MZUZU UNIVERSITY

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 1
4. COURSE TITLE: End User Computing
5. COURSE CODE: BICT 1101
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 2
12. INDEPENDENT LEARNING

HRS PER WEEK: 8

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To introduce students to computer skills.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* Operate a personal computer running MS Windows and/or Linux.
* create documents using a word processing application
* produce documents using a spreadsheet application
* create presentation using a presentation application
* build databases using a database application
* find information on the web using search engines
* send and receive electronic mail

21. TOPICS OF STUDY :

**Using the computer and managing files**

* Getting started with Windows and Linux
* Menus, commands and dialogue boxes
* The start Menu and Taskbar
* Working with folders
* Working with files
* Windows and Linux applications
* Customizing the Desktop F
* Printing

**Word processing**

* Creating documents
* Editing documents
* Formatting documents
* Proofing tools
* Document layout
* Tables
* Mail merge
* Graphics
* Working with other applications

**The Internet and World Wide Web**

* Role of the Internet as a source of information
* Getting started with Web browsers
* Browsing the World Wide Web
* Security on the Web
* Searching for information on the Web
* Working offline and downloading files
* Net-etiquette

**Electronic mail**

* Conventional and web based E-mail systems
* Configuration of mail clients
* Sending and receiving Emails
* Email attachments
* Organising an address book

**Spreadsheets**

* Creating workbooks
* Entering basic calculations
* Formatting the worksheet
* Structuring the worksheet
* Working with multiple sheets
* Charts and graphs
* Using spreadsheets with other applications

**Presentations**

* Creating presentations
* Formatting presentations
* Editing the slide master
* Inserting graphics
* Organisation chart
* Running a slide show
* Design Template
* Integration with other applications

**Databases**

* Introduction to Databases
* Creating tables
* Primary and secondary keys
* Entering data in a table
* Viewing and editing data
* Create queries
* Create forms and reports

**Recommended Texts:**

WILLIAMS, B.K., et al (2011) Using Information Technology; a practical introduction to computersand communications, 3rd ed Boston, M.A.: Irwin McGraw-Hill

Andrews Jean (2014) Managing and maintaining your PC, 8th Ed. Thomson Course Technology, Canada.

TANENBAUM, A (2004) Computer Networks, 4th ed US, prentice Hall, Inc

This syllabus was presented to senate on……………………………………….and approved by senate on……………………………………………………………………..

**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 1
4. COURSE TITLE: Introduction to Programming
5. COURSE CODE: BICT 1102
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 2
12. INDEPENDENT LEARNING

HRS PER WEEK: 8

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To provide students with a thorough foundation in the key concepts, techniques and methods that have emerged over time in programming.

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1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* describe developments in programming languages and reasons for their evolution
* apply appropriate ways to control and manipulate data.
* break down data into structures appropriate for the problem to be addressed
* formulate data into structures appropriate for the problem to be addressed
* utilize a range of common programming concepts as building blocks in the creation of structured programs
* define code requirements from the models
* apply a range of techniques to modeling systems as objects
* apply a range of testing approaches to check the correctness of programming code and explain other evolving ways of designing and building programs.
* describe the importance of documentation in software development

21. TOPICS OF STUDY :

**History of programming**

* Describing Programming language
* Language Models
* Chronology of Programming
* Object Oriented Concepts
* Classes
* Encapsulation (or Information Hiding) and Abstraction
* Messages and Operations
* Relationships
* Polymorphism

**Variables, Control Structures and Calculations**

* Variable Types and Names
* Calculations and Order of Precedence
* Control Structure- Sequence
* Control Structure – Selection
* Control Structure – Loops

**Data Analysis and Problems**

* Program Development Process
* Structure Diagrams
* Organising Information
* Fixed and Variable Length Records
* Analysing the Problem
* Determining the Structure of a Program.
* Structured Programming Diagrams
* CRC Cards

**Further Programming Techniques**

* Program Structures
* Data Structures
* Functions
* Arrays
* Link Lists
* Data Structures: Queues and Stacks
* Data Structures: Graphs and Trees.

**Testing**

* Software and Testing
* Documentation of Tests. Levels of Testing, Desk Checking and Dry Running
* The Diagnostic Aids Generated During Compilation and Runtime
* The Problem and Techniques of Program Maintenance
* The need for Robust and Reliable Software

**Implementation**

* Traditional Systems Lifecycle
* The Software Development Lifecycle
* The Need for Documentation and Coding Standards
* Attributes of Good Documentation.
* The Elements of Documentation
* Techniques of Documentation and The Programmer’s Role

**Prescribed Texts:**

Sebesta, Robert W (2008) [Concepts of programming languages](http://192.168.1.22/cgi-bin/koha/opac-detail.pl?biblionumber=812&query_desc=ti%2Cwrdl%3A%20The%20C%20programming%20language), 7th ed, Boston : Pearson Addison Wesley.

**Recommended Texts:**

Dietel HM and Dietel PJ, C: How to program, New Jersey: Pearson, 2007

This syllabus was presented to senate on……………………………………….and approved by senate on……………………………………………………………………

**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 1
4. COURSE TITLE: Computer and Communication Technology
5. COURSE CODE: BICT 1103
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 0
12. INDEPENDENT LEARNING

HRS PER WEEK: 10

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To introduce practical concepts of computers and electronic communication to students.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* describe various computer hardware components and computer software
* describe types of computer networks
* describe how information is managed in organizations
* describe security, privacy and ethics in ICT

21. TOPICS OF STUDY :

**Introduction to Information and Communication Technology**

* Basic definitions in ICT
* The role of computers in ICT

**Hardware and software**

* History of computers
* CPU and main memory
* Microcomputer system unit
* Input hardware
* Output devices
* Storage media
* Overview of software and applications

**Data Representation**

* Binary Number System
* Octal Number System
* Hexadecimal Number System
* Decimal Number System
* Conversion of numbers
* ASCII, EBCDIC, UNICODE

**Introduction to computer networks**

* Types and sizes of Networks
* Network topologies
* Characteristics of data communication
* Synchronous and Asynchronous transmission
* Direction of transmission flow
* Transmission rate and band width
* Types of signals and standards
* Transmission media

**Information systems**

* Types of Information Systems
* Systems development life cycle
* Effect of ICT in organizations

**Ethics, privacy and security**

* Computers and privacy
* Computer crime
* Security threat in ICT and remedies
* Safeguarding computers and data
* Disaster recovery plans

**Introduction to Computer Files and databases**

* File system vs. Database systems
* Types of databases systems

**Prescribed Texts:**

WILLIAMS, B.K., et al (2011) Using Information Technology; a practical introduction to computers and communications, 3rd ed Boston, M.A.: Irwin McGraw-Hill

**Recommended Texts:**

TANENEBAUM, A (2013) Structured computer organization, 6th ed, Boston: Pearson

This syllabus was presented to senate on……………………………………….and approved by senate on……………………………………………………………………..

**MZUZU UNIVERSITY**

**FACULTY OF EDUCATION**

**DEPARTMENT OF LANGUAGES & LITERATURE**

1. **Program** :All Bachelors and Diploma programmes
2. **Subject** :Communication Studies
3. **Level of Study** :One
4. **Course Title** :Communication Skills I
5. **Course Code** :COMM 1101
6. **Duration** :16 Weeks
7. **Presented to** :Faculty of Education
8. **Presented by** :Department of Languages and Literature
9. **Lecture Hours Per Week** :4
10. **Tutorial Hours Per Week** : 1
11. **Practical Hours Per Week** : None
12. **Independent Learning Hours** :
13. **Total Course Credits** :10
14. **Assessment Methods (Outline,**

**Continuous and Final**

**Examination Techniques)** :Examinations,   
 Assignments, Presentations, Group work   
 evaluations and Portfolios

1. **Assessment Weighting** :40% Continuous Assessment

60% End of Semester Examinations

1. **Aim(s) of the Course** :To equip students with appropriate   
    language and communication skills   
    necessary for academic demands.
2. **Learning Outcomes**  :By the end of this course students should   
    be able to:
3. Read different texts effectively.
4. Produce effective summaries from lectures and reading tasks.
5. Effectively manage time and other academic resources.
6. Write different types of academic papers.
7. **Topics of Study** : (i) Introduction to Communication
8. Definition of communication
9. Process of communication
10. Basic theories of communication

(ii) Listening Skills

1. Definition of Listening
2. Rational for Listening
3. The process of Listening
4. Barriers to Listening
5. Types of listening
6. Recognizing change of topic
7. Note taking and note making

(iii) Study Skills

1. Planning work
2. Organizing study resources
3. Budgeting study time
4. Principles of effective studying
5. Examination skills

(iv) Reading Skills

1. Definition of reading
2. Reading strategies
3. Understanding the structure of discourse in reading
4. Writing Essays
5. Definition
6. Planning
7. Structure of an essay
8. Types of essays
9. Referencing
10. Rationale for referencing
11. Using and acknowledging other people’s ideas
12. Reference List and bibliography
13. Reports Writing
14. Definition
15. Rationale for writing reports
16. The nature of reports
17. Types of reports
18. **Prescribed Texts** :

Devito, Joseph A. (2003). *Human communication: The basic course.* *(9th Ed.).* New York: Pearson Education.

Pearson Judy, Nelson Paul, Titsworth Scott, Harter Lynn (2013). *Human Communication*. *(5th Ed.).* New York: MacGraw Hill.

1. **Recommended Texts** :

Gibson, James W. & Hanna Michael (1999). *Introduction to Human communication*. New York:Wm. C. Brown Publishers.

Burns, Tom (2008). Essential Study Skills: *The complete guide to success at University. (2nd Ed.).* London: Sage Publications.

Smith, Brenda (2007). *Breaking through college reading. (8th Ed.)*. New York: Pearson Education.

