BUSINESS STUDIES PROGRAMMES

CURRICULUM CHART FOR

DIPLOMA IN COMPUTER STUDIES

CHART NO. 154C

PRODUCED BY:
CURRICULUM DEVELOPMENT AND ADVISORY SERVICES
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TEVETA

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1.0 RATIONALE

With the critical shortage of qualified Information Technology personnel in Zambia, a need to produce locally trained computer graduates at various levels of training was established. This curriculum was reviewed in order to be line with current technological advancements.

The approach to learning modules is a logical sequence, developing from basic computer principles to the complex computer operations.
The content is structured into a competency-based format to address the issues of comparable standards worldwide and to be a precise guide for those who would ultimately develop the trainee resource materials.

Trainees holding a Diploma in Computer Studies should possess the knowledge and skills necessary to enable them to analyse a business related problem. They should also specify a computer based solution, design and implement a software system and maintain it using any range of the commonly used programming languages in local and international industry.

2.0 PROGRAMME PURPOSE

The programme is designed to equip students with necessary skills to design, program, operate, support and use computer systems to satisfy industry requirements.

3.0 PROGRAMME AIMS

This course is designed to provide students with knowledge and skills in:

3.1 Communication Skills

3.2 Principles of Information Technology

3.3 Office Productivity Software

3.4 Programming

3.5 Computer Architecture

3.6 Mathematics and Statistics

3.7 Foundations of Management

3.8 Entrepreneurship

4.0 PROGRAMME OBJECTIVES

On completion of the course, the student will be able to:

4.1 Develop application programs

4.2 Install, use, maintain, support and integrate:

- 4.2.1 An operating system
- 4.2.2 Local Area Network (LAN) and Wide Area Network (WAN)
- 4.2.3 Application Programs and Systems programs

4.2.4 Office Productivity Software

4.2.5 A designated relational database management system

4.2.6 Websites and Intranets

4.3 Apply entrepreneurship skills

5.0 COURSE OUTLINE

MODULE	TITLE	HOURS
154C-01-C	SYSTEMS ANALYSIS AND DESIGN II	200
154C-02-C	ADVANCED PROGRAMMING	300
154C-03-C	COMPUTER NETWORKS	250
154C-04-C	INFORMATION MANAGEMENT SYSTEMS	200
154C-05-C	ENTREPRENEURSHIP	120
154C-06-C	PROJECT	350
	TOTAL:	**1420**

6.0 ENTRY REQUIREMENTS

Advanced Certificate Computer Studies

7.0 PROGRAMME EVALUATION

7.1 FORMATIVE EVALUATION

Purpose:

To determine on an on-going basis whether the programme is being implemented as planned and to advise on improvement.

7.1.1 Major areas of Evaluation

Course aims and objectives, student's entry requirements, course content, teaching/learning activities, learning resources.

7.1.2 Evaluation Instruments

Questionnaires, structured interviews, observations, checklist, examination and test records.

7.1.3 Sources of Information

Trainees, trainers, administrators, student drop out and mentors.

7.2 SUMMATIVE EVALUATION

7.2.1 Major areas of evaluation

Course aims, student's entry requirements, course content, learning resources, teaching/learning activities, trainers and graduates performance in employment.

7.2.2 Evaluation Instruments

Questionnaires, structured interviews, observations, checklist, records, committees.

7.2.3 Sources of Information

Students, trainers, administrators, student drop outs, employers, union officials and the general public.

8.0 ASSESSMENT

The course shall be assessed as follows:

Final Examination	**60%**
Continuous Assessment	**40%**

9.0 MINIMUM PASS LEVEL

The minimum pass level shall be as per ECZ requirements for each subject i.e. **50%** pass level for the entire programme.

10.0 REFERRALS AND FAILURES

Students who fail in 4 modules or more at the end of the course shall be considered an outright fail and shall not be allowed to re-sit for examinations.

However, those failing in up to 3 modules will be given two chances to re-sit after which they will be excluded.

11.0 ATTENDANCE

The candidate must have an attendance of not less than 85% to be eligible for the final examination.

12.0 STAFFING

Lecturers/Trainers shall have a minimum qualification of a Degree in a relevant field from a recognized institution.

13.0 COURSE DURATION

1 year with contact time of 1420 hours

14.0 DELIVERY METHODS

Combination of lectures, practical projects, assignments, tutorials and demonstrations/ laboratory work.

15.0 CERTIFICATION

The Examinations Council of Zambia shall award a Diploma in Computer Studies to candidates successfully completing the course.

MODULE 154C-01-C SYSTEMS ANALYSIS AND DESIGN

Duration: 200 hours

Module Description/Purpose: To equip students with knowledge, skills and values in applying the techniques and tools of systems design to the development of information systems.

