

Management Information Systems

(Courses in italics & bold were already approved by senate for the Bachelor of Accountancy Degree currently running at the Polytechnic)

Year One

BIS1: Sem1						
No.	COURSE	COURSE	Lectures	Practical	Tutorial	Hrs/wk
1	CIT-180	Information Systems	2	1	0	3
2	CIT-181	Computing I	2	2	0	4
3	CIT-182	Information Technology Packages I	1	3	0	4
4	<i>MAT-180</i>	<i>Algebra and Business Mathematics</i>	2	0	1	3
5	NET-101	Networking (LAN Design & Documentation)	2	2	0	4
6	<i>COS-102</i>	<i>Communication Studies</i>	2	0	1	3
7	<i>ECN-100</i>	<i>Economics I</i>	2	0	1	3
8	<i>FIN-100</i>	<i>Financial Accounting I</i>	2	0	1	3
		Total Hours	15	8	4	27
BIS1: Sem2						
No.	COURSE	COURSE	Lectures	Practical	Tutorial	Hrs/wk
1	CIT-183	Computing II	1	3	0	4
2	CIT-184	Information Technology Packages II	1	3	0	4
3	<i>MAT-102</i>	<i>Business Mathematics II</i>	3	0	1	4
4	<i>COS-102</i>	<i>Communication Studies II</i>	2	0	1	3
5	<i>FIN-102</i>	<i>Financial Accounting II</i>	3	0	1	4
6	NET-102	Networking (Routers & Networks)	1	3	0	4
7	<i>ECN-100</i>	<i>Economics II</i>	3	0	1	4
		Total Hours	14	9	4	27

Year Two

BIS2: Sem1						
No.	COURSE	COURSE	Lectures	Practical	Tutorial	Hrs/wk
1.	CIT-211	Database Development I	1	2	1	4
2.	CIT-202	Visual Programming	1	3	0	4
3.	CIT-203	Information Systems	2	0	0	2
4.	CIT-204	Numerical Analysis	2	0	1	3
5	NET-203	Networking (Switching & LAN Administration)	1	3	0	4
6	FIN-200	Financial Accounting III	3	0	1	4
7	COS-200	Communication Studies III	2	0	1	3
8	CIT-205	System Analysis & Design I	3	0	1	4
		Total Hours	15	8	5	28
BIS2: Sem2						
No.	COURSE	COURSE	Lectures	Practical	Tutorial	Hrs/wk
1	CIT-206	System Analysis & Design II	3	0	0	3
2	MAT-204	Probability & Statistics	2	0	1	3
3	STT-200	Statistics & Spreadsheets	2	2	0	4
4	NET-204	Networking (WANs)	1	3	0	4
5	FIN-200	Financial Accounting IV	3	0	1	4
6	HTM-200	eCommerce (HTML)	2	2	0	4
7	COS-200	Communication Studies IV	2	0	1	3
		Total Hours	13	10	2	25

Year Three

BIS3: Sem1						
No.	COURSE	COURSE	Lectures	Practical	Tutorial	Hrs/wk
1	WIN-300	Windows Operating System	2	2	0	4
2	UNX-300	Unix Operating System (Linux)	2	2	0	4
3	CIT-312	Accounting Packages I	1	2	0	3
4	WEB-300	PHP & Dynamic Web Pages	2	2	0	4
5	ACC-301	Financial Accounting V	3	0	1	4
6	NET-301	Networking (Internet & TCP/IP)	2	2	0	4
7	ACC-300	Management Accounting I	3	0	1	4
		Total Hours	13	13	1	27
BIS3: Sem2						
No.	COURSE	COURSE	Lectures	Practical	Tutorial	Hrs/wk
1	CIT-312	Accounting Packages II	1	3	0	4
2	PRG-303	Advanced PHP Programming	1	3	0	4
3	ACC-301	Financial Accounting VI	3	0	1	4
4	WEB-305	Website Design & Development	2	2	0	4
5	WEB-302	Web Server Administration	2	2	0	4
6	ACC-300	Management Accounting II	3	0	1	4
		Total Hours	12	10	2	24

Year Four

BIS4: Sem1						
No.	COURSE	COURSE	Lectures	Practical	Tutorial	Hrs/wk
1	ADM-480	Server Administration	2	2	0	4
2	CIT-481	Statistical Packages (SPSS)	1	2		3
3	IMG-482	Computer Graphics	1	2	0	3
4	ACC-400	Management Accounting III	3	0	1	4
5	FIN-401	Financial Accounting	2	0	1	3
6	PRJ-480	Main Project	2	8	0	10
		Total Hours	11	14	2	27
BIS4: Sem2						
No.	COURSE	COURSE	Lectures	Practical	Tutorial	Hrs/wk
1	PRJ-480	Main Project	2	14	0	16
2	ACC-400	Management Accounting III	3	0	1	4
3	FIN-401	Financial Accounting	3	0	1	4
		Total Hours	8	14	2	24

YEAR 1 SEMESTER 1

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Management Information Systems
- 2 **Course** : Information Systems I
- 3 **Year** : One
- 4 **Code** : CIT-180
- 5 **Semester** : One
- 6 **Presented to** : Faculty of Applied Studies
- 7 **Presented by** : Department of Computing and Information Technology
- 8 **Lecture hours per week** : 2
- 9 **Practical hours per week** : 1
- 10 **Method of Assessment** : 60% examinations and 40% course work
- 11 **Aim of Study:**

Refer to Bachelor of Science Degree in Information Technology – Year 1
(Department of Computing and Information Technology)

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	Programme	: Bachelor of Science in Management Information Systems
2	Course	: Computing I
3	Year	: One
4	Code	: CIT-181
5	Semester	: One
6	Presented to	: Faculty of Applied Studies
7	Presented by	: Department of Computing and Information Technology
8	Lecture hours per week	: 2
9	Practical hours per week	: 2
10	Method of Assessment	: 60% examinations and 40% course work
11	Aim of Study	

Refer to Bachelor of Science Degree in Information Technology – Year 1
(Department of Computing and Information Technology)

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	Programme	: Bachelor of Science in Management Information Systems
2	Course	: Information Technology Packages I
3	Year	: One
4	Code	: CIT-182
5	Semester	: One
6	Presented to	: Faculty of Applied Studies
7	Presented by	: Department of Computing and Information Technology
8	Lecture hours per week	: 1
9	Practical hours per week	: 3
10	Method of Assessment	: 60% examinations and 40% course work
11	Aim of Study	

Refer to Bachelor of Science Degree in Information Technology – Year 1
(Department of Computing and Information Technology)

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	Programme	: Bachelor of Science in Management Information Systems
2	Course	: Algebra and Business Mathematics
3	Year	: One
4	Code	: MAT-180
5	Semester	: One
6	Presented to	: Faculty of Applied Studies
7	Presented by	: Department of Computing and Information Technology
8	Lecture hours per week	: 2
9	Tutorial hours per week	: 1
10	Method of Assessment	: 60% examinations and 40% course work
11	Aim of Study	

Refer to Bachelor of Science Degree in Information Technology – Year 1
(Department of Computing and Information Technology)

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Information Technology
2 **Course** : LAN Design and Documentation (Common)
3 **Year** : One
4 **Code** : NET-101
5 **Semester** : One
6 **Presented to** : Faculty of Applied Studies
7 **Presented by** : Department of Computing and Information Technology
8 **Lecture hours per week** : 1
9 **Practical hours per week** : 3
10 **Method of Assessment** : 60% examinations and 40% course work
11 **Aim of Study:**
 To develop the knowledge and skills in computer networking.

- 12 **Objectives of Study:**
 By the end of the course the students should be able to:
 a) Explain the basic requirements of the Local Area Network
 b) Construct and test different network cables
 c) Set up the machines for the Local Area Network
 d) Segment LAN to improve traffic and security

13 **Topics of study**

a. Lectures

- Computing Basics
- The OSI Model
- Local Area Networks
- Electronics and Signals
- Media, Connections and Collisions
- Layer 2 – Concepts
- Layer 2 –Technologies
- Design and Documentation
- Structured Cabling Project
- Routing and Addressing
- Protocols
- The Transport Layer, The Session layer, The Presentation layer,

b. Practicals

- LAN Troubleshooting
- Construction of UTP cables
- Test for connectivity
- Designing and Documentation of LAN

14. **Recommended Text**

- CISCO Systems, 1999, Cisco IOS 12.0 Solutions for Network Protocols, Volume II, Cisco Press, USA
- CISCO Systems, 1999, Internetworking Troubleshooting Handbook, Cisco Press, USA
- CISCO Systems, 1999, Network Design and Case Studies, Cisco Press, USA
- CISCO Systems, 1999, Internetworking Technologies Handbook, Cisco Press, USA,

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	Programme	: Bachelor of Science in Management Information Systems
2	Course	: Communication Studies
3	Year	: One
4	Code	: COS-102
5	Semester	: One
6	Presented to	: Faculty of Applied Studies
7	Presented by	: Department of Computing and Information Technology
8	Lecture hours per week	: 2
9	Tutorial hours per week	: 1
10	Method of Assessment	: 60% examinations and 40% course work
11	Aim of Study	

Refer to Bachelor of Science Degree in Information Technology – Year 1
(Department of Computing and Information Technology)

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Management Information Systems
2 **Course** : Economics I & II
3 **Year** : One
4 **Code** : ECN-100
5 **Semester** : One & Two
6 **Presented to** : Faculty of Applied Studies
7 **Presented by** : Department of Computing and Information Technology
8 **Lecture hours per week** : 3
9 **Practical hours per week** : 0
10 **Method of Assessment** : 60% examinations and 40% course work
11 **Aim of Study**
To introduce students to basic economic functions such as production, consumption and distribution.
- 12 **Objectives of study**
By the end of the course, students should be able to:
a) understand economic activities of the nation
b) know the significance of financial intermediaries which influence distribution and exchange.
- 13 **Topics of study**
- Introduction to Economics**
- Meaning and scope of economics, relationship between economics and commerce, scarcity and choice elements of supply and demand.
 - Application of supply and demand on price and consumers preferences.
 - Elasticity and marginal utility.
- Commercial Economics**
- Classification of industry, goods and services, division of labour and large scale production, small scale production, industry in Malawi.
- Business Organisation**
- The sole trader, the partnership, the company, the co-operative society, publicity owned business organisation in Malawi.
- Distribution of goods**
- Function of the retailer, type of retail outlet, the purchase and sale of goods, the functions of the wholesaler, the types of specialised wholesaling arrangements – international commodity control schemes, marketing boards, etc.
 - Different mediums of transport with the advantages and disadvantages of each, advertising.
- Importing and exporting**
- Organisation of import and export trade
 - Trading documents, the foreign trade in Malawi
- Insurance – general principles**
- Commercial institutions**
- Chambers of commerce and industry

- government connected with commerce
- trade associations

Recommended Text

Whitehead, G., *Economics Made Simple*, W H Allen.

