AFRICAN COLLEGE OF COMMERCE

P.O. BOX 301 KABALE – UGANDA

THE CURRICULUM FOR THE CERTIFICATE IN COMPUTING AND INFORMATION TECHNOLOGY (CCIT)

THE STRUCTURE, REGULATIONS AND SYLLABUS

YEAR 2014

VISION

To be a leading Institution in Business, Technical and Vocational Training in Africa

MISSION

To establish a competence - based training that equips the learners with skills relevant to employment and economic growth

CORE VALUES

1. **Competence based training for competent and skilled graduates;**

2. **Integrity based on honesty and ethics;**

3. **Hard work, dedication, and achievement of results.**

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THE HISTORY OF

AFRICAN COLLEGE OF COMMERCE (ACC)

African College of Commerce is an Educational Institution majoring in Business Technical and Vocational training programmes. Below is the historical background of the institution.

1986: 14th April, Commissioned as a Business Education Institution.

1986: June, Registered and recognised by the Ministry of Education.

1990: Held the first Graduation Ceremony;

1992: Introduced Computer Science Courses;

1994: Granted Examinations Centre U62 by the Uganda National Examinations Board,

1998: Purchased land on which to construct the Main Campus

2003: Affiliated to Makerere University Business School (MUBS)

2004: Shifted from rented building in Kabale town centre to Kekubo cell a kilometre away in our own buildings in an area conducive for learning

2005: Received donation from the Federal Republic of Germany in form of buildings, computers, text books and Human Resource Development.

2006: Established ICT Centers in Kabale and Kanungu Districts with the assistance of the Uganda Communications Commission.

2007: Worn a BRONZE Medal from the Federation of Uganda Employers for being the third best employer in Uganda for the year 2006.

2008: Accredited by the National Council for Higher Education as a recognized Institution of Higher learning in Uganda:

2010: Re branding African College of Commerce. Introduced more Technical and Vocational programmes and short courses.

2011: April 16th 2011, Cerebrate Silver Jubilee **1986 to 2011**. Penetrated the Rwanda, Congo, Tanzania Burundi and Kenya

2012: Transformed into a fully fledged **Polytechnic.** Engaged all the training programmes into innovation and production units for products and services. Concretised the hands on training and competence based approach.

2014: Affiliating to Kyambogo University for diploma programmes and in particular the Diploma in Instructor and Technical Teacher Education DITTE, under Skilling Uganda Strategy.

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PART A: GENERAL REGULATIONS

1.0 LIST OF ACRONYMS

ACC	African College of Commerce
CGPA	Cumulative Grade Point Average
CH	Contact Hours
CU	Credit Units
CCIT	Certificate in Computing and Information Technology
GP	Grade Point
GPA	Grade Point Average
IT	Industrial Training
LH	Lecture Hours
UCE	Uganda Certificate of Education
NCHE	National Council for Higher Education
NP	Normal Progress
PH	Practical Hours
PP	Probationary Progress
ACCEB	African College of Commerce Academic Board

2.0 TITLE

The title of the Programme is **CERTIFICATE IN COMPUTING AND INFORMATION TECHNOLOGY (CCIT).**

3.0 INTRODUCTION

The Certificate in Computing and Information Technology is a one year programme. It aims at providing students with professional education, training and practical skills involved in computing and information technology.

3.1 Rationale

The creation of a global economy has necessitated realization of communications technology and the social networking skills to cope with the information age. This programme addresses the technologies used in communication and the computing environment; enhancing practical skills necessary to use and maintain devices involved.

3.2 Target Group.

The target group is the senior four leavers and people with other qualifications in other fields of study who want to acquire computing and information technology skills.

4.0 OBJECTIVE OF THE PROGRAMME

The main objective of this course is to enable students gain professional education, training and practical skills involved in computing and information technology.

5.0 PROGRAMME OUTCOMES

The graduate of a certificate in Computing and Information Technology should competently apply skills and knowledge of information technology to solve information technology and other computer related tasks.

6.0 JOB TITLES FOR CCIT GRADUATES

- Systems Analyst
- Computer Technician
- Database users
- Network Administrators
- Computer Laboratory Attendants.

7.0 ORGANIZATIONS THAT EMPLOY CCIT GRADUATES

- Communication houses/Media houses
- Telecommunication Companies
- Financial Institutions
- Non-governmental Organizations
- Parastatal Organizations
- Government Institutions
- Internet Cafes
- Education Institutions
- Private Sector

8.0 NATURE OF COURSES

All the courses in this programme are compulsory.

9.0 ADMISSION REQUIREMENTS

The minimum entry requirement to the Certificate in Computing and Information Technology is:

a. Uganda Certificate of Education (UCE) with at least 3 passes;

b. Qualifications equivalent to Uganda Certificate of Education (UCE) as shall be determined by the National Council in consultation with the Uganda National Examinations Board;

10.0 DURATION OF THE PROGRAMME

The minimum period to complete the Certificate in Computing and Information Technology is one year and the maximum period is two years. Failure to complete the programme, in the two years, the student shall be required to repeat the whole programme i.e. forfeit the already passed courses and start the programme afresh.

11.0 MODE OF DELIVERY AND INSTRUCTIONAL STRATEGIES

Mode of delivery and instructional strategies will be by the following:

11.1 Lectures for theory

11.2 Practical work in form of Projects

11.3 Field work through Industrial training and Study tours
11.4 Class discussions and group presentations
11.5 Demonstration

12.0 STUDY MATERIALS AND INFRASTRUCTURE

12.1 Institutional Infrastructure

The institution will use the existing facilities on ACC Campus. The institution has sufficient infrastructure to facilitate the teaching and learning process e.g. furniture, lecture rooms, workshops, library, computer laboratories and a resource room.

12.2 Study Facilities

The Faculty of Vocational Education will use the existing study facilities on ACC Campus. The institution has sufficient study facilities to facilitate the teaching and learning process e.g. relevant materials and equipment to the programme, computers, handouts, textbooks and other materials from individual lecturers, journals and related publications, internet connectivity in the computer laboratories, library with wireless connection, audio visual materials, relevant software programme, source documents, archival records, government policy papers, Government Acts and Statutes, research and innovations by lecturers and students.