Objective: At the end of the module, the trainee will be able to:

1. Develop Management and Information Systems
2. Carry out Systems Engineering and Quality Assurance
3. Design Input and Controls
4. Design outputs
5. Implement systems
6. Select hardware and software
7. Carry out Security/Risk Analysis

Unit 1.1 Management and Information Systems Development

1.1.1 Estimation and management of development time
1.1.2 Personnel consideration
1.1.3 Structured walkthroughs

Unit 1.2 Systems Engineering and Quality Assurance

1.2.1 Design objectives
1.2.2 Design practices
1.2.3 Design and documentation tools
1.2.4 Methodologies: |Object Oriented, Structured
1.2.5 Testing
1.2.6 Quality assurance

Unit 1.3 Designing Input and Controls

1.3.1 Objectives on input design
1.3.2 Design Input layout
1.3.2 Designing coding systems
1.3.3 Data capture
1.3.4 Input validation

Unit 1.4 Design of Outputs

1.4.1 Design of systems output
1.4.2 Out put layout design

Unit 1.5 Systems Implementation

1.5.1 Training
1.5.2 Conversion
1.5.3 Post-implementation review
1.5.4 Maintenance

Unit 1.6 Hardware/Software Selection

1.6.1 Hardware selection
1.6.2 Software selection

Unit 1.7 Security/Risk Analysis

1.7.1 Computer security
1.7.2 Risk management

MODULE 154C-02-C ADVANCED PROGRAMMING

Duration: 300 hours

Module Description/Purpose: To equip students with knowledge, skills and values of compiler construction and other advanced programming methods.

Objective: At the end of the module, the trainee will be able to:

1. Translate computer language
2. Perform object oriented programming
3. Perform logic programming

Unit 2.1 Language Translation

- 2.1.1 Classes
- 2.1.2 Objects
- 2.1.3 Class membership
- 2.1.4 Methods
- 2.1.5 Properties
- 2.1.6 Inheritance
- 2.1.7 Polymorphism
- 2.1.8 Encapsulation (message passing)

Unit 2.2 Object Oriented Programming

- 2.2.1 Objects and classes
- 2.2.2 Methods and properties
- 2.2.3 Polymorphism

Unit 2.3 Logic Programming

- 2.3.1 Definitions and declarations
- 2.3.2 Using a logic programming language
- 2.3.3 Artificial intelligence

MODULE 154C-03-C COMPUTER NETWORKS

Duration: 250 hours

Module Descriptions/Purpose: To equip students with skills, knowledge and attitudes to enable them plan, design, develop and install Local Area Networks (LAN) and Wide Area Network (WAN)

Objectives: At the end of this module, the trainee will be able to:

1. Describe data transmission types
2. Outline functional tasks of a protocol
3. Install various types of networks
4. Apply the principles of open systems interconnection (OSI)
5. Apply the principles of network communication
6. Perform internetworking
7. Carry out network administration

Unit 3.1 Data Transmission

- 3.1.1 Basic communication channels
- 3.1.2 Transmission media
- 3.1.3 Error detection and correction

Unit 3.2 Functional tasks of a protocol

- 3.2.1 Open systems of protocols
- 3.2.2 Protocol layers
- 3.2.3 Protocol interfaces
- 3.2.4 Protocol types

Unit 3.3 Installing Networks

- 3.3.1 Types of networks
- 3.3.2 Network topologies
- 3.3.3 Point to point networks
- 3.3.4 PSTN
- 3.3.5 Local Area Network (LAN)

Unit 3.4 Open Systems Interconnection (OSI)

- 3.4.1 Application
- 3.4.2 Presentation
- 3.4.3 Session
- 3.4.4 Transport
- 3.4.5 Network
- 3.4.6 Data link
- 3.4.7 Physical

Unit 3.5 Network Communication

- 3.5.1 Segments
- 3.5.2 Packets
- 3.5.3 Frames
- 3.5.4 Bits

Unit 3.6 Internetworking

- 3.6.1 Wide Area Network (WAN)
- 3.6.2 The Internet

Unit 3.7 Network Administration

- 3.7.1 Monitoring
- 3.7.2 Troubleshooting
- 3.7.3 Resolve

MODULE 154C-04-C INFORMATION MANAGEMENT SYSTEMS

Duration: 200 hours

Module Description/Purpose: To equip trainees with knowledge, skills and attitudes in the management of information systems.