Hanson, J. L., *The Structures of Business*, Pitman 7th Edition.

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	Programme	: Bachelor of Science in Management Information Systems
2	Course	: Financial Accounting I
3	Year	: One
4	Code	: FIN-100
5	Semester	: One
6	Presented to	: Faculty of Applied Studies
7	Presented by	: Department of Computing and Information Technology
8	Lecture hours per week	: 2
9	Tutorial hours per week	: 1
10	Method of Assessment	: 60% examinations and 40% course work

11 Aim of Study

To provide students with an understanding of the need for accounting records.

12 Objectives of study

By the end of the course, students should be able to:

- a) record accounting information using the double entry bookkeeping system
- b) produce simple accounting reports useful to the owner of the business

13 Topics of study

- Accounting concepts
- Source documents, books of original entry: the day books, the cash book, the petty cash book
- The ledger and its subdivisions
- The trial balances and its limitations
- Correction of errors; suspense accounts. Use of control accounts
- Calculations of profit. The trading and profit and loss accounts. The balance sheet.

14 Recommended Text

Business Accounting, 1996, Longman

15 Further Reading

- Bull J, 1984, *Accounting in Business*, Butterworth's.

YEAR 1 SEMESTER 2

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Management Information Systems
- 2 **Course** : Computing II
- 3 **Year** : One
- 4 **Code** : CIT-183
- 5 **Semester** : Two
- 6 **Presented to** : Faculty of Applied Studies
- 7 **Presented by** : Department of Computing and Information Technology
- 8 **Lecture hours per week** : 1
- 9 **Practical hours per week** : 3
- 10 **Method of Assessment** : 60% examinations and 40% course work
- 11 **Aim of Study**

Refer to Bachelor of Science Degree in Information Technology – Year 1
(Department of Computing and Information Technology)

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	Programme	: Bachelor of Science in Management Information Systems
2	Course	: Information Technology Packages II
3	Year	: One
4	Code	: CIT-184
5	Semester	: Two
6	Presented to	: Faculty of Applied Studies
7	Presented by	: Department of Computing and Information Technology
8	Lecture hours per week	: 1
9	Practical hours per week	: 3
10	Method of Assessment	: 60% examinations and 40% course work
11	Aim of Study	

Refer to Bachelor of Science Degree in Information Technology – Year 1
(Department of Computing and Information Technology)

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	Programme	: Bachelor of Science in Management Information Systems
2	Course	: Business Mathematics II
3	Year	: One
4	Code	: MAT-102
5	Semester	: Two
6	Presented to	: Faculty of Applied Studies
7	Presented by	: Department of Computing and Information Technology
8	Lecture hours per week	: 3
9	Practical hours per week	: 0
10	Method of Assessment	: 60% examinations and 40% course work

11 Aim of Study

To strengthen the basics of elementary mathematics studied in semester 1 and introduce the fundamentals of calculus and principles of financial mathematics.

12 Objectives of study

By the end of the course, students should be able to:

- Solve elementary calculus and financial mathematics problems
- Apply calculus and financial Mathematics in Management Information Systems problems

13 Topics of study

Matrices

- Definitions of unit, inverse, identity, and null matrices
- Matrix algebra
- Solutions of simultaneous equations using matrices
- Matrices as a tool for storage of data and their manipulations in business
- Determinants and Cramm's Rule for up to 3 by 3 matrices.

Differential Calculus

- Evaluate limits and show a function is continuous
- Define derivative: interpretation of the derivative as rate of change, differentiate from First Principles and differentiation of polynomials
- Differentiate products, quotients and functions with rational powers
- Use Chain Rule and implicit differentiation
- Determine higher order derivatives
- Differentiate exponential and logarithmic functions (show their applications in business)
- Tangents and normal-curve sketching, maximum and minimum problems.

Integral Calculus

- Define and find anti-derivatives (indefinite integral)
- Evaluate indefinite integral of polynomials and trigonometric functions
- State and interpret Rolle's Theorem and Mean Value Theorem
- Define and evaluate definite integrals
- State and use the Fundamental Theorem of Calculus
- Define $\ln x$ as the integral from 1 to x of $1/t$ and the exponential function: find their derivatives and anti-derivatives
- Define hyperbolic functions and find derivatives and anti-derivatives, graphs, hyperbolic functions

- Use integration techniques: reduction to simple form, integration by substitution, integration by parts, partial functions
- Use numerical integration: Trapezium, Simpson's rules etc
- Areas under the curve and between curves.

Financial Mathematics

- Simple and compound interest
- Discounting and investment appraisal
- Net present values (of cash flows)
- Internal rate of return
- Annuities and perpetuities
- Payback period
- Depreciation and Amortization
- Sinking fund

Introduction to Probability

- Definitions
- Permutations and Combinations
- Types of events, exclusive, independent, conditional
- Probability rules, addition, multiplication (including that for conditional events, expected values)

14 Recommended Text

- Ayres and Mendelson^{3rd} ed, *Schism's Outline of the Theory and Problems of Differential and Integral Calculus*, McGraw-Hill.
- John W, Dettman, *Introduction to Linear Algebra and Differential Equations*, Dover.
- Davies H. G. and Hicks, G. A., *Mathematics for Scientific and Technical Students*, Longman.
- Smithson, J., *Mathematics for Electrical and Telecommunications Technicians*, Volume 3, McGraw-Hill.
- Leslie Mustoe, *Engineering Mathematics*, Addison-Wesley.
- Bancraft G and O'Sullivan, G. *Mathematics and Statistics for Accounting and Business Studies*.

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UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Management Information Systems
- 2 **Course** : Communication Studies II
- 3 **Year** : One
- 4 **Code** : COS-102
- 5 **Semester** : Two
- 6 **Presented to** : Faculty of Applied Studies
- 7 **Presented by** : Department of Computing and Information Technology
- 8 **Lecture hours per week** : 2
- 9 **Tutorial hours per week** : 1
- 10 **Method of Assessment** : 60% examinations and 40% course work
- 11 **Aim of Study**

Refer to Bachelor of Science Degree in Information Technology – Year 1
(Department of Computing and Information Technology)

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	Programme	: Bachelor of Science in Management Information Systems
2	Course	: Financial Accounting
3	Year	: One
4	Code	: FIN-102
5	Semester	: Two
6	Presented to	: Faculty of Applied Studies
7	Presented by	: Department of Computing and Information Technology

8	Lecture hours per week	: 2
9	Tutorial hours per week	: 1
10	Method of Assessment	: 60% examinations and 40% course work

12 **Aim of Study**
To provide students with an understanding of the need for accounting records.

12 **Objectives of study**

By the end of the course, students should be able to:

- a) Record accounting information using the double entry book-keeping system.
- b) Produce simple accounting reports useful to the owner of the business .

13 **Topics of study**

End of period adjustments, accruals, prepayments, stocks and bad debts

Depreciation of fixed asses, Acquisitions to disposal of fixed assets

Manufacturing accounts

Incomplete records

Simple funds flow statements and cash flow statements.

14 **Recommended Texts**

- Wood, F, 1996, *Business Accounting 1*, , Longman.
- Bull. J, 1984, *Accounting in Business*, , Butterworth's.

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Information Technology
2 **Course** : Router and Networks
3 **Year** : One
4 **Code** : NET-102
5 **Semester** : Two
6 **Presented to** : Faculty of Applied Studies
7 **Presented by** : Department of Computing and Information Technology
8 **Lecture hours per week** : 1
9 **Practical hours per week** : 3
10 **Method of Assessment** : 60% examinations and 40% course work
11. **Aim of Study:**
 To develop the knowledge and skills in router configuration, management and maintenance
12. **Objectives of Study:**
 By the end of the course the students should be able to:
 a) Explain the features of the routers
 b) Configure the routers
 c) Troubleshoot the router problems
13. **Topics of study**
- a) **Lectures**
- WANs and Routers
 - Router CLI, Components, Startup and Setup,
 - Router IOS Images, Configuration
 - TCP/IP
 - IP Addressing
 - Routing & Protocols
 - Network Troubleshooting
- b) **Practicals**
- Router configuration
 - Password recovery
 - Router troubleshooting
14. **Recommended Text**
- CISCO Systems, 1999, Cisco IOS 12.0 Solutions for Network Protocols, Volume II, Cisco Press, USA
 - CISCO Systems, 1999, Internetworking Troubleshooting Handbook, Cisco Press, USA
 - CISCO Systems, 1999, Network Design and Case Studies, Cisco Press, USA,
 - CISCO Systems, 1999, Internetworking Technologies Handbook, Cisco Press, USA
 - Fred Halsall, 1996, Data Communications, Computer Networks and Open Systems, Fourth Edition, Addison-Wesley Publishing Company Inc., United Kingdom.

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Management Information Systems
2 **Course** : Database Development I
3 **Year** : Two
4 **Code** : CIT-211
5 **Semester** : One
6 **Presented to** : Faculty of Applied Studies
7 **Presented by** : Department of Computing and Information Technology
8 **Lecture hours per week** : 1
9 **Practical hours per week** : 2
10 **Method of Assessment** : 60% examinations and 40% course work
11 **Aims of Study**
 The aims of the course are to introduce students to Database Management Systems and provide them with all the underlying principles of the Database management Systems.
- 12 **Objectives of study**

 By the end of the course, students should be able to:
 a) define database and know what the Database Management Systems is all about
 b) normalise data in relational data models
 c) find solutions to queries using data sub-languages
- 13 **Topics of study**

 Overview of data files and data base
 Management of system (DBMS)
 Architecture of data base system (representation of data base on storage devices)
 Normalisation: Data models
 Data sub-languages
 • Relational calculus
 • Relational algebra
 • Structure query languages and query languages
 Retrieval operations and storage operation
 Transaction management
 Data security
 Centralised versus distributed data base
 Object-oriented data base.
- 14 **Recommended Text**

 • Davies, P. B., 1996, *Database Systems* MacMillan Master Series, London
 • Dhillon, G., 1997, *Managing Information Systems Security*, Macmillan Master Series London.
 • Abiteboul, S, 1995., *Foundations of Databases*, , Addison-Wesley.
 • Batini, C., 1991, *Database Design*, , Benjamin/Cummings.

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Information Technology
2 **Course** : Visual Programming
3 **Year** : Two
4 **Code** : CIT-202
5 **Semester** : One
6 **Presented to** : Faculty of Applied Studies
7 **Presented by** : Department of Computing and Information Technology
8 **Lecture hours per week** : 1
9 **Practical hours per week** : 3
10 **Method of Assessment** : 60% examinations and 40% course work
11 **Aims of Study**
To introduce students to Visual Basic programming language as a discipline.