This course outline was presented to senate on ………………………… and approved on…………………………

**MZUZU UNIVERSITY**

**FACULTY OF EDUCATION**

**DEPARTMENT OF MATHEMATICS**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Mathematics
3. LEVEL OF STUDY: 1
4. COURSE TITLE: Pre-calculus
5. COURSE CODE: MATH 1101
6. DURATION: 14 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Education
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 1
11. PRACTICAL HOURS: 0
12. INDEPENDENT LEARNING

HRS PER WEEK: 10

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face and ODL

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To normalize the knowledge that students arriving possess in Mathematics
* Develop an intuition in and facility in using mathematical models
* Prepare students for subsequent courses in Calculus

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* Use language of sets to conceptualize mathematical problems
* Solve equalities and inequalities
* Graph equations and functions
* Solve optimization problems without the use of Calculus
* Apply methods learnt in the context of logarithmic and exponential functions

14. TOPICS OF STUDY : **Review**

* Sets, *n*th-roots, etc

**Fundamentals**

* Sets of real numbers
* Absolute value
* Rectangular coordinates
* Equation of a circle
* Symmetry
* Inequalities
* Quadratic inequalities
* Other types of equations

**Functions**

* The definition of a function
* The graph of a function
* Shapes of graphs – Average rate of change
* Techniques in graphing
* Methods of combining functions: Composition
* Inverse functions

**Polynomial and rational functions**

* Maximum and minimum problems
* Polynomial functions
* Rational functions

**Exponential and logarithmic functions**

* Exponential functions
* The exponential function *y = ex*
* Logarithmic functions
* Properties of logarithms
* Equations involving logarithms and exponents

**Trigonometry**

* Algebra and the trigonometric functions
* Radian measure
* Radian measure and geometry
* Trigonometric functions of real numbers
* Graphs of sine and cosine functions including

*y* = Asin(B*x*+C) and *y* = Acos(B*x*+C)

* Trigonometric identities
* The addition formulars
* The Double-Angle formulas
* Trigonometric equations
* The inverse trigonometric functions

15. **Prescribed Texts**

* Cohen D et al, Precalculus: A problem oriented approach, Brookes/Cole Publishing, 2005

16. **Recommended Texts**

* E.W. Swokowski and J.A. Cole, *Precalculus: Functions and Graphs*, Brookes/Cole Publishing, 1998
* E.W. Swokowski and J.A. Cole, *Precalulus*, Thomson/Cole, 2008
* R. Larson, Precalculus: Functions and Graphs, Boston: Houghton Mifflin, 2005

This Syllabus was presented to Senate on ………………… and approved by Senate on ……………

**MZUZU UNIVERSITY**

**FACULTY OF EDUCATION**

**DEPARTMENT OF MATHEMATICS**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Mathematics
3. LEVEL OF STUDY: 1
4. COURSE TITLE: Calculus
5. COURSE CODE: MATH 1201
6. DURATION: 14 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Education
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 1
11. PRACTICAL HOURS: 0
12. INDEPENDENT LEARNING

HRS PER WEEK: 12

1. TOTAL COURSE CREDITS : 13
2. PRE-REQUISITE COURSE CODES(S): MATH 1101
3. CO-REQUISITE COURSE CODES(S): NONE
4. DELIVERY METHODDS:
   1. Mode of Delivery: Face – to Face and ODL
   2. Teaching Methods: Lectures and tutorials
5. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE: To introduce students to concepts and applications of Calculus

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* Evaluate limits
* Identify points of discontinuity
* Differentiate functions
* Solve optimization and related problems
* Integrate transcendental functions
* Evaluate integrals using various techniques including numerical approaches
* Apply integration in solving problems

1. TOPICS OF STUDY : **Limits and derivatives**

* Tangent and velocity problems
* Limits and limit laws
* Continuity
* Limits at infinity and horizontal asymptotes
* Derivatives and rates of change
* Higher order derivatives

**Differentiation Rules**

* Power, product and quotient rules
* Derivatives of exponential and trigonometric functions
* Chain rule
* Implicit differentiation
* Derivative of logarithmic functions
* Hyperbolic functions

**Application of Derivatives**

* Linear approximations and differentials
* Extrema
* Mean value theorem
* Indeterminate forms and L’Hopital’s rule

**Riemann Sums**

* Numerical integration
* Definite integrals and their properties
* Fundamental theorem of Calculus
* Indefinite integrals

**Applications of definite integrals**

* Area between two curves
* Volumes of revolution and cylindrical shells
* Average value of a function

**Techniques of integration**

* Integration by parts
* Trigonometric integrals
* Partial fractions
* Improper integrals

**Further applications of integration**

* Arc length
* Surface of revolution

**Parametric and polar equations**

* Review of parametric equations
* Calculus with parametric equation
* Arc length in parametric form
* Area and arc length in polar form

1. **Prescribed Text**

* Stewart, J., *Calculus – Early Transcendentals*, 6th Edition, Thomson Brookes/Cole, 2008 *(e-copy available in the Department)*

1. **Recommended Texts**

* R. Larson and H. Edwards, *Calculus,* 9th Edition, Brookes/Cole, Cengage Learning, 2010
* M.J. Strauss, G.L. Bradley and K.J. Smith, Single Variable Calculus, Prentice Hall, 2002
* L.D. Hoffman and G.L. Bradley, Applied Calculus, McGraw Hill, 2007

This Syllabus was presented to Senate on ………………… and approved by Senate on ……………

**MZUZU UNIVERSITY**

**FACULTY OF EDUCATION**

**DEPARTMENT OF LANGUAGES & LITERATURE**

1. **Program** :All Bachelors and Diploma   
    programmes
2. **Subject** :Communication Studies
3. **Level of Study** : One
4. **Course Title** :Communication Skills II
5. **Course Code** :COMM 1201
6. **Duration** :16 Weeks
7. **Presented to** :Faculty of Education
8. **Presented by** :Department of Languages and Literature
9. **Lecture Hours Per Week** :4
10. **Tutorial Hours Per Week** :1
11. **Practical Hours Per Week** :None
12. **Students Independent Learning Hours** :
13. **Total Course Credits** :10
14. **Assessment Methods (Outline,**

**Continuous and Final**

**Examination Techniques)** :Examinations, Assignments,   
 Presentations, Group work   
 evaluations and Portfolios

1. **Assessment Weighting** :40% Continuous Assessment

60% End of Semester Examinations

1. **Aim(s) of the Course** :To equip students with appropriate   
    business communication skills
2. **Learning Outcomes** :By the end of this course students   
    should be able to:
3. Write various forms of official correspondence
4. Plan and conduct meetings effectively
5. Speak effectively in public
6. Write effective report
7. Write effective curriculum vitae and job application letters
8. Demonstrate appropriate effective interview and presentation skills
9. **Topics of Study** : (i) Official Correspondence
10. Memoranda
11. Business letters
12. Reference letters
13. Testimonials
14. Newsletters

(ii) Proposal Writing

1. Definition of a proposal
2. Structure of a proposal
3. Solicited proposals
4. Unsolicited proposals

(iii) Planning and conducting effective   
 meetings

1. Preparation
2. Parliamentary procedure
3. Roles of the chairperson, secretary and participants
4. Writing minutes

(iv) Recruitment Communication

1. Writing Carriculum Vitae and application letters
2. Preparing for interviews
3. The role of participants, before, during and after the interview
4. Effective Public Speaking
5. Principles of effective public speaking
6. Organisation of oral presentations
7. Modes of oral presentations
8. The art of persuasion: Rank’s Model
9. Participating in debates and group discussions, workshops, seminars, conferences and panel discussions.
10. Referencing
11. Rationale for referencing
12. Using and acknowledging other people’s ideas
13. Reference List and bibliography
14. Fallacies
15. Definition
16. Rationale for detecting fallacies
17. Types of fallacies
18. How to avoid making fallacious statements
19. :

Stanto Nicky (2009). *Mastering Communication. (5th Ed.).* London: Palgrave.

**Prescribed Texts**

1. **Recommended Texts** :

Pearson Judy, Nelson Paul, Titsworth Scott, Harter Lynn (2013). Human Communication. (5th Ed.). New York: MacGraw Hill.

Grygel, Joan A. (1995). *The World Book of word power. (Vol. II).* Chicago: World Book Inc.

Detz Joan (1992). *How to write and give a speech (Rev. Ed.).* New York: St Martins Press.

This course outline was presented to senate on ………………………… and approved on…………………………

**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 1
4. COURSE TITLE: PC Management and Maintenance
5. COURSE CODE: BICT 1201
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 3
12. INDEPENDENT LEARNING

HRS PER WEEK: 7

1. TOTAL COURSE CREDITS : 13
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To help students manage and maintain personal computers

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* demonstrate an understanding of the principles that underlie the workings various computer hardware
* install and configure computer hardware
* install computer software
* troubleshoot computer hardware and software problems
* upgrade a personal computer ICT

21. TOPICS OF STUDY :

**Computer hardware**

* System information
* Computer parts
* Examination of a computer using Shareware
* Comparison of costs
* An ideal computer

**How an operating system works with hardware and other software**

* Examination of system resources
* Microsoft diagnostics
* Installing Windows components
* Windows configuration files
* File naming conventions

**Electricity and Power Supplies**

* Computer disassembly and assembly
* Computer documentation on the Internet
* Facts about PC Power supplies

**The computer Motherboard**

* Adjusting CMOS settings
* Motherboard Diagnostic Utility
* Removal and replacement on motherboard
* Motherboard components and Form Factors

**Managing Memory**

* Researching RAM on the Internet
* Upgrading RAM
* Troubleshooting memory problems
* Use of Himem.sys
* Managing Virtual Memory

**Floppy drives**

* Install, test and troubleshoot a floppy drive
* Format a floppy drive
* Use the Diskcopy and Xcopy commands

**Installing Hard drives**

* Install and partition a hard drive
* Format and test hard drive
* Disk management
* Hard drive utilities

**Optimising and protecting hard drives**

* Hard drive routine maintenance
* Backing up and restoring files in Windows 7
* Data recovery services
* Troubleshooting hard drives

**Supporting I/O devices**

* Gathering system information
* Identifying hardware conflicts using device manager
* Diagnosis of simple hardware problems

**Multimedia devices and Mass storage**

* Installing a sound card
* Installing a PC Video camera
* Comparison of CD and DVD technologies
* Installing dual monitors in Windows 7
* Windows 7 audio features

**Installing and using Windows 7**

* Installing Windows 7
* Allowing two users to log on simultaneously
* Navigating and customizing Windows 7
* Managing user accounts
* Windows Media Player

**Supporting and troubleshooting Windows 7**

* Setting disk quotas
* Using encryption
* Restoring the system state
* Installing recovery console
* Using Recovery Console to copy files
* Monitoring memory counter

**Supporting printers**

* Installing and sharing a printer
* Installing a network printer
* Updating printer drivers
* Printer maintenance and troubleshooting

**Troubleshooting and maintenance fundamentals**

* Help desk procedures
* Flash BIOS
* Troubleshooting general computer problems
* Troubleshooting hypothetical situations

**Prescribed Text(s):**

Andrews Jean (2006) Managing and maintaining your PC, 5th Ed. Thomson Course Technology, Canada.

Recommended Text(s)

This syllabus was presented to senate on……………………………………….and approved by senate on……………………………………………………………………..

**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 1
4. COURSE TITLE: Programming in C
5. COURSE CODE: BICT 1202
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 3
12. INDEPENDENT LEARNING

HRS PER WEEK: 8

1. TOTAL COURSE CREDITS : 13
2. PRE-REQUISITE COURSE CODES(S): BICT 1102
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To help students acquire knowledge and skills in structured programming and apply skills in other programming languages

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* write a program in C to solve specific problem
* appreciate the modular nature of a computer program

21. TOPICS OF STUDY :

**Introduction**

* Characteristics of C
* Compilers and Interpreters
* 0

**The C Library**

* # include files
* Keywords
* Constants
* Other useful tools
* Basic Data Types (int, float, double, char)
* More on floating points
* Modifying data types (long, short, signed, unsigned)

**Complex Data Types**

* Union
* Struct
* Void

**Variable declarations/initialisations**

* Variable definition
* Variable declarations
* Storage classes and scope of a variable
* Variable initialisation

**Operators**

* Operators by category
* Operator precedence and associativity
* Order of evaluation
* Functions

**Standards and Programming Style**

* Modular code design
* Writing a C program

**Input and Output**

* EOF
* Streams
* Input functions
* Output functions
* Format symbols

**Control Flow and Program Loops**

* The while and do while loops
* The if statement
* The for statement
* Control modifiers

**Data Structures**

* Arrays
* Multi-dimensional arrays
* Structures
* Unions
* Declaring a structure
* Initialising a structure
* Referencing a struct or union member

**Pointers**

* Declaring a pointer
* Referencing a pointer
* Pointer differences
* Arrays as pointers
* Pointers in function arguments
* Command Line Arguments
* Complex Declarations
* Reading
* Writing
* Typedef

**Handling File I/O**

* File pointers and descriptors
* Closing an open file
* Opening files
* String Manipulations
* Memory Management
* Low level file I/O
* The malloc family of functions

**Recommended Texts:**

Dietel HM and Dietel PJ, C: How to program, New Jersey: Pearson, 2007

This syllabus was presented to senate on……………………………………….and approved by senate on……………………………………………………………………..

