CALENDAR 2013

FACULTY OF AGRICULTURE, SCIENCE AND TECHNOLOGY UNDERGRADUATE

Mafikeng Campus

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PLEASE MENTION YOUR UNIVERSITY NUMBER IN ALL CORRESPONDENCE.

The General Academic Rules of the University, to which all students have to subject themselves and which apply to all the qualifications offered by the University, appear in a separate publication and are available on the web page at: http://www.puk.ac.za/calendar/index_e.html.

Please note: Although the information in this Calendar has been compiled with the utmost care and accuracy, the Council and the Senate of the University accept no responsibility whatsoever for errors that may occur. Before students finally decide on the selection of modules, they must consult the class timetable. If a clash occurs in the planned selection of a student, the relevant module combination is not permitted.

This calendar is applicable to students registered for the first time at the university in 2012. Students registered prior to 2012 should refer to the respective calendars applicable in their years for registration

Table of Contents

MA.1	Faculty rules	14
MA.1.1	Authority of the general rules	14
MA.1.2	Faculty-specific rules	14
MA.1.3	Warning against plagiarism	
MA.1.4	Capacity stipulation	
MA.1.5	Schools of the faculty	
MA.1.6	Qualifications, programmes and curricula	19-22
MA.1.7	Rules for the degree	
MA.1.7.1	Duration (minimum and maximum duration)	
MA.1.7.2	Admission requirements for the qualification	
MA.1.7.3	Module list	
MA.1.7.4	Curriculum:	
MA.2	Module outcomes	62
MA.2.1	Diploma in Animal Health	62-67
MA.2.2	BSc in Agriculture Animal Health	
MA.2.3	Diploma in Agiculture Animal Science	74-76
MA.2.4	BSc in Agriculture Animal Science	76-80
MA.2.5	Agricultural Economics	80-82
MA.2.6	Agricultural Extention	83-83
MA.2.7	Diploma in Agriculture Crop Science	83-86
MA.2.8	BSc in Agriculture Plant Science	86-91
MA.2.9	Degree in Land Management	91-92
M.A.2.10	Biology	92-98
M.A.2.11	Chemistry	98-101
MA.2.12	Biochemistry	101-102
MA.2.13	Microbiology	
MA.2.14	Computer Science	104-106
MA.2.15	Geography	106-109
MA.2.16	Electronics	109-111
MA.2.17	Applied Mathematics	111-112
MA.2.18	Mathematics	112-115
MA.2.19	Nursing	115-120
MA.2.20	Nursing Education	120-122
MA 0.01	Physics	123-127

FACULTY OF AGRICULTURE, SCIENCE AND TECHNOLOGY (FAST)

Message from the Executive Dean

A warm welcome to our Faculty of Agriculture, Science & Technology (FAST). In FAST we are committed to serve our communities through training and development of competent scientists who will be able to address the ever changing and challenging needs of our country South Africa and Internationally.

This booklet/calendar is prepared to give a summary of programmes offered in our faculty. It is important to acquaint yourselves with the contents of this calendar to ensure that you know what FAST is all about.

FAST is made up of three schools namely;

- School of Agricultural Sciences,
- School of Environmental and Health Sciences and
- School of Mathematical and Physical Sciences

FAST hosts three centres namely;

- Centre for Animal Health Studies,
- Centre for Air and Water Research and
- Centre for Applied Radiation Science and Technology (CARST).

We want to urge you to commit yourself and we will endeavor to provide you with the necessary support to ensure that you achieve your goals within record time. We have staff members who are committed to serve you even on a one to one basis if you make an appointment. It is important to familiarize yourself with the contents of this document for you to be part of FAST.

VISION

The faculty strives for excellence in teaching, research, $% \left({{{\rm{customer}}} \left({{{\rm{customer}}} \right.} \right)$ during outreach.

VALUES

The faculty of Agriculture Science And Technology strives to deliver its mandate with integrity (Individually and collectively), commitment, accountability and respect.

MISSION STATEMENT

The mission of the faculty is to realise the vision by:

- educating and training scientists through quality teaching process to meet national needs.
- 2. developing professional offerings in Science; Engineering and Technology (SET).
- providing programmes that are accessible to students in the country including the Historically Disadvantaged Individuals (HDIs).
- conducting relevant research for the benefit of the province, the country and its people.
- 5. ensuring implementation of expertise (both profit and non profit) in the province and the country.
- 6. aspiring to be the centre of excellence in Radiation Science and Technology, Health and Environmental Science in order to be nationally and internationally recognised.
- 7. being sensitive to (and promoting public awareness of) the environment and the social needs of the province and the country.
- recruiting; developing and retaining scholars (who are competent) in addressing all the above mentioned

AIMS AND OBJECTIVES

To provide formal quality education in Agriculture, Science and Technology in order to prepare students for careers in these fields.

To provide students with the opportunity for personal development to enable them to achieve their potential and to relate to other people engaged in the broad field of Science.

To plan, design, implement and evaluate education and training programmes that will provide appropriate numbers of suitably trained students required for the different phases of regional and national development.

To promote and to develop basic and applied research in the various science disciplines of the faculty and to establish national and international linkages.

To carry out research applied to regional problems by training postgraduates using activities designed to address actual problems and shortcomings.

To develop appropriate technology and to promote the transfer of this technology through innovative projects.

To review critically, from time to time, the role of the faculty and to collaborate with agencies which employ graduates of the faculty in order to develop suitable training programmes.

OFFICE BEARERS

EXECUTIVE DEAN

M.Davhana-Maselesele (Professor), RN, RM, BA Cur, BA Cur Hons, Nursing Education, Nursing Administration (UNISA), HRM, PHC (RAU), MA Cur (UNISA), PhD (RAU).IRENSA (UCT) Post Doctoral Studies (UCLA- Los Angeles)

Faculty Manager

H. P. Kgoa, Dip Agric (Unibo), BPA (Unibo), B Admin Hons (Unisa), MBA (UNW)

DIRECTORS OF SCHOOLS / RESEARCH UNITS

Agricultural Sciences (SoAS)

O.I Oladele, BSc Agricultural Extension, MSc, PhD(University of Ibadan, Nigeria)

Mathematical and Physical Sciences (SoMPS)

E.E. Ebenso, BSc (Hons)(Calabar), MSc (Ibadan), PhD (Calabar)

Environmental and Health Sciences (SoEHS)

Dr T Sithebe MSc (University Of Southern Illinois, PhD Virology (Medunsa)

CENTRE MANAGERS

Applied Radiation Science And Technology

M. T. Kambule (Associate Professor), BSc (Unisa), BSc Hons (Unin), MSc (Unisa), PhD (Massachusetts)

RESEARCH NICHE AREA

Professor

S. A. Materechera, BSc Agric (Malawi), MSc Soil Sci (McGill), PhD (Adelaide)

SUBJECT GROUP CHAIRPERSONS

Agricultural Economics & Extension

*L. K. Mabe, B Agric (Unibo), P.G.D Ed, P.G.D Agric Ext, BSc Agric Hons (UNW) MSc , PhD (NWU)

Animal Health

Senior Lecturer

*Dr. Nyirenda BVM (University of Zambia) MSc James Cook University, Australia

Animal Science

* S. D. Mulugeta, BSc (AAU), MSc (AUA), PhD (UFS)

Biological Sciences

* O. Ruzvidzo. BSc Hons (National University of Science and Technology, Zimbabwe), MSc (University of Zimbabwe), PhD (University of the Western Cape)

Chemistry

*D. A. Isabirye, BSc Hons (Makerere), PhD (Hong Kong)

Computer Science

*O. Ekabua BSc (Uninyo), MSc (ATBU) PhD (University of Zululand)

Crop Science

*M. S. Mokolobate (Lecturer) BSc Agric (Fort Hare), Cert Soil Analysis (Fort Hare), Dip Plant Production (Unibo) MSc Agric (Natal).

Geography And Environmental Sciences

* Kabanda BSc Hons (UK) MSc (UCT) PhD (Univen)

Mathematical Sciences

*C.M. Khalique (Professor), MSc, M Phil (Quaid-i-Azam) MSc, PhD (Dundee) C. Math. FIMA

Nursing Science

*D.R. Phetlhu, Diploma in (General Psychiatric, Community) Nursing and Midwifery (Western Transvaal Nursing College) Diploma In Advanced Nursing Science (RAU) BA Nursing, Nursing Education and Administration (PU for CHE) M CUR (NWU) PhD (NWU)

Physics

* K. Dzinavatonga, BSc Hons, MSc (University of Zimbabwe)

RESEARCH PROFESSORS

Professor

S. A. Materechera, BSc Agric (Malawi), MSc Soil Sci (McGill), PhD (Adelaide)

Professor

J. Moori, BSc Hons (Iran) MSc, PhD (Birmingham, UK) Fellow of UKZN (in Mathematics)

Professor

M. Selvaratnum, BSc (Ceylon), PhD DIC (London), FI Chem (Ceylon), FRSC (London) CChem

Associate Professor

U. Useh BSc. Hons Physiotherapy.M.Ed Exercise Physiogy (University Of Ibadan), PhD in Sociology (UNIVEN) PGD in Education (University Of Playmouth) Fellow Higher Education Academy (UK).

Associate Professor

TR. Medupe, MSc Astrophysics UCT (PhD) UCT

Farm Administration

B. D. Gaobepe (Farm Manager), B Agric (Fort Hare), B. Agrar Ins Hons, Agric Econs

Secretaries:

K.A. Kgaboesele R.M. Maepa M.K. Medupe M.G. Mokoko M.K. Mosala J.B. Ndlangisa L.M. Segoje S.M. Sepeng

Assistant Admin. Officers:

B.Tau

- S. Thaga
- T. Masalesa
- T. Oliphant

Messengers:

J.K. Beleng S. T. Moses

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TECHNICIANS

Animal Health

L.E. Motsei (Principal Technician), BSc Agric, BSc Agric (Hons), MSc Agric (UNW)

J. K. Lesetedi (Senior Technician), Dip Animal Health (Taung College of Agric), BSc Agric (Animal Health), BSc Agric (Hons) (AH) (UNW)

G. M. Raito (Senior Technician), Dip in Animal Health (Taung College of Agric), BSc Agric (Animal Health), BSc Agric (Hons) (AH) (UNW)

N.D. Lesaoana (Senior Technician), BSc Agric (Animal Health), BSc Agric (Hons) (AH) (UNW)

T.P. Ateba (Technician), BSc Agric (Animal Health), BSc Agric (Hons) (A/H), MSc Agric (NWU)

T. K. Moroane (Technician) BSc Agric (Animal Health), BSc Agric (Hons) (A/H) (NWU)

O.M. Tekolo (Laboratory Technician) Bsc Agric (Animal Health), Bsc Agric (Hons) (A/H) (NWU), Msc (Microbiology) (Stellenbosch)

K.A. Maropefela (Technician) BSc Agric (Animal Health), BSc Agric (Hons) (A/H) (NWU)

V.E. Mjekula (Technician) BSc Agric (Animal Health), BSc Agric (Hons) (A/H) (NWU)

N.S. Dube (Hospital Receptionist)

G. Kwamongwe (Clinic Attendant - Small Animals)

J. Mogotsi (Lab Attendant)

T.P. Mhlongo (Clinic Attendant – Large Animals)

O. Mocumi (General Attendant

Animal Science

S.C. Gajana (Technicia), BSc. Agric (Animal Science), MSc. Agric (Animal Science) (UFH) G. Matlabe (Technician). BSc. Agric (Animal Science) (NWU)

M. Mpayipheli (Technicia), BSc. Agric (Animal Science) (UFH) MSc. Agric (Animal Science) (IOWA STATE UNIVERSITY)

S. MMutloane

P. Motlhabane (Dairy Foreman) - BSc. Agric (Animal Science) (NWU)

Biological Sciences

M.H. Huyser (Senior Technician), National Diploma Biomed. Tech. (TUT), PGCE (UNISA), BSc Hons (UNISA)

T.J. Mabunda (Technician), BSc Genet & Dev Bio (WITS), BSc Hons Med Virol (MEDUNSA J Morapedi

Chemistry

C.L Murulana, BSc (Chem) UNIVEN, BSc Hons (NWU) N. Gumbi B. Tech (Chem) Durban University Of Technology

Crop Science

Huse (Senior Technician),BSc (Agric) (Pasture Science) (Natal) K. S. Gareseitse (Technician)Dip Electronics (TSA) R.M. Mashile, BSc Agric (Crop Science) (UNW), BSc Hons. Crop Science (NWU)(Technician)

Geography and Environmental Sciences

L Makhoba BSc (Vista University) D.J.D.N. Wijesiri

Physics

M. M. Molefe, Analytical Quality Management, Laboratory Management (Technikon Pretoria). S. Thamaga, BSc (UNW), BSc Hons (NWU

Farm

B. S. Mmutloane, Dip Animal Health (Taung College) K. P. Motlhabane, Dip Agric (Unibo), BSc Agric (UNW)

FACULTY COUNCIL – ACADEMIC BOARD

AGRICULTURAL ECONOMICS AND EXTENSION

Professor

O.I Oladele, BSc Agricultural Extension, MSc, PhD(University of Ibadan, Nigeria)

Associate Professor

A S Oyekale, BSc. (Agricultural Economics), MSc, PhD (University of Ibadan, Nigeria)

Senior Lecturer

M.A. Antwi, BSc Hons Agric Econs (U.S.T., Kumasi), MSc (UP), MBA (PU for CHE), PhD (NWU)

Lecturer

*L.K. Mabe, B Agric (Unibo), P.GD Ed, P.GD Agric Ext, BSc Agric Hons (UNW) MSc ,PhD (NWU)

Lecturer

S.S. Tekana, B Agric Ed (Unibo), P.GD Agric Econs, BSc Agric Hons (UNW),Msc Agric Econs (NWU)

ANIMAL HEALTH

Associate Professor

F.R. Bakunzi, BVM (Makerere), MSc (Guelph), PhD (Medunsa)

Associate Professor

B.M. Dzoma, BVSc (University of Zimbabwe), MSc, Certificate: Laboratory Animal Science (Utrecht University, Netherlands)

Associate Professor

M.S. Syakalima, B.Vet. Med (University of Zambia), MSc (University of Edinburgh. CTVM. Scotland), PhD (Hoddaido University, Japan)

Senior Lecturer

R.V. Ndou, BVMCh (Medunsa)

Senior Lecturer R.S. Verster, BVSc, BVSc (Hons), MSc (UP)

Senior Lecturer

*M. Nyirenda BVM (University of Zambia) MSc James Cook University, Australia

Senior Lecturer

M. Mefane, BVSc (UP)

Senior Lecturer L.K. Taoana, BVSc (UP)

Senior Lecturer M. Mwanza, MSc ,(UJ) PhD (UJ)

Lecturer G.B. Kgobe, Bsc Agric (Animal Health) Bsc Agric (Hons) (A/H), MSc Agric, PhD Agric (NWU)

ANIMAL SCIENCE

Senior Lecturer *S. D. Mulugeta, BSc (AAU), MSc (AUA), PhD (UFS)

Associate Professor V. Mlambo, MSc Agric (UZ), PhD (Reading)

Senior Lecturer K.H. Mokoboki, BSc. Agric (UL), MSc (UL), PhD (UL)

Senior Lecturer C. K. Lebopa, BSc Agric, BSc Agric Hons, MSc (Fort Hare) PhD (Pretoria)

Senior Lecturer U. Marume MSc Agric (UZ), PhD (UFH)

Lecturer B. A. Pico, BSc Agric Hons (UFS), MSc (UFS)

Lecturer N.A. Sebola, BSc. Agric (UL), MSc (UL)

BIOLOGICAL SCIENCES

Associate Professor P. W. Malan, BSc Ed, MSc, PhD (UFS).

Senior Lecturer * O. Ruzvidzo. BSc Hons (National University of Science and Technology, Zimbabwe), MSc (University of Zimbabwe), PhD (UWC)

Senior Lecturer T Sithebe MSc (University Of Southern Illinois), PhD Virology (Medunsa)

Senior Lecturer O.O. Babalola, BSc Hons (Ogun) MSc, PhD (University of Ibadan)

Senior Lecturer R. E. Gopane, BSc (Unin) BSc Hons (PU for CHE), MSc (Unibo), PhD (NWU).

Lecturer

T. D. Kawadza, BSc (NUL), MSc (PU for CHE).

Lecturer

C.N. Ateba Bsc (Univ. Of Buea), Hons (NWU), MSc (NWU), PhD (NWU)

Lecturer

N. J Tsita, BSc (Univen), BSc (Hons), MSc (Rhodes)

CENTRE FOR APPLIED RADIATION SCIENCE AND TECHNOLOGY

Manager

M. T. Kambule (Associate Professor), BSc (Unisa), BSc Hons (Unin), MSc (Unisa), PhD (Massachusetts)

Associate Professor

V. Tshivhase, BSc Hons Physics(UCT), MSc Physics (UCT), PhD Physics(UCT)

Senior Lecturer

N. K. Mumba, BSc (Zambia), MSc (Windour), PhD (Kossuth)

CHEMISTRY

Professor E.E. Ebenso BSc (Hons)(Calabar), MSc (Ibadan), PhD (Calabar)

Associate Professor

*D. A. Isabirye, BSc Hons (Makerere), PhD (Hong Kong)

Associate Professor

H. P. Drummond, BSc Hons (UCT) HED (SA) MEd (Wits), PhD (UNW)

Senior Lecturer

S. Phirwa, BSc (UBLS) MSc (SUNY-Fredonia) PhD (SUNY-Stony Brook)

Senior Lecturer

M. Hlophe, BSc (Botswana-Swaziland) MSc (Bristol) PhD (NWU)

Senior Lecturer

L.M. Katata, BSc, BSc Hons(UWC) MSc, PhD Stelenbosch University

Lecturer

Dr M.J. Klink MSc, PhD (UWC)

Lecturer

Z. Mkhize BSc Hons, MSc (KZN)

Lecturer

N. H. Seheri, BSc Ed (UNW), BSc Hons (UNW), MSc (NWU)

CROP SCIENCE

Professor

C. Chiduza, BSc Agric (Crop Science) MPhil, PhD (University of Zimbabwe)

Professor

W.D. Gestring, BSc in Soil Science, MSc in Soil Science, (University of Califonia at Riverside), PhD in Agronomy (Colorado State University)

Associate Professor

V.M. Ngole PhD; MSc Env Science (Univ. Botswana) BSc Zoology Ahmadubello Univ Zaria (Nigeria)

Senior Lecturer

K Ramachela B. Sc Agriculture (UNiversity of Guyana), M. Sc Plant Pathology (University College of Wales), PhD Forestry & naturaal Resources Science (Stellenosch)

Lecturer

*M. S. Mokolobate, BSc Agric (Fort Hare), Cert Soil Analysis (Fort Hare), Dip Plant Production (Unibo) MSc Agric (Natal)

COMPUTER SCIENCE

Associate Professor

*O. Ekabua BSc (Uninyo), MSc (ATBU) PhD (University of Zululand)

Senior Lecturer

Z. P. Ncube BSc Hons (Enrique Jose Varona) MSc

GEOGRAPHY AND ENVIRONMENTAL SCIENCES

Associate Professor *T Kabanda BSc Hons (UK) MSc (UCT) PhD (Univen)

Associate Professor C. Munyati ,BSc (Zambia), MSc, PhD (Stirling)

Associate Professor

TM Ruhiiga, BA,UED (Makerere) Dip BF, DipAcc (ICS-London), BA Hons (Unisa), MSc (Fort Hare), PhD (UNIN),Cert.AHE (UFS)

Senior Lecturer

J. H. Drummond, BA (Soc Sci), BA Hons (Glasgow), MA (Wits).

Senior Lecturer

Dr L. G. Palamuleni MSc (University Of Malawi) PhD (UJ)

Lecturer

Dr. M. Manjoro

MATHEMATICAL SCIENCES

Professor

*C.M. Khalique, MSc, M Phil (Islamabad) MSc, PhD (Dundee) C. Math. FIMA

Lecturer

T.T. Seretlo, BSc, BSc Hons, MSc (Fort Hare)

Lecturer

Mr I Mhlanga MSc (Bindura University)

Lecturer

D M Mothibi Msc (University Of Stellenbosch)

Lecturer

B Muatjetjeja BSc, BSc (Hons), MSc, PhD (NWU)

NURSING SCIENCE

Senior Lecturer

*Dr R Phetlhu Diploma in (General Psychiatric, Community) Nursing and Midwifery (Western Transvaal Nursing College) Diploma In Advanced Nursing Science (RAU) BA Nursing, Nursing Education and administration (PU for CHE) M CUR (NWU) PhD (NWU)

Senior Lecturer

E. M. Manyedi, Diploma in Psychiatry (Bophelong Hospital) Diploma in Midwifery,) Diploma in General Nursing (Baragwanath Hospital) (CMR), B.A. Cur, Diploma in Research Methodology (UNISA), M. Cur (PUCHE), PhD (NWU).

Lecturer

T. E. Maseng, Diploma in Midwifery (Benediction Hospital), Diploma in Psychiatry (Bophelong Hospital), General Nursing (St. Courads), BN, BNSc Hons (UNIBO), MPH (MEDUNSA).

Lecturer

M. M. Chulu, Diploma in Midwifery, Diploma in General Nursing (Frere Hospital), Diploma in Psychiatry (Bophelong Hospital), B.A. Cur (UNISA) Diploma in Research Methodology (RAU)

Lecturer

K. K. Direko, Diploma in Intensive Care, Diploma in Midwifery (Baragwanath Hospital), Diploma in General Nursing (H.F. Verwoerd Hospital), B.A. Cur (UNISA), Advanced Diploma in Adult Education (Wits), M.Ed (Wits).

Lecturer

G. M. Masilo, Diploma in General Nursing Science (Glen Grey Hospital), Diploma in Midwifery (Tshepong Hospital), Diploma in Paediatric Nursing Science (Baragwanath Hospital), Diploma in Research Methodology (RAU), B.A. Cur (UNISA), BNSc Hons (UNW), M.A. LFC (Life Skills and Councelling).

Lecturer

M. A. Rakhudu, Diploma in Midwifery, Diploma in General Nursing (Natalspruit Hospital), Diploma in Human Resource Management (UNW), B.A. Cur, B.A. Cur Hons, (UNISA), M.Cur (PU).

Lecturer

M.J. Matsipane, Diploma in Midwifery, Diploma in General Nursing (Bophelong Nursing School), B.A. Cur, B.A. Cur Hons (UNISA), M. Cur (RAU).

Lecturer

S.M. Mokone, Diploma in General Nursing (Bophelong General Hospital), Diploma in Midwifery (George Stegman Hospital), BA Cur, BA Cur Hons (UNIBO), MSc Population studies (UNW).

Lecturer

P.M. Sithole Diploma in General Nursing (Ga-rankuwa Nursing College) Diploma in Midwifery (Elim hospital) Diploma In advanced Midwifery (Baragwanath Nursing College) Diploma in human Resource, Management (Allenby College), Diploma in Nursing Administration (UNISA) BA Cur (UNISA) BA Cur Hons (University Of Venda)

Lecturer

L.A. Sehularo BNSc (NWU) Mcur (Psychiatric Nursing) PUKE

Lecturer

Z. Manyisa Bcur, MPH (Medunsa)

Lecturer

L. Makhado BcurNS (UNIVEN) Mcur (Community Nursing Sc) (NWU)

Lecturer

N.P. Mmushi Bcur (UP) Mcur (NWU)

Resource Center Manager

P.T. Motsilanyane, RN, RM (MACON), Dip Community Nursing Science (RAU), Dip in Nursing Administration and Nursing Education (UP), Dip in Trauma and Emergency nursing Science (Chris Hani Baragwanath nursing College), B Tech Occupational Health (TUT)

PHYSICS

Professor

S. H. Taole, BSc, MSc (Wales), PhD (Ottawa)

Associate Professor

T.R. Medupe, MSc Astrophysics UCT (PhD) UCT

Senior Lecturer

S. Makgamathe, BSc (Unin), BSc Hons (Unisa), MSc (PU for CHE)

Senior Lecturer

A. Mawire, BSc Hons (NUST, Zimbabwe), MSc (UKZN), PhD (NWU)

Senior Lecturer

T Tshepe, BSc (UNISA), MSc, Ph.D (Wits), MSc (Eng. Management) UP, Cert. Risk Management (UNISA)

Lecturer

K. Dzinavatonga, BSc Hons, MSc (University of Zimbabwe)

Lecturer

S. Rwabona-Katashaya, BSc (Makerere) MSc (Dares Salaam), PhD (Essex)

M.A.1 FACULTY RULES

MA.1.1 AUTHORITY OF THE GENERAL RULES

The faculty rules valid for the different qualifications, programmes and curricula of this faculty and contained in this faculty calendar are subject to the General Rules of the University, as determined from time to time by the Council of the University on recommendation by the Senate. The faculty rules should therefore be read in conjunction with the General Rules.

MA.1.2 FACULTY-SPECIFIC RULES

1.1.General

- 1.1 The rules of the Faculty must be read in conjunction with the general rules of the University.
- 1..2 A student wishing to enrol for any module offered in the Faculty must meet all the

requirements stipulated for that module.

2. Admission Requirements

To be admitted to a degree or a diploma programme in the Faculty an applicant must satisfy the requirements of general rule 1.2 and any additional requirements stipulated for that programme.

2.1 Degrees

The University uses the <u>M-Score (Matric score)</u> rating system which awards points to 4 relevant matric subjects passed according to the scale below.

	Α	В	С	D	E	F
HG	6	5	4	3	2	1
SG	5	4	3	2	1	0

Please note that the minimum rating points depend on the programme. The Mathematics requirement is a D at SG or an E at HG.

APS level system is as follows

Level	1	2	3	4	5	6	7
Percentage	0-29	30-39	40-49	50-59	60-69	70-79	80-100
Score	1	2	3	4	5	6	7

The University also uses the (Academic Point Score) <u>APS-Score</u> rating system which awards points to 6 relevant National Senior Certificate (NSC) subjects.

THE M-SCORE AND APS SYSTEMS

APS	Marks	M SCORE	MATRIC	
NSC- level			HIGHER GRADE	STANDARD GRADE
7	80-100%	6	А	
6	70-79%	5	В	A
5	60-69%	4	С	В
4	50-59%	3	D	С
3	40-49%	2	E	D
2	30-39%	1	F	E
1	0-29%	0	G	F

Degree	NSC Subjects	APS Score
BSc 3 years		
Mathematics, Mathematics,Applied Physics, Electronics, Statistics	Mathematics Level 4 and Physical Science Level 4	20
Biology, Geography, Computer Science	Mathematics Level 3 and Physical Science Level 4	20
BSc Agric 4 years	English level 4	20
	Mathematics Level 4, Physical Science Level 4	
BNSc 4 years	Mathematics Literacy 5, Pure Mathematics level 4, physical Science level 4 or Life Science Level 4	24
BSc Land Management 3 years	Mathematics Level 3 and Life Science Level 4.	

2.2 BSc-e Degree

Students who have not achieved the required points for entry into BSc may be admitted into the BSc Extended (BSc-e) Programme.

BSc-e	NSC Subjects	APS Score
Extended Bachelor of Science (4 years)	English level 3 Mathematics Science subject level 3	20

2.3 Diplomas

Students who have not achieved the required points for entry into BSc Agric may be admitted into any of the three Agriculture Diploma Programmes.

The requirement is an M-Score of 6 plus evidence of an attempt in Mathematics <u>OR</u> an APS-Score of 15 with Mathematics Level 2 or Mathematics Literacy Level 3 and Science Level 2.

Diploma	NSC Subjects	APS Score
Diploma in Animal Health	English level 3	15
	Mathematics level 3 and	
(3 years)	Physical Science	
Diploma in Animal Science	English Level 3	15
	Mathematics Level 2 Science	
(3 years)	Subject	
Diploma in Plant Sciences	English level 3	15
(3 years)	Mathematics level 3	
	Physical Science level 3	

3 Farm Practical

- A student studying agriculture shall be required to gain farm practical experience of a minimum duration, as prescribed for a particular study programme, at an approved institution under the guidance of an approved supervisor. A mark shall be awarded for each completed period of farm practical experience.
- 3.2 A student studying agriculture shall be required to carry out practical Farm/Laboratory work at various times during semesters.

4 Examination

4.1

3.1

In terms of rule 2.4 proof of participation in a module is required for admission to any end-of-module examination. Such proof will only be issued to a student who has complied with the specific requirements of the module as set out in the relevant study guide, and has, where applicable, completed the practical work and experiential learning hours required for that module.

- 4.2 The examination methods may include class tests, assignments, practical work etc. The participation mark is the weighted mean of all marks earned in these assessments.
- 4.3 No candidate shall be admitted to an end of module assessment (Exam) unless the relevant participation requirements have been met, and a sub-minimum mark of at least 40% has been obtained.
- 4.4 The final mark in a module will be made up by combining, with equal weighting, the participation mark and the end-of-module examination mark.
- 4.5 A sub-minimum mark of 40% must be obtained in the main examination in order for a module to be completed. A subminimum is the lowest mark acceptable as proof that participation has occurred.

5 Pass Requirements

The terms and condition of passing modules and curricula are set out in general rule 2.4.3. A student will be deemed to have completed a programme only when all the modules prescribed have been passed and in accordance with the requirements sets within the school and department concerned.

Rule 2.4.3.2 and 2.4.3.4 will not be applicable to FAST so as to meet the requirements of the professional bodies. Professional bodies (South African Veterinary Council (SAVC) and South African Nursing Council SANC) requires that students pass, both theory and practical exams, with a minimum of 50% for them to be automatically registered.

6 <u>Number of Examination Opportunities</u>

The number of examination opportunities is governed by general rule 2.4.4. An implication of this rule is that a student who fails a module will not be exempted from classes in that module.

7 Readmission to a Programme

- 7.1 In compliance with general rule 1.4 a student who, at the end of one year of study in a degree or diploma programme, has obtained less than half the credits of level 1 of the curriculum will have to apply for readmission.
- 7.2 A student who at the end of two years of study in a degree or diploma programme will not have obtained half the credits prescribed for the first two years of study in that programme will have to apply for re-admission. If the re-admission is successful the student will not be permitted to take any modules from level three but will only be permitted to register for outstanding modules in levels 1 and 2.
- 7.3 The principle on module load as in 2.3.4 above shall apply.

8 Exemption from Modules completed towards another Diploma or Degree

A candidate may apply for exemption from a module if credit has been obtained for the same or an equivalent module toward another diploma or degree of either this University or another recognized University in line with rule 2.3.2 A candidate shall not be granted exemption from more than half of the total number of modules required for the curriculum.

9 Registration for additional modules

Candidate may be allowed to register for additional modules subject to the provisions of general rule 2.3.4 The Faculty reserves the right to refuse registration in cases that may lead to clashes.

MA.1.3 WARNING AGAINST PLAGIARISM

Assignments are individual tasks and not group activities (unless explicitly indicated as group activities). For further details see:

http://www@nwu.ac.za

MA.1.4 CAPACITY STIPULATION

Please take cognizance of the fact that, owing to specific capacity constraints, the University reserves the right to select candidates for admission to certain fields of study. This means that prospective students who comply with the minimum requirements may not necessarily be admitted to the relevant courses.

School	Subject group
	Agricultural Economics and Extension
Agricultural Sciences	Animal Science
(SOAS)	Plant Sciences
	Centre for Animal Health Studies (CAHS)
	Biological Sciences
Environmental and Health	Biochemistry
(SoEHS)	Geography and Environmental Sciences
	Microbiology
	Nursing Sciences
	Centre for Air and Water Research (CAWR)
	Chemistry
Mathematical and Physical Sciences	Mathematical Sciences
(SoMPS)	Physics and Electronics
	Computer Science
Centre for Applied Radiation Science and Technology (CARST)	

MA.1.5 SCHOOLS OF THE FACULTY

MA.1.6 QUALIFICATIONS, PROGRAMMES AND CURRICULA

DIPLOMAS				
Qualification	Programme and code	Curriculum and code	Method of	NQF level
			delivery	
University Diploma in Animal Health	Animal Health 266 100	Curriculum N102M	Full-time	7
Diploma In Agric In Animal Science	Animal Science – 279 100	N101M	Full-time	7
Diploma In Agric In Plant Sciences	Plant Sciences – 279 101	N101M	Full-time	7
FIRST BACHELOR DI	EGREES			
Qualification	Programme and code	Curriculum and code	Method of deliver y	NQF level
Bachelor Of Science (BSc) Agriculture	Agric Economics – 267 100	Agric Economics - N 401M	Full- time	8
Bachelor Of Science (BSc) Agriculture	Animal Health – 267 -101	Animal Health N401M	Full- time	8
Bachelor Of Science (BSc) Agriculture	Animal Science - 267 102	Animal Science - N401M	Full- time	8
Bachelor Of Science (BSc) Agriculture	Plant Sciences – 267 - 103	Plant Sciences – N401M	Full- time	8
Bachelor Of Science	Land Management - 268 100	Land Management - N108M	Full- time	7
Bachelor Of Nursing (BN)	BN IN Education 269 101	Nursing Education N110M	Full- time	7
Bachelor Of Nursing (BN)	Bn In Management 269- 100	Nursing Management N109m	Full- time	7
Bachelor Of Nursing Science (BNSc)	Bachelor Of Nursing Science - 270 102	Nursing Science N111N	1 Full- time	8
Bachelor Of Science (BSc)	BSc – Extended 200 158	Applied Mathematics Mathematic N 301M	Full- time	7
Bachelor Of Science (BSc)	BSc - Extended 200 157	Applied Mathematics & Computer Science N 301M	Full- time	7
Bachelor Of Science (BSc)	BSc - Extended 200 159	Biology – Chemistry N 301M	Full- time	7
Bachelor Of Science (BSc)	BSc – Extended 200 160	Chemistry - Physics N 301M	Full- time	7
Bachelor Of Science (BSc)	BSc - Extended 200 161	Computer Science - Electronics N 301M	Full- time	7
Bachelor Of Science (BSc)	BSc – Extended 200 162	Computer Science - Mathematics N 301M	Full- time	7

Bachelor Of Science (BSc)	BSc in Mathematics – Statistics	Mathematics – Statistics N301M	Full- time	7
Bachelor Of Science (BSc)	200 165 Extended BSc in Mathematics - Electronics 200 163 Extended	BSc Mathematics - Electronics N301M	Full- time	7
Bachelor Of Science (BSc)	BSc in Mathematics – Physics 200 164 Extended	Mathematics – Physics N301M	Full- time	7
Bachelor Of Science (BSc)	BSc in Applied Mathematics - Chemistry - 200 169	Applied Mathematics – Chemistry N 112M	Full- time	7
Bachelor Of Science (BSc)	BSc in Applied Mathematics – Electronics 200 171	Applied Mathematics – Electronics N114M	Full- time	7
Bachelor Of Science (BSc)	BSc in Applied Mathematics – Mathematics 200 172	Applied Mathematics- Mathematics N115M	Full- time	7
Bachelor Of Science (BSc)	BSc in Applied Mathematics – Physics 200 152	Applied Mathematics – Physics N116M	Full- time	7
Bachelor of Science (Bsc)	BSc in Biology – Chemistry 200 173	Biology – Chemistry N 117M	Full- time	7
Bachelor of Science (Bsc)	BSc in Biochemistry - Chemistry 200 190	Biochemistry - Chemistry N174M	Full- time	7
Bachelor of Science (Bsc)	BSc in Microbiology - Biochemistry 200 118	Microbiology – Biochemistry N167M	Full- time	7
Bachelor of Science (Bsc)	BSc in Microbiology- Chemistry 200 118	Microbiology- Chemistry N168M	Full- time	7
Bachelor of Science (Bsc)	BSc in Biology – Geography) 200 174	Biology – Geography) N118M	Full- time	7
Bachelor Of Science (BSc)	BSc in Mathematics – Computer Science 200 137	BSc Mathematics – Computer Science N127M	Full- time	7
Bachelor Of Science (BSc)	BSc in Mathematics – Electronics 200 179	BSc Mathematics - Electronics N129M	Full- time	7
Bachelor Of Science (BSc)	BSc in Chemistry- Physics 200 129	Chemistry –Physics N 124M	Full - time	7
Bachelor of science (BSc)	BSc in Computer Science – Geography 200 178	Computer Science – Geography N126M	Full- time	7
Bachelor of science (BSc)	BSc in Geography – Chemistry 200 150	Geography – Chemistry N122M	Full- time	7
Bachelor Of Science (BSc)	BSc in Mathematics – Chemistry 200 140	Mathematics - Chemistry N123M	Full - time	7
Bachelor Of Science (BSc)	BSc in Mathematics – Physics 200 134	Mathematics – Physics N131M	Full- time	7
Bachelor Of Scienc (BSc)	BSc in Mathematics – Statistics	Mathematics – Statistics N132M	Full- time	7

	200 138			
Bachelor Of Science	BSc in Electronics-	Electronics – Physics N	Full-	7
(BSc)	Physics 200 180	130M	time	
Bachelor Of Science	BSc in Computer	Computer Science -	Full-	7
(BSc)	Science - Chemistry -	Chemistry N 120M	time	
	200 130			
Bachelor Of Science	BSc in Computer	Computer Science –	Full-	7
(BSc)	Science - Electronics -	Electronics N 125M	time	
	200 177			
Bachelor Of Science	BSc in Computer	Computer Science –	Full-	7
(BSc)	Science – Physics 200	Physics N 128M	time	
	132	-		

MA.1.7 RULES FOR THE DIPLOMA AND DEGREE

MA.1.7.1 Duration (minimum and maximum duration) Minimum and Maximum Duration

The minimum duration of the studies for the undergraduate diplomas is three years and the maximum duration is four years of full time study.

The minimum duration of the studies for the degree in Land Management is three years and the maximum duration is four years of full time study.

The minimum duration of the studies for the other first degree programmes in the school is four years and the maximum duration is five years of full time study.

MA .1.7.2 Admission

To be admitted to diploma study programmes, a student must satisfy the requirements of general rule 1.2

To be admitted to degree study programmes, a student must satisfy the Faculty Sepecific Requirements rule 2. A pass in mathematics, physical science and/or biology will be an advantage.

Students who hold a diploma in Animal Health may be admitted into the Animal Health degree programme and be exempted from courses in accordance with rule 2.3.2

MA. 1.7.3 MODULE LISTS

Diploma In A	Animal Health		
Module	Descriptive name	Prerequisites	Credits
code			
AHVM 111	Anatomy and Physiology : Animal Health 1	None	12
AHVM 122	Anatomy and Physiology : Animal Health	None	12
	11		
AHVM 112	Animal Handling and equipments I	None	8
AHVM 123	Animal Handling and equipments II	None	8
AHVM 121	Basic Microbiology for Animal Health	None	12
AHVM 211	Diseases I	AHVM 121	16
AHVM 221	Diseases II	AHVM 121	16
AHVM 212	Parasitology for Animal Health	None	8

AHVM 223	Pharmacology and Toxicology: Animal health	None	16			
AHVM 222	Obstetrics and Genital Diseases:Animal Health	None	16			
AHVM 224	Public Health for Animal Health	None	8			
AHVM 225	Clinical Laboratory Techniques	AHVM 121	8			
AHVM 311	Companion Animal Medicine and surgery I	AHVM 111, 122, 223	16			
AHVM 321	Companion Animal Medicine and surgery II	AHVM 111, 122, 223	16			
AHVM 312	Production Animal Medicine and surgery I	AHVM 111, 122, 223	16			
AHVM 322	Production Animal Medicine and surgery II	AHVM 111, 122, 223	16			
AHVM 313	Pathology I	AHVM 111 8				
AHVM 323	Pathology II	AHVM 122 8				
AHVM 314	Epidemiology and Jurisprudence	None	8			
AHVM 315	Practical learning and Experiential Learning	None	8			
AHVM325	Practical learning and Experiential Learning	None	8			
AHVM 324	Scheduled Diseases	None	8			
BSc Agric I	Animal Health					
Module	Descriptive name	Prerequisites	Credits			
code						
AHPM 211	Microbiology for Animal Health	jy for Animal Health None				
AHPM 212	Anatomy and Physiology I for Animal health	None	16			
AHPM 221	Anatomy and Physiology II for Animal Health	None	8			
AHPM 222	Animal Handling and equipments I	None	8			
AHPM 314	Animal Handling and equipments II	None	8			
AHPM 311	Diseases I	AHPM 211	16			
AHPM 321	Diseases II	AHPM 211	16			
AHPM 322	Parasitology: Animal Health	None	16			
AHPM 323	Pharmacology and Toxicology: Animal	None	16			
	Health					
AHPM 313	Obstetrics and Genital Diseases: Animal Health	None	16			
AHPM 313 AHPM 324	Obstetrics and Genital Diseases: Animal Health Veterenary Animal Health 1	None	16 8			
AHPM 313 AHPM 324 AHPM 325	Obstetrics and Genital Diseases: Animal Health Veterenary Animal Health 1 Clinical Laboratory Techniques	None None AHPM 211	16 8 8			
AHPM 313 AHPM 324 AHPM 325 AHPM 312	Obstetrics and Genital Diseases: Animal Health Veterenary Animal Health 1 Clinical Laboratory Techniques Epidemiology and Jurisprudence	None None AHPM 211 None	16 8 8 8			
AHPM 313 AHPM 324 AHPM 325 AHPM 312 AHPM 411	Health Obstetrics and Genital Diseases: Animal Health Veterenary Animal Health 1 Clinical Laboratory Techniques Epidemiology and Jurisprudence Companion Animal Medicine and surgery I	None None AHPM 211 None AHPM 212, 221, 323	16 8 8 8 16			
AHPM 313 AHPM 324 AHPM 325 AHPM 312 AHPM 411 AHPM 421	Health Obstetrics and Genital Diseases: Animal Health Veterenary Animal Health 1 Clinical Laboratory Techniques Epidemiology and Jurisprudence Companion Animal Medicine and surgery I Companion Animal Medicine and surgery II	None None AHPM 211 None AHPM 212, 221, 323 AHPM 212, 221, 323	16 8 8 8 16 16			
AHPM 313 AHPM 324 AHPM 325 AHPM 312 AHPM 411 AHPM 421 AHPM 412	Health Obstetrics and Genital Diseases: Animal Health Veterenary Animal Health 1 Clinical Laboratory Techniques Epidemiology and Jurisprudence Companion Animal Medicine and surgery I Companion Animal Medicine and surgery II Production Animal Medicine and surgery I	None None AHPM 211 None AHPM 212, 221, 323 AHPM 212, 221, 323 AHPM 212, 221, 323	16 8 8 8 16 16 16 16			
AHPM 313 AHPM 324 AHPM 325 AHPM 312 AHPM 411 AHPM 421 AHPM 412 AHPM 422	Health Obstetrics and Genital Diseases: Animal Health Veterenary Animal Health 1 Clinical Laboratory Techniques Epidemiology and Jurisprudence Companion Animal Medicine and surgery I Companion Animal Medicine and surgery II Production Animal Medicine and surgery I Production Animal Medicine and surgery I	None None AHPM 211 None AHPM 212, 221, 323 AHPM 212, 221, 323 AHPM 212, 221, 323 AHPM 212, 221, 323	16 8 8 8 16 16 16 16 16			
AHPM 313 AHPM 324 AHPM 325 AHPM 312 AHPM 411 AHPM 421 AHPM 412 AHPM 422 AHPM 413	Health Obstetrics and Genital Diseases: Animal Health Veterenary Animal Health 1 Clinical Laboratory Techniques Epidemiology and Jurisprudence Companion Animal Medicine and surgery I Companion Animal Medicine and surgery II Production Animal Medicine and surgery I Pathology I	None None AHPM 211 None AHPM 212, 221, 323 AHPM 212, 221, 323 AHPM 212, 221, 323 AHPM 212, 221, 323 AHPM 212	16 8 8 8 16 16 16 16 16 8			
AHPM 313 AHPM 324 AHPM 325 AHPM 312 AHPM 411 AHPM 421 AHPM 412 AHPM 412 AHPM 422 AHPM 413 AHPM 423	Health Obstetrics and Genital Diseases: Animal Health Health Veterenary Animal Health 1 Clinical Laboratory Techniques Epidemiology and Jurisprudence Companion Animal Medicine and surgery I Companion Animal Medicine and surgery II Production Animal Medicine and surgery I Pathology I	None None AHPM 211 None AHPM 212, 221, 323 AHPM 212, 221, 323 AHPM 212, 221, 323 AHPM 212, 221, 323 AHPM 212 AHPM 212	16 8 8 8 16 16 16 16 16 8 8 8			
AHPM 313 AHPM 324 AHPM 325 AHPM 312 AHPM 411 AHPM 421 AHPM 412 AHPM 412 AHPM 413 AHPM 423 AHPM 414	Health Obstetrics and Genital Diseases: Animal Health Health Veterenary Animal Health 1 Clinical Laboratory Techniques Epidemiology and Jurisprudence Companion Animal Medicine and surgery I Production Animal Medicine and surgery II Production Animal Medicine and surgery I Pathology I Pathology II Practical learning and Experiential Learning I	None None AHPM 211 None AHPM 212, 221, 323 AHPM 212, 221, 323 AHPM 212, 221, 323 AHPM 212, 221, 323 AHPM 212 AHPM 212 None	16 8 8 16 16 16 16 8 8 8 8			
AHPM 313 AHPM 324 AHPM 325 AHPM 312 AHPM 411 AHPM 421 AHPM 412 AHPM 413 AHPM 423 AHPM 414 AHPM 424	Health Obstetrics and Genital Diseases: Animal Health Health Veterenary Animal Health 1 Clinical Laboratory Techniques Epidemiology and Jurisprudence Companion Animal Medicine and surgery I Production Animal Medicine and surgery I Prathology I Prathology II Practical learning and Experiential Learning I Practical learning and Experiential Learning II	None None AHPM 211 None AHPM 212, 221, 323 AHPM 212, 221, 323 AHPM 212, 221, 323 AHPM 212, 221, 323 AHPM 212 AHPM 212 None None	16 8 8 16 16 16 8 8 8 8 8 8 8 8 8			
AHPM 313 AHPM 324 AHPM 325 AHPM 312 AHPM 411 AHPM 421 AHPM 412 AHPM 412 AHPM 413 AHPM 413 AHPM 423 AHPM 414 AHPM 423 AHPM 424 AHPM 424	Health Obstetrics and Genital Diseases: Animal Health Veterenary Animal Health 1 Clinical Laboratory Techniques Epidemiology and Jurisprudence Companion Animal Medicine and surgery I Production Animal Medicine and surgery I Prathology I Prathology II Practical learning and Experiential Learning I I Scheduled Diseases	None None AHPM 211 None AHPM 212, 221, 323 AHPM 212, None None None None	16 8 8 8 16 16 16 16 8 8 8 8 8 8 8 8			
AHPM 313 AHPM 324 AHPM 325 AHPM 312 AHPM 411 AHPM 421 AHPM 412 AHPM 412 AHPM 413 AHPM 413 AHPM 424 AHPM 424 AHPM 425	Health Obstetrics and Genital Diseases: Animal Health Veterenary Animal Health 1 Clinical Laboratory Techniques Epidemiology and Jurisprudence Companion Animal Medicine and surgery I Production Animal Medicine and surgery I Protocical Learning and Experiential Learning I Practical learning and Experiential Learning II Scheduled Diseases Research Project and Seminar	None None AHPM 211 None AHPM 212, 221, 323 AHPM 212, None None None None None None	16 8 8 16 16 16 8 8 8 8 8 16 16 16 16 16 8 8 16			