12. Objectives of study

By the end of the course students should be able to:-

- a) Understand and apply the features of Visual Basic
- b) Apply Object-Oriented programming in Visual Basic
- c) Develop Graphic User Interfaces
- d) Link VB applications to other applications

13. Topics of the study

a) Lectures

- Features of Visual Basic Compiler
- Design and implementation of Graphic user interface
- Coding, testing and debugging VB applications
- Data manipulation in VB applications
- Developing graphics applications
- Linking VB applications to other applications such as Databases, Internet, Spreadsheet, Publishing

b) Practicals

- Design, Coding, testing, and debugging VB applications

14. Recommended Text

- Francesco Balena, Programming Microsoft Visual Basic .NET (Core Reference)
- Matthew Reynolds Editor, Beginning VB.NET, Second Edition , et al;
- Francesco Balena, Programming Microsoft Visual Basic 6.0 (Mps) ; Paperback

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Management Information Systems
2 **Course** : Information Systems II
3 **Year** : Two
4 **Code** : CIT-203
5 **Semester** : One
6 **Presented to** : Faculty of Applied Studies
7 **Presented by** : Department of Computing and Information Technology
- 8 **Lecture hours per week** : 2
9 **Practical hours per week** : 0
10 **Method of Assessment** : 60% examinations and 40% course work
11 **Aims of Study**

Refer to Bachelor of Science Degree in Information Technology – Year 2
(Department of Computing and Information Technology)

UNIVERSITY OF MALAWI – THE POLYTECHNIC
SYLLABUS

- 1 **Programme** : Bachelor of Science in Information Technology
2 **Course** : Numerical Analysis
3 **Year** : Two
4 **Code** : CIT-204
5 **Semester** : One
6 **Presented to** : Faculty of Applied Studies
7 **Presented by** : Department of Computing and Information Technology
8 **Lecture hours per week** : 2
9 **Tutorial hours per week** : 1
10 **Method of Assessment** : 60% examinations and 40% course work
11 **Aim of Study**
The aim of the course is to introduce students to solving problems using the computer.
12. **Objectives of study**
By the end of the course students should be able to:
(a) recognize problems for which a numerical approach is appropriate
(b) approximate solutions of linear and nonlinear equations
(c) interpolate data points with polynomials and estimate the numerical values of derivatives and integrals
(d) numerically solve ordinary differential equations
(e) analyze how and why the algorithms discussed work
13. **Topics of study**
- Computer arithmetic and errors.
 - Algorithms and programming for numerical solutions.
 - Basic algorithms.
 - Iterative solutions of nonlinear equations: bisection method, Newton's method, the secant method.
 - Polynomial interpolation and other interpolation functions, spline interpolation, trigonometric interpolation and fast Fourier transform, systems of linear equations, partial pivoting, matrix factorization methods.
 - Numerical calculus: numerical differentiating, interpolatory quadrature, richardson extrapolation and romberg integration.
 - Gaussian integration.
 - Numerical solutions of differential equations
 - Boundary value problems: shooting method. Finite difference method
 - Power and inverse power methods.
14. **Recommended Text**
- Eugene Isaacson, Herbert Bishop Keller, Analysis of Numerical Methods, Paperback
 - Richard L Burden,. J Douglas Faires, Numerical Analysis
 - Curtis F. Gerald, Patrick O. Wheatley, (November 1998), Applied Numerical Analysis (6th Edition)
 - E. Ward Cheney, David R.Kincaid, Numerical Mathematics and Computing
 - Joe D. Hoffman, 2001, Numerical Methods for Engineers and Scientists

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Information Technology
2 **Course** : Networking (Switching and LAN Administration)
3 **Year** : Two
4 **Code** : NET-203
5 **Semester** : One
6 **Presented to** : Faculty of Applied Studies
7 **Presented by** : Department of Computing and Information Technology
8 **Lecture hours per week** : 1
9 **Practical hours per week** : 3
10 **Method of Assessment** : 60% examinations and 40% course work
11 **Aim of Study:**
To develop the knowledge and skills in the switch configuration and management
12 **Objectives of Study:**
By the end of the course the students should be able to:
a) Explain the basic features of the switch
b) Configure the switch
c) Create the Virtual LAN on the switch
13 **Topics of study**
a) **Lectures**
 - LAN Switching
 - Virtual LANs
 - LAN Design
 - Routing Protocols: IGRP
 - Access Control Lists (ACLs)
 - Novell IPX
 - Network Management
 - Network Troubleshooting
b) **Practicals**
 - Configure the switch
 - Troubleshoot the switch
 - Create Virtual LAN
 - Create Access Control Lists
14. **Recommended Text**
 - CISCO Systems, 1999, Cisco IOS 12.0 Solutions for Network Protocols, Volume II, Cisco Press, USA
 - CISCO Systems, 1999, Internetworking Troubleshooting Handbook, Cisco Press, USA
 - CISCO Systems, 1999, Network Design and Case Studies, Cisco Press, USA
 - CISCO Systems, 1999, Internetworking Technologies Handbook, Cisco Press, USA
 - Fred Halsall, 1996, Data Communications, Computer Networks and Open Systems, Fourth Edition, Addison-Wesley Publishing Company Inc., United Kingdom

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	Programme	: Bachelor of Science in Management Information Systems
2	Course	: Financial Accounting III
3	Year	: Two
4	Code	: FIN-200
5	Semester	: One & Two
6	Presented to	: Faculty of Applied Studies
7	Presented by	: Department of Computing and Information Technology
8	Lecture hours per week	: 2
9	Practical hours per week	: 0
10	Method of Assessment	: 60% examinations and 40% course work
11	Aims of study	To provide students with adequate knowledge to prepare accounts of all types of business organisations.

12 Objectives of study

By the end of the course, students should be able to:-

- a) prepare accounts of sole traders, partnerships, limited companies and non-profit making organisations;
- b) prepare end of financial period reports;
- c) interpret such accounts and reports.

13 Topics of study

- Purchase and disposal of business
- The accounts of non-profit making organisations
- The treatment of joint ventures, goods on consignment, hire purchase, departments and branches
- Introduction to accounting ratios

Recommended Text

- Wood, F, 1996, *Business Accounting I*, Longman
- Wood, F, 1996, *Business Accounting II*, Longman
- Spicer and Pegler's 1980, *Bookkeeping and Accounts*, ELBS and HFL (Publishers Ltd).

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	Programme	: Bachelor of Science in Management Information Systems
2	Course	: Communication Studies III
3	Year	: Two
4	Code	: COS-200
5	Semester	: One
6	Presented to	: Faculty of Applied Studies
7	Presented by	: Department of Computing and Information Technology
8	Lecture hours per week	: 2
9	Practical hours per week	: 0
10	Method of Assessment	: 60% examinations and 40% course work
11	Aims of Study	

Refer to Bachelor of Science Degree in Information Technology – Year 2
(Department of Computing and Information Technology)

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	Programme	: Bachelor of Science in Management Information Systems
2	Course	: Systems Analysis and Design I
3	Year	: Two
4	Code	: CIT-205
5	Semester	: One
6	Presented to	: Faculty of Applied Studies
7	Presented by	: Department of Computing and Information Technology
8	Lecture hours per week	: 3
9	Practical hours per week	: 0
10	Method of Assessment	: 60% examinations and 40% course work
11	Aim of Study	

Refer to Bachelor of Science Degree in Information Technology – Year 2
(Department of Computing and Information Technology)

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	Programme	: Bachelor of Science in Management Information Systems
2	Course	: Systems Analysis and Design II
3	Year	: Two
4	Code	: CIT-206
5	Semester	: Two
6	Presented to	: Faculty of Applied Studies
7	Presented by	: Department of Computing and Information Technology
8	Lecture hours per week	: 3
9	Practical hours per week	: 0
10	Method of Assessment	: 60% examinations and 40% course work
11	Aim of Study	

Refer to Bachelor of Science Degree in Information Technology – Year 2
(Department of Computing and Information Technology)

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Management Information Systems
- 2 **Course** : Probability and Statistics
- 3 **Year** : Two
- 4 **Code** : MAT-204
- 5 **Semester** : Two
- 6 **Presented to** : Faculty of Applied Studies
- 7 **Presented by** : Department of Computing and Information Technology

- 8 **Lecture hours per week** : 2
- 9 **Practical hours per week** : 0
- 10 **Method of Assessment** : 60% examinations and 40% course work
- 11 **Aim of Study**

Refer to Bachelor of Science Degree in Information Technology – Year 2
(Department of Computing and Information Technology)

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Information Technology
2 **Course** : Networking (WANs)
3 **Year** : Two
4 **Code** : NET-204
5 **Semester** : Two
6 **Presented to** : Faculty of Applied Studies
7 **Presented by** : Department of Computing and Information Technology
8 **Lecture hours per week** : 1
9 **Practical hours per week** : 3
10 **Method of Assessment** : 60% examinations and 40% course work
11 **Aim of Study:**
 To develop the knowledge and skills in the Wide Area Network configuration and management
- 12 **Objectives of Study:**
 By the end of the course the students should be able to:
 a) Explain the basic requirements of the Wide Area Networks (WANs)
 b) Design and document the Wide Area Network
 c) Set up the protocols on the router for WAN services
 d) Maintain the WAN
- 13 **Topics of study**
 a. Lectures
 • Wide Area Network basics
 • WAN Design
 • Point-to-Point Protocol (PPP)
 • Integrated Services Digital Networks (ISDN)
 • Frame Relay
 • Network Management

 b. Practicals
 • Setup the WAN protocols
 • Configure the routers for WAN services
14. **Recommended Text**
- CISCO Systems, 1999, Cisco IOS 12.0 Solutions for Network Protocols, Volume II, Cisco Press, USA
 - CISCO Systems, 1999, Internetworking Troubleshooting Handbook, Cisco Press, USA
 - CISCO Systems, 1999, Network Design and Case Studies, Cisco Press, USA,
 - CISCO Systems, 1999, Internetworking Technologies Handbook, Cisco Press, USA,
 - Fred Halsall, 1996, Data Communications, Computer Networks and Open Systems, Fourth Edition, Addison-Wesley Publishing Company Inc., United Kingdom.

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Information Technology
2 **Course** : eCommerce (HTML)
3 **Year** : Two
4 **Code** : HTM-200
5 **Semester** : Two
6 **Presented to** : Faculty of Applied Studies
7 **Presented by** : Department of Computing and Information Technology
8 **Lecture hours per week** : 2
9 **Practical hours per week** : 2
10 **Method of Assessment** : 60% examinations and 40% course work

11 **Aim of Study**

The aim of the course is to introduce students to the world of eCommerce.