**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 1
4. COURSE TITLE: Multimedia
5. COURSE CODE: BICT 1203
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 1
11. PRACTICAL HOURS: 2
12. INDEPENDENT LEARNING

HRS PER WEEK: 9

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To provide a comprehensive introduction to the key concepts of multimedia. The course will also enable students design and develop dynamic and interactive multimedia products.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* install multimedia devices on a PC
* describe multimedia elements of: texts, graphics, sound, animation and video.
* develop multimedia.
* utilize multimedia authoring programs.
* distribute multimedia using the web, PowerPoint, and CDs.

21. TOPICS OF STUDY :

**Multimedia devices and Mass storage**

* ggty
* Installing a PC Video camera
* Comparison of CD and DVD technologies
* Installing dual monitors in Windows 7
* Windows 7 audio features

**Introduction to Multimedia**

* Defining Multimedia
* Exploring Multimedia on the Web
* Multimedia Applications
* Multimedia Playback Systems

**Text and Graphics**

* Common file formats for text data
* Fonts, Font size, font colour
* Computer graphics
* Use of external graphics programs e.g., Photoshop
* Vector and paint graphics
* Common file formats for graphics
* Graphics on the Web

**Navigation**

* Linear navigation
* Use of hyperlinks

**Interactivity**

* Scripting language in Director
* JavaScript in HTML
* Assigning "Actions" to various PowerPoint objects

**Sound, Animation and Video**

* Understanding Sound
* Common file formats for digitized sound
* Sound on the Web
* Frame animation
* Path animation
* Common animation file formats
* Animation on the Web
* Common digital video file formats
* Planning, shooting, editing and distributing digital video
* Video on the Web

**Multimedia Authoring**

* Multimedia Authoring Programs
* Designing and developing a multimedia product

**Multimedia distribution media**

* CD-ROMs
* Digital Versatile Discs
* World Wide Web
* Computer

**Recommended Texts:**

Vaughan, Tay (2001) Making it work, 5th ed, New York : Osborne/McGraw-Hill, 2001

Roberts-Breslin, Jan (2012) [foundations of sound and image production](http://192.168.1.22/cgi-bin/koha/opac-detail.pl?biblionumber=2953&query_desc=su%2Cwrdl%3A%20multimedia), 3rd ed, Amsterdam ; Boston : Focal Press

This syllabus was presented to senate on……………………………………….and approved by senate on……………………………………………………………………..

**MZUZU UNIVERSITY**

**FACULTY OF EDUCATION**

**DEPARTMENT OF MATHEMATICS**

**SYLLABUS**

1. PROGRAMME : Bachelor of Science
2. SUBJECT : Statistics
3. LEVEL OF STUDY : 2
4. COURSE TITLE : Introduction to statistical Analysis
5. COURSE CODE : STAT 2301
6. DURATION : 12 Weeks
7. PRESENTED TO : Senate
8. PRESENTED BY : Dean of Education

Statistics

1. LECTURES PER WEEK : 3
2. TUTORIAL HOURS PER WEEK : 1
3. PRACTICAL HOURS PER WEEK : 1
4. STUDENT INDEPENDENT LEARNING HOURS : 12
5. TOTAL COURSE CREDITS : 12
6. PRE-REQUISITE COURSE CODES(S) : None
7. CO-REQUISITE COURSE CODES(S) : None
8. DELIVERY METHOD:

16.1 Mode of Delivery: Face to face and ODL

16.2 Teaching Methods:Lectures and Tutorials

1. ASSESSMENT METHODS : At least 2 continuous assessment

tests,

One end of semester

examination

1. ASSESSMENT WEIGHTING : 40% Continuous assessment

60% End of semester

Examination

1. AIM(S) OF THE COURSE : To introduce univariate methods

of Statistical analysis.

1. LEARNING OUTCOMES : A successful learner from this programme will be able to:

* Calculate probabilities, means and variances of some special univariate discrete and continuous distribution.
* Present and interpret data.
* Use moment and Probability generating functions to calculate moments and identify probability distribution.
* Carry out tests for means, difference between two means and sample proportions
* Use excel to work out proportions estimates and carryout statistical tests.

1. Topic of the Course :

* Descriptive statistics
* Presentation of data
* Measures of central tendency and dispersion
* Elementary probability
* Probability of simple and compound events
* Random Variables
* Discrete and continuous random variables
* Discrete probability distributions
* Uniform, Bernoulli, Binomial, geometric, negative binomial and Poisson
* Continuous distributions
* Uniform, exponential, normal
* Moment and probability generating functions
* Point estimation
* Pooled estimators
* Sampling distribution
* Distribution of sample mean, proportion and variance
* Interval estimation
* hypothesis testing
* Tests for means, difference between
* means and sample proportions
* ANOVA
* One-way and 2-way.
* Use of statistical software excel and SPSS.

1. Prescribed Texts:
   1. Mendenhall, W., Beaver R. G. and Beaver, B. M. (2009). Introduction to Probability and Statistics, 13th Ed. Brooke/Cole
2. Recommended Texts
3. Marques de Sá, Joaquim P. (2007). Applied Statistics Using SPSS, STATISTICA, MATLAB and R, Springer-Verlag.
4. Crawshaw, J and Chambers, J (1984), Aconcise course in A – Level statistics, Stanley Thormes (Publisher Ltd.)

This course outline was presented to Senate on………………………………………… and Approved on ……………………………………….

**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 2
4. COURSE TITLE: Computer Architecture and Organization
5. COURSE CODE: BICT 2301
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 0
12. INDEPENDENT LEARNING

HRS PER WEEK: 10

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): BICT 1103
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To enable students understand computer architecture and organization

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* analyse combinational and sequential logic circuits
* distinguish between RISC and CISC paradigms
* explain memory hierarchy and I/O techniques

21. TOPICS OF STUDY :

**Basic principles**

* Radix number systems
* Boolean algebra and logic gates
* Combinational logic blocks
* Sequential logic blocks

**Computer systems architecture**

* Stored program control concept (von Neumann principle)
* Multi level viewpoint of a machine (digital logic, micro architecture, ISA, O/S, High-level languages
* Structural organization (CPU, caches, main memory, secondary memory units, I/O
* Performance metrics

**Instruction Set Architecture**

* Instruction set based classification
* Addressing modes
* Operations in the instruction set
* Formats of instruction sets

**CPU architecture**

* Types of CPU architecture
* Data path of a CPU
* Fetch decode execute cycle
* Microinstruction sequencing
* Implementation of control unit
* Calculation of MIPS parameters

**Memory hierarchy**

* Description of memory hierarchy
* Main memory
* Cache memory
* Secondary memory and their characteristics
* I/O methods

**Prescribed Texts:**

Tanenebaum, A (2013) Structured computer organization, 6th ed, Boston : Pearson

This syllabus was presented to senate on……………………………………….and approved by senate on……………………………………………………………………..

**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 2
4. COURSE TITLE: Programming in Java
5. COURSE CODE: BICT 2302
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 3
12. INDEPENDENT LEARNING

HRS PER WEEK: 8

1. TOTAL COURSE CREDITS : 13
2. PRE-REQUISITE COURSE CODES(S): BICT 1202
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* to equip students with skills for developing robust applications using Java Programming language and Object-Oriented Programming(OOP) concepts

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* operate a personal computer running MS Windows and/or Linux.
* understand the fundamentals of Java, including the development and run-time environments
* understand the syntax and apply OOP concepts in Java
* understand and use Objects/Classes, as well as Inheritance and Polymorphism in programming
* develop application Graphical User Interfaces(GUI) using Swing and AWT Library classes
* develop network applications using Sockets

21. TOPICS OF STUDY :

**Introduction to Java**

• Java Platform Overview (Java Compiler, JVM, JDK, Garbage collector, JRE)

• Java Development Environment(Editors, IDEs, Libraries)

• Object-oriented programming(OOP) concepts(objects, classes, methods)

• Principles of OOP (Encapsulation, Inheritance, Polymorphism)

**Java Programming Style**

• Program Layout, Naming, Comments

• Class/Object Structure

• Java Library Packages

**Basic Java Syntax**

• Variables and Types

• Types and Operators

• Variable declarations, assignments, calculations

• Text Input and Output

**Control Structures**

• Selection (If, Else, Comparison, AND, OR, NOT, Boolean, Complex Comparison)

• Repetition(While, For, While, Nested Loops)

• The switch Statement

• Exceptions and try … catch Statement

**Using Objects, Classes and Methods**

• Designing Classes(Scope rules, public/private/protected variables and methods)

• Methods parameters and local variables

• Method calling and Parameter passing

• Method overloading

• Objects, Classes and Instantiation

• Constructors and Initialization variables

**Inheritance and Polymorphism**

• Inheritance and Class Hierarchy

• Method Overriding

• Using Polymorphism and Inheritance

• Abstract Classes

• Interfaces

**Streams and Files**

• Character and Byte Streams

• Reading and Writing Files

**Introduction to Java GUI Programming**

• Jframe and Jpanel

• Components and Layout

• Events and Listeners

• Graphics and Painting

• Menus and Dialogs

**Complex Types**

• Arrays, Dynamic Arrays, ArrayLists

• Multidimensional Arrays

• Linked Lists

• Binary Trees

• TreeSets and HashSets

• EnumSets

**Threads and Multiprocessing**

• Creating and Running Threads

• Mutual Exclusion (Locks and Deadlocks, Synchronisation)

• Parallel Processing

**Introduction Network Programming**

• Introduction to Distributed Computing

• Java Network Programming Concepts (Ports, Sockets, Client/Server)

• Introduction to Java Remote Method Invocation (RMI)

**Recommended Text**

• Liang, Y. Daniel, (2007), [Introduction to JAVA programming](http://192.168.1.22/cgi-bin/koha/opac-detail.pl?biblionumber=2502&query_desc=kw%2Cwrdl%3A%20Programming%20in%20Java), Pearson/Prentice Hall

This syllabus was presented to senate on……………………………………….and approved by senate on……………………………………………………………………..