Bachelor of Science in Agriculture in Agricultural Economics			
Module	Descriptive name	Prerequisites	Credits
code			
AEDM 111	Introduction to Agricultural Economics	NONE	12
AXDM 211	Fundamentals of Agricultural Extension	NONE	16
AEDM314	Farm Management and Accounting	AEDM 111	8
AECM111	Introduction to Agricultural Economics	NONE	12
AEXM211	Fundamentals of Agricultural Extension	NONE	16
AEXM212	Communication and Agricultural Technology Transfer	AEXM 211	8
AECM213	Food Security Analysis	AECM 111	8
WVNS211	Understanding the world of Natural Sciences	NONE	12
WVAS221	Understanding the world of Agriculture	NONE	12
AECM221	Land Reform and Agricultural Development	NONE	8
AEXM222	Agricultural Extension for Development	NONE	8
AECM223	Farm Accounting	NONE	8
AECM311	Agricultural Micro-Economics	AECM 111	16
AECM312	International Agricultural Trade	AECM 111	8
AECM313	Agricultural Statistics for Research I	ANSM 121	16
AECM314	Farm Management and Accounting	AECM 111	8
AECM321	Land Resource and Environmental Economi	AECM 111	16
AECM322	Agricultural Production Economics	AECM 111 AND AECM 311	16
AECM323	Agricultural Marketing	AECM 314	8
AEXM324	Agricultural Rural Sociology	AEXM 211 AND AEXM 222	8
AECM325	Agricultural Macro-Economics	AECM 111 AND AECM 311	8
AECM411	Agricultural Project Appraisal and Managem	AECM 314	8
AECM412	Research Project and Seminar I		8
AECM413	Quantitative Methods in Agricultural Econom	AECM 311 AND AECM 325	8
AECM414	Agricultural Statistics for Research II	AECM 313	8
AECM415	Agribusiness Management	AECM 314	8
AECM421	Farm Planning and Linear Programming	AECM 314	8
AECM422	Agricultural Policy Analysis	NONE	8
AECM423	Agricultural Finance	AECM 314	8
AECM424	Agriculture and Economic Development	AECM 221 AND AECM 311	8
AECM425	Research Project and Seminar II		8
Diploma in A	nimal Science		
Module	Descriptive name	Prerequisites	Credits
code			
ANDM 121	Introduction to Animal Science	None	12
ANDM 122	Non – Ruminant Production	None	8
ANDM 211	Animal Nutrition	ANDM 121	16
ANDM 212	Animal Genetics and Breeding	None	8
ANDM 213	Ruminant Animal Production	None	8
ANDM 221	Small Stock Production and Management	ANDM 121	16
ANDM 223	Beet Production and Management	ANDM 121	16
ANDM 225	Principles of Veld Management	None	16

ANDM 313 Dairy Production and Management ANDM 121 16 ANDM 314 Pig Production and Management ANDM 121 16 ANDM 314 Pig Production and Management ANDM 121 16 ANDM 314 Practical Animal Production ANDM 121, ANDM 223, ANDM 312; ANDM 313 and ANDM 314 6 Bachelor of Science in Agriculture – Animal Science Module Credits Module Descriptive name Prerequisites Credits ANSM 121 Introduction to Agricultural Biometry None 12 ANSM 211 Introduction to Agricultural Biometry None 16 ANSM 214 Ruminant Production Science None 8 ANSM 222 Animal Breeding and Genetics None 8 ANSM 223 Animal Nutrition None 16 ANSM 224 Non – Ruminant Production None 8
ANDM 314 Pig Production and Management ANDM 121 16 ANDM 321 Practical Animal Production ANDM 121, ANDM 223, ANDM 312; ANDM 313 and ANDM 314 6 Bachelor of Science in Agriculture – Animal Science Module 21, ANDM 312; ANDM 313 and ANDM 314 6 Module code Descriptive name Prerequisites Credits ANSM 121 Introduction to Agricultural Biometry None 12 ANSM 211 Introduction to Agricultural Biometry None 16 ANSM 214 Ruminant Production Science None 8 ANSM 222 Animal Breeding and Genetics None 8 ANSM 223 Animal Nutrition None 16 ANSM 224 Non – Ruminant Production None 8
ANDM 321 Practical Animal Production ANDM 121, ANDM 223, ANDM 223, ANDM 312; ANDM 313 and ANDM 314 6 Bachelor of Science in Agriculture – Animal Science Module 313 and ANDM 314 6 Module code Descriptive name Prerequisites Credits ANSM 121 Introduction to Agricultural Biometry None 12 ANSM 211 Introduction to Agricultural Biometry None 16 ANSM 214 Ruminant Production Science None 8 ANSM 222 Animal Breeding and Genetics None 16 ANSM 223 Animal Nutrition None 8 ANSM 224 Non – Ruminant Production None 8
ANDM 321 221, ANDM 223, ANDM 312; ANDM 313 and ANDM 314 Bachelor of Science in Agriculture – Animal Science Module code Descriptive name Prerequisites Credits ANSM 121 Introduction to Agricultural Biometry None 12 ANSM 211 Introduction to Animal Science None 16 ANSM 214 Ruminant Production Science None 8 ANSM 222 Animal Breeding and Genetics None 8 ANSM 223 Animal Nutrition None 16 ANSM 224 Non – Ruminant Production None 8
ANDM 321 ANDM 312; ANDM 313 and ANDM 314 Bachelor of Science in Agriculture – Animal Science Prerequisites Credits Module code Descriptive name Prerequisites Credits ANSM 121 Introduction to Agricultural Biometry None 12 ANSM 211 Introduction to Animal Science None 16 ANSM 214 Ruminant Production Science None 8 ANSM 222 Animal Breeding and Genetics None 16 ANSM 223 Animal Nutrition None 16 ANSM 224 Non – Ruminant Production None 8
313 and ANDM 314 Bachelor of Science in Agriculture – Animal Science Module code Descriptive name Prerequisites Credits ANSM 121 Introduction to Agricultural Biometry None 12 ANSM 211 Introduction to Animal Science None 16 ANSM 214 Ruminant Production Science None 8 ANSM 222 Animal Breeding and Genetics None 8 ANSM 223 Animal Nutrition None 16 ANSM 224 Non – Ruminant Production None 8
Bachelor of Science in Agriculture – Animal Science Module code Descriptive name Prerequisites Credits ANSM 121 Introduction to Agricultural Biometry None 12 ANSM 211 Introduction to Agricultural Biometry None 16 ANSM 214 Ruminant Production Science None 8 ANSM 222 Animal Breeding and Genetics None 8 ANSM 223 Animal Nutrition None 16 ANSM 224 Non – Ruminant Production None 8
Bachelor of Science in Agriculture – Animal Science Module code Descriptive name Prerequisites Credits ANSM 121 Introduction to Agricultural Biometry None 12 ANSM 211 Introduction to Animal Science None 16 ANSM 214 Ruminant Production Science None 8 ANSM 222 Animal Breeding and Genetics None 8 ANSM 223 Animal Nutrition None 16 ANSM 224 Non – Ruminant Production None 8
Module codeDescriptive namePrerequisitesCreditsANSM 121Introduction to Agricultural BiometryNone12ANSM 211Introduction to Animal ScienceNone16ANSM 214Ruminant Production ScienceNone8ANSM 222Animal Breeding and GeneticsNone8ANSM 223Animal NutritionNone16ANSM 224Non – Ruminant ProductionNone8
codeNone12ANSM 121Introduction to Agricultural BiometryNone12ANSM 211Introduction to Animal ScienceNone16ANSM 214Ruminant Production ScienceNone8ANSM 222Animal Breeding and GeneticsNone8ANSM 223Animal NutritionNone16ANSM 224Non – Ruminant ProductionNone8
ANSM 121Introduction to Agricultural BiometryNone12ANSM 211Introduction to Animal ScienceNone16ANSM 214Ruminant Production ScienceNone8ANSM 222Animal Breeding and GeneticsNone8ANSM 223Animal NutritionNone16ANSM 224Non – Ruminant ProductionNone8
ANSM 211Introduction to Animal ScienceNone16ANSM 214Ruminant Production ScienceNone8ANSM 222Animal Breeding and GeneticsNone8ANSM 223Animal NutritionNone16ANSM 224Non – Ruminant ProductionNone8
ANSM 214Ruminant Production ScienceNone8ANSM 222Animal Breeding and GeneticsNone8ANSM 223Animal NutritionNone16ANSM 224Non – Ruminant ProductionNone8
ANSM 222Animal Breeding and GeneticsNone8ANSM 223Animal NutritionNone16ANSM 224Non – Ruminant ProductionNone8
ANSM 223Animal NutritionNone16ANSM 224Non – Ruminant ProductionNone8
ANSM 224 Non – Ruminant Production None 8
WVNS 211 Understanding the World of Natural None 12
Science
WVAS 221 Understanding the World of Agriculture None 12
ANSM 311 Principles of Veld Management None 16
ANSM 312 Applied Agricultural Biometry ANSM 121 16
ANSM 313 Agricultural Biochemistry MCHE 114 and 12
MCHE 123
ANSM 314 Physiology of Reproduction and Growth AHPM 212 and AHPM 16
221
ANSM 321 Applied Ruminant Nutrition ANSM 223 16
ANSM 322 Planted pastures and Fodder crops None 8
ANSM 323 Quantitative Genetics ANSM 222 16
ANSM 324 Smallstock Production and Science ANSM 211 16
ANSM 411 Applied Monogastric nutrition ANSM 223 16
ANSM 412 Applied Animal Breeding ANSM 323 16
ANSM 413 Research Project and Seminar i none 16
ANSM 414 Large Stock Production and Science ANSM 211 8
ANSM 421 Research Project and sseminar ii ANSM 413 16
ANSM 422 Pig Sscience ANSM 211 8
ANSM 423 Practical Experience None 8
ANSM 424 Poultry Sscience ANSM 211 16
ANSM 425 Dairy & Meat Ssciences ANSCM 313 and 16
ANSM 314
Diploma in Plant Sciences Module Descriptive name Credite
code
CSDM 111 Botany for Agriculture None 12
CSDM 121 Introduction to Crop Production None 12
L CSDM 211 L Intro to Soil Science L None 16
CSDM 211 Intro. to Soil Science None 16 CSDM 214 Farm Practical None 8
CSDM 211 Intro. to Soil Science None 16 CSDM 214 Farm Practical I None 8 CSDM 212 Agricultural Climatology None 12
CSDM 211 Intro. to Soil Science None 16 CSDM 214 Farm Practical I None 8 CSDM 212 Agricultural Climatology None 12 CSDM 213 Farm Machinery None 16
CSDM 211 Intro. to Soil Science None 16 CSDM 214 Farm Practical I None 8 CSDM 212 Agricultural Climatology None 12 CSDM 213 Farm Machinery None 16 CSDM 215 Vegetable Production CSDM 121 8
CSDM 211Intro. to Soil ScienceNone16CSDM 214Farm Practical INone8CSDM 212Agricultural ClimatologyNone12CSDM 213Farm MachineryNone16CSDM 215Vegetable ProductionCSDM 1218CSDM 222Soil Fertility and FertilizersCSDM 2118
CSDM 211Intro. to Soil ScienceNone16CSDM 214Farm Practical INone8CSDM 212Agricultural ClimatologyNone12CSDM 213Farm MachineryNone16CSDM 215Vegetable ProductionCSDM 1218CSDM 222Soil Fertility and FertilizersCSDM 2118CSDM 221Principles of Crop ImprovementNone16

CSDM 223	Soil Conservation	CSDM 211	12
CSDM 225	Fruit Production	CSDM 121	8
CSDM 311	Agronomy of Summer Crops	CSDM 211 AND CSDM221	8
CSDM 312	Plant Protection	CSDM 214	16
CSDM315	Pedology and Soil Classification	CSDM 211 AND CSDM221	8
CSDM 321	Agronomy of Winter Crops	CSDM 211 AND CSDM221	8
CSDM 322	Weeds & Weeds Control	CSDM 312	16
CSDM 325	Practical Crop Production	None	8
CSDM 324	Elementary Irrigation	CSDM 211	16
CSDM 323	Elements of Agric. Microbiology	None	16
BSc Agric in	Plant Sciences		
Module	Descriptive name	Prerequisites	Credits
code		-	
CSPM211		None	16
	Introd. to Soil Science		
CSPM212	Agric I Climatology	None	12
CSPM213	Farm Machinery	None	8
	Understanding the world of Natural		12
WVNS 211	Sciences	None	
CSPM221	Intro to Crop Production	None	16
CSPM222	Soil Fertility and Fertilizers	CSPM221	16
CSPM223	Soil Conservation	CSPM211	12
CSPM224	Agricultural Microbiology	CSPM211	16
WVAS221	Inderstanding the world of Agriculture	None	12
WWIGELI	Charlotanang the world of Agriculture	CSPM211 AND	12
CSPM311	Agron: Summer Crops	CSPM221	8
00110011		CSPM221 AND	0
CSPM312	Plant Protection	CSPM224	16
001 11012		CSPM221 AND	
CSPM313	Vegetable Production	CSPM222	16
001 11010		CSPM211 AND	
CSPM321	Aaron: Winter Crops	CSPM221	8
CSPM322	Weeds & Weed Control	CSPM313	16
CSPM323	Fruits Production	CSPM313	16
CSPM324	Principles of Irrigation	CSPM211	16
CSPM325	Plant Physiology	None	8
001 11020	Thank Thybiology	CSPM311 AND	0
		CSPM321	
CSPM /11	Crop Production Systems		8
CSPM 412	Plant Brooding	Nono	16
CSPM 412	Harticultural Science	CERM222	10
CSPIN 413	Soil Chamiatry	CSPN023	0
CSPN 414	Bodelagy and Soil Clasifection		0
CSPIVI 415	Cell Physics		0
COPN1410	OUI FILYSICS	Nana	Ö C
05PM417	Practical Grop Production I	None	8 10
CSPIVI418	Project and Seminar I	INOTIE	16
05PM421			16
00004400	Gree Dratestien	CSPM311,CSPM321,	10
USPM422	Grop Protection	05PM322	16

00004404		CSPM 211 AND	16
CSPM 424	Soil Microbiology	CSPM 224	
CSPM427	Practical Crop Production II	None	8
CSPM428	Project and Seminar II	CSPM 418	16
Biology			
Module Code	Descriptive name	Prerequisites	Credits
SFBM 111	Introduction To Cell Biology	None	12
SFBM 121	Introduction To Biological Concepts	None	12
BIYM 111	Elements of Human Anatomy	None	12
BIYM 112	Elements of physiology	None	12
BIYM 114	Introduction to Microbiology	None	12
BIYM 121	Human Anatomical Systems	None	12
BIYM 122	Applied Biochemistry	None	12
BIYM 124	Systems Physiology	None	12
BIYM 123	Agric Zoology	None	12
BIYM 125	Agric Zoology	None	12
BIYM 221	Agric Biochemistry	None	12
BGYM 113	Introductory Biology	None	12
BGYM 123	Plant systematics and lower vertebrates	None	12
BGYM 212	Introductory Genetics	None	8
(213)			
BGYM 214	Bacteriology and Microbial Ecology	BGYM 113 & 123	8
BGYM 215	Taxonomy	BGYM 113 &123	8
BGYM 216	Ecology and Biostatistics	BGYM 113 & 123	8
BGYM 225	Immunology and Virology	BGYM 113 & 123	8
BGYM 226	Physiology & Intro to Entomology & Parasitology	BGYM 113 & 123	8
BGYM (221) 227	Advanced Molecular Genetics	BGYM 213	8
BGYM (311) 316	Advanced Ecology and Biostatistics II	BGYM 216	16
BGYM(222) 313	Bacterial Metabolism	BGYM 214	16
BGYM (321) 314	Appl. Micro and Microbial Diversity	BGYM 214	16
BGÝM (312) 315	Systematics	BGYM 123	16
BGYM (322) 326	Industrial Microbiology and Biotechnology	BGYM 314	32
BGYM (311) 325	Physiology and Morphogenesis		32
BGYM 371	UNDERGRADUTE PROJECT		16
2011071			
Chemistry			
Module	Descriptive name	Prerequisites	Credits
code			
SFCM 111	Foundation Chemistry I	None	12
SFCM 121	Foundation Chemistry II	None	12
MCHE 114	Introductory Chemistry I	None	12
MCHE 121	Introductory Chemistry II	None	12
MCHE 215	Physical Chemistry I	MCHE 114 or MCHE 121	8

MCHE 216	Inorganic Chemistry I	MCHE 114 or MCHE	8
MCHE 221	Organic Chemistry I	MCHE 114 or MCHE	8
MCHE 223	Analytical Chemistry I	MCHE 114 or MCHE 121	8
MCHE 315	Organic Chemistry II	MCHE 114, MCHE 121 MCHE 221	16
MCHE 316	Analytical Chemistry II	MCHE 114, MCHE 121, MCHE 223	16
MCHE 321	Physical Chemistry II	MCHE 114, MCHE 121, MCHE 215, PHYM 118, PHYM 124, MAYM 117, MAYM 127	16
MCHE 322	Inorganic Chemistry II	MCHE 114, MCHE 121, MCHE 216	16
Biochemistry			
Module code	Descriptive name	Prerequisites	CREDIT
BCHS 211	Introduction to Biochemistry	MCHE 121	8
BCHS 212	Introduction to Enzymology	MCHE 121	8
BCHS 221	Metabolic Processes I	BCHS 211 and 212	8
BCHS 222	Metabolic Processes II	BCHS 211 and 212	8
BCHS 314	Molecular and Cell Biology	BCHS 211 and 212	16
BCHS 315	Advanced Biochemistry and Molecular	BCHS 211 and 212	16
BCHS 324	Analytical Biochemistry	BCHS 211	16
BCHS 325	Project	BCHS 211 and 212	16
Microbiology			10
Module code	Descriptive name	Prereguisites	CREDIT
MKRS M 211	Introduction to Microbiology	none	8
MKBS 212	Introduction to Microbial Genetics	none	8
MKBS 222	Microbial Diversity and Physiology (Bacteria, Eunai)	MKBS 211	8
MKBS 223	Introduction to Recombinant DNA Technology and Bioinformatics	MKBS 211	8
MKBS 316	Microbial Ecology	MKBS 221	16
MKBS 317	Environmental Microbiology and Public Health	MKBS 211	16
MKBS 326	Industrial Microbiology and Biotechnology	MKBS 211 and212	16
MKBS 327	Virology and Immunology	MBSM 212	16
Computer Sc	ience		
Module	Descriptive name	Prerequisites	Credits
code			
CISM 111	Introduction to Computing	None	
CISM 122	Progamming and Problem Solving	CISM 111	12
CISM 123	Programming Practicals	CISM 111	12
CISM 124	End User Computing	CISM 122,123	12
CISM 211	Alogrithms Design and Data Structures	CISM 122,123	8
CISM 212	Imperative and Object oriented Languages	CISM 122,123	8
CISM 223	Architecture and Operating Systems	CISM 122,123	8

01011007		01011 100 100	•		
CISM 224	Introduction to Software Engineering	CISM 122,123	8		
CISM 311	Introduction to Databases	CISM 211,212 16			
CISM 312	Theory of Computation and Translation	CISM 211,212	8		
CISM 323	Net-Centric Computing	CISM 211,212	8		
CISM 324	Artificial Intelligence	CISM 211,212	16		
CISM 325	Graphics	CISM 211,212	16		
Electronics					
Module code	Descriptive name	Prerequisites	CREDIT		
ELYM 115	Electricity, Magnetism and Circuits	D(SG) or E (HG) in	12		
		Mathematics and at			
		least an E in Physical			
		Science			
ELYM 127	Introduction to Electronics	D(SG) or E (HG) in	12		
		Mathematics and at			
		least an E in Physical			
		Science			
ELYM 215	Analogue Electronics and Systems	Pass in ELYM 115	16		
	, , , , , , , , , , , , , , , , , , ,	and ELYM 127			
ELYM 227	Digital Electronics and systems	Pass in ELYM 115	16		
	, , , , , , , , , , , , , , , , , , ,	and ELYM 127			
ELYM 315	Advanced Analogue Electronics	Pass in ELYM 215 and	16		
	ő	ELYM 227			
ELYM 316	Introduction to Signals and Systems	Pass in ELYM 215 and	16		
	, , , , , , , , , , , , , , , , , , ,	ELYM 227			
ELYM 327	Advanced Digital Techniques and systems	Pass in ELYM 215 and	16		
_		ELYM 227			
ELYM 328	Introduction to Microcontroller systems	Pass in ELYM 215 and	16		
	2				
		ELYM 227			
Geography		ELYM 227			
Geography Module	Descriptive name	ELYM 227 Prerequisites	Credits		
Geography Module code	Descriptive name	Prerequisites	Credits		
Geography Module code GEOM 113	Descriptive name Introduction to Physical Geography	Prerequisites None	Credits 12		
Geography Module code GEOM 113 GEOM 123	Descriptive name Introduction to Physical Geography Introduction to Human Geography	Prerequisites None None	Credits 12 12		
Geography Module code GEOM 113 GEOM 123 GEOM 214	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography	Prerequisites Prerequisites None GEOM 113, GEOM 123	Credits 12 12 8		
Geography Module code GEOM 113 GEOM 123 GEOM 214 GEOM 215	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers	ELYM 227 Prerequisites None GEOM 113, GEOM 123 GEOM 113, GEOM 123	Credits 12 12 8 8 8		
Geography Module code GEOM 113 GEOM 123 GEOM 214 GEOM 215 GEOM 224	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers Physical Geography	ELYM 227 Prerequisites None GEOM 113, GEOM 123 GEOM 113, GEOM 123 GEOM 113, GEOM	Credits 12 12 8 8 8 8		
Geography Module code GEOM 113 GEOM 123 GEOM 214 GEOM 215 GEOM 224	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers Physical Geography	ELYM 227 Prerequisites None GEOM 113, GEOM 123 GEOM 113, GEOM 123 GEOM 113, GEOM 123 123	Credits 12 12 8 8 8 8		
Geography Module code GEOM 113 GEOM 123 GEOM 214 GEOM 215 GEOM 224 GEOM 225	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers Physical Geography Aerial Photography and Remote Sensing	ELYM 227 Prerequisites None GEOM 113, GEOM 123 GEOM 113, GEOM 123 GEOM 113, GEOM 123 GEOM 113, GEOM 123	Credits 12 12 8 8 8 8 8 8		
Geography Module code GEOM 113 GEOM 123 GEOM 214 GEOM 215 GEOM 224 GEOM 225 GEOM 316	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers Physical Geography Aerial Photography and Remote Sensing Advanced Human Geography	ELYM 227 Prerequisites None GEOM 113, GEOM 123 GEOM	Credits 12 12 8 8 8 8 8 16		
Geography Module code GEOM 113 GEOM 123 GEOM 214 GEOM 215 GEOM 224 GEOM 225 GEOM 316	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers Physical Geography Aerial Photography and Remote Sensing Advanced Human Geography	ELYM 227 Prerequisites None GEOM 113, GEOM 123 GEOM 113, GEOM 124	Credits 12 12 8 8 8 16		
Geography Module code GEOM 113 GEOM 123 GEOM 214 GEOM 215 GEOM 224 GEOM 225 GEOM 316 GEOM 317	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers Physical Geography Aerial Photography and Remote Sensing Advanced Human Geography Advanced Physical Geography	ELYM 227 Prerequisites None GEOM 113, GEOM 123 GEOM 113, GEOM 123 CHARTER STREAM	Credits 12 12 8 8 8 16		
Geography Module code GEOM 113 GEOM 123 GEOM 214 GEOM 215 GEOM 224 GEOM 225 GEOM 316 GEOM 317	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers Physical Geography Aerial Photography and Remote Sensing Advanced Human Geography Advanced Physical Geography	ELYM 227 Prerequisites None GEOM 113, GEOM 123 GEOM 113, GEOM 124	Credits 12 12 8 8 8 16		
Geography Module code GEOM 113 GEOM 123 GEOM 214 GEOM 215 GEOM 224 GEOM 225 GEOM 316 GEOM 317 GEOM 328	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers Physical Geography Aerial Photography and Remote Sensing Advanced Human Geography Advanced Physical Geography Introduction to Geographical Information	ELYM 227 Prerequisites None GEOM 113, GEOM 123 GEOM 113, GEOM 124 GEOM 113, GEOM	Credits 12 12 8 8 8 16 16 16		
Geography Module code GEOM 113 GEOM 123 GEOM 214 GEOM 215 GEOM 224 GEOM 316 GEOM 317 GEOM 328	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers Physical Geography Aerial Photography and Remote Sensing Advanced Human Geography Advanced Physical Geography Introduction to Geographical Information Systems	ELYM 227 Prerequisites None GEOM 113, GEOM 123 GEOM 113, GEOM 124 GEOM 113, GEOM 124 GEOM 113, GEOM 125.	Credits 12 12 8 8 8 16 16 16		
Geography Module code GEOM 113 GEOM 123 GEOM 214 GEOM 215 GEOM 224 GEOM 316 GEOM 317 GEOM 328	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers Physical Geography Aerial Photography and Remote Sensing Advanced Human Geography Advanced Physical Geography Introduction to Geography Introduction to Geographical Information Systems	ELYM 227 Prerequisites None GEOM 113, GEOM 123 GEOM 113, GEOM 124 GEOM 113, GEOM 214 GEOM 113, GEOM 215, GEOM 225	Credits 12 12 8 8 8 16 16 16		
Geography Module code GEOM 113 GEOM 123 GEOM 214 GEOM 215 GEOM 224 GEOM 316 GEOM 317 GEOM 328 GEOM 329	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers Physical Geography Aerial Photography and Remote Sensing Advanced Human Geography Advanced Physical Geography Introduction to Geography Introduction to Geographical Information Systems	ELYM 227	Credits 12 12 8 8 8 16 16 16 16 16		
Geography Module code GEOM 113 GEOM 123 GEOM 214 GEOM 215 GEOM 224 GEOM 316 GEOM 317 GEOM 328 GEOM 329	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers Physical Geography Aerial Photography and Remote Sensing Advanced Human Geography Advanced Physical Geography Introduction to Geographical Information Systems The Geography of African Development	ELYM 227 Prerequisites None GEOM 113, GEOM 123 GEOM 124	Credits 12 12 8 8 8 16 16 16 16		
Geography Module code GEOM 113 GEOM 123 GEOM 214 GEOM 215 GEOM 224 GEOM 225 GEOM 316 GEOM 317 GEOM 328 GEOM 329	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers Physical Geography Aerial Photography and Remote Sensing Advanced Human Geography Advanced Physical Geography Introduction to Geographical Information Systems The Geography of African Development	ELYM 227 Prerequisites None GEOM 113, GEOM 123 GEOM 113, GEOM 123, GEOM 214 GEOM 113, GEOM 123, GEOM 215, GEOM 215, GEOM 113, GEOM 113, GEOM 123, GEOM 214	Credits 12 12 8 8 8 16 16 16 16		
Geography Module code GEOM 113 GEOM 123 GEOM 214 GEOM 215 GEOM 224 GEOM 225 GEOM 316 GEOM 317 GEOM 328 GEOM 329 Applied Matt Module	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers Physical Geography Aerial Photography and Remote Sensing Advanced Human Geography Advanced Physical Geography Introduction to Geography Introduction to Geographical Information Systems The Geography of African Development hematics Descriptive name	ELYM 227 Prerequisites None GEOM 113, GEOM 123 GEOM 113, GEOM 123, GEOM 214 GEOM 113, GEOM 123, GEOM 215, GEOM 215, GEOM 215, GEOM 214 Prerequisites	Credits 12 12 8 8 8 16 16 16 16 16 16 16 16 16 16 16		
Geography Module code GEOM 113 GEOM 123 GEOM 214 GEOM 215 GEOM 224 GEOM 225 GEOM 316 GEOM 317 GEOM 328 GEOM 329 Applied Mati Module code	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers Physical Geography Aerial Photography and Remote Sensing Advanced Human Geography Advanced Physical Geography Introduction to Geography Introduction to Geographical Information Systems The Geography of African Development hematics Descriptive name	ELYM 227 Prerequisites None GEOM 113, GEOM 123 GEOM 113, GEOM 124 GEOM 113, GEOM 123, GEOM 214 GEOM 113, GEOM 123, GEOM 215, GEOM 215, GEOM 215, GEOM 214 Prerequisites	Credits 12 12 8 8 8 16 16 16 16 16 16 16 16 16 16 16		
Geography Module code GEOM 113 GEOM 123 GEOM 214 GEOM 215 GEOM 224 GEOM 225 GEOM 316 GEOM 317 GEOM 328 GEOM 329 Applied Matl Module code APMM 117	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers Physical Geography Aerial Photography and Remote Sensing Advanced Human Geography Advanced Physical Geography Introduction to Geographical Information Systems The Geography of African Development hematics Descriptive name Introduction to Mechanics	ELYM 227 Prerequisites None GEOM 113, GEOM 123 GEOM 113, GEOM 124 GEOM 113, GEOM 124 GEOM 113, GEOM 125, GEOM 215, GEOM 215, GEOM 215, GEOM 214 Prerequisites	Credits 12 12 8 8 8 16 16 16 16 12 7 16 16 12		
Geography Module code GEOM 113 GEOM 123 GEOM 214 GEOM 215 GEOM 224 GEOM 225 GEOM 316 GEOM 317 GEOM 328 GEOM 329 Applied Matt Module code APMM 117 APMM 127	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers Physical Geography Aerial Photography and Remote Sensing Advanced Human Geography Advanced Physical Geography Introduction to Geographical Information Systems The Geography of African Development hematics Descriptive name Introduction to Mechanics Introduction to Numerical Methods and	ELYM 227 Prerequisites None GEOM 113, GEOM 123 GEOM 113, GEOM 124 GEOM 113, GEOM 125, GEOM 215, GEOM 215, GEOM 215, GEOM 214 Prerequisites	Credits 12 12 8 8 8 16 16 16 16 12 12 12 12 12 12 12 12 12 12 12 12 12 12		
Geography Module code GEOM 113 GEOM 213 GEOM 214 GEOM 215 GEOM 224 GEOM 225 GEOM 316 GEOM 317 GEOM 328 GEOM 329 Applied Matt Module code APMM 117 APMM 127	Descriptive name Introduction to Physical Geography Introduction to Human Geography Human Geography Geographical Statistics and Computers Physical Geography Aerial Photography and Remote Sensing Advanced Human Geography Advanced Physical Geography Introduction to Geographical Information Systems The Geography of African Development hematics Descriptive name Introduction to Mechanics Introduction to Numerical Methods and Mathematical Modelling	ELYM 227 Prerequisites None GEOM 113, GEOM 123 GEOM 113, GEOM 124 GEOM 113, GEOM 214 GEOM 113, GEOM 125, GEOM 215, GEOM 215, GEOM 215, GEOM 214 Prerequisites	Credits 12 12 8 8 8 16 16 16 16 12 12 12 12 12 12 12 12 12		

		modules in	
		Mathematics and	
		Applied	
		Mathematics	
	Differential Equations and Numerical	All first year	16
	Methode	All list year	10
	Methods	modules in	
		Mathematics and	
		Applied	
		Mathematics	
APMM 317	Mathematical Programming	All second year	16
	······································	modules in	
		Mathematics and	
		Applied	
		Applied	
		Mathematics	
APMM 318	Differential Equations and their	All second year	16
	Applications	modules in	
		Mathematics and	
		Applied	
		Mathematics	
			10
APIMIM 327	Fluid Mechanics	All second year	16
		modules in	
		Mathematics and	
		Applied	
		Mathematics	
APMM 328	Numerical analysis	All second year	16
	Numerical analysis	All Second year	10
		modules in	
		Mathematics and	
		Annlied	
		Applica	
		Mathematics	
Mathematics		Mathematics	
Mathematics Module	Descriptive name	Mathematics Prerequisites	Credits
Mathematics Module code	Descriptive name	Mathematics Prerequisites	Credits
Mathematics Module code	Descriptive name	Mathematics Prerequisites Matric Mathematics	Credits
Mathematics Module code MAYM 117	Descriptive name Calculus I	Prerequisites Matric Mathematics	Credits
Mathematics Module code MAYM 117	Descriptive name Calculus I Cancerel Methometrics	Prerequisites Matric Mathematics Level 4	Credits
Mathematics Module code MAYM 117 MAYM 116	Descriptive name Calculus I General Mathematics	Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics	Credits 12 12
Mathematics Module code MAYM 117 MAYM 116	Descriptive name Calculus I General Mathematics	Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4	Credits 12 12
Mathematics Module code MAYM 117 MAYM 116 MAYM 127	Descriptive name Calculus I General Mathematics Calculus II	Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4	Credits 12 12 12 12
Mathematics Module code MAYM 117 MAYM 116 MAYM 127 MAYM 217	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra	Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 All first year	Credits 12 12 12 12 12 16
Mathematics Module code MAYM 117 MAYM 116 MAYM 127 MAYM 217	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra	Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 All first year modules in	Credits 12 12 12 16
Mathematics Module code MAYM 117 MAYM 116 MAYM 127 MAYM 217	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra	Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 All first year modules in Mathematics	Credits 12 12 12 16
Mathematics Module code MAYM 117 MAYM 117 MAYM 116 MAYM 127 MAYM 217	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra	Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 All first year modules in Mathematics All first year Mathematics	Credits 12 12 12 12 16 16
Mathematics Module code MAYM 117 MAYM 116 MAYM 127 MAYM 217 MAYM 227	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra Advanced Calculus	Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 All first year modules in Mathematics All first year Mathematics All first year	Credits 12 12 12 16
Mathematics Module code MAYM 117 MAYM 116 MAYM 127 MAYM 217 MAYM 227	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra Advanced Calculus	Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 Matric Mathematics In first year modules in Mathematics All first year modules in Mathematics All first year modules in	Credits 12 12 12 16
Mathematics Module code MAYM 117 MAYM 116 MAYM 127 MAYM 217 MAYM 227	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra Advanced Calculus	Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 All first year modules in Mathematics All first year modules in Mathematics All first year modules in Mathematics	Credits 12 12 12 16
Mathematics Module code MAYM 117 MAYM 116 MAYM 127 MAYM 217 MAYM 227 MAYM 317	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra Advanced Calculus Real Analysis	Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 All first year modules in Mathematics All first year modules in Mathematics All scond year	Credits 12 12 12 12 16 16 16
Mathematics Module code MAYM 117 MAYM 116 MAYM 127 MAYM 217 MAYM 227 MAYM 317	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra Advanced Calculus Real Analysis	Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 All first year modules in Mathematics All first year modules in Mathematics All first year modules in Mathematics All second year modules in	Credits 12 12 12 16 16
Mathematics Module code MAYM 117 MAYM 116 MAYM 127 MAYM 217 MAYM 227 MAYM 317	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra Advanced Calculus Real Analysis	Mathematics Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 All first year modules in Mathematics All first year modules in Mathematics	Credits 12 12 12 16 16
Mathematics Module code MAYM 117 MAYM 117 MAYM 117 MAYM 117 MAYM 217 MAYM 217 MAYM 217	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra Advanced Calculus Real Analysis Differential Equations	Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 All first year modules in Mathematics All first year modules in Mathematics All first year modules in Mathematics All second year modules in Mathematics	Credits 12 12 12 12 16 16 16 16
Mathematics Module code MAYM 117 MAYM 116 MAYM 127 MAYM 217 MAYM 217 MAYM 217 MAYM 317 MAYM 318	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra Advanced Calculus Real Analysis Differential Equations	Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 All first year modules in Mathematics All first year modules in Mathematics All first year modules in Mathematics All second year modules in Mathematics All second year modules in Mathematics All second year	Credits 12 12 12 16 16 16
Mathematics Module code MAYM 117 MAYM 116 MAYM 127 MAYM 217 MAYM 217 MAYM 217 MAYM 317 MAYM 318	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra Advanced Calculus Real Analysis Differential Equations	Mathematics Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 All first year modules in Mathematics All first year modules in Mathematics All second year modules in Mathematics All second year modules in Mathematics	Credits 12 12 12 16 16 16 16
Mathematics Module code MAYM 117 MAYM 116 MAYM 127 MAYM 217 MAYM 217 MAYM 217 MAYM 317 MAYM 318	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra Advanced Calculus Real Analysis Differential Equations	Mathematics Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 All first year modules in Mathematics All first year modules in Mathematics All second year modules in Mathematics All second year modules in Mathematics	Credits 12 12 12 16 16 16
Mathematics Module code MAYM 117 MAYM 116 MAYM 127 MAYM 217 MAYM 217 MAYM 217 MAYM 317 MAYM 317 MAYM 318 MAYM 327	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra Advanced Calculus Real Analysis Differential Equations Complex Analysis	Mathematics Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 All first year modules in Mathematics All first year modules in Mathematics All second year modules in Mathematics All second year modules in Mathematics All second year Mathematics	Credits 12 12 12 16 16 16 16 16 16 16
Mathematics Module code MAYM 117 MAYM 116 MAYM 127 MAYM 217 MAYM 217 MAYM 227 MAYM 317 MAYM 318 MAYM 327	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra Advanced Calculus Real Analysis Differential Equations Complex Analysis	Mathematics Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 All first year modules in Mathematics All first year modules in Mathematics All second year modules in Mathematics All second year modules in Mathematics All second year modules in Mathematics	Credits 12 12 12 16 16 16 16 16
Mathematics Module code MAYM 117 MAYM 116 MAYM 127 MAYM 217 MAYM 217 MAYM 227 MAYM 317 MAYM 318 MAYM 327	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra Advanced Calculus Real Analysis Differential Equations Complex Analysis	Mathematics Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 Matric Mathematics Ievel 4 Matric Mathematics In Mathematics All first year modules in Mathematics All first year modules in Mathematics All second year modules in Mathematics All second year modules in Mathematics All second year modules in Mathematics	Credits 12 12 12 16 16 16 16 16 16
Mathematics Module code MAYM 117 MAYM 117 MAYM 116 MAYM 127 MAYM 217 MAYM 217 MAYM 227 MAYM 317 MAYM 318 MAYM 327	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra Advanced Calculus Real Analysis Differential Equations Complex Analysis Abstract Algebra	Mathematics Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 All first year modules in Mathematics All first year modules in Mathematics All second year Mathematics	Credits 12 12 12 16 16 16 16 16 16 16 16 16 16
Mathematics Module code MAYM 117 MAYM 116 MAYM 127 MAYM 217 MAYM 217 MAYM 227 MAYM 317 MAYM 318 MAYM 328	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra Advanced Calculus Real Analysis Differential Equations Complex Analysis Abstract Algebra	Mathematics Mathematics Prerequisites Matric Mathematics level 4 Matric Mathematics level 4 All first year modules in Mathematics All first year modules in Mathematics All second year modules in Mathematics	Credits 12 12 12 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16
Mathematics Module code MAYM 117 MAYM 116 MAYM 127 MAYM 217 MAYM 217 MAYM 227 MAYM 317 MAYM 318 MAYM 327 MAYM 328	Descriptive name Calculus I General Mathematics Calculus II Linear Algebra Advanced Calculus Real Analysis Differential Equations Complex Analysis Abstract Algebra	Mathematics Matric Mathematics level 4 Matric Mathematics level 4 Matric Mathematics level 4 All first year modules in Mathematics All first year modules in Mathematics All second year modules in Mathematics	Credits 12 12 12 16 16 16 16 16 16 16 16 16 16

Nursing				
Module	Descriptive name	Prerequisites	Credits	
code				
BIYM 111	Anatomy & Biophysics	None	12	
SOCS 111	Sociology	None	12	
NCHM 111	Community & Pracs	None	12	
FNSM 111	Fundamentals Of Nursing	None	18	
EPPM 111	Ethos & Professional Practice	None	6	
AGLE111	Academic Literacy (TAG Tests)	None	12	
BIYM 112	Anatomy & BIOPHYSICS	None	12	
SOCS 122	Sociology	None	12	
NCHM 122	Community & Pracs	None	12	
FNSM 122	Fundamentals Of Nursing	None	18	
BIYM 112	Microbiology	None	12	
AGLE121	Academic Literacy (Compulsory)	None	12	
NCHM 211	Community Health & Pracs	FNSM 111 & 122,	12	
		NCHM111 &122,		
		EPPM 111,		
		BIYM111 &		
		BIYM121		
PHMM 112	Pharmacology	FNSM 111 & 122,	12	
		NCHM111 &122,		
DIVALIA		BIYM111 & BIY122	10	
BIYM 121	Physiology & Biochemistry (1)	12		
PSYC 111	Psychology	None	12	
GNSM 111	General Nursing 1 Science & Pracs	FNSM 111 & 122,	24	
		EPPINIII,		
	Community Health & Prace	ENGM 111 & 100	24	
	Community meaning meaning macs	NCHM111 &122,	24	
		FPPM 111.		
		BIYM111 &		
		BIYM121		
EPPM 221	Ethos & Professional Practice	EPPM 111	6	
BIYM 122	Physiology & Biochemistry (2)	BIYM121	12	
HPSY	Psychology	None	12	
GNSM 122	General Nursing 1 Science & Pracs	FNSM 111 & 122,	18	
	Ŭ	NCHM111 &122,		
		EPPM 111,		
		BIYM111 &		
		BIYM121		
	Understanding World (None	12	
GNSM 211	General Nursing 11 Science & Pracs	All 1 st and 2 nd year	12	
		modules		
MIYM 311	Midwifery 1 & Practicals	All 1 st and 2 nd year	24	
		modules		
PNSM 311	Psychiatric Nursing Science 1 & Practicals	All 1 st and 2 rd year	18	
		modules		
NCHM 311	Community Nursing Sciences111 &	All 1 [™] and 2 [™] year	6	
01/01/005	Practicals	modules	10	
GNSM 222	General Nursing 11 Science & Pracs	All 1° and 2° year	12	
		modules		

MIYM 322	Midwifery 1 & Practicals	All 1 st and 2 nd year modules	24
PNSM 322	Psychiatric Nursing Science 1 & Practicals	All 1 st and 2 nd year modules	18
NCHM 322	Community Nursing Sciences 111 & Practicals	All 1 st and 2 nd year modules	6
GNSM 311	General Nursing Sciences 111 & Practicals	All 3 rd year modules	12
MIYM 411	Midwifery 11 & Practicals	All 3 rd year modules	18
PNSM 411	Psychiatric Nursing Science 11 & Practicals	All 3 rd year modules	18
NRMM 411	Nursing Research Methodology	All 3 rd year modules	12
GNSM 322	General Nursing Sciences 111 & Practicals	All 3 rd year modules	12
MIYM 422	Midwifery 11 & Practicals	All 3 rd year modules	120
PNSM 422	Psychiatric Nursing Science 11 & Practicals	All 3 rd year modules	18
NRPM 422	Nursing Research Project	All 3 rd year modules	12
NADM112	Ethos and Proffessional Practice	None	12
CHNM 111	Community Nursing Science	None	12
NADM 111	Nursing Mangement 1	None	12
NEDM 111	Nursing Education 1	None	12
	Academic Literacy 1	None	12
CHNM 112	Community Nursing Science	None	12
NADM 112	Nursing Mangement 1	None	12
NEDM 112	Nursing Education 1	None	12
	Academic Literacy 1	None	12
NADM 211	Nursing Management 11 and Praticals	NADM 112	24
CHNM 211	Community Nursing Science	CNHM 111	30
SOCS 131 /	Sociology	None	12
141			10
	Understanding	NADIVI 112	12
	Nursing Management 11 and Drasticals		12
			12
			12
SUCL III	Sociology Management 1	SOCE 131/141	12
IVIANIVI 121	Management I	None	10
	Nursing Management 11 and Proticola		12
			10
	Community Nursing Science	CHNM 211, CHNM 222	10
NRMM 111	Nursing Research Methodology		12
HCOM 111	Public Relations	None	12
NADM 322	Nursing Management		18
NRPM 322	Nursing Research Project	NRMM 111	18
CHNM 322	Community Nursing Science 111 and Practicals		30
Physics			
Module	Descriptive name	Prereguisites	Credits
code			
PHYM 118	Mechanics and Heat Energy	50% Grade 12 Mathematics. Pass in Matric physical Science	12

PHYM 128	Basic Electromagnetism and Modern Physics	50% Grade 12	12
		Mathematics. Pass in	
		Matric physical Science	
PHYM 215	Mechanics and Thermal Physics	50% average in PHYM	8
		118 and PHYM 128	
PHYM 216	Atomic Physics	50% average in PHYM	8
		118 and PHYM 128	
PHYM 221	Waves and Quantum Mechanics	50% average in PHYM	8
		118 and PHYM 128	
PHYM 222	Electricity and Magnetism	50% average in PHYM	8
		118 and PHYM 128	
PHYM 315	Classical Mechanics	PHYM215, PHYM216,	16
		PHYM221,PHYM 222	
PHYM 316	Solid State Physics	PHYM 215, PHYM216,	16
		PHYM221,PHYM 222	
PHYM 317	Quantum Mechanics	PHYM 215, PHYM216,	16
		PHYM221,PHYM 222	
PHYM 318	Project and Research	PHYM 215, PHYM216,	16
		PHYM221,PHYM 222	
PHYM 321	Electromagnetism	PHYM 215, PHYM216,	16
		PHYM221,PHYM 222	
PHYM 322	Nuclear Physics	PHYM 215, PHYM216,	16
		PHYM221,PHYM 222	
PHYM 323	Statistical Physics	PHYM 215, PHYM216,	16
		PHYM221,PHYM 222	
PHYM 324	Project and Research	PHYM 215, PHYM216,	16
		PHYM221.PHYM 222	

MA .1.7.4 CURRICULUM DIPLOMA IN ANIMAL ANIMAL HEALTH N102M – 266-100

Purpose: The purpose of the qualification is to provide adequate vocational training which equips learners with a sound knowledge of disease surveillance, farm animals and production systems; and to identify problems related to the health, breeding, feeding, management and economics of livestock production, thus contributing to animal production whilst maintaining the animals' health and welfare, protecting humans from zoonoses and ensuring high-quality food products of animal origin for human consumption.ii. provide services to members of the veterinary profession, para-veterinary professionals, the animal population industry and the community as a whole.

Year level 1		Year level 2		Year level 3	
First semester		First semester		First semester	
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 111	12	AHVM 211	16	AHVM 311	16
AHVM 111	12	AHVM 212	8	AHVM312	16
AHVM 112	8	ANDM 211	16	AHVM 313	8
AEDM 111	12	ANDM 212	8	AHVM 314	8
MAYM 115	12	AXDM 211	16	AHVM 315	8
		ANDM 213	8		
Total 1 st	56	Total 1 st	72	Total 1 st	56
semester		semester		semester	
Year level 1		Year level 2		Year level 3	
Second		Second		Second	
semester		semester		semester	
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 121	12	AHVM 221	16	AHVM 321	16
AHVM 121	12	AHVM 222	16	AHVM 322	16
AHVM 122	12	AHVM 223	16	AHVM 323	8
AHVM 123	8	AHVM 224	8	AHVM 324	8
ANDM 122	8	AHVM 225	8	AHVM 325	8
MAYM 125	12	ANDM 225	16		
Total 2 nd	64	Total 2 nd	80	Total 2 nd	56
semester		semester		semester	
Total year level	120	Total year	152	Total year	112
1		level 2		level 3	
Total credits for the	ne curricu	ulum 384			

After completion of the 3-year Diploma, a student can either exit with a diploma qualification or proceed to register for a degree of 2 years duration (240 credits). In this case the student will be credited with 240 credits and will have to earn another 240 credits.

DIPLOMA IN AGRIC IN ANIMAL SCIENCE N101M - 279 100

<u>Purpose</u>: The aim of the Diploma in Agriculture (Animal Science) is to give students a vocational training in the practical application of scientific principles to animal production.

Year level 1		Year level 2		Year level 3	
First semester		First semester		First semester	
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 111	12	ANDM 211	16	AEDM 314	08
MCHE 115	12	AHVM 211	16	ANDM 312	16
AHVM 111	12	ANDM 212	08	ANDM 313	16
MAYM 115	12	AXDM 211	16	ANDM 314	16
AEDM 111	12			AXDM 311	08
Total 1 st	60	Total 1 st	56	Total 1 st	64
semester		semester		semester	
Year level 1		Year level 2		Year level 3	
Second		Second		Second	
semester		semester		semester	
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 121	12	ANDM 221	16	ANDM 321	56
AHVM 122	12	ANDM 223	16		
MAYM 125	12	ANDM 225	16		
CSDM 121	12	AHVM 226	16		
ANDM 121	12				
Total 2 nd	60	Total 2 nd	64	Total 2 nd	56
semester		semester		semester	
Total year level	120	Total year	120	Total year	120
1		level 2		level 3	
Total credits for the curriculum 360					

After completion of the 3-year Diploma, a student can either exit with a diploma qualification or proceed to register for a degree of 2 years duration (240 credits). In this case the student will be credited with 240 credits and will have to earn another 240 credits.

