is internet – In groups and after doing a research learner will discuss internet ethics and web security strategies – Learners will give examples of URL and with the teacher, identify its different parts – The teacher will give to groups of students research topics that they will do using the internet. After the research the whole class will discuss about the research question they used, the number of search results and any other aspect they realized.

			– Browser's Techniques for remembering (Cookies, Bookmark, Cache and Browser history)	– In class and using a projector the learners guided by the teacher, do a search using advanced search techniques
Assessment criteria: Students can use the internet in doing researches				
Links to other Subjects: Entrepreneurship (e commerce, online services)				
Materials: Computers with internet connectivity and internet browsers, Projector, books				

3.3. ICT Syllabus for S5

3.3.1. Key unit competence by the end of S5

By the end of S5, Students will have acquired the following competences:

- Use the full potential of the Spreadsheet to manipulate data

- Create a PowerPoint presentation to address a bigger audience

- Request for online services and use social media for improved communication and service delivery.

3.3.2. Table units for S5

Subject :ICT	S5		Associate nursing program
TOPIC AREA : Application Software		**Sub Topic: Spreadsheet**	
Unit 1 : Advanced Spreadsheet II			**No. of periods: 11**
Key Unit competence: Use the full potential of the spreadsheet to manipulate data.			

Learning objectives			Content	Learning Activities
Knowledge and understanding	**Skills**	**Attitudes and values**		
– Explain the use of logical, math, statistical and text functions. – Recognize the importance of logical, math, statistical and text functions – Describe the importance of advanced Spreadsheet functions in daily life.	– Protect and secure a spreadsheet or cells within a spreadsheet – Use logical, math, statistical and text functions – Apply spreadsheet security features – Use functions associated with logical, statistical, financial and mathematical operations.	– Appreciate the use of logical, math, statistical and text functions. – Show the interest in protecting and unprotecting worksheets. – Conceptualize the advanced spreadsheet functions contribution in real life especially in using Excel templates.	– Advanced spreadsheet functions. • Logical functions (AND, IF, FALSE, NOT, OR) • Mathematical functions (ABS, ARABIC& ROMAN, BASE, MOD, SQRT) • Statistical functions (AVERAGE, AVERAGEIF, LARGE, MAXIFS, MEDIAN, MINIF, MODE) • Text(CHAR, CONCATENATE, ,LOWER,UPPER,) – Using formula & functions from different sheets – Protecting worksheet style, contents and elements • Protecting & unprotecting worksheet, lock &unlock cells, style, contents and elements from unauthorized user access • Data validation • Using other excel templates	– Individually, using sample data provided by the teacher, students use advanced functions to manipulate the content in cells, protect and unprotect a worksheet – Students enter validated data in excel – Individually, students use different spreadsheet templates.

Assessment criteria: Students can produce sophisticated reports, perform complex mathematical and statistical calculations, and improve productivity using a Spreadsheet application.
Links to other Subjects: **Mathematics**: Functions, Equations, Logic, Probability and Statistics. **Entrepreneurship**: Financial modeling.
Resources: Computers, Projector and Excel applications.

SUBJECT: ICT		S5	Associate nursing program
TOPIC AREA: APPLICATION SOFTWARE	Sub Topic: PowerPoint presentation		
Unit 2: Advanced PowerPoint presentation	No. of periods: 15		
Key Unit competence: Create a PowerPoint presentation to address a bigger audience			

Learning objectives			Content	Learning Activities
Knowledge and understanding	Skills	Attitudes and values		
– Explain the process of copying, dividing slides into sections – Discuss the procedure of applying theme, and changing background to slides. – Explain procedures to add sound, video and animating slides	– Create a presentation – Divide presentations into sections – Apply a background change to all slides – Add sound and animation to slides	– Appreciate the way of presenting accurately information to a particular audience using presentations	– Create and manage presentations – Copy slides and content, inserting Slides from the Outline, from Reuse Slides – Managing slides (Hide, move, rearrange, delete, divide slides into sections) – Apply design themes and format background	– On their computers, students practice given exercises related to copy, insert slides, divide presentations into sections, rearrange slides and sections, apply themes and change slide backgrounds