12 **Objectives of study**

At the end of the course students will be able to:-

- i. understand the relationship between eMarket, eBusiness and eCommerce
- ii. design and implement eCommerce websites

13 **Topics of study**

1. Electronic Commerce – An overview

- What is Electronic Commerce (EC)? Setting the context to EC
- Related terminologies- E markets, E Business, Web-Commerce
- The ever-widening impact of EC
- Types of EC – Business-to-Business (B2B), Business-to-Commerce (B2C), Commerce-to-Business (C2B)
- Government participation in EC
- The EC bandwagon -why should businesses get on it?

2. Inter- organizational applications of EC

- Financial applications
- Applications in procurement
- Business to Consumer EC
- Home shopping
- Home banking
- Education and Training
- Home entertainment
- Digital Currency and Electronic Catalogues
- Publishing
- Hypertext Markup languages

3. Planning and implementing EC(1)

- EC business models
- Developing an EC business case
- EC implementation strategies

4. Security Issues and solutions

- Secure Commerce requirements
- Threats
- Security strategies
- Approaches to safe EC
- Secure Protocols
- Secure Transactions
- Secure Payments

- Certificates for Authentication
- Security on web servers and Enterprise Networks

B. Practicals

5. Creating an EC Website - Lab session 1

- Approaches to web page creation
- Design Considerations
- Introduction to HTML, Forms and Frames using a modern Web page editor

14. Recommended text

- Robert T. Plant, *eCommerce: Formulation of Strategy*, Paperback
- May P., *the Business of eCommerce: From Corporate Strategy to Technology*
- Shaw J., Sperry J., (Editor) *eCommerce for Banks, Credit Unions and Insurance Companies: Overview* :
- Castro Elizabeth, *HTML for the World Wide Web with XHTML and CSS: Visual QuickStart Guide, Fifth Edition*
- Musciano Chuck, Kennedy Bill *HTML & XHTML: The Definitive Guide, Fifth Edition*
- Goodman Danny, *Dynamic HTML: The Definitive Reference (2nd Edition)*

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	Programme	: Bachelor of Science in Management Information Systems
2	Course	: Communication Studies IV
3	Year	: Two
4	Code	: COS-200
5	Semester	: One
6	Presented to	: Faculty of Applied Studies
7	Presented by	: Department of Computing and Information Technology
8	Lecture hours per week	: 2
9	Practical hours per week	: 0
10	Method of Assessment	: 60% examinations and 40% course work

11 Aims of Study

- a) To develop technical and business writing skills relevant to the students' academic field.
- b) To enable students to develop research techniques, analytical and documentation skills in order to gather relevant information and utilise it critically and selectively to produce reports of good academic standards.
- c) To enable students to develop confidence in oral expression to speak effectively in various situations.

12 Objectives of study

By the end of the course students should be able to:

- a) write various types of technical explanation such as description, explanations and reports;
- b) comprehend technical exposition
- c) write effective business letter and memos
- d) provide a good profile of their organisation;
- e) make effective oral presentations; and
- f) write meaningful research proposals

13 Topics of study

- **Technical Writing**
- Properties of technical writing
- Descriptions
- Giving and writing instructions
- Memos reports
- Letter reports
- Short technical reports

- **Conventions of Business Writing**
- The business letter
- Memoranda

- **Advanced Orals Skills**
- Speaking to inform
- Persuasive speaking
- Non-verbal communication

- **Introduction to Research Methodology**
- Research methods

- Sampling methods
- Data collection
- Data analysis
- Presentation of data
- To be continued in year 3

TEXTS

Beldows, *Speak Up for Yourself*
Blaxter, L et al, *How to Research*
Bliq, R, *Technically Write!*
Brown, L, *Communication Facts and Ideas in Business*
Evans, D W, *People, Communication and Organisation*
Flaherty, *Technical and Business Writing*
Hamilton C et al, *Communicating for Results*
Hanna, M & General L, *Communication in Business and Professional Settings*
Hibbison, E A, *Handbook for Student Writers and Researchers*
Kenrick, E et al, *Business Communication*
Makay, J L, *Public Speaking*
McCrimmon, *Writing with a Purpose*
Stanton, N, *Communication*
Turner, R, *Technical Writing*
Verderber, *The Challenge of Effective Speaking*
Warren, T, *Technical Writing*
Winner, R and Dominick, J, *Mass Media Research – An Introduction*
Woolcott, L & Unwin, W, *Mastering Business Communication*

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	Programme	: Bachelor of Science in Management Information Systems
2	Course	: Marketing (OPTIONAL)
3	Year	: Two
4	Code	: BUS-280
5	Semester	: One
6	Presented to	: Faculty of Applied Studies
7	Presented by	: Department of Computing and Information Technology
8	Lecture hours per week	: 3
9	Practical hours per week	: 1
10	Method of Assessment	: 60% examinations and 40% course work

11 **Aims of Study**

- To familiarise students with the key concepts of marketing as a business function.
- To transmit generalizable approaches.
- To demonstrate how marketing interacts with other functions in the organisation.

12 **Objectives of study**

By the end of the course the students should be able to:

- specify marketing problems
- find appropriate methods of problem-solving
- formulate marketing analysis and strategies

13 **Topics of study**

The Nature of Marketing

- Definition
- The Marketing concept
- The marketing philosophy
- Marketing process

The Marketing Environment

- The macro-environment
- Demographic, economic, natural, technological, political/legal, social/cultural environments
- The micro-environment
- Customers, supplies, distributors, competitors, other stakeholders

Marketing Research

- Definition
- Defining the problem and research objectives
- Developing the research plan
- Collecting the information
- Analysing the information
- Presenting findings

Market Segmentation

- The nature of market segmentation
- Levels of market segmentation
- Patterns of market segmentation
- Market segmentation procedure
- Consumer markets

- Business markets

Product

- The nature of a product/services and its characteristics
- Product mix
- New product development
- Product life cycle
- Product differentiation

Pricing

- Pricing policy
- Pricing strategies
- Prices as a competitive tool
- Non-price competition
- Price and perception

Promotion

- Communication mix
- Promotion strategy
- Advertising
- Sales promotion
- Packaging
- Public relations

Distribution

- Utility of time and place
- Availability and need
- Reach and coverage (depth) as a promotional tool
- Channels
- Logistics
- Control power strategies

Direct Marketing

- Use techniques
- Direct response and data base marketing
- Other forms of direct selling

14 Recommended Text

- Baker, Michael J., 1992, *The Marketing Book*, , Oxford, Butterworth-Heinmann, Ltd.
- Kotler, Phillip & Garry Armstrong, 1995, *Principles of Marketing*, , New Jersey, Prentice Hall International, Englewood Cliffs.
- Stanton, William J, et al, 1991, *Fundamentals of Marketing*, , New York, McGraw-Hill Inc.

Further Reading

- Crimp, M, 1985, *The Marketing Research Process*, 2nd edition, , New Jersey, Prentice-Hall Englewood.

- Kotler, Phillip & Garry Armstrong, *Marketing: An Introduction*, 4th edition, New Jersey, Prentice-Hall International Englewood.
- McCarthy, Jerome, E & Williams D. Perrault, Jr, 1991, *Essentials of Marketing*, , Illinois, Irwin, Homewood.
- Meyer, Warren G, et al., 1991, *Retail Marketing*, , New York, Houghton Mifflin Inc.
- Winkler, J, 1983, *Pricing for Results*, Heinmann, London,.

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Management Information Systems
2 **Course** : Business Mathematics III (OPTINAL)
3 **Year** : Two
4 **Code** : MAT-284
5 **Semester** : Two
6 **Presented to** : Faculty of Applied Studies
7 **Presented by** : Department of Computing and Information Technology
8 **Lecture hours per week** : 2
9 **Practical hours per week** : 1
10 **Method of Assessment** : 60% examinations and 40% course work
11 **Aim of Study**
To develop an understanding of the principles and concepts of mathematics and the ability to apply them in business, economics and social sciences.
- 12 **Objectives of study**
By the end of the course the students should be able to:
a) understand and apply the principles and concepts of differentiation and integral calculus to business, economics and social science problems
b) understand and apply the principles of graphical techniques in business, economics and social science problems
c) understand and apply the principles of calculus of multivariable functions in business, economics and social science problems.
- 13 **Topics of study**
- Matrix Algebra**
- Matrix expression of a System of Linear Equations
 - Row Operations and Augmented Matrix
 - Gaussian Method of Solving Linear Equations
 - Determinants and Non singularity
 - Third Order Determinants
 - Minor and cofactors
 - Laplace Expansion
 - Properties of Determinants
 - Cofactors and Adjoint Matrices
 - Inverse matrices
 - Solving Linear Equations with the inverse
 - Cramer’s rule of Matrix Solutions
 - The Gaussian Method of Inverting a Matrix
- Special Determinants and Matrices and Their Applications in Economics and Business**
- The Jacobean and the Hessian
 - The Discriminant
 - Higher-Order Hesssian
 - The Bordered Hessian for Constrained Optimisation
 - Derivation of Marshallian Demand function
 - Input-Output Analysis
 - Characteristic roots and Vectors (eiginvalues, eigenvectors)
 - Transformation matrix

Calculus of Multivariable Functions and its applications in Business and Economics

- Functions of several variables and partial derivatives
- Rules of partial differentiation
- Second-order Partial Derivatives
- Optimisation of multivariable functions
- Constrained Optimisation with Lagrange multipliers
- Significance of Lagrange Multiplier Differentials
- Total and Partial Differentials
- Total derivatives
- Implicit and inverse function Rules
- Marginal Productivity
- Income determination of multipliers
- Partial Elasticity
- Differentials and Incremental changes
- Optimisation of multivariable function in economics
- Constrained Optimisation of multivariable functions in economics
- Inequality Constraints
- Homogenous Production functions
- Return to Scale
- Optimisation of Coff-Douglas Production functions
- Optimisation of Constant elasticity of substitutional production functions.

14 Recommended Text

- Dowling Edward T., 1990, *Calculus for Business, Economics and Social Sciences*, , Schaum's Outline Series, McGraw-Hill, Inc.
- Dowling Edward T., 1992, *Introduction to Mathematical Economics* 2nd ed., , Schaum's Outline Series, McGraw-Hill, Inc.
- Francis, A., 1995, *Business Mathematics and Statistics* (4th ed.), DP Publications, London,
- ACCA, *Business Mathematics and Information Technology* (5th ed.), BPP Publishing Ltd.

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	PROGRAMME	: Bachelor of Science-Management Information Systems
2	COURSE	: Windows Operating Systems
3	YEAR	: 3
4	CODE	: WIN-300
5	SEMESTER	: 1
6	PRESENTED TO	: Faculty of Applied Studies
7	PRESENTED BY	: Department of Mathematics and Computing
8	LECTURES HOURS PER WEEK	:2
9	PRACTICAL HOURS PER WEEK	:2
10	TOTAL REQUIRED TIME (IN HOURS)	:60
11	METHOD OF ASSESSMENT	:60% examination and 40% course work
12	AIMS OF STUDY:	

The aim of this course is to introduce students to operating system and develop an understanding of the role of the operating system in the computer systems and effectively use windows operating system.