Year level 1		Year level 2		Year level 3	
First semester		First semester		First semester	
Module code	Cr	Module code	Cr	Module code	Cr
MCHE 115	12	CSDM 211	16	CSDM 311	8
CSDM 111	12	CSDM 214	8	CSDM 312	16
MAYM 115	12	CSDM 212	12	AXDM 311	8
AGLE 111	12	AXDM 211	16	AEDM 314	8
AEDM 111	12	CSDM 213	8	CSDM315	8
		CSDM 215	8		
Total 1 st	60	Total 1 st	68	Total 1 st	48
semester		semester		semester	
Year level 1		Year level 3		Year level 3	
Second		Second		Second	
semester		semester		semester	
Module code	Cr	Module code	Cr	Module code	Cr
MAYM 125	12	CSDM 222	16	CSDM 321	8
CSDM 121	12	CSDM221	16	CSDM 322	16
ANDM 121	12	CSDM 224	8	CSDM 325	8
PHYM128	12	CSDM 223	12	CSDM 324	16
AGLE 121	12	CSDM 225	8	CSDM 323	16
Total 2 nd	60	Total 2 nd	60	Total 2 nd	64
semester		semester		semester	
Total year level	120	Total year	128	Total year	112
1		level 2		level 3	
				TOTAL	360

Diploma in Crop Science Programme N101M 279 101

After completion of the 3-year Diploma, a student can either exit with a diploma qualification or proceed to register for a degree of 3 years duration. The maximum credits carried over from the Diploma will not exceed 50% of the total credits for the degree.
BACHELOR OF SCIENCE IN AGRICULTURE IN ANIMAL HEALTH N401M - 267 101

Curriculum outcomes: Animal health technicians will be able to utilize their sound, researchbased knowledge of disease surveillance, farm animals and production systems and be able to identify problems related to the health, breeding, feeding, management and economics of livestock production, thus contributing to animal production whilst maintaining the animals' health and welfare, protecting humans from zoonoses and ensuring high-quality food products of animal origin for human consumption.

Year leve	el 1	Year level 2		Year level 3		Year level 4	
First seme	ester	First seme	ster	First semes	ter	First semes	ster
Module code	Cr	Module code	Cr	Module code	Cr	Module code	Cr
AGLE 111	12	AHPM 211	16	AHPM 311	16	AHPM 411	16
BGYM 113	12	AHPM 212	16	AHPM 312	8	AHPM 412	16
MCHE 114	12	ANSM 214	8	AHPM 313	16	AHPM 413	8
MAYM 116	12	AEXM 211	16	AHPM 314	8	AHPM 414	8
AECM 111	12	WVNS 211	12	ANSM 311	16	AHPM 415	16
Total 1 st semester	60	Total 1 st semester	68	Total 1 st semester	64	Total 1 st semester	64
Second sem	ester	Second seme	ster	Second semes	ster	Second seme	ster
AGLE 121	12	AHPM 221	8	AHPM 321	16	AHPM 421	16
ANSM 121	12	AHPM 222	8	AHPM 322	16	AHPM 422	16
BGYM 123	12	ANSM 222	8	AHPM 323	16	AHPM 423	8
MCHE 121	12	ANSM 223	16	AHPM 324	8	AHPM 424	8
PHYM 129	12	ANSM 224	8	AHPM 325	8	AHPM 425	16
		WVAS 221	12			AHPM 426	8
Total 2nd sem	60	Total 2nd semester	60	Total 2nd semester	64	Total 2nd semester	72
Total Year level 1	120	Total Year level 2	128	Total Year level 3	128	Total Year level 4	136
Total credits	for the c	curriculum 512	2				

Bachelor of Science in Agriculture in Animal Science N401M – 267 102

<u>Purpose</u>

The main aim of this programme is to offer an opportunity to students from different educational backgrounds into a sound applied science to become Professional Animal Scientists within the Agricultural Sector and related Industries. This will be achieved by designing a degree programme with in-built remedial aspects.

Year level	1	Year level 2		Year level 3		Year level 4		
First semes	ter	First semes	ster	First semeste	r	First semest	er	
Module code	Cr	Module code	Cr	Module code	Cr	Module code	Cr	
MCHE 114	12	ANSM 211	16	AECM 314	08	ANSM 411	16	
BGYM 113	12	AHPM 212	16	ANSM 311	16	ANSM 412	16	
MAYM 116	12	CSPM 211	16	ANSM 312	16	ANSM 413	16	
AECM 111	12	AHPM 211	16	ANSM 313	08	ANSM 414	08	
AGLE 111	12	WVNS 211	12	ANSM 314	16			
Total 1 st semester	60	Total 1 st semester	76	Total 1 st semester	64	Total 1 st semester	56	
Year level 1		Year level 2		Year level 3		Year level 4		
Second semes	ter	Second semest	ter	Second semeste	r	Second semes	cond semester	
Module code	Cr	Module code	Cr	Module code	Cr	Module code	Cr	
MCHE 123	12	ANSM 223	16	ANSM 321	16	ANSM 421	16	
BGYM 123	12	AHPM 222	08	ANSM 322	08	ANSM 422	08	
PHYM 129	12	ANSM 222	08	ANSM 323	16	ANSM 423	16	
ANSM 121	12	CSPM 221	16	ANSM 324	16	ANSM 424	16	
AGLE 121	12	WVAS 221	12	AHPM 326	08	ANSM 425	08	
				AEXM 324	08			
Total 2 nd semester	60	Total 2 nd semester	60	Total 2 nd semester	72	Total 2 nd semester	64	
Total year level 1	120	Total year level 2	136	Total year level 3	13 6	Total year level 4	120	
Total credits for	or the cu	urriculum					512	

Bachelor of Science in Agriculture in Agricultural Economics N401M - 267 100

Purpose

To provide the country with qualified personnel who can work as agricultural economists and are competent in research, appraising, developing, managing and evaluating agricultural development programmes and projects towards the betterment of agricultural business and rural community development in the country.

Year leve	el 1	Year level 2		Year level 3		Year level 4	
First seme	ester	First semes	ster	First semest	er	First semes	ter
Module code	Cr	Module code	Cr	Module code	Cr	Module code	Cr
BGYM113	12	AEXM211	16	AECM311	16	AECM411	8
MCHE114	12	AEXM212	8	AECM312	8	AECM412	16
AGLE111	12	AECM213	8	CSPM313	16	AECM413	16
AECM111	12	CSPM211	16	AECM313	16	AECM414	16
MAYM116	12	ANSM211	16	AECM314	8	AECM415	16
		WVNS211	12				
Total 1 st semester	60	Total 1 st semester	76	Total 1 st semester	64	Total 1 st semester	72
Second sem	ester	Second seme	ster	Second semeste	er	Second semes	ter
MCHE121	12	AECM221	8	AECM321	16	AECM421	8
BGYM123	12	AEXM222	8	AECM322	16	AECM422	16
PHYM129	12	CSPM221	16	AECM323	8	AECM423	8
ANSM121	12	ANSM223	16	AEXM324	8	AECM424	8
AGLE121	12	AECM223	8	AECM325	8	AECM425	16
		WVAS221	12				
Total 2 nd semester	60	Total 2 nd semester	68	Total 2 nd semester	56	Total 2 nd semester	56
Total year level 1	120	Total year level 1	144	Total year level 1	120	Total year level 1	128
Total credits	for the c	urriculum	512	•	•		•

Bachelor of Science in Agriculture in Crop Science N401M – 267 103

Purpose

To provide formal education and research training in Plant Sciences and related fields such as environment and land managementtowards the betterment of the agricultural sector in South Africa, regionally and internationally.

Year leve	11	Year level 2 Year level 3 Year		Year leve	ar level 4		
First seme	ster	First semeste	r	First semes	ter	First seme	ster
Module code	Cr	Module code	Cr	Module code	Cr	Module code	Cr
BGYM 113	12	CSPM211	16	CSPM311	8	CSPM411	8
MCHE 114	12	AEXM211	16	CSPM312	16	CSPM412/ CSPM415	16
MAYM 116	12	ANSM 211	16	CSPM313	16	CSPM413/ CSPM414	8
AGLE 111	12	CSPM212	12	AECM314	8	CSPM417	8
AECM 111	12	CSPM213	8	ANSM312	16	CSPM418	16
		WVNS 211	12				
Total 1 st semester	60	Total 1 st semester	80	Total 1 st semester	64	Total 1 st semester	56
Second semes	ster	Second semester	•	Second semes	ter	Second seme	ster
Module code	Cr	Module code	Cr	Module code	Cr	Module code	Cr
BGYM 123	12	CSPM221	16	CSPM321	8	CSPM421	16
MCHE 121	12	CSPM222	16	CSPM322	16	CSPM422/C SPM424	16
PHYM 129	12	CSPM223	12	CSPM323	16	CSPM427	8
AGLE 121	12	CSPM224	16	CSPM324	16	CSPM428	16
ANSM121	12	WVAS221	12	CSPM325	8		
Total 2 nd semester	60	Total 2 nd semester	72	Total 2 nd semester	64	Total 2 nd semester	56
Total year level 1	120	Total year level 2	152	Total year level 3	128	Total year level 4	112
Total credits f	or the cu	urriculum				I	512

Year leve	el 1	Year level	Year level 2		Year level 3		vel 4
First seme	ester	First semes	ter	First semes	ter	First sem	ester
Module code	Cr	Module code	Cr	Module code	Cr	Module code	Cr
BIYM111	12	NCHM211	12	GNSM211	12	GNSM311	12
SOCL111	12	PHMM112	12	MIYM311	24	MIYM411	18
NCHM111	24	BIYM 112	12	PNSM311	18	PNSM411	18
FNSM111	18	PSYC111	12	NCHM311	6	NRMM411	12
EPPM111	6	GNSM111	24	AGWM 211	12		
AGLE111 or TAG TEST	12						
Total 1 st semester	84	Total 1 st semester	72	Total 1 st semester	72	Total 1 st semester	60
Second semes	ster	Second semest	ter	Second semes	ter	Second sen	nester
BIYM 121	12	NCHM222	24	GNSM222	12	GNSM321	18
SOCL121	12	EPPM221	6	MIYM322	24	MIYM422	18
NCHM122	12	BIYM124	12	PNSM322	18	PNSM422	18
FNSM122	18	PSYC121	12	NCHM322	6	NRPM422	12
AGLE121	12	GNSM122	18				
		AGWM 221	12				
Total 2 nd semester	66	Total 2 nd semester	84	Total 2 nd semester	60	Total 2 nd semester	66
Total year level 1	150	Total year level 1	156	Total year level 1	132	Total year level 1	126
Total credits for	or the cur	riculum 564					

Bachelor of Nursing Sciences (BNSc) 270 102 N111M

Bachelor of Nursing(BN)

PURPOSE

- 1. To develop professional nurses to be competent managers, educators and health care providers, in all the spheres of health care delivery.
- 2 Provide learning and teaching opportunities for individuals through the use of creative teaching and learning strategies, for the optimal health of the community.

3 Provide comprehensive health services to the individuals, families and communities within the national health philosophy and mission by applying primary health care approach.

EXIT OUTCOMES

1. Manage and evaluate educational interventions for clients and health care personnel within the legal and ethical framework.

2. Plan, implement and evaluate research in collaboration with other health care team members.

3. Manage and evaluate specialized nursing services at district, provincial and national levels within the constraints of national health policy and international guidelines and in different settings.

4. Plan implement and evaluate community health care services at district, provincial and national levels.

Bachelor Of Nursing 269 100

BN (Management) N109M

Year level 1		Year level 2		Year level 3	
First semester		First semester		First semester	
Module code	Cr	Module code	Cr	Module code	Cr
NADM112	12	NADM 211	24	NADM 311	18
CHNM 111	12	CHNM 211	30	CHNM 311	18
NADM 111	12	SOCL 111	12	NRMM 311	12
NEDM 111	12	MANM 111	12	HCOM 111	12
AGLE 111	12				
Total 1 st	60	Total 1 st	78	Total 1 st	60
semester		semester		semester	
Year level 1		Year level 3		Year level 3	
Second		Second		Second	
semester		semester		semester	
Module code		Module code	Cr	Module code	Cr
CHNM 122	12	NADM 222	24	NADM 322	18
NADM 121	12	CHNM 222	30	NRPM 322	12
NEDM 122	12	SOCL 121	12	CHNM 322	30
AGLE 121	12	MANM 121	12		
Total 2 nd	48	Total 2 nd	78	Total 2 nd	60
semester		semester		semester	
Total year level	108	Total year	156	Total year	120
		level		level 3	
Total credits for the	ne curricu	lum 384			

BN EDUCATION N110M 269 101

Year level 1		Year level 2		Year level 3	
First semester		First semester		First semester	
Module code	Cr	Module code	Cr	Module code	Cr
NADM112	12	NEDM 211	24	NEDM 311	18
CHNM 111	12	CHNM 211	30	CHNM 311	18
NADM 111	12	SOCL 111	12	NRMM 311	12
NEDM 111	12	MANM 111	12	HCOM 111	12
AGLE 111	12				
Total 1 st	60	Total 1 st	78	Total 1 st	60
semester		semester		semester	
Year level 1		Year level 2		Year level 3	
Second semester		Second		Second	
		semester		semester	
Module code	Cr	Module code	Cr	Module code	Cr
CHNM 122	12	NEDM 222	24	NEDM 322	18
NADM 121	12	CHNM 222	30	CHNM322	30
NEDM 122	12	SOCL 121	12	NRPM322	12
AGLE 121	12	MANM 121	12		
Total 2 nd	48	Total 2 nd	78	Total 2 nd	60
semester		semester		semester	
Total year level 1	108	Total year	156	Total year	120
		level 2		level 3	
Total credits for the	e curricu	lum 384			

1. BSc Extended (Applied Mathematics - Chemistry) N302M 200 192

YEAR 1		YEAR 2	YEAR 2			YEAR 4	
SEMESTER	1	SEMESTER 1		SEMESTER 1		SEMETER	1
CODE	CR	CODE	CR	CODE	CR	CODE	CR
SFCM 111	12	AGLE 111	12	WVNS 211	12	APMM 317	16
SFMM111	12	APMM 117	12	APMM 217	16	APMM 318	16
SFPM 111	12	MCHE 114	12	MCHE 215	8	MCHE 315	16
SFSM 111	12	MAYM 117	12	MCHE 216	8	MCHE 316	16
SFIM 111	12	PHYM 118	12	MAYM 217	16		
SEM 1 TOTAL	60	SEM 1 TOTAL	60	SEM 1 TOTAL	60	SEM 1	64
						TOTAL	
SEMESTER 2		SEMESTER 2		SEMESTER 2		SEMESTER 2	
SFCM 121	12	AGLE 121	12	WVNS 221	12	APMM 327	16
SFMM 121	12	APMM 127	12	APMM 227	16	APMM 328	16
SFPM 121	12	MCHE 121	12	MCHE 221	8	MCHE 321	16
SFSM 121	12	MAYM 127	12	MCHE 222	8	MCHE 322	16
SFIM 121	12	PHYM 128	12	MAYM 227	16		
SEM 2 TOTAL	60	SEM 2 TOTAL	60	SEM 2 TOTAL	60	SEM 2	64
						TOTAL	
YEAR 1	120	YEAR 2	120	YEAR 3	120	YEAR 4	128
TOTAL		TOTAL		TOTAL		TOTAL	
		CURRIC	ULUM	TOTAL 488			

YEAR 1		YEAR 2	YEAR 2		YEAR 3		ŀ
SEMESTER	1	SEMESTER	1	SEMESTER	1	SEMETER	71
CODE	CR	CODE	CR	CODE	CR	CODE	CR
SFCM 111	12	AGLE 111	12	WVNS 211	12	APMM 317	16
SFMM111	12	APMM 117	12	APMM 217	16	APMM 318	16
SFPM 111	12	MAYM 117	12	MAYM 217	16	ELYM 315	16
SFSM 111	12	ELYM 115	12	ELYM 215	16	ELYM 316	16
SFIM 111	12	CISM 111	12				
SEM 1 TOTAL	60	SEM 1 TOTAL	60	SEM 1 TOTAL	60	SEM 1	64
						TOTAL	
SEMESTER 2		SEMESTER 2		SEMESTER 2		SEMESTER 2	
SFCM 121	12	AGLE 121	12	WVNS 221	12	APMM 327	16
SFMM 121	12	APMM 127	12	APMM 227	16	APMM 328	16
SFPM 121	12	MAYM 127	12	MAYM 227	16	ELYM 327	16
SFSM 121	12	ELYM 127	12	ELYM 227	16	ELYM 328	16
SFIM 121	12	CISM 124	12				
SEM 2 TOTAL	60	SEM 2 TOTAL	60	SEM 2 TOTAL	60	SEM 2	64
						TOTAL	
YEAR 1	120	YEAR 2	120	YEAR 3	120	YEAR 4	128
TOTAL		TOTAL		TOTAL		TOTAL	
		CURRIC	CULUM	I TOTAL 488			

2. BSc Extended (Applied Mathematics - Electronics) N302M 200193

3. BSc Extended (Applied Mathematics - Mathematics) N 302 M 200 158

Year level	1	Year level	Year level 2		Year level 3		Year level 4	
First semes	ster	First semes	ter	First semes	ter	First semester		
Module code	Cr	Module code	Cr	Module code	Cr	Module code	Cr	
SFCM 111	12	AGLE 111	12	WVNS 211	12	APMM 317	16	
SFMM111	12	APMM 117	12	APMM 217	16	APMM 318	16	
SFPM 111	12	PHYM 118	12	PHYM 215	8	MAYM 317	16	
SFSM 111	12	MAYM 117	12	PHYM 216	8	MAYM 318	16	
		CISM 111	12	MAYM 217	16			
Total 1 st sem	48	Total 1 st sem	60	Total 1 st sem	60	Total 1 st sem	64	
Second semes	ter	Second semest	er	Second semest	er	Second semest	er	
SFCM 121	12	AGLE 121	12	WVNS 221	12	APMM 327	16	
SFMM 121	12	APMM 127	12	APMM 227	16	APMM 328	16	
SFPM 121	12	PHYM 124	12	PHYM 221	8	MAYM 327	16	
SFSM 121	12	MAYM 127	12	PHYM 222	8	MAYM 328	16	
		CISM 124	12	MAYM 227	16			
Total 2 nd sem	48	Total 2 nd sem	60	Total 2 nd sem	60	Total 2 nd sem	64	
Total year	96	Total year	120	Total year	120	Total year	128	
level 1		level 1		level 1		level 1		
Total credits fo	r the cu	Irriculum 488						

4. BSc Extended (Applied Mathematics – Physics) N301M 200194

YEAR 1	YEAR 1 YEAR 2			YEAR 3		YEAR 4	
SEMESTER	1	SEMESTER	1	SEMESTER	1	SEMETER [·]	1
CODE	CR	CODE	CR	CODE	CR	CODE	CR
SFCM 111	12	AGLE 111	12	WVNS 211	12	APMM 317	16
SFMM111	12	APMM 117	12	APMM 217	16	APMM 318	16
SFPM 111	12	PHYM 118	12	PHYM 215	8	PHYM 315	8
SFSM 111	12	MAYM 117	12	PHYM 216	8	PHYM 316	8
SFIM 111	12	CISM 111	12	MAYM 217	16	PHYM 317	8
						PHYM 318	8
SEM 1 TOTAL	60	SEM 1 TOTAL	60	SEM 1 TOTAL	60	SEM 1 TOTAL	64
SEMESTER 2		SEMESTER 2		SEMESTER 2		SEMESTER 2	
SFCM 121	12	AGLE 121	12	WVNS 221	12	APMM 327	16
SFMM 121	12	APMM 127	12	APMM 227	16	APMM 328	16
SFPM 121	12	PHYM 128	12	PHYM 221	8	PHYM 321	8
SFSM 121	12	MAYM 127	12	PHYM 222	8	PHYM 322	8
SFIM 121	12	CISM 124	12	MAYM 227	16	PHYM 323	8
						PHYM 324	8
SEM 2 TOTAL	60	SEM 2 TOTAL	60	SEM 2 TOTAL	60	SEM 2 TOTAL	64
YEAR 1	120	YEAR 2	120	YEAR 3	120	YEAR 4	12
TOTAL		TOTAL		TOTAL		TOTAL	8
		CURRIC	CULUN	I TOTAL 488			

5. BSc Extended (Biology - Chemistry N 302 M 200 159

Year level	1	Year level	2	Year level 3		Year level 4	
First semes	ter	First semest	ter	First semest	ter	First semest	ter
Module code	Cr	Module code	Cr	Module code	Cr	Module code	Cr
SFBM 111	12	AGLE 111	12	BGYM 213	8	BGYM 314	16
SFCM 111	12	BGYM 113	12	BGYM 214	8	BGYM 313	16
SFMM 111	12	PHYM 118	12	MCHE 215	8	MCHE 315	16
SFPM 111	12	MAYM 116	12	MCHE 216	8	MCHE 316	16
SFSM 111	12	MCHE 114	12	PHYM 215	8		
				PHYM 216	8		
				WVNS 211	12		
SEM 1 TOTAL	60	SEM 1 TOTAL	60	SEM 1 TOTAL	60	SEM 1TOTAL	64
Year level 1		Year level 2		Year level 3		Year level	4
Second semester	er	Second semeste	er	Second semeste	er	Second seme	ster
			-	Madula anda	Ċ,	Modulo code	Cr
Module code	CR	Module code	Cr	Module code	G	Module code	-
SFBM 121	CR 12	Module code AGLE 121	12	WVNS 221	12	BGYM 326	32
SFBM 121 SFCM 121	CR 12 12	Module code AGLE 121 MCHE 121	12 12	WVNS 221 MCHE 221	12 8	BGYM 326 MCHE 322	32 16
SFBM 121 SFCM 121 SFPM 121	CR 12 12 12	Module code AGLE 121 MCHE 121 PHYM 128	12 12 12	WVNS 221 MCHE 221 MCHE 223	12 8 8	BGYM 326 MCHE 322 MCHE 321	32 16 16
Module code SFBM 121 SFCM 121 SFPM 121 SFSM 121	CR 12 12 12 12 12	Module code AGLE 121 MCHE 121 PHYM 128 MAYM 126	Cr 12 12 12 12	WOULE CODE WVNS 221 MCHE 221 MCHE 223 BGYM 227	12 8 8 8	BGYM 326 MCHE 322 MCHE 321	32 16 16
Module code SFBM 121 SFCM 121 SFPM 121 SFSM 121 SFSM 121 SFMM 121	CR 12 12 12 12 12 12	Module code AGLE 121 MCHE 121 PHYM 128 MAYM 126 BGYM 123	Cr 12 12 12 12 12 12 12	Module code WVNS 221 MCHE 221 MCHE 223 BGYM 227 BGYM 225	12 8 8 8 8	BGYM 326 MCHE 322 MCHE 321	32 16 16
Module code SFBM 121 SFCM 121 SFPM 121 SFSM 121 SFSM 121 SFMM 121	CR 12 12 12 12 12 12	Module code AGLE 121 MCHE 121 PHYM 128 MAYM 126 BGYM 123	Cr 12 12 12 12 12 12	Module code WVNS 221 MCHE 221 MCHE 223 BGYM 227 BGYM 225 PHYM 221	12 8 8 8 8 8 8	BGYM 326 MCHE 322 MCHE 321	32 16 16
SFBM 121 SFCM 121 SFCM 121 SFPM 121 SFSM 121 SFMM 121	CR 12 12 12 12 12 12	Module code AGLE 121 MCHE 121 PHYM 128 MAYM 126 BGYM 123	Cr 12 12 12 12 12 12	Module code WVNS 221 MCHE 221 MCHE 223 BGYM 227 BGYM 225 PHYM 221 PHYM 222	12 8 8 8 8 8 8 8 8 8	BGYM 326 MCHE 322 MCHE 321	32 16 16
Module code SFBM 121 SFCM 121 SFPM 121 SFSM 121 SFMM 121 SFMM 121 Total 2 nd SEM	CR 12 12 12 12 12 12 12 60	Module code AGLE 121 MCHE 121 PHYM 128 MAYM 126 BGYM 123 Total 2 nd SEM	Cr 12 12 12 12 12 12 12 60	Module code WVNS 221 MCHE 221 MCHE 223 BGYM 227 BGYM 225 PHYM 221 PHYM 222 Total 2 nd SEM	12 8 8 8 8 8 8 8 8 8 8 8 60	BGYM 326 MCHE 322 MCHE 321	32 16 16 64
Module code SFBM 121 SFCM 121 SFPM 121 SFSM 121 SFMM 121 Total 2 nd SEM YEAR 1	CR 12 12 12 12 12 12 12 60 120	Module code AGLE 121 MCHE 121 PHYM 128 MAYM 126 BGYM 123 Total 2 nd SEM YEAR 2	Cr 12 12 12 12 12 12 12 60 120	Module code WVNS 221 MCHE 221 MCHE 223 BGYM 227 BGYM 225 PHYM 221 PHYM 222 Total 2 nd SEM YEAR 3	12 8 8 8 8 8 8 8 8 60 120	BGYM 326 MCHE 322 MCHE 321 Total 2 nd SEM YEAR 4	32 16 16 64 128

YEAR 1		YEAR 2		YEAR 3		YEAR 4	
SEMESTER	1	SEMESTER	1	SEMESTER	1	SEMETER 1	
CODE	CR	CODE	CR	CODE	CR	CODE	CR
SFCM 111	12	AGLE 111	12	WVNS 211	12	MAYM 317	16
SFMM111	12	MCHE 114	12	MCHE 215	8	MAYM 318	16
SFPM 111	12	PHYM 118	12	MCHE 216	8	MCHE 315	16
SFSM 111	12	MAYM 117	12	MAYM 217	16	MCHE 316	16
SFIM 111	12	CISM 111	12	PHYM 215	8		
			P		8		
SEM 1 TOTAL	60	SEM 1 TOTAL 60 S		SEM 1 TOTAL	60	SEM 1	64
						TOTAL	
SEMESTER 2		SEMESTER 2		SEMESTER 2		SEMESTER 2	
SFCM 121	12	AGLE 121	12	WVNS 221	12	MAYM 327	16
SFMM 121	12	MCHE 121	12	MCHE 221	8	MAYM 328	16
SFPM 121	12	PHYM 128	12	MCHE 223	8	MCHE 321	16
SFSM 121	12	MAYM 127	12	MAYM 227	16	MCHE 322	16
SFIM 121	12	CISM 124	12	PHYM 221	8		
				PHYM 222	8		
SEM 2 TOTAL	60	SEM 2 TOTAL	60	SEM 2 TOTAL	60	SEM 2	64
						TOTAL	
YEAR 1	120	YEAR 2	120	YEAR 3	120	YEAR 4	128
		CURR	ICULUM	TOTAL 488			

6.BSc Extended (Chemistry - Mathematics) N301M 200 195

7. Curriculum: Extended (Chemistry - Physics) N302M 200 160

Year leve	11	Year level	2	Year level 3		Year level 4	l I
First seme	ster	First semes	ter	First semeste	ər	First semest	er
Module	Cr	Module code	Cr	Module code	Cr	Module code	Cr
code							
SFCM 111	12	AGLE 111	12	WVNS 211	12	PHYM 315	8
SFMM111	12	MCHE 114	12	MCHE 215	8	PHYM 316	8
SFPM 111	12	PHYM 118	12	MCHE 216	8	PHYM 317	8
SFSM 111	12	MAYM 117	12	MAYM 217	16	PHYM 318	8
SFBM 111	12	CISM 111	12	PHYM 215	8	MCHE 315	16
				PHYM 216	8	MCHE 316	16
SEM 1	60	SEM 1	60	SEM 1 TOTAL	60	SEM 1 TOTAL	64
TOTAL		TOTAL					
Second semes	ster	Second semes	ster	Second semeste	r	Second semeste	er
SFCM 121	12	AGLE 121	12	WVNS 221	12	PHYM 321	8
SFMM 121	12	MCHE 121	12	MCHE 221	8	PHYM 322	8
SFPM 121	12	PHYM 124	12	MCHE 223	8	PHYM 323	8
SFSM 121	12	MAYM 127	12	MAYM 227	16	PHYM 324	8
SFBM 121	12	CISM 124	12	PHYM 221	8	MCHE 321	16
				PHYM 222	8	MCHE 322	16
Total 2 nd	60	Total 2 nd	60	Total 2 nd	60	Total 2 nd	64
semester		semester		semester		semester	
Total year	120	Total year	120	Total year level	120	Total year	128
level 1		level 1		1		level 1	
Total credits for	or the cu	Irriculum 4	188				

YEAR 1 YEAR 2 YEAR 3 YEAR 4 SEMESTER 1 SEMESTER 1 SEMESTER 1 SEMETER 1 CODE CR CODE CR CODE CR CODE CR SFCM 111 12 AGLE 111 12 **WVNS 211** 12 **MCHE 315** 16 MCHE 316 SFMM111 12 **CISM 111** 12 12 **CISM 211** 16 **CISM 212** 12 **CISM 311** 24 **SFPM 111** 12 **MAYM 117** 12 **MAYM 217** 16 **SFSM 111** 12 **MCHE 114** 12 MCHE 215 8 SFIM 111 12 **PHYM 118** 12 MCHE 216 8 SEM 1 60 SEM 1 60 SEM 1 68 **SEM 1 TOTAL** 56 TOTAL TOTAL TOTAL **SEMESTER 2** SEMESTER 2 **SEMESTER 2** SEMESTER 2 12 AGLE 121 12 12 SFCM 121 **WVNS 221 MCHE 321** 16 **SFMM 121** 12 CISM 124 12 **CISM 223** 12 **MCHE 322** 16 CISM 224 12 **CISM 323** 24 **SFPM 121** 12 **MAYM 127** 12 **MAYM 227** 16 **SFSM 121** 12 MCHE 121 12 MCHE 221 8 SFIM 121 12 **PHYM 128** 12 MCHE 223 8 SEM 2 60 SEM 2 60 SEM 2 68 **SEM 2 TOTAL** 56 TOTAL TOTAL TOTAL YEAR 1 2 120 YEAR 3 136 YEAR 112 120 YEAR 4 TOTAL TOTAL TOTAL TOTAL CURRICULUM TOTAL 488

8.BSc Extended (Computer Science - Chemistry) N301M 200 197

9. Curriculum: Extended (Computer Science - Electronics) N302M 200 161

Year leve	el 1	Year level	2	Year level	3	Year level	4
First seme	ester	First semes	ter	First semes	ter	First semest	ter
Module	Cr	Module code	Cr	Module code	Cr	Module code	Cr
code							
SFCM 111	12	AGLE 111	12	WVNS 211	12	CISM 311	24
SFMM111	12	CISM 111	12	CISM 211	12	ELYM 315	16
SFPM 111	12	ELYM 115	12	CISM 212	12	ELYM 316	16
SFSM 111	12	MAYM 117	12	ELYM 215	16		
SFIM 111	12	PHYM 118	12	MAYM217	16		
SEM 1	60	SEM 1	60	SEM 1	68	SEM 1	56
TOTAL		TOTAL		TOTAL		TOTAL	
Second semes	ster	Second semest	ter	Second semes	ter	Second semest	ter
SFCM 121	12	AGLE 121	12	WVNS 221	12	CISM 323	24
SFMM 121	12	CISM 122	12	CISM 223	12	ELYM 327	16
SFPM 121	12	CISM 123	6	CISM 224	12	ELYM 328	16
SFSM 121	12	ELYM 127	12	ELYM 227	16		
SFIM 121	12	MAYM 127	12	MAYM 227	16		
		PHYM 128	12				
Total 2 nd	60	Total 2 nd	66	Total 2 nd	68	Total 2 nd	56
semester		semester		semester		semester	
Total year	120	Total year	126	Total year	136	Total year	112
level 1		level 1		level 1		level 1	
Total credits for	or the cur	riculum = 494					

Year level 1		Year level	2	Year level 3		Year level 4	
First semest	er	First semester		First semester		First seme	ster
Module code	Cr	Module code	Cr	Module code	Cr	Module	Cr
						code	
SFCM 111	12	AGLE 111	12	WVNS 211	12	CISM 311	24
SFMM111	12	CISM 111	12	CISM 211	12	MAYM 317	16
SFPM 111	12	PHYM 118	12	CISM 212	12	MAYM 318	16
SFSM 111	12	MAYM 117	12	MAYM 217	16		
SFBM 111	12	APMM 117	12	APMM 217	16		
SEM 1 TOTAL	60	SEM 1	60	SEM 1	60	SEM 1	56
		TOTAL		TOTAL		TOTAL	
Second semeste	r	Second semes	ter	Second semest	ter	Second sem	ester
SFCM 121	12	AGLE 121	12	WVNS 221	12	CISM 323	24
SFMM 121	12	CISM 122	12	CISM 223	12	MAYM 327	16
SFPM 121	12	CISM 123	6	CISM 224	12	MAYM 328	16
SFSM 121	12	MAYM 127	12	MAYM 227	16		
SFBM 121	12	APMM 127	12	APMM 227	16		
		PHYM 128	12				
Total 2 nd	60	Total 2 nd	66	Total 2 nd	68	Total 2 nd	56
semester		semester		semester		semester	
Total year level	120	Total year	126	Total year	136	Total year	112
1		level 1		level 1		level 1	
Total credits for	the cur	riculum = 494					

10. Curriculum: Extended (Computer Science - Mathematics) N302M 200 162

11.BSc Extended (Computer Science - Physics) N301M 200 200

YEAR 1		YEAR 2	YEAR 2		YEAR 3		YEAR 4		
SEMESTER 1		SEMESTER	1		SEMESTER	1		SEMETER 1	
CODE	CR	CODE		CR	CODE		CR	CODE	CR
SFCM 111	12	AGLE 111		12	WVNS 211		12	CISM 311	24
SFMM111	12	CISM 111		12	CISM 211		12	PHYM 315	8
SFPM 111	12	PHYM 118		12	CISM 212		12	PHYM 316	8
SFSM 111	12	MAYM 117		12	PHYM 215		8	PHYM 317	8
SFIM 111	12	MCHE 114		12	PHYM 216		8	PHYM 318	8
					MAYM 217		16		
SEM 1	60	SEM	1	60	SEM	1	68	SEM 1	56
TOTAL		TOTAL			TOTAL			TOTAL	
SEMESTER 2		SEMESTER	2		SEMESTER	2		SEMESTER 2	2
SFCM 121	12	AGLE 121		12	WVNS 221		12	CISM 323	24
SFMM 121	12	CISM 122		12	CISM 223		12	PHYM 321	8
SFPM 121	12	PHYM 128		12	CISM 224		12	PHYM 322	8
SFSM 121	12	MAYM 127		12	PHYM 221		8	PHYM 323	8
SFIM 121	12	MCHE 121		12	PHYM 222		8	PHYM 324	8
					MAYM 227		16		
SEM 2	60	SEM	2	60	SEM	2	68	SEM 2	56
TOTAL		TOTAL			TOTAL			TOTAL	
YEAR 1	120	YEAR	2	120	YEAR	3	136	YEAR 4	112
TOTAL		TOTAL			TOTAL			TOTAL	
CURRICULUN	I TOTAL 4	488							

Year level	1	Year level	2	Year level	3	Year level 4	
First seme	ster	First semester		First semester		First seme	ster
Module code	Cr	Module code	Cr	Module code	Cr	Module	Cr
						code	
SFCM 111	12	AGLE 111	12	WVNS 211	12	MAYM 317	16
SFMM111	12	ELYM 115	12	ELYM 215	16	MAYM 318	16
SFPM 111	12	APMM 117	12	APMM 217	16	ELYM 315	16
SFSM 111	12	MAYM 117	12	MAYM 217	16	ELYM 316	16
SFBM 111	12	CISM 111	12				
SEM 1	60	SEM 1	60	SEM 1	60	SEM 1	64
TOTAL		TOTAL		TOTAL		TOTAL	
Second semest	ter	Second semest	ter	Second semest	er	Second seme	ester
SFCM 121	12	AGLE 121	12	WVNS 221	12	MAYM 327	16
SFMM 121	12	ELYM 127	12	ELYM 227	16	MAYM 328	16
SFPM 121	12	APMM 127	12	APMM 227	16	ELYM 327	16
SFSM 121	12	MAYM 127	12	MAYM 227	16	ELYM 328	16
SFBM 121	12	CISM 124	12				
Total 2 nd	60	Total 2 nd	60	Total 2 nd	60	Total 2 nd	64
semester		semester		semester		semester	
Total year	120	Total year	120	Total year	120	Total year	128
level 1		level 1		level 1		level 1	
Total credits fo	r the cur	riculum 488					

12. Curriculum: Extended (Electronics - Mathematics) N302M 200 163

13. BSc Extended (Electronics - Physics) N301M 200 196

YEAR	1	YEAR 2		YEAR 3		YEAR	4
SEMEST	ER 1	SEMESTER	31	SEMESTE	R 1	SEMETE	R 1
CODE	CR	CODE	CR	CODE	CR	CODE	CR
SFCM 111	12	AGLE 111	12	WVNS 211	12	PHYM 315	8
SFMM111	12	ELYM 115	12	ELYM 215	16	PHYM 316	8
SFPM 111	12	PHYM 118	12	PHYM 215	8	PHYM 317	8
SFSM 111	12	MAYM 117	12	PHYM 216	8	PHYM 318	8
SFIM 111	12	CISM 111	12	MAYM 217	16	ELYM 315	16
						ELYM 316	16
SEM 1	60	SEM 1	60	SEM 1	60	SEM 1	64
TOTAL		TOTAL		TOTAL		TOTAL	
SEMESTER 2		SEMESTER 2		SEMESTER 2		SEMESTER 2	2
SFCM 121	12	AGLE 121	12	WVNS 221	12	PHYM 321	8
SFMM 121	12	ELYM 127	12	ELYM 227	16	PHYM 322	8
SFPM 121	12	PHYM 128	12	PHYM 221	8	PHYM 323	8
SFSM 121	12	MAYM 127	12	PHYM 222	8	PHYM 324	8
SFIM 111	12	CISM 124	12	MAYM 227	16	ELYM 327	16
						ELYM 328	16
SEM 2	60	SEM 2	60	SEM 2	60	SEM 2	64
TOTAL		TOTAL		TOTAL		TOTAL	
YEAR 1	120	YEAR 2	120	YEAR 3	120	YEAR 4	128
TOTAL		TOTAL		TOTAL		TOTAL	
		CURR	ICULUN	I TOTAL 488			

Year level 1		Year level	2	Year level 3		Year level 4	
First semest	er	First semes	ter	First semes	ter	First seme	ster
Module code	Cr	Module code	Cr	Module code	Cr	Module	Cr
						code	
SFCM 111	12	AGLE 111	12	WVNS 211	12	MAYM 317	16
SFMM111	12	ELYM 115	12	ELYM 215	16	MAYM 318	16
SFPM 111	12	PHYM 118	12	PHYM 215	8	PHYM 315	8
SFSM 111	12	MAYM 117	12	PHYM 216	8	PHYM 316	8
SFBM 111	12	CISM 111	12	MAYM 217	16	PHYM 317	8
						PHYM 318	8
SEM 1 TOTAL	60	SEM 1	60	SEM 1	60	SEM 1	64
		TOTAL		TOTAL		TOTAL	
Second semeste	r	Second semest	ter	Second semest	er	Second seme	ester
SFCM 121	12	AGLE 121	12	WVNS 221	12	MAYM 327	16
SFMM 121	12	ELYM 127	12	ELYM 227	16	MAYM 328	16
SFPM 121	12	PHYM 128	12	PHYM 221	8	PHYM 321	8
SFSM 121	12	MAYM 127	12	PHYM 222	8	PHYM 322	8
SFBM 121	12	CISM 124	12	MAYM 227	16	PHYM 323	8
						PHYM 324	8
Total 2 nd	60	Total 2 nd	60	Total 2 nd	60	Total 2 nd	64
semester		semester		semester		semester	
Total year level	120	Total year	120	Total year	120	Total year	128
1		level 1		level 1		level 1	
Total credits for	the cur	riculum 488					

14. Curriculum: Extended (Mathematics - Physics) N302M 200 164

15. Curriculum: Extended (Statistics - Mathematics) N302M 200 165

Year level 1		Year level	2	Year level 3		Year level 4	
First semest	er	First semest	ter	First semes	ter	First seme	ster
Module code	Cr	Module code	Cr	Module code	Cr	Module	Cr
						code	
SFCM 111	12	AGLE 111	12	WVNS 211	12	MAYM 317	16
SFMM111	12	MAYM 117	12	MAYM 217	16	MAYM 318	16
SFPM 111	12	STFM 111	12	STFM 211	8	STFM 311	16
SFSM 111	12	APMM 117	12	STFM 212	8	STFM 312	16
SFBM 111	12	CISM 111	12	APMM 217	16		
SEM 1 TOTAL	60	SEM 1	60	SEM 1	60	SEM 1	64
		TOTAL		TOTAL		TOTAL	
Second semeste	r	Second semester		Second semester		Second sem	ester
SFCM 121	12	AGLE 121	12	WVNS 221	12	MAYM 327	16
SFMM 121	12	MAYM 127	12	MAYM 227	16	MAYM 328	16
SFPM 121	12	STFM 121	12	STFM 221	8	STFM 321	16
SFSM 121	12	APMM 127	12	STFM 222	8	STFM 322	16
SFBM 121	12	CISM 124	12	APMM 227	16		
Total 2 nd	60	Total 2 nd	60	Total 2 nd	60	Total 2 nd	64
semester		semester		semester		semester	
Total year level	120	Total year	120	Total year	120	Total year	128
1		level 1		level 1		level 1	
Total credits for	the cur	riculum 488					

BSC MAINSTREAM

Year level 1		Year level	2	Year 3		
First semeste	ər	First Semes	ter	First Semest	er	
Module code	Cr	Module code	Cr	Module code	Cr	
AGLE 111	12	WVNS 211	12	APMM 317	16	
APMM 117	12	APMM 217	16	APMM 318	16	
MCHE 114	12	MCHE 215	8	MCHE 315	16	
MAYM 117	12	MCHE 216	8	MCHE 316	16	
PHYM 118	12	MAYM 217	16			
Total 1 st	60	Total 1 st	60	Total 1 st	64	
semester		semester		Semester		
Second semester		Second Semester		Second semester		
AGLE 121	12	WVNS 221	12	APMM 327	16	
APMM 127	12	APMM 227	16	APMM 328	16	
MCHE 121	12	MCHE 221	8	MCHE 321	16	
MAYM 127	12	MCHE 223	8	MCHE 322	16	
PHYM 128	12	MAYM 227	16			
Total 2 nd	60	Total 2 nd	60	Total 2 nd	64	
semester		semester		semester		
Total year level 1	120	Total year level	120	Total year level	128	
		2		3		
Total credits for					368	
the curriculum						

1. Curriculum: BSc (Applied Mathematics - Chemistry) N302M 200169

2. Curriculum: BSc (Applied Mathematics - Electronics) N303M 200 171

Year level 1		Year level 2		Year 3	
First semeste	er	First Semeste	er	First Semest	er
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 111	12	WVNS 211	12	APMM 317	16
APMM 117	12	APMM 217	16	APMM 318	16
MAYM 117	12	MAYM 217	16	ELYM 315	16
ELYM 115	12	ELYM 215	16	ELYM 316	16
CISM 111	12				
Total 1 st	60	Total 1 st	60	Total 1 st	64
semester		semester		Semester	
Second semester		Second Semester		Second semester	
AGLE 121	12	WVNS 221	12	APMM 327	16
APMM 127	12	APMM 227	16	APMM 328	16
MAYM 127	12	MAYM 227	16	ELYM 327	16
ELYM 127	12	ELYM 227	16	ELYM 328	16
CISM 124	12				
Total 2 nd	60	Total 2 nd	60	Total 2 nd	64
semester		semester		semester	
Total year level 1	120	Total year level 2	120	Total year level	128
				3	
Total credits for					368
the curriculum					

Year level 1		Year level	2	Year 3	
First semeste	er	First Semest	er	First Semes	ter
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 111	12	WVNS 211	12	APMM 317	16
APMM 117	12	APMM 217	16	APMM 318	16
PHYM 118	12	PHYM 215	8	MAYM 317	16
MAYM 117	12	PHYM 216	8	MAYM 318	16
CISM 111	12	MAYM 217	16		
Total 1 st	60	Total 1 st	60	Total 1 st	64
semester		semester		Semester	
Second semester		Second Semester		Second semester	
AGLE 121	12	WVNS 221	12	APMM 327	16
APMM 127	12	APMM 227	16	APMM 328	16
PHYM 128	12	PHYM 221	8	MAYM 327	16
MAYM 127	12	PHYM 222	8	MAYM 328	16
CISM 124	12	MAYM 227	16		
Total 2 nd	60	Total 2 nd	60	Total 2 nd	64
semester		semester		semester	
Total year level 1	120	Total year level 2	120	Total year level	128
Total credits for the curriculum					368

3. Curriculum: BSc (Applied Mathematics - Mathematics) N305M 200 172

4. Curriculum: BSc (Applied Mathematics – Physics) N304M - 200152

Year level 1		Year level 2		Year 3	
First semester		First Semester		First Semester	
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 111	12	WVNS 211	12	APMM 317	16
APMM 117	12	APMM 217	16	APMM 318	16
PHYM 118	12	PHYM 215	8	PHYM 315	8
MAYM 117	12	PHYM 216	8	PHYM 316	8
CISM 111	12	MAYM 217	16	PHYM 317	8
				PHYM 318	8
Total 1 st sem	60	Total 1 st semester	60	Total 1 st sem	64
Second semester		Second Semester		Second semester	
AGLE 121	12	WVNS 221	12	APMM 327	16
APMM 127	12	APMM 227	16	APMM 328	16
PHYM 128	12	PHYM 221	8	PHYM 321	8
MAYM 127	12	PHYM 222	8	PHYM 322	8
CISM 124	12	MAYM 227	16	PHYM 323	8
				PHYM 324	8
Total 2 nd sem	60	Total 2 nd semester	60	Total 2 nd sem	64
Total year level 1	120	Total year level 2	120	Total year level 3	128
Total credits for the curriculum					368

Year Level 1		Year level 2		Year level 3			
First semester		First semester		First semester			
Module code	Credits	Module code	Credits	Module code	Credits		
AGLE 111	12	WVNS 211	12	BCHS 311	16		
BGYM 113	12	MKBS 211	8	BCHS 312	16		
MAYM 116	12	MKBS 212	8	MCHE 315	16		
MCHE 114	12	MCHE 215	8	MCHE 316	16		
PHYM 118	12	MCHE 216	8				
		BCHS 211	8				
		BCHS 212	8				
Total 1st semer	60	Total 1 st sem	60	Total 1 st sem	64		
Second sem	ester	Second semester		Second semester			
Module code	Credits	Module code	Credits	Module code	Credits		
BGYM 123	12	WVNS 221	12	BCHS 321	16		
PHYM 128	12	MKBS 223	8	BCHS 322	16		
MAYM 126	12	MKBS 222	8	MCHE 321	16		
AGLE 121	12	MCHE 221	8	MCHE 322	16		
MCHE 121	12	MCHE 223	8				
		BCHS 221	8				
		BCHS 222	8				
Total 2 nd sem	60	Total 2 nd sem	60	Total 2 nd semester	64		
Total credits for the curriculum: 368							