**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 2
4. COURSE TITLE: Computer Networks l
5. COURSE CODE: BICT 2303
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 1
11. PRACTICAL HOURS: 1
12. INDEPENDENT LEARNING

HRS PER WEEK: 10

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To introduce principles of computer networks and electronic communication systems.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* describe data communication system components and standards for electronic communications
* explain the purpose of protocols and modes of electronic communications
* build local area networks
* configure computers for network/internet communications
* troubleshoot network problems

21. TOPICS OF STUDY :

**Data communications**

* Introduction to computer networks
* Standard transmission mediums (coaxial, UTP, Fiber Optic, wireless)
* Standards for data transmissions (Ethernet, RS 232, V 24)
* Data communication/Terminal equipment (DCE/DTE)
* Signal types and modulation techniques
  + Time & Frequency Domain Signal Analysis
  + Analogue Modulation Techniques (AM, FM, PCM)
  + Principles of Digital Communication Systems
  + Radio Frequency Communication Systems (antennae, microwave devices)
    - Bandwidth
    - Noise in networks

**Transmission techniques**

* Parallel and serial communications
* Transmission modes
* Base band and broadband transmission

**Network Hardware**

* Network interface cards (e.g. Ethernet, token bus, fax modem)
* Hubs, switches and wire concentrators
* Network traffic flow controllers (repeaters, bridges, gateways)

**Network configuration and security**

* Protocols used in computer networks
* IP addressing
* Network security measures using hardware and software

**Wireless communications**

* Wireless Communication System & Services
* Design Concepts for Cellular Systems
* Mobile Radio Propagation (Large/Small Scales)
* Digital Modulation & Channel Coding Techniques for Wireless Communication
* Mobile Communication Systems & Standards (1G, 2G, 3G)
* Emerging Issues in Wireless Communications

**Internet Connectivity**

* Internet Access Methods
* ISPs

**Network troubleshooting**

* Systematic analysis of network problem
* Fault isolation using elimination process
* Troubleshooting tools

**Recommended Texts:**

TANENBAUM, A (2004) Computer Networks, 4th ed US, prentice Hall, Inc

This syllabus was presented to senate on……………………………………….and approved by senate on……………………………………………………………………..

**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 2
4. COURSE TITLE: Web Design
5. COURSE CODE: BICT 2304
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 2
12. INDEPENDENT LEARNING

HRS PER WEEK: 8

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): NONE
3. CO-REQUISITE COURSE CODES(S): NONE
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To enable students to design and build dynamic websites.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* explain key design concepts essential to the development of web-enabled applications
* build a database-driven websites using PHP in combination with HTML, SQL, and JavaScript.
* install and configure a web server

21. TOPICS OF STUDY :

**Introduction to web programming**

* Web Elements: Browser and Web Document. Static, Active and Dynamic pages
* Introduction to web servers
* HTTP protocol
* Standards – W3C and IETF
* Web Development tools

**Introduction to HTML**

* The HTML Language
* Tag Syntax
* Web page Structure
* Types of Tags
* Links
* Graphics
* Tables
* HTML Forms
* HTML Frames

**Javascript for Client side Web programming**

* Introduction to JavaScript
* Variables and operators
* Program control: statements, looping, branching
* Functions, Objects and Arrays

**Databases and Web Programming**

* Introduction to Databases and MySQL Database System
* PHP and MySQL: Connecting and Working together

**PHP for Server-Side Web programming**

* Language history and characteristics
* Variables
* Control and decision statements
* File access
* Database access using MySQL
* Form processing
* Functions
* Writing secure code
* Cookies and sessions

**Apache Web Server**

* Theory of web server operation
* CGI
* Installation
* Configuration

**Server-side Web application development**

* Validation
* Interface design
* Usability
* Design issues related to server-side development

**Recommended Text(s):**

Comer, Douglas E. (2004) Computer Networks and Internets with Internet Applications, 4th ed., Prentice Hall International, Inc.

Deitel, Deitel & Nieto (2001) e-Business & e-Commerce – How to Program, Prentice-Hall Inc.

This syllabus was presented to senate on……………………………………….and approved by senate on……………………………………………………………………..

MZUZU UNIVERSITY

**FACULTY OF EDUCATION**

**DEPARTMENT OF MATHEMATICS**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Mathematics
3. LEVEL OF STUDY: 2
4. COURSE TITLE: Multivariate Calculus
5. COURSE CODE: MATH 2401
6. DURATION: 14 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Education
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 1
11. PRACTICAL HOURS:
12. INDEPENDENT LEARNING HRS: 12
13. TOTAL COURSE CREDITS : 13
14. PRE-REQUISITE COURSE CODES(S): MATH 1101, MATH 1201
15. CO-REQUISITE COURSE CODES(S): NONE
16. DELIVERY METHODS:
    1. Mode of Delivery: Face to Face and ODL
    2. Teaching Methods:Lectures and tutorials
17. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE: To develop the theory of multivariate calculus
2. LEARNING OUTCOMES:A successful learner from this course will be able to:

* Differentiate functions of several variables
* Find limits and continuity of functions with several variables
* Find increments of functions of the form *w = f(x,y)*
* Use the chain rule to find partial derivatives of functions
* Find equations for tangent plane and normal line at a given point
* Find extrema for functions of several variables
* Apply Lagrange’s theorem to maximize and minimize volume
* Evaluate double integrals
* Find the area and volume using double integrals
* Use polar coordinates to evaluate area of specified regions
* Evaluate triple integrals
* Find the centre of mass and moment of inertia
* Change equations of the form *z2 = x2+y2*
* Find an equation in spherical coordinates
* Describe a vector field
* Illustrate the pattern of vectors in the field F
* Apply Green’s theorem to solve problems

1. TOPICS OF STUDY: **Vectors and the Geometry of Space**

* 3-dimensional coordinate systems
* Vectors
* The dot product
* The cross product
* Triple product
* Equations of lines and planes
* Functions and surfaces

**Vector functions**

* Vector functions and space curves
* Derivatives and integrals of vector functions
* Arc length and curvature

**Partial derivatives**

* Functions of several variables
* Limits and continuity
* Partial derivatives
* Tangent planes and linear approximations
* The chain rule
* Directional derivatives and the gradient vector
* Maximum and minimum values
* Lagrange multipliers

**Multiple integrals**

* Double integrals over rectangles
* Iterated integrals
* Double integrals over general regions
* Double integrals in polar coordinates
* Applications of double integrals
* Surface area
* Triple integrals
* Triple integrals in cylindrical and spherical coordinates
* Change variables in multiple integrals

**Vector Calculus**

* Vector fields
* Line integrals
* The fundamental theorem of line integrals
* Green’s Theorem
* Curl and Divergence
* Surface integrals
* Stoke’s theorem
* The divergence theorem

1. RECOMMENDED TEXTS:

* J. Stewart,  *Calculus - Early Transcendentals, 6th Edition,* Thomson Brookes/Cole, 2008. *(e-copy available in the Department)*
* S.J. Colley, Vector Calculus, 4th Edition, Pearson, 2012 *(e-copy available in the library)*
* R.J. Harshbarger and J.J. Reynolds, *Calculus with Applications,* D.C. Health and Company Lexington, 1990.

This Syllabus was presented to Senate on ………………… and approved by Senate on ……………

**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 2
4. COURSE TITLE: Operating Systems
5. COURSE CODE: BICT 2401
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 0
12. INDEPENDENT LEARNING

HRS PER WEEK: 10

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To enable students understand the structure and fundamentals of operating systems design

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* outline basic principles and components of an operating system
* explain the concept of processes
* demonstrate an understanding of CPU scheduling, deadlock detection and avoidance
* demonstrate an understanding of how memory management is handled by the operating system.
* describe how file systems are implemented
* describe concurrent programming
* program various operating system components

21. TOPICS OF STUDY :

**Computer architecture introduction and review**

* Batch, time-sharing, PC systems
* Parallel, real and batch processing
* Processes
* Hardware features
* Interrupts

**Processes management**

* Programs and process concepts
* Multitasking
* The dispatcher
* Process scheduling
* Scheduling policies

**Concurrent processes**

* Critical section problem
* Monitors
* Semaphores
* Facilities for synchronization
* Inter process communication
* Deadlock avoidance, detection and recovery
* Critical sections

**I/O management**

* Organization of input and output hardware
* Device independence
* Device handlers
* Buffering

**Memory management**

* Memory allocation methods
* Paging
* Virtual memory
* Segmentation
* Protection
* Swapping
* Sharing

**File management**

* File concept
* Directory structure
* Protection
* File management techniques
* Sharing, security and integrity

**Distributed systems structures**

* Network topologies and types
* Distributed operating systems
* Remote file access
* Protection of distributed systems

**Case studies**

* The UNIX system
* The LINUX system
* Windows

**Prescribed Texts:**

TANENBAUM, A, Modern Operating Systems, 4th ed, Harlow: Pearson Education, 2015

This syllabus was presented to senate on……………………………………….and approved by senate on……………………………………………………………………..

**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 2
4. COURSE TITLE: Human Computer Interaction
5. COURSE CODE: BICT 2402
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 0
12. INDEPENDENT LEARNING

HRS PER WEEK: 10

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To enable students design useful and usable interfaces.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* describe models of human performance that impact the design of computing systems .
* describe past, present and future computer hardware and how its design impacts human interaction.
* explain how standard and novel computer interaction strategies can be used to design human computer interfaces
* evaluate computer interfaces designs

21. TOPICS OF STUDY :

**Introduction**

* Aspects of HCI
* Goals of HCI
* HCI's relevance to the applications of interactive computer systems

**Psychological Aspects**

* Cognitive psychology.
* Sensory channels.
* Human limitations and expectations in perceptual processes.
* Human memory
* Individual differences
* Human error

**Devices for Human-Computer Interaction:**

* Text input devices.
* Positioning and pointing devices.
* 3D devices.
* Devices for visual, auditory, and haptic output.
* Interfaces and devices for challenged users.

**Models and Paradigms of Human-Computer Interaction:**

* Characterizing different phases of interaction.
* Ergonomic aspects of interaction.
* Interaction styles
* Window interfaces (WIMP).
* Menu and icon design.

**Human-Computer Interaction and the Software Life-Cycle:**

* Analysis of usability requirements.
* Usability principles.
* Usability engineering.
* Prototyping techniques.

**User Task Analysis:**

* Characterizing the context of interaction with socio-technical models.
* The USTM/CUSTOM technique.
* Task analysis: The HTA technique, Predictive models: GOMS, KLM.

**Tools for User Interface Implementation:**

* Windowing System.
* Programming techniques.
* User Interface Management Systems.
* Case study : User interface design

**Usability Evaluation:**

* Goals of evaluation.
* Information gathering tools
* Predictive evaluation.
* Cognitive walk through.
* Interpretive evaluation.

**Help**

* Assisting the user.
* Requirements for help systems.
* Adaptive and adaptable interfaces.

**Computer-Supported Cooperative Work**

* Group ware.
* Computer-mediated communication.
* E-mail and textual communication systems.
* Video conference.
* Virtual collaborative environments.
* Work flow systems.
* Experimental and organizational aspects.

**Recent Paradigms of Human-Computer Interaction:**

* Ubiquitous computing.
* Virtual reality.
* Types of virtual reality.
* Multi-sensory (or multi-modal) interfaces.
* Information visualization.
* Multimedia and Hypermedia interfaces.
* WWW interfaces: Design of usable Web pages.