Objectives: At the end of this module, the trainee will be able to:

1. Describe management Information Systems
2. Describe how Information Systems are built
3. Manage the electronic commerce and business of a firm
4. Manage hardware and software assets
5. Enhance management decision-making for the digital firm
6. Redesign the organisation with information systems
7. Provide information systems security and control

Unit 4.1 Management Information Systems

- 4.1.1 Benefits of using the Internet
- 4.1.2 E-commerce
- 4.1.3 Effect of MIS on management structures
- 4.1.4 Scope of MIS
- 4.1.5 Use of MIS

Unit 4.2 Information Systems in the Enterprise

- 4.2.1 Operational levels in an enterprise
- 4.2.2 Types of systems
- 4.2.3 Benefits of Enterprise systems
- 4.2.4 Challenges of Enterprise systems

Unit 4.3 The Digital Firm: Electronic Commerce and Electronic Business

- 4.3.1 The digital firm and internet technology
- 4.3.2 Categories of e-commerce
- 4.3.3 Electronic Payment systems
- 4.3.4 Challenges of e-commerce/e-business

Unit 4.4 Managing Hardware and Software Assets

- 4.4.1 Management of hardware assets
- 4.4.2 Management of software assets
- 4.4.3 Criteria of selecting hardware/software

Unit 4.5 Enhancing Management Decision-Making for the digital firm

- 4.5.1 Components of Decision Support Systems
- 4.5.2 The Merits of Group Decision Support Systems
- 4.5.3 The benefits of Executive Support Systems

Unit 4.6 Redesigning the organisation with Information Systems

- 4.6.1 Designing Information Systems
- 4.6.2 Rewards and Business systems

Unit 4.7 Information Systems Security and Control

- 4.7.1 Security and risks
- 4.7.2 Ethics
- 4.7.3 Inventing the future

MODULE 154C-05-C ENTREPRENEURSHIP

Nominal Duration: 120 HOURS 12 CREDITS

Module Description/Purpose: The aim of the module is to create awareness of the importance of entrepreneurship and its relevance to career growth by building entrepreneurial competences, attitudinal change that will lead to self motivation and generation of business ideas.

OBJECTIVES: At the end of the Module, trainees will be able to:

1. Apply entrepreneurial concepts in computer and information technology work
2. Develop Entrepreneurial Competences and Attitudes
3. Apply enterprise management skills
4. Identify information technology business opportunities
5. Establish a computer and information technology business entity
6. Sustain a computer and information technology enterprise

UNIT A5.1 Applying entrepreneurial concepts

5.1.1 Concepts of Entrepreneurship

5.1.2 Economic trends in the computer and information technology industry in Zambia

5.1.3 Government policy on computer and information technology enterprise development

UNIT A5.2 Developing Entrepreneurial Competences and Attitudes

5.2.1 Developing self-motivation

5.2.2 Developing business opportunities

5.2.3 Networking for enterprise development

5.2.4 Effective business communication

5.2.5 Customer service

UNITA5.3 Applying enterprise management skills

5.3.1 Managerial and leadership skills in an enterprise

5.3.2 Marketing

5.3.3 Cost and price per product / service

5.3.4 Management of finances

5.3.5 Business records

5.3.6 Enterprise and technology

5.3.7 Business ethics and values in managing an enterprise

UNIT 5.4 Identifying Information Technology Business Opportunities

5.4.1 Scanning a local Business environment

5.4.2 Business centre

5.4.3 Network building and support

5.4.4 Vending in Computer spares and consumables

5.4.5 Outsourcing Information Technology services and products

5.4.6 Managing information systems

UNIT A5.5 Establishing a computer and information technology enterprise

5.5.1 Types of businesses

5.5.2 Business Plan / project

5.5.3 Procurement management

5.5.4 Law and taxation

5.5.5 Procedures for formalising an enterprise

5.5.6 Contracting (quotations and tendering)

UNIT A5.6 Sustaining an enterprise

5.6.1 Appraise one's enterprise

5.6.2 Manage survival and growth

5.6.3 Project

MODULE 154C-06-C PROJECT DEVELOPMENT

Nominal Duration: 350 **HOURS**

Module Description/Purpose: To provide students with an opportunity to be able to apply practical knowledge gained to analyse, design and develop systems.

Objectives: At the end of the module, the trainee will be able to:-

1. Plan, design and develop a practical project.
2. Practice skills acquired in managing the development cycle and presentation techniques.

Note: This is a group in which students in groups of two or more work together to complete the design and implementation of software to meet a given specification. Groups will be given different projects.

Unit 6.1 Project

- 6.1.1 Description of the project
- 6.1.2 Analysis of the requirements and design of solution
- 6.1.3 Presentation of the proposal
- 6.1.4 Development of the system
- 6.1.5 Documentation
- 6.1.6 Presentation of the system