5. Curriculum: BSc (BIOCHEMISTRY AND CHEMISTRY) N174M – 200190

6. Curriculum: BSc MICROBIOLOGY AND BIOCHEMISTRY) N167M - 200118

Year Level 1		Year level 2		Year level 3	
First seme	ester	First seme	ster	First semest	er
Module code	Credits	Module code	Credits	Module code	Credits
AGLE 111	12	WVNS 211	12	MKBS 316	16
BGYM 113	12	MKBS 211	8	MKBS 317	16
MAYM 116	12	MKBS 212	8		
		BCHS 211	8		
MCHE 114	12	BCHS 212	8	BCHS 314	16
PHYM 118	12	MCHE 215	8	BCHS 315	16
		MCHE 216	8		
Total 1st semr	60	Total 1st semester	60	Total 1st sem	64
Second sen	nester	Second sem	ester	Second semes	ster
Second sen Module code	nester Credits	Second sem Module code	ester Credits	Second semes Module code	ster Credits
Second sen Module code BGYM 123	nester Credits 12	Second sem Module code WVNS 221	ester Credits 12	Second semes Module code MKBS 326	ster Credits 16
Second sen Module code BGYM 123 MCHE 121	Credits 12 12	Second sem Module code WVNS 221 MKBS 223	ester Credits 12 8	Second semes Module code MKBS 326 MKBS 327	ter Credits 16 16
Second sen Module code BGYM 123 MCHE 121 PHYM 128	Credits 12 12 12 12	Second sem Module code WVNS 221 MKBS 223 MKBS 222	ester Credits 12 8 8	Second semes Module code MKBS 326 MKBS 327 BCHS 324	ster Credits 16 16 16
Second sen Module code BGYM 123 MCHE 121 PHYM 128 MAYM 126	nester Credits 12 12 12 12 12	Second sem Module code WVNS 221 MKBS 223 MKBS 222 BCHS 221	ester Credits 12 8 8 8 8	Second semes Module code MKBS 326 MKBS 327 BCHS 324 BCHS 325	ster Credits 16 16 16 16 16
Second sen Module code BGYM 123 MCHE 121 PHYM 128 MAYM 126 AGLE 121	Credits 12 12 12 12 12 12 12 12 12 12	Second sem Module code WVNS 221 MKBS 223 MKBS 222 BCHS 221 BCHS 222	ester Credits 12 8 8 8 8 8 8	Second semes Module code MKBS 326 MKBS 327 BCHS 324 BCHS 325	ster Credits 16 16 16 16 16
Second sen Module code BGYM 123 MCHE 121 PHYM 128 MAYM 126 AGLE 121	Credits 12 12 12 12 12 12 12 12 12 12	Second sem Module code WVNS 221 MKBS 223 MKBS 222 BCHS 221 BCHS 222 MCHE 221	ester Credits 12 8 8 8 8 8 8 8 8	Second semes Module code MKBS 326 MKBS 327 BCHS 324 BCHS 325	ter Credits 16 16 16 16
Second sen Module code BGYM 123 MCHE 121 PHYM 128 MAYM 126 AGLE 121	nester Credits 12 12 12 12 12 12	Second sem Module code WVNS 221 MKBS 223 MKBS 222 BCHS 221 BCHS 222 MCHE 221 MCHE 223	ester <u>Credits</u> 12 8 8 8 8 8 8 8 8 8	Second semes Module code MKBS 326 MKBS 327 BCHS 324 BCHS 325	ster Credits 16 16 16 16 16
Second sen Module code BGYM 123 MCHE 121 PHYM 128 MAYM 126 AGLE 121 Total 2nd sem	Credits 12 12 12 12 12 12 60	Second sem Module code WVNS 221 MKBS 223 MKBS 222 BCHS 221 BCHS 222 MCHE 221 MCHE 223 Total 2nd sem	ester <u>Credits</u> 12 8 8 8 8 8 8 8 8 60	Second semes Module code MKBS 326 MKBS 327 BCHS 324 BCHS 325 CHS 325 CHS 325	Credits 16 16 16 16 64

Year Level 1		Year leve	Year level 2 Year l		el 3
First seme	First semester		First semester		
Module code	Credits	Module code	Credits	Module code	Credits
AGLE 111	12	WVNS 211	12	MKBS 316	16
BGYM 113	12	MKBS 211	8	MKBS 317	16
MAYM 116	12	MKBS 212	8	MCHE 315	16
MCHE 114	12	MCHE 215	8	MCHE 316	16
PHYM 118	12	MCHE 216	8		
		BCHS 211	8		
		BCHS 212	8		
Total 1 st sem	60	Total 1 st sem	60	Total 1 st sem	64
Second sem	nester	Second semester		Second semester	
Module code	Credits	Module code	Credits	Module code	Credits
AGLE 121	12	WVNS 221	12	MKBS 326	16
BGYM123	10		•		10
	12	MKB5 223	8	MKBS 327	16
MAYM 126	12	MKBS 223 MKBS 222	8	MKBS 327 MCHE 322	16
MAYM 126 MCHE 121	12 12 12	MKBS 223 MKBS 222 MCHE 221	8 8 8	MKBS 327 MCHE 322 MCHE 321	16 16 16
MAYM 126 MCHE 121 PHYM 128	12 12 12 12	MKBS 223 MKBS 222 MCHE 221 MCHE 223	8 8 8 8	MKBS 327 MCHE 322 MCHE 321	16 16 16
MAYM 126 MCHE 121 PHYM 128	12 12 12 12	MKBS 223 MKBS 222 MCHE 221 MCHE223 BCHS 221	8 8 8 8 8	MKBS 327 MCHE 322 MCHE 321	16 16 16
MAYM 126 MCHE 121 PHYM 128	12 12 12 12	MKBS 223 MKBS 222 MCHE 221 MCHE223 BCHS 221 BCHS 222	8 8 8 8 8 8	MKBS 327 MCHE 322 MCHE 321	16 16 16
MAYM 126 MCHE 121 PHYM 128 Total 2 nd sem	12 12 12 12 60	MKBS 223 MKBS 222 MCHE 221 MCHE223 BCHS 221 BCHS 222 Total 2 nd sem	8 8 8 8 8 8 60	MKBS 327 MCHE 322 MCHE 321	16 16 16 64

7. Curriculum: BSc (MICROBIOLOGY AND CHEMISTRY) N168M – 200118

8. Curriculum: BSc (Biology - Chemistry) N301M - 200 173

Year level 1		Year level 2		Year 3	
First semeste	er	First Semester		First Semester	
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 111	12	WVNS 211	12	BGYM 313	16
BGYM 113	12	BGYM 213	8	BGYM 314	16
MAYM 116	12	BGYM 214	8	MCHE 315	16
MCHE 114	12	MCHE 215	8	MCHE 316	16
PHYM 118	12	MCHE 216	8		
		PHYM 215	8		
		PHYM 216	8		
SEM 1 TOTAL	60	SEM 1 TOTAL	60	SEM 1 TOTAL	64
SEMESTER 2		SEMESTER 2		SEMESTER 2	
BGYM 123	12	WVNS 221	12	BGYM 326	32
MCHE 121	12	BGYM 227	8	MCHE 321	16
PHYM 128	12	BGYM 225	8	MCHE 322	16
MAYM 126	12	PHYM 221	8		
ALGE 121	12	PHYM 222	8		
		MCHE 221	8		
		MCHE 223	8		
Total 2 nd	60	Total 2 nd	60	Total 2 nd	64
semester		semester		semester	
Total year level 1	120	Total year level 2	120	Total year level 3	128
Total credits for the curriculum					368

Year level 1		Year level 2		Year 3	
First semester		First Semester		First Semester	
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 111	12	WVNS 211	12	BGYM 316	16
CISM 111	12	BGYM 215	8	BGYM 315	16
MAYM 116	12	BGYM 216	8	GEOM 316	16
GEOM 113	12	GEOM 214	8	GEOM 317	16
BGYM 113	12	GEOM 215	8		
		CISM 211	12		
		CISM 212	12		
SEM 1 TOTAL	60	SEM 1 TOTAL	68	SEM 1 TOTAL	64
SEMESTER 2		SEMESTER 2		SEMESTER 2	
AGLE 121	12	WVNS 222	12	BGYM 326	32
CISM 124	12	BGYM 226	16	GEOM 328	16
MAYM 126	12	GEOM 224	8	GEOM 329	16
BGYM 123	12	GEOM 225	8		
GEOM 123	12	CISM 223	12		
		CISM 224	12		
Total 2 nd sem	60	Total 2 nd sem	68	Total 2 nd sem	64
Total year level 1	120	Total year level 2	136	Total year level 3	128
Total credits for the curriculum					384

9. Curriculum: BSc (Biology - Geography) N301M - 200 174

10. Curriculum: BSc Chemistry – Computer Science N120M – 200 130

Year level 1		Year level 2		Year 3	
First semester		First Semester		First Semester	
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 111	12	WVNS 211	12	MCHE 315	16
CISM 111	12	CISM 211	12	MCHE 316	16
MAYM 117	12	CISM 212	12	CISM 311	24
MCHE 114	12	MAYM 217	16		
PHYM 118	12	MCHE 215	8		
		MCHE 216	8		
SEM 1 TOTAL	60	SEM 1 TOTAL	68	SEM 1 TOTAL	56
SEMESTER	2	SEMESTER 2		SEMESTER 2	
AGLE 121	12	WVNS 221	12	MCHE 321	16
CISM 122	12	CISM 223	12	MCHE 322	16
CISM 123	6	CISM 224	12	CISM 323	24
MAYM 127	12	MAYM 227	16		
MCHE 121	12	MCHE 221	8		
PHYM 128	12	MCHE 223	8		
Total 2 nd sem	66	Total 2 nd sem	68	Total 2 nd sem	56
Total year level 1	126	Total year level 2	136	Total year level	112
Total credits for the curriculum					374

Year level 1		Year level 2		Year level 3		
First semester		First semester		First semester		
Module code	Cr	Module code	Cr	Module code	Cr	
GEOM 113	12	WVNS 211	12	GEOM 316	16	
MCHE 114	12	GEOM 214	8	GEOM 317	16	
MAYM 117	12	GEOM 215	8	MCHE 315	16	
PHYM 118	12	MCHE 215	8	MCHE 316	16	
AGLE 111	12	MCHE 216	8			
		EITHER PHYM 215	8			
		AND PHYM 216	8			
		OR MAYM 217	16			
Total 1st semester	60	Total 1st semester	60	Total 1st semester	64	
Second semeste	r	Second semester		Second semester		
Module code	Cr	Module code	Cr	Module code	Cr	
GEOM 123	12	GEOM 224	8	GEOM 328	16	
MCHE 121	12	GEOM 225	8	GEOM 329	16	
MAYM 127	12	MCHE 221	8	MCHE 321	16	
PHYM 128	12	MCHE 223	8	MCHE 322	16	
AGLE 121	12	EITHER PHYM 221	8			
		AND PHYM 222	8			
		OR MAYM 227	16			
		WVNS 222	12			
Total 2nd semester	60	Total 2nd semester	60	Total 2nd semester	64	
Total year level 1	120	Total year level 2	120	Total year level 3	128	
Total credits for the cur	riculur	m			368	

11. Curriculum: BSc (Chemistry – Geography) N301M 200 150

12. Curriculum: BSc (Chemistry – Mathematics) N 307M – 200 140

Year level 1		Year level 2		Year 3	
First semester		First Semester		First Semester	
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 111	12	WVNS 211	12	MAYM 317	16
MCHE 114	12	MCHE 215	8	MAYM 318	16
PHYM 118	12	MCHE 216	8	MCHE 315	16
MAYM 117	12	MAYM 217	16	MCHE 316	16
CISM 111	12	PHYM 215	8		
		PHYM 216	8		
Total 1 st sem	60	Total 1 st sem	60	Total 1 st sem	64
Second semest	er	Second Semester		Second semester	
AGLE 121	12	WVNS 221	12	MAYM 327	16
MCHE 121	12	MCHE 221	8	MAYM 328	16
PHYM 128	12	MCHE 223	8	MCHE 321	16
MAYM 127	12	MAYM 227	16	MCHE 322	16
CISM 124	12	PHYM 221	8		
		PHYM 222	8		
Total 2 nd sem	60	Total 2 nd sem	60	Total 2 nd sem	64
Total year level 1	120	Total year level 2	120	Total year level 3	128
Total credits for					368
the curriculum					

Year level 1		Year level 2		Year 3	
First semester		First Semester		First Semester	
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 111	12	WVNS 211	12	PHYM 315	8
MCHE 114	12	MCHE 215	8	PHYM 316	8
PHYM 118	12	MCHE 216	8	PHYM 317	8
MAYM 117	12	MAYM 217	16	PHYM 318	8
CISM 111	12	PHYM 215	8	MCHE 315	16
		PHYM 216	8	MCHE 316	16
Total 1 st sem	60	Total 1 st sem	60	Total 1 st sem	64
Second semes	ter	Second Semester		Second semester	
AGLE 121	12	WVNS 221	12	PHYM 321	8
MCHE 121	12	MCHE 221	8	PHYM 322	8
PHYM 128	12	MCHE 223	8	PHYM 323	8
MAYM 127	12	MAYM 227	16	PHYM 324	8
CISM 124	12	PHYM 221	8	MCHE 321	16
		PHYM 222	8	MCHE 322	16
Total 2 nd sem	60	Total 2 nd sem	60	Total 2 nd sem	64
Total year level 1	120	Total year level 2	120	Total year level 3	128
Total credits for the curriculum					368

14. Curriculum: BSc Computer Science - Electronics N 125M 200 177

Year level 1		Year level 2		Year 3	
First semeste	ər	First Semester		First Semester	
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 111	12	WVNS 211	12	CISM 311	24
CISM 111	12	CISM 211	12	ELYM 315	16
ELYM 115	12	CISM 212	12	ELYM 316	16
MAYM 117	12	ELYM 215	16		
PHYM 118	12	MAYM217	16		
SEM 1 TOTAL	60	SEM 1 TOTAL	68	SEM 1 TOTAL	56
SEMESTER 2		SEMESTER 2		SEMESTER 2	
AGLE 121	12	WVNS 221	12	CISM 323	24
CISM 122	12	CISM 223	12	ELYM 327	16
CISM 123	6	CISM 224	12	ELYM 328	16
ELYM 127	12	ELYM 227	16		
MAYM 127	12	MAYM 227	16		
PHYM 128	12				
Total 2 nd	66	Total 2 nd	68	Total 2 nd	56
semester		semester		semester	
Total year level 1	126	Total year level 2	136	Total year level	112
				3	
Total credits for					374
the curriculum					

YEAR 1		YEAR 2		YEAR 3	
SEMESTE	R 1	SEMESTER 1		SEMETER 1	
CODE	CREDIT	CODE	CREDIT	CODE	CREDIT
GEOM 113	12	GEOM 214	8	GEOM 316	16
CISM 111	12	GEOM 215	8	GEOM 317	16
MAYM 117	12	CISM 211	12	CISM 311	24
STFM 111	12	CISM 212	12		
AGLE 111	12	MAYM 217	16		
		WVNS 211	12		
SEM 1 TOTAL	60	SEM 1 TOTAL	68	SEM 1 TOTAL	56
SEMESTER 2		SEMESTER 2		SEMESTER 2	
GEOM 123	12	GEOM 224	8	GEOM 328	16
CISM 124	12	GEOM 225	8	GEOM 329	16
MAYM 127	12	CISM 223	12	CISM 323	24
STFM 121	12	CISM 224	12		
AGLE 121	12	MAYM 227	16		
		WVNS 222	12		
SEM 2 TOTAL	60	SEM 2 TOTAL	68	SEM 2 TOTAL	56
YEAR 2 TOTAL	120	YEAR 3 TOTAL	136	YEAR 4 TOTAL	112
CURRICULUM TOTAL =					368

15. Curriculum: (Computer Science - Geography) N301M - 200 178

16. Curriculum: BSc Computer Science - Mathematics N 127M 200 137

Year level 1	Year level 1		Year level 2		
First semeste	er	First Semeste	er	First Semester	
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 111	12	WVNS 211	12	CISM 311	24
CISM 111	12	CISM 211	12	MAYM 317	16
PHYM 118	12	CISM 212	12	MAYM 318	16
MAYM 117	12	MAYM 217	16		
APMM 117	12	APMM 217	16		
SEM 1 TOTAL	60	SEM 1 TOTAL	68	SEM 1 TOTAL	56
SEMESTER 2		SEMESTER 2		SEMESTER 2	
AGLE 121	12	WVNS 221	12	CISM 323	24
CISM 122	12	CISM 223	12	MAYM 327	16
CISM 123	6	CISM 224	12	MAYM 328	16
MAYM 127	12	MAYM 227	16		
APMM 127	12	APMM 227	16		
PHYM 128	12				
Total 2 nd	66	Total 2 nd	68	Total 2 nd	56
semester		semester		semester	
Total year level 1	126	Total year level 2	136	Total year level	112
				3	
Total credits for the curriculum					374

Year level 1		Year level 2	Year level 2		
First semeste	First semester		First Semester		er
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 111	12	WVNS 211	12	CISM 311	24
CISM 111	12	CISM 211	12	PHYM 315	8
PHYM 118	12	CISM 212	12	PHYM 316	8
MAYM 117	12	PHYM 215	8	PHYM 317	8
MCHE 114	12	PHYM 216	8	PHYM 318	8
		MAYM 217	16		
SEM 1 TOTAL	60	SEM 1 TOTAL	68	SEM 1 TOTAL	56
SEMESTER 2		SEMESTER 2		SEMESTER 2	
AGLE 121	12	WVNS 221	12	CISM 323	24
CISM 122	12	CISM 223	12	PHYM 321	8
CISM 123	6	CISM 224	12	PHYM 322	8
PHYM 128	12	PHYM 221	8	PHYM 323	8
MAYM 127	12	PHYM 222	8	PHYM 324	8
MCHE 121	12	MAYM 227	16		
Total 2 nd sem	66	Total 2 nd sem	68	Total 2 nd sem	56
Total year level 1	126	Total year level 2	136	Total year level 3	112
Total credits for the curriculum					374

17. Curriculum: BSc (Computer Science – Physics) N 128M 200 132

18. Curriculum: BSc (Electronics - Mathematics) N309M 200 179

Year level 1	Year level 1		Year level 2		
First semeste	er	First Semester		First Semester	
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 111	12	WVNS 211	12	MAYM 317	16
ELYM 115	12	ELYM 215	16	MAYM 318	16
APMM 117	12	APMM 217	16	ELYM 315	16
MAYM 117	12	MAYM 217	16	ELYM 316	16
CISM 111	12				
Total 1 st	60	Total 1 st	60	Total 1 st	64
semester		semester		Semester	
Second semester		Second Semester		Second semester	
AGLE 121	12	WVNS 221	12	MAYM 327	16
ELYM 127	12	ELYM 227	16	MAYM 328	16
APMM 127	12	APMM 227	16	ELYM 327	16
MAYM 127	12	MAYM 227	16	ELYM 328	16
CISM 124	12				
Total 2 nd	60	Total 2 nd	60	Total 2 nd	64
semester		semester		semester	
Total year level 1	120	Total year level 2	120	Total year level	128
				3	
Total credits for					368
the curriculum					

Year level 1		Year level 2		Year 3	
First semeste	er	First Semester		First Semester	
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 111	12	WVNS 211	12	PHYM 315	8
ELYM 115	12	ELYM 215	16	PHYM 316	8
PHYM 118	12	PHYM 215	8	PHYM 317	8
MAYM 117	12	PHYM 216	8	PHYM 318	8
CISM 111	12	MAYM 217	16	ELYM 315	16
				ELYM 316	16
SEM 1 TOTAL	60	SEM 1 TOTAL	60	SEM 1 TOTAL	64
SEMESTER 2		SEMESTER 2		SEMESTER 2	
AGLE 121	12	WVNS 221	12	PHYM 321	8
ELYM 127	12	ELYM 227	16	PHYM 322	8
PHYM 128	12	PHYM 221	8	PHYM 323	8
MAYM 127	12	PHYM 222	8	PHYM 324	8
CISM 124	12	MAYM 227	16	ELYM 327	16
				ELYM 328	16
Total 2 nd	60	Total 2 nd	60	Total 2 nd	64
semester		semester		semester	
Total year level 1	120	Total year level 2	120	Total year level	128
				3	
Total credits for the curriculum					368

19. Curriculum: BSc (Electronics - Physics) N310M - 200 180

20. Curriculum: BSc (Mathematics - Physics) N311M 200 134

Year level 1		Year level 2		Year 3	
First semeste	er	First Semester		First Semester	
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 111	12	WVNS 211	12	MAYM 317	16
ELYM 115	12	ELYM 215	16	MAYM 318	16
PHYM 118	12	PHYM 215	8	PHYM 315	8
MAYM 117	12	PHYM 216	8	PHYM 316	8
CISM 111	12	MAYM 217	16	PHYM 317	8
				PHYM 318	8
SEM 1 TOTAL	60	SEM 1 TOTAL	60	SEM 1 TOTAL	64
SEMESTER 2		SEMESTER 2		SEMESTER 2	
AGLE 121	12	WVNS 221	12	MAYM 327	16
ELYM 127	12	ELYM 227	16	MAYM 328	16
PHYM 128	12	PHYM 221	8	PHYM 321	8
MAYM 127	12	PHYM 222	8	PHYM 322	8
CISM 124	12	MAYM 227	16	PHYM 323	8
				PHYM 324	8
Total 2 nd	60	Total 2 nd	60	Total 2 nd	64
semester		semester		semester	
Total year level 1	120	Total year level 2	120	Total year level	128
				3	
Total credits for					368
the curriculum					

Year level 1		Year level 2	Year level 2		
First semester		First Semester		First Semester	
Module code	Cr	Module code	Cr	Module code	Cr
AGLE 111	12	WVNS 211	12	MAYM 317	16
MAYM 117	12	MAYM 217	16	MAYM 318	16
STFM 111	12	STFM 211	8	STFM 311	16
APMM 117	12	STFM 212	8	STFM 312	16
CISM 111	12	APMM 217	16		
Total 1 st semester	60	Total 1 st semester	60	Total 1 st Semester	64
Second semester		Second Semester		Second semester	
AGLE 121	12	WVNS 221	12	MAYM 327	16
MAYM 127	12	MAYM 227	16	MAYM 328	16
STFM 121	12	STFM 221	8	STFM 321	16
APMM 127	12	STFM 222	8	STFM 322	16
CISM 124	12	APMM 227	16		
Total 2 nd semester	60	Total 2 nd semester	60	Total 2 nd semester	64
Total year level 1	120	Total year level 2	120	Total year level 3	128
Total credits for the curriculum					368

21. Curriculum: BSc (Statistics - Mathematics) N 306M 200 138

MA.2 Module outcomes

OLD CODES AHD132, AHDM112 NEW CODE AHVM111	CREDITS 12	SEMESTER 1
Title: Anatomy and Physiology: Anin	nal health 1	
Module outcomes: Students should be able to describ to the cell, tissues, and organ syste domestic animals including birds, v nervous, and endocrine systems. I and dissections by students of syst	e the basic organization of livi ems. Describe the basic anato vith respect to the integumenta In practical sessions there are tems, organs and tissues stud	ng organisms with respect my and physiology of ary, musculo-skeletal, demonstrations by lecturer ied in the theory
OLD CODES AHD152, AHDM122 NEW CODE AHVM122	CREDITS 12	SEMESTER 2
Title: Anatomy and Physiology: Ani	mal Health II	•
Module outcomes: Students should be able to describ including birds with respect to the r reproductive systems. In practical s dissections by students of systems	e the anatomy and physiology respiratory, circulatory, gastroi sessions there are demonstrat organs and tissues studied in	of domestic animals ntestinal, urinary, and ions by lecturer and the theory.
CODE AHVM112	CREDITS 8	SEMESTER 1
Title: Animal Handling and Equipme	nts	
Students should be able to perform Name and describe the commonly sessions students practice under t technicians, procedures related to supplement the students practical	n basic animal handling techni used veterinary instruments a the supervision of veterinarian the theory topics above. Vide learning.	ques and farm procedures. nd equipments. In practical s and animal health o tapes may be be used to
CODE AHVM123	CREDITS 8	SEMESTER 2
Title: Animal Handling and Equipme	nts II	
Module outcomes: Students should be able to increas handling techniques and routine fa describe additional commonly used sessions students will practice and	e their proficiency and perform rm procedures and revise prev d veterinary instruments and e	n additional basic animal vious skills. Name and quipments. In practical
veterinarians and animal health teo Video tapes may be be used to sur	chnicians, procedures related	er the supervision of to the theory topics above. I learning.
Video tapes may be be used to sup OLD CODES AHD122. AHDM211	chnicians, procedures related pplement the students practica CREDITS 12	er the supervision of to the theory topics above. Il learning.
Video tapes may be be used to sup OLD CODES AHD122, AHDM211 NEW CODE AHVM121	create the protective and optimicates procedures related optiment the students practica CREDITS 12	er the supervision of to the theory topics above. I learning. SEMESTER 2
veterinarians and animal health tec Video tapes may be be used to sup OLD CODES AHD122, AHDM211 NEW CODE AHVM121 Title: Basic Microbiology 1 for Anim	cREDITS 12	er the supervision of to the theory topics above. I learning. SEMESTER 2

CODE AHVM226	CREDITS 16	SEMESTER 2
Title: Basic Microbiology for 11 for An	imal Health	
Title: Basic Microbiology for 11 for An Module outcomes: Students should be able to give a fur animal health importance (bacteria, v functional description of the general g Give a general grouping of bacteria a staining results, morphology and cha diseases of animals. Describe the co causative agents, transmission, prevu practical sessions learners will partici microbiology including but not limited microscope, culturing of bacteria, use related to animal diseases. Case study procedures to help differentiate comm CODE AHVM211 Title: Diseases I	imal Health actional description of the classes irruses, fungi, rickettsia and proto- principles of pathogenesis by mic- and fungi of animal health importar racteristics. Describe microbes co- promonly encountered animal hea- ention of transmission, human he ipate in the use of general laborati- to staining and viewing of bacter of different media, sensitivity tes- dies may also be used. Use of pra- non microbiological pathogens. CREDITS 16	of microorganisms of zoans etc). Give a robiological agents. nce according to ausing important ith infections: alth implications. In cory procedures in ia under the ting, etc. especially as actical microbiological SEMESTER 1
Module outcomes: Students should be able to describe i bacterial diseases in respect to epide methods, treatment, and preventative Evaluate lists of differential diagnose sessions students will be involved in and treatment as well as prevention of disease conditions are not seen in th the student practical learning. Stude and investigations including the colle	the basic concepts of the common emiology, clinical signs, postmorte e measures with emphasis on the s and come up with tentative diag assisting the veterinarian in the e of the diseases studied in the theo e live animals, video tapes will be nts will be guided in the use of ep ction and recording of data related	nly occurring viral and m, diagnostic notifiable diseases. Inosis. In practical xamination, diagnosis ory. When specific used to supplement idemiological surveys d to the diseases
CODE AHVM221	CREDITS 16	SEMESTER 2
Title: Diseases II		
Module outcomes: Students should be able to describe i fungal and non-infectious conditions diagnostic methods, treatment, and p diagnoses and come up with tentative involved in assisting the veterinarian prevention of the diseases studied in seen in the live animals, video tapes learning. Students will be guided in t including the collection and recording	the basic concepts of the common regarding epidemiology, clinical s preventative measures. Evaluate e diagnosis. In practical sessions in the examination, diagnosis and the theory. When specific diseas will be used to supplement the st he use of epidemiological survey g of data related to the diseases s	n protozoal, rickettsial, igns, postmortem, lists of differential s students will be d treatment as well as se conditions are not udent practical s and investigations tudied.
OLD CODES AHD253, AHDM223	CREDITS 8	SEMESTER 1
NEW CODE AHVM212		
Module outcomes: Students should be able to describe i external parasites. Describe the bas parasites. Practicals: Demonstration theory, faecal analysis for internal pa internal parasites using both oral men- identification of external parasites stu- lice, dipping for external parasites, ta treatment for external parasites.	the basic aspects of the commonl ic aspects of the commonly encou- n and identification of internal para rasites, identification of worm egg dication and injectable medication adied in the theory including ticks, ble inspection, identification of the	y encountered untered internal asites studied in the js, treatment for h. Demonstration and tick counts, mites, e sheep scab mite,

OLD CODES AHD192, AHDM125 NEW CODE AHVM222	CREDITS 16	SEMESTER 2			
Title: Obstetrics and Genital Diseases:	Animal Health				
Module outcomes:					
Students should be able to describe	the basic concepts of the reprodu-	ctive cycles of			
domestic animals, and the factors wh	ich influence them. Describe the	diseases and			
conditions causing infertility in produc	ction and companion animals and	know how to prevent			
them. Describe the basic physiology of gestation and parturition, and its related problems.					
In practical sessions learners assisst	the veterinarian with clinical case	s involving obstetrical			
procedures for relieving dystocia, trea	atments associated with dystocia,	assisting with			
dystocia, retained placentas, fertility e	examinations, semen evaluations,	, sheath washes, and			
other clinical cases related to obstetr	ics and reproductive diseases.				
	CREDITS 16	SEMESTER 2			
Title: Pharmacology and Toxicology: A	Animal Health				
Module outcomes:					
Students should be able to explain th	e basic pharmacokinetic and toxic	cokinetic concepts of			
medicines, toxic plants and common	poisons. Explain the basic mode	s of action of the			
toxins and medicines, and relate ther	n to the respective clinical signs.	Explain the basic			
diagnostic methods and treatments in	riaua madiaatiana, aa wall aa in t	etermanan in the			
common intervientions . In practical or	anous medications, as well as in t	ne treatment of			
modication including suboutanoous	stramuscular intravonous intrap	es of autilitistration of			
intramammany subconjunctival topic	and oral Restraint and the as	sistance of the			
veterinarian in drug administration	dentification of common toxic plan	ote noisone heavy			
metals organophosphates rodentici	des and others	113, poisons, neavy			
OLD CODES AHD 202 AHAD213					
NEW CODE AHVM224	CREDITS 8	SEMESTER 2			
Title: Public Health for Animal Health					
Module outcomes:					
Students should be able to describe t	the general measures that ensure	that water and food			
of animal origin is free from pathoger	and toxins. Advise farmers on	concepts of safe and			
hygienic food production. Demonstra	ate functional knowledge of the rel	levant national and			
international legislation regarding the	management of food-borne and	zoonotic diseases.			
Describe the gross anatomy of a slau	ighter carcass. Describe the abat	ttoir slaughter			
procedures. Describe the abattoir hy	giene processes. Describe the b	asic procedure of			
meat inspection in an abattoir. Desc	ribe the statutory requirements an	d obligations of			
animals health technicians in terms of	f the relevant acts. Describe the	general life cycles,			
epidemiologies, treatment and control	I measures of the common zoon	oses, as learnt from			
Diseases modules, including but not	limited to rables, anthrax, brucello	osis, Rift Valley fever,			
tapeworms and nookworms. In pract	lical sessions students visits all ca	tegories and grades			
of abattoirs in and around the province	ce. Visits to dairies, dairy process	ang plants. Interation			
nublic health services	ually inspectors and others involv	eu in regulatory			
		SEMESTED 2			
NEW CODE AHVM225	CREDITS 0	SEMILSTER Z			
Title: Clinical Laboratory Techniques					
Module outcomes:					
Students should be able to explain th	e basic laboratory techniques D	emonstrate the basic			
theoretical and practical clinical path	plogy skills. In practical sessions s	students do blood			
smear preparation and evaluation fa	ecal flotation preparation and eva	luation, haematocrit			
preparation and evaluation. Urine sa	mples evaluation, sediment staini	ng and evaluation.			
bacteria cultures and sensitivity testir	ng, media prepara tion, specimen	preservation and			
storage. Milk testing, somatic cell co	unts, rumen fluid evaluation. skin	scrapings for all			
species, clinical chemistry. Students will practice in the lab the procedures studied in the					

theory of the various courses. Practic samples for dispatch to the various ki	e of collection, preservation and p inds of laboratories.	preparation of				
OLD CODES AHAD 302, AHAM411 CREDITS 16 SEMESTER 1						
Title: Companion Animal Medicine & S	urgery					
Module outcomes						
Students should be able to perform fi	Students should be able to perform first aid procedures on companion animals prior to					
attendance by a veterinarian. Perform primary health care procedures on companion						
animals. Communicate preventative methods to clients. Assist veterinarians in surgery,						
diagnostics, and treatments. In pract	ical sessions vital signs, clinical e	xam, first aid, general				
patient management, wound manage	ment, supportive care, treatment	techniques for the				
different species, fluid therapy, monito	oring the patient, administration of	r medication,				
nhysical therapy, surgical instrument	management care of equipment	collection of samples				
for laboratory examination Students	will practice the procedures stud	ied in the various				
theory courses so that they are able t	o work with all species of animals	in a relaxed and				
professional way with a minimum of r	isks of injury to the animal, the cli	ent or themselves.				
OLD CODES AHD 352, AHAM421	CREDITS 16	SEMESTER 2				
NEW CODE AHVM321						
Title: Companion AnimaL Medicine & S	urgery II					
Module outcomes:						
Students should be able to perform fu	urther first aid procedures on com	panion animals prior				
to attendance by a veterinarian. Peri	orm further primary health care pr	ocedures on				
surgery diagnostics and treatments	The following procedures are don	e during practical				
sessions, vital signs, clinical exam, fir	rst aid, general patient manageme	ent. wound				
management, supportive care, treatm	nent techniques for the different sp	pecies, fluid therapy,				
monitoring the patient, administration	of medication, assisting with surg	jical cases, pre- and				
postoperative care, care of deliberate	d animals, physical therapy, surgi	ical instrument				
management, care of equipment, coll	ection of samples for laboratory e	examination.				
able to work with all species of anima	studied in the various theory could be in a relayed and professional w	rses so that they are				
risks of injury to the animal, the client	or themselves.	ay with a minimum of				
OLD CODES AHD 332, AHDM314	CREDITS 16	SEMESTER 1				
Title: Production Animal Modicine & St	urgory I					
Module outcomes:						
Students should be able to perform fi	rst aid procedures on production a	animal prior to				
attendance by a veterinarian. Perform	n primary health care procedures	on production				
animals. Communicate preventative methods to clients. Assist veterinarians in surgery,						
diagnostics, and treatments. The following procedures are done during practical sessions,						
vital signs, clinical exam, first aid, general patient management, wound management,						
supportive care, treatment techniques for the different species, fluid therapy, monitoring the						
patient, auministration of medication, assisting with surgical cases, pre- and postoperative care, care, of deliberated animals, physical therapy, surgical instrument management, care						
care, care or deliberated animals, physical therapy, surgical instrument management, care of equipment, collection of samples for laboratory examination. Students will practice the						
procedures studied in the various the	ory courses so that they are able	to work with all				
species of animals in a relaxed and p	rofessional way with a minimum of	of risks of injury to the				
animal, the client or themselves.	-					
OLD CODES AHAD 382, AHDM324 NEW CODE AHVM322	CREDITS 16	SEMESTER 2				
Title: Production Animal Medicine & Su	urgery II					

Module outcomes: Students should be able to perform fu animals prior to attendance by a vete procedures on production animals. C	Module outcomes: Students should be able to perform further fundamental first aid procedures on production animals prior to attendance by a veterinarian. Perform further primary health care procedures on production animals. Communicate fundamental proventative methods to				
clients. Assist veterinarians in surger following is observed, vital signs, clini	clients. Assist veterinarians in surgery, diagnostics, and treatments. In practical session the following is observed, vital signs, clinical exam, first aid, general patient management,				
wound management, supportive care	wound management, supportive care, treatment techniques for the different species, fluid therapy, monitoring the patient, administration of medication, assisting with surgical cases,				
pre- and postoperative care, care of c	deliberated animals, physical thera	apy, surgical			
examination. Students will practice t	ipment, collection of samples for h the procedures studied in the varia	aboratory ous theory courses so			
that they are able to work with all spe	cies of animals in a relaxed and p	professional way with			
a minimum of risks of injury to the ani	imal, the client or themselves.				
NEW CODE AHVM313	CREDITS 8	SEMESTER 1			
Title: Pathology I					
Module outcomes:					
Students should be able to explain the	e common concepts of clinical pa	thology. Differentiate			
between the general normal and abno	ormal organ structures during pos	tmortem procedures,			
and also be able to collect and dispat	ch specimens, in addition to prope	er disposal and			
and functional structures of the body	and the associated pathology. In	practical sessions the			
following are observed. Functional os	teology, teeth and ageing, applied	d anatomy of the			
head, practical anatomy and gross pa	athology of the respiratory and circ	culatory systems,			
lymphoid tissues, pathology of the ce	ntral nervous system and vertebra	al column. Gross			
pathology of the gastrointestinal tract	and related abdominal organs, cl	inical anatomy of the			
Palpation and/or observation where a	anology of the male and remaie g	systems and organs			
and gross pathology of the various sy	stems, organs and tissues during	post mortem			
examinations. Specimen collection, s	torage and dispatch. Carcass disp	osal. Clinical			
pathology procedures, and results inter-	erpretation. Safety and occupation	nal health			
procedures.					
	CREDITS 8	SEMESTER 2			
Students should be able to explain fu	rther common concepts of clinical	nathology Increase			
their proficiency in explaining the eler	mentary anatomical and functional	structures of the			
body and the associated pathology.	Differentiate between the normal	and abnormal organ			
structures during postmortem procedu	ures, and also be able to collect a	nd dispatch			
specimens, in addition to proper dispe	osal and disinfection of carcasses	and pollution sites.			
Practicals; Post mortem procedures,	specimen collection, storage and	dispatch. Carcass			
health procedures	es, and results interpretation. Safe	ety and occupational			
CODE AHVM 314	CREDITS 8	SEMESTER 1			
Title: Epidemiology and Jurisprudence					
Module outcomes:					
Students should be able to explain the	e importance of epidemiology in c	lisease surveillance,			
prevention and control. Explain and c	demonstrate the basic epidemiolo	gical concepts as			
they relate to disease surveillance, pr	evention and control. Describe th	he laws that pertain to			
introduction to experimental trials, so	ncs are covered, importance of ep	d hypothesis testing			
disease surveillance, disease inciden	ce rates, prevalence rates, sensit	ivity and/or specificity			
of diagnostic tests, disease control. L	aws regulating animal diseases. r	egulatory bodies. The			
application and administration of natio	onal and international animal dise	ase control measures			

and the use of epidemiological survey	and the use of epidemiological surveys and investigations. Vaccination programmes.			
Practicals will involve students practising relevant aspects of what they covered during				
theory classes as stipulated above. Video and other teaching aids may be be used to				
supplement the students practical learning.				
OLD CODES AHD 342, AHDM315 NEW CODE AHVM315	CREDITS 8	SEMESTER 1		
Title: Practical Experiential Learning I				
Module outcomes:				
Students should be able to relate what	at they learnt during the entire cur	riculum with the		
actual field situations under supervisio	on of professionals in various field	ds of animal health		
and production. Modalities: students	will be required to spend 2 weeks	in the field (outside		
the University) in an approved laborat	ory, registered veterinary clinic, s	tate veterinary office.		
wildlife park and other such stations u	inder the supervision of qualified	veterinarians, game		
rangers or game veterinarian. The pe	riod will fall during the vacation.	Students will also		
work at the University farm under the	supervision of the farm sectional	managers, the farm		
manager and animal health staff mem	bers at prescribed times during t	he semester. One of		
the two sessions (between PRACTIC	AL EXPERIENTIAL LEARNING I	and II should be		
conducted under a veterinarian or an	animal health technician working	first hand with		
treatment and control of animal diseas	ses.			
CODE AHVM 325	CREDITS 8	SEMESTER 2		
Title: Practical Experiential Learning II				
Module outcomes:	Module outcomes:			
Students should be able to further relate what they learnt during the entire curriculum with				
Students should be able to further rela	ate what they learnt during the en	tire curriculum with		
Students should be able to further relations the actual field situations under super	ate what they learnt during the en vision of professionals in various	tire curriculum with fields of animal		
Students should be able to further rela the actual field situations under super health and production. Modalities stu	ate what they learnt during the en vision of professionals in various dents will be required to spend 2	tire curriculum with fields of animal weeks in the field		
Students should be able to further relative the actual field situations under super health and production. Modalities stu (outside the University) in an approve	ate what they learnt during the en vision of professionals in various dents will be required to spend 2 d laboratory, registered veterinar	tire curriculum with fields of animal weeks in the field y clinic, state		
Students should be able to further relative the actual field situations under super health and production. Modalities stu (outside the University) in an approve veterinary office, wildlife park and other states of the states o	ate what they learnt during the envision of professionals in various dents will be required to spend 2 d laboratory, registered veterinary er such stations under the superv	tire curriculum with fields of animal weeks in the field y clinic, state ision of qualified		
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OLD CODES AHA 222, AHAM211	CREDITS 16	SEMESTER 1	
NEW CODE AHPM211			
Title: Microbiology for Animal Health			
Module outcomes:			
Students should be able to des	cribe the classes of microorganisr	ns of veterinary importance	
(bacteria, viruses, fungi, ricketts	sia and protozoans etc). Group b	acteria and fungi of	
veterinary importance accordin	veterinary importance according to staining results, morphology and characteristics		
Describe the general principles of pathogenesis by microbiological agents. Describe the			
commonly encountered animal health infections: causative agents, transmission, prevention			
of transmission, human health implications. In practical sessions Learners will participate in			
the use of general laboratory procedures in microbiology including but not limited to staining			
and viewing of bacteria under the	he microscope, culturing of bacter	la, use of different media,	
used Lise of practical microbio	logical procedures to bole differen	tisto common	
microbiological pathogens	logical procedures to help differen		
	CREDITS 16	SEMESTER 1	
NEW CODE AHPM212	onebiro io	OLMEOTEN I	
Title: Anatomy and Physiology: A	nimal Health 1		
Module outcomes:			
Students should be able to des	cribe the organization of living org	anisms with respect to the	
cell, tissues, and organ system	s. Describe the anatomy and phy	siology of domestic animals	
including birds, with respect to	the integumentary, musculo-skele	tal. nervous. and endocrine	
systems. Practical; Demonstra	ations by lecturer and dissections	by students of systems.	
organs and tissues studied in the	ne theory.	, , ,	
OLD CODES AHA 152, AHAM122	CREDITS 8	SEMESTER 2	
NEW CODE AHPM221			
Title: Anatomy and Physiology: A	nimal Health 11		
Module outcomes:			
Students should be able to des	cribe the anatomy and physiology	of domestic animals	
including birds, with respect to t	he respiratory, circulatory, gastro	intestinal, urinary, and	
reproductive systems. Practica	 Demonstrations by lecturer and 	dissections by students of	
systems, organs and tissues stu	udied in the theory.		
CODE AHPM222	CREDITS 8	SEMESTER 2	
Title: Animal Handling and Equip	ments I		
Module outcomes:			
Students should be able to perform animal handling techniques and selected basic farm			
procedures. Name and describe commonly used veterinary instruments and equipments.			
Practicals will involve students practising, under the supervision of veterinarians and animal			
health technicians, procedures related to the theory topics above. Video tapes may be be			
used to supplement the student	s practical learning.		
CODE AHPM314	CREDITS 8	SEMESTER 1	
Title: Animal Handling and Equip	ments II		
Module outcomes:			
Students should be able to increase and reuting	ease their proticiency, and perform	n additional animal	
handling techniques and routine farm procedures. Name and describe additional commonly			
used veterinary instruments and equipments. The following topics are covered, Castration,			
tubing, aging using teeth, rectal palpation. Names, description, and use of examination, tomach			
ubing, aging using teem, rectal papation. Names, description, and use of common veterinary instruments. Practicals will involve students practising and increasing their			
proficiency, under the supervision of veterinarians and animal health technicians			
procedures related to the theory topics above. Video tapes may be be used to supplement			
the students practical learning.			