**Recommended Texts:**

DIX, A. FINLAY, J. ABOWD, G. and Beale R. (2004) Human Computer Interaction, Third Edition, Prentice Hall

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 2
4. COURSE TITLE: Computer Networks II
5. COURSE CODE: BICT 2403
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 2
12. INDEPENDENT LEARNING

HRS PER WEEK: 2

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): BICT 2303
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To provide students with an understanding of computer networks models.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* describe layers in computer networks model
* describe how layers in a computer network model are related

21. TOPICS OF STUDY :

**Network reference models**

* Open System Interconnection (OSI)
* Transmission Control Protocol /Internet protocol (TCP/IP)

**Physical layer**

* Transmission media
* Wireless transmission
* Telephone systems and ISDN services
* Broadband ISDN and ATM
* Cellular radio and communication satellites

**Data link layer**

* Data link layer design issues
* Error detection and correction
* Elementary data link protocols, Sliding window protocol and Examples of Data link protocols

**Network layer**

* Network layer design issues
* Routing algorithms
* Congestion control algorithms
* Internetworking
* The network layer in the Internet
* Network layer in ATM networks

**Transport layer**

* The transport service
* Elements of transport protocols
* Internet transport protocols (TCP and UDP)

**Application layer**

* Network security
* DNS Domain name system
* SNMP Simple network management protocol
* Electronic mail, World wide web and Multimedia

**Recommended Texts:**

TANENBAUM, A computer networks, 4th ed, New Jersey: Pearson, 2003

Kurose, James F; Ross, Keith W, [Computer networking](http://192.168.1.22/cgi-bin/koha/opac-detail.pl?biblionumber=3889&query_desc=kw%2Cwrdl%3A%20A%20computer%20networks), 5th ed, Boston : Addison-Wesley, c2010

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 2
4. COURSE TITLE: Research Methods
5. COURSE CODE: BICT 2404
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 0
12. INDEPENDENT LEARNING

HRS PER WEEK: 10

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To equip students with skills for conducting small scale research project
* to enable students to apply research skills in information science.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* state the main types of research
* develop research instruments
* design a research proposal
* analyse data
* present research findings
* discuss research findings
* conclude and make relevant recommendations based on research findings
* disseminate research findings appropriately

21. TOPICS OF STUDY :

**Characteristics of Research**

* Definition of research
* Types of research
* Contents of a research proposal

**Research Design**

* Types of designs
* Plan for data collection
* Plan for analysis of data
* Project management
* Research budget
* Finalising research proposal

**Data gathering**

* Ethical considerations
* Pre-testing
* Data gathering
* Data processing

**Report Writing**

* Presentation of findings
* Discussion of findings
* Conclusions
* Issues for further research
* Study recommendation
* Finalising research report
* Dissemination of results

**Recommended Texts:**

Braun, Virginia; Clarke, Victoria (2013) [Successful qualitative research : a practical guide for beginners](http://192.168.1.22/cgi-bin/koha/opac-detail.pl?biblionumber=5644&query_desc=kw%2Cwrdl%3A%20Qualitative%20Research%3A%20An%20interactive%20approach), Sage Publications Inc (USA)

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 3
4. COURSE TITLE: Systems Analysis and Design
5. COURSE CODE: BICT 3501
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 0
12. INDEPENDENT LEARNING

HRS PER WEEK: 10

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To enable students understand the importance of using structured methods of developing an information system.
* To expose students to methods of producing a blue print of an information system from the analysis phase. This will enable students to choose the design types that would solve problems at hand.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* describe attributes and skills required of a systems analyst
* gather information using various methodologies
* apply system analysis techniques in analyzing any system
* apply project management principles in a team environment
* make an appropriate choice of the design type that will solve the problem at hand
* implement a highly cohesive and loosely coupled system design

21. TOPICS OF STUDY :

**Role of a systems analyst**

* Definition of a systems analyst
* Attributes and skills required of a systems analyst

**Information gathering**

* Importance of knowing the system fully before implementing a solution
* Examination of the existing business system
* Tools in fact gathering process
* Fact gathering using different techniques
* Interviewing techniques and ethics
* Document analysis

**Dataflow diagramming**

* Importance of using data flow diagrams (dfds)
* Rules for data flow diagramming
* Creation of context level diagram to have an overview of the information system
* Exploding level1 diagram to ensure communicability with users or developers
* Importance of leveling dfds

**Data modeling**

* Entity relationship model (attributes, cardinality etc)
* Data stores
* Data dictionary
* Data flows
* Resolving many to many relationships to one to many
* Creating a requirements catalogue

**System development life cycle**

* Outline the stages in system development life cycle (SDLC)
* Iteration process of system development
* Reasons for various stages in SDLC
* Approaches to systems development (top down or bottom up)
* Reasons for using DFDS and application on the rule of seven

**Methodologies**

* Structured Systems analysis and Design Methodologies
* Waterfall model

**Data design**

* Follow up from analysis phase
* Change SDLC to Rapid Application Design or Object oriented approaches
* Reasons for relational data analysis to existing system object
* Data dependence
* Identification of inputs and out puts

**Process Design**

* Identification of required processes from analysis phase
* Prototyping to ensure feasibility
* Reasons for level 1 and level 2 dfds
* Qualities of a good design
* Importance of fine-tuning and iterations in the design process

**Input and output design**

* Importance of inputs and output to the user
* Qualities of a good input screen
* Qualities of a good output design (screen and hard copy report)
* Use of CASE tools in the generation of interface

**Implementation and testing**

* Technical options available
* Implementation types
* Implementation problems and issues
* Test plan and its importance
* Training of users
* Importance user manual
* Security risks

**Project management**

* Need for project management
* Methods of project management (Gantt charts, Critical path analysis)
* Quality assurance
* Tools and techniques of project management

**Prescribed Texts:**

Kendall,Kenneth E; Chiang, Roger; Siau, Keng; Hardgrave, Bill C, Systems Analysis and Design, Armonk, N.Y. ; London : Prentice Hall 2005

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 3
4. COURSE TITLE: Databases
5. COURSE CODE: BICT 3502
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 2
12. INDEPENDENT LEARNING

HRS PER WEEK: 8

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To introduce students to a variety of development methodologies and the considerations, which apply in administering databases.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* convert logical to relational design
* analyze data
* design relational database
* develop relational database applications
* test developed databases
* administer databases

21. TOPICS OF STUDY :

**Data analysis**

* Relationships
* Objects or events which may form entities of particular database
* Validation rules
* Identify entity attributes
* Output reports
* Entities required in a particular data base

**Conversion of logical to relational design**

* Entity relationship model
* Conversion of entity relationship model into tables using attributes
* Primary and foreign keys
* Candidate keys
* Modification of tables of relational database to appropriate forms

**Relational database design**

* Effects of the first three forms of normalization
* Conformation of tables of a relational database to normal forms
* Contents of the data dictionary

**Relational database development**

* Development of macros to simple applications
* Event driven database languages
* Relational Algebra and calculus
* Basic SQL commands
* Suitability of using various development methods

**Testing and documentation**

* Reasons for functionally testing a program
* Logical data model of a database in terms of entities, attributes, relations, domains, and domain types
* Database design documentation
* Database implementation documentation

**Database administration**

* Role of database administrator
* Hazards to database
* Legal issues involved in database administration
* Advantages and disadvantages of distributed databases
* Advantages and disadvantages of multi user databases
* Concurrency control

**Prescribed Texts:**

ULLMAN, Jeffrey D. and WIDOM, Jennifer (2014) A first course in database systems 3rd ed, USA: Pearson/Prentice Hall

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 3
4. COURSE TITLE: Algorithms and Data Structures
5. COURSE CODE: BICT 3503
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 3
11. PRACTICAL HOURS: 2
12. INDEPENDENT LEARNING

HRS PER WEEK: 7

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): BICT 1202
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To provide students with an understanding of data structures and algorithm design and implementation.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* explain basic techniques in algorithm design
* resolve efficiency and complexity trade-offs of sorting and searching algorithms.
* evaluate the performance of an algorithm
* compare data structures using algorithm analysis techniques
* demonstrate understanding in choosing data structures that model effectively the information in a problem

21. TOPICS OF STUDY :

**Basic Algorithm Analysis**

* Introduction to computational complexity
* Best, average and worst case behaviour
* Big O, Little O, omega notation
* Standard complexity classes
* Empirical measurement of performance
* Time and space tradeoffs in algorithms

**Fundamental Data Structures**

* Linked Lists
* Stacks
* Queues
* Trees(Traversal, Balanced trees, B-trees)
* Graphs (Representation of graphs, Depth and breadth first transversal, Shortest path Algorithm, Minimum spanning tree)
* Hashing Tables

**Techniques in algorithm design**

* History of algorithm design
* Greedy algorithms
* Recursion
* Divide-and-conquer

**Sorting Algorithms**

* Bubble sort
* Heap sort
* Insertion sort
* Merge sort
* Quick sort
* Selection sort

**Searching algorithms**

* Sequential search Algorithms
* Binary search Algorithms

:

**Recommended Texts:**

DATE, C.J. (2004) An introduction to database systems, 8th ed, Wesley Pearson, 2004

ELMASRI, Ramez; NAVATHE, Shamkant (2004) Fundamentals of database systems, 4th ed, Addison Wesley

DASGUPTA, S., PAPADIMITRIOU, C., and VAZIRANI, U. [Algorithms.](http://www.cse.ucsd.edu/~dasgupta/algorithms/) url:

<http://www.cse.ucsdu.edu/7Edasgupta/algorithms/>

KLEINBERG, J., and TARDOS, E. [Algorithm Design.](http://www.aw-bc.com/info/kleinberg/) url: <http://www.aw-bc.com/info/kleinberg/>

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 3
4. COURSE TITLE: Mobile Telecommunications
5. COURSE CODE: BICT 3504
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 2
12. INDEPENDENT LEARNING

HRS PER WEEK: 8

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): BICT 2403
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To introduce concepts of personal communication services, architectures and standards for mobile communications.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* describe the characteristics and operation of radio access technologies
* explain cellular concept and frequency reuse
* describe the general operations of mobility management describe the standards in mobile telecommunications.
* describe software development platforms for mobile networks
* design J2ME prototype mobile application

21. TOPICS OF STUDY :

**Introduction to Mobile Communications:**

* Historical development of mobile telephony.
* Personal Communication Services (PCS) Networks

**Wireless transmission fundamentals**

* Frequency spectrum and regulations
* Signals and antennas
* Point to point and broadcasting transmission
* Channel noise
* Signal attenuation
* Multiplexing and Multiple Access techniques
* Modulation techniques
* Spread spectrum techniques

**Mobile Communications**

* Cellular systems and concepts
* Signal propagation and transmission
* Mobility Management

**Telecommunication Systems and Standards:**

* Global System for Mobile Communications (GSM)
* General Packet Radio Service (GPRS)
* Enhanced Data rates for GSM Evolutions (EDGE)
* Universal Mobile Telecommunications Systems (UMTS)
* Generations of Mobile phone systems
* IP Multi-Media Sub systems (IMS) and Session Initiation Protocol (SIP)
* Customized Applications for Mobile Networks Enhanced Logic (CAMEL)
* Signaling System Number 7 (SS7)

**Introduction to Personal Communication Services (PCS) Software**

* Java 2 Micro Edition (J2ME)
* Wireless Application Protocol (WAP) and Wireless Markup Language (WML)
* eXtensible Markup Language (XML)
* Unified Modelling Language (UML)

**Prescribed Texts:**

SCHILLER, J. (2003) Mobile Communications, 2nd ed, Addison-Wesley

**Recommended Texts:**

Rainer, R. Kelly, Jr; Turban, Efraim; Potter, Richard E. (2007) [Introduction to information systems](http://192.168.1.22/cgi-bin/koha/opac-detail.pl?biblionumber=4729&query_desc=kw%2Cwrdl%3A%20Introduction%20to%20Wireless%20and%20Mobile%20systems), Hoboken, NJ : Wiley

Mallick, Martyn, (2003) [Mobile and wireless design essentials](http://192.168.1.22/cgi-bin/koha/opac-detail.pl?biblionumber=1618&query_desc=kw%2Cwrdl%3A%20Introduction%20to%20Wireless%20and%20Mobile%20systems), Ind: Wiley