13.0 HUMAN RESOURCE

The Faculty of Vocational Education has well qualified and experienced teaching and technical staff managing the Certificate and Diploma Programmes. The academic and technical staff to support the Certificate in Computing and Information Technology will be drawn from the programmes under the Faculty as listed on page 42 of this curriculum

14.0 PROGRAMME STRUCTURE

14.1 YEAR ONE SEMESTER ONE

Code	Name	LH	PH	CH	CU
CCIT 1101	Hardware & Software Maintenance I	30	90	75	5
CCIT 1102	Communication Technology & Internet	50	50	75	5
CCIT 1103	Computer Applications I	20	80	60	4
CCIT 1104	4th Generation Languages	45	30	60	4
CCIT 1105	Computer Information Systems	45	30	60	4
CCIT 1106	Comm. Inform. Tech. Project I	10	130	75	5
	Total	**200**	**410**	**405**	**27**

14.2 YEAR ONE SEMESTER TWO

Code	Name	LH	PH	CH	CU
CCIT 1201	Hardware & Software Maintenance II	30	90	75	5
CCIT 1202	Computer Networks	40	70	75	5
CCIT 1203	Computer Applications II	20	80	60	4
CCIT 1204	Computer Security	40	40	60	4
CCIT 1205	Computer Driving License	30	60	60	4
CCIT 1206	Comm. Inform. Tech. Project II	10	130	75	5
CCIT 1207	Fieldwork	10	130	75	5
	Total	**180**	**600**	**480**	**32**

15.0 PROGRAMME LOAD

To qualify for the award of the Certificate in Computing and Information Technology, a candidate must obtain 59 credit units distributed as follows:

YEAR ONE	SEMESTER I	27
	SEMESTER II	32
	Total	**59**

16.0 CURRICULUM

The curriculum for the Certificate in Computing and Information Technology will be prepared by the African College of Commerce Academic Board (ACCAB) and accredited by the National Council for Higher Education (NCHE).

17.0 EXAMINATION REGULATIONS

The examination rules and regulations for the Certificate in Computing and Information Technology will be set by African College of Commerce Examinations Board (ACCAB)

18.0 ADMISSION TO THE PROGRAMME

18.1 Admission:

Admission into the programme shall close at the end of the third full week of each semester;

19.0 PROGRESSION

Progression of a student will be classified as Normal, Probational or retaking or Discontinuation.

19.1 Normal progress

Normal progression occurs when a student passes each course taken with a minimum grade point of 2.0.

19.2 Probational progression

This is a warning stage and it occurs when a student;

(i) Fails a course unit
(ii) Has GPA or CGPA of less than 2.0
(iii) A student who fails more than a half of the total number of courses in a semester will be required to stay on that semester until the failed courses are cleared. When the GPA of a student goes up in the following semester, the probation is removed.

19.3 Re-taking.

A student will retake any course when it is next offered, to pass or to improve performance. A student shall retake in a course only two times.

19.4 Discontinuation

That a student is discontinued when he or she has:

(i) Received three consecutive probations in the same course unit.
(ii) Received a CGPA of less than 2.0 for three consecutive probations.
(iii) Failed to present him/her-self for final examinations without giving sufficient reasons.
(iv) Over stayed on the programme for a period of more than two years

20.0 FINAL EXAMINATION PAPER FORMAT

20.1 YEAR ONE SEMESTER ONE

PAPER NAME AND CODE	EXAMINATION FORMAT
CCIT 1101 Elements of Hardware and software maintenance I CCIT 1102 Communication Technology and the internet CCIT 1104 4th Generation Languages. CCIT 1105 computer Information Systems.	Each paper will consist of **SEVEN** questions and the candidate will be required to answer **at least five**. All questions will carry equal marks. The Students should be assessed on memory, Understanding, application, analysis, synthesis and evaluation. The total duration of the examination will be three hours
CCIT 1103 Computer Applications I	The paper will consist of three exercises and the candidate will be required to answer all. The total duration of the examination will be two hours.
CCIT 1106 Comm. Inform. Project I	The continuous assessment of the various projects in the semester will lead to the final examination paper marks. The total duration of the assessment shall be within the 15 weeks of teaching. African College of Commerce will invite an expert/examiner to assess the projects.

20.2 YEAR ONE SEMESTER TWO

PAPER NAME AND CODE	EXAMINATION FORMAT
CCIT 1202 Computer Networks. CCIT 1204 Computer Security	Each paper will consist of Seven questions and a candidate is required to attempt at least five questions.
CCIT 1201 Elements of Hardware and Software Maintenance II. CCIT 1205 Computer Driving License.	The course unit will consist of Five practical questions and a candidate will attempt at least Three. All Questions carry equal Marks
CCIT 1203 Computer Applications II	The paper will consist of three exercises and the candidate will be required to answer all. The total duration of the examination will be two hours.
CCIT 1206 Comm. Inform. Project II	The continuous assessment of the various projects in the semester will lead to the final examination paper marks. The total duration of the assessment will be within the 15 weeks of teaching. African College of Commerce will invite an expert/examiner to assess the projects.

21 .0 ASSESSMENTS AND GRADING

21.1 Theory Assessment

21.1.1	Continuous Course Work	
	21.1.1.1 Course work 1	10%
	21.1.1.2 Course work 2	10%
	21.1.1.3 Course work 3	10%
	Total	**30%**
21.1.2	End of Semester Examination	**70%**
	Total	**100%**

21.2 Project Work

21.2.1	Project Assessment 1	20%
21.2.2	Project Assessment 2	20%
21.2.3	Student's Personal Innovation	20%
21.2.4	Project Assessment 4	40%
	Total	**100%**

21.3 Field Work

21.3.1	Industrial Training	70%
21.3.1	Field Tours	30%
	Total	**100%**

21.4 Assessment Training Packages (ATPs)

Each student will be assigned an Assessment Training Package. This will record the student's academic progression. This will include assessment areas, grades obtained from course works, project work, field work and final examination.

21.5 Grading courses

Each course unit will be graded out of a maximum of one hundred (100) marks and assigned grade point as follows

MARKS (%)	GRADE POINTS
80-100	5.00
75-79	4.50
70-74	4.00
65-69	3.50
60-64	3.00
55-59	2.50
50-54	2.00
Below 50	0.00

The course pass mark is 50% which is Grade Point 2.0.
No credit unit will be awarded for any course in which a student fails.