CODE AHPM311	CREDITS 16	SEMESTER 1	
Title: Diseases I			
Module outcomes:			
Students should be able to describe the fundamental concepts of the common viral and			
bacterial diseases in respect to epidemiology, clinical signs, postmortem, diagnostic			
methods, treatment, and preven	ntative measures with emphasis o	n the notifiable diseases.	
Evaluate lists of differential diag	pnosis an come up with a tentative	diagnosis.Apply national	
and international disease control	ol measures in terms of existing le	gislation. Most of the	
practicals will involve the stude	nts in assisting the veterinarian in	the examination, diagnosis,	
and treatment as well as preven	ntion of the diseases studied in the	e theory. When specific	
disease conditions are not seen	disease conditions are not seen in the live animals, video tapes will be used to supplement		
the students practical learning.	Students will be guided in the use	e of epidemiological	
surveys and investigations inclu	uding the collection and recording	of data related to the	
diseases studied.			
CODE AHPM321	CREDITS 16	SEMESTER 2	
Title: Diseases II			
Module outcomes:			
Students should be able to dese	cribe the fundamental concepts of	the common protozoal,	
rickettsial, fungal and non-infect	tious conditions regarding epidem	iology, clinical signs,	
postmortem, diagnostic method	ls, treatment, and preventative me	asures. Evaluate lists of	
differential diagnoses and come	e up with tentative diagnosis. App	ly national and international	
disease control measures in ter	ms of existing legislation. Most of	the practicals will involve	
the students in assisting the vet	terinarian in the examination, diag	nosis, and treatment as	
well as prevention of the diseas	es studied in the theory. When sp	becific disease conditions	
are not seen in the live animals	, video tapes will be used to suppl	ement the students	
practical learning. Students will be guided in the use of epidemiological surveys and			
	investigations including the collection and recording of data related to the diseases studied.		
investigations including the coll	ection and recording of data relate	d to the diseases studied.	
investigations including the colle CODE AHPM 312	ection and recording of data relate CREDITS 8	ed to the diseases studied. SEMESTER 1	
investigations including the coll CODE AHPM 312 Title: Epidemiology and Jurisprud	ection and recording of data relate CREDITS 8 dence	ed to the diseases studied. SEMESTER 1	
investigations including the coll CODE AHPM 312 Title: Epidemiology and Jurisprue Module outcomes:	ection and recording of data relate CREDITS 8 dence	to the diseases studied. SEMESTER 1	
investigations including the coll CODE AHPM 312 Title: Epidemiology and Jurisprud Module outcomes: Students should be able to explore	ection and recording of data relate CREDITS 8 dence lain the importance of epidemiolog	ed to the diseases studied. SEMESTER 1	
investigations including the coll CODE AHPM 312 Title: Epidemiology and Jurisprue Module outcomes: Students should be able to expl prevention and control. Explain	ection and recording of data relate CREDITS 8 dence lain the importance of epidemiologic of and demonstrate epidemiologic of and demonstr	d to the diseases studied. SEMESTER 1 ay in disease surveillance, concepts as they relate to	
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parasites. Identify selected ext	ernal and internal parasites. Prep	are fecal flotations for	
internal parasites. Identify internal parasite ova under the microscope. Assist the			
veterinarian in the control, prevention and treatment of veterinary internal and external			
parasites. Practicals will involve demonstration and identification of internal parasites			
studied in the theory, faecal and	studied in the theory, faecal analysis for internal parasites, identification of worm eggs,		
treatment for internal parasites	using both oral medication and inj	ectable medication.	
Demonstration and identificatio	n or external parasites studied in t	ne theory including ticks,	
sheep scab mite, treatment for	tick counts, mites, lice, dipping for external parasites, table inspection, identification of the		
CODE AHPM323	CREDITS 16	SEMESTER 2	
Title: Pharmacology and Toxicol	ogy: Animal Health		
Module outcomes:			
Students should be able to exp	lain the fundamental pharmacokin	etic and toxicokinetic	
concepts of common medicines	s, toxic plants and poisons. Explai	in the general modes of	
action of common medicines, to	oxic plants, poisons and relate the	m to the respective effects	
and clinical signs. Explain the	basic diagnostic methods and trea	tments in cases of	
poisoning. Assist the veterinar	an in the treatment of sick animals	s using the various	
medications, as well as in the ti	reatment of common intoxications.	Practicals will involve use	
of the different routes of admini	stration of medication including su	ibcutaneous, intramuscular,	
Intravenous, Intraperitoneal, ep	Idural, Intramammary, subconjunc	ation Identification of	
	heavy metals organophosphates	rodenticides and others	
		SEMESTER 2	
NEW CODE AHPM324	CHEBITS	SEMESTER 2	
Title: Public Health for Animal He	alth		
Module outcomes:			
Students should be able to describe the measures that ensure that water and food of animal			
origin is free from pathogens ar	nd toxins. Advise farmers on conc	cepts of safe and hygienic	
food production. Demonstrate knowledge of the relevant national and international			
legislation regarding the management of food-borne and zoonotic diseases. Describe the			
gross anatomy of a slaughter c	gross anatomy of a slaughter carcass. Describe the abattoir slaughter procedures.		
Describe the abattoir hygiene p	rocesses. Describe the basic pro	cedure of meat inspection	
in an abattoir. Describe the sta	tutory requirements and obligation	ns of animals health	
technicians in terms of the relevant acts. Describe the life cycles, epidemiologies, treatment			
and control measures of the common zoonoses, as learnt from Diseases modules,			
including but not limited to rabies, anthrax, brucellosis, Rift Valley fever, tapeworms and			
abattoirs in and around the province. Visits to dairies dairy processing plants. Interaction			
with public health officials meat and dairy inspectors and others involved in regulatory			
public health services.	at and daily inspectors, and other		
OLD CODES AHA 472, AHAM423	CREDITS 8	SEMESTER 2	
NEW CODE AHPM 325			
Title: Clinical Laboratory Technic	ues		
Module outcomes:			
Students should be able to des	cribe the fundamental laboratory t	echniques. Demonstrate	
the general theoretical and practical clinical pathology skills. Practicals will involve blood			
smear preparation and evaluati	smear preparation and evaluation, faecal flotation preparation and evaluation, haematocrit		
preparation and evaluation. Ur	ine samples evaluation, sediment	staining and evaluation,	
bacteria cultures and sensitivity testing, media prepara tion, specimen preservation and			
storage. Milk testing, somatic cell counts, rumen fluid evaluation, skin scrapings for all			
species, clinical chemistry. Students will practice in the lab the procedures studied in the			
theory of the various courses. Practice of collection, preservation and preparation of samples for dispatch to the various kinds of laboratories			
samples for dispaten to the val			

CODE AHPM326	CREDITS 8		SEMESTER 2
Title: Livestock Diseases			
Module outcomes:			
Students should be able to defi	Students should be able to define the common terms used to describe diseases and		
conditions in farm animals. De	scribe the fundamental conce	epts o	of diseases in farm animals.
Discuss the main bacterial, vira	I, rickettsial, and protozoal in	fectio	ons of farm animals.
Describe the influence of nutriti	on, genetics, and environmer	nt on	disease occurrence.
Describe the important toxic pri	nciples and metabolic diseas	es of	farm animals. Most of the
practicals will involve the stude	practicals will involve the students in assisting the veterinarian in the examination, diagnosis,		
and treatment as well as preven	ntion of the diseases studied	in the	e theory. When specific
disease conditions are not seen	n in the live animals, video ta	oes v	vill be used to supplement
the students practical learning.	Students will be guided in th	e use	e of epidemiological
surveys and investigations inclu	iding the collection and recor	ding	of data related to the
diseases studied.			
OLD CODES AHA 402, AHAM411	CREDITS 16		SEMESTER 1
NEW CODE AHPM411			
Title: Companion Animal Medicin	e & Surgery I		
Module outcomes:			
Students should be able to perf	orm emergency procedures (on co	mpanion animais prior to
attendance by a veterinarian. F	renorm primary nealth care p	roce	dures on companion
during ourgony diagnostics, and	a treatment of animale. In pr	Clier	lls. Assist veterinarians
following: vital signal aliginal av	a first aid gaparal patient		a sessions learners do the
management supportive care	treatment techniques for the	diffor	cont choose fluid thorany
monitoring the patient administ	ration of medication assistin	a wit	h surgical cases pre- and
nostoperative care, care of deli	herated animals physical the	ranv	surgical instrument
management care of equipment	t collection of samples for la	abora	tory examination
Students will practice the proce	dures studied in the various t	heor	v courses so that they are
able to work with all species of	animals in a relaxed and prof	essio	onal way with a minimum of
risks of injury to the animal, the	client or themselves.		···· , ····
OLD CODES AHA 452, AHAM421	CREDITS 16		SEMESTER 2
NEW CODE AHPM421			
Title: Companion Animal Medicin	e & Surgery II		
Module outcomes:			
Students should be able to perf	orm further emergency proce	dure	s on companion animals
prior to attendance by a veterinarian. Perform further primary health care procedures on			
companion animals. Communicate preventative and control methods to clients. Assist			
veterinarians during surgery, diagnostics, and treatments. In practical sessions learners do			
the following; vital signs, clinical exam, first aid, general patient management, wound			
management, supportive care, treatment techniques for the different species, fluid therapy,			
monitoring the patient, administration of medication, assisting with surgical cases, pre- and			
postoperative care, care of deliberated animals, physical therapy, surgical instrument			
management, care of equipment, collection of samples for laboratory examination.			
able to work with all species of animals in a relayed and professional way with a minimum of			
able to work with an species of animals in a related and professional way with a minimum of risks of injury to the animal, the client or themselves			
			SEMESTED 1
NEW CODE AHDM/12	CREDITS 10		SEMESTER
Title: Production Animal Medicin	a & Surgery I		
Module outcomes:			
Students should be able to perform fundamental emergency procedures on production			
animals prior to attendance by a veterinarian. Perform primary health care procedures on			
animale prior to attendance by		ייי ני א	

production animals. Communic veterinarians during surgery, dia learners do the following; vital s wound management, supportive therapy, monitoring the patient, pre- and postoperative care, ca instrument management, care of examination. Students will pra- that they are able to work with a a minimum of risks of injury to th	ate preventative and control methagnostics, and treatment of anima igns, clinical exam, first aid, gene e care, treatment techniques for that administration of medication, ass re of deliberated animals, physica of equipment, collection of sample ctice the procedures studied in the all species of animals in a relaxed he animal, the client or themselve	nods to clients. Assist Is. In practical sessions ral patient management, ne different species, fluid isting with surgical cases, I therapy, surgical s for laboratory e various theory courses so and professional way with s.
OLD CODES AHA 482, AHAM424	CREDITS 16	SEMESTER 2
Title: Production Animal Medicine &	Surgery II	
Module outcomes:	Surgery in	
Students should be able to perf.	orm further emergency procedure	s on production animals
prior to attendance by a vetering	arian. Perform further primary he	alth care procedures on
production animals. Communic	ate preventative and control meth	ods to clients. Assist
veterinarians during surgery, dia	agnostics, and treatments. In practice	ctical sessions learners do
the following; vital signs, clinica	I exam, first aid, general patient m	anagement, wound
management, supportive care,	treatment techniques for the differ	ent species, fluid therapy,
monitoring the patient, administ	ration of medication, assisting with	h surgical cases, pre- and
postoperative care, care of delik	perated animals, physical therapy	, surgical instrument
management, care of equipmer	nt, collection of samples for labora	tory examination.
Students will practice the proce	dures studied in the various theor	y courses so that they are
able to work with all species of a	alignet or themselves	onal way with a minimum of
		SEMESTER 1
NEW CODE AHPM413	CHEBITS 0	SEMESTERT
Title: Pathology I		
Module outcomes:		
Students should be able to explain the fundamental concepts of clinical pathology. Differentiate between the general normal and abnormal organ structures during postmortem procedures, and also be able to collect and dispatch specimens, in addition to proper disposal and disinfection of carcasses and pollution sites. Explain the general anatomical and functional structures of the body and the associated pathology. In practical sessions learners will observe the following, Functional osteology, teeth and ageing, applied anatomy of the head, practical anatomy and gross pathology of the respiratory and circulatory systems, lymphoid tissues, pathology of the central nervous system and vertebral column. Gross pathology of the gastrointestinal tract and related abdominal organs, clinical anatomy of the hoof, functional anatomy and gross pathology of the male and female genital tracts. Palpation and/or observation where applicable on the live animal of the systems and organs, and gross pathology of the various systems, organs and tissues during post mortem examinations. Specimen collection, storage and dispatch. Carcass disposal. Clinical pathology procedures, and results interpretation. Safety and occupational health procedures		
CODE AHPM423	CREDITS 8	SEMESTER 2
Title: Pathology II		
Module outcomes:		
Students should be able to expl Perform additional postmortem specimens, together with the pr sites. In practical sessions stud specimen collection, storage an	ain additional fundamental conce procedures, and also be able to c oper disposal and disinfection of d lents perform the following, post n id dispatch. Carcass disposal. Clin	pts of clinical pathology. ollect and dispatch carcasses and pollution nortem procedures, nical pathology procedures,
and reculte interpretation Safet	v and occupational health procedu	Iroc
OLD CODES AHA 442, AHAM415 NEW CODE AHPM414	CREDITS 8	SEMESTER 1
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Title: Practical Experiential Learning I		
Module outcomes: Students should be able to relate what they learnt during the entire degree curriculum with the actual field situations under supervision of professionals in various fields of animal health and production. Modalities; students will be required to spend 2 weeks in the field (outside the University) in an approved laboratory, registered veterinary clinic, state veterinary office, wildlife park and other such stations under the supervision of qualified veterinarians, game rangers or game veterinarian. The period will fall during the vacation. Students will also work at the University farm under the supervision of the farm sectional managers, the farm manager and animal health staff members at prescribed times during the semester. One of the two sessions (between PRACTICAL EXPERIENTIAL LEARNING I and II should be conducted under a veterinarian or an animal health technician working		
CODE AHPM424	CREDITS 8	SEMESTER 2
Title: Practical Experiential Learn	ing II	
Students should be able to further relate what they learnt during the entire degree curriculum with the actual field situations under supervision of professionals in various fields of animal health and production. Modalities; students will be required to spend 2 weeks in the field (outside the University) in an approved laboratory, registered veterinary clinic, state veterinary office, wildlife park and other such stations under the supervision of qualified veterinarians, game rangers or game veterinarian. The period will fall during the vacation. Students will also work at the University farm under the supervision of the farm sectional managers, the farm manager and animal health staff members at prescribed times during the semester. One of the two sessions (between PRACTICAL EXPERIENTIAL LEARNING I and II should be conducted under a veterinarian or an animal health technician working		
CODE AHPM415	CREDITS 16	SEMESTER 1
Title: Research Project And Semi	nar I	
Module outcomes: Students should be able to explain the fundamental concepts of projects planning, research methodologies, produce a literature review and present project proposals. Evaluate scientific literature.		
CODE AHPM425	CREDITS 16	SEMESTER 2
Title: Research Project And Seminar II		
Module outcomes: Students should be able to produce a written mini-dissertation from their research projects. Present their mini-dissertations orally		
CODE AHPM426	CREDITS 8	SEMESTER 2
Title: Scheduled Diseases		
Module outcomes: Students should be able to describe and perform procedures relating to the Tuberculosis (TB) and Contagious Abortion (CA) eradication schemes as prescribed by the National Department of Agriculture. Describe the general concepts of Scheduled Diseases and current disease outbreaks. Practical; prescribed field tests, sampling procedures using relevant materials and equipments and interpretation of results. Video shows of current disease outbreaks may be used.		

MA.2.3 DIPLOMA in AGRIC ANIMAL SCIENCE

Module code: ANDM 121	Semester 2	
Title: Introduction to Animal Scient	nce	
Module outcomes: Upon completion of this module African animal science industrand human development. Clatract, feeding behaviour and p Discuss location of animals to Explain the basic introductory reproduction, breeding. nutritice Module code: ANDM 122 Title: Non – Ruminant Production Module outcomes: Upon completion of this module	Ice Ic, the learner(s) should be able y overview. Explain the role of a ssify farm animals based on clin roduction. Differentiate between different geographical areas bas principles of the physiology of gr on and health of farm animals. Semester 2	to describe the South nimal science to economic nate, size, gastro-intestinal breeds of farm animals. sed on their adaptability. rowth and development,
Upon completion of this module, the learner(s) should be able to demonstrate an understanding of the poultry and pig industry, poultry and pig breeds and their contribution to animal agriculture. Propose strategies on improvement of poultry production system and appropriate breeds. Develop a comprehensive plan of a poultry production unit health programme. Apply modern management techniques in efficient feeding and rearing of broilers and layers. Evaluate and provide recommendation on monogastric products and their guality and their marketing strategies.		
Module code: ANDM 211	Semester 1	
Title: Animal Nutrition		
Upon completion of this module, the learner(s) should be able to compare the roles and functions of different nutrients found in animal feed and explain the importance of animal nutrition. Discuss the role played by nutrients in the health of animals and digestion in ruminants and non-ruminants. Describe the requirements of nutrients for growth, maintenance, reproduction and production. Identify and classify South African feedstuffs based on their nutritive value. Formulate rations for farm animals and justify the need for currents for growth.		
Module code: ANDM 212	Semester 1	
Title: Animal Genetics and Breedi	ng	
Module outcomes: Upon completion of this module, the learner(s) should be able to outline the possible deviations from the expected Mendelian ratios and provide comprehensive explanations for them. Utilize the concept of sex linkage in farming situations. Describe mutations as a source of genetic variation in living organisms. Predict genetic change and describe different selection methods and mating system. Evaluate the importance of cell division in living organisms.		
Module code: ANDM 213	Semester 1	
Title: Ruminant Production		
Module outcomes: Upon completion of this modu African ruminant industry over in human and economic devel characteristics of different bre- breeds of sheep, goats, beef climatic conditions. Apply mai (calves/lambs/kids), breeding ruminant production systems.	le, the learner(s) should be able view and the economic importan opment. Identify and describe th eds of sheep, goats, beef and da and dairy cattle to various livesto nagement principles such as rea and selection, reproduction and	to describe the South ice of the ruminant industry he physical and production airy cattle. Locate different ck production systems and ring systems feeding (nutrition) in various

Module code: ANDM 221	Semester 1		
Title: Smallstock Production and	Management		
Module outcomes:			
Upon completion of this modu	le, the learner(s) should be able	to describe the South	
African smallstock industry ov	erview and the economic importa	ance of the smallstock	
industry in human and econor	nic development. Identify and de	scribe the physical and	
production characteristics of c	lifferent breeds of sheep and goa	ts. Locate different breeds	
of sheep and goats, to various	s livestock production systems an	d climatic conditions.	
Apply management principles	such as rearing systems (lambs/	kids), breeding and	
selection, reproduction and fe	eding (nutrition) in smallstock pro	duction systems. Develop	
and evaluate breeding, nutrition	on, reproduction and health progr	ammes in smallstock.	
Module code: ANDM 223	Semester 2		
Title: Beef Cattle Production and	Management		
Module outcomes:			
Upon completion of this module	e, the learner(s) should be able to	recognise the beef cattle	
industry in South Africa as integ	grated industry from farm to mark	et place. Characterise	
beet cattle breeds and their cro	sses according their biological ty	pes and adaptability to	
specific environments. Develo	o suitable beet cattle production s	systems to meet the	
objective of different farmers. I	Plan, monitor and critically evaluated	ite, breeding, reproductive,	
nutritional and realth programm	nes. Manage beer callie enterpri	ses according to their	
Module code: ANDM 225	Semester 2		
Title: Principles of Veld Managem	Semester 2		
Madula autoomoo:			
Module outcomes:	le the learner(e) should be able t	to ovalain the basis	
principles governing the veget	tation dovelopment Justify the n	and for the practical	
application of principles in eac	the of the six biome types. Compared	are and contrast the factors	
associated with forage guality	and how they influences animal	performance Describe the	
problems of increasing bush encroachment in savanna, with proposals on how to deal			
with the problem. Discuss the approach to and theoretical basis of veld management on			
the game ranch. Summarise the management of veld in the communal areas of South			
Africa.	5		
Module code: ANDM 312	Semester 1		
Title: Poultry Production and Man	agement		
Module outcomes:			
Upon completion of this modu	le, the learner(s) should be able	to demonstrate an	
understanding of the poultry breeds and their characteristics. Evaluate and provide			
recommendation on poultry egg and meat quality. Propose strategies on improvement of			
poultry production systems. A	poultry production systems. Apply modern management techniques in efficient feeding		
and rearing of broilers and lay	ers. Develop a poultry productio	n unit health programme.	
Module code: ANDM 313	Semester 1		
Title: Dairy Cattle Production and	Management		
Module outcomes:			
Upon completion of this modu	lie, the learner(s) should be able t	to identify dairy cattle	
breeds, their production chara	icteristics and their economic imp	ortance to the South	
Airican dairy industry. Integra	a optorprior Plan and implement	and reproduction for total	
management of the dairy cattle	keep and use dainy actual record	a system (production and	
financial) Develop implement	t and manage bealth programme	s system (production and	
ninancial). Develop, implement	of various diseases for accurance	s in ually nerus lui	
Module code: ANDM 214	Semester 1		
Title: Dia production and Manage	mont		
I me. Fig production and manage			

Module outcomes:

Upon completion of this module, the learner(s) should be able to differentiate and characterize breeds of pigs and their potential contribution to the Pork Industry in South Africa. Integrate pig production systems with components of pork quality and major aspects of producer to consumer chain in the pig industry. Develop, plan, implement and manage pig breeding and selection, nutrition, reproduction and health programmes for the breeding herd. Evaluate management practices involved in effective feeding, breeding, reproduction, health and housing of pigs as well as their relationship in assuring a profitable pig enterprise.

Module code: ANDM 321	Semester 2	
Title: Practical Animal Production		

Module outcomes:

Upon completion of this module, the learner(s) should be able to apply practical handling skills and management to handle farm animals. Observe and be exposed to major livestock and related industries in Southern Africa. Manage feeding, breeding and keep farm records in assurance of general livestock management. Evaluate animal breeding, nutrition, reproduction and health programmes. Assess the viability, economic outlook and current situations of subsistence and commercial livestock farm enterprises. Write a scientific report about the work experience done.

MA.2.4 BSC AGRIC – ANIMAL SCIENCE

Module code: ANSM 121	Semester 2		
Title: Introduction to Agricultural Bi	Title: Introduction to Agricultural Biometry		
Module outcomes: Upon completion of this module, the learner(s) should be able to summarize data in the form of graphs and descriptive statistics. Solve probability application problems in agriculture. Differentiate random variables and associated distributions, relationship between population and samples within context of Central Limit Theorem. Write statistical hypothesis, carryout analyses and test hypotheses based on simple statistical			
Module code: ANSM 211	Semester 1		
Title: Introduction to Animal Science	e		
Upon completion of this module, African animal science industry of and human development. Distin used in South Africa and modes animals are located in different e mechanism. Summarise the bas development, reproduction, bree	the learner(s) should be able to overview. Explain the role of anim nguish, Identify and differentiate h pf animal classification. Justify wenvironments based on their adapt sic introductory principles of the p eding. nutrition and health of farm	describe the South nal science to economic preeds of farm animals why breeds of farm ptability features and physiology of growth and animal.	
Module code: ANSM 214	Semester 1		
Title: Ruminant Animal Production			
Module outcomes: Upon completion of this module, African ruminant industry overvie industry in human and economic production characteristics of diffe Locate different breeds of sheep production systems and climatic management principles such as selection, reproduction and feed	, the learner(s) should be able to ew. Describe the economic impo c development. Identify and desc erent breeds of sheep, goats, bee o, goats, beef and dairy cattle to v conditions. Explain the role and rearing systems (calves/lambs/ki ling (nutrition) in various ruminant	describe the South rtance of the ruminant ribe the physical and ef and dairy cattle. rarious livestock application of ids), breeding and t production systems.	

Module code: ANSM 222	Semester 2		
Title: Animal Genetics and Breeding		-	
Module outcomes:			
Upon completion of this module, the learner(s) should be able to evaluate the importance of cell division in living organisms. Describe how genetic information is carried and passed on from one generation to next. Explain the basis of how genetic information is inherited using the principles of Mendel and relate phenotype to genetic makeup. Outline the possible deviations from the expected Mendelian ratios and provide comprehensive			
explanations for them.	Compostor 0		
Module code: ANSM 223	Semester 2		
Inte: Animal Nutrition			
Module outcomes: Upon completion of this module, the learner(s) should be able to describe the importance of animal nutrition and explain the processes of digestion, absorption and metabolism in ruminants and non-ruminants and their end products. Identify, classify and distinguish the main components of feed of plant and animal origin consumed by farm animals and South African feedstuff according to their nutritive value. Summarize role played by nutrients in the health of animals and the importance of enzymes in animal nutrition. Solve problems related to the determination of the nutrient content of feeds using proximate system of			
Module code: ANSM 224	Semester 2		
Title: Non-Ruminant Production			
Module outcomes:			
understanding of the poultry and pig industry, poultry and pig breeds and contribution in agriculture. Evaluate and provide recommendation on monogastric products and their quality and marketing. Develop a comprehensive plan of a poultry production unit health programme. Propose strategies on improvement of poultry production system and appropriate breeds. Apply modern management techniques in efficient feeding and rearing of broilers and layers.			
Module code: ANSM 311	Semester 1		
Title: Principles of Veld Managemer	it		
Module outcomes: Upon completion of this module, the learner(s) should be able to describe the growth and developmental morphology of forages. Compare and contrast the different types of grazing systems in veld management. Summarise the procedures for the production of hay and silage and be able to suggest a fodder production and preservation plan given specific Farm condition. Differentiate grassland management in different veld types and identify the major grouping of veld types in S.A. and be aware of their nutritional value. Justify the need for rangeland monitoring and awarenes of the behaviour of ruminants on grazing as well as the need for grazing in livestock production			
Module code: ANSM 312	Semester 1		
Title: Applied Agricutural Biometry			
Module outcomes: Upon completion of this module, the learner(s) should be able to demonstrate understanding of the theory and concept of experimental design. Apply matrix algebra to solve different linear model problems. Analyze and interpret results of different statistical models. Use computer software to analyse data generated from different statistical models and interpret outputs.			
Module code: ANSM 313	Semester 1		
Title: Agricultural Biochemistry			
Module outcomes:	Module outcomes:		

Upon completion of this module, the learner(s) should be able to, describe the		
biochemical importance of water and its ionization products in the body. Differentiate		
different solutions into basic or acidic medium solutions based on their pH. Differentiate		
between proteins, carbohydrates, lipids, nucleic acids and vitamins on the basis of their		
elementary composition and bio	chemical importance. Distinguish	n the components of
DNA & RNA, recognise the gene	etic implications of several enzym	es in key metabolic
process and the vital importance	e of the mechanism of enzyme sy	nthesis within the cell.
Module code: ANSM 314	Semester 1	
Title: Physiology of Reproduction a	nd Growth	
Module outcomes:		
Upon completion of this module.	, the learners should be able to id	entify reproductive
systems of the female and male	animals and conceptualise their	functions. Integrate the
physiological mechanisms that r	egulate reproduction in farm anim	nals. Summarise the
process of fertilisation, gestation	and parturition in farm animals.	Apply reproductive
technologies to improve and ma	nage reproduction in farm animal	s and solve problems
related to reproduction in farm a	nimals. Evaluate growth and dev	elopment in domestic
animals		
Module code: ANSM 321	Semester 2	
Title: Applied Ruminant Nutrition		
Module outcomes:		
Upon completion of this module,	, the learner(s) should be able to :	solve and produce
digestibility results using differer	nt feed in ruminant animals and al	lso be able to discuss
factors affecting digestibility. De	escribe the system expressing the	e energy value of food for
ruminants. Summarize the fate	of dietary crude protein in the run	ninant animals and justify
the need for nutrient requirement	its of the lactating dairy cows. Co	ompare and contrast
factors affecting voluntary intake	e of food in ruminant. Create a die	et formulation among
different types of feed and distinguish among various types of secondary compounds in		
	galon among validad typed of dec	bondary compoundo m
feed.		
feed. Module code: ANSM 322	Semester 2	
feed. Module code: ANSM 322 Title: Planted Pastures and Fodder	Semester 2 Crops	
feed. Module code: ANSM 322 Title: Planted Pastures and Fodder Module outcomes:	Semester 2 Crops	
feed. Module code: ANSM 322 Title: Planted Pastures and Fodder Module outcomes: Upon completion of this module, rele of planted pastures and appletered	Semester 2 Crops the learner(s) should be able to	explain and describe the
feed. Module code: ANSM 322 Title: Planted Pastures and Fodder Module outcomes: Upon completion of this module, role of planted pastures and cro	Semester 2 Crops , the learner(s) should be able to ps. Summarise the problems as	explain and describe the sociated with planted
feed. Module code: ANSM 322 Title: Planted Pastures and Fodder Module outcomes: Upon completion of this module, role of planted pastures and crop pasture. Identify species availat	Semester 2 Crops the learner(s) should be able to ps. Summarise the problems ass ole on market and how species fit	explain and describe the sociated with planted
feed. Module code: ANSM 322 Title: Planted Pastures and Fodder Module outcomes: Upon completion of this module, role of planted pastures and crop pasture. Identify species availab program. Distinguish between the	Semester 2 Crops the learner(s) should be able to ps. Summarise the problems asso ole on market and how species fit he use and provision of different s	explain and describe the sociated with planted into a fodder flow species in different
feed. Module code: ANSM 322 Title: Planted Pastures and Fodder Module outcomes: Upon completion of this module, role of planted pastures and crop pasture. Identify species availab program. Distinguish between the season. Module outcomes	Semester 2 Crops the learner(s) should be able to ps. Summarise the problems asso ole on market and how species fit he use and provision of different s	explain and describe the sociated with planted into a fodder flow species in different
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feed. Module code: ANSM 322 Title: Planted Pastures and Fodder Module outcomes: Upon completion of this module, role of planted pastures and crop pasture. Identify species availab program. Distinguish between th season. Module code: ANSM 323 Title: Quantitative Genetics	Semester 2 Crops the learner(s) should be able to ps. Summarise the problems asso ole on market and how species fit he use and provision of different s Semester 2	explain and describe the sociated with planted into a fodder flow species in different
feed. Module code: ANSM 322 Title: Planted Pastures and Fodder Module outcomes: Upon completion of this module, role of planted pastures and crop pasture. Identify species availab program. Distinguish between th season. Module code: ANSM 323 Title: Quantitative Genetics Module outcomes: Linen completion of this module	Semester 2 Crops the learner(s) should be able to ps. Summarise the problems assole on market and how species fit he use and provision of different s Semester 2	explain and describe the sociated with planted into a fodder flow species in different
feed. Module code: ANSM 322 Title: Planted Pastures and Fodder Module outcomes: Upon completion of this module, role of planted pastures and crop pasture. Identify species availat program. Distinguish between th season. Module code: ANSM 323 Title: Quantitative Genetics Module outcomes: Upon completion of this module, pasted completion of this module,	Semester 2 Crops the learner(s) should be able to ps. Summarise the problems ass ole on market and how species fit he use and provision of different s Semester 2 , the learner(s) should be able to	explain and describe the sociated with planted into a fodder flow species in different
feed. Module code: ANSM 322 Title: Planted Pastures and Fodder Module outcomes: Upon completion of this module, role of planted pastures and cro pasture. Identify species availat program. Distinguish between ti season. Module code: ANSM 323 Title: Quantitative Genetics Module outcomes: Upon completion of this module, gene and genotypic frequency d is livested a converted.	Semester 2 Crops the learner(s) should be able to ps. Summarise the problems assole on market and how species fit he use and provision of different s Semester 2 the learner(s) should be able to letermination procedure for econo- terter understanding of distingtion	explain and describe the sociated with planted into a fodder flow species in different apply the principles of princially important traits
feed. Module code: ANSM 322 Title: Planted Pastures and Fodder Module outcomes: Upon completion of this module, role of planted pastures and cro pasture. Identify species availat program. Distinguish between ti season. Module code: ANSM 323 Title: Quantitative Genetics Module outcomes: Upon completion of this module, gene and genotypic frequency d in livestock population. Demons mutuation of the proore	Semester 2 Crops the learner(s) should be able to ps. Summarise the problems ass ole on market and how species fit he use and provision of different s Semester 2 the learner(s) should be able to etermination procedure for econo strate understanding of statistical odure for texting procedure oping	explain and describe the sociated with planted into a fodder flow species in different apply the principles of principles as applied to o for understrate area to
feed. Module code: ANSM 322 Title: Planted Pastures and Fodder Module outcomes: Upon completion of this module, role of planted pastures and cro pasture. Identify species availat program. Distinguish between ti season. Module code: ANSM 323 Title: Quantitative Genetics Module outcomes: Upon completion of this module, gene and genotypic frequency d in livestock population. Demons quantitative traits. Use the proc	Semester 2 Crops the learner(s) should be able to ps. Summarise the problems ass ole on market and how species fit he use and provision of different s Semester 2 the learner(s) should be able to letermination procedure for econo- strate understanding of statistical edure for testing breeding animal discovered and the provision occurs	explain and describe the sociated with planted into a fodder flow species in different apply the principles of principles as applied to s for undesirable genetic apply the principles and applied to
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feed. Module code: ANSM 322 Title: Planted Pastures and Fodder Module outcomes: Upon completion of this module, role of planted pastures and crop pasture. Identify species availat program. Distinguish between th season. Module code: ANSM 323 Title: Quantitative Genetics Module outcomes: Upon completion of this module, gene and genotypic frequency d in livestock population. Demons quantitative traits. Use the proc defects. Estimate heritability an livestock traits. Measure respor economically important livestock Module code: ANSM 324 Title: Smallstock Production and Soc	Semester 2 Crops the learner(s) should be able to ps. Summarise the problems assole on market and how species fit he use and provision of different s Semester 2 the learner(s) should be able to letermination procedure for econo- strate understanding of statistical edure for testing breeding animal- d repeatability for various economise to selection, inbreeding and his traits. Semester 2 Semester 2 Semester 2	explain and describe the sociated with planted into a fodder flow species in different apply the principles of principles as applied to s for undesirable genetic nically important eterosis for various
feed. Module code: ANSM 322 Title: Planted Pastures and Fodder Module outcomes: Upon completion of this module, role of planted pastures and crop pasture. Identify species availat program. Distinguish between t season. Module code: ANSM 323 Title: Quantitative Genetics Module outcomes: Upon completion of this module, gene and genotypic frequency d in livestock population. Demons quantitative traits. Use the proc defects. Estimate heritability an livestock traits. Measure respor economically important livestock Module code: ANSM 324 Title: Smallstock Production and Sc Module outcomes:	Semester 2 Crops the learner(s) should be able to ps. Summarise the problems assole on market and how species fit he use and provision of different s Semester 2 the learner(s) should be able to tetermination procedure for econo- strate understanding of statistical edure for testing breeding animal- d repeatability for various economise to selection, inbreeding and his traits. Semester 2 the learner(s) should be able to the selection of the select	explain and describe the sociated with planted into a fodder flow species in different apply the principles of principles as applied to s for undesirable genetic nically important eterosis for various
feed. Module code: ANSM 322 Title: Planted Pastures and Fodder Module outcomes: Upon completion of this module, role of planted pastures and crop pasture. Identify species availat program. Distinguish between th season. Module code: ANSM 323 Title: Quantitative Genetics Module outcomes: Upon completion of this module, gene and genotypic frequency d in livestock population. Demons quantitative traits. Use the proce defects. Estimate heritability an livestock traits. Measure respon economically important livestock Module code: ANSM 324 Title: Smallstock Production and Sc Module outcomes: Upon completion of this module, gene and genotypic frequency d in livestock production and Sc Module code: ANSM 324	Semester 2 Crops the learner(s) should be able to ps. Summarise the problems assole on market and how species fit he use and provision of different s Semester 2 the learner(s) should be able to letermination procedure for econo- strate understanding of statistical edure for testing breeding animal- d repeatability for various economise to selection, inbreeding and his traits. Semester 2 Semester 2 the learner(s) should be able to the traits. Semester 2 Semester 3 Semester 3	explain and describe the sociated with planted into a fodder flow species in different apply the principles of omically important traits principles as applied to s for undesirable genetic nically important eterosis for various
feed. Module code: ANSM 322 Title: Planted Pastures and Fodder Module outcomes: Upon completion of this module, role of planted pastures and crop pasture. Identify species availat program. Distinguish between t season. Module code: ANSM 323 Title: Quantitative Genetics Module outcomes: Upon completion of this module, gene and genotypic frequency d in livestock population. Demons quantitative traits. Use the proc defects. Estimate heritability an livestock traits. Measure respor economically important livestock Module code: ANSM 324 Title: Smallstock Production and Sc Module outcomes: Upon completion of this module, african smallstock industry over accommic development. Identify	Semester 2 Crops the learner(s) should be able to ps. Summarise the problems assole on market and how species fit he use and provision of different s Semester 2 the learner(s) should be able to letermination procedure for econo- strate understanding of statistical edure for testing breeding animal- d repeatability for various economise to selection, inbreeding and h traits. Semester 2 Semester 2 Letter and the seconomic importance of the learner(s) should be able to of the traits. Semester 2 Semester 3 Semester 3 Semeste	explain and describe the sociated with planted into a fodder flow species in different apply the principles of omically important traits principles as applied to s for undesirable genetic nically important eterosis for various
feed. Module code: ANSM 322 Title: Planted Pastures and Fodder Module outcomes: Upon completion of this module, role of planted pastures and crop pasture. Identify species availat program. Distinguish between ti season. Module code: ANSM 323 Title: Quantitative Genetics Module outcomes: Upon completion of this module, gene and genotypic frequency d in livestock population. Demons quantitative traits. Use the proc. defects. Estimate heritability an livestock traits. Measure respor economically important livestock Module code: ANSM 324 Title: Smallstock Production and Sc Module outcomes: Upon completion of this module, African smallstock industry over economic development. Identify of different breacts of sheep and	Semester 2 Crops the learner(s) should be able to ps. Summarise the problems assist ble on market and how species fit he use and provision of different s Semester 2 the learner(s) should be able to letermination procedure for econo- strate understanding of statistical edure for testing breeding animal d repeatability for various economise to selection, inbreeding and h traits. Semester 2 Semester 3 Semester	explain and describe the sociated with planted into a fodder flow species in different apply the principles of omically important traits principles as applied to s for undesirable genetic nically important eterosis for various

application of management principles such as rearing systems (lambs/kids), breeding and		
selection, reproduction and feeding (nutrition) in smallstock production systems. Explain		
the principles of marketing in sheep and goats enterprise.		
Module code: ANSM 411	Semester 1	
Title: Applied Monogastric Nutrition		
Module outcomes:		
Upon completion of this module.	the learner(s) should be able to	describe how to evaluate
energy content of feeds and exp	lain how this energy is partitioned	d within the animal body.
Solve problems of predicting the	animals performance from a par	ticular level of energy
intake and to also on predicting	the energy intake required to obt	ain a particular level of
performance. Measure protein of	quality in feed required for monog	astric animals in
different production stages. Des	scribe energy, protein, vitamin and	d mineral requirements
for maintenance and growth rep	roduction in monogastric animals	. Describe energy,
protein, vitamin and mineral requ	uirements for the lactating sow an	nd factors influencing
voluntary feed in take in monoga	astric animals.	
Module code: ANSM 412	Semester 1	
Title: Applied Animal Breeding		
Module outcomes:		
Upon completion of this modul	le, the learner(s) should be able	e to apply statistics and
matrix algebra operations to	solve animal breeding problem	s. Formulate breeding
objectives and develop selectio	n index. Demonstrating understa	anding of the theory and
concept of mixed model application	tion in animal breeding. Use anir	nal breeding software for
estimation of breeding values fro	om different genetic models.	
Module code: ANSM 413	Semester 1	
Title: Research Project and Seminal	rl	
Module outcomes:		
Upon completion of this module,	, the learner(s) should be able to	prepare and submit
project proposal. Review literatu	ure on a topic submitted. Present	a seminar.
Module code: ANSM 414	Semester 1	
Title: Large Stock Production and Se	cience	
Module outcomes:		
Upon completion of this module,	the learner(s) should be able to	recognise the economic
important role of the large stock	industry in South Africa. Plan, m	onitor and critically
evaluate, breeding, reproductive	, nutritional and health programm	es. Design, recommend
and use large stock facilities, eq	uipments and buildings. Develop	, plan, implement and
manage large stock enterprise a	according to their production syste	ems. Implement animal
health programmes to assure pr	eventative measures to various d	iseases.
Module code: ANSM 421	Semester 2	
Title: Research project and Seminar	r II	
Module outcomes:		
Upon completion of this module,	, the learner(s) should be able to	present data summary
and interpretation of results usin	g statistical analysis system. Sub	omit dissertation from the
conducted research. Collect, er	nter data using Microsoft Excel an	d also to analyse data
from research conducted. Cond	luct mini-research project in Anim	al Science field and
write research report.		
Module code: ANSM 422	Semester 2	
Title: Pig Science		
Module outcomes:		
Upon completion of this module,	, the learner(s) should be able to	recognise the potential
contribution of the South African	Pork industry to animal protein p	roduction. Integrate pig
production systems with compor	nents of pork quality and major as	pects of producer to
consumer chain in the pig indust	try. Develop, plan, implement and	d manage pig breeding
		the sector of the sector of the sector of

Dovelop plan implement and	managa largo stock optorpriso acc	parding to their production	
Develop, plan, implement and manage large stock enterprise according to their production			
systems. Evaluate management practices involved in effective feeding, breeding,			
reproduction, nealth and nousing of pigs as well as their relationship in assuming a			
Module code: ANSM 423	Semester 2		
Title: Practical Experience			
Module outcomes:			
Lipon completion of this modul	e the learner(s) should be able to	apply practical handling	
skills and management to hand	dle farm animals through observati	ons and exposure to	
major livestock and related ind	ustries in Southern Africa. Manag	e feeding, breeding and	
keep farm records in assurance	e of general livestock managemen	t Evaluate animal	
breeding, nutrition, reproductio	in and health programmes. Asses	s the viability. economic	
outlook and current situations of	of subsistence and commercial live	estock farm enterprises.	
Write a scientific report about t	he work experience.		
Module code: ANSM 424	Semester 2		
Title: Poultry Science			
Module outcomes:			
Learner(s) should be able to de	emonstrate an understanding of the	e poultry industry, poultry	
breeds and contribution in anin	nal agriculture. Evaluate and prov	ide recommendation on	
poultry egg and meat quality and	nd implement the marketing strate	egies in poultry	
enterprises. Develop a compre	ehensive plan of a poultry producti	on unit health	
programme. Propose strategie	es on improvement of poultry produ	uction system and	
appropriate breeds. Apply more	dern management techniques in el	fficient feeding and	
rearing of broilers and layers.		<u> </u>	
Module code: ANSM 425 Semester 2			
Title: Dairy and Meat Science	Title: Dairy and Meat Science		
Module outcomes:			
Upon completion of this module	e, the learner(s) should be able to	outline the history and	
development of the South Afric	an dairy and meat industries and i	dentify factors affecting	
production and composition of	milk. Integrate the principles and	factors involved in dairy	
and meat production. Summar	rise the physiological mechanism r	nammogenesis,	
lactogenesis, galactopoesis, m	ilk secretion and involution. Analy	se quality control and	
regulations in production and processing of dairy and meat products. Evaluate milking			
pariour and equipment and abattoir as well as system analysis and operation.			
MA 2.5 Agric Economics			
MA.2.5 Agric Economics			
Module code: AEDM 211	Semester 1		
Title: Introduction to Agricultural I	Economics		
Module outcomes:			
To provide an understanding of the main economic issues, concepts and tools of			
E and a stand a second se		and all a set of a set data set for a set of	

agricultural economics. Equip learners by developing an understanding of solving basic economic problems, outlining the potential solutions to those problems and describing the major types of economic system.

Module code: AEDM 314	Semester 1	
Title: Farm Management and Accounting		
Module outcomes:		
To able to demonstrate understanding of farm management functions, Apply farm		
management principles and p	erform farm management and fai	m accounting tasks,
Demonstrate understanding o	f financial planning, analysis and	control in farming, apply
and analyze financial planning	g and control tasks in farming env	rironment.

and analyze financial planning and control tasks in farming environment.

Module code: AECM 111	Semester 1	
Title: Introduction to Agricultural	Economicsl	
Module Outcomes:		
To provide a sound understar	iding of the basic economic relati	onship amongst household,
firms, government and to pro	vide solutions to global economi	c challenges. Interpret and
analyse tables (demand,	supply schedules etc) and	graphs in agricultural
economics.Manage and hand	le economic data and tasks.	
Module code: AECM 213	Semester 1	
Title: Food Security Analysis		
Module outcomes:		
To able to demonstrate an un	derstanding of the meaning and c	concepts of food Security,
analyze and identify the indica	ators of food security, discuss the	influence household types
and food security, describe for	od security situation in terms of S	outh African agricultural
policy and explain the determ	nants of food security.	
Module code: AECM223	Semester 2	
Title: Farm Accounting		
Module Outcomes:		
To be able to demonstrate an	understanding the importance ar	nd the use of farm
accounting for farm managem	ent to make use of records and a	ccounts as a tool of farm
management and to understa	nd and apply important depreciat	on and tax decisions.
Module code: AECM 311	Semester 1	
Title: Agricultural Micro - Econon	nics	
Module outcomes:		
To have knowledge and demo	onstration of understanding of rele	evant terms, rules,
concepts, principles and theor	ries to describe microeconomics a	and be able to apply these
knowledge and principles in t	he real world situations. Conduct	economic analysis in
agricultural and related enterp	rises.Advise agricultural stakeho	ders on micro-economics
matters.		
Module code: AECM 312	Semester 1	
Title: International Agrricultural	Trades	
Module outcomes:		
To have knowledge and d	emonstration of understanding	of relevant terms, rules,
concepts, principles and theory	ries to describe international agric	cultural trade and be able to
apply these knowledge and p	rinciples in the real world situatio	ns.
Module code: AECM 313	Semester 1	
Title: Agricultural Statistics for Re	esearch I	
Module outcomes:		
To be able to use application	of linear regression and general	linear model to economic
data, use and interpretation of	at least two econometric softwar	e for data analysis.Discuss
the problems of estimation whether	en classical assumption of linea	r regression are violated
and application of Chi-square	analysis, estimation of Index nun	bers and time series
analysis in the agricultural sec	ctor.	
Module code: AECM 314	Semester 1	
Title: Farm Management and Acc	ounting	
Module outcomes:		
To able to demonstrate under	standing of farm management fui	nctions, Apply farm
management principles and perform farm management and farm accounting tasks,		
Demonstrate understanding o	T Tinancial planning, analysis and	control in farming, apply
and analyze financial planning	j and control tasks in farming env	ironment.

Module code: AECM 321	Semester 2		
Title: Land Resource and Environ	metal Economics		
Module outcomes:	Module outcomes:		
To able to demonstrate an un	derstanding of theories of land re	esource economics and the	
framework of land resource n	nanagement, Application of econ	omic tools to resources use	
and environmental issues, disc	cuss the interrelationship betwee	n environment, economic	
growth and public policy on er	nvironmental issues and qualityar	nd discuss environmental	
problems in South Africa.			
Module code: AECM 322	Semester 2		
Title: Agricultural Production Eco	onomics		
Module outcomes:			
To able to to optimize the obje	ective function of farming commu	nity or the nation within a	
framework of limited resource	s,to provide guidance to individua	al farmers in using their	
resources in most efficient wa	y and facilitate the most efficient	use of resources from	
economic point of view.			
Module code: AECM 323	Semester 2		
Title: Agricultural Marketing			
Module outcomes:			
To able to apply agricultural m	narketing and risk management p	rinciples in practice.	
Students will be able to under	stand the role of agricultural mar	keting and risk	
management in South Africa a	and elsewhere in the world. Stude	ents learn about and apply	
the basic concepts and practic	ces of modern agricultural marke	ting and risk management	
as they are used in a wide var	riety of settings.		
Module code: AECM 325	Semester 2		
Title: Agricultural Macro- Econom	nics		
Module outcomes:			
To able to show knowledge a	nd demonstration of understandir	ng of relevant terms, rules,	
concepts, principles and theor	ries to describe macroeconomics	and be able to apply these	
knowledge and principles in t	he real world situations. Be able	to advise agricultural	
stakeholders, i.e. organized a	griculture, government, NGOs et	c., on macro-economic	
matters.			
Module Code: AECM 411	Semester 1		
Title: Agricultural Project Apprais	als and Manangement		
Module outcomes:			
To able to be an efficient, con	npetent agricultural project manag	ger, who understands	
project appraisal and manage	ment principles and can use the	knowledge acquired	
practically.Contribute towards	improvement of project appraisa	I and management locally	
and nationallyand be to function within a group for mutual support, sustenance to peers			
for professional growth and de	evelopment.		
Module Code: AECM 413	Semester 1		
Title: Quantitative Methods in Ag	gricultural Economics		
Module Outcomes:			
To be able to understand	apply basic mathematical meth	ods that are essential for	
adequate economic analysis a	and proper understanding of the o	current economic literature.	
Module Code: AECM 414	Semester 1		
Title: Agricultural Stastistics for	Research II		
Module Outcomes:			
Estimation of simultaneous equation models, describe the properties of stochastic and			
linear time series and estimate regression models including dummy variables and dummy			
dependent models.Application	n of single equation models		

Module Code : AECM 415	Semester 1		
Title: Agribusiness Management			
Module Outcomes:			
To be able to apply production, financial, marketing and human resource management			
principles to the farming environment and a wide variety of farm business settings.			
Module Code: AECM 421	Semester 2		
Litle: Farm Planning and Linear P	rogramming		
Module Outcomes:		e e vele veretle e de (es e de le be	
I o be able to use linear progr	amming and other operations res	earch methods/models in	
much to produce, and the mo	st profitable enterprise combination	ans costs reduction and	
general optimization of resour	ce usage.		
Module code: AECM 422	Semester 2		
Title: Agricultural Policy Analysis			
Module outcomes:			
To able to apply agricultural p	olicy principles to the farming env	vironment and a wide	
variety of farm business settin	igs for efficient and effective agric	cultural projects and	
programme implementation			
Module code: AECM 423	Semester 2		
Title: Agricultural Finance			
Module outcomes:			
I o able to apply financial prin	ciples to the farming environment	and be familiar with	
about and apply the basis cor	ions, regardless of the size of the	nami business. To learn	
used in a wide variety of setting	about and apply the basic concepts and practices of modern infance principles as they are used in a wide variety of settings. Use the techniques of financial analysis to analyze		
repayment ability of a farm			
Module code: AECM 424	Semester 2		
Title: Agriculture and Economic Development			
Module outcomes:	•		
To able to apply agricultural p	olicy principles to the farming env	vironment and a wide	
variety of farm business settings for efficient and effective agricultural projects and			
programme implementation, demonstrate very good understanding of principles of			
technical, allocative, scale and economic efficiencies.			

MA.2.6 AGRICULTURAL EXTENSION

Module code: AXDM 211	Semester 1		
Title: Fundamentals of Agricultural Extension			
Module outcomes:			
To develop an understanding of	the concepts of agricultural exten	sion and its environment	
and demonstrate an understandi	ing of the principles of Agricultura	I Extension, demonstrate	
an understanding of basic soc	cial - cultural and psychological co	oncepts in agricultural	
extension and communication pro	ocess in agricultural extension,un	derstanding of extension	
program plannin	g, management and evaluation co	oncepts.	
Module code: AXDM 311	Semester 1		
Title: Agricultural Extension for Development			
Module outcomes:			
To able to demonstrate understanding of the role of extension in development, teaching			
and learning process in agricultur	ral extension and the use of differ	ent extension teaching	
methods.			