13 **OBJECTIVES OF THE COURSE:**

By the end of this course students must be able to:

- (i) explain the role of the operating system in the computer system
- (ii) use windows operating systems effectively

14 **TOPICS OF STUDY**

- **Definitions of terminology used in the operating system**
- **Functions of an operating system**
- **File systems**
 - File concept, support and protection
 - Access and allocation methods
 - Directory systems
- **Central Processing Unit (CPU) Scheduling**
 - Multi programming
 - Scheduling algorithms and concepts
 - Algorithm evaluation
 - Multiple Processor Scheduling
- **Memory Management**
 - Paging and swapping
 - Multiple partition and segmentation
- **Virtual Memory**
 - Demand paging and performance
 - Page replacement and algorithms
 - Virtual memory concepts
 - Thrashing

- **Dist and Drum Scheduling**
- Physical characteristics
- First-Come-First-Served scheduling
- Shortest-Seek-Time-First
- SCAN
- Sector queuing

- **Deadlocks**
- The deadlock problem
- Deadlock characteristics, prevention, avoidance and detection
- Recovery from deadlock

- **Protection**
- Goals of protection
- Mechanism and policies
- Access matrix and implementation
- Security and protection problems

- **Windows Operating System**
- History of windows operating system
- Programmer and user interface
- File systems
- Process management and memory

- **Distributed Operating Systems**
- Design issues
- Communications
- Synchronization
- Processes and processors

14 Recommended Text Books

Peterson, J.L. *Operating System Concepts*, 2nd ed., 1985, Canada, Addison-Wesley Publishing Company.

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Information Technology
2 **Course** : Unix Operating System (Linux)
3 **Year** : Three
4 **Code** : UNX-300
5 **Semester** : One
6 **Presented to** : Faculty of Applied Studies
7 **Presented by** : Department of Computing and Information Technology
8 **Lecture hours per week** : 2
9 **Practical hours per week** : 2
10 **Method of Assessment** : 60% examinations and 40% course work
11 **Aim of Study**
To introduce students to the Operating System (OS) and develop an understanding of the role of the OS in the computer.

12. *Objectives of study*

By the end of the course students should be able to :-

- a) Explain the role of the operating system in the computer system
- b) Use the Linux Operating Systems effectively
- c) initialise a new PC by putting the Linux Operating System
- d) configure the new machines in the Unix environment
- e) initialise and configure all cards on the system
- f) add and configure most commonly used application packages on Linux

13. *Topics of study*

A. Lectures and Practicles

Introduction

- What Linux is, the Unix philosophy
- Logging in, typing commands, logging out
- Files, directories and paths
- Creating files with a text editor
- Viewing files, Managing files, Magic dot files and hidden files, Managing directories Documentation for commands Useful shell features (command-line editing, command line completion, history)

Documentation

- The unfortunate diversity of Linux documentation
- Using man(1)
- How manpages are divided among ‘sections’
- Searching for man pages (apropos, man -k)
- Printing man pages (man -t)
- Documentation for shell builtins (help)
- Using GNU info documentation (info)
- Documentation under /usr/share/doc

Filesystem concepts and use

- The unified Unix filesystem
- Special file types
- Symbolic links (ln -s)
- Inodes and directory entries
- Hard links
- Preserving links while copying and archiving

- Where to put things: the FHS

Filesystem design and maintenance

- Disks, partitions, individual filesystems and filesystem types
- Naming of disk and partition devices (/dev/hda, etc)
- Creating and deleting partitions (fdisk)
- Mounting and unmounting filesystems (mount, umount)
- Checking available free space and space used by files (df, du)
- Checking and correcting the integrity of filesystems (fsck)
- Journaling filesystems, converting from ext2 to ext3

Booting and runlevels

- The boot process: from BIOS to kernel to userspace
- Setting kernel parameters
- Configuring a boot loader: LILO and Grub
- Runlevels and init scripts
- Configuring services to run at boot
- Securing single-user mode (su login)
- Shutting down and rebooting the system

B. Practices

C.

The Unix and Linux command line

- Unix shells (bash)
- Command line syntax (options, arguments)
- Shell variables and environment variables, Command substitution, Using pipes to connect programs, Useful text filters (wc, sort, uniq, expand, head, tail, nl, tac), Spitting files across disks (split), Using redirection to connect programs to files Redirect into files with append (>>)

Regular expression searches

- Searching files with regular expressions (grep),
- The concept of 'pattern matching' with regular expressions,
- Escaping special characters in regexps (\),
- Matching any character (.),
- Matching alternative patterns (|),
- Simple use of sed to 'search and replace'

Text editing with Vi

- Unix is all about text
- Vi: the standard Unix editor
- The concept of 'modes' in a modal editor
- Vi clones, extensions to vi
- Other powerful Unix text editors
- Practical work learning Vi and Vim

Processes and jobs

- What processes are
- The properties of a process
- Parent processes and child processes
- Job control (fg, bg, jobs)
- Suspending processes (Ctrl+Z)
- Running programs in the background (&)
- Long-lived processes (nohup)
- Monitoring processes (ps, pstree, top)
- Killing processes and sending signals a process (kill, killall, xkill)
- Process niceness/priority (nice, renice)

Filesystem security

- Users and groups
- The 'root' user, or superuser
- Changing file ownership (chown)
- Changing file group ownership (chgrp)
- More complex ways of changing ownership (recursively, changing owner and group simultaneously)
- Permissions on files
- Permissions on directories
- How permissions are applied
- Changing permissions (chmod)
- The special 'sticky bit' mode on directories
- Setgid and setuid permissions, their effect on files and directories
- Default permissions for new files (umask)

Managing user accounts and configuration files

- Configuration files
- Environment variables for configuration (PATH, PS1, DISPLAY, http_proxy)
- Setting and examining shell aliases
- Configuring the readline library (inputrc files)
- User database files (/etc/passwd, /etc/group, etc)
- Changing passwords (passwd)
- Adding users (useradd, adduser)
- Deleting and modifying user accounts (userdel, usermod)
- Locking and unlocking user account

14. Prescribed Text

- Online Study notes from Redhat

15. Recommended Text

- Peterson J. L., *Operating System Concepts, 2nd Edition*, Addison-Wesley Publishing Company, Inc. Canada
- Peek Jerry, *Learning UNIX Operating System*, Fifth Edition, et al;
- Ball Bill, *Red Hat Linux 8 Unleashed*, Paperback
- Collings Terry (Author), Wall Kurt Red Hat Linux Networking and System Administration (With CD- ROM)

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Management Information Systems
2 **Course** : Accounting Packages I & II
3 **Year** : Three
4 **Code** : CIT-300
5 **Semester** : One & Two
6 **Presented to** : Faculty of Applied Studies
7 **Presented by** : Department of Computing and Information Technology
8 **Lecture hours per week** : 2
9 **Practical hours per week** : 2
10 **Method of Assessment** : 40% examinations and 60% course work

11 **Aim of Study**

This course introduces the concepts and components of an automated accounting information system. Students are exposed to several accounting software packages. Computerized accounting practices are designed to give students hands-on experience in entering, editing, and deleting transactions for the various applications such as Sage Line 50, Pastel and Quickbooks.

12. **Objectives of study**

By the end of the course students should be able to

- a) Apply fundamental accounting principles to a computerized environment.
- b) Add or edit information for a new company lists.
- c) Maintain chart of accounts, Invoice customers, manage customer issues, and make bank deposits.
- d) Enter and pay bills.
- e) Open and use registers.
- f) Reconcile bank accounts.
- g) Track credit card transactions.
- h) Create and customize reports and graphs.
- i) Set up inventory.
- j) Set up and do payroll.
- k) Create estimates, track time, and do progress invoicing.

13. **Topics of study**

Lectures and Practicles

1. Review of financial statements and the accounting equation.
2. Analyzing business transactions.
3. Transactions analysis using debit/credit rules.
4. Recording transactions in the general journal and posting to the general ledger.
5. Accrual basis versus the cash basis method of accounting.
6. Preparing adjusting entries.
7. Completion of the accounting cycle.
8. Alternative method of recording deferrals.
9. Using the perpetual inventory system.
10. Using the periodic inventory system.
11. Subsidiary ledgers and special journals.
12. Inventory cost flows.

14. **Recommended Text Books**

- Romney, M.B., Steinbart, P.J., **Accounting** Information Systems and EBiz Guide to **Accounting** Package, 8th Edition, 2000.
- Arens, A.A., Ward, D.D., Systems Understanding Aid, 5th Edition, 2001.
- Arens, A.A., Ward, D.D., Computerized **Accounting** Using Microsoft Great Plains Dynamics, 2nd Edition, 2001.

UNIVERSITY OF MALAWI – THE POLYTECHNIC
SYLLABUS

- 1 **Programme** : Bachelor of Science in Information Technology
2 **Course** : PHP & Dynamic Web Pages
3 **Year** : Three
4 **Code** : WEB-300
5 **Semester** : One
6 **Presented to** : Faculty of Applied Studies
7 **Presented by** : Department of Computing and Information Technology
8 **Lecture hours per week** : 2
9 **Practical hours per week** : 2
10 **Method of Assessment** : 50% examinations and 50% course work

11 **Aim of Study:**

The aim of this course is to introduce PHP, the most widely-used open source server-side web scripting language. PHP is ideal for web page development, database interaction, and the creation of dynamic web sites.

12 **Objectives of Study:**

By the end of the course:

- e) Students will learn professional PHP developer techniques,
- f) Students must be familiar with PHP utilities, and learn how to organize PHP code for efficient programming.
- g) Students will learn how to create practical web applications and understand professionally written PHP code

13 **Topics of study**

c. Lectures

1. Overview of web client/server structures
2. Overview of HTML and CSS
3. Overview of JavaScript
4. Building dynamic web pages using server-side includes and environment variables
5. PHP syntax
 - PHP variables
 - Control structures
 - Data structures
 - Functions
 - Object Oriented Programming
6. PHP function extensions

d. Practicals

7. Introduction to MySQL database management and SQL Language
8. How to develop PHP/MySQL applications
9. Processing HTML forms and dynamically generating HTML documents
10. File processing with PHP
11. Sending emails with PHP

15. **Recommended Text**

- Beginning PHP4 (tentative: Beginning PHP5 (June 2004)) Publisher: Wrox Press Inc; 1st edition (November 2, 2000)

**UNIVERSITY OF MALAWI – THE POLYTECHNIC
SYLLABUS**

1	PROGRAMME	: Bachelor of Science-Management Information Systems
2	COURSE	: Financial Accounting
3	CODE	: ACC-301
4	YEAR	: 2
5	SEMESTER	: 1 & 2
6	PRESENTED TO	: Faculty of Applied Studies
7	PRESENTED BY	: Department of Mathematics and Computing
8	NUMBER OF HOURS PER WEEK	:2
9	TUTORIALS PER WEEK	:1
10	TOTAL TIME REQUIRED (IN HOURS)	:45
11	METHOD OF ASSESSMENT	:60% examinations and 40% course work
12	AIMS OF STUDY	

To provide students with adequate knowledge to prepare accounts of all types of business organisations.