	– Insert header & footer and comments to a PowerPoint presentation		– Adding notes and comments – Insert header and footer – Add sound and animation to slides – Animate text and pictures in slides – Customize animation effects – Add audio and video content to slides – Add and manage slide transitions (add sound and timing) – Presenting using PowerPoint: – Presenting using a projector – Print and distributing handouts	– Students do practice related to animating text and pictures on slides, customizing animation effects, adding audio and video content to slides and adding & managing slide transitions. Thereafter students print created presentations – Students present their created PowerPoint presentation to their peers using a projector

Assessment criteria: Students can create, manage presentations; add video, chart and animation to a slide so as to make it attractive to the audience.

Links to other Subjects: English: Presentation of extended writing, punctuation and spelling. Entrepreneurship

Materials: Computers, projector, soft documents, text books, and the internet

SUBJECT: ICT			S5		Associate nursing program
TOPIC AREA: INTERNET			**Sub Topic: INTERNET USE**		
Unit 4: E commerce, social media and online services				**No. of periods: 10**	
Key Unit competence: To request for online services and use social media for improved communication and service delivery					
Learning objectives			**Content**	**Learning Activities**	
Knowledge and understanding	**Skills**	**Attitudes and values**			
– Discuss the advantages of using e commerce and online services compared to traditional ways of commerce and service – Discuss the importance of social media in daily life	– Apply acquired knowledge to request for a service online – Create accounts on social media	– Show a sense of respect while using online platforms	– E commerce • Understanding e commerce (history, advantages vs. disadvantages) • E commerce models (Business to Customer, Business to Business,) • Payment methods – Social media (facebook, twitter, instagram, WhatsApp) and their uses – Online Services • E Banking • E payment (credit card, Mobile Money,) • Local online services (irembo)	– Guided by the teacher learners visit and explore one e commerce site, social media site and an online service provider web application (irembo). After this, each topic is discussed as shown in the content. – On the guidance of the teacher, students create social media accounts and explore how they can use them effectively	
Assessment criteria: Students can use the internet in doing researches and visiting online service provider websites					
Links to other Subjects: Entrepreneurship (E commerce, online services)					
Materials: Computers with internet connectivity and internet browsers, projector, books					

3.4. ICT syllabus for S6

3.4.1. Key unit competence by the end of S6

By the end of S4, Students will have acquired the following competences:

- To create, manipulate and query an Access database
- Create a simple static website using HTML

3.4.2. ICT units for Senior Six

Subject: ICT	S6		Associate nursing program	
TOPIC AREA: APPLICATION SOFTWARE			Sub Topic: Database	
Unit 1: Database creation and manipulation			No. of periods: 18	
Key Unit competence: To create, manipulate and query an access database				
Learning Objectives			Content	Learning Activities
Knowledge and understanding	Skills	Attitudes and values		

– Explain the importance of using a database in daily life	– Create a database with tables having primary keys and foreign keys	– Appreciate reports generated from the database	– Key terms used in Database
			  • Relational Database
			  • Database Management System (DBMS)
			  • Primary Key
			  • Foreign Key
			  • Composite key
			  • Structured Query Language (SQL)
			  • NoSQL
				– With guidance from the teacher, students create a database with tables, retrieve some data from the database and generate a report

– Distinguish the key terms used in database
– Explain the advantages for using query view in the database
– Differentiate primary key from foreign key created to link tables
	– Create view reports from created database
	– Use query views to display a certain needed part of information from the database
	– Interpret different reports generated from the database
			– Data type
			– Opening, saving and closing a database
			– Create a blank database
			– Creating a table
			  • Table Design View
			  • Creating fields
			  • Adding Data
			  • Creation of table relationship (primary key, foreign key)
			▪ Manipulation of database
			  • Querying a Database in design view
			– Query Criteria	

Assessment criteria: Student can successfully create a database with tables, create relationship between tables, query and retrieve data from the database.