21.6 Scaling

All the grades will be scaled down to 100%

22.0 AWARDS AND CLASSIFICATION

22.1 Awards

A successful candidate will be awarded the Certificate in Computing and Information Technology of African College of Commerce (ACC)

22.2 Grade Point Average (GPA)

A grade point average is mark calculated to determine the final award. To arrive at a grade point average, the following steps are taken.

a. Multiply the Grade Point by the Credit Unit to get a Weighted Score of a Course;
b. Add together the weighted scores for all courses taken up to that time to get **total weighted score(TW);**
c. Add the Credit Units for each course to get the **Total Credit Units (TCUs);**
d. Divide the total weighed scores by the total number of credit units taken up to that time to get **grade point average (GPA). TWs/TCUs =GPA.**

The letter grades shall be used for Grade Point Averages (GPAs) as follows:

A	B+	B	C	D
5	4	3	2	1

22.3 Cumulative Grade Point Average (CGPA)

This is determined by dividing total accumulated weighted scores (TWs) by the total accumulated credit units (TCUs) up to a particular time.

22.4 Classification of Final Awards

CLASS	FINAL CGPA	LETTER GRADE
First Class	4.4 – 5.0	A
Second Class Upper Division	4.0 – 4.3	B+
Second Class Lower Division	3.0 – 3.9	B
Pass	2.0 – 2.9	C
Fail	1 - 1.9	D

PART B: DETAILED SYLLABUS

23.0 YEAR ONE SEMESTER ONE

23.1 ELEMENTS OF SOFTWARE AND HARD WARE MAINTENANCE I

Course code CCIT 1101

Credit units 05

Contact hours 75 HOURS

COURSE DESCRIPTION
This Course will provide students with knowledge and practical skills about various computer hardware components and their functions and performing computer trouble shooting activities.

LEARNING OUTCOMES
By the end of this course, the student should comfortably operate a computer system and perform various trouble shooting activities.

OBJECTIVES OF THE COURSE
By the end of this course unit, the learner should be able to;
1. Identify the different categories of computer software
2. Identify different hard ware components of the computers
3. Perform the booting process of the computer system
4. Install some identified software

COURSE CONTENT

CHAPTER ONE
1.0 Desk top computer system components and their functions
1.1.1 In put output devices
1.1.2 System board
1.1.3 Processor
1.1.4 Memory
1.1.5 Storage media

CHAPTER TWO

2.0 COMPUTER SOFT WARE AND FIRM WARE

2.1 System soft ware
2.2 Application soft ware
2.3.1 Firm ware

CHAPTER THREE

3.0 SETTING UP A PERSONAL COMPUTER

3.1 Install video output devices
3.2 Video output devices

3.3 Ports
3.4 Display characters
3.5 Install ps2 Devices
3.6 Install parallel devices
3.7 Install game and sound devices
3.8 Install USB devices
3.9 Install firewalls and devices

CHAPTER FOUR

4.0 INSTALLING OR REMOVING INTERNAL HARD WARE
4.1 Establish an ESD free work area
4.2 Install or remove adapter cards
4.3 Install or remove IDE drives

MODE OF DELIVERY
The mode of delivery will include: lecture, hands-on, demonstration, group discussions and presentation.

ASSESSMENT OF THE COURSE
This course unit will be assessed on 100 marks as follows;

Course work by continuous assessment	30%
Final examination	70%
Total	**100%**

The marks will be converted into Grade points.
There will be the final examination in the last two weeks of the semester.

REFERENCES

1. Wayne J. S & John C. W Using microcomputers; applications for business
2. Andy R (2007) Upgrading & fixing PCs 7th edition
3. Build your own multimedia PC by Ian Sinclair
4. Katongole G. (2006) Information and Communication Technology 3rd Edition.
5. David T.(1994), Core skills in Information Technology 1st Edition
6. Bismas N.N Basic Computer Programming.
7. Okiror R (2010) Hands on Computer, Computer Studies Practical 1st Edition.
8. John M. (2005) The PC controller 3rd Edition.

23.2 COMMUNICATION TECHNOLOGY AND THE INTERNET

Course code CCIT 1102

Credit units 05

Contact hours 75 HOURS

COURSE DESCRIPTION
The course equips students with knowledge and skills on communication technologies and use of the internet as a medium of communication.

LEARNING OUTCOMES
By the end of this course, the student should be able to use various internet communication technologies.

OBJECTIVES OF THE COURSE
By the end of these topics, the learner should be able to;
1. Describe how data flows through the network devices
2. Connect and use the internet

COURSE CONTENT

CHAPTER ONE
1.0 The Digital and Analog communication technology
1.1 Communication-methods
1.2 Data flow
1.3 Data communication
1.4 Technology-types

CHAPTER TWO
2.0 Communication technologies
2.1 Skype
2.2 Video conferencing
2.3 Web cam technology

CHAPTER THREE

3.0 Computer networking fundamentals
3.1 Computer networks
3.2 Categories of networks
3.3 Types of networks
3.4 Network topology

CHAPTER FOUR

4.0 Network Hardware Devices
4.1 Network devices
4.2 Media Access Methods
4.3 Law Architectures

CHAPTER FIVE

5.0 The OSI MODEL
4.1 Layers
4.2 Functions

CHAPTER SIX

6.0 The Internet
6.1 Introduction
6.2 Advantages and disadvantages
6.3 Uses of the internet
6.4 Services
6.5 Evolution of the internet
6.6 IP
6.7 ISP
6.8 DNS
6.9 URL
6.10 Web pages and Web browsers
6.11 Connecting to the internet
6.12 Creating email accounts

MODE OF DELIVERY
The mode of delivery will include: lecture, hands-on, demonstration, group discussions and presentation.

ASSESSMENT OF THE COURSE
This course unit will be assessed on 100 marks as follows;

Course work by continuous assessment	30%
Final examination	70%
Total	**100%**

The marks will be converted into Grade points.
There will be the final examination in the last two weeks of the semester.

REFERENCES

1. Heineman learning to pass advanced ECDL AM4 - spreadsheets. Using office 2003 *by* Jennifer Johnson
2. Kanneth L. & Jane L. Management of Information Systems 4th Edition Prentice Hall.
3. Birungi J. Understanding Computer studies and Information Technology.
4. Wabroko E.S (2007) Computers 3rd Edition.
5. Susan H. (2008) Asking connection to the internet
6. Judy B. (2005) Joys of Computer Networking 4th Edition.

23.3 COMPUTER APPLICATIONS I

Course code CCIT 1103

Credit units 03

Contact hours 45

COURSE DESCRIPTION
The course introduces students to the computer applications through practical skills in information technology software to enable them compete favorably in the dynamic technology-based world.