13 OBJECTIVES

By the end of the course students should be able to:-

1. prepare accounts of sole traders, partnerships, limited companies and non-profit making organisations;
2. prepare end of financial period reports;
3. interpret such accounts and reports

14 TOPICS OF STUDY

- Purchase and disposal of business
- The accounts of non-profit making organisations
- The treatment of joint ventures, goods on consignment, hire purchase departments and branches.
- Introduction to accounting ratios.

MAIN TEXTS

Wood, F., *Business Accounting I*, 1996 Longman.

Wood, F., *Business Accounting II*, 1996 Longman.

FURTHER READING

Spicer and Pegler's *Bookkeeping and Accounts*, 1980 ELBS and HFL(Publishers) Ltd.

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Information Technology
2 **Course** : Networking (Internet & TCP/IP)
3 **Year** : Three
4 **Code** : NET-301
5 **Semester** : One
6 **Presented to** : Faculty of Applied Studies
7 **Presented by** : Department of Computing and Information Technology
8 **Lecture hours per week** : 2
9 **Practical hours per week** : 2
10 **Method of Assessment** : 60% examinations and 40% course work

11 ***Aim of Study***

This TCP/IP course aims at providing theoretical and practical grounding in the operation of core TCP/IP and internet protocols

12. ***Objectives:***

At the end of the course students should be able to

- a) understand the role of TCP/IP and data transmission
- b) understand IP routing and packet structure
- c) understand Present-day issues in IP networking such as Network Address Translation (NAT)
- d) setup e-mail and web interfaces
- e) use the Internet for e-commerce and e-business

13. ***Topics of Study:***

A. **Lectures**

Background to TCP/IP and the Internet

- Overview of how the Internet is supposed to work
- Foundations: Packet Switching
- History and culture
- Internet administration
- Requests for Comments (RFCs)
- TCP/IP: open standards-based application services
- How RFCs and other standards affect TCP/IP
- Protocol layering: Physical layer independence, OSI and TCP/IP
- Components of TCP/IP networks
- The TCP/IP misnomer: it's just IP

Web browsing explained

- An analogy
- Initial communication
- Lost in the post
- Order arrival
- Order failure
- Webpage failure
- Further requests

Locating Resources by Name and Address

- IP addresses are numeric
- Locating resources by name
- Numeric addresses
- Name Resolution
- DNS, the Domain Name Service
-

Conversations and reliability

- TCP — a reliable pipe
- TCP connections
- Multiple conversations
- Port numbers
- Multiple connections from many hosts
- Multiple connections from one host

Conversations and packets: TCP

- Conversations?
- Streams and packets
- What IP does
- What TCP does
- Protocol layering
- Link layer
- Internet layer
- Transport layer

- Application layer
- The OSI reference model
- OSI and TCP/IP
- Problems with providing reliability
- Sequence numbers
- Positive acknowledgment
- Sending acknowledgments
- Three-way handshake
- Choosing sequence numbers
- Naïve acknowledgments
- Sliding windows
- Maximum segment size

IP addressing and routing

- Binary numbers: a reminder
- Limits of binary numbers
- Masking with binary numbers
- IP addresses
- Network part and host part
- Network part
- Network masks
- Variable-length subnet table
- Network addresses and broadcast addresses
- Address classes
- The rise of classless addressing
- Classful addressing in the modern world
- Private network allocations
- Loopback addresses
- IP routing concepts
- Routing decisions
- Routing example: single host with dial-up
- Routing example: host on directly-connected network
- Routing example: gateway host
- Routing tables
- Scalability of routers
- Summary of unavailable IP addresses

Fragmentation in IP

- Frame and datagram sizes
- Fragmentation
- Where reassembly happens
- The reassembly process
- Datagram size tradeoffs
- Path MTU Discovery

IP packet structure

- Packet structure concepts
- IP datagrams
- IP options
- Applicability of IP options
- UDP packets
- TCP segments

IP control messages

- The need for control messages
- The rôle of ICMP
- Who sees ICMP error messages?
- ICMP message format
- Summary of ICMP message types
- ICMP Echo Request
- ICMP Echo Reply
- ICMP Destination Unreachable
- Destination Unreachable codes
- Destination Unreachable codes
- ICMP Source Quench
- ICMP Time Exceeded
- ICMP Parameter Problem
- Further reading

DNS

- Before DNS
- Domain names
- Authoritative hosts
- Delegating authority
- Resource records
- SOA records
- A and CNAME records
- PTR and NS records
- MX records
- Querying name servers
- Scalability
- DNS protocol

Present-day issues in IP networking

- A history lesson
- The modern world
- The origins of address shortage
- CIDR's effects on address shortage
- Responses to address shortage
- Proxy servers
- Centralised email delivery
- Proxy web servers
- Web proxy details
- Network Address Translation
- NAT routers
- NAT on outgoing datagrams
- NAT on incoming datagrams
- NAT is directional
- NAT in datagram payloads
- IPv6: the next-generation Internet
- Network security
- Packet-filtering firewalls
- Firewall policies
- Firewall rules
- Common problems with packet filtering
- Limitations of packet filtering
-

SNMP: an IP management protocol

- Network management protocols
- SNMP: the Simple Network Management Protocol
- Agents and managers
- SNMP organisation
- Object Identifiers
- An example OID
- Problems with SNMP

B. Practicals

HTTP

- HTTP communications
- HTTP requests
- Request lines
- HTTP request headers
- HTTP responses
- Status lines
- Status codes
- Error status codes
- HTTP response headers
- Optional HTTP response headers
- HTTP specification
- HTTP details
- Practising HTTP

Email

- Sending and receiving email
- Email addressing
- Message structure
- MIME — Multipurpose Internet
- Mail Extensions
- Sending a message
- SMTP — Simple Mail Transfer Protocol
- Example SMTP session
- Extended SMTP
- Mail exchangers
- Delivering a message
- Mail boxes
- POP — Post Office Protocol
- POP protocol overview
- Example POP session
- Example POP session
- IMAP — Internet Message Access Protocol
- Example IMAP session
- Example IMAP session

14. *Recommended Text*

- Stevens Richard W. (Hardcover- January 1994) The Protocols (TCP/IP Illustrated, Volume 1)
- Comer E Douglas (Preface) (Internetworking with TCP/IP Vol. II: ANSI C Version: Stevens, David L. (Preface) (Hardcover) Design, Implementation, and Internals (3rd Edition)
- Stevens, Richard W (Hardcover) TCP for Transactions, HTTP, NNTP, and the UNIX(R) Domain Protocols (TCP/IP Illustrated, Volume 3).
- Jones Tim M TCP/IP Paperback June 2002 (Application Layer Protocols for Embedded Systems (With CD-ROM)
-

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	PROGRAMME	: Bachelor of Science-Management Information Systems
2	COURSE	: Management Accounting I & II
3	CODE	ACC-300
4	YEAR	: 3
5	SEMESTER	: One & Two
6	PRESENTED TO	: Faculty of Applied Studies
7	PRESENTED BY	: Department of Mathematics and Computing
8	LECTURES PER WEEK	:3
9	TUTORIALS PER WEEK	:0
10	TOTAL NUMBER OF HOURS	:60
11	ASSESSMENT METHOD:	60% examination and 40% course work
12	AIM OF STUDY	

To familiarise students with the principles of managerial accounting. It is concerned with the strategic importance of information to organisations in the current and future business environment.

13 OBJECTIVES

On completion of their studies students should be able to:

1. evaluate the use of information as a key resource in different organisational contexts
2. evaluate information and information systems
3. identify and evaluate the various support systems available for the management of knowledge
4. Prepare budget statements
5. Prepare detailed funds and cash-flow statements
6. Prepare consolidated accounts involving a holding company and one subsidiary.

14 TOPICS OF STUDY

- Chief reasons why information is important for organisations.
- Characteristics of information at all levels of the organisation.
- Use of qualitative information by organisations in planning, control and performance monitoring.
- Typical information requirements of organisations operating in different sectors such as manufacturing, service and the public sector, as well as non-profit-making organisations such as charities.
- Typical methods of data collection in various business sectors (for example, bar codes and scanners in retailing).
- Statements of Sources and applications for funds, cash funds flow statements
- Master budgets, forecasting problems and cash flow forecasting, budgetary control
- Discounting techniques
- Discounted cash-flow
- Cost/volume/profit relationships. Control of fixed and variable costs, contribution costing.

- Absorption and amalgamation of businesses
- Published accounts disclosure requirement
- Introduction to consolidated profit and loss accounts and balance sheets, pre-and post acquisitions profits, minority interests and goodwill
- Interpretation of accounts.
- Process of cost–benefit analysis and how to assess the value of information.
- Potential benefits and drawbacks of Internet use by organisations for activities such as data collection and dissemination of information (including the security issues to be borne in mind), as well as the concept of intranets and their use by organisations in information management.
- Concept of electronic commerce and the potential impact it has on the business strategy.
- Concept of knowledge management and why it is seen as a key element of an organisation’s success.
- Use of databases and planning models in assisting the strategic planning process (for example external databases, economic models, forecasting and modelling packages/applications).

TEXTS

1. Wood, F., *Business Accounting II*, 1996, Longman.
2. Horngren, C.T., *Introduction to Management Accounting*, 1981, Prentice-Hall.
3. Kenneth C. Laudon, Jane P. Laudon, *Management Information Systems, Eighth Edition* 2000,
4. Wayne J. Morse, *Management Accounting: A Strategic Approach*
5. Charles T. Horngren Series in Accounting: *Introduction to Management Accounting*, (13th Edition)
6. *Managerial Accounting : An Introduction to Concepts, Methods and Uses* South-Western College Pub; 8 edition (June 11, 2003)

UNIVERSITY OF MALAWI – THE POLYTECHNIC
SYLLABUS

1	Programme	: Bachelor of Science in Information Technology
2	Course	: Advanced PHP Programming
3	Year	: Three
4	Code	: PRG-303
5	Semester	: Two
6	Presented to	: Faculty of Applied Studies
7	Presented by	: Department of Computing and Information Technology
8	Lecture hours per week	: 1
9	Practical hours per week	: 3
10	Method of Assessment	: 50% examinations and 50% course work

11 Aim of Study:

The aim of this course is to introduce advanced PHP features, the most widely-used open source server-side web scripting language. PHP is ideal for web page development, database interaction, and the creation of dynamic web sites.