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 3
4. COURSE TITLE: Web Programming
5. COURSE CODE: BICT 3505
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 2
12. INDEPENDENT LEARNING

HRS PER WEEK: 8

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): BICT 2304
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To introduce practical concepts of web programming to students.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* explain the fundamental characteristics of Web Applications
* describe Client-Side Techniques of web applications
* describe Server-Side Techniques of web applications
* Implementing AJAX features in Web Applications

21. TOPICS OF STUDY :

**Server-Side Scripting with PHP**

* Introduction to PHP
* Storing and Retrieving Data
* Working with Arrays in PHP
* String Manipulation and Regular Expressions
* PHP Functions
* Object – Oriented PHP

**Web Databases**

* Introduction Relational Database
* MySQL and Web Database
* Accessing MySQL Database from the Web with PHP
* MySQL Administration
* MySQL Programming

**Understanding Web Programming**

* Building Websites Since 1990s
* Web Applications
* Understanding AJAX
* Building a Simple Application with AJAX

**Client-Side Techniques with JavaScript**

* JavaScript and Document Object Model (DOM)
* JavaScript Events and DOM
* Working with CSS and JavaScript
* Using the XMLHttpRequest Object
* Working with XML Structures

**Server-Side Techniques with PHP and MySQL**

* PHP and DOM
* Passing Parameters and Handling PHP Errors
* Connecting to Remote Servers and JavaScript Security
* Using a Proxy Server Script
* A Framework for Making Repetitive Asynchronous Requests
* Working with MySQL

**Implementing AJAX features in Web Applications**

* Implementing AJAX Form Validation
* Implementing AJAX Chat
* Implementing AJAX Suggest and Autocomplete

**Recommended Texts:**

* Jackson, Paul D. (2010). [Web 2.0 knowledge technologies and the enterprise](http://192.168.1.22/cgi-bin/koha/opac-detail.pl?biblionumber=4774&query_desc=su%2Cwrdl%3A%20Web). Oxford : Chandos

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 3
4. COURSE TITLE: Object Oriented Analysis and Design
5. COURSE CODE: BICT 3601
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 2
12. INDEPENDENT LEARNING

HRS PER WEEK: 8

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To enable students understand object oriented analysis and design so that they are able to apply the principles learnt in object modeling.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* describe needs of business information system
* describe Object Model(s)
* apply Object Modeling through Analysis and Design
* identify target implementation platforms for Object Oriented Techniques
* evaluate different Object Techniques
* demonstrate an understanding of relational approaches

21. TOPICS OF STUDY :

**Business Needs**

* Aspects of Business Software Needs
* Object Technology for Business

**Principles of Object Modeling**

* Definition of an Object Model
* Identification of Objects in a System
* Standards for Objects
* Managing Complexity
* Modeling

**Modeling Language**

* An Overview of the UML
* The Building Blocks of UML
* Rules of UML
* Mechanisms of UML
* UML Architecture

**Object Oriented Analysis-Object Modeling 1**

* Object Class/Objects
* Notation
* Links and Association
* Generalization / Specialization
* CASE Tool: (Select Enterprise Demonstration)

**Object Oriented Analysis**-**Object Modeling 2**

* Aggregation
* Inheritance
* Polymorphism
* Grouping

**Object Oriented Analysis**-**Dynamic Modeling**

* Event
* State
* Operations
* Concurrency
* Relation of Structure and Dynamic Models
* Case Tools Support

**Object Oriented Analysis**-**Behavioural Modeling**

* Use Cases
* Use Case Diagrams
* Interaction Diagrams
* Sequence Diagrams
* Collaboration Diagrams
* Activity Diagrams
* Full Analysis Documentation

**The Unified Software Development Process**

* Aspects of the Unified Software Development Process (USDP)
* Characteristics of USDP (UP)
* Phase and Interactions of the UP
* Process Workflows
* Artifacts of the UP
* Importance and guidelines of Re-Use
* Concurrency, Generalisation and Inheritance

**Object Oriented Design**

* Overview of Design
* Combining the Object, Dynamic and Behavioural Models

**Recommended Texts:**

[Bennett, Simon](http://192.168.1.22/cgi-bin/koha/opac-search.pl?q=au:%22Bennett,%20Simon.%22); [Wixom, Barbara Haley](http://192.168.1.22/cgi-bin/koha/opac-search.pl?q=au:%22Wixom,%20Barbara%20Haley,%22); [Tegarden, David Paul](http://192.168.1.22/cgi-bin/koha/opac-search.pl?q=au:%22Tegarden,%20David%20Paul.%22)

**,** Object oriented Systems analysis design **,** [McGraw-Hill](http://192.168.1.22/cgi-bin/koha/opac-search.pl?q=pb:McGraw-Hill,)

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 3
4. COURSE TITLE: Object Oriented Programming C++
5. COURSE CODE: BICT 3602
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 3
12. INDEPENDENT LEARNING

HRS PER WEEK: 8

1. TOTAL COURSE CREDITS : 13
2. PRE-REQUISITE COURSE CODES(S): BICT 1202
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* to enable students to develop Programs using C++ as an Object Oriented Language

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* master the syntax and vocabulary of C++.
* develop an understanding of Object Oriented programming techniques.
* demonstrate the ability to write complete C++ Programs.
* utilize the computer as a tool in problem solving
* demonstrate the ability to use a C++ Compiler effectively.

21. TOPICS OF STUDY :

**Object Oriented Programming and Basics of C++**

* Introduction to Object Oriented Program (OOP)
* Basic Concepts of OOP
* Structure of C++ Program, Data Types, Basic Data Types, Derived Data
* Types, User Defined Data Types, Dynamic Initialisation of a Variable,
* Reference Variable, Manipulators
* Creation and Execution of C++ Program

**Control Structures and Functions**

* Control Structures, If statement, Loops, switch –case, break, continue, goto Statement
* Operators, Relational Operators, logical Operators, Type Casting
* Functions, Simple Functions, Calling Functions, Returning from a Function, Inline

Functions, Default Arguments, Function Overloading, Problem Solving in C++ Using Analysis and Design

**Introducing Structures and Classes**

* Structures, Defining Class, Creating Objects, Defining member Functions
* Static Data Members and Members Functions
* Passing to and returning Objects from Functions
* Friend Functions

**Constructors and Destructors**

* Basic constructors
* Parameterized Constructors
* Constructors with default Arguments
* Copy and Dynamic Constructors
* Multiple Constructors in a Class
* Destructors

**Operator Overloading**

* Defining Operator Overloading
* Overloading Unary Operators
* Overloading Binary Operators
* Data and Type Conversions
* String manipulation using Operators

**Inheritance**

* Relationship Type, Defining Derived Class, Single Inheritance
* Protected Access Specifier
* Multilevel Inheritance, Multiple Inheritance Hierarchical Inheritance, Hybrid Inheritance
* Virtual base Class, Abstract Class, Constructors in Derived Classes, Container Classes, Templates and Exceptional Handling **Polymorphism, Pointers to Objects, Virtual Functions**
* Introduction to Polymorphism
* Pointers, Pointer to Derived Classes
* Virtual Functions
* Pure Virtual Functions

**Files I/O Operations**

* Formatted and Unformatted I/O Operations
* Streams
* I/O operations
* File Handling, operating Classes and File
* File Mode, File Pointers
* Error Handling and Command Line Arguments

**Recommended Texts:**

Drozdek, Adam, [Data structures and algorithms in C++](http://192.168.1.22/cgi-bin/koha/opac-detail.pl?biblionumber=687&query_desc=kw%2Cwrdl%3A%20Programming%20in%20C%2B%2B), 3rd ed, Thomson/Course Technology.

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 3
4. COURSE TITLE: Distributed Systems
5. COURSE CODE: BICT 3603
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 2
12. INDEPENDENT LEARNING

HRS PER WEEK: 8

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To provide students with an understanding of the principles, techniques, and practice in the design and implementation of distributed systems.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* explain a distributed system.
* explain the need and the desired properties for a distributed system design
* describe the underlying principles the of distributed systems functionality
* design a distributed system that fulfills requirements with regards to desired properties

21. TOPICS OF STUDY :

**Introduction to Distributed System**

* Characterization of Distributed Systems
* Network Operating Systems vs. distributed Operating systems
* Middleware
* Research and design issues

**Inter-process Communication**

* Issues in message passing
* Client-server communication

**Distributed Naming Services**

* Names, addresses, routes, capabilities
* Naming facilities, name distribution, name resolution
* Migration

**Synchronization**

* Event ordering / synchronization
* Centralized vs. distributed schemes
* Election Algorithms
* Mutual Exclusion

**Group Communication**

* Ordered, reliable, and casual multicast
* Group membership
* Atomic group multicast
* Virtual synchrony

**Distributed Shared Memory**

* Shared memory
* Consistency models
* Design issues

**Distributed File Services**

* Model
* Case study: NFS, AFS, CODA

**Supporting Internet Applications of the Future**

* Active networks
* Peer-to-Peer
* VoIP
* IPTV

**Fault Tolerance and Failure Recovery in Distributed Systems**

**Security in Distributed Systems**

* Key Management
* Secure Group Management

**Prescribed Texts:**

Tannenbaum, A.S. (2014) [Distributed systems: Principles and paradigms](http://192.168.1.22/cgi-bin/koha/opac-detail.pl?biblionumber=2556&query_desc=kw%2Cwrdl%3A%20Distributed%20Systems), Pearson

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 3
4. COURSE TITLE: Group Projects
5. COURSE CODE: BICT 3604
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 2
10. TUTORIAL HRS PER WEEK: 1
11. PRACTICAL HOURS: 4
12. INDEPENDENT LEARNING

HRS PER WEEK: 10

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Presentations

Documentation

Report

1. ASSESSMENT WEIGHTING: Interim Report(s) – 10%

Final product – 40%

Final Report – 30%

Presentation – 20%

1. AIM(S) OF THE COURSE:

* To enable students develop an information system as a team.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* analyse an existing information system.
* design and implement Information System
* document the Information System Development Activities
* make a presentation on the developed Information System

21. TOPICS OF STUDY :

**Project management**

* Action Plan
* Designing
* Implementation
* Documentation
* Group Presentation

**Note:** Students will be given information system problems to solve.

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 3
4. COURSE TITLE: Project Management
5. COURSE CODE: BICT 3605
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 1
11. PRACTICAL HOURS: 1
12. INDEPENDENT LEARNING

HRS PER WEEK: 10

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* to enable students manage ICT-related projects effectively.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* plan projects.
* assign responsibilities of project components
* determine the time required to complete tasks
* set reasonable milestones for the completion of major tasks
* allocate resources needed to complete the project
* decide when to take remedial action to bring a project back on course.
* perform basic project functions using project management tools
* carry out a group project

21. TOPICS OF STUDY :

**Project Conception and Definition**

* Sources of a project
* Statement of requirements
* List of stakeholders
* Project brief
* Scope of work statement
* Risk assessment

**Project planning**

* Identifying key stages
* Preparing a project logic diagram
* Formatting the work breakdown structure
* Allocating responsibilities for key stages
* Estimating duration
* Formulating PERT and critical path
* Scheduling activities
* Analysing resource requirement
* Project budgeting and approval

**Project implementation**

* Project launching
* Organisational structure
* Effective communication
* Management of project problems
* Project logbook
* Project monitoring
* Application of computers

**Project closing and handover**

* Concluding tasks
* Termination procedure

**Recommended Text(s):**

Gido, Jack; Clements, James P. (2015) [Successful project management](http://192.168.1.22/cgi-bin/koha/opac-detail.pl?biblionumber=276&query_desc=kw%2Cwrdl%3A%20project%20management), 6th ed, Stamford: Cengage Learning.