LEARNING OUTCOMES
By the end of this course, Students should l be able to use the common Microsoft Office applications of word processing, spreadsheets, graphics, presentations and databases.

OBJECTIVES
By the end of this course learners should be able to:
1. Identify the different Applications within an Office environment
2. Acquire skills in basic computer software applications and apply them in various business situations in order to facilitate the information management function.
3. Appreciate computer applications in business through hands on
4. Demonstrate the ability to use the common software applications of Microsoft Word, and Microsoft Excel
5. Produce business documents and data analysis and models applicable to business environment

COURSE CONTENT

CHAPTER ONE
1.1 Basic concepts and startup procedures
1.2 Introduction to practical computing
1.3 Connecting computer parts (CPU, Monitor, Mouse, Key board)
1.3 Windows Operating Systems Commands
1.4 Booting the computer
1.5 Using the mouse
1.6 Managing the user interface
1.7 Introduction to Windows programmes

CHAPER TWO
2.0 Word Processing (Document production with MS word)
2.1 Starting Ms Word
2.2 Creating documents
2.3 Looking at and using tool bars
2.4 Entering data
2.5 texts formatting
2.6 page formatting
2.7 Document formatting
2.8 Creating tables
2.9 Sorting and filtering data (plain text and tabulated text)

2.10 Graphics
2.11 printing
2.12 practice assignments

CHAPTER THREE

3.0 Spreadsheets (Microsoft Excel)

3.1 Starting Ms Excel
3.2 Excel tool bars
3.4 Managing workbooks and worksheets
3.5 Entering data and its formatting
3.6 Performing formulae, errors and their corrections
3.7 Calculating using functions
3.8 Sorting and filtering data
3.9 Using Graphs
3.10 Printing
3.11 Practice assignments

MODE OF DELIVERY

The mode of delivery will include: lecture, hands-on, demonstration, group discussions and presentation.

ASSESSMENT OF THE COURSE

This course unit will be assessed out of 100 marks as follows;

Course work by continuous assessment	30%
Final examination	70%
Total	**100%**

The marks will be converted into Grade points.
There will be the final examination in the last two weeks of the semester.

REFERENCES

1. Kathy Ivens and Thomas Barich(1997), How to use Microsoft Office' 97, Ziff-Davis press
2. Whitecomb A and Brown B, Key boarding and Document production, Stanley Thornes, **Chem.: emam**
3. E.S. Waburoko(200), An introduction to information technology, Department to Distance Learning, Edsoft Computer Institute
4. Teach yourself Microsoft Excel 97 in 24 Hours by Linda Jones and Reul L. Hernadez by S: MS
5. Hernandez cy SAW Publishing
6. Keneth C. and Laudon J.P: Essentials of Management Information Systems; 3rd Edition Prentice Hall, New Jersey, 1999
7. Elliot G. and Starkings:Business Information Technology, Theory and Practice; Addison Wesley, Longman, London and New York, 1998
8. Olive and Chapman; Data Processing and Information Technology, DP Publications
9. Christopher Barnatt (1996): Management Strategy; ND Information Technology; International Thomson Business Press.
10. Clifton H.D. and A.G. (1994); Business Information Systems; 5th Edition.
11. Raymond McLeod J (1995): Management Information Systems; 6th Edition; Prentice Hall International Editions.

23.4 4TH GENERATION LANGUAGES

Course code CCIT 1104

Credit units 04

Contact hours 60

COURSE DESCRIPTION
This course equips students with knowledge and skills about database languages and their applications in the business environment.

LEARNING OUTCOME
By the end of the programme the student should be able to use database applications for example Access and SQL server.

OBJECTIVES OF THE COURSE
By the end of these topics, the learner should be able to;
1. Describe different levels of computer language generations
2. Differentiate between manual and computer based systems
3. Create a simple data base using mysql

COURSE CONTENT

CHAPTER ONE
1.0 The Generation of Programming languages
1.1 Introduction to computing languages
1.2 The 1^{st}, $2^{nd, 3rd}$,4^{th} and 5^{th} generations
1.3 Problems within the computing industry
1.4 Trends and development in computing languages
1.5 The procedural and non-procedural languages

CHAPTER TWO

2.0 The manual filing systems and the DBMS
2.1 Manual files versus Computer based
2.2 Advantages and Disadvantage of Manual file systems
2.3 Advantages and disadvantages of computer based

CHAPTER THREE

3.0 Three Level data base architecture
3.1 Introduction, the objectives of three level architecture
3.2 ANSI SPARC 3 level Database
3.3 The three level architecture (external, conceptual and the internal levels)
3.4 Database languages
3.5 The major technologies in the DBMS

CHAPTER FOUR

4.0 MYSQL
4.1 The objectives and goals of MYSQL
4.2 Introduction to data types
4.3 Create/ show database in MYSQL
4.4 Selecting the Database
4.5 Removing/ deleting a Database
4.6 Creating/deleting tables
4.7 Renaming, inserting and updating a table/DB

CHAPTER FIVE

5.0 Using SQL server and running queries
5.1 Introduction to data types
5.2 Create/ show database in MYSQL
5.3 Selecting the Database
5.4 Removing/ deleting a Database
5.5 Creating/deleting tables
5.6 Renaming, inserting and updating a table/DB

CHAPTER SIX
6.0 Introduction
6.1 Players of the database environment
6.2 Users and their roles played
6.3 Database development/database system life cycle

MODE OF DELIVERY
The mode of delivery will include: lecture, hands-on, demonstration, group discussions and presentation.

ASSESSMENT OF THE COURSE
This course unit will be assessed on 100 marks as follows;

Course work by continuous assessment	30%
Final examination	70%
Total	**100%**

The marks will be converted into Grade points.
There will be the final examination in the last two weeks of the semester.

REFERENCE BOOKS

1. Graham L. Business Information systems *vol. 1*
2. Katongole G. A practical handbook for databases *-First Edition.*
3. Taxali R.K (2006) dBase III plus made simple
4. Meehan D. (1990) 4th Generation Languages.
5. Marry K. R (2005) Applied Information Communication Technology 1st Edition.

23.5 COMPUTER INFORMATION SYSTEMS

Course code CCIT 1105

Credit units 04

Contact hours 60 HOURS

COURSE DESCRIPTION
This course equips students with knowledge and skills of using various computer information systems in organisations.

LEARNING OUTCOMES
By the end of this course, the student should be able to apply the knowledge in class to the management of organisations information system.