Module code: AEXM 211	Semester 1			
Title: Fundamentals of Agricultural Extension				
Module outcomes:				
To able to demonstrate understanding of of principles of Agricultural Extension, identify				
challenges of agricultural extension, demonstrate an understanding of the process and				
elements of commincation process, identify different extension teaching methods and				
extension program planning and	extension program planning and management concepts.			
Module code: AEXM 212	Semester 1			
Title: Communication and Agricultu	ral Technology Transfer			
Module outcomes:				
To able to describe the processe	s of communication ,analyze the o	communication process		
in relation to extension service de	elivery and describe different tech	nology transfer		
models,explain technology transf	er processes and highlight the sy	nergy of technology		
transfer processes and models.				
Module code: AEXM 222	Semester 2			
Title: Agricultural Extension for Deve	elopment			
Module outcomes:				
To able to demonstrate an under	standing of the role of extension i	n the development		
process and an understanding of	the teaching and learning proces	s in agricultural		
extension, the use of different extension program for development	tension teaching methods and ide	ntify,develop an		
Medule code: AEXM 225	Composes.			
Module code: AEXM 325	Semester 2			
Litle: Agricultural Rural Sociology				
Module outcomes:				
To able to demostrate and understanding of the meaning, nature and scope of rural				
sociology, internes of social change, organization of societies and problems of cultural and				
adoption adopter categories and diffusion curves				
MA 2.7 DIPLOMA in AGRIC- PLANT SCIENCES SCIENCE				
Module code :CSDM 111 Ser	nestor 1			

Module code :CSDM 111	Semester 1		
Title: Botany for Agriculture			
Module outcomes:			
Learners will be able to understand basic plant taxonomy, morphology, and anatomy.			
Learners will be able to u	nderstand the processes of phot	osynthesis and transpiration and	
basic genetic concepts.			
Module code: CSDM 121	Semester 2		
Title: Introduction to Crop Pr	oduction		
Module outcomes :			
Learners will be able to a	ppreciate the importance of crop	plants in human welfare.	
Learners will be able to u	nderstand the objectives of crop	production and be familiar with	
the basic concepts of cro	p production strategies relating to	o yield and quality. Learners will	
be familiar with fertilizer t	ypes, rates and methods of appli	cation and know the different soil	
factors affecting crop pro	duction.		
Module code: CSDM 211	Semester 1		
Title: Intro to Soil Science			
Module outcomes:			
Students will be able to demonstrate an understanding of soil as a natural entity for			
sustainable agriculture as they study each of the areas of soil science: soil genesis, soil			
physics, soil conservation	n, soil microbiology, soil chemistr	y, and soil fertility. knowledge of	
these soil properties will e	enable students gain basic under	standing of soils and their	
importance and relevance	importance and relevance in different areas of agriculture. They will therefore be able to		

appreciate soils as a natural resource for South Africa and for the world.Students will develop an understanding of the role that soils play in the agricultural and economic situation in South Africa and the world.		
Module code: CSDM 214	Semester 1	
Title: Farm Practical I		
Module outcomes: Practical skills in the production of vegetable.Ability to ildentify weeds, insects and diseases associated with vegetables. Application of appropriate control measures for pests. Irrigation and fertilizer management in the production of vegetables. Ability to select and correctly use farm implements and machinery for various cultural practice. Harvesting, sorting and grading crop products for marketing. Business plan for vegetable and field crops. Yield estimations for vegetables and crops. Design of vegetable production		
Module code: CSDM 213	Semester 1	
Title: Farm Machinery		
Module outcomes: Ability to take proper care implements and machine machinery. Ability to do b construction of farm build the budgeting for constru	e of farm machinery and imple ry properly. Ability to do mino udgeting of farm operations ings. An understanding of the uctionAbility to produce simp	ements. Ability to use farm or repairs of farm implements and . Use of equipment used in the e construction of farm buildings and ole designs of farm buildings.
Module code: CSDM 221	Semester 2	
Title: Principles of Crop Impr	ovement	
increasing crop yield and quality and have an appreciate the importance of plant breeder's work. Learners will be able to understand the difference between self- and cross-pollinated crops. Learners will be able to understand how genetic principles relate to plant breeding methods. Learners will be able to understand seed certification and multiplication principles		
Module code: CSDM 222	Semester 2	
Title: Soil fertility and Fertilize	ers	
Module outcomes: Students will be able to demonstrate a knowledge of how soil conditions affect plant growth and suggest possible management practices to increase crop yield. Students will gain knowledge of the 17 essential elements required for plant growth in regards to factors which affect nutrient availability in soils. Students will be able to evaluate the fertility status of soils and make subsequent fertilizer recommendations.		
Module code CSDM 224	Semester 2	
Title: Farm practical II Module outcomes: Practical skills in the product insects and diseases assoct control measures for pests. vegetables and field crops. machinery for various cultur grading crop products for m crops. Design of crop rotatio	tion of vegetable and field c ciated with vegetable and fiel Irrigation and fertilizer manag Ability to select and correctly al practices mainly for field c arketing. Business plan for fie on programmes for field crops	rops.Ability to ildentify weeds, d crops. Application of appropriate gement in the production of use farm implements and rops. Harvesting, sorting and eld crops. Yield estimations for field s.
Module code: CSDM 324	Semester 2	
Title: Elementary Irrigation		
Module outcomes: Learners will be able to e appropriate irrigation syst	xplain the role of irrigation in tem for horticultural and field	agriculture. Ability to select an crops and environment. Diagnostic

	aintenance of irrigation infra	astructure. Agronomic management of	
irrigated crops. Ability to monitor crop water requirement and schedule irrigation. Ability to			
manage drainage and salinity problems in irrigation.			
Module code: CSDM 311	Semester 1		
Title: Agronomy: Agronomy of	f Summer Crops	•	
Module outcomes:	•		
For each prescribed sum	mer crop, learners will be	able to know its origin, economic	
importance, distribution, a	and morphology, know its	climatic and soil requirements and its	
appropriate cultural pract	ices.		
Module code: CSDM 312	Semester 1		
Title: Plant protection			
Module outcomes:			
Ability, understand and in	nterpret the reports on plan	t Protection. Ability to identify common	
garden and field pests ar	nd diseases Come up wit	h appropriate control measures for the	
identified pests. Learners	s should be competant in k	napsack and boomspray calibration.	
Introduce new information	n about plant protection to	farmers. Guide and supervise farmers	
regarding plant protection	n. Understand the guaraan	tine /Phytosanitory regulations of RSA	
Module code: CSDM 215	Semester 2		
Title: Vegetable Production			
Module outcomes:			
Learners will be able to s	elect and grow vegetables	in their appropriate seasons. Learners	
will be knowleadgeable in	n the agronomy of major ve	egatbles grown in RSA. Learners	
should be competant in o	organic farming principles.	Apply theoretical and practical	
knowledge to guide farme	ers and gardeners to produ	uce vegetables.	
Module code: CSDM 321	Semester 2	Ĩ	
Title: Agronomy of Winter Cr	ops		
Module outcomes:			
Module outcomes:			
For each prescribed winter	er crop. learners will be ab	le: To know its origin, economic	
importance distribution. a	importance distribution, and morphology. To know its climatic and soil requirements. To		
know its appropriate cultural practices			
know its appropriate cultu	ural practices.	is climatic and soll requirements. To	
know its appropriate cultu Module code: CSDM 322	ural practices.	is climatic and soll requirements. To	
know its appropriate cultu Module code: CSDM 322 Title: Weeds and Weed Cont	and morphology. To know i ural practices. Semester 2 grol		
know its appropriate cultu Module code: CSDM 322 Title: Weeds and Weed Cont Module outcomes:	ral practices. Semester 2 rol		
know its appropriate cultu Module code: CSDM 322 Title: Weeds and Weed Cont Module outcomes: Ability to identify weed so	semester 2 rol	th weed control measures. To	
know its appropriate cultu Module code: CSDM 322 Title: Weeds and Weed Cont Module outcomes: Ability to identify weed sp comprehend and interpre	and morphology. To know f aral practices. Semester 2 rol becies. Able to come up wi th literature related to weed	th weed control measures. To control. Supervise and guide farmers	
know its appropriate cultu Module code: CSDM 322 Title: Weeds and Weed Cont Module outcomes: Ability to identify weed sp comprehend and interpre how to control weeds. Int	semester 2 semester 2 secies. Able to come up with the iterature related to weed roduce to farmers new tect	th weed control measures. To control. Supervise and guide farmers hnology of weed. Understand the use	
know its appropriate cultu Module code: CSDM 322 Title: Weeds and Weed Cont Module outcomes: Ability to identify weed sp comprehend and interpre how to control weeds. Int of selective and non-selc	semester 2 semester 2 secies. Able to come up with the iterature related to weed roduce to farmers new tec tive herbicides. Be compet	th weed control measures. To control. Supervise and guide farmers hnology of weed. Understand the use ant in knapsack and boom sprayer	
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know its appropriate cultu Module code: CSDM 322 Title: Weeds and Weed Cont Module outcomes: Ability to identify weed sp comprehend and interpre how to control weeds. Int of selective and non-sele calibration Module code: CSDM 325 Title: Practical Crop Producti	Semester 2	th weed control measures. To control. Supervise and guide farmers hnology of weed. Understand the use ant in knapsack and boom sprayer	
know its appropriate cultu Module code: CSDM 322 Title: Weeds and Weed Cont Module outcomes: Ability to identify weed sp comprehend and interpre how to control weeds. Int of selective and non-sele calibration Module code: CSDM 325 Title: Practical Crop Producti Module outcomes:	Semester 2 rolute herbicides. Ho know further and practices. Semester 2 rolute to come up with the literature related to weed roduce to farmers new tective herbicides. Be competed Semester 2 ion	th weed control measures. To control. Supervise and guide farmers hnology of weed. Understand the use ant in knapsack and boom sprayer	
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know its appropriate cultu Module code: CSDM 322 Title: Weeds and Weed Cont Module outcomes: Ability to identify weed sp comprehend and interpre how to control weeds. Int of selective and non-selc calibration Module code: CSDM 325 Title: Practical Crop Producti Module outcomes: Ability to layout field trials implements properly . Ab	Semester 2 Semester 3 S	th weed control measures. To control. Supervise and guide farmers hnology of weed. Understand the use ant in knapsack and boom sprayer achinery properly. Ability to calibrate tilizers properly. Ability to classify soils	
know its appropriate cultu Module code: CSDM 322 Title: Weeds and Weed Cont Module outcomes: Ability to identify weed sp comprehend and interpre how to control weeds. Int of selective and non-selc calibration Module code: CSDM 325 Title: Practical Crop Producti Module outcomes: Ability to layout field trials implements properly . Ab at a particular site. Ability	Semester 2 Semester 3 S	th weed control measures. To control. Supervise and guide farmers hnology of weed. Understand the use ant in knapsack and boom sprayer achinery properly. Ability to calibrate tilizers properly. Ability to classify soils at population estimates.	
know its appropriate cultu Module code: CSDM 322 Title: Weeds and Weed Cont Module outcomes: Ability to identify weed sp comprehend and interpre how to control weeds. Int of selective and non-selc calibration Module code: CSDM 325 Title: Practical Crop Producti Module outcomes: Ability to layout field trials implements properly . Ab at a particular site. Ability Module code: CSDM 323	Semester 2 Semester 4 Semester 6	th weed control measures. To control. Supervise and guide farmers hnology of weed. Understand the use ant in knapsack and boom sprayer achinery properly. Ability to calibrate tilizers properly. Ability to classify soils at population estimates.	
know its appropriate cultu Module code: CSDM 322 Title: Weeds and Weed Cont Module outcomes: Ability to identify weed sp comprehend and interpre how to control weeds. Int of selective and non-selc calibration Module code: CSDM 325 Title: Practical Crop Producti Module outcomes: Ability to layout field trials implements properly . Ab at a particular site. Ability Module code: CSDM 323 Title: Elements of Agric. Micr	Semester 2 Semester 2 Semester 2 rol Semester 2 Semester 4 Semester 5 Semester 6	th weed control measures. To control. Supervise and guide farmers hnology of weed. Understand the use ant in knapsack and boom sprayer achinery properly. Ability to calibrate tilizers properly. Ability to classify soils at population estimates.	
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know its appropriate cultu Module code: CSDM 322 Title: Weeds and Weed Cont Module outcomes: Ability to identify weed sp comprehend and interpre how to control weeds. Int of selective and non-selc calibration Module code: CSDM 325 Title: Practical Crop Producti Module outcomes: Ability to layout field trials implements properly . Ab at a particular site. Ability Module code: CSDM 323 Title: Elements of Agric. Micr Module outcomes: Learners are able to iden microorganisms, disease Module code: CSDM 315	Independency. To know fural practices. Semester 2 rol rol cecies. Able to come up with thereature related to weed roduce to farmers new tec tive herbicides. Be compete Semester 2 ion s. Ability to operate farm m ility to weigh and apply fer to calculate yield and plar Semester 6 robiology tify and describe the benefits s they cause, mode of diss Semester 1	th weed control measures. To control. Supervise and guide farmers hnology of weed. Understand the use ant in knapsack and boom sprayer achinery properly. Ability to calibrate tilizers properly. Ability to classify soils it population estimates.	
know its appropriate cultu Module code: CSDM 322 Title: Weeds and Weed Cont Module outcomes: Ability to identify weed sp comprehend and interpre how to control weeds. Int of selective and non-selc calibration Module code: CSDM 325 Title: Practical Crop Producti Module outcomes: Ability to layout field trials implements properly . Ab at a particular site. Ability Module code: CSDM 323 Title: Elements of Agric. Micr Module outcomes: Learners are able to iden microorganisms, disease Module code: CSDM 315 Title: Pedology and Soil Clas	Independency. To know fural practices. Semester 2 rol rol cecies. Able to come up with thereature related to weed roduce to farmers new tec tive herbicides. Be compete Semester 2 ion s. Ability to operate farm m ility to weigh and apply fer to calculate yield and plar Semester 6 robiology tify and describe the benefits s they cause, mode of diss Semester 1 sification	th weed control measures. To control. Supervise and guide farmers hnology of weed. Understand the use ant in knapsack and boom sprayer achinery properly. Ability to calibrate tilizers properly. Ability to classify soils it population estimates.	

Ability to select best possible use for the particular soil. Ability to assess land for its suitability for irrigation. Ability to do preliminary soil survey. Ability to recommend best possible use of a particular land.		
Module code:CSDM 223	Semester 2	
Title: Soil Conservation		
Module outcomes: Learners will be able to describe various types of land degradation and how they are caused, as well as identify and assess different stages and forms of soil degradation. They will also have an understanding of how different soil management practices affect soil quality and the role that these have on agricultural productivity. Students at the end of the module will be able to identify and describe different strategies used in soil		
Module code: CSDM 225	Semester 2	
Title: Fruit Production		
Module outcomes: Ability to identify different fruit crops. Apply theoretical and practical knowledge in the production and cultural practices of fruit crops. Be compentant in the fruit propagation techniques such as budding and grafting, Harvesting, grading storage and marketing of fruit produce. Harvesting, grading storage and marketing of fruit produce Learners should be knowleageable in the role of plant hormones in the growth, flowering and ripening of fruits. Learners should be skilled in basic post-harvest fruit processing techniques.		
Module code: CSDM 212	Semester 1	
Title: Agricultural Climatology		
Module outcomes: Ability to describe the basic weather elements in agriculture, their measurement and influence on crop and animal production in the North West Province, South Africa and the world at large. Ability to collect and summarize the basic weather elements in agriculture.		

MA.2.8 BSc Agric - Plant Sciences

Module code: CSPM 211	Semester 1		
Title: Introduction to Soil Science			
Module outcomes:			
Students will be able to de	emonstrate an understanding of s	soil as a natural entity for	
sustainable agriculture. The	ney will gain insight into the gene	sis, physics, chemistry, biology	
and microbiology of soils.	Basic knowledge of how these s	soil properties interact to affect	
soil quality for different pu	rposes will be gained. It is antici-	pated that students at the end of	
fortility. They will be able t	appreciate soils as a natural re	source for South Africa and for	
the world Students will the	erefore develop an understandir	on of the role that soils play in	
the agricultural and econo	mic situation in South Africa and	the world.	
Module code: CSPM 212	Semester 1		
Title: Agricutural Climatology			
Module outcomes:			
Ability to summarize and i	nterpret weather data . Ability to	identify the climate variables	
that may affect agricultura	I productivity. Learners will have	skills needed to read and	
measure weather data. Abilitty to predict effects of man's activities on climate change.			
Module code:CSPM 213	Semester 1		
Title: Farm Machinery			
Module outcomes:			
Ability to take proper care of farm machinery and implements. Ability to use farm			
implements and machinery property. Ability to do budgeting of farm operations. An			
understanding of now farm buildings are constructed and the budgeting for construction of			

farm buildings.Ability to p	roduce simple designs of far	rm buildings.
Module code:CSPM 221	Semester 2	
Title: Introduction to Crop Pr	oduction	•
Module outcomes:		
Learners will be able to a	ppreciate how important cro	p plants are in human welfare.
Learners will be able to u	nderstand the objectives of a	crop production. Learners will be
familiar with the basic cor	ncepts of crop production str	ategies relating to yield and guality.
Learners will be familiar w	vith fertilizer types, rates and	d methods of application. Learners will
know the different soil fac	tors affecting crop productio	on.
Module code: CSPM 222	Semester 2	
Title: Soil fertility and fertilize	rs	
Module outcomes:		
Students will be able to d	emonstrate a knowledge of I	how soil conditions (such as soil
texture, soil pH, clay mine	eralogy and cation exchange	e capacity) affect plant growth and
suggest possible manage	ment practices to increase of	crop yield. Students will gain
knowledge of the 17 esse	ntial elements required for p	plant growth in regards to factors
which affect nutrient avail	ability in soils. Students will	be able to evaluate the fertility status
of soils and make subsec	uent fertilizer recommendati	ions.
Module code: CSPM 223	Semester 2	
Title: Soil Conservation		
Module outcomes:		
Learners will be able to d	escribe various types of land	d degradation and how they are
caused, as well as identi	fy and assess different stage	es and forms of soil degradation.
They will also have an un	derstanding of how differer	nt soil management practices affect
soil quality and the role th	at these have on agricultura	al productivity. Students at the end of
the module will be able to	identify and describe differ	ent strategies used in controling soil
conservation. They will al	so be able to explain the role	e of Government and NGOs in soil
conservation		
Module code: CSPM 224	Semester 2	
Module code: CSPM 224 Title: Agricultural Microbiolo	Semester 2 gy	
Conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes:	Semester 2 gy	
Conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able	Semester 2 gy to identify and describe micr	roorganisms that commonly affect
Conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals.	Semester 2 gy to identify and describe micr They will have the ability to	roorganisms that commonly affect differentiate beneficial and
Conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganisi	Semester 2 gy to identify and describe micr They will have the ability to ns in agriculture, and have a	roorganisms that commonly affect differentiate beneficial and an understanding of the role that both
Conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganisi beneficial and pathogenic	Semester 2 gy to identify and describe micr They will have the ability to ns in agriculture, and have a microorganisms play in agr	roorganisms that commonly affect differentiate beneficial and an understanding of the role that both ricultural productivity. Learners will
Conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganist beneficial and pathogenic also be equipped with known	Semester 2 gy to identify and describe micr They will have the ability to ns in agriculture, and have a microorganisms play in agr owledge on how to control th	roorganisms that commonly affect differentiate beneficial and an understanding of the role that both ricultural productivity. Learners will ne disemination of microorganisms
Conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganist beneficial and pathogenic also be equipped with know that are pathogenic to play	Semester 2 gy to identify and describe micr They will have the ability to ns in agriculture, and have a microorganisms play in agr owledge on how to control th nts and animals.	roorganisms that commonly affect differentiate beneficial and an understanding of the role that both ricultural productivity. Learners will ne disemination of microorganisms
Conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganis beneficial and pathogenic also be equipped with kno that are pathogenic to pla Module code: CSPM 311	Semester 2 gy to identify and describe micr They will have the ability to ns in agriculture, and have a microorganisms play in agr owledge on how to control th nts and animals. Semester 1	roorganisms that commonly affect differentiate beneficial and an understanding of the role that both ricultural productivity. Learners will ne disemination of microorganisms
conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganisis beneficial and pathogenic also be equipped with knut that are pathogenic to plat Module code: CSPM 311 Title: Agronomy Summer Crop	Semester 2 gy to identify and describe micr They will have the ability to ns in agriculture, and have a microorganisms play in agr owledge on how to control th nts and animals. Semester 1 ps	roorganisms that commonly affect differentiate beneficial and an understanding of the role that both ricultural productivity. Learners will ne disemination of microorganisms
conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganisis beneficial and pathogenic also be equipped with knut that are pathogenic to plat Module code: CSPM 311 Title: Agronomy Summer Crop Module outcomes:	Semester 2 gy to identify and describe micr They will have the ability to ns in agriculture, and have a microorganisms play in agr owledge on how to control th nts and animals. Semester 1 ps	roorganisms that commonly affect differentiate beneficial and an understanding of the role that both ricultural productivity. Learners will ne disemination of microorganisms
conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganisr beneficial and pathogenic also be equipped with know that are pathogenic to pla Module code: CSPM 311 Title: Agronomy Summer Crop Module outcomes: For each prescribed sum	Semester 2 gy to identify and describe micr They will have the ability to ns in agriculture, and have a microorganisms play in agr owledge on how to control th nts and animals. Semester 1 ps mer crop learners will be ab	roorganisms that commonly affect differentiate beneficial and an understanding of the role that both ricultural productivity. Learners will he disemination of microorganisms
conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganisr beneficial and pathogenic also be equipped with know that are pathogenic to pla Module code: CSPM 311 Title: Agronomy Summer Crop Module outcomes: For each prescribed sum importance distribution a	Semester 2 gy to identify and describe micr They will have the ability to ns in agriculture, and have a microorganisms play in agr owledge on how to control th nts and animals. Semester 1 ps mer crop, learners will be ab nd morphology. To know its	roorganisms that commonly affect differentiate beneficial and an understanding of the role that both ricultural productivity. Learners will ne disemination of microorganisms
Conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganisr beneficial and pathogenic also be equipped with know that are pathogenic to pla Module code: CSPM 311 Title: Agronomy Summer Cropmond Module outcomes: For each prescribed sum importance distribution, a appropriate cultural pract	Semester 2 gy to identify and describe micr They will have the ability to ns in agriculture, and have a microorganisms play in agr owledge on how to control th nts and animals. Semester 1 ps mer crop, learners will be ab nd morphology. To know its ces. To know its fertilizer rec	roorganisms that commonly affect differentiate beneficial and an understanding of the role that both ricultural productivity. Learners will ne disemination of microorganisms
Conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganisr beneficial and pathogenic also be equipped with know that are pathogenic to pla Module code: CSPM 311 Title: Agronomy Summer Crop Module outcomes: For each prescribed sum importance distribution, a appropriate cultural pract requirements. To know cultural pract	Semester 2 gy to identify and describe micr They will have the ability to ns in agriculture, and have a microorganisms play in agr owledge on how to control th nts and animals. Semester 1 ps mer crop, learners will be ab nd morphology. To know its ces. To know its fertilizer reau urrent challenges and topica	poorganisms that commonly affect differentiate beneficial and an understanding of the role that both ricultural productivity. Learners will ne disemination of microorganisms of the commit of the commit climatic and soil requirements and its quirements. To know its fertilizer lissues in the production of the crop
Conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganisr beneficial and pathogenic also be equipped with know that are pathogenic to pla Module code: CSPM 311 Title: Agronomy Summer Crop Module outcomes: For each prescribed sum importance distribution, a appropriate cultural pract requirements. To know co and related areas of rese	Semester 2 gy to identify and describe micr They will have the ability to ns in agriculture, and have a microorganisms play in agr owledge on how to control th nts and animals. Semester 1 ps mer crop, learners will be ab nd morphology. To know its ces. To know its fertilizer red urrent challenges and topica arch focus.	roorganisms that commonly affect differentiate beneficial and an understanding of the role that both ricultural productivity. Learners will ne disemination of microorganisms
Conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganisr beneficial and pathogenic also be equipped with know that are pathogenic to pla Module code: CSPM 311 Title: Agronomy Summer Crop Module outcomes: For each prescribed sum importance distribution, a appropriate cultural pract requirements. To know co and related areas of rese Module code: CSPM 312	Semester 2 gy to identify and describe micr They will have the ability to ns in agriculture, and have a microorganisms play in agr owledge on how to control th nts and animals. Semester 1 ps mer crop, learners will be ab nd morphology. To know its ces. To know its fertilizer red urrent challenges and topica arch focus.	roorganisms that commonly affect differentiate beneficial and an understanding of the role that both ricultural productivity. Learners will ne disemination of microorganisms ole : To know its origin, economic climatic and soil requirements and its quirements. To know its fertilizer I issues in the production of the crop
Conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganisr beneficial and pathogenic also be equipped with know that are pathogenic to pla Module code: CSPM 311 Title: Agronomy Summer Crop Module outcomes: For each prescribed sum importance distribution, a appropriate cultural pract requirements. To know co and related areas of rese Module code: CSPM 312	Semester 2 gy to identify and describe micr They will have the ability to ns in agriculture, and have a microorganisms play in agr owledge on how to control th nts and animals. Semester 1 ps mer crop, learners will be ab nd morphology. To know its ces. To know its fertilizer req urrent challenges and topica arch focus. Semester 1	roorganisms that commonly affect differentiate beneficial and an understanding of the role that both ricultural productivity. Learners will ne disemination of microorganisms ole : To know its origin, economic climatic and soil requirements and its quirements. To know its fertilizer I issues in the production of the crop
Conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganisr beneficial and pathogenic also be equipped with know that are pathogenic to pla Module code: CSPM 311 Title: Agronomy Summer Cropmong Module outcomes: For each prescribed sum importance distribution, a appropriate cultural pract requirements. To know co and related areas of rese Module code: CSPM 312 Title: Plant Protection Module outcomes:	Semester 2 gy to identify and describe micr They will have the ability to ns in agriculture, and have a microorganisms play in agr owledge on how to control th nts and animals. Semester 1 ps mer crop, learners will be ab nd morphology. To know its ces. To know its fertilizer red urrent challenges and topica arch focus. Semester 1	roorganisms that commonly affect differentiate beneficial and an understanding of the role that both ricultural productivity. Learners will ne disemination of microorganisms
Conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganisr beneficial and pathogenic also be equipped with known that are pathogenic to pla Module code: CSPM 311 Title: Agronomy Summer Crop Module outcomes: For each prescribed sum importance distribution, a appropriate cultural pract requirements. To know cu and related areas of rese Module code: CSPM 312 Title: Plant Protection Module outcomes: Ability to comprehend and	Semester 2 gy to identify and describe micr They will have the ability to ns in agriculture, and have a emicroorganisms play in agr owledge on how to control th nts and animals. Semester 1 ps mer crop, learners will be ab nd morphology. To know its ces. To know its fertilizer re- urrent challenges and topica arch focus. Semester 1 d interpret research informat	roorganisms that commonly affect differentiate beneficial and an understanding of the role that both ricultural productivity. Learners will ne disemination of microorganisms oble : To know its origin, economic climatic and soil requirements and its quirements. To know its fertilizer I issues in the production of the crop
Conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganist beneficial and pathogenic also be equipped with know that are pathogenic to plate Module code: CSPM 311 Title: Agronomy Summer Croc Module outcomes: For each prescribed sum importance distribution, a appropriate cultural pract requirements. To know cu and related areas of rese Module code: CSPM 312 Title: Plant Protection Module outcomes: Ability to comprehend anity to identify plant pests and	Semester 2 gy to identify and describe micr They will have the ability to ms in agriculture, and have a emicroorganisms play in agr bwledge on how to control th ints and animals. Semester 1 ps mer crop, learners will be ab nd morphology. To know its ces. To know its fertilizer req urrent challenges and topica arch focus. Semester 1 d interpret research informat d iseases in the field. To be	roorganisms that commonly affect differentiate beneficial and an understanding of the role that both ricultural productivity. Learners will ne disemination of microorganisms
Conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganisr beneficial and pathogenic also be equipped with knut that are pathogenic to plat Module code: CSPM 311 Title: Agronomy Summer Cropt Module outcomes: For each prescribed sum importance distribution, a appropriate cultural pract requirements. To know cu and related areas of rese Module outcomes: Module code: CSPM 312 Title: Plant Protection Module outcomes: Ability to comprehend and to identify plant pests and guarantine/Phytosanitory	Semester 2 gy to identify and describe micr They will have the ability to ns in agriculture, and have a emicroorganisms play in agr bwledge on how to control th nts and animals. Semester 1 ps mer crop, learners will be ab nd morphology. To know its ces. To know its fertilizer re- urrent challenges and topica arch focus. Semester 1 d interpret research informat I diseases in the field. To be regulations, Understand f In	roorganisms that commonly affect differentiate beneficial and an understanding of the role that both ricultural productivity. Learners will ne disemination of microorganisms
Conservation Module code: CSPM 224 Title: Agricultural Microbiolo Module outcomes: The learners will be able soils, plants and animals. pathogenic microorganisr beneficial and pathogenic also be equipped with knut that are pathogenic to plat Module code: CSPM 311 Title: Agronomy Summer Cropt Module outcomes: For each prescribed sum importance distribution, a appropriate cultural pract requirements. To know cu and related areas of rese Module outcomes: Module code: CSPM 312 Title: Plant Protection Module outcomes: Ability to comprehend and to identify plant pests and quarantine/Phytosanitory Principles, Ability to record	Semester 2 gy to identify and describe micr They will have the ability to ns in agriculture, and have a microorganisms play in agr owledge on how to control th nts and animals. Semester 1 ps mer crop, learners will be ab nd morphology. To know its ces. To know its fertilizer re- urrent challenges and topica arch focus. Semester 1 d interpret research informat I diseases in the field. To be regulations, Understand f In nmend appropriate pests co	roorganisms that commonly affect differentiate beneficial and an understanding of the role that both ricultural productivity. Learners will ne disemination of microorganisms ble : To know its origin, economic climatic and soil requirements and its quirements. To know its fertilizer I issues in the production of the crop tion relating to plant protection. Ability e skilled and understand ttegrated Pest Management introl measures to farmers. Ability to

Module code: CSPM 313	Semester 1		
Title: Vegetable Production			
Module outcomes:			
Understand soil nutritional requirements of various vegetables grown in RSA,			
Knowledgeable in the general agronomy principles of important vegetables in RSA.			
Learners will be able to select appropriate vegetable crops in different seasons of an area.			
Learners will be able unde	erstand and intepret horticultural	research articles Learners	
should knowleadgeable in	n organic production of vegetable	Э.	
Module code: CSPM 321	Semester 2		
Title: Agronomy of Winter Cr	ops		
Module outcomes:			
For each prescribed winter	r crop, learners will be able:To k	now its origin, economic	
importance distribution, ar	nd morphology. To know its clima	atic and soil requirements. To	
know its appropriate cultu	ral practices. To know current ch	allenges and topical issues in	
the production of the crop	and research focus in addressin	g challenges.	
Module code: CSPM 322	Semester 2		
Title: Weeds and Weed Contro	ol		
Module outcomes:	-		
Learners should have an	indepth understanding of the biol	ogy of agricultural weeds.	
Eurthermore, they should	be able to identify weed species	Able to come up with	
appropriate weed control	measures. Learners should have	scientific knowledge in the use	
of herbicides . i.e. modes	of action and metabolism. Other	non-chemical methods of weed	
control measures should l	be covered. Importantly they sho	uld be able to comprehend and	
interpret literature related	to weed control. Supervise and c	uide farmers how to control	
weeds. Introduce to farme	ers new technology of weed conti	rol.	
Module code: CSPM 323	Semester 2		
Title: Fruits Production			
Module outcomes:			
Ability to select appropriat	e fruit crops for an area. Apply th	peoretical and practical	
knowledge in establishme	nt and management of orchards	vinevards giving particular	
attention the following: pro	pagation techniques, pruning an	nd training , processing and	
marketing of fruit produce		3,1,3,	
Module code: CSPM 324	Semester 2		
Title: Principles of Irrigation			
Module outcomes:			
Learners will know the ba	sic concepts, tools, and skills use	ed to deliver water efficiently and	
effectively on both a field	and garden scale. They will also	have the ability to identify the	
most efficient irrigation sy	stem to use under various circum	stances because thy will have	
an understanding of the m	ovement and cycling of water in	agricultural systems, and the	
environmental factors that	influence the type, frequency, a	nd duration of irrigation.	
Learners will be able to ca	lculate the water requirement for	r irrigation, and design a simple	
irrigation system. they will	be able to conduct a simple eva	luation of an existing irrigation	
system.			
Module code: CSPM 325	Semester 2		
Title: Plant Physiology			
Module outcomes:	Module outcomes:		
Learners will be able to ur	nderstand crop-soil-water relatior	s. Learners will be able to	
understand plant mineral nutrition. Learners will be able to understand nitrogen metabolism			
in plants. Learners will be able to understand plant photosynthetic processes. Learners will			
be able to understand the translocation process. Learners will be able to understand the			
significance of plant hormones in crop production. Learners will be able to understand the			
process of dormancy in cr	process of dormancy in crop plants.		

Module code: CSPM 411	Semester 1		
Title: Crop Production System	is		
Module outcomes:			
To give learners a global	To give learners a global overview of different crop production systems. To highlight and		
demonstrate the differenc	es between monoculture and mu	ultiple cropping. To know the	
advantages and disadvantages associated with each of the two major crop production. To			
be able to analyse and int	erpret results from multiple crop	pping systems. To be able to	
know how to assess yield	advantages from multiple cropp	ing systems.	
Module code: CSPM 412	Semester 1		
Title: Plant Breeding			
Module outcomes:			
Learners will be able to ur	nderstand basic plant breeding c	oncepts. Learners will be able to	
understand the relationsh	p between genetics and plant b	reeding. To be able to	
demonstrate an understar	nding of the methods used for br	eeding self – and cross-	
pollinated crops. To be ab	le to demonstrate an understand	ding of the relationship between	
other crop science discipli	nes and plant breeding.		
Module code: CSPM 413	Semester 1		
Title: Horticultural Science			
Module outcomes:			
Learners will be able to ur	nderstand the effect of climate or	n horticultural production.	
Demonstrate the ability to	comprehend scientific literature	related to horticultural	
production.Learners shou	ld also have undertstanding and	practical skills/exposure in	
scientific propagation tehr	niques such as use of tissue cul	ture, hydroponics in horticulture.	
Conduct projects to demo	nstrate ability of project manage	ment. Be able to add value to	
horticultural production in	RSA.		
Module code: CSPM 414	Semester 1		
litle: Soil Chemistry			
Module outcomes:	- In the second s		
Discussions of interaction	s between soil solids, precipitate	es and solution phases including:	
mineralogy, ion exchange	e, adsorption/desorption, weath	and buttering, soil colloidal	
benavior, acidic and ba	sic solis, salinity, and model	s of solution and solid phase	
on the characteristics of	organic compounds that impact	their reactivity Students will be	
able to evaluate and ma	ke recommendations for crop r	reduction based on their gained	
knowledge of these soil inorganic and organic reactions			
Module code: CSPM 415	Semester 1		
Title: Pedology and Soil Class	ification		
Module outcomes:	Medule euteemee		
Students will understand	soil formation in regards to che	mical & physical weathering and	
the soil pedagenic processes. Students will appreciate and understand the relationship			
between the factors of so	il formation and soil formation in	different enviroments They will	
be able to decsribe vario	be able to describe various soi profiles and determine the environment of formation of		
each. They will be able	to utilize soil field. laboratory. a	nd envrionmental data to classify	
soils using different soil cl	assification systems.	· · · · · · · · · · · · · · · · · ,	
Module code: CSPM 416	Semester 1		
Title: Soil Physics			
Module outcomes:			
Learners will know the ba	Learners will know the basic concepts of transport and retention for water and solutes in		
the soil and comprehend transfer processes for water, air, solutes, and heat in soils that			
influence the physical environment of the root zone for plant growth. They will be able to			
perform laboratory and field experiments to measure selected physical properties of soils			
that affect the fate and transport of agrochemicals in soils. the will also be able to apply the			

principles governing the flow and retention of water and solutes in the root zone to solve simple problems involving general water management of soil-water-systems used in agriculture		
agriculture.	Compostor 1	
Title: Prestical Over Preduction	Semester i	
The: Practical Crop Production		
Ability to layout field trials implements properly syste classify soils at a particula	Ability to operate farm machem. Ability to calibrate implen ar site. Ability to calculate yiel	ninery properly. Ability to calibrate nents properly system. Ability to d and plant population estimates.
Ability to calculate yield an	nd plant population estimates	S.
Module code: CSPM 418	Semester 1	
Title: Project and Seminar I		
Module outcomes: Able to prepare and subm topic submitted. Able to pre-	it project proposal. Conduct resent a seminar.	a critical review of literature on a
Module code: CSPM 421	Semester 2	
Title:Crop Physiology		
Module outcomes: Learners will be able to ur understand the physiologi understanding source-sir understand the concept o	nderstand crop growth analys ical basis of crop yield To be ik relationships. Learners will f crop Idiotypes	sis. Learners will be able to e able to demonstrate an be able to appreciate and
Module code: CSPM 422	Semester 2	
Title:Crop Protection	-	
Ability to understand and apply scientific principles in practical crop protection.coveirng the following: Entomology, Plant Pathology and Nematology. Should have understanding of Principles of Integrated Pest Management Programme. Under Entomology the Learners should should have an indepth knowlledge of insect pest classification focusing on the following important Genera: Hymenoptera, Coleoptera, and Lepidoptera. Under Plan Pathology the Learners should be knowledgeable in Plant Bacteriolgy, Mycology and Virologyt, that is, etiology and epidemeology of the major plant diseases of economic importance. The Learners should also have basic understanding of Nemalogy. In general the Learners should also demonstrate critical and creative thinking in research and development in areas of crop protection.		
Module code: CSPM 427	Semester 2	
Title: Practical Crop Productio	on II	
Module outcomes: Ability to layout field trials. Ability to operate farm machinery properly. Ability to calibrate implements properly system Ability to weigh and apply fertilizers properly. Ability to classify soils at a particular site. Ability to calculate yield and plant population estimates. Module code: CSPM 428 Semester 2		
Title: Project and Seminar II		
Module outcomes: Learners will be able to co criticize and interpret scie research results through a Module code: CSPM 424	onduct and manage research entific literature in crop and so an oral presentation / semina	under supervision ,Able to analyze, bil science .Able to communicate r, Able to write a scientific report.
Title: Soil Microbiology		
Module outcomes: Learners will be able to cl properties that favour the inhabit the soil. They will a	assify microorganisms in the survival of the vast number a also have the ability to detern	soil, and appreciate the soil and variety of microorganisms that nine how differenmt soil

management techniques affect the diversity and population of microorganisms in the soil. Learners will be able to conduct measurements in soil microbiology, and apply microbiological technology to improve crop production.

MA.2.9 BSC in LAND MANAGEMENT

Module code: PCPM 112	Semester 1			
Title: Botany of Agriculture				
Module outcomes :				
Learners will be able to a	ppreciate and describe Morphol	ogical, Anatomical, and		
Taxonomic differences a	mong common crop plants; dis	cuss and describe the processes		
involved in Photosynthes	is and transpiration; Describe a	plant cell; Appreciate the		
process and importance	of mitosis and meiosis; Solve pr	oblems on monohybrid and		
dihybrid inheritance.				
Module code: CSPM211	Semester 1			
Title: Introduction to Soil Sci	ence			
Module outcomes:				
Students will be able to c	lemonstrate an understanding of	f soil as a natural entity for		
sustainable agriculture as	s they study each of the areas o	f soil science: soil genesis, soil		
physics, soil conservation	n, soil microbiology, soil chemist	ry, and soil fertility. Students will		
gain a basic understandi	ng of soils and their importance	and relevance in their program		
of study. Students will de	velop an understanding of the re	ole that soils play in the		
agricultural and economi	c situation in South Africa and th	e world. Students will develop		
an appreciation of soils a	s a natural resource for South A	frica and for the world.		
Module code: CSPM 212	Semester 1			
Title: Soil fertility and fertilize	ers			
Module outcomes:				
Ability to read and interp	ret soil and/or plant analysis resu	ults; Be economically and		
environmentally sensitive	to fertilizer and organic wastes	use in crop production.		
Module code: PCPM 124	Semester 4			
Title: Introduction to Crop Pr	oduction			
Module outcomes:				
Learners will be able to a	opreciate how plants are in our	evervdav lives: Know the		
objectives of crop produc	tion systems: Make basic fertiliz	er calculations: Identify		
fertilizers, pesticides, cor	nmon weeds, and farm impleme	nts		
Module code: PCPM 321	Semester 4			
Title: Aaronomy: Winter Cro	os			
Module outcomes:				
For each of the prescribe	d winter crops learners will be a	able to know it's origin		
morphology distribution	climatic and soil requirements.	Know it's appropriate cultural		
practices including irrigat	ion fertilization and crop: protect	tion measures: conduct vield		
estimates: identify assoc	iated pests and diseases. Identit	v common cultivars		
Module code: PCPM 311	Semester 5			
Title: Agronomy: Summer Cr	ops			
Module outcomes:	Modulo outcomos:			
For each of the prescribe	d summer crops learner will be	able to know it's origin		
morphology distribution	climatic and soil requirementer	know it's appropriate cultural		
practices including fortiliz	ration and crop protection mea	sures: conduct vield estimates:		
identify associated pests	and diseases: identify common	cultivars		
Module code: PSSM 312	Semester 5			
Title: Project and Seminar I	Cemester 0			
Medule outcomos				
Ability to propore and avi	amit project proposali a stille of	literature en e tenie te		
Ability to prepare and sul	princ project proposal; a critic of	merature on a topic to		

submitted; ability to prese	submitted; ability to present a seminar.			
Module code: PSSM 321	Semester 6			
Title: Project and Seminar II				
Module outcomes:				
Learners will demonstrate	e ability to conduct and manage	research under supervision;		
Ability to analyse, interpre-	et and compile research data; A	bility to communicate research		
results orally in a semina	r	•		
Module code: PSSM 322	Semester 6			
Title: Principles of irrigation				
Module outcomes:				
Learners will be able to s	elect an appropriate irrigation sy	stem for a given situation,		
calculate the water require	rement for irrigation, and design	a simple irrigation system, able		
to conduct a simple evalu	uation of an existing irrigation sy	stem.		
Module code: PSSM 323	Semester 6			
Title: Soil Conservation	Title: Soil Conservation			
Module outcomes:	Module outcomes:			
Learners will be able to a	Learners will be able to appreciate, identify and assess different stages and forms of			
natural resources degradation and their causes; design appropriate natural resources				
management strategies;	appreciate the role of Governme	ent and NGOs in soil		
conservation.				