Links to other Subjects: *English: Gain new vocabulary in English. Mathematics: When entering some numbers and performing some calculations using queries.*

Materials: *Computers, Ms Access installed in the computer*

Subject: ICT	S6		Associate nursing program	
TOPIC AREA: INTERNET		**Sub Topic : Web designing**		
Unit 2: Introduction to web designing			**No. of periods: 18**	
Key Unit competence: Create a static website using HTML				

Learning outcomes			Content	Learning Activities
Knowledge and understanding	**Skills**	**Attitudes and values**		

– Explain the difference between website, web page, web application
 	
– Explain the use and importance of Dynamic web page and static web page
 	
– Explain the relationship between back end and front end
	– Differentiate dynamic web page from static web page
	
	– Use HTML tags to create a static web page
		– Appreciate the use of different tags used to create a web page
		
		– Have an awareness of not visiting the web sites that can harm and influence them negatively
			– Introduction to web designing
			
			– Key terms: Website, Web page, Web application, Static web page, Dynamic web page
			
			– Introduction to HTML
			
			– Importance of using both static web page and dynamic web page
			
			– Design a static web page using html tags and hyperlinks
			  • Tags that identify and name documents
			  • Tags that organize web page contents
			
			– Creation of links
			
			– Back end vs Front end
				– In groups students discuss the difference between website, webpage, web application and list the most popular web sites they know which cannot harm and influence them negatively.
				
				– Students create hyperlinks
				
				– Students describe and use HTML tags to design a web page
				
				– Individually students create a website using HTML codes.In groups, students identify the fields of tables corresponding to the forms they have created in HTML

Assessment criteria: Students can create a static web site and differentiate it from a dynamic web site
Links to other Subjects: *English: gain new vocabulary in English*
Materials: Computers, projector, text books, Notepad

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5. APPENDICES

Appendix A: WEEKLY TIME ALLOCATION FOR ASSOCIATE NURSING PROGRAM

No	Subjects	Weight	WEEKLY TIME ALLOCATION		
			S4	S5	S6
1	Fundamentals of Nursing *	11	7	7	7
2	Biology*	11	7	7	7
3	Chemistry*	11	7	7	7
4	Mathematics*	5	3	3	3
5	Physics*	10	6	6	6
6	Ethics and professional code of conduct	1	1	1	0
7	Medical Pathology	2	0	3	1
8	Surgical Pathology	1	0	1	1
9	Pharmacology	4	3	2	2
10	Maternal and Child health	7	4	4	4
11	Individual learning	5	3	1	5
12	Clinical attachment*	13	6	7	10
13	Kinyarwanda	3	2	2	0
14	English*	6	4	4	4
15	French	2	1	1	1
16	Entrepreneurship	2	2	1	0
17	Citizenship	2	2	1	0

18	ICT	2	1	1	1
19	Sports/ Clubs	2	1	1	1
Total periods / week		**100**	**60**	**60**	**60**
Total number of contact/years			**2340**	**2340**	**2340**
Total number of contact hours/year (39 weeks)			**1560**	**1560**	**1560**

Appendix B: OVERVIEW OF ICT SYLLABUS

TOPIC AREA	SUBTOPIC AREA	KEY COMPETENCES		
		S4	**S5**	**S6**
COMPUTER MAINTENANCE	**Computer maintenance**	– Identify and describe elements of the computer box and their roles – Evaluate the capacities of processor and RAM for required computer capabilities – Apply computer maintenance principles to ensure it is in good working condition – Apply diagnostics principles to identify computer issues and Install computer software		

ADVANCED OFFICE	Advanced Word processing	Apply advanced skills and concepts to create suitable word documents		
	Advanced Spreadsheet	Demonstrate the ability to use advanced features and functions of spreadsheet tools to record and analyze data	Apply appropriate techniques in formatting, manipulating and protecting of data	
	Power Point presentation		– Create a power point presentation and appreciate its importance in addressing a bigger audience – Demonstrate the way of Inserting movies, audio and screen recording in slide presentations	
	Database			– Identify how databases work and how they are implemented in business and organizations – Collect and organize data to manipulate reports, and queries – Appreciate the importance of having a computerized database

INTERNET	Web designing			– Discuss the difference between static and dynamic web pages – Design static web pages
	Internet use	Use the internet efficiently and effectively	Exhibit awareness of electronic commerce and apply it in every daily life	