OBJECTIVES OF THE COURSE
By the end of these topics, the student should be able to;
1. Relate information, systems and information systems
2. Identify different technologies used in information systems in business organizations
3. Know the applicability of computer information systems.
4. Understand the use of various information systems.

SYALLABUS CONTENT

CHAPTER ONE
1.0 Information System Fundamentals
1.1 Definitions-data, information
1.2 Information processing

CHAPTER TWO
2.0 Systems
2.1 Definitions
2.2 Introduction to IS
2.3 Information systems components and categories
2.4 The role of computers in Information systems
2.5 Limitations of computers in IS
2.6 Categories of Information Systems

CHAPTER THREE
3.0 Information Technology in Business Information Systems
3.1 Telecommunications
3.2 Telecommunications in daily use
3.3 Telecommunications Applications in Business Today
3.4 Computer networks in Business Information Systems
3.5 The internet in Business Information Systems

CHAPTER FOUR
4.0 Information Systems in Organizations
1.1 Organizations definition
1.2 Why organizations exist

4.3 Characteristics of organizations
4.4 Organization structures
4.5 IS in organizations
4.7 Types of Information Systems
4.8 Interrelations between the different Information Systems in an Organization

CHAPTER FIVE
1.0 E-Business Applications and Management
1.1 E-Business and E-commerce
5.2 E-commerce activities
5.3 Rise, impact and barriers to e-commerce
5.4 E-Business Applications
5.5 E-commerce Infrastructure
5.6 Elements of E-commerce
5.7 Advantages and disadvantage
5.8 The process of e-commerce
5.9 E-commerce software and E-commerce payment systems

CHAPTER SIX
6.0 E-Business Applications and Management
6.1 Functional Business Systems
6.2 Marketing Systems
6.3 Manufacturing Systems
6.4 Human Resource Systems
6.5 Accounting Systems
6.6 Financial Management Systems

CHAPTER SEVEN
7.0 Acquisition and Development of Computer Information Systems
7.1 Introduction to IS Acquisition
7.2 Bespoke development
7.3 User developed systems
7.4 Off-the-shelf systems
7.5 System development life cycle
7.6 Other methodologies

CHAPTER EIGHT
Managing Contemporary Information Systems
7.7 Computer Information Systems Security
7.8 Concern for system builders and users
7.9 Creating a control environment

MODE OF DELIVERY
The mode of delivery will include: lecture, hands-on, demonstration, group discussions and presentation.

ASSESSMENT OF THE COURSE
This course unit will be assessed on 100 marks as follows;

Course work by continuous assessment	30%
Final examination	70%
Total	**100%**

The marks will be converted into Grade points.
There will be the final examination in the last two weeks of the semester.

REFERENCES

1. Kenneth C. Laudon & Jane P. Laudon Management Information Systems, Managing the Digital Firm -Eighth Edition by
2. Steven Doyle (1996). Information systems
3. Alun Hinder (2002) Information and communication technology.
4. Underson R.G (1990) Data processing 7th Edition.
5. George Knott (1989) Small Business Computer Systems 2nd Edition.

23.6 COMMUNICATION INFORMATION TECHNOLOGY PROJECT I

Course code CCIT 1106

Credit units 05

Contact hours 05 HOURS

PROJECT DESCRIPTION
This Course will provide students with knowledge and practical skills on the usage of computers and their applications.

PROJECT OUTPUT
By the end of this course, the student should be able to use the computer and its various computer applications.

OBJECTIVES OF THE PROJECT
By the end of this course, the student should be able to:
1. Protect the computer and users with various security options
2. Guide users on the operation of computers.
3. Use Computer applications to solve business problems.
4. Maintain the computer in safe working conditions.
5. Connect computers on a network and maintain this network.

CHAPTER ONE
1.0 Computer Applications I
1.1 Create and run a programme in DOS
1.2 Create an advanced document in Microsoft Word and Excel 2007 -2010

CHAPTER TWO
2.0 Elements of Hardware and Software maintenance I project
2.1 Assemble and disassemble a computer system
2.2 Install software programmes in a windows environment

CHAPTER THREE
3.0 Communications technology and internet proposed projects
3.1 Use a mobile phone and a laptop to connect to the internet
3.2 Connect computers on a network to the internet through IDSL

CHAPTER FOUR
4.0 Fundamentals of 4th Generation languages proposed projects.
4.1 Microsoft Access 2007
4.2 SQL sever

CHAPTER FIVE
5.0 Introduction to Computer Information Systems Projects
5.1 Information Systems design
5.2 Systems analysis and design
5.3 Management of an Information System
5.5 Upgrading an Information System
5.6 Realization of information systems in organisations..

MODE OF DELIVERY
The mode of delivery will include Lecture, hands-on, demonstration, Group discussion, presentation and excursions.

METHODS OF INSTRUCTION
The methods of instruction shall include, Lecture, hands-on, demonstration, Group discussions and presentation and excursions.

ASSESSMENT OF THE COURSE
This course unit shall be assessed on 100 marks as follows:

Project Assessment 1	20%
Project Assessment 2	20%
Student's Personal Innovation	20%
Project Assessment 4	40%
Total	**100%**

The marks will be converted into Grade points.

24.0 YEAR ONE SEMESTER TWO

24.1 ELEMENTS OF HARDWARE AND SOFTWARE MAINTENACE II

COURSE CODE CCIT 1201

CREDIT UNITS 05

CONTACT HOURS 75

COURSE DESCRIPTION
This Course will provide students with knowledge and practical skills on computer hardware and software components and carrying out troubleshooting and maintenance tasks.

LEARNING OUTCOMES
By the end of this course, the student should be able to trouble a computer system and resolve all computer problems.

OBJECTIVES OF THE COURSE
By the end of these topics, the learner should be able to;
1. Identify and Correct memory problems
2. Identify and correct Hard disk problems
3. Identify and correct boot problems

SYLLABUS CONENT

CHAPTER ONE
1.0 Upgrading system components
1.1 Add memory
1.2 Upgrade the CPU
1.3 Add a CPU
1.4 Upgrade the system BIOS
1.5 Upgrade the power supply
1.6 Upgrade the system board
1.7 Decide when to upgrade

CHAPTER TWO
2.0 Performing preservative maintenance
2.1 Hard disk maintenance
2.2 Perform printer maintenance
2.3 Use of a UPS
2.4 Clean peripheral components
2.5 Clean internal system components
2.6 Correct CD or DVD Drive problems
2.7 Correct Printer Problems

CHAPTER THREE
3.0 Troubleshooting system problems
3.1 Correct Modem Problems
3.2 Correct Power Problems
3.3 Correct Boot Problems
3.4 Correct Memory Problems
3.5 Correct System Board Problem
3.6 Correct Portable System Problems

CHAPTER FOUR

4.0 Managing disk resources in windows

4.1 Compress a hard disk

4.2 Defragment a hard disk

MODE OF DELIVERY

The mode of delivery will include: lecture, hands-on, demonstration, group discussions and presentation.