MA.2.10 BIOLOGY

OLD CODE BIO 106 NEW CODE BIYM 111	CREDITS 12	SEMESTER 1			
Title: Elements of human anatomy					
Module outcomes:					
This module provides stud	ents with the basic inf	ormation on the	e physical construction and		
functioning of the human b	ody. At the end of this	s module, the si	tudent will have the ability to		
bedy organ systems and the	ous body structures a	no demostrate	understanding of various		
buman body, skolotal systems	am muscular system	nowing topics a	re covered. Organization of		
respiratory system and did	ent, muscular system, lestive system	Caruiovasculai	and lymphatic system,		
OLD CODE BIO 116					
NEW CODE BIYM 112	CREDITS 12	SEMESTER 1			
Title: Elements of human phis	siology				
Module outcomes:					
This module provides stud	ents with information	on the various p	physiological processes and		
related phenomena in the	human body as well a	is understandin	g of basic principles		
governing such processes	and physiological cha	anges. At the er	nd of this module, students		
will have the ability to dem	onstrate understandir	ig of the conception	DE OF NOMEOSTASIS and Its		
of the functioning of body	and communicate pro	inlos governing	them. The following topics		
are covered. Physiological	nrocesses in respect	of skeletal mu	scular cardio-vascular		
lymphatic and respiratory	systems. Blood cell ad	tivities, antigen	-antibody reactions.		
immunity, blood clotting ar	immunity, blood clotting and blood groups. Blood tests and their applications to nursing art				
and skills. Homeostasis ar	and skills. Homeostasis and abnormalities.				
OLD CODE BIO 124					
NEW CODE BIYM 114	CREDITS 12	SEMESTER 1			
Title: Introduction to microbi	ology				
Module outcomes:					
This module provides students with basic information on the nature of micro-organisms,					
their growth and control, as well as awareness of their pathogenicity in humans. At the end					

of this module, student growth and control, to i demonstrate understar man. The following top bacterial structures. Cu chemical and antibiotic select few bacterial infe	s will have the ability de ndentify and communica ading of basic principles bics are covered, a brief ilture of bacteria and con (anti-microbial) agents, ections.	monstrate the un ate symptoms of of anti-mircrobial historical perspe ntrol of microbes viral replication a	derstanding of microbial viral/bacterial infections and l/ antibiotic mode of action in active; generalized viral and by means of phisical, and a few viral diseases. A			
OLD CODE BIO 156						
NEW CODE BIYM 121	NEW CODE BIYM 121 CREDITS 12 SEMESTER 2					
Title: Human anatomical	systems					
Module outcomes: This module provides students with knowledge and information on histological and functional aspects of vital body tissues and organs systems in relation to irritability, growth, metabolism and reproduction. At the end of this module, students will have the ability to demonstrate understanding of the structure and functioning of different tissue and organ systems. To recognize and relate different systems to various physiological body responses The following topics are covered, Nervous system, endocrine system, reproductive system,						
OLD CODE BIO 165						
NEW CODE BIYM 122	CREDITS 12	SEMESTER 2				
Title: Applied biochemist	try					
This module provides s as co-ordination of vari internal environment-he demonstrate understar and analyse various far of basic knowledge in e phenomena. The follow life, basic principles of their functioning. Hom	This module provides students with a broad based knowledge of the body chemistry, as well as co-ordination of various biochemical processes required in the maintenance of a stable internal environment-homeostasis. At the end of this module students will have the ability to demonstrate understanding and interpertation of basic rules of metabolism, ability to identify and analyse various factors that might influence normal functioning of the body. Application of basic knowledge in explaining abnormalities that might be associated with hereditary phenomena. The following topics are covered, atoms and molecules as chemical basis of life, basic principles of chimical reations, bio-molecules and their metabolism, enzymes and					
OLD CODE BIO 166 NEW CODE BIYM 124	CREDITS 12	SEMESTER 2				
Title: Systems physiolog	у					
Module outcomes: This module provides students with the in-depth knowledge and understanding of normal and abnormal bodily structure and fuctions. At the end of this module students will have the ability to demonstrate understanding of the general structure and function of a number of bodily systems, interpret and communicate the coordinated physiological functions of the major organ systems, recognize and explain some abnormalities pertaining to organ systems. The following topics are covered, Physiology of the major systems of the body; digestive, urinary, reproductive, mental and endocrine systems. Sense organs, metabolism, homeostasis and its central mechanisms and a few abnormalities pertaining to these systems.						
CODE SFBM 113	CREDITS 12	SEMESTER 1				
Title: Introduction to cell b	biology					
Module outcomes: This module introduces module students will d biology and be able to to explain the process inheritance. The fo introduction to the stu transport of materials a	s the learners to the bas lemonstrate knowledge differentiate between di s through which cells r llowing topics are co dy of cells, types of co cross membranes and c	ic concepts of c and understand ferent cell types nultiply and the vered, charaste ells, cell organel cell division.	ell biology. At the end of this ing of basic concepts in cell . Students must also be able ir basic concepts of genetic ristics of living organisms, lles, structure and functions,			

CODE SFBM 123	CREDITS 12	SEMESTER 1				
Title: Introduction to bi	ological concepts					
Module outcomes:						
This module provide	s learners with basic infor	mation of biolog	ical concepts. At the end of			
this module students	will demonstrate understa	anding of the orig	in of life and the chemistry of			
biology. Students i	must also be able to exp	lain the process	ses such as photosynthesis,			
metabolism, cellular	respiration, osmoregulation	on and reproduc	tion.The following topics are			
covered, Atoms, mo	plecules and compounds	of importance to	life, alcoholic fermentation,			
osmoregulation and	reproduction, basic microb	ology and princi	ples of ecology.			
OLD CODE BGY 103 NEW CODE BIYM 113	CREDITS 12	SEMESTER 1				
Title: Introductory biol	ogy					
Module outcomes:	- 37					
This module provide	s students with a solid. bro	ad-based founda	ation in modern animal and			
plant biology as well	as skills, knowledge and a	ttitudes to under	stand major issues of			
organismal biology.	At the end of this module s	students will dem	onstrate understanding and			
the interpretation of	structure-function relations	hip at organisma	l levels. Demonstrate			
understanding of the	basic evolutionary concept	ots and process.	Ability to apply evolutionary			
principles in the expl	anation of the concept of u	inity in diversity.	Comprehend morphological			
and physiological as	pects of major animal and	plant groups. Th	e following topics are			
covered, the cell stru	cture and function, the over	erview of the cell	theory and continuity of life,			
basic plant / animal o	design; a morphological pe	rspective, reproc	luction and development			
biology, basic conce	pt and principles of plant a	nd animal taxono	omy and diversity.			
BGYM 123	CREDITS 12	SEMESTER 2				
Title: Plant systematics	and Lower invertebrates	\$				
Module outcomes:						
I his module provides students with an introduction to classification using evolutionary						
will be able to discuss basic components of taxonomy and linnaius biararchies of						
will be able to discuss basic components of taxonomy and innatus nierarchies of classification and the basic principles of nomenclature. Demonstrate competency in the						
classification and the	tomous keys explain the	diagnostic charac	strate competency in the			
and animal taxa and	to identify these using dic	hotomous kevs	Explain the concept of			
biodiversity in terms	and animal taxa and to identify these using dichotomous keys. Explain the concept of biodiversity in terms of evolutionary processes and relationships. Discuss the shallongoe					
related to terrestrial mode of life with reference to structural adaptations of selected taxa						
elaborate on the effe	ects of human activities imp	acting negatively	on the environment.			
Discuss the relevance	e of Taxonomy to manage	ement of natural r	esources or Nature			
Reserves. The follow	Reserves. The following topics are covered, principles of Taxonomy and species concept,					
overview of speciation	on and classification syster	ns and overview	of phylogenetics and			
systematics relations	ships.					
BGYM 213	CREDITS 8	SEMESTER 1				
Title: Introductory gene	tics					
Module outcomes:						
I his module provide	s a broad foundation for th	e understanding	of basic concepts and			
principles of genetics	s as well as a solid backgro	ound for Molecula	a Genetics. At the end of this			
functioning of the hu	man body and to understa	nd the structure of	of the chromosome Ability to			
discuss DNA structu	re and its chemical compo	sition To unders	tand the origin and			
transmission of gene	tic information and unders	tand the applicat	ion of Mendel's principles of			
inheritance with resp	ect to living organisms. To	o understand the	chromosomal theory of			
ingeritance. The foll	owing topics are covered,	a brief overview of	of genetics and molecular			
genetics, chromosor	nal structure and function,	structure of DNA	and its replication,			
mendelian genetics,	incomplete dominance, inl	heritance, multipl	e alleles and gene linkage			
and chromosome ma	apping.		- 3			

BGYM 214	CREDITS 8	SEMESTER I		
Title: Bacteriology and	Microbial ecology			
Module outcomes:	es an understanding of fund	mental theoretic	al aspects of bacteriology	
microbial ecology as	s well as an introduction to n	amenia medielic	end of this module students	
will be able to classi	fy selected bacterial and fur	igal groups. To e	xplain and apply basic	
techniques for isolat	ion, identification and handl	n of bacteria and	fungi in the laboratory. To	
be able to identify se	elected pathogenic bacterial	and fungal forms	s. The following topics are	
covered, a brief his	torical perspertive, generali	zed bacterial stru	cture (ultra structure),	
growth, cultivation a	nd ways of limiting microbia	growth (control)	including antibiotics and	
antibiograms. Virus	es and viral replications, fev	v examples of vira	al infenctions in man and	
selected examples of	of anaerobes. Skin and woll	nd infections. Se	exually transmitted	
OLD CODE BGY 214				
NEW CODE BGYM (2	211) CREDITS 8	SEMESTER 1		
216				
Title: Elements of Eco	logy and Biostatistics I	•		
Module outcomes:	••			
This module provide	es students with the basic co	ncepts of an eco	system as an ecological	
unit and how it funct	ions and to introduce them	o the quatitative	treatment of biological	
data. At the end of the	this module students will have	e the understand	ding of the interrelationship	
of the sub-compone	his of an ecosystem also the	e understanding (big statistical information	
The following topics	and covered definitions of a	scanding of Dasic	plo-statistical information.	
communities ecosy	stems Ecological problem.	cosystem, intern	ouse effect nonulation	
dynamics, introducti	on to quantitative treatment	of biological data	and nature of biological	
variation.				
NEW CODE BGYM 215	CREDITS 12	SEMESTER 1		
NEW CODE BGYM 215 Title: Elements of cell	CREDITS 12 biology and Biochemistry	SEMESTER 1		
NEW CODE BGYM 215 Title: Elements of cell Module outcomes:	CREDITS 12 biology and Biochemistry	SEMESTER 1		
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot	CREDITS 12 biology and Biochemistry es advanced understanding	SEMESTER 1	undamental unit of life, as	
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot well as concepts of with the use and we	CREDITS 12 biology and Biochemistry es advanced understanding cell differentiation. At the er	SEMESTER 1	undamental unit of life, as students must be familiar	
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot well as concepts of with the use and wo the architectural and	CREDITS 12 biology and Biochemistry es advanced understanding cell differentiation. At the er rking of the light microscope	of the cell as a function of this module and be compendent types of cells	undamental unit of life, as students must be familiar tent in the understanding of Students must have the	
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot well as concepts of with the use and wo the architectural and knowledge and und	CREDITS 12 biology and Biochemistry es advanced understanding cell differentiation. At the er rking of the light microscope d functional aspects of differ erstanding of biomolecules	of the cell as a find of this module and be compensent types of cells. their classification	undamental unit of life, as students must be familiar tent in the understanding of Students must have the n and nomenclature and be	
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot well as concepts of with the use and wo the architectural and knowledge and unde able to demonstrate	CREDITS 12 biology and Biochemistry es advanced understanding cell differentiation. At the er rking of the light microscope d functional aspects of differ erstanding of biomolecules, understanding of basic rule	of the cell as a find of this module and be compen- ent types of cells. their classification s of metabolism a	undamental unit of life, as students must be familiar tent in the understanding of Students must have the n and nomenclature and be as basic kinetic and	
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot well as concepts of with the use and wo the architectural and knowledge and under able to demonstrate mechanisms of enzy	CREDITS 12 biology and Biochemistry es advanced understanding cell differentiation. At the er rking of the light microscope d functional aspects of differ erstanding of biomolecules, understanding of basic rule yme action. The following to	of the cell as a find of this module and be compen- ent types of cells. their classification s of metabolism a pics are covered	undamental unit of life, as students must be familiar tent in the understanding of Students must have the n and nomenclature and be as basic kinetic and , review of prokaryotic and	
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot well as concepts of with the use and wo the architectural and knowledge and unde able to demonstrate mechanisms of enzy eukaryotic cells as w	CREDITS 12 biology and Biochemistry es advanced understanding cell differentiation. At the er rking of the light microscope d functional aspects of differ erstanding of biomolecules, understanding of basic rule yme action. The following to vell as light and electron mir	of the cell as a find of this module and be compen- ent types of cells. their classification s of metabolism a pics are covered oscopy, structura	undamental unit of life, as students must be familiar tent in the understanding of Students must have the n and nomenclature and be as basic kinetic and , review of prokaryotic and and functional aspects of	
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot well as concepts of <i>d</i> with the use and wo the architectural and knowledge and unde able to demonstrate mechanisms of enzy eukaryotic cells as w eukaryotic cell organ	CREDITS 12 biology and Biochemistry es advanced understanding cell differentiation. At the er rking of the light microscope d functional aspects of differ erstanding of biomolecules, understanding of basic rule yme action. The following to vell as light and electron mir nelles. Elements of cell bioo	of the cell as a find of this module and be compen- ent types of cells. their classification s of metabolism a pics are covered oscopy, structura hemistry: biomol	undamental unit of life, as students must be familiar tent in the understanding of Students must have the n and nomenclature and be as basic kinetic and , review of prokaryotic and and functional aspects of ecules and their	
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot well as concepts of <i>d</i> with the use and wo the architectural and knowledge and unde able to demonstrate mechanisms of enzy eukaryotic cells as w eukaryotic cell organ metabolism; enzyme	CREDITS 12 biology and Biochemistry es advanced understanding cell differentiation. At the er rking of the light microscope d functional aspects of differ erstanding of biomolecules, understanding of basic rule yme action. The following to vell as light and electron mir nelles. Elements of cell bioo es and principles of enzyme	of the cell as a find of this module and be compen- ent types of cells. their classification s of metabolism a pics are covered oscopy, structura hemistry: biomol kinetics. History	undamental unit of life, as students must be familiar tent in the understanding of . Students must have the n and nomenclature and be as basic kinetic and l, review of prokaryotic and and functional aspects of ecules and their of cell biology and cell	
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot well as concepts of <i>d</i> with the use and wo the architectural and knowledge and under able to demonstrate mechanisms of enzy eukaryotic cells as w eukaryotic cell organ metabolism; enzyme architecture.	CREDITS 12 biology and Biochemistry es advanced understanding cell differentiation. At the er rking of the light microscope d functional aspects of differ erstanding of biomolecules, understanding of basic rule yme action. The following to vell as light and electron mir nelles. Elements of cell bioc es and principles of enzyme	of the cell as a find of this module and be compen- ent types of cells. their classification s of metabolism a pics are covered oscopy, structura hemistry: biomol kinetics. History	undamental unit of life, as students must be familiar tent in the understanding of . Students must have the n and nomenclature and be as basic kinetic and l, review of prokaryotic and and functional aspects of ecules and their of cell biology and cell	
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot well as concepts of with the use and wo the architectural and knowledge and under able to demonstrate mechanisms of enzy eukaryotic cells as w eukaryotic cell organ metabolism; enzyme architecture. CODE BGYM 225	CREDITS 12 biology and Biochemistry es advanced understanding cell differentiation. At the er rking of the light microscope d functional aspects of differ erstanding of biomolecules, understanding of basic rule yme action. The following to vell as light and electron mir nelles. Elements of cell bioc es and principles of enzyme CREDITS 8	of the cell as a find of this module end be compentent types of cells. their classifications of metabolism appics are covered oscopy, structura hemistry: biomol kinetics. History	undamental unit of life, as students must be familiar tent in the understanding of . Students must have the n and nomenclature and be as basic kinetic and l, review of prokaryotic and and functional aspects of ecules and their of cell biology and cell	
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot well as concepts of a with the use and wo the architectural and knowledge and unda able to demonstrate mechanisms of enzy eukaryotic cell orgar metabolism; enzyme architecture. CODE BGYM 225 Title: Immunology and	CREDITS 12 biology and Biochemistry es advanced understanding cell differentiation. At the er rking of the light microscope d functional aspects of differ erstanding of biomolecules, understanding of basic rule yme action. The following to vell as light and electron mir nelles. Elements of cell biod es and principles of enzyme CREDITS 8 Virology	of the cell as a find of this module and be compentent types of cells. their classifications of metabolism appics are covered oscopy, structura hemistry: biomol kinetics. History	undamental unit of life, as students must be familiar tent in the understanding of . Students must have the n and nomenclature and be as basic kinetic and l, review of prokaryotic and and functional aspects of ecules and their of cell biology and cell	
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot well as concepts of with the use and wo the architectural and knowledge and under able to demonstrate mechanisms of enzy eukaryotic cell orgar metabolism; enzyme architecture. CODE BGYM 225 Title: Immunology and Module outcomes: This module sizedus	CREDITS 12 biology and Biochemistry es advanced understanding cell differentiation. At the er rking of the light microscope d functional aspects of differ erstanding of biomolecules, understanding of basic rule yme action. The following to vell as light and electron mir nelles. Elements of cell biod es and principles of enzyme CREDITS 8 Virology	SEMESTER 1 of the cell as a find of this module and be compen- ent types of cells. their classification s of metabolism a pics are covered oscopy, structura hemistry: biomol kinetics. History SEMESTER 2	undamental unit of life, as students must be familiar tent in the understanding of . Students must have the n and nomenclature and be as basic kinetic and l, review of prokaryotic and and functional aspects of ecules and their of cell biology and cell	
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot well as concepts of a with the use and wo the architectural and knowledge and unda able to demonstrate mechanisms of enzy eukaryotic cells as v eukaryotic cell orgar metabolism; enzyme architecture. CODE BGYM 225 Title: Immunology and Module outcomes: This module student	CREDITS 12 biology and Biochemistry es advanced understanding cell differentiation. At the er rking of the light microscope d functional aspects of differ erstanding of biomolecules, understanding of basic rule yme action. The following to vell as light and electron mir nelles. Elements of cell biod es and principles of enzyme CREDITS 8 Virology	of the cell as a find of this module and be compented and be compented and be compented and the compen	undamental unit of life, as students must be familiar tent in the understanding of . Students must have the n and nomenclature and be as basic kinetic and l, review of prokaryotic and and functional aspects of ecules and their of cell biology and cell	
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot well as concepts of with the use and wo the architectural and knowledge and unde able to demonstrate mechanisms of enzy eukaryotic cells as v eukaryotic cell orgar metabolism; enzyme architecture. CODE BGYM 225 Title: Immunology and Module outcomes: This module students nucleic acids, other	CREDITS 12 biology and Biochemistry es advanced understanding cell differentiation. At the er rking of the light microscope d functional aspects of differ erstanding of biomolecules, understanding of basic rule (me action. The following to vell as light and electron mir nelles. Elements of cell biod es and principles of enzyme CREDITS 8 Virology ces the learners to concepts a must know the general cha chemical components and r	SEMESTER 1 of the cell as a find of this module and be compen- ent types of cells. their classification s of metabolism a pics are covered oscopy, structura hemistry: biomol kinetics. History SEMESTER 2	undamental unit of life, as students must be familiar tent in the understanding of . Students must have the n and nomenclature and be as basic kinetic and l, review of prokaryotic and and functional aspects of ecules and their of cell biology and cell mmunology. At the end of ruses (basic morphology, le to compare and contrast	
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot well as concepts of with the use and wo the architectural and knowledge and unde able to demonstrate mechanisms of enzy eukaryotic cells as v eukaryotic cell organ metabolism; enzyme architecture. CODE BGYM 225 Title: Immunology and Module outcomes: This module introdu this module students nucleic acids, other the morphology and	CREDITS 12 biology and Biochemistry es advanced understanding cell differentiation. At the er rking of the light microscope d functional aspects of differ erstanding of biomolecules, understanding of basic rule (me action. The following to vell as light and electron mir nelles. Elements of cell biod es and principles of enzyme CREDITS 8 Virology ces the learners to concepts a must know the general cha chemical components and r chemical composition of pla	SEMESTER 1 of the cell as a find of this module and be compen- ent types of cells. their classification s of metabolism a pics are covered oscopy, structura hemistry: biomol kinetics. History SEMESTER 2 of virology and i aracteristics of Vi eplication), be ab ant and animal vii	undamental unit of life, as students must be familiar tent in the understanding of . Students must have the n and nomenclature and be as basic kinetic and l, review of prokaryotic and and functional aspects of ecules and their of cell biology and cell mmunology. At the end of ruses (basic morphology, le to compare and contrast ruses. Understand the	
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot well as concepts of with the use and wo the architectural and knowledge and unde able to demonstrate mechanisms of enzy eukaryotic cells as w eukaryotic cell organ metabolism; enzyme architecture. CODE BGYM 225 Title: Immunology and Module outcomes: This module introdu this module students nucleic acids, other the morphology and classification and no	CREDITS 12 biology and Biochemistry es advanced understanding cell differentiation. At the er rking of the light microscope d functional aspects of differ erstanding of biomolecules, understanding of basic rule (me action. The following to vell as light and electron mir nelles. Elements of cell biod es and principles of enzyme CREDITS 8 Virology ces the learners to concepts a must know the general cha chemical components and r chemical composition of pla omenclature of animal and p	SEMESTER 1 of the cell as a find of this module and be compen- ent types of cells. their classification s of metabolism a pics are covered oscopy, structura hemistry: biomol kinetics. History SEMESTER 2 of virology and i aracteristics of Vie eplication), be ab ant and animal vii lant viruses using	undamental unit of life, as students must be familiar tent in the understanding of . Students must have the n and nomenclature and be as basic kinetic and l, review of prokaryotic and and functional aspects of ecules and their of cell biology and cell mmunology. At the end of ruses (basic morphology, le to compare and contrast ruses. Understand the g physical, chemical and	
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot well as concepts of with the use and wo the architectural and knowledge and unde able to demonstrate mechanisms of enzy eukaryotic cells as v eukaryotic cell orgar metabolism; enzyme architecture. CODE BGYM 225 Title: Immunology and Module outcomes: This module introdu this module introdu this module students nucleic acids, other the morphology and classification and no biological characteri	CREDITS 12 biology and Biochemistry es advanced understanding cell differentiation. At the er rking of the light microscope d functional aspects of differ erstanding of biomolecules, understanding of basic rule yme action. The following to vell as light and electron mir nelles. Elements of cell biod es and principles of enzyme CREDITS 8 Virology ces the learners to concepts a must know the general cha chemical components and r chemical composition of pla menclature of animal and p stics. Understand the replic	SEMESTER 1 of the cell as a find of this module and be compen- ent types of cells. their classification s of metabolism a pics are covered oscopy, structura hemistry: biomol kinetics. History SEMESTER 2 of virology and i aracteristics of Vie eplication), be ab ant and animal vi lant viruses using ation of animal a	undamental unit of life, as students must be familiar tent in the understanding of . Students must have the n and nomenclature and be as basic kinetic and l, review of prokaryotic and al and functional aspects of ecules and their of cell biology and cell mmunology. At the end of ruses (basic morphology, le to compare and contrast ruses. Understand the g physical, chemical and nd plant viruses and know	
NEW CODE BGYM 215 Title: Elements of cell Module outcomes: This module promot well as concepts of with the use and wo the architectural and knowledge and unde able to demonstrate mechanisms of enzy eukaryotic cells as w eukaryotic cell orgar metabolism; enzyme architecture. CODE BGYM 225 Title: Immunology and Module outcomes: This module introdu this module introdu this module introdu the morphology and classification and no biological characteri how bacteriophages	CREDITS 12 biology and Biochemistry es advanced understanding cell differentiation. At the er rking of the light microscope d functional aspects of differ erstanding of biomolecules, understanding of basic rule yme action. The following to vell as light and electron mir nelles. Elements of cell biod es and principles of enzyme CREDITS 8 Virology ces the learners to concepts a must know the general cha chemical composition of pla menclature of animal and p stics. Understand the replic a were discovered. Know the	SEMESTER 1 of the cell as a find of this module and be compen- ent types of cells. their classification s of metabolism a pics are covered oscopy, structura hemistry: biomol kinetics. History SEMESTER 2 of virology and i aracteristics of Vi eplication), be ab ant and animal vir lant viruses using ation of animal a e classification ar	undamental unit of life, as students must be familiar tent in the understanding of . Students must have the n and nomenclature and be as basic kinetic and l, review of prokaryotic and al and functional aspects of ecules and their of cell biology and cell mmunology. At the end of ruses (basic morphology, le to compare and contrast ruses. Understand the g physical, chemical and nd plant viruses and know nd nomenclature of	

the one step growth curve process, understand the concepts of host parasite interaction and understand the basic concepts of specific immunity and the immune response.						
OLD NEW	CODE E	BGY 254 BGYM	(221)	CREDITS 8	SEMESTER 2	
ZZI Titlo:	Molec	ular gon	otice			
Mod		anar gen	encs			
Mou	This mod	ule prov	idae eti	udents with the advance	d aspects of mol	ecula genetics with regards
t	n the pri	nciples o	f dene	expression and inherita	nce At the end	of this module students
r	nust hav	e an unc	lerstan	ding and interpretation of	of gene expression	on, competency in the
i	nterpreta	tion of a	ene mi	utations. Understanding	of key topics in	contemporary molecular
k	biology a	nd appre	ciation	of the human genetics	and inheritance.	Students must have an
ι	understai	nding of	what cl	hromosomal aberrations	are. The followi	ng topics are covered,
ç	gene exp	ression,	the reg	gulation of gene express	ion, transcription	, types of RNA, the genetic
C	code, trai	nslation,	introdu	action to population gene	etics, human inhe	eritance and inborn errors,
5	sex deter	mination	and so	ex linkage, types of gene	e mutations, tum	our cells and carcinogens,
r	olygenic	inherita	nce an	d blood groups, prenata	l and postnatal g	enetic detections.
OLD	CODE E	3GY 263	(000)			
	CODE	DGTW	(222)	CREDITS 10	SEIVIESTER 2	
Titlo:	Annlio	d Mioro	hiology	v and Microbial Divors	i+\/	
Mod		a mae:	biolog	y and Microbial Divers	ity	
WOU	This mod	ulo intro	duca th	a learners to industrial a	applications of th	earetical aspects of
r	nicrobiol	$\alpha v \Delta t$	the end	t of this module the stud	ant must underst	and the roles of
r	nicroora	anisms ir	n media	cine and pharmaceutical	s and the role of	microorganisms in the
f	ood. aar	icultural.	water	and environmental secto	ors. The following	a topics are covered, the
r	ole of mi	croorgar	nisms i	n biogeochemical cycles	, microorganism	s and food spoilage,
f	ermenta	tion proc	esses,	Single-Cell Proteins (SC	CP), sewarage tre	eatment and water
t	reatmen	t, enviror	nmenta	I cleaning and Bioremed	diation.	
OLD	CODE E	3GY 273				
NEW 226	CODE	BGYM	(224)	CREDITS 8	SEMESTER 2	
Title:	Introdu	ction to	Enton	nology and Parasitolog	ay .	
Mod	ule outco	omes:				
٦	This mod	ule deve	elops ai	nd promotes an awarene	ess of insects and	d their economic
i	mportan	ce to ma	n, it pro	ovides an understanding	of the classificat	tion and systematics of
i	nsects a	nd insec	t paras	ites. It also provides an	understanding of	the principles of host
F	barasite i	elations	hips an	id develop an awarenes	s of insects as ve	ectors of diseases. At the
e i	end of thi	s modul	e the si	udent must demonstrate	e the ability to rec	diatinguish between
	nsect yrt	Jups of e	mfulin	ic importance. Demonsi	to docoribo the	distinguish between
L r	aracito i	anu nai Pationel	hine T	The following topics are of		characteristics of
N I	arthronoc	ls with A	mps. i mnhasi	is on insects hasic struc	ture of insects i	e external internal
r	norpholo	av and r	physiol	pay of all the systems, th	ne economic ipor	tance of insects i.e.
k	peneficia	linsects	and ha	armful insects. The struc	cture of entegum	ent and moulting.
r	parasitolo	bay – det	finitions	s of terms. An introduction	on of host parasit	e relationships, parasites
á	and insec	ts as ve	ctors o	f diseases. General bio	logy and ecology	- taxonomy of insects and
ŗ	parasites					-
COL	DE BGYN	/ (311) 3	813	CREDITS 16	SEMESTER 1	
Title:	Bacteria	al metab	olism			
Mod	ule outco	omes:				
1	This mod	ule prov	ides ar	understanding of advar	nced aspects of b	pacterial metabolism. At
t	he end o	of this mo	odule th	ne student must have dis	scussed the majo	or energy yielding sources
f	or micro	organism	ns and	be able to explain chem	ical energy and e	energy transfer. Must also

be able to explain generation of ATP by microorganisms (differentiate between substrate- level phosphorylation, oxidative phosphorylation and photo-phosphorylation. Describe how phototrophic organisms convert light energy to chemical energy and describe the major dissilatory nathway called divcolves. Explain how yeast ferment divcose to ethanol					
(Differentiate between respir	(Differentiate between respiration and fermentation) The following topics are covered				
chemical energy and energy	v transfer, anabolism	and catabolism	biochemistry of		
photosynthesis, respiration a	and fermentation.		, bloone, e.		
OLD CODE BGY 314					
NEW CODE BGYM 311	CREDITS 16	SEMESTER 1			
Title: Advanced Ecology and	Biostatistics II				
Module outcomes:					
This module provides extend on population modelling. It a as well as awareness of the demonstrate the ability to ex- able to analyse and interpret	ded information on e also provides informa available software. cplain the concept of t ecological data stat	cological principl ation on techniqu At the end of this population struct	es with particular emphasis les in vegetation analysis, s module the student must ture and modelling and be strate the ability to explain		
and apply principles of population moc dynamics and wildlife manage techniques, soils: develomentime scales, the biome system	allation dynamics in w delling, techniques of gement, community s nt, profile, texture, pr em: veld types, veget	ildlife manageme f vegetation and structure, classifi roblems of ecosy tation types (Sou	ant. The following to explain analysis, population cation and ordination stems. Evaluation and th Africa). Biostatistics.		
OLD CODE BGY 334	OPEDITS 16	SEMESTER 1			
Title: Systematics	Chedita 10	SEMESTER			
Module outcomes:					
Module outcomes: This module provides an integrated approach to bio-diversity, as well as skills and understanding of evolutionary concepts and principles. At the end of this module students must demonstrate an understanding on the meanings of systematics, taxonomy and phylogenetics, outline the significance of systematics in biodiversity and conservation studies. Elaborate the phylogenetic relationships among taxa based on various systematic data, explain the basic principles of phenetic and cladistic methods of classification. Discuss the applications of systematics in resolving classification conflicts. The following topics are covered, biological aspects of systematics and phylogenetics, speciation and the classification systems biodiversity conservation and biogenerate.					
OLD CODE BGY 374	CREDITS 16	SEMESTER 2			
Title: Applied Molecular Gene	tice	SEMILOTEN L			
Medule outcomes	ucs				
Module outcomes: This module provides an understanding and appreciation of the roles of recombinant DNA technology in its endevours and attempts to solve the human social, economic and ethical problems. At the end of this module students will demonstrate the ability to understand the concepts of recombinant DNA technology or biotechnology. Outline the possible benefits of this technology in attempting to solve our day to day problems and discuss the social and ethical issues around this technology. Deduce further possible advancements of this technology for the ultimate benefit of humankind. The following topics are covered, bacterial reproduction, the roles of plasmids in bacteria, recombinant DNA technology, the polymerase chain reaction and genetic markers, gene cloning, protein expression and purification, the human genome and gene sequencing project, potential applications of the recombinant DNA technology, ethical questions about biotechnology.					
technology for the ultimate b reproduction, the roles of pla polymerase chain reaction a purification, the human geno recombinant DNA technolog	g to solve our day to chnology. Deduce fi penefit of humankind asmids in bacteria, re and genetic markers, ome and gene seque ly, ethical questions	oay problems an urther possible a . The following tr ecombinant DNA gene cloning, pr ncing project, po about biotechnol	Id discuss the social and dvancements of this opics are covered, bacterial technology, the otein expression and stential applications of the ogy.		
technology for the ultimate b reproduction, the roles of pla polymerase chain reaction a purification, the human geno recombinant DNA technolog	g to solve our day to choology. Deduce fit benefit of humankind asmids in bacteria, re and genetic markers, ome and gene seque ty, ethical questions	oay problems ar urther possible a . The following to ecombinant DNA gene cloning, pr encing project, po about biotechnol	Id discuss the social and dvancements of this opics are covered, bacterial technology, the otein expression and otential applications of the ogy.		
technology for the ultimate b reproduction, the roles of pla polymerase chain reaction a purification, the human geno recombinant DNA technolog OLD CODE BGY 384 NEW CODE BGYM 325	g to solve our day to chnology. Deduce fit benefit of humankind asmids in bacteria, re and genetic markers, ome and gene seque y, ethical questions CREDITS 16	a problems ar urther possible a . The following to ecombinant DNA gene cloning, pr encing project, po about biotechnol SEMESTER 2	In discuss the social and dvancements of this opics are covered, bacterial technology, the otein expression and itential applications of the ogy.		
technology for the ultimate b reproduction, the roles of pla polymerase chain reaction a purification, the human geno recombinant DNA technolog OLD CODE BGY 384 NEW CODE BGYM 325 Title: Developmental Biology	g to solve our day to chnology. Deduce fit benefit of humankind asmids in bacteria, re and genetic markers, ome and gene seque y, ethical questions CREDITS 16	oay problems ar urther possible a . The following to ecombinant DNA gene cloning, pr encing project, po about biotechnol SEMESTER 2	In discuss the social and dvancements of this opics are covered, bacterial technology, the otein expression and itential applications of the ogy.		

governing organismal growth and development. At the end of this module students will demonstrate an understanding of the stages and processes of development in selected animals. Explain the significance of extra embryonic membranes in placental animals. Discuss the genetic and environmental factors that influence plant growth and development. Outline the various regulatory mechanisms of plant hormones in growth and development. The following topics are covered, overview of processes and stages of plant and animal development, principles of cell division, morphogenesis and differentiation, morphogenesis and biotechnology, the regulatory roles of plant growth hormones, significance of the embryonic membranes to terrestrial animals.

MA.2.11 CHEMISTRY

Module code: MCHE114	Semester 1	
Title: Introductory Chemistry I		
Module outcomes:		
Knowledge:		
Students should acquire know	ledge of the topics covered, pa	rticles, Periodic table,
elements, compounds, mixture	es, the mole and molar quantitie	es, balancing equations
including acid-base and redox	reactions and calculations bas	ed on balanced equations and
concentrations, atomic structu	re, nuclear reactions and radio	activity, chemical bonding.
Skills:		
learning and applying chemica concepts, facts and application concepts and facts of chemisti effectively and critically, showi others. In practical sessions st	all and use the relevant intelled I knowledge, recall the most in as of chemistry, apply in a logic ry to solve chemical problems. Ing responsibility towards the er udents use the basic practical	al manner the principles, sal manner the principles, Use science and technology nvironment and health of skills peeded for carrying out
chemistry practices, analyse s	imple substances to identify the	em and find their composition.
measure, collect, analyse and	present data.	sin and ma their composition,
Module code: MCHE121	Semester 2	
Title: Introductory Chemistry II		
Module outcomes:		
Knowledge:		
Students should acquire know Chemical bonding including co equilibria, acids and bases, bu organic reactions, organic acid polymer chemistry.	ledge of the topics covered, Ph valent bonding theories, molect ffer solutions, solubility product Is and bases, non-aromatic hyd	nysical/Inorganic chemistry: cular structure, chemical ts. Organic chemistry: types of drocarbons, functional groups,
Students should be able to red learning and applying chemica concepts, facts and application concepts and facts of chemistr effectively and critically showin In practical sessions students practices, analyse simple subs collect, analyse and present do	all and use the relevant intelled I knowledge, recall the most im as of chemistry. Apply in a logic y to solve chemical problems. Ig responsibility towards the en use the basic practical skills ne stances to identify them and fin- ata.	ctual skills and strategies for aportant fundamental principles, cal manner, the principles, Use science and technology vironment and health of others. beded for carrying out chemistry d their composition, measure,
Module code: MCHE215	Semester 1	
Title: Physical Chemistry I		
Module outcomes: Knowledge: Students should acquire know thermodynamics, kinetics and Skills:	ledge of the topics covered, ch electrochemistry.	emical equilibria,

learning and applying chemica concepts, facts and application concepts and facts of chemistr functions by using appropriate and to interpret thermodynami calculate rate constants and a reaction mechanisms. In prac Handle and use scientific instr equilibrium constants, thermod	all and use relevant intellectual skills and strategles for al knowledge, recall most important fundamental principles, ns of chemistry, apply in a logical manner the principles, ry to solve chemical problems, calculate thermodynamic equations and values from relevant thermodynamic tables c values in terms of process properties. Measure and ctivation parameters and interpret these values in terms of tical sessions students collect, analyse and present data. uments, use various laboratory techniques to determine dynamic data, rate constants and activation parameters. Make asurements and record them
Module code: MCHE216	Semester 1
Title: Inorganic Chemistry I	
Module outcomes: Knowledge: Students should acquire know metal chemistry and their envir Skills: Students should be able to rec learning and applying chemica concepts, facts and application concepts and facts of chemistr	ledge of the topics covered, bonding, main group, transition ronmental impact. all and use relevant intellectual skills and strategies for al knowledge, recall most important fundamental principles, rs of chemistry, apply in a logical manner the principles, ry to solve chemical problems. In practical sessions students
and present data. Handle and	use scientific instruments, handle chemicals and equipment
safely in the laboratory.	
Module code: MCHE221	Semester 2
Title: Organic Chemistry I	
Knowledge: Students should acquire know properties, reactions and react compounds, organic halogen o physical methods for the identi Skills:	ledge of the topics covered, nomenclature, synthesis, tion mechanisms of various functional groups, organic oxygen compounds, aromatic compounds including hetero-aromatics, ification and structure elucidation of organic compounds.
Students should be able to rec learning and applying chemica concepts, facts and application concepts and facts of chemistr mechanisms for the synthesis chemical structures. In practic carrying out chemistry pratical instruments, carry out standard boiling points determinations.	call and use relevant intellectual skills and strategies for al knowledge, recall most important fundamental principles, his of chemistry, apply in a logical manner the principles, ry to solve chemical problems. Write equations and and reactions of organic compounds. Draw resonance and had sessions students use the basic practical skills needed for s, collect, analyse and present data. Handle and use scientific d organic techniques such as distillation, melting point and Handle chemicals and equipment safely in the laboratory.
Students should be able to rec learning and applying chemica concepts, facts and application concepts and facts of chemistr mechanisms for the synthesis chemical structures. In practic carrying out chemistry pratical instruments, carry out standard boiling points determinations. Module code: MCHE223	call and use relevant intellectual skills and strategies for al knowledge, recall most important fundamental principles, ns of chemistry, apply in a logical manner the principles, ry to solve chemical problems. Write equations and and reactions of organic compounds. Draw resonance and cal sessions students use the basic practical skills needed for s, collect, analyse and present data. Handle and use scientific d organic techniques such as distillation, melting point and Handle chemicals and equipment safely in the laboratory. Semester 2
Students should be able to reconcepts, facts and applying chemical concepts, facts and application concepts and facts of chemistry mechanisms for the synthesis chemical structures. In practice carrying out chemistry praticals instruments, carry out standard boiling points determinations. Module code: MCHE223 Title: Analytical Chemistry I Module patroace:	call and use relevant intellectual skills and strategies for al knowledge, recall most important fundamental principles, ns of chemistry, apply in a logical manner the principles, ry to solve chemical problems. Write equations and and reactions of organic compounds. Draw resonance and cal sessions students use the basic practical skills needed for s, collect, analyse and present data. Handle and use scientific d organic techniques such as distillation, melting point and Handle chemicals and equipment safely in the laboratory. Semester 2

concepts, fact and applications underlying principles of samplin volumetric and gravimetric met sessions students use the basi collect, analyse and present da criteria, estimate the reliability solvent extraction, handle and safely in the laboratory.	s of chemistry to solve chemical problems, explain the ng and statistical evaluation of data, separation techniques, hods, explain the theory of atomic spectroscopy. In practical ic pratical skills needed for carrying out chemistry practicals, ata, obtain a representative sample on the basis of given of results, separate solutes by crystallization, distillation and use scientific instruments, handle chemicals and equipment
Module code: MCHE315	Semester 1
Title: Organic Chemistry II	
Module outcomes:	
Knowledge:	
Students should acquire knowl organic nitrogen contain compo- identification and structure eluc Skills:	edge of the topics covered, steroids, carbohydrates and lipids, ounds, synthetic polymers, physical methods for the cidation of organic compounds.
Students should be able to rec learning and applying chemica facts and application of organic and facts of chemistry to solve compounds. Identify and relate students should be able to sym properties of various functional compounds. Relate the chemi various functional groups, hand	all and use the relevant intellectual skills and strategies for I knowledge, recall the most important principles, concepts, c chemistry, apply in a logical manner the principles, concepts chemical problems, name carbonyl and nitrogen containing e the chemical properties to structure. In practical sessions thesize, isolate and identify the chemical and physical groups of oxygen and nitrogen containing organic cal properties to structure, carry out interconversions among dle chemicals and equipment safely in the laboratory
Module code: MCHE316	Semester 1
Title: Analytical Chemistry II	·
Module outcomes: Knowledge: Students should acquire knowl analysis, thermal and calorime Skills: Students should be able to rec learning and applying chemica concepts and facts of chemistr principles of radiochemical, the basis of the applications of ana students use the basic practica analyse and present data, obta estimate the reliability of result handle and use scientific instru- laboratory. Module code: MCHE321	edge of the topics covered, radiochemical methods of tric methods, electrochemical methods. all and use relevant intellectual skills and strategies for I knowledge, apply in a logical manner the principles, y to solve chemical problems, explain the underlying ermal and electrochemical methods, appreciate the theoretical dytical chemistry in various industries. In practical sessions al skills needed for carrying out chemistry practices to collect, in a representative sample on the basis of given criteria, s, analyse samples using the various analytical methods, iments, handle chemicals and equipment safely in the Semester 2
Title: Physical Chemistry I	Semester 2
Module outcomes:	
Knowledge: Students should acquire knowl spectroscopy, thermodynamics behaviour and complex reactio Skills: Students should be able to rec learning and applying chemica	edge of the topics covered, quantum mechanics, molecular s including non-ideal behaviour, kinetics including non-ideal n, surface chemistry. all and use the relevant intellectual skills and strategies for I knowledge, recall the principles, concepts, facts and
applications of chemistry requir principles, concepts and facts of	red in Physical Chemistry, apply in a logical manner the of chemistry to solve chemical problems, perform calculations,

explain and interpret data on thermodynamic fuctions including non-ideal behaviour, kinetics and complex reactions. Measure and calculate rate constants and activation parameters and interpret these values in terms of reaction mechanisms, interpret molecular spectra. In practical sessions students should be able to collect, analyse and present data, correctly operate scientific instruments, use various laboratory techniques to determine thermodynamic and kinetic data, make accurate observations and measurements and record them, handle chemicals and equipment safely in the laboratory.

Module code: MCHE322

Title: Inorganic Chemistry II

Module outcomes:

Knowledge:

Students should acquire knowledge of the topics covered, coordination compounds in octahedral, tetrahedral and square planar stereochemistries. Bonding and properties of the coordination compounds.

Semester 2

Skills:

Students should be able to recall and use the relevant intellectual skills and strategies for learning and applying chemical knowledge, recall the principles, concepts, facts and applications of chemistry required in Inorganic Chemistry, apply in a logical manner the principles, concepts and facts of chemistry to solve chemical problems, explain properties of coordination compounds, compare and contrast the various bonding theories. In practical sessions students will use the practical skills needed for carrying out chemistry practicals to collect, analyse and present data, synthesize, isolate, wash, hand dry coordination compounds. Use scientific instruments to run UV-visible and IR spectra, handle chemicals and equipment safely in the laboratory.

MA.2.12 BIOCHEMISTRY

Code: BCHS 211	Semester 1	CREDITS 8	NQF LEVEL 6		
Title: Introduction	to Biochemistry				
Purpose:					
To outline the struct	ural and molecular chemis	try of water, carbohydrates	, amino acids, proteins		
and nucleic acids in	preparation for studies in r	metabolic processes course	es.		
Code: BCHS 212	Semester 1	CREDITS 8	NQF LEVEL 6		
Title: Introduction	to Enzymology				
Purpose:			—		
To give an overview	of the major characteristic	s and properties of enzyme	es. To describe the		
various mechanisms	s of enzyme reactions and	enzyme kinetics. To explain	n the regulatory		
Codo: BCHS 221	Somestor 2				
	Semester 2	CREDITS 8			
	ocesses i				
To overlain the more	dorn concento in biognorae	tion (high given avidation on	ud avidativa		
nbosphorylation)	To outline the process of o	arbohydrate metabolism ar	nd its regulation		
(alveolvsis citric a	cid cycle pentose phospha	ate pathway dluconogenes	is alvcogen		
degradation and s	vnthesis). To describe lipic	metabolism and its regula	tion (degradation and		
synthesis of glycer	ol and fatty acids).		(
Code: BCHS 222	Semester 2	CREDITS 8	NQF LEVEL 6		
Title: Metabolic Pr	Title: Metabolic Processes II				
Purpose:					
To describe the processes of ketone body formation and metabolism of cholesterol and					
steroids. To demonstrate an understanding of amino acid metabolism and their conversion to					
specialized produc	ts. To outline the processe	es of nucleic acid metabolis	m and protein		
synthesis. To give	a general outline on the c	oncept of regulation and int	egration of		
metabolism.					

Code: BCHS 314	Semester 1	CREDITS 16	NQF LEVEL 6
Title: Molecular and Cell Biology			
Purpose:			
To give an overview on the role of molecular and cell biology across the range of modern			
biology. To describe the molecular anatomy of genes and chromosomes. To describe the			
global structure of chromosomes and explain chromosomal packaging and replication. To			
outline the processes of cell cycle, cell signaling, cell aging and cell death, and their modes of			
genetic regulation. To a provide broad overview on the molecular biology of cell cancer and its			
impact on human h	ealth.		
Code: BCHS 315	Semester 1	CREDITS 16	NQF LEVEL 6
Litle: Advanced B	iochemistry and Molecula	ar Physiology	
Purpose:		6.1 I I I I	
To give an account	on the advanced aspects of	of the mechanisms of enzyn	ne action, and the
expression and tran	Ismission of genetic inform	ation. To outline the bloche	emical and molecular
physiology of musc	le contraction, neuron trans		
Code: BCHS 324	Semester 2	CREDITS 16	NQF LEVEL 0
Title: Analytical B	locnemistry		
Purpose:	de als sus de la sus statues de la su	had a second the lateral had a second as	
To state and expla	an the various practical tec	nniques used in biochemica	al research systems as
weil as explaining	the different terminologies	or a practicing biochemist.	
broad understand	rig of the principles and co	acepts benind the biochemi	cal processes of pH
demonstrate a vivi	-molecule extraction and te	the usage and application	of practical techniques
like centrifugation	chromatography electron	oresis spectrophotometry	crystallography
radioisotone and i	mmunoassav	ioresis, spectrophotometry	, orystanography,
Code: BCHS 325	Semester 2	CREDITS 16	NQF LEVEL 6
Title: Project			
Purpose:			
To develop ability	To develop ability to read and use scientific literature with understanding addressing content		
context, aims and	objectives of information.	To develop ability to eval	uate. interpret complex
scientific ideas an	d apply information from a	variety of sources. To deve	elop an ability to assess
the value and limitations of existing knowledge and experimental techniques. To nature ability			
to use and integrate several lines of evidence to formulate key hypotheses, to test hypotheses			
using logical and consistent quantitative and qualitative arguments, and to identify key data in			
these processes and develop skills of independent learning.			

MA.2.13 MICROBIOLOGY

Code: MKBS 211	Semester 1	CREDITS 8	NQF LEVEL 6	
Title: Introduction to Microbiology				
Module outcomes:				
Students should	Students should be able to understand the history and scope of microbiology. The essential			
biochemistry for	biochemistry for microbiology. The microbial structure: microscopy and specimen			
preparation. Th	e Characterization of micro	oorganisms. The cell struct	ure and function of	
Prokaryotes and	J Eukaryotes. The Nutritior	nal requirements of microbi	ological media. The	
Control of micro	organisms by physical and	chemical agents		
Code: MKBS 212	Semester 1	CREDITS 8	NQF LEVEL 6	
Title: Introduction to Microbial Genetics				
Module outcomes:				
Students should know the gene structure, replication and gene expression. The regulation				
of gene express	ion and the mechanisms o	f genetic variation. The role	e of microbes in	
genetic enginee	ring.			

Code: MKBS 222	Semester 2	CREDITS 8	NQF LEVEL 6	
Title: Microbial Di	versity and Physiology (Bacteria, Fungi)		
Module outcomes	Module outcomes:			
Students should be able to demonstrate understanding of microbial Evolution, Taxonomy				
and Diversity. Major groups of eukaryotic microorganisms – fungi, algae, protists. Major				
groups of proka	ryotic microorganisms – ba	cteria, Microbial metabolisr	m, nutrition, culture and	
growth.				
Code: MKBS 223	Semester 2	CREDITS 8	NQF LEVEL 6	
Title: Introduction to Recombinant DNA Technology and Bioinformatics				
Module outcomes	:			
The learner will	be knowledgeable about th	ne historical perspective of	the Recombinant DNA	
Technology. Bacterial chromosomes and plasmids. Genetic exchange in prokaryotes				
(genetic recombination, transformation, transduction, conjugation, formation of Hfr strains,				
complementation gene transfer and transposable elements). Genetic engineering: tools and				
tecnniques e.g.	techniques e.g. molecular cloning, sequencing, PCR, Nucleic Acid hybridization and			
Southern blot, p	lasmids as cioning vectors	etc. Microbial genomics.	Prokaryotic genomes:	
	Somostor 1	CREDITS 16		
Title: Microbial Ec	ology			
Module outcomes	··			
Students should	Lunderstand and know the	concepts of microbial ecol	oav includina.	
Biogeochemical	cycles (nutrient cycles) an	d the role of microbes there	eof. Microorganisms in	
marine, freshwa	ter and terrestrial environm	ents. Microbial interaction	s and methods to	
measure microb	ial activity in nature			
CODE: MKBS 317	Semester 1	CREDITS 16	NQF LEVEL 6	
Title: Environment	al Microbiology and Pub	lic Health	•	
Module outcomes	:			
The learner will	be able to know major proc	ducts of Industrial pollution	(water and air). Major	
microorganisms	responsible for biodegrad	ation and bioremediation. \	Nastewater	
microbiology, tre	eatment, purification and sa	anitary analysis. Waterborr	ne and airborne	
diseases and th	eir epidemiology			
CODE: MKBS 326	Semester 2	CREDITS 16	NQF LEVEL 6	
Title: Industrial Mi	crobiology and Biotechn	ology		
Module outcomes	:			
Students should	I understand and know the	following processes, Food	preservation and	
microbial growth	n. Microbial sampling and	food poisoning. Single cell	proteins as source of	
tood. Principles	of termentation technolog	y. Products from genetic ei	ngineering. Transgenic	
organisms. Biot	echnology and (the), Pharr	naceuticals, Microorganism	is in bioterrorism,	
	as pesticides, Nanotechno	ODEDITE 10		
CODE: MIKBS 327	Semester 2	CREDITS 16	NQF LEVEL 6	
Modulo outcomes				
Studente must	know (the) early Developm	ont of Virology Classificat	ion of Bactorial and	
Archaeal Viruse	s Taxonomy of Eucaryoti	viruses General properti	on of Dacterial and	
hacterionhages	viruses including their culti	vation Reproduction of Ra	cterial and Vertebrate	
Virueae Constr	ucting a Virue Cytocidal	nfections and cell damage	Persistent I stent and	
slow virus infect	ions with selected example	S Vector-borne and soil b	orne microbial	
diseases Esse	ntials of immunology Imm	unology in host defence an	d disease. Molecular	
immunoloav	naalo or infinitiology. Infin	anology in nost defende al		
ininianology.				