12 Objectives of Study:

By the end of the course:

- h) Students will learn professional PHP developer techniques,
- i) Student must be familiar with PHP utilities, and learn how to organize PHP code for efficient programming.
- j) Student must be able create practical web applications and understand professionally written PHP code

13 Topics of study

e. Lectures

- 1. Sending formatted email from a web page
- 2. Remembering information with session and cookie variables
- 3. Web-based MySQL-database application
- 4. Writing secure PHP code
- 5. Essentials of PHP programming--handling form processing, saving state, loops and arrays, strings and pattern matching, web server variables
- 6. Essentials of MySQL database--connecting MySQL with PHP, Guest book application, Gotcha application, and Internal shopping cart application
- 7. How to secure Apache using authentication--web authentication, using PHP to control Access, using a database to store users and passwords, using htaccess files
- 8. PHP socket programming with TCP/IP

f. Practicals

- 9. How to install and configure the Linux server to run PHP
- 10. handling form processing
- 11. connecting MySQL with PHP - Guest book application
- 12. using a database to store users and passwords
- 13. Uploading a file
- 14. PHP socket programming with TCP/IP
- 15. Processing HTML forms and dynamically generating HTML documents
- 16. File processing with PHP
- 17. Sending emails with PHP

14. Recommended Text

Beginning PHP4 (tentative: Beginning PHP5 (June 2004)) Publisher: Wrox Press Inc; 1st edition (November 2, 2000)

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	PROGRAMME	:Bachelor of Science-Management Information Systems
2	COURSE	:Financial Accounting IV
3	CODE	:ACC-281
4	YEAR	:2
5	SEMESTER	:2
6	PRESENTED TO	:Faculty of Applied Studies
7	PRESENTED BY	:Department of Mathematics and Computing
8	NUMBER OF HOURS PER WEEK	:2
9	TUTORIALS PER WEEK	:1
10	Total Time Required (In Hours)	:45
11	Method Of Assessment	:60% examinations and 40% course work
15	AIMS OF STUDY	

To provide students with adequate knowledge to prepare accounts of all types of business organisations.

16 OBJECTIVES

By the end of the course students should be able to:-

4. prepare accounts of sole traders, partnerships, limited companies and non-profit making organisations;
5. prepare end of financial period reports;
6. interpret such accounts and reports

17 TOPICS OF STUDY

- Purchase and disposal of business
- The accounts of non-profit making organisations
- The treatment of joint ventures, goods on consignment, hire purchase departments and branches.
- Introduction to accounting ratios.

MAIN TEXTS

Wood, F., *Business Accounting I*, 1996 Longman.
Wood, F., *Business Accounting II*, 1996 Longman.

FURTHER READING

Spicer and Pegler's *Bookkeeping and Accounts*, 1980 ELBS and HFL(Publishers) Ltd.

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Management Information Systems
2 **Course** : Website Design & Development
3 **Year** : Three
4 **Code** : WEB-305
5 **Semester** : Two
6 **Presented to** : Faculty of Applied Studies
7 **Presented by** : Department of Computing and Information Technology
8 **Lecture hours per week** : 2
9 **Practical hours per week** : 2
10 **Method of Assessment** : 30% examinations and 70% course work

11 **Aim of Study**

The aims of this study are to

1. introduce the basic elements of the Hypertext Markup Language (HTML) and its XML-compatible variant, XHTML, i.e., the standards which determine the structure and use of web pages.
2. teach best practice in vendor-neutral, standards-compliant, cross-platform, and completely *transferable skills*.

12. **Objectives of Study:-**

On completion of this course, students should be able to

- (a) produce standard-compliant web pages that work with any of the well-known browser such as Internet Explorer and Netscape
- (b) use web page editors such as Dreamweaver, MS FrontPage, GoLive, IIS, ColdFusion, etc

13. Topics of Study:

A. Lectures

Overview of HTML

- Brief history of HTML
- How the web works — clients and servers
- Browsers and rendering

The Basics of HTML

- Hierarchical structure: elements (tags) and text
- Basic document structure
- Paragraphs
- Whitespace and line breaks
- Headings
- Phrase mark-up
- Hypertext links
- Embedded images
- Lists
- Preformatted text
- Special characters
- Semantic markup

Simple design customization with CSS

- Relationship between HTML and CSS

- Linking to a style sheet in a separate file
- Examples of common customizations

Images

- Bitmapped images
- Types of image: GIF, JPEG, PNG
- Image type tradeoffs
- Creating images

Tables

- Using tables for tabular data
 - Abusing tables for layout
 - Basic table structure
 - Cells that span rows or columns
 - Cell alignment
- Styling table cells

More CSS

- The box formatting model
- Borders
- Margins and padding
- Collapsing margins
- Formatting edges differently
- Background colours and background images
- Selectors
- Multiple selections
- Classes
- <div> and
- Descendant selectors
- Text appearance
- Typefaces
- Font sizes
- Other font properties
- Leading
- Text alignment and justification
- XHTML

- What is XML?
- Relationship between HTML and XHTML
- Why use XHTML?
- Changes in the document prologue
- Changes in element tags
- Handling empty elements

HTML and Scripting

- Server-side scripting: forms
- Form elements
- Client-side scripting
- JavaScript
- Graceful degradation
- Examples

Embedding Multimedia

- Image maps
- Embedding flash movies
- Graceful degradation

B. Practicals

Design web pages that include all the elements of Web design discussed above.

- Server-side scripting: forms
- Form elements
- Client-side scripting
- JavaScript
- Graphics
- Multimedia
- Tables
- Style sheets, CSS
- Frames

14. Recommended Text

- Castro, Elizabeth September 17 200,)2 (HTML for the World Wide Web with XHTML and CSS: Visual QuickStart Guide, Fifth Edition Publisher: Peachpit Press; 5th edition
- Niederst, Jennifer Publisher(October r 2001,)15*Web Design in a Nutshell* by: O'Reilly & Associates; 2nd edition

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Management Information Systems
- 2 **Course** : Web Server Administration
- 3 **Year** : Three
- 4 **Code** : WEB-302
- 5 **Semester** : Two
- 6 **Presented to** : Faculty of Applied Studies
- 7 **Presented by** : Department of Computing and Information Technology
- 8 **Lecture hours per week** : 2
- 9 **Practical hours per week** : 2
- 10 **Method of Assessment** : 30% examinations and 70% course work

11 **Aim of Study**

The aim of this study is to provide a technical introduction to installing, configuring and management of a web server and the supporting CGI programming (Apache server).

12. **Objectives:**

At the end of the course students should be able to

- Configure an Apache Web Server
- Configure virtual hosts
- Run dynamic pages with CGI and PHP
- Configure HTTPS with mod_ssl
- Use mod_perl to create dynamic webpages with Perl

13. Topics of Study:

A. Lectures

Introduction

- Apache
- Web-servers
- Apache features
- *.htaccess* file configuration
- Protecting files with passwords
- Restricting access by IP address
- Address and password authentication

Basic configuration

- Configuring Apache
- Directives
- Modules
- Checking configurations
- Logging
- A little HTTP
- Server and directory index pages
- Custom index pages
- Forbidding index pages
- Trailing slashes in directory paths
- Directory paths without trailing slashes
- Per-directory configuration
- <Location> example
- Other directives affecting where settings apply
- Context for container directives Per-directory configuration outside *httpd.conf*

Serving multiple sites with virtual hosts

- Multiple sites on a server
- Setting up virtual host names
- Testing host names
- Enabling virtual hosts
- Defining virtual hosts
- Configuring virtual hosts
- Using virtual hosts
- Host aliases
- Managing many hosts

Dynamic pages with CGI and PHP

- Dynamic pages
- CGI
- CGI programs
- Sample Unix shell CGI script
- Sample Perl CGI script
- Running CGI programs with Apache
- CGI parameters

- Perl CGI parameter example

Using other modules

- CGI issues
- PHP scripts
- Using mod_php
- Sample PHP scripts

Using mod_perl to create dynamic webpages with Perl

- mod_perl
- Using mod_perl
- Using Apache::Registry
- Apache::Registry v CGI Perl
- Apache::PerlRun

Other mod_perl features

- Modules
- Loading modules
- mod_speling
- mod_rewrite
- URL rewriting patterns
- Redirecting
- Transforming URLs
- Browser-dependent pages
- Deploying mod_rewrite

Serving pages using HTTPS with mod_ssl

- HTTP security
- HTTPS
- HTTP and HTTPS sites cohabiting
- HTTP and HTTPS virtual hosts

B. Practicals

- Installing Apache on Unix
- Installing Apache on Windows
- Compiling Apache
- Running Apache
- Running Apache automatically
- Checking Apache is running
- Serving webpages
- Setting the document root
- Applying configuration changes
- Configuring log-file contents
- Specifying log-files
- Logging errors
- Browser error messages
- Custom error pages
- Creating a password file
- Maintaining a password file
- Password authentication example
- Password authentication details
- Restricting access by IP address
- Listening only on specific IP addresses
- Installing mod_perl
- Installing mod_ssl
- Getting a certificate
- Configuring mod_ssl

14. Recommended Text

- Auld Charles Papebrack, Publisher Sybex, 16 September 2002: (Linux Apache Web Server Administration, Second Edition (Craig Hunt Linux,Library));; 2nd edition (,)
- Hawkins Scott, Publisher December 8, 2000 (Apache Web Server Administration and e-Commerce Handbook (With CD-ROM) Prentice Hall PTR; Book and CD-ROM edition

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

- 1 **Programme** : Bachelor of Science in Management Information Systems
2 **Course** : Server Administration
3 **Year** : Four
4 **Code** : ADM-480
5 **Semester** : One
6 **Presented to** : Faculty of Applied Studies
7 **Presented by** : Department of Computing and Information Technology
8 **Lecture hours per week** : 1
9 **Practical hours per week** : 2
10 **Method of Assessment** : 60% examinations and 40% course work

11 **Aim of Study**

The Aim of the study is develop competence in Linux System Administration and provide a practical introduction to basic Unix and System Administration on a generic Unix platform, e.g. Sun's Solaris, IBM's AIX, HP-UX, SCO's Open Unix, FreeBSD, OpenBSD, NetBSD

12. **Objectives of study**

At the end of the course students will:-

- a) achieve basic competence in using and managing a Linux systems
- b) perform core Linux system administration tasks on a Linux server