ASSESSMENT OF THE COURSE

This course unit will be assessed on 100 marks as follows;

Course work by continuous assessment	30%
Final examination	70%
Total	**100%**

The marks will be converted into Grade points.

There will be the final examination in the last two weeks of the semester.

REFERENCES

1. J. Wayne Spence & John C. Windsor Using microcomputers; applications for business
2. Andy R (2007) Upgrading & fixing PCs 7th edition
3. Build your own multimedia PC by Ian Sinclair
4. Katongole G. (2006) Information and Communication Technology 3rd Edition.
5. David T.(1994), Core skills in Information Technology 1st Edition
6. Bismas N.N Basic Computer Programming.
7. Okiror R (2010) Hands on Computer, Computer Studies Practical 1st Edition.
8. John M. (2005) The PC controller 3rd Edition.

24.2 COMPUTER NETWORKS AND DATA COMMUNICATION

COURSE CODE **CCIT1202**

CREDIT UNITS **05**

CONTACT HOURS **75 HOURS**

COURSE DESCRIPTIONS
This course aims at imparting the students the general understanding on the concepts of data communication computer networks.

LEARNING OUTCOMES
By the end of this course, students should be able to setup and manage computer networks.

OBJECTIVES OF THE COURSE
This course aims to:
1. Describe the main functions of each layer in the OSI and TCP/IP model.
2. Describe the key protocols in the TCP/IP protocol stack.
3. Calculate IPv4 subnet information.
4. Describe the Ethernet standard.
5. Describe the common physical media used in data communication

COURSE CONTENT

CHAPTER ONE
1.0 Introduction
1.1 Data communications
1.2 Networks
1.3 The internet
1.4 Protocols and standards

CHAPTER TWO
2.0 Network Models
2.1 Layered tasks
2.2 The OSI model
2.3 Layers in the OSI model
2.4 TCP/IP protocol suite
2.5 Addressing

CHAPTER THREE
3.0 Data and Signals
3.1 Analog and digital
3.2 Periodic analog signals
3.3 Digital signals
3.4 Data Transmission
3.5 Transmission impairment
3.6 Channel capacity

CHAPTER FOUR
4.0 Band width Utilization
4.1 Multiplexing
4.2 Spread spectrum

CHAPTER FIVE
5.0 Transmission Media
5.1 Guided media
5.2 Unguided media: Wireless

CHAPTER SIX
6.0 Switching
6.1 Circuit-Switched networks
6.2 Datagram networks
6.3 Virtual-Circuit networks
6.4 Structure of a switch

CHAPTER SEVEN
7.0 Using Telephone and Cable Networks for Data Transmission
7.1 Telephone Network
7.2 Dial-Up modems
7.3 Digital subscriber line
7.4 Cable TV networks
7.5 Cable TV for data transfer

CHAPTER EIGHT
8.0 Error Detection and Correction
8.1 Introduction
8.2 Block coding
8.3 Linear block codes
8.4 Cyclic codes
8.5 Checksum

CHAPTER NINE
9.0 Network Security
9.1 Security services
9.2 Message confidentiality
9.3 Message integrity
9.4 Message authentication
9.5 Digital signature
9.6 Entity authentication
9.7 Key management

MODE OF DELIVERY
The mode of delivery will include: lecture, hands-on, demonstration, group discussions and presentation.

ASSESSMENT OF THE COURSE
This course unit will be assessed on 100 marks as follows;

Course work by continuous assessment	30%
Final examination	70%
Total	**100%**

The marks will be converted into Grade points.
There will be the final examination in the last two weeks of the semester.

REFERENCES
1. Forouzan. B.A, Data Communications and Networking 2nd Edition
2. Andrew S. Computer Network, Prentice-Hall
3. James F. Kurose, Computer Networking. A top down approach
4. http://www.cisco.com/public/support/tac/documentation.html

24.3 COMPUTER APPLICATIONS II

COURSE CODE CCIT 1203

CREDIT UNITS 03

CONTACT HOURS **45 HOURS**

COURSE DESCRIPTION
The course introduces students to the computer applications through practical skills in information technology software to enable them compete favorably in the dynamic technology-based world.

LEARNING OUTCOMES
By the end of this course, Students should l be able to use the common Microsoft Office applications of word processing, spreadsheets, graphics, presentations and databases.

OBJECTIVES
By the end of this course learners should be able to:
1. Identify the different Applications within an Office environment
2. Acquire skills in basic computer software applications and apply them in various business situations in order to facilitate the information management function.
3. Appreciate computer applications in business through hands on
4. Demonstrate the ability to use the common software applications of Microsoft Word, and Microsoft Excel
5. Produce business documents and data analysis and models applicable to business environment

COURSE CONTENT

CHAPTER ONE
1.0 Database Management (Microsoft Access)
1.1 Starting MS Access
1.2 Creating data bases
1.3 Crating data tables; Using design view, table wizard, by entering data
1.4 Creating relationships between tables
1.5 Creating forms; using form wizard
1.6 Creating queries; using design view, using query wizard
1.7 Sorting and filtering data
1.8 Formatting data in different objects
1.9 Generating reports using report wizard
1.10 printing
1.11 Practice assignments

CHAPTER TWO
2.0 Presentation management (Microsoft point)
2.1 Starting MS Power Point
2.2 Starting a slide presentation and selecting the slides of desire
2.3 Formatting slides in the slide sorter
2.4 Adding coloring to slides
2.5 Graphing in the slides

2.6 Formatting slide show for different slide designs, layouts and animation schemes
2.7 Viewing a slide show
2.8 Saving and printing the slide presentation
2.9 Practice assignments

CHAPTER THREE

3.0 Internet/Intranet

3.1 Internet definition
3.2 History of Internet
3.3 Uses of Internet
3.4 ISP (Internet Service Providers)
3.5 DNS (Domain Name Systems)
3.6 www (World Wide Web)
3.7 Internet Browsers and Search Engines; Google Chrome, Internet Explorer, Mozira Firefox, OPERA
3.8 URL(Uniform Resource Locator)
3.9 Web Portals
3.10 Navigator/Bookmarks/links
3.11 Uploading and Downloading
3.12 Webmail (Electronic Mails); Thunderbird, Outlook.
3.13 Working with news groups
3.14 Printing and Saving Documents
3.15 Social Networking Web: Facebook, Twiter, Google, Yahoo messenger (chart room),
3.16 http: (hypertext Transfer Protocal)
3.16 Creating a homepage
3.17 Internet Security; Virus Infection, Firewalls, Open source programmes (Thunderbird, Outlook Google Chrome, Internet Explorer, Mozira Firefox, OPERA)

MODE OF DELIVERY

The mode of delivery will include: lecture, hands-on, demonstration, group discussions and presentation.