MA.2.14 COMPUTER SCIENCE

	Semester 2			
Title: Introduction to Compu	Iting			
Content				
Programming language characteristics, integrated development environments, flowcharts,				
algorithms and pseudococ	algorithms and pseudocode, variables, operators, conditional statements, looping statements,			
procedures, error-handling and debugging, object-oriented programming techniques, user				
Interface design, software	modeling, introduction to vb.r	het and /or C#		
Outcomes:	costs of a computer and the re	le that different kinds of programming		
language play in computer	reality of a computer and the to	simple logic dates and functional		
hardware. Apply problem solving skills to develop algorithms that solve small to medium				
sized computational problems. Appreciate simple machine architecture and programme				
execution using Assemblir	ng language. Understand and	write simple programmes using Java		
language.				
New code: CISM 122	Semester 2			
Title: Programming and Prot	olem Solving			
Content:	-			
Procedural programming i	n C++. Structured data types.	Sorting. Searching. Recursion.		
Program testing. Program	documentation. Introduction to	object oriented programming		
Outcomes:				
Write fundamental data typ	bes to implement solution. De	sign algorithms to solve problems.		
Build programs using mou	ular-design and modular progr	amming. Compile, find and fix errors		
skills, personal skills and s	Bouid skills. Describe obje	ect-oriented programming. Technicar		
New code: CISM 123	Social Skills.			
Title: Programming practical				
Content:	3			
Fundamental programming	a constructs algorithms and p	roblem solving, data structures		
functions, recursion, event	driven programming and obje	ct-oriented programming.		
Outcomes:	a	or ononios p 33.		
Write, debug, and docume	ent well-structured C++ applica	ations, implement C++ classes from		
specifications. Understand	d the behavior of primitive data	types, object references, and		
arrays, usage of decision a	and iteration control structures	to implement algorithms. Write		
simple recursive algorithm	s Use interfaces inheritance	and a share to the second state of a second state of the second st		
		and polymorphism as programming		
techniques. Use exception	ns.	, and polymorphism as programming		
New code: CISM 124	ns. Semester 2	, and polymorphism as programming		
New code: CISM 124 Title: End-user Computing	ns. Semester 2	, and polymorphism as programming		
New code: CISM 124 Title: End-user Computing Content:	Semester 2			
New code: CISM 124 Title: End-user Computing Content: Introduction to computers,	operating systems and applica	ation packages. Word processing		
New code: CISM 124 Title: End-user Computing Content: Introduction to computers, including LATEX, equation	operating systems and application indexes and application indexes and applications tables, footnotes indexes and applications are applications are applications and applications are applications	ation packages. Word processing d references. Spreadsheets including		
New code: CISM 124 Title: End-user Computing Content: Introduction to computers, including LATEX, equation layout, formatting functions including templates scree	operating systems and applica is tables, footnotes indexes an s, graphs, importing data and e	ation packages. Word processing d references. Spreadsheets including exporting data. Presentation software		
New code: CISM 124 Title: End-user Computing Content: Introduction to computers, including LATEX, equation layout, formatting functions including templates, scree Networking utilities such a	operating systems and applica stables, footnotes indexes an s, graphs, importing data and e n design and presentation tech s ftp tablet smtp. Specialized	ation packages. Word processing d references. Spreadsheets including exporting data. Presentation software iniques, e-mail The internet:		
New code: CISM 124 Title: End-user Computing Content: Introduction to computers, including LATEX, equation layout, formatting functions including templates, scree Networking utilities such a MATLAB, ORIGIN (for pld	operating systems and applica stables, footnotes indexes an s, graphs, importing data and e n design and presentation tech s ftp, telnet, smtp. Specialized	ation packages. Word processing d references. Spreadsheets including exporting data. Presentation software iniques, e-mail The internet: packages such as PSPICE,		
New code: CISM 124 Title: End-user Computing Content: Introduction to computers, including LATEX, equation layout, formatting functions including templates, scree Networking utilities such a MATLAB, ORIGIN (for plc Outcomes:	operating systems and applica stables, footnotes indexes an s, graphs, importing data and e n design and presentation tech s ftp, telnet, smtp. Specialized utting scientific graphs).	ation packages. Word processing d references. Spreadsheets including exporting data. Presentation software iniques, e-mail The internet: packages such as PSPICE,		
New code: CISM 124 Title: End-user Computing Content: Introduction to computers, including LATEX, equation layout, formatting functions including templates, scree Networking utilities such a MATLAB, ORIGIN (for plc Outcomes: Explain and identify method	operating systems and applica stables, footnotes indexes an s, graphs, importing data and e n design and presentation tech s ftp, telnet, smtp. Specialized otting scientific graphs).	ation packages. Word processing d references. Spreadsheets including exporting data. Presentation software iniques, e-mail The internet: packages such as PSPICE,		
New code: CISM 124 Title: End-user Computing Content: Introduction to computers, including LATEX, equation layout, formatting functions including templates, scree Networking utilities such a MATLAB, ORIGIN (for plc Outcomes: Explain and identify method computer tools (Hardware	operating systems and applica stables, footnotes indexes an s, graphs, importing data and e n design and presentation tech s ftp, telnet, smtp. Specialized otting scientific graphs). ds for achieving productivity in and software) to solve probler	ation packages. Word processing d references. Spreadsheets including exporting data. Presentation software iniques, e-mail The internet: packages such as PSPICE, i the workplace. Use appropriate ns and work efficiently and effective.		
New code: CISM 124 Title: End-user Computing Content: Introduction to computers, including LATEX, equation layout, formatting functions including templates, scree Networking utilities such a MATLAB, ORIGIN (for plc Outcomes: Explain and identify methor computer tools (Hardware Develop an HCI. Technica)	operating systems and applica stables, footnotes indexes an s, graphs, importing data and e n design and presentation tech s ftp, telnet, smtp. Specialized otting scientific graphs). ds for achieving productivity in and software) to solve probler al skills, personal skills and soc	ation packages. Word processing d references. Spreadsheets including exporting data. Presentation software iniques, e-mail The internet: packages such as PSPICE, i the workplace. Use appropriate ns and work efficiently and effective. ial skills.		
New code: CISM 124 Title: End-user Computing Content: Introduction to computers, including LATEX, equation layout, formatting functions including templates, scree Networking utilities such a MATLAB, ORIGIN (for ploton) Outcomes: Explain and identify methor computer tools (Hardware Develop an HCI. Technica New code: CISM 211	operating systems and applications in tables, footnotes indexes and splication technology and presentation technol	ation packages. Word processing d references. Spreadsheets including exporting data. Presentation software iniques, e-mail The internet: packages such as PSPICE, i the workplace. Use appropriate ns and work efficiently and effective. cial skills.		
New code: CISM 124 Title: End-user Computing Content: Introduction to computers, including LATEX, equation layout, formatting functions including templates, scree Networking utilities such a MATLAB, ORIGIN (for plot Outcomes: Explain and identify methor computer tools (Hardware Develop an HCI. Technica New code: CISM 211 Title: Algorithmic Design and	operating systems and applicates stables, footnotes indexes and s, graphs, importing data and e n design and presentation tech s ftp, telnet, smtp. Specialized otting scientific graphs). and soft achieving productivity in and software) to solve probler al skills, personal skills and soc Semester 2 d Data Structures	ation packages. Word processing d references. Spreadsheets including exporting data. Presentation software iniques, e-mail The internet: packages such as PSPICE, in the workplace. Use appropriate ns and work efficiently and effective. cial skills.		
New code: CISM 124 Title: End-user Computing Content: Introduction to computers, including LATEX, equation layout, formatting functions including templates, scree Networking utilities such a MATLAB, ORIGIN (for plot Outcomes: Explain and identify methor computer tools (Hardware Develop an HCI. Technica New code: CISM 211 Title: Algorithmic Design and Content:	operating systems and applicates and solve and solve and applicates and solve and solve and applicates and solve and applicates and solve and applicates and solve and applicates and solve and presentation tech solve and solve and presentation tech solve and solve an	ation packages. Word processing d references. Spreadsheets including exporting data. Presentation software iniques, e-mail The internet: packages such as PSPICE, in the workplace. Use appropriate ns and work efficiently and effective. cial skills.		

algorithms, graphs and tre			
	ees, fundamental data structu	ires and recursion.	
Outcomes:	withma concents and mathed	a Define evolution and early problem	
Describe and explain algo	Develop computing colution	s. Define, explain and apply problem	
programming language. Create and manipulate static data structures and dynamic data			
structures Develop meth	ode for traversal of trees	data structures and dynamic data	
New code: CISM 212	Semester 2		
Title: Imperative and Object	Oviented Lenguages		
Content:	-Oriented Languages		
Overview of programming	languagaa virtual maahinaa	introduction to language translation	
New code: CISM 222	Semester 2		
Title: Architecture and ener	Semester 2		
Content:	aling systems		
Content:	atoma machina laval ranzaa	untation of data accomply loval	
Digital logic and digital sys	sterns, machine level represe	ntarfacing and communication	
functional organisation mu	ultiprocessing and alternative	architecture, performance	
enhancements overview	of operating systems, operat	ing systems principles, concurrency	
scheduling and dispatch	and memory management	ing systems principles, concurrency,	
Outcomes:	and memory management.		
At the end of this module	the learner must able to fully	explain the basic PC hardware	
building components. Ap	praise an instruction set arch	itecture: Distinguish between an	
architecture and its impler	mentation; Master basics of N	Aachine level programming. Master the	
basics of operating system	ns inldudind PC resources n	nanagement, paging e.tc.	
New code: CISM 224	Semester 2		
Title: Introduction to Softwa	re Engineering		
Content:	5 5		
Software design, software	tools and onvironments sof	tware processes coftware	
		IWale DIOCESSES. SUIWale	
requirements and specific	ations, software validation, s	oftware evolution and software project	
requirements and specific management.	cations, software validation, s	oftware evolution and software project	
requirements and specific management. Outcomes:	ations, software validation, s	oftware evolution and software project	
requirements and specific management. Outcomes: Describe software engine	ering and its process. Descril	oftware evolution and software project be and apply different software	
requirements and specific management. Outcomes: Describe software engine development methodologi	ering and its process. Descril	be and apply different software ment a solution using the appropriate	
requirements and specific management. Outcomes: Describe software engine development methodologi software development methodologi	ering and its process. Descril ies to solve problems. Impler thodology. Develop and vali	be and apply different software ment a solution using the appropriate date a basic system using a DBMS	
requirements and specific management. Outcomes: Describe software engine development methodologi software development me using software requirement	ering and its process. Descril ies to solve problems. Implei thodology. Develop and vali nts and specifications. Write	be and apply different software project ment a solution using the appropriate date a basic system using a DBMS software engineering documentation	
requirements and specific management. Outcomes: Describe software engine development methodologi software development me using software requirement such as reports, and user	ering and its process. Descril ies to solve problems. Implei thodology. Develop and vali nts and specifications. Write manuals. Technical skills, p	be and apply different software project ment a solution using the appropriate date a basic system using a DBMS software engineering documentation ersonal skills and social skill.	
requirements and specific management. Outcomes: Describe software engine development methodologi software development me using software requirement such as reports, and user New code: CISM 311	ering and its process. Descril ies to solve problems. Implei thodology. Develop and vali nts and specifications. Write manuals. Technical skills, p	be and apply different software project ment a solution using the appropriate date a basic system using a DBMS software engineering documentation ersonal skills and social skill.	
requirements and specific management. Outcomes: Describe software engine development methodologi software development me using software requirement such as reports, and user New code: CISM 311 Title: Introduction to Databa	ering and its process. Descril ies to solve problems. Implei thodology. Develop and vali nts and specifications. Write manuals. Technical skills, p Semester 2 ise Systems	be and apply different software project ment a solution using the appropriate date a basic system using a DBMS software engineering documentation ersonal skills and social skill.	
requirements and specific management. Outcomes: Describe software engine development methodologi software development me using software requirement such as reports, and user New code: CISM 311 Title: Introduction to Databa Content:	ering and its process. Descril ies to solve problems. Implei thodology. Develop and vali nts and specifications. Write manuals. Technical skills, p Semester 2 Ise Systems	be and apply different software project ment a solution using the appropriate date a basic system using a DBMS software engineering documentation ersonal skills and social skill.	
requirements and specific management. Outcomes: Describe software engine development methodologi software development me using software requirement such as reports, and user New code: CISM 311 Title: Introduction to Databa Content: Information models and st	ering and its process. Descril ies to solve problems. Implei thodology. Develop and vali nts and specifications. Write manuals. Technical skills, p Semester 2 Ise Systems ystems, database systems, d	be and apply different software project ment a solution using the appropriate date a basic system using a DBMS software engineering documentation ersonal skills and social skill.	
requirements and specific management. Outcomes: Describe software engine development methodologi software development me using software requirement such as reports, and user New code: CISM 311 Title: Introduction to Databa Content: Information models and sy database query language	ering and its process. Descril ies to solve problems. Implei thodology. Develop and vali nts and specifications. Write manuals. Technical skills, p Semester 2 ise Systems ystems, database systems, d s and relational database des	ata modelling, relational database, sign. Database Management Systems;	
requirements and specific management. Outcomes: Describe software engine- development methodologi software development me using software requirement such as reports, and user New code: CISM 311 Title: Introduction to Databa Content: Information models and sy database query language DBMS storage structures.	ering and its process. Descril ies to solve problems. Implei thodology. Develop and vali nts and specifications. Write manuals. Technical skills, p Semester 2 ise Systems ystems, database systems, d s and relational database des . Relational algebra and relational	ata modelling, relational database, sign. Database Management Systems; ional calculus; SQL; query optimisation;	
requirements and specific management. Outcomes: Describe software engine development methodologi software development me using software requirement such as reports, and user New code: CISM 311 Title: Introduction to Databa Content: Information models and sy database query language DBMS storage structures. views. Database Design: Socurane Discrement compared to the securation	ering and its process. Descril ies to solve problems. Implei thodology. Develop and vali nts and specifications. Write manuals. Technical skills, p Semester 2 ise Systems ystems, database systems, d s and relational database des . Relational algebra and relat UML Class Diagrams and Er	ata modelling, relational database, sign. Database Management Systems; ional calculus; SQL; query optimisation; tity-Relationship Diagrams; UML	
requirements and specific management. Outcomes: Describe software engine development methodologi software development me using software requirement such as reports, and user New code: CISM 311 Title: Introduction to Databa Content: Information models and sy database query language DBMS storage structures. views. Database Design: Sequence Diagrams; com	ering and its process. Descril ies to solve problems. Implei thodology. Develop and vali nts and specifications. Write manuals. Technical skills, p Semester 2 Ise Systems ystems, database systems, d s and relational database des . Relational algebra and relat UML Class Diagrams and Er ceptual, logical and physical	ata modelling, relational database, sign. Database Management Systems; ional calculus; SQL; query optimisation; tity-Relationship Diagrams; UML database design.	
requirements and specific management. Outcomes: Describe software engine development methodologi software development me using software requirement such as reports, and user New code: CISM 311 Title: Introduction to Databa Content: Information models and si database query language DBMS storage structures. views. Database Design: Sequence Diagrams; com Outcomes:	ering and its process. Descril ies to solve problems. Implei thodology. Develop and vali ints and specifications. Write manuals. Technical skills, p Semester 2 ise Systems ystems, database systems, d s and relational database des . Relational algebra and relat UML Class Diagrams and Er ceptual, logical and physical	ata modelling, relational database, sign. Database Management Systems; ional calculus; SQL; query optimisation; tity-Relationship Diagrams; UML database design.	
requirements and specific management. Outcomes: Describe software engine development methodologi software development me using software requirement such as reports, and user New code: CISM 311 Title: Introduction to Databa Content: Information models and sy database query language DBMS storage structures. views. Database Design: Sequence Diagrams; cont Outcomes: Describe nature and scop	ering and its process. Descril ies to solve problems. Implei thodology. Develop and vali ints and specifications. Write manuals. Technical skills, p Semester 2 ise Systems sand relational database des . Relational algebra and relat UML Class Diagrams and Er ceptual, logical and physical day problems. Describe and	ata modelling, relational database, sign. Database Management Systems; ional calculus; SQL; query optimisation; tity-Relationship Diagrams; UML database design.	
requirements and specific management. Outcomes: Describe software engine development methodolog software development me using software requirement such as reports, and user New code: CISM 311 Title: Introduction to Databa Content: Information models and sy database query language DBMS storage structures. views. Database Design: Sequence Diagrams; con Outcomes: Describe nature and scop systems to address every techniques. Design a rela	ering and its process. Descril ies to solve problems. Implei thodology. Develop and vali ints and specifications. Write manuals. Technical skills, p Semester 2 ise Systems ystems, database systems, d s and relational database der . Relational algebra and relat UML Class Diagrams and Er ceptual, logical and physical day problems. Describe and ational database. Develop a	ata modelling, relational database, sign. Database Management Systems; ional calculus; SQL; query optimisation; tity-Relationship Diagrams; UML database design.	
requirements and specific management. Outcomes: Describe software engine development methodologi software development me using software requirement such as reports, and user New code: CISM 311 Title: Introduction to Databa Content: Information models and sy database query language DBMS storage structures. views. Database Design: Sequence Diagrams; cont Outcomes: Describe nature and scop systems to address every techniques. Design a rela manipulation language.	ering and its process. Descril ies to solve problems. Imple- thodology. Develop and vali nts and specifications. Write manuals. Technical skills, p Semester 2 ise Systems ystems, database systems, d s and relational database des . Relational algebra and relat UML Class Diagrams and Er ceptual, logical and physical day problems. Describe and dational database. Develop a "echnical skills. personal skill	ata modelling, relational database, sional calculus; SQL; query optimisation; tity-Relationship Diagrams; UML database design.	
requirements and specific management. Outcomes: Describe software engine development methodologi software development me using software requirement such as reports, and user New code: CISM 311 Title: Introduction to Databa Content: Information models and sy database query language DBMS storage structures. views. Database Design: Sequence Diagrams; cont Outcomes: Describe nature and scop systems to address every techniques. Design a rela manipulation language. T	ering and its process. Descril ies to solve problems. Imple- thodology. Develop and vali ints and specifications. Write manuals. Technical skills, p Semester 2 ise Systems ystems, database systems, d s and relational database des . Relational algebra and relat UML Class Diagrams and Er ceptual, logical and physical day problems. Describe and ational database. Develop a cechnical skills, personal skill Semester 2	ata modelling, relational database, sign. Database Management Systems; ional calculus; SQL; query optimisation; tity-Relationship Diagrams; UML database design. in and apply information models and explain data modelling concepts and DBMS and manipulate it using a data s and social skills.	
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requirements and specific management. Outcomes: Describe software engine development methodolog software development me using software requirement such as reports, and user New code: CISM 311 Title: Introduction to Databa Content: Information models and sy database query language DBMS storage structures. views. Database Design: Sequence Diagrams; con Outcomes: Describe nature and scop systems to address every techniques. Design a rela manipulation language. T New code: CISM 312 Title: Theory of Computation a Content: Basic computability, autor	ering and its process. Descril ies to solve problems. Imple- thodology. Develop and vali nts and specifications. Write manuals. Technical skills, p Semester 2 ise Systems ystems, database systems, d s and relational database des . Relational algebra and relat UML Class Diagrams and Er ceptual, logical and physical day problems. Describe and day problems. Describe and day problems. Develop a rechnical skills, personal skill Semester 2 and Translation mata theory, Turing machines	ata modelling, relational database, sign. Database Management Systems; ional calculus; SQL; query optimisation; tity-Relationship Diagrams; UML database design. ata modelling information models and explain data modelling concepts and DBMS and manipulate it using a data s and social skills.	
requirements and specific management. Outcomes: Describe software engine development methodologi software development me using software requirements such as reports, and user New code: CISM 311 Title: Introduction to Databa Content: Information models and sy database query language DBMS storage structures. views. Database Design: Sequence Diagrams; cont Outcomes: Describe nature and scop systems to address every techniques. Design a rela manipulation language. T New code: CISM 312 Title: Theory of Computation a Content: Basic computability, autor parallel algorithms, and in	ering and its process. Descril ies to solve problems. Imple- thodology. Develop and vali ints and specifications. Write manuals. Technical skills, p Semester 2 ise Systems ystems, database systems, d s and relational database des . Relational algebra and relat UML Class Diagrams and Er ceptual, logical and physical day problems. Describe and ational database. Develop a cechnical skills, personal skill Semester 2 ind Translation mata theory, Turing machines troduction to language transl	ata modelling, relational database, sign. Database Management Systems; ional calculus; SQL; query optimisation; tity-Relationship Diagrams; UML database design. in and apply information models and explain data modelling concepts and DBMS and manipulate it using a data s and social skills.	

Describe the nature and scope of computational theory in a computer science environment. Write advanced algorithms to solve problems in computing. Describe and explain automata theory and its application to computing. Translate advanced algorithms to machine language.				
New code: CISM 323	Semester	2		
Title: Net-Centric Computing				
Content:				
Introduction to net-centric computing, Basics of networking architecture, Application layer protocols, including HTTP. Naming, including domain name system. Transport protocols, including TCP network security, the web as an example of client-server computing, building web applications, and network management.				
Outcomes:				
Describe and explain the different network components and their uses (importance). Describe, explain and differentiate telecommunications technologies. Install, configure and maintain network. Develop web applications. Describe and explain the social issues of networks and ways of dealing with them. Technical skills, personal skills and social skills.				
New code: CISM 324	Semester	2		
Title: Artificial Intelligence F	undamentals			
 Content: Fundamental issues in intelligent systems, search and constraint satisfaction, knowledge representation and reasoning, advanced search, advanced knowledge representation and reasoning. Outcomes: Describe and explain the nature and scope of artificial intelligence. Describe fundamental 				
issues in intelligent system constraints satisfaction to	issues in intelligent systems. Design patterns for searching and apply searching and constraints satisfaction to draw inferences and conclusions. Design patterns for application of			
knowledge representation	and reasoning	 Describe diffe 	rent artificial intelligence applications.	
New code: CISM 325	Semester	2		
Title: Graphics				
 Content: The course aims to cover, Software and hardware for interactive computer graphics. Implementation of device drivers, 3-D transformations, clipping, perspective, and input routines. Data structures, hidden surface removal, colour shading techniques, and some additional topics will be covered. Outcomes: Write interactive 3D computer graphics programs; Understand how linear and perspective transformations are used in modeling and rendering in 3D computer graphics; Understand the process of rendering, lighting, hidden surface removal, and other computer graphics techniques; Write a simple ray tracer. 				

MA.2.15 GEOGRAPHY

Module code: GEOM 113	Semester 1		
Title: Introduction to Physical Geography			
Module outcomes:			
Theory:			
Upon completion of this r material content of physi geographers use to stud global change e.g. climat in the area of climatology geographical distribution geomorphological and bi Understand the interaction	nodule the students should be a cal geography, and identify the t / the Earth. Explain the role of p e change. Display sound know /, geomorphology, soils, and bio on the Earth's surface. Explain ogeographical processes act in ons between the various physica	ble to describe the nature and cols and approaches that hysical geography in understanding edge of the major physical processes geography and explain their how the atmospheric, varied global environments. I processes and systems that act on	

the earth's surface. Assess the contribution that physical geography can make to contemporary environmental issues. Use and apply field and laboratory techniques that are fundamental to geographical enquiry. Apply qualitative and quantitative data analysis techniques used by physical geographers to explore and model the phenomena they observe				
techniques used by physi	cal geographers to explore and	model the phenomena they observe.		
Practical: Upon completion of this module the student should be able to list all the map and marginal information contained in topographical maps. Explain the basic principles of cartography and draw maps of acceptable cartographic standard. Read and interprete conventional signs and other map symbols used on South African topographical maps. Apply appropriate mapwork				
skills to identify locate m	easure and analyse features or	the man Apply appropriate mapwork		
mapwork skills in the ana	lysis of topographical map. Bec	ognise and interprete physical		
landscape and identify typ	pical landforms on topographical	maps.		
Module code: GEOM 123	Semester 2			
Title: Introduction to Human	Geography			
Module outcomes:				
Theory:				
Upon completion of this module the students should be able to describe the approaches and methods used in human geography as a field of enquiry. Discuss culture and cultural diffusion, including analysis of artifacts, institutions and values. Explain the variable distribution of population, and examine the processes of population change. Identify the four sectors of the economy and discuss the global patterns of agricultural production.				
Practical:	and the student should be ab	a to recognice and interprets cultural		
landscape on topographic	noquie the student should be ab	ne to recognise and interprete cultural		
phenomena and elucidate	e significant spatial patterns. Co	mbine reading and interpretation of		
map to build a geographic	cal analysis about the area cove	red by the map. Describe essential		
GIS principles, and apply	these principles to analyse spat	ial data and make locational		
decisions. Locate differen	nt countries and physical feature	s on both political and physical world		
map.				
Module code: GEOM 214	Semester 1			
Title: Human Geography				
Module outcomes:				
Upon completion of this n	nodule the students should be al	ole to describe and discuss the		
geographical factors which	ch explain the evolution of South	African cities. Apply this knowledge		
critically theoretical land	innent, in particular the spatial o	to the South African context Apply		
this knowledge to explain	the contemporary debates on the	a physical growth of cities and land		
use change in the urban f	ine contemporary debates on the importance of	f land tenure systems in the		
	inge. Discuss the importance o	nuna tenure systems in the		
explanation of urban and	rural development Apply this k	nowledge to help explain the		
explanation of urban and problems inherent in land	rural development. Apply this kill reform in Southern Africa.	nowledge to help explain the		
explanation of urban and problems inherent in land Module code: GEOM 215	rural development. Apply this ki reform in Southern Africa. Semester 1	nowledge to help explain the		
explanation of urban and problems inherent in land Module code: GEOM 215 Title: Geographical Statistic	rural development. Apply this ki reform in Southern Africa. Semester 1 s and Computers	nowledge to help explain the		
explanation of urban and problems inherent in land Module code: GEOM 215 Title: Geographical Statistic: Module outcomes:	rural development. Apply this ki reform in Southern Africa. Semester 1 s and Computers	nowledge to help explain the		
explanation of urban and problems inherent in land Module code: GEOM 215 Title: Geographical Statistic: Module outcomes: Theory:	rural development. Apply this ki reform in Southern Africa. Semester 1 s and Computers	nowledge to help explain the		
explanation of urban and problems inherent in land Module code: GEOM 215 Title: Geographical Statistic: Module outcomes: Theory: Upon completion of this n	rural development. Apply this king reform in Southern Africa. Semester 1 s and Computers	nowledge to help explain the		
explanation of urban and problems inherent in land Module code: GEOM 215 Title: Geographical Statistic: Module outcomes: Theory: Upon completion of this n concepts. Apply geograp	rural development. Apply this kin reform in Southern Africa. Semester 1 s and Computers nodule the students should be all shically related software program	nowledge to help explain the ble to explain and interpret spatial mes to geographical problems.		
explanation of urban and problems inherent in land Module code: GEOM 215 Title: Geographical Statistic: Module outcomes: Theory: Upon completion of this n concepts. Apply geograp Apply statistical technique	rural development. Apply this kin reform in Southern Africa. Semester 1 s and Computers nodule the students should be all shically related software program es used in geography and Enviro	nowledge to help explain the ble to explain and interpret spatial mes to geographical problems. bnmental Sciences.		
explanation of urban and problems inherent in land Module code: GEOM 215 Title: Geographical Statistic: Module outcomes: Theory: Upon completion of this n concepts. Apply geograp Apply statistical technique Practical:	rural development. Apply this kin reform in Southern Africa. Semester 1 s and Computers nodule the students should be all shically related software program es used in geography and Enviro	nowledge to help explain the ble to explain and interpret spatial mes to geographical problems. bnmental Sciences.		
explanation of urban and problems inherent in land Module code: GEOM 215 Title: Geographical Statistic: Module outcomes: Theory: Upon completion of this n concepts. Apply geograp Apply statistical technique Practical: Upon completion of this n	rural development. Apply this kin reform in Southern Africa. Semester 1 s and Computers nodule the students should be all shically related software program as used in geography and Enviro nodule the student should be able	nowledge to help explain the ble to explain and interpret spatial mes to geographical problems. bnmental Sciences. le to use computer programmes such		
explanation of urban and problems inherent in land Module code: GEOM 215 Title: Geographical Statistic: Module outcomes: Theory: Upon completion of this n concepts. Apply geograp Apply statistical technique Practical: Upon completion of this n as MS Explorer, MS Word	rural development. Apply this kin reform in Southern Africa. Semester 1 s and Computers nodule the students should be all shically related software program es used in geography and Enviro nodule the student should be able d and MS Excel. Demonstrate p	ble to explain and interpret spatial mes to geographical problems. Inmental Sciences. In to use computer programmes such ractical use of a hand held GPS.		
explanation of urban and problems inherent in land Module code: GEOM 215 Title: Geographical Statistic: Module outcomes: Theory: Upon completion of this n concepts. Apply geograp Apply statistical technique Practical: Upon completion of this n as MS Explorer, MS Word Use geographically relate	rural development. Apply this kill reform in Southern Africa. Semester 1 s and Computers nodule the students should be all hically related software program es used in geography and Enviro nodule the student should be abl d and MS Excel. Demonstrate p d software programmes. Calcul	ble to explain and interpret spatial mes to geographical problems. Immental Sciences. le to use computer programmes such ractical use of a hand held GPS. ate measures of central tendency.		
explanation of urban and problems inherent in land Module code: GEOM 215 Title: Geographical Statistic: Module outcomes: Theory: Upon completion of this n concepts. Apply geograp Apply statistical technique Practical: Upon completion of this n as MS Explorer, MS Word Use geographically relate Calculate deviation and c	rural development. Apply this kin reform in Southern Africa. Semester 1 s and Computers nodule the students should be all hically related software program es used in geography and Enviro nodule the student should be able d and MS Excel. Demonstrate p ed software programmes. Calcul orrelation using statistical metho	nowledge to help explain the ble to explain and interpret spatial mes to geographical problems. mmental Sciences. le to use computer programmes such ractical use of a hand held GPS. ate measures of central tendency. ds.		
explanation of urban and problems inherent in land Module code: GEOM 215 Title: Geographical Statistic: Module outcomes: Theory: Upon completion of this n concepts. Apply geograp Apply statistical technique Practical: Upon completion of this n as MS Explorer, MS Word Use geographically relate Calculate deviation and c Module code: GEOM 224	rural development. Apply this ki reform in Southern Africa. Semester 1 s and Computers nodule the students should be all hically related software program es used in geography and Enviro nodule the student should be abl d and MS Excel. Demonstrate p d software programmes. Calcul orrelation using statistical metho Semester 2	nowledge to help explain the ble to explain and interpret spatial mes to geographical problems. sommental Sciences. le to use computer programmes such ractical use of a hand held GPS. ate measures of central tendency. ds.		
Theory				
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Theory:				
Upon completion of this module the students should be able to describe and explain the				
processes that are taking place on the earth's surface. Account for the formation and				
destruction of landforms. Explain the basic processes of geomorphology, weathering and soil				
erosion. Describe and di	erosion. Describe and distinguish between the different geomorphological processes: fluvial			
geomorphology, glacial geomorphology, periglacial geomorphology, coastal geomorphology				
and aolian and arid geom	orphology.			
Module code: GEOM 225	Semester 2			
Title: Aerial photography an	d remote sensing			
Module outcomes:				
Theory:				
Upon completion of this r	nodule the students should be a	able to apply appropriate techniques		
of air photo interpretation	and satellite imagery. Apply the	e principles of remote sensing and air		
photo interpretation.				
Practical:	and the state of t	a ship to use and such as more data		
Upon completion of this	module the students should t	be able to use and apply appropriate		
techniques of air photo in	iterpretation.			
Module code: GEOM 316	Semester 1			
Title: Advanced human geog	graphy			
Module outcomes:				
Theory:				
Upon completion of this r	nodule the students should be a	able to describe and discuss the		
problems of urbanisation	in the third world. Critically dis	cuss development planning, urban		
trends and urban policies	and debates in South Africa. I	Describe development and		
urbanization in a world sy	/stem.			
Practical:		the second second is a star sector of a second		
Upon completion of this module the students should be able to determine the criteria and				
justifications for boundary delimitation. Apply relevant methods of delimiting geographical				
justifications for boundary	y delimitation. Apply relevant m	ethods of delimiting geographical		
justifications for boundary boundaries.	y delimitation. Apply relevant m	ethods of delimiting geographical		
justifications for boundary boundaries. Module code: GEOM 317	y delimitation. Apply relevant m	ethods of delimiting geographical		
justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge	y delimitation. Apply relevant m Semester 1 ography	ethods of delimiting geographical		
justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge Module outcomes:	y delimitation. Apply relevant m Semester 1 ography	ethods of delimiting geographical		
justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge Module outcomes: Theory:	y delimitation. Apply relevant m Semester 1 ography	ethods of delimiting geographical		
justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge Module outcomes: Theory: Upon completion of this r	y delimitation. Apply relevant m Semester 1 ography nodule the students should be a	able to describe and explain the		
justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge Module outcomes: Theory: Upon completion of this r different processes acting	y delimitation. Apply relevant m Semester 1 ography nodule the students should be a g on the earth's environmental p	able to describe and explain the problems. Critically evaluate the		
justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge Module outcomes: Theory: Upon completion of this r different processes acting current debates in the file	y delimitation. Apply relevant m Semester 1 ography nodule the students should be a g on the earth's environmental p ld of applied climatology. Desc	able to describe and explain the problems. Critically evaluate the ribe and explain the circulation		
justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge Module outcomes: Theory: Upon completion of this r different processes acting current debates in the fie patterns and weather pro	y delimitation. Apply relevant m Semester 1 ography nodule the students should be a g on the earth's environmental p Id of applied climatology. Desc ducing processes over Souther	able to describe and explain the problems. Critically evaluate the ribe and explain the circulation n Africa. Describe and explain		
justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge Module outcomes: Theory: Upon completion of this r different processes acting current debates in the fie patterns and weather proc weathering, slope process	y delimitation. Apply relevant m Semester 1 ography nodule the students should be a g on the earth's environmental p Id of applied climatology. Desc ducing processes over Souther ses, erosion, Aeolian and arid g fareaesting, workhar modified	able to describe and explain the problems. Critically evaluate the ribe and explain the circulation n Africa. Describe and explain geomorphology. Describe and discuss		
justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge Module outcomes: Theory: Upon completion of this r different processes acting current debates in the fie patterns and weather pro weathering, slope process climate change, weather dobates on a dimeter and k	y delimitation. Apply relevant m Semester 1 ography nodule the students should be a g on the earth's environmental p Id of applied climatology. Desc ducing processes over Souther ses, erosion, Aeolian and arid g forecasting, weather modification	able to describe and explain the problems. Critically evaluate the ribe and explain the circulation n Africa. Describe and explain geomorphology. Describe and discuss on and man-made climates. Apply uphorie circulation and water		
justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge Module outcomes: Theory: Upon completion of this r different processes acting current debates in the fie patterns and weather pro weathering, slope proces climate change, weather debates on climate and h Southern Africa	y delimitation. Apply relevant m Semester 1 ography nodule the students should be a g on the earth's environmental p Id of applied climatology. Desc ducing processes over Souther ses, erosion, Aeolian and arid g forecasting, weather modification numan comfort. Describe atmos	able to describe and explain the problems. Critically evaluate the ribe and explain the circulation n Africa. Describe and explain geomorphology. Describe and discuss on and man-made climates. Apply spheric circulation and weather over		
justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge Module outcomes: Theory: Upon completion of this r different processes acting current debates in the fie patterns and weather pro weathering, slope proces climate change, weather debates on climate and h Southern Africa.	y delimitation. Apply relevant m Semester 1 ography nodule the students should be a g on the earth's environmental p Id of applied climatology. Desc ducing processes over Souther ses, erosion, Aeolian and arid g forecasting, weather modification numan comfort. Describe atmost	able to describe and explain the problems. Critically evaluate the ribe and explain the circulation n Africa. Describe and explain geomorphology. Describe and discuss on and man-made climates. Apply spheric circulation and weather over		
justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge Module outcomes: Theory: Upon completion of this r different processes acting current debates in the fie patterns and weather pro weathering, slope proces climate change, weather debates on climate and h Southern Africa. Practical:	y delimitation. Apply relevant m Semester 1 ography module the students should be a g on the earth's environmental p Id of applied climatology. Desc ducing processes over Souther ses, erosion, Aeolian and arid g forecasting, weather modification uman comfort. Describe atmost module the students should be a	able to describe and explain the problems. Critically evaluate the ribe and explain the circulation n Africa. Describe and explain geomorphology. Describe and discuss on and man-made climates. Apply spheric circulation and weather over		
justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge Module outcomes: Theory: Upon completion of this r different processes acting current debates in the fie patterns and weather pro weathering, slope process climate change, weather debates on climate and h Southern Africa. Practical: Upon completion of this r in the interpretation of sy	y delimitation. Apply relevant m Semester 1 ography nodule the students should be a g on the earth's environmental p Id of applied climatology. Desc ducing processes over Souther ses, erosion, Aeolian and arid g forecasting, weather modification numan comfort. Describe atmost nodule the students should be a potic weather maps and weather	able to describe and explain the problems. Critically evaluate the ribe and explain the circulation n Africa. Describe and explain geomorphology. Describe and discuss on and man-made climates. Apply spheric circulation and weather over able to use skills and field techniques per forecesting. Use techniques of		
justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge Module outcomes: Theory: Upon completion of this r different processes acting current debates in the fie patterns and weather pro weathering, slope process climate change, weather debates on climate and r Southern Africa. Practical: Upon completion of this r in the interpretation of sy slope measurement drait	y delimitation. Apply relevant m Semester 1 ography module the students should be a g on the earth's environmental p Id of applied climatology. Desc ducing processes over Souther ses, erosion, Aeolian and arid g forecasting, weather modification numan comfort. Describe atmost module the students should be a noptic weather maps and weath nage basin analysis, particle should be a	able to describe and explain the problems. Critically evaluate the ribe and explain the circulation n Africa. Describe and explain geomorphology. Describe and discuss on and man-made climates. Apply spheric circulation and weather over able to use skills and field techniques her forecasting. Use techniques of apa analysis particle size analysis		
justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge Module outcomes: Theory: Upon completion of this r different processes acting current debates in the fie patterns and weather pro weathering, slope process climate change, weather debates on climate and h Southern Africa. Practical: Upon completion of this r in the interpretation of sy slope measurement, drai Atterberg limits and rock	y delimitation. Apply relevant m Semester 1 ography module the students should be a g on the earth's environmental p Id of applied climatology. Desc ducing processes over Souther ses, erosion, Aeolian and arid g forecasting, weather modification numan comfort. Describe atmost module the students should be a noptic weather maps and weath nage basin analysis, particle sh properties	able to describe and explain the problems. Critically evaluate the ribe and explain the circulation n Africa. Describe and explain geomorphology. Describe and discuss on and man-made climates. Apply spheric circulation and weather over able to use skills and field techniques ther forecasting. Use techniques of ape analysis, particle size analysis,		
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justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge Module outcomes: Theory: Upon completion of this r different processes acting current debates in the file patterns and weather pro weathering, slope process climate change, weather debates on climate and h Southern Africa. Practical: Upon completion of this r in the interpretation of sy slope measurement, drai Atterberg limits and rock Module code: GEOM 328 Title: Geographical Information	y delimitation. Apply relevant m Semester 1 ography nodule the students should be a g on the earth's environmental p Id of applied climatology. Desc ducing processes over Souther rises, erosion, Aeolian and arid g forecasting, weather modification numan comfort. Describe atmost nodule the students should be a noptic weather maps and weath nage basin analysis, particle sh properties. Semester 2 tion Systems (GIS)	able to describe and explain the problems. Critically evaluate the ribe and explain the circulation in Africa. Describe and explain geomorphology. Describe and discuss on and man-made climates. Apply spheric circulation and weather over able to use skills and field techniques for forecasting. Use techniques of ape analysis, particle size analysis,		
justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge Module outcomes: Theory: Upon completion of this r different processes acting current debates in the file patterns and weather pro weathering, slope process climate change, weather debates on climate and h Southern Africa. Practical: Upon completion of this r in the interpretation of sy slope measurement, drai Atterberg limits and rock Module code: GEOM 328 Title: GeographicaL Informa	y delimitation. Apply relevant m Semester 1 ography nodule the students should be a g on the earth's environmental p Id of applied climatology. Desc ducing processes over Souther reses, erosion, Aeolian and arid g forecasting, weather modification numan comfort. Describe atmost nodule the students should be a noptic weather maps and weath nage basin analysis, particle sh properties. Semester 2 tion Systems (GIS)	able to describe and explain the problems. Critically evaluate the ribe and explain the circulation in Africa. Describe and explain geomorphology. Describe and discuss on and man-made climates. Apply spheric circulation and weather over able to use skills and field techniques for forecasting. Use techniques of ape analysis, particle size analysis,		
justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge Module outcomes: Theory: Upon completion of this r different processes acting current debates in the file patterns and weather pro weathering, slope proces climate change, weather debates on climate and r Southern Africa. Practical: Upon completion of this r in the interpretation of sy slope measurement, drai Atterberg limits and rock Module code: GEOM 328 Title: GeographicaL Informa	y delimitation. Apply relevant m Semester 1 ography nodule the students should be a g on the earth's environmental p Id of applied climatology. Desc ducing processes over Souther ses, erosion, Aeolian and arid g forecasting, weather modification uman comfort. Describe atmose nodule the students should be a noptic weather maps and weath nage basin analysis, particle sh properties. Semester 2 tion Systems (GIS)	able to describe and explain the problems. Critically evaluate the ribe and explain the circulation n Africa. Describe and explain geomorphology. Describe and discuss on and man-made climates. Apply spheric circulation and weather over able to use skills and field techniques for enalysis, particle size analysis,		
justifications for boundary boundaries. Module code: GEOM 317 Title: Advanced physical ge Module outcomes: Theory: Upon completion of this r different processes acting current debates in the file patterns and weather pro weathering, slope proces climate change, weather debates on climate and r Southern Africa. Practical: Upon completion of this r in the interpretation of sy slope measurement, drai Atterberg limits and rock Module code: GEOM 328 Title: GeographicaL Informa Module outcomes: Theory: Upon completion of this r	y delimitation. Apply relevant m Semester 1 ography nodule the students should be a g on the earth's environmental p Id of applied climatology. Desc ducing processes over Souther reses, erosion, Aeolian and arid g forecasting, weather modification uman comfort. Describe atmose nodule the students should be a noptic weather maps and weath nage basin analysis, particle sh properties. Semester 2 tion Systems (GIS)	able to describe and explain the problems. Critically evaluate the ribe and explain the circulation in Africa. Describe and explain geomorphology. Describe and discuss on and man-made climates. Apply spheric circulation and weather over able to use skills and field techniques are forecasting. Use techniques of ape analysis, particle size analysis,		

Upon completion of this module the students should be able to use GIS techniques to model spatial data. Apply data and coordinate systems. Use different projections and georeferencing systems. Use GIS data sources and metadata. Use ArcGIS software for map design.

Module code: GEOM 329 Semester 2

Title: The Geography of African Development

Module outcomes:
Upon completion of this module the students should be able to describe and discuss the

Upon completion of this module the students should be able to describe and discuss the geographical factors which explain the evolution of development in Africa. Apply this knowledge to explain the spatial and environmental aspects of development in particular geographical case-studies. Discuss critically theoretical propositions on the development and underdevelopment of Africa, and the applicability of these theories to the South African context. Describe and discuss the variability of African environmental change and apply geographical perspectives to the possible resolution of development problems in Africa.

MA.2.16 ELECTRONICS

Module code: ELYM115 Semester 1			
Title: Electricity, Magnetism and Circuits			
Module outcomes:			
The learner should be able to recall the fundamental principles, concepts, facts and			
applications of Electricity and Magnetism. Demonstrate u	nderstanding and application of		
electric and magnetic field quantities, Maxwell's equation	s and electromagnetic waves.		
Demonstrate understanding and application of basic con	cepts in AC and DC circuit analysis.		
Demonstrate a nanos-on ability to utilise basic electronic e	equipment with respect to		
Module code: El VM127 Semester 2			
Title: Introduction to Electronics			
Module outcomes:			
The learner should be able to demonstrate an understand	ing of the basics and applications of		
active devices, basic logic concepts and gates. Demonstr	ate an understanding of circuit		
theorems, and their application in the analysis of alternation	and direct current circuits.		
Demonstrate a hands-on ability to utilise basic electronic e	equipment with for measurement and		
interpretation of electronic data.			
Module code: ELYM215 Semester 1			
Title: Analogue Electronics and Ysytems			
Module outcomes:			
The learner should be able to, demonstrate an understand	ling of transistor characteristics,		
transistor biasing and amplifier DC and AC equivalents. D	emonstrate an understanding of		
advanced circuit theorems and their application in circuit a	analysis. Demonstrate an		
understanding of filters in terms of their transfer functions.	Demonstrate a hands-on ability to		
apply basic electronic measurement and test equipment a	no techniques to the measurement		
and interpretation of electronic quantities in AC and DC circuits and circuits containing some active devices			
Module code: ELYM227 Semester 2			
Title: Digital Electronics and Systems			
Module outcomes:			
The learner should be able to, demonstrate an understand	ling of basic logic concepts and		
elements. Apply Boolean algebra and Karnaugh map tec	nniques to logic minimisation and		
circuit realisation of logic expressions. Demonstrate an un	derstanding of combinational systems		
such arithmetic circuits, digital building blocks, and memo	ry devices. Demonstrate a hands-on		
ability to apply basic electronic equipment and techniques	to the measurement and		
interpretation of electronic quantities in Digital Electronics			

Module code: ELYM315	Semester 1	
Title: Advanced Analogue Electronics		
Module outcomes: The learner should be able to, demonstrate an understanding of feedback and its implementation in amplifiers, Operational amplifiers and related circuit configurations, Active Filters and Oscillators, and High Frequency. Demonstrate a hands-on ability to apply electronic test equipment and techniques to the measurement and interpretation of electronic quantities in feedback operational amplifiers filters and high frequency.		
Module code: ELYM316	Semester 1	
Title: Introduction to Signals a	nd Systems	
Module outcomes: The learner should be able to demonstrate an understanding of Signals and Systems and Linear Time-Invariant Systems in particular. Apply Fourier, Laplace and z-transform techniques in the design and analysis of discrete-time and continuous-time LTI systems. Demonstrate an understanding of filtering, signal sampling and reconstruction		
Module code: ELYM327	Semester 2	
Title: Advanced Digital Techni	ques and Systems	
Module outcomes: The learner should be able to demonstrate an understanding of advanced logic concepts and techniques, interconnection of logic elements to form logic circuits, circuit reduction techniques for logic circuits, interfacing of CMOS and TTL devices, and digital to analogue and analogue to digital conversion. Demonstrate a hands-on ability to apply basic electronic test gear and techniques to the measurement and interpretation of electronic quantities in advanced digital electronics. Demonstrate familiarity with the characteristics of common integrated circuit chips.		
Module code: ELYM328	Semester 2	
Title: Introduction to Microcon	troller Systems	
Module outcomes: The learner should be able micro-controllers in general	to describe the differentiating fa	ctors between micro-processors and for preferences between the two.

Design and program simple systems based on a micro-controller.

MATHEMATICAL SCIENCES

MA.2.17 APPLIED MATHEMATICS

Module code: APMM 117	Semester 1		
Title: Introduction to Mechanics			
Module Outcomes:			
To show knowledge of vector solve problems. To apply the life situations. To analyze force also demonstrate the ability in static equilibrium. To demons concept of power to everyday the concepts of uniform circul harmonic motion to interpret orally. To assess oneself, iden a learning group	algebra and to demonstrate the ability concepts of motion with constant acce es acting on an object and predict the n the drawing of free-body forces, iden trate the ability to apply energy transfor situations. To demonstrate the ability ar motion to real-world situations and the result physically and to communican ntify and address own learning needs.	to use vector analysis to eleration to various real- ir effects on it and should tify situations involving ormations and the to describe and apply to analyze the simple ate these in writing and To interact effectively in	
Module code: APMM 127	Semester 1		
Title: Introduction to Numerical	Methods and Mathematical Modellin	าต	
Module Outcomes:		·J	

To identify, only and constr	ust mathematical models process	growth and depay. logistical
I o identify, solve and construct mathematical models process, growth and decay, logistical		
growth, cooling problems, electrical series circuit, mixture problems, chemical reaction, law		
of mass action, separable and first-order differential equations and initial conditions. To analyze and demonstrate problems solving skills by interpreting the mathematical problems		
analyze and demonstrate problems solving skills by interpreting the mathematical problems		
to the physical problems for the models in 1. To understand and demonstrate principles of		
numerical methods, errors, in	terpolation and numerical different	lation and integration. To
interpret the result physically and to communicate these in writing and orally. To assess		
oneself, identify and address own learning needs.		
Module code: APMM 217 Semester 1		
Litle: Mathematical Modelling		
Module outcomes:		
To demonstrate knowledge of	of, formulate simple mathematical m	nodels of damped and
undamped oscillations, syste	ms of first order ODE's with consta	nt coefficients and linear
programming problems. To a	inalyze using basic principles and id	dentify various solution
methods for the models. To	interpret the result physically and to	o communicate these in
writing and orally. To assess	oneself, identify and address own I	learning needs.
Module code: APMM 227	Semester 1	
Title: Differential Equations and	I Numerical Methods	
Module outcomes:		
To identify, distinguish and a	apply various series solutions secor	nd order differential
equations with variable coeff	icients. To identify and use orthogo	nal systems in Fourier
series, Sturm-Liouville proble	ems and Fourier integrals. To identi	fy and use polynomial
interpolation, divided differen	ces, LU decomposition, Jacobi and	Gauss-Seidel methods. To
interpret the result physically	and to communicate these in writin	ng and orally. To assess
oneself, identify and address own learning needs. To interact effectively in a learning group		
oneself, identify and address	own learning needs. To interact ef	fectively in a learning group.
Module code: APMM 317	own learning needs. To interact ef Semester 1	fectively in a learning group.
Module code: APMM 317 Title: Mathematical Programmin	own learning needs. To interact ef Semester 1 ng	fectively in a learning group.
Module code: APMM 317 Title: Mathematical