13. **Topics of Study**

A. **Lectures**

- Configure fundamental system hardware
- Setup SCSI and NIC Devices
- Configure Modem, Sound cards
- Design hard-disk lay-out
- Install a boot manager
- Manage shared libraries
- Use Red Hat Package Manager (rpm)
- Manage kernel modules at runtime
- Reconfigure, build and install a custom kernel and modules
- Identify and terminate runaway X applications
- Install & Customize a Window Manager Environment
- Fundamentals of TCP/IP
- Protocols: TCP, IP, UDP, ICMP, Customize or write simple scripts
- Operate and perform basic configuration of apache
- Properly manage the NFS, smb, and nmb daemons
- Perform security admin tasks
- Setup host security
- Setup user level security
- Customize and use the shell environment

B. **Practicals**

- Compiling and install programs from source code
- Install and configure local and remote printers
- TCP/IP Troubleshooting & Configuration
- Configure and manage inetd and related services

- Perform basic file editing operations using vi
- Configure and use PPP
- Install & Configure XFree86
- Manage printers and print queues
- Print files
- Operate and perform basic configuration of sendmail
- Setup XDM

14 Recommended Text

- Jakob, Carstensen **Publisher** Linux System Administration and Backup Tools for IBM Elogo Server Xseries and Netfinity IBM Corp; 1st edition (February 2001)
- Aulds, Charles - **Publisher** Linux Apache Web Server Administration : Sybex; 1st edition (November 2000)

UNIVERSITY OF MALAWI – THE POLYTECHNIC
SYLLABUS

- 1 **Programme** : Bachelor of Science in Management Information Systems
2 **Course** : Statistical Package (SPSS)
3 **Year** : Four
4 **Code** : CIT-481
5 **Semester** : One
6 **Presented to** : Faculty of Applied Studies
7 **Presented by** : Department of Computing and Information Technology
8 **Lecture hours per week** : 1
9 **Practical hours per week** : 2
10 **Method of Assessment** : 50% examinations and 50% course work

11 **Aim of Study:**

The aim of this course is to introduce basic features of a statistical package and will provide information on using SYNTAX in SPSS. This course will introduce the student to laboratory resources and use of computers in assisting design, analysis and presentation of statistical results.

12 **Objectives of Study:**

By the end of the course the students should be able to:

- a) Gather information, enter and analyse the information on a statistical package (SPSS).
- b) Run the SPSS program in batch mode
- c) Use SPSS functions (truncate, max, sum)
- d) Use multiple regression techniques, correlations, frequencies and crosstabs

13 **Topics of study**

a. Lectures

1. Introduction and the research process Scaling, Graphing, Frequency Distributions and Central Tendency Variability and Z scores Correlation Regression
2. Probability Hypothesis Testing and the Z test
3. The T-test
4. One way ANOVA and Two way ANOVA

b. Practicals

5. Nonparametric Statistics and summary
6. Tips on record-keeping. Reading simple raw data. Reconfiguring SPSS so that it gives more and clearer information. Some debugging techniques.
7. Reading external raw data. Reading more complicated raw data - a hierarchical data set.
8. LEAVE statement. Conditional input statements. Common errors in SPSS.
9. Saving a SPSS data file. Reading a SPSS data file. other ways to read a hierarchical file.
10. Matching (merging) SPSS data files. More on errors and error detection.
11. Using a real social science data set. Matching with renaming. Calculating new variables using Do Repeats. Selecting a subset of cases.
12. Display labels. Using the TO keyword so that every variable does not have to be listed. Some
13. SPSS functions (truncate, max, sum), asking for descriptive statistics on a variable. Creating dichotomous variables from a categorical variable. Check frequencies of variables before using them. Value labels. An example of multiple regression, correlations, frequencies and crosstabs with chi-square
14. Running a program in batch mode. Making tables for publication: bringing SPSS output into Excel, letting Excel round for you. Finding the first and last of a set of cases using the lag function

14. Recommended Text

1. Heiman, G. W., 2003. Basic Statistics for the Behavioral Sciences. (4th ed). Houghton Mifflin, MA.
2. Study guide to accompany Heiman.
3. Norusis, M. J. SPSS 10.0 :Guide to Data Analysis. Prentice Hall, New Jersey

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	PROGRAMME	:Bachelor of Science-Management Information Systems
2	COURSE	:Computer Graphics
3	YEAR	:4
4	CODE	:IMG-482
5	SEMESTER	:1
6	PRESENTED TO	:Faculty of Applied Studies
7	PRESENTED BY	:Department of Mathematics and Computing
8	LECTURE HOURS PER WEEK	:1
9	PRACTICALS (LABORATORY) HOURS PER WEEK	:2
10	TOTAL REQUIRED TIME (IN HOURS)	:45
11	ASSESSMENT METHOD:	60% examination and 40% course work
12	AIMS OF THE COURSE:	

The aims of this course are to introduce students to computer graphics and their applications and to expose students to computer hardware and software needed when working with computer graphics.

13 OBJECTIVES OF THE COURSE:

By the end of the course students should be able to:

1. understand the basic concepts and terminology in computer graphics
2. know and use graphic devices and facilities available.

14 TOPICS OF STUDY

- **Introduction to Computer Graphics**
 - history of computer graphics
 - interactive computer graphics techniques
 - image processing
- **Hardware for Computer Graphics**
 - input devices
 - output devices
 - interactive devices
- **Software for Computer Graphics**
 - two dimensional software: windowing and clipping, line drawing, transformations
 - three dimensional software: transformations, reflection, shading, shadows, texture
- **Computer Art and Animation**
 - graphic design
 - the Video Artist
 - animation
- **Application of Computer Graphics**
 - business graphics
 - architecture
 - computer image generation

MAIN TEXT

- Salmon, R., *Computer Graphics Systems and Concepts*, 1987, Addison-Wesley.
Slater, M., *Computer graphics and Virtual Environments*, 1998, Addison-Wesley.
Vince, J., *3D Computer Animation*, 1992, Addison-Wesley.
Watt, A., *3D Computer Graphics* 2nd ed., 1992, Addison-Wesley.
Angel, E., *Interactive Computer graphics: A Top-down Approach with Open GL*, 1997, Addison-Wesley.
Burger, P., *Interactive Computer Graphics* 2nd ed., 1998, Addison-Wesley.

RECOMMENDED READING

- Harris, D., *Computer Graphics and Applications*, 1984, London, Chapman & Hall.
Harrington, S., *Computer Graphics: A Programming Approach*, 1983, New York, McGraw-Hill.

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	PROGRAMME	:Bachelor of Science-Management Information Systems
2	COURSE	:Management Accounting III
3	CODE	ACC-400
4	YEAR	:3
5	SEMESTER	:1 & 2
6	PRESENTED TO	:Faculty of Applied Studies
7	PRESENTED BY	:Department of Mathematics and Computing
8	LECTURES PER WEEK	:3
9	TUTORIALS PER WEEK	:1
10	TOTAL NUMBER OF HOURS	:60
11	ASSESSMENT METHOD:	60% examination and 40% course work
12	AIM	

To familiarise students with the principles of managerial accounting.

13 OBJECTIVES OF THE COURSE

1. Prepare budget statements
2. Prepare detailed funds and cash-flow statements
3. Prepare consolidated accounts involving a holding company and one subsidiary.

14 TOPICS OF STUDY

- **Management Accounting**
- Statements of Sources and applications for funds, cash funds flow statements
- Master budgets, forecasting problems and cash flow forecasting, budgetary control
- Discounting techniques
- Discounted cash-flow
- Cost/volume/profit relationships. Control of fixed and variable costs, contribution costing.
- **Financial Accounting**
- Absorption and amalgamation of businesses
- Published accounts disclosure requirement
- Introduction to consolidated profit and loss accounts and balance sheets, pre-and post acquisitions profits, minority interests and goodwill
- Interpretation of accounts.

TEXTS

Wood, F., *Business Accounting II*, 1996, Longman.

Hornngren, C.T., *Introduction to Management Accounting*, 1981, Prentice-Hall.

UNIVERSITY OF MALAWI – THE POLYTECHNIC

SYLLABUS

1	PROGRAMME	:Bachelor of Science-Management Information Systems
2	COURSE	:Financial Accounting
3	YEAR	:4
4	CODE	:FIN-401
5	SEMESTER	:1 & 2
6	PRESENTED TO	:Faculty of Applied Studies
7	PRESENTED BY	:Department of Computing and Information Technology
8	LECTURE HOURS PER WEEK	:4
9	PRACTICALS (LABORATORY) HOURS PER WEEK	:0
10	TOTAL REQUIRED TIME (IN HOURS)	:90

Refer to Bachelor of Accountancy Degree Programme – Year 4 (Department of Accountancy)
Syllabus already approved

UNIVERSITY OF MALAWI – THE POLYTECHNIC
SYLLABUS

- 1 **Programme** : Bachelor of Science in Management Information Systems and Information Technology
- 2 **Course** : Main Project
- 3 **Year** : Four
- 4 **Code** : PRJ-480
- 5 **Semester** : One & Two
- 6 **Presented to** : Faculty of Applied Studies
- 7 **Presented by** : Department of Computing and Information Technology
- 8 **Lecture hours per week** : 0
- 9 **Practical hours per week** : 10
- 10 **Method of Assessment**
The marking scheme is based upon the following categories :
 - Understand the Problem, Completion of project and, Quality of work (40%)
 - Produce a Solution
 - Preparation of Solution (15%)
 - Delivery of Solution (15%)
 - Evaluation of the Solution (10%)
 - Write up of the Work (15%)
 - Reflect on the Project Experience (5%)

11. Aim of Study

The main aim of this exercise is to provide the opportunity for students to demonstrate independence and originality in planning and organizing a larger project over a long period and to put into practice some of the techniques they have been taught throughout the programme. This will show the individuality and inspiration of the student.

12. Objectives

At the end of the project students should have learned how to:-

- a) carry out research on a topic and summarizing it,
- b) specifying a piece of work,
- c) designing and developing appropriate tests to ensure a specification was satisfied

13. Guidelines

The Project Coordinator

There will be a Project Coordinator who will be responsible for the overall organization of the final year individual projects. Each project will have a supervisor who would guide a particular student throughout the project.

Choosing an Individual Project

The idea for the project may be a proposal from a member of staff or the students own, or perhaps a combination of the two. Students will be encouraged to discuss the projects that interest them with the supervisors. This will be done early in the first semester to ensure that there is plenty of time to think about the best choices.

If a student has an idea for an individual project it will be the responsibility of the student to find a member of staff who both approves of the proposed programme of work and is willing to supervise. The Project Coordinator could assist in finding a suitable supervisor. There projects will require a clear demonstration of sound background research work, solid implementation, or piece of theoretical work, and a thorough evaluation of the project's output in both absolute and relative terms. A crucial component is the project report is expected to be well-structured and well presented, detailing the project's

background, objectives and achievements. A demonstration of the final results will be required.

14. Recommended Text

None. But students will be expected to use the Internet Search Engines available to obtain relevant information