ASSESSMENT OF THE COURSE

This course unit will be assessed out of 100 marks as follows;

Course work by continuous assessment	30%
Final examination	70%
Total	**100%**

The marks will be converted into Grade points.
There will be the final examination in the last two weeks of the semester.

REFERENCES

1. Kathy Ivens and Thomas Barich(1997), How to use Microsoft Office' 97, Ziff-Davis press
2. Whitecomb A and Brown B, Key boarding and Document production, Stanley Thornes, **Chem.: emam**
3. E.S. Waburoko(200), An introduction to information technology, Department to Distance Learning, Edsoft Computer Institute

24.4 COMPUTER SECURITY

COURSE CODE CCIT 1204

CREDIT UNITS 04

CONTACT HOURS **60 HOURS**

COURSE DESCRIPTION
This Course will provide students with knowledge and practical skills on computer security

LEARNING OUTCOMES
By the end of this course, the student should be able to perform computer security options and file management.

OBJECTIVES OF THE COURSE
By the end of these topics, the learner should be able to;
1. Identify a security problem i.e. viruses, hackers and provide a security measure for the identified problem
2. Carry out data back
3. Provide a disaster recovery plan

COURSE CONTENT

CHAPTER ONE
1.0 Introduction to Security
1.1 Security definition
1.2 Terms and definitions in computer security
1.3 Taxonomy of computer security
1.4 Fundamentals of computer security
1.5 Importance of computer security
1.6 Business value of computer security

CHAPTER TWO
2.0 Malicious software
2.1 viruses
2.2 Spyware
2.3 Detection and prevention of malicious software

CHAPTER THREE
3.0 Tools and Technologies for safeguarding information
3.1 Firewalls
3.2 Antivirus
3.3 Disaster recovery
3.4 Intrusion detection system
3.5 Security wireless networks
3.6 Virtual private network technology
3.7 Electronic record management
3.8 Patches

CHAPTER FOUR

4.0 Computer crime

4.1 Definition and examples
4.2 Targets of crime
4.3 Sources

CHAPTER FIVE

5.0 Access controls

5.1 Methods of user identification
5.2 Data back up
5.3 backup devices and media,
5.4 planning a backup and types of backups

CHAPTER SIX

6.0 Security Threats

6.1 Examples of threats
6.2 Protective measures against threats
6.3 Categories of threats
6.4 Motives/ goals of threats
6.5 Methods used by threats to attack information
6.6 Internet based attacks

CHAPTER SEVEN

7.0 Security vulnerabilities

7.1 Examples of vulnerabilities
7.2 Motives of attackers
7.3 Methods, tools and techniques for attacks

CHAPTER EIGHT

8.0 Computer Security Risks

8.1 Security risks
8.2 Risk analysis and dependence
8.3 Risk analysis process
8.4 Basic risk assessment-policy, types of security policies and violation of policy

MODE OF DELIVERY

The mode of delivery will include: lecture, hands-on, demonstration, group discussions and presentation.

ASSESSMENT OF THE COURSE

This course unit will be assessed on 100 marks as follows;

Course work by continuous assessment	30%
Final examination	70%
Total	**100%**

The marks will be converted into Grade points.
There will be the final examination in the last two weeks of the semester.

REFERENCES

1. Geoffrey Knott and John Ellison Computer studies 3rd edition
2. Birungi J. Understanding computer studies and Information Technology
3. Molly W. (1996) Information Technology 1st Edition.
4. Veronica W. (2005) Information Technology Work 1st Edition.
5. Stan. G (1990) Designing Information Systems.

24.5 COMPUTER DRIVING LICENCE

Course code CCIT 1205

Credit units 04

Contact hours 60 HOURS

COURSE DESCRIPTION
This Course will provide students with knowledge and practical skills on the usage of computer and its applications.

LEARNING OUTCOMES
By the end of this course, the student should be able to use the computer and its various computer applications.

OBJECTIVES OF THE COURSE
By the end of these topics, the learner should be able to;
1. Understand the computing environment
2. Use various computer applications.

COURSE CONTENT

CHAPTER ONE
1.0 Introduction to Computer Systems
1.1 The aims, objectives and definitions of ICDL
1.2 The reasons for the study of ICDL
1.3 The computer systems
1.4 Computer evolution and Electronic computer generations
1.5 Computer types, characteristics and their classifications
1.6 Computer applications and their limitations

CHAPTER TWO
2.0 Hardware components in Information Technology
2.1 Definition of hardware and components
2.2 Hardware components of the CPU (input, output and storage devices)
2.3 CPU and the motherboard (RAM, ROM, Storage i.e. Primary and Secondary
2.4 Powering on the computers/ shutting down procedures
2.5 Caring for micro computers and PC configurations
2.6 The UPS and its roles

CHAPTER THREE
3. 0 Software and Operating system
3.1 Application and system software -types of software
3.2 Forms of software-types of application and system software
3.3 Operating system definition, types and functions
3.4 Utility programs
3.5 Comparisons of the different operating system-Linux, Windows, DOS
3.6 Shareware, Freeware and user license

CHAPTER FOUR

4.0 Security, Copyright and the Law

4.1 Definitions, types and roles played by each
4.2 Hardware theft and software/ information theft
4.3 Understand software copyright and legal issues
4.4 The data protection act in our country, implications and uses of personal data
4.5 The measures of protecting computer systems
4.6 Data backup and its types

CHAPTER FIVE

5.0 Data Representation

5.1 Introduction to number system, data types
5.2 The binary, octal, decimal and hexadecimal number system.
5.3 Base conversions
5.4 Base Arithmetic (Addition, subtraction, multiplication and division)
5.5 Computer coding system-character codes

CHAPTER SIX

6.0 Computer Viruses

6.1 What are computer viruses and the types
6.2 How do computer viruses spread, the ways of controlling them
6.3 Passwords, features of good passwords

CHAPTER SEVEN

7.0 Computer Controls and Security

7.1 Introduction to computer controls and security
7.2 Computer system control types and their efficient systems
7.3 Physical software and amendment security
7.4 Computer crime and abuse and ways of control
7.5 Security threats to hardware, software and data
7.6 Computer workplace and codes of conduct

MODE OF DELIVERY

The mode of delivery will include: lecture, hands-on, demonstration, group discussions and presentation.