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 4
4. COURSE TITLE: Software Engineering
5. COURSE CODE: BICT 4701
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 0
12. INDEPENDENT LEARNING

HRS PER WEEK: 10

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To introduce students the principles of software engineering in order to enable them apply the principles in object-oriented programming languages.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* describe software life cycle
* design, implement, test and maintain a program using one of the object oriented programming languages.

21. TOPICS OF STUDY :

**Software Process & Management**

* Software Engineering
* Project Management (Software Metrics, Estimation and Planning)

**System & Software Requirements Analysis**

* Computer System Engineering
* Requirements Analysis Fundamentals
* Alternative Analysis Techniques & Formal Methods

**Software Design & Implementation**

* Fundamentals of Software Design
* Data Flow-Oriented Design
* Object Oriented Design
* Date-Oriented Design Methods
* User Interface Design
* Real Time Design

**Software Integrity**

* Software Quality Assurance
* Software Testing Techniques
* Software Testing Strategies
* Software Maintenance

**Case Tools**

* Definition of Case
* Integrated Case Environment
* Emerging Issues in Software Engineering

**Recommended Texts:**

Thayer, Richard H; Christensen, M. J. (Mark J.) (2005) Software Engineering, 3rd ed, IEEE Computer Society Press

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 4
4. COURSE TITLE: Modelling and Simulation
5. COURSE CODE: BICT 4702
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 2
12. INDEPENDENT LEARNING

HRS PER WEEK: 8

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): STAT 2301
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* to provide students the necessary skills to formulate conceptual models of systems and transform them into efficient simulation software.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* explain the underlying principles behind continuous and discrete simulation models.
* develop a conceptual and practical understanding of data structures, algorithms, techniques, and best practices for simulation models.
* develop efficient simulation software in a high level programming language.

21. TOPICS OF STUDY :

**Introduction to modeling and simulations**

 Overview of simulation categories.

* Terminology of modeling and simulation
* Types of simulations
* Applications of simulation
* Simulation life cycle
* Basic concepts of discrete-event simulations
* Randomness and random-number generation

**Simulation methodologies**

* Event-oriented simulations
* Process-oriented simulations
* Queuing network
* Cellular automata
* Agent-based simulation
* Finite-different methods
* Finite-element methods

**Efficiency and parallelization**

* Efficient model execution, performance tuning and optimization
* Concurrency issues

**Recommended Texts:**

Michael Pidd, (2009), Tools for thinking : modelling in management science, 3rd ed, Chichester, U.K, [Wiley](http://192.168.1.22/cgi-bin/koha/opac-search.pl?q=pb:Wiley,)

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 4
4. COURSE TITLE: Network Administration and Information Security
5. COURSE CODE: BICT 4703
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 3
12. INDEPENDENT LEARNING

HRS PER WEEK: 7

1. TOTAL COURSE CREDITS : 13
2. PRE-REQUISITE COURSE CODES(S): BICT 2403
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* to equip students with knowledge and skills in the network administration and information security.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* describe the principles of network administration and information security
* explain the concepts of information security.
* draft security policy
* describe network vulnerabilities
* explain encryption techniques

21. TOPICS OF STUDY :

**Basic principles**

* Threats and trust
* Vulnerabilities
* Intrusion Detection
* Network Security Scanners

**Authentication, Identity and Access**

**Management**

* Access control :One, -two, -three factor authentication
* Single Sign On and One Time Passwords
* Security Tokens
* PAP/CHAP
* RADIUS
* Kerberos
* Biometrics

**Encryption Technologies**

* Symmetric and Asymmetric Encryption
* Public and Private Key Cryptography
* Hashing and Digital Signatures
* Message Authentication Codes
* Encryption protocols and standards
* Cryptanalysis
* Advanced Encryption Standard (AES)
* Secure e-mail (S/MIME and PGP)
* IP Security (IPSec) and IKE Key
* Management
* SSL (Secure Socket Layer and TLS

**Public Key Infrastructure**

* Public Key Infrastructure
* Digital Certificates
* Certification Authorities - issuing, storing, distributing, revoking

**Virtual Private Networks**

* VPNs and the Internet
* VPN security framework and technologies
* Application layer security protocols
* Use of PPTP, IPSec, SSL and TLS in VPNs

**Wireless Network Security**

* WLAN – security issues
* WEP
* IEEE802.1x
* LAN and Wireless WANs

**Key concepts in Information security**

* Safety, information security and integrity
* Vulnerabilities, threats and counter measures
* files permissions
* Firewalls
* Intrusion detection
* IP sec
* VPN
* Routers
* Proxies

**Developing an effective security policy for an organization**

* Operational security and configuration management
* Protecting network infrastructure
* The role of audit trails in the development and implementation of information and security framework
* Responding to network security incidents- a coordinated approach

**Main vulnerabilities of operating systems**

* Password control
* FTP and TFTP
* Electronic mail
* Trusted hosts
* Inappropriate file permissions
* Race conditions
* Packet sniffers
* IP spoofing
* Denial of service Dial up connections
* CGI and WWW vulnerabilities

**Effective system Administration policies**

* Physical assurance
* Backups
* Basic firewall concepts and models
* Firewall case study

**Combating viruses**

* Virus delivery systems
* Disk viruses
* Network viruses
* Document and email viruses
* Virus elimination

**Security across different operating systems and platforms**

* Netware
* Windows operating systems
* UNIX/Linux

**Business continuity and disaster recovery planning**

* Establishing the cost of downtime
* Developing a policy for continuity and recovery
* Developing a disaster recovery plan
* Testing

**Recommended Texts:**

Rainer, R. Kelly, Jr; Turban, Efraim; Potter, Richard E, (2007), [Introduction to information systems : supporting and transforming business, Hoboken, NJ : Wiley](http://192.168.1.22/cgi-bin/koha/opac-detail.pl?biblionumber=4729&query_desc=kw%2Cwrdl%3A%20Information%20security)

Schneier, Bruce, [Applied cryptography](http://192.168.1.22/cgi-bin/koha/opac-detail.pl?biblionumber=4118&query_desc=kw%2Cwrdl%3A%20Information%20security), 2nd ed, New York : Wiley

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECHNOLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 4
4. COURSE TITLE: Entrepreneurship
5. COURSE CODE: BICT 4704
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 2
12. INDEPENDENT LEARNING

HRS PER WEEK: 8

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To help students understand and analyse elements of the entrepreneurial mind-set and discuss the implications for functioning as a successful entrepreneur.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* Describe the real meaning of entrepreneurship and its importance.
* Discuss the myths about entrepreneurship.
* Identify the characteristics of successful entrepreneurs and intrapreneurs.
* Describe the meaning of small businesses and their role in the economy.
* Identify forms of entrepreneurial ventures.
* Discuss the role of creativity and innovation in entrepreneurship.
* Develop elements of the business plan or model.
* Discuss contemporary issues in entrepreneurship.
* Identify appropriate sources of capital for the new ventures.
* Plan for small businesses strategically.

1. TOPICS OF STUDY : **Overview and nature of entrepreneurship**

* Definitions of entrepreneurship
* Importance of entrepreneurship
* Myths about entrepreneurship
* Characteristics of successful entrepreneurs
* Types of risks likely to face entrepreneurs

**Other aspects of entrepreneurs**

* Stress management
* Causes of stress and how entrepreneurs can cope with stress
* Schools of thought in entrepreneurship
* Innovation and creativity

**Contemporary issues in entrepreneurship**

* Factors contributing to the increase of small ventures
* Methods in pursuing international markets
* Social and ethical responsibilities for entrepreneurs
* Total Quality Management (TQM)
* Globalization

**Entrepreneurial Planning**

* Importance of planning for emerging ventures
* Strategic planning and its benefits

**Small business development**

* Meaning and characteristics of small businesses
* Role of small businesses in the economy
* Causes of small businesses failure

**Forms of business ownership or entrepreneurial ventures**

* Family businesses
* Corporation
* Sole proprietorship
* Partnership
* Franchise
* Business buy-out
* Factors to be considered in selecting new businesses
* Failure of new ventures

**Business plan development**

* Meaning of a business plan
* The purpose and importance of a business plan
* Factors to considered in preparing a business plan
* Guidelines for writing a successful business plan
* Elements of a business plan

**Sources of capital**

* Debt versus equity
* Using internal versus external funds as the funding sources

**Management succession**

* Meaning of management succession and its importance
* Barriers to succession planning in family businesses
* Factors affecting business succession decisions
* Developing a succession strategy
* Meaning of harvest strategy

1. **Prescribed Texts**

Frederick, H; Kuratko, D.F. & Hodgetts, R.M. (2007). *Entrepreneurship:Theory Process and Practice*. Asia-Pacific Ed., Thomsom Publishing.

Kuratko, Donald (2001). *Entrepreneurship: A Contemporary Approach*. 5th Ed. Harcourt College Publishers.

1. **Recommended Texts**

Baron, R. A. (2008). *Entrepreneurship: A process perspective*, 2nd Ed.

Allen, K.R. (2003). *Launching new ventures: An entrepreneurial approach*.Boston: Houghton Mifflin.

Blackwell, E. (2002). *How to prepare a business plan*. London: Kagan Page

Knoweles, R.A. (2003). *Small Business, an entrepreneur’s plan.* 4th Canadian Edition. Thompson/Nelson.

Dollinger, M.J. (1995). *New Business Entreprises*. Austin: Irwin.

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MZUZU UNIVERSITY

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 4
4. COURSE TITLE: Information Systems Audit
5. COURSE CODE: BICT 4705
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 2
12. INDEPENDENT LEARNING

HRS PER WEEK: 8

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To provide knowledge and skills required to perform an internal and external audit of part of a quality information system and report on the effective implementation and maintenance of the information system.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* understand the role of the IS auditor and the IS audit function.
* understand the purpose of controls in an information systems environment.
* learn how access to systems, resources, and data can be controlled.
* assess the design, placement, and quality of controls.
* understand some of the basic theory underlying computer security policies, models, and problems.
* learn models for dealing with risk.
* understand the basic issues in auditing computer security policies and mechanisms

21. TOPICS OF STUDY :

**The IS Audit Process**

* + Management of the IS Audit Function
  + IS Auditing Standards and Guidelines
  + Risk Analysis
  + Internal Controls
  + Performing IS Audit
  + Control self-assessment
  + The evolving audit approach

**IT Governance**

* + Corporate governance
  + IT governance
  + Information Technology monitoring and assurance practices for board of and executive managers
  + Information systems strategy
  + Maturity and process improvement models
  + IT Investment and Allocation Practices
  + Policies and Procedures
  + Risk Management
  + IS Management Practices
  + IS Organizational Structure and Responsibilities
  + Auditing IT Governance Structure and Implementation

**Systems and Infrastructure Life Cycle Management**

* + Business Realization
  + Project Management Structure
  + Project management practices
  + Business application development
  + Business application systems
  + Alternative Forms of Software Project Organization
  + Alternative Development Methods
  + Infrastructure Development/Acquisition Practices
  + Information Systems Maintenance Practices
  + System Development Tools and Productivity Aids
  + Process Improvement Practices
  + Application Controls
  + Auditing Application Controls
  + Auditing Systems Development, Acquisition and Maintenance

**IT Service Delivery and Support**

* + Information Systems Operations
  + Information Systems Hardware
  + IS Architecture and Software
  + IS Network Infrastructure
  + Auditing Infrastructure and Operations

**Protection of Information Assets**

* + Importance of Information Security Management
  + Logical Access
  + Network infrastructure security
  + Auditing information security management frameworks
  + Auditing network infrastructure security
  + Environmental exposures and controls
  + Physical access exposures and controls
  + Mobile computing

**Business continuity and disaster recovery**

* + Business continuity/ disaster recovery planning
  + Auditing Business Continuity

**Recommended Texts:**

Feather, John (2013), The information Society : a study of continuity and change, 6th ED, London : Facet Publication.

Kendall,Kenneth E. Et el (2005), Systems Analysis and Design, Armonk, N.Y. ; London : Prentice Hall

Manual Review, Certified Information Systems Auditor (2010) An ISACA Certification (e-copy available in the department).

Jack J. Champlain (2013), Auditing Information Systems, 2nd ED, John Wiley & Sons (e-book available in the department)

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 4
4. COURSE TITLE: Artificial Intelligence
5. COURSE CODE: BICT 4801
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 2
12. INDEPENDENT LEARNING

HRS PER WEEK: 8

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* to provide students with an overview of Artificial Intelligence.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* determine when an AI approach is appropriate for a given problem.
* select an appropriate AI method for a given problem.
* explain basic knowledge representation, problem solving, and learning methods of Artificial Intelligence
* program in Prolog

21. TOPICS OF STUDY :

**Fundamental issues in AI**

* History of AI
* Philosophical questions
* Fundamental definitions
* Introduction to agents
* Types of agents

**Search**

* Problem solving by search
* Uninformed search
* Informed(Heuristic) Search
* Game playing
* Game playing as search strategy
* Introduction to Prolog Programming

**Reasoning and Logic**

* Propositional Logic
* Predicate Logic
* First Order Logic
* First order Logic: Inference
* Probabilistic reasoning
* Bayesian theorem

**Knowledge Representation**

* Knowledge based system
* Expert System

**Machine Learning and neural networks**

* Learning theory
* Supervised and unsupervised learning
* Statistical Learning
* Reinforcement Learning
* Introduction to neural networks

1. **Recommended Texts**

[Luger, George F](http://192.168.1.22/cgi-bin/koha/opac-search.pl?q=au:%22Luger,%20George%20F.%22); [Stubblefield, William A](http://192.168.1.22/cgi-bin/koha/opac-search.pl?q=au:%22Stubblefield,%20William%20A.%22), Artificial intelligence and the design of expert systems, [Benjamin/Cummings Pub. Co](http://192.168.1.22/cgi-bin/koha/opac-search.pl?q=pb:Benjamin/Cummings%20Pub.%20Co.,)

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 4
4. COURSE TITLE: Electronic Commerce
5. COURSE CODE: BICT 4802
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 1
12. INDEPENDENT LEARNING

HRS PER WEEK: 9

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* To introduce students to concepts, tools and approaches to e-business so that they understand ways in which companies use the Internet as a channel for conducting and expanding commerce.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* explain how electronic commerce can be used to create a competitive advantage for an organization.
* analyze the strengths and weaknesses of different business models related to B2B and B2C electronic commerce.
* create a simple website that includes dynamically generated web pages and simple forms for capturing data.
* explain technical, ethical, and policy issues in electronic commerce (e.g. data mining, security, privacy, and intellectual property rights).

21. TOPICS OF STUDY :

**Introduction to E-Business**

* The Digital Economy
* E-Commerce Fundamentals
* Introduction to E-Commerce Technologies
* The E-Commerce Consumer
* Business-to-Business E-commerce
* Business-to-Consumer E-Commerce

**Electronic Retailing**

* E-commerce Transactions: Shopping Carts and Payment Options
* Tracking Customers
* Security Issues, Strategies, and Resources
* Interactive Communication with Customers and Partners
* Customer-Pleasing E-Service

**Introduction to E-Commerce Web Design**

* Web Design Strategies and Concepts Web Design Architectures and Infrastructures Web Design Tools I: HTML, XTL, Java, etc.
* Web Design Tools II: Plug-in and Multimedia
* Personalization, Persuasion, and Related Design Strategies
* Web Design Trends: Preparing for the Future

**E-Business Marketing**

* Introduction to Marketing Online
* E-Marketing Strategies and Options
* E-Marketing Resources
* Encouraging Customer Participation
* Creating Online Communities
* Customer Service and Marketing

**E-Business Infrastructures**

* E-commerce Industry Structures
* Alliances, Partners, Outsourcing
* Portals and Search Engines
* Governmental Structures and Resources

**Security Issues**

* Security Issues and Threats
* Security Procedures
* Digital Certificates
* SSL and SET Technologies
* Authentication and Identification
* Security Providers
* Privacy Policies
* Legal and Ethical Issues

**Recommended Texts:**

Chaffey, Dave, (2011), [E-business & e-commerce management : strategy, implementation and practice](http://192.168.1.22/cgi-bin/koha/opac-detail.pl?biblionumber=4121&query_desc=kw%2Cwrdl%3A%20Electronic%20Commerce), Pearson/Financial Times Prentice Hall

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 4
4. COURSE TITLE: Business Management
5. COURSE CODE: BICT 4803
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 2
12. INDEPENDENT LEARNING

HRS PER WEEK: 8

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Continuous

60% End of semester

1. AIM(S) OF THE COURSE:

* to equip students with necessary skills of starting and managing their own ICT businesses and run them effectively.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* define entrepreneurship and business
* demonstrate an understanding of principles of management as applied to business.
* interpret accounting concepts and procedures
* demonstrate an understanding of concepts of marketing as applied to business.
* prepare a simple feasible business plan.
* manage and control current and fixed assets.
* outline steps involved in budgeting

* describe steps involved in setting up a small business
* describe forms of business ownership and types of insurance

21. TOPICS OF STUDY :

**Principles of Management and Administration**

* Principles Functions
* Leadership
* Organisation structures
* Organization culture
* Organisation as a system

**Principles of accounting**

* Introduction to accounting and its concepts
* Recording business transactions
* Journal
* Ledger
* Trial balance
* Income statement
* Accounting cycle : simple Balance Sheet
* Interpretation of financial statements.

**Marketing**

* Markets
* Marketing mix (4Ps)
* Advertising and publicity
* Sales promotion
* Marketing concepts
* Product marketing and development

**Entrepreneurship and small business management**

* Factors to consider when starting a business
* Business environment
* Business organisation
* Business plan
* How to establish a small business plan
* Forms of business ownership

**Budgeting**

* Budgeting
* Steps involved in budgeting
* Preparation of a simple budget.

**Insurance**

* Types and principles of insurance
* Advantages and disadvantages of insurance

**Finance management**

* Essential concepts of finance
* Management of cash

**Prescribed Text(s):**

COLE, G.A. (2015) Management theory and practice. Ed. 8th. Cangane learning

KOTLER, (2005), Principles of marketing, Prentice Hall

**Recommended Text(s):**

Drury, Colin , (2011)[Cost and Management accounting: An Introduction](http://192.168.1.22/cgi-bin/koha/opac-detail.pl?biblionumber=750&query_desc=kw%2Cwrdl%3A%20Management%20accounting), 7th ed Australia Cengage

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**MZUZU UNIVERSITY**

**FACULTY OF INFORMATION SCIENCE AND COMMUNICATIONS**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECNLOGY**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 4
4. COURSE TITLE: Systems Project
5. COURSE CODE: BICT 4804
6. DURATION: 16 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 2
10. TUTORIAL HRS PER WEEK: 1
11. PRACTICAL HOURS: 4
12. INDEPENDENT LEARNING

HRS PER WEEK: 10

1. TOTAL COURSE CREDITS : 12
2. PRE-REQUISITE COURSE CODES(S): None
3. CO-REQUISITE COURSE CODES(S): None
4. DELIVERY METHODS:

16.1 Mode of Delivery: Face- to Face

16.2 Teaching Methods: Lectures and tutorials

1. ASSESSMENT METHODS: Presentations

Demonstration

1. ASSESSMENT WEIGHTING: Interim Report(s) – 10%

Final product – 40%

Final Report – 30%

Presentation – 20%

1. AIM(S) OF THE COURSE:

* to equip students with knowledge and skills to design and implement an information system based on the analysis done in Semester 7.

1. LEARNING OUTCOMES:A successful learner from this course will be able to:

* design an Information System.
* implement an Information System based on the design
* evaluate the Information System Implemented
* develop technical and user documentation

21. TOPICS OF STUDY :

**Information System Design**

* Logical Design (standard diagrams)
* Physical Design (blue prints)
* Information System Limitations

**Information System Implementation**

* Acquisition of Resources
* Product Development
* Testing

**Evaluation**

* Verification of Information System
* Validation of Information System

**Documentation**

* User Manual
* Technical Manual
* Product (source code) burned on recordable CDs in triplicate
* Final Comprehensive Report

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**MZUZU UNIVERSITY**

**Faculty of Information Science and Communications**

**Department of Information and Communication Technology**

1. PROGRAMME: Bachelor of Science
2. SUBJECT: Information and Communication Technology
3. LEVEL OF STUDY: 4
4. COURSE TITLE: Industrial Attachment
5. COURSE CODE: BICT 4805
6. DURATION: 14 Weeks
7. PRESENTED TO: Senate
8. PRESENTED BY: Dean of Information Science and Communications
9. LECTURE HRS PER WEEK: 4
10. TUTORIAL HRS PER WEEK: 2
11. PRACTICAL HOURS: 4
12. INDEPENDENT LEARNING

HRS PER WEEK: 10

1. TOTAL COURSE CREDITS : 10
2. PRE-REQUISITE COURSE CODES(S): NONE
3. CO-REQUISITE COURSE CODES(S): NONE
4. DELIVERY METHODS:
   1. Mode of Delivery: Face – to Face
   2. Teaching Methods: Practical and Tutorials
5. ASSESSMENT METHODS: Two continuous tests

One end of semester examination

1. ASSESSMENT WEIGHTING: 40% Workplace Specialist Assessment

40% Faculty Supervisor Assessment

20% Student Written Report

1. AIM(S) OF THE COURSE: The course aims at exposing students to a practical work experience.
2. LEARNING OUTCOMES:A successful learner from this course will be able to:

* Apply the major concepts to the actual working situations
* Apply theories learnt in class to the practice
* Work in a team set-up
* Demonstrate Professional and Personal Competencies

1. TOPICS OF STUDY : **Industrial Attachment Approach**

The Industrial Attachment shall include the following activities and components:

* Hands-on training by students in various institutions on the following:
  + Leadership and management skills
  + Demonstration of ICT related skills. E.g. Programming, Systems design, networking etc.
  + Teamwork and Interpersonal skills
  + Communication skills
  + Report writing
* Supervision and evaluation of students by academic supervisors
* Supervision and evaluation of students by workplace/cooperating supervisors

1. **Prescribed Text**

**NONE**

1. **Recommended Texts**

**NONE**

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