ASSESSMENT OF THE COURSE

This course unit will be assessed on 100 marks as follows;

Course work by continuous assessment	30%
Final examination	70%
Total	**100%**

The marks will be converted into Grade points.
There will be the final examination in the last two weeks of the semester.

REFERENCE BOOKS

1. Katongole G. communication and information technology, 2nd Edition
2. Brendan Munnelly and Paul Holden ICDL, the complete course book
3. Kenneth C. Laudon Management information systems 8th Edition
4. Geoffrey Knott and John Ellison Computer studies 3rd edition
5. Birungi James Understanding computer studies and Information Technology

24.6 COMMUNICATION INFORMATION TECHNOLOGY PROJECT II

COURSE CODE CCIT 1206

CREDIT UNITS 05

CONTACT HOURS 75 HOURS

PROJECT DESCRIPTION
This Course will provide students with knowledge and practical skills on the usage of computer and its applications.

PROJECT OUTPUT
By the end of this course, the student should be able to use the computer and its various computer applications.

OBJECTIVES OF THE PROJECT
By the end of this course, the student should be able to:
1. Protect the computer and users with various security options
2. Guide users on the operation of computers.
3. Use Computer applications to solve business solutions.
4. Maintain the computer in safe working conditions.
5. Connect computers on a network and maintain this network.

CHAPTER ONE
1.0 Computer Security
1.2 Install antivirus software and debug computer viruses.
1.3 Install user accounts on a computer system and award privileges.

CHAPTER TWO
2.0 Computer applications II project
2.1 Design a card using page maker
2.2 Design a payroll of a certain organization.

CHAPTER THREE
3.0 Computer Networks proposed projects
3.1 Connect and configure computers to a network.

CHAPTER FOUR
4.0 Computer Driving Project
4.1 Design specifications of a sound computer system for an organization

CHAPTER FIVE
5.0 Hardware and Software maintenance iv Project
5.1 Collect individual computer components, assemble and configure the computer.

CHAPTER SIX
6.0 Innovation: Student's self initiated project relevant to the programme.

MODE OF DELIVERY

The Mode of delivery will include, Lecture, hands-on, demonstration, Group discussions and presentation and excursions.

ASSESSMENT OF THE COURSE

This course unit shall be assessed on 100 marks as follows:

Project Assessment 1	20%
Project Assessment 2	20%
Student's Personal Innovation	20%
Project Assessment 4	40%
Total	**100%**

The marks will be converted into Grade points.

24.7 FIELDWORK

Course code CCIT 1207

Credit units 05

Contact hours 75 hours

COURSE DESCIPTION

This course introduces students to practical application of skills and concepts learnt during the training at the training institution.

LEARNING OUTCOMES

The student will put into practice what is learnt in class in the field of attachment.

OBJECTIVES OF THE COURSE

By the end of this course the learners should be able to:

1. Familiarize themselves with work place environment
2. Translate what was learnt in class into real life situation
3. Acquire more job competences
4. Market themselves to prospective employers

COURSE CONTENT

1. Intern orientation to the work place
2. Planning, identifying and scheduling of intern tasks and activities
3. Working under the guidance of the internship organization supervisor
4. Visitation by the training institution supervisor to share the experiences and Challenges facing the intern

MODE OF DELIVERY

The mode of delivery will include; Practice, demonstration and supervision

ASSESSMENT OF THE COURSE

This course unit shall be assessed on 100 marks as follows;

ACC Evaluator	10%
Work Place Supervisor's Assessment	30%
Industrial Training Report	30%
Subtotal	**70%**
Field Tours	**30%**
Total	**100%**

The marks will be converted into Grade points.

25.0 LIST OF LECTURERS AND TECHNICAL STAFF IN THE FACULTY OF VOCATIONAL EDUCATION

1	Ahabwe John Paul	B. HRM (KIU), HD THM (KIU)	5 Years
2	Ainebyona Dickson K	BLIS (UCU)	4 Years
3	Akampurira Baker	Bsc. IT (UCU)	4 Years
4	Ampeire Diane	BA. Drama (MUK)	3 Years
5	Asiimwe Christine	Dip. Cosmetology	2 Years
6	Asiimwe Sarah	Bsc. IT (UCU)	3 Years
7	Atuheire Magret	B.THM (NKU), CTTE (KYU)	9 Years
8	Ayebazibwe Esther	B. Mass Com. (UCU)	3 Years
9	Byenkya Nickolas Kisembo	B. Admin S. S (KYU)	7 Years
10	Elisha Rukanga	B. Arts (MUK) Dip Educ (KYU)	32 Years
11	Friday Christopher	B. Env. Sc. (KAB), PG Dip PPM	3 Years
12	Kangume Boaz	B. Computer Science (KYU)	2 Years
13	Mpyangu Godfrey	Dip Lib & Inform Sc (KYU)	5 Years
14	Musingiza Ivan	B. Env. Sc. (KAB)	3 Years
15	Mwesigye Dinato	B.IT (MUK)	1 Year
16	Nampurira Duncan	BLIS (KAB), DLIS (KYU)	10 Years
17	Nyakato Gemma	BBA (KBA), UDSS (MUBS), CCTE (KYU)	20 Years
18	Nyinomugisha Polly	BBA (KAB) UDBS (MUBS)	2 Years
19	Rwahanzira James	DTHM (KIU) Cert. Food Production HTI	13 Years
20	Sibbo Jennifer	B. Mass Com. (UCU), MBA (India)	6 Years
21	Tarakikunzire Medard	Dip. Sec. Cert Sec Studies.	5 years
22	Tugumisirize Julius	B. ICT (MUK)	6 Years
23	Tukamushaba Moreen	B.LIS (KAB)	1 Year
24	Turyagyenda Charles	B. Ed (UCU), Dip. Ed. (ITEK)	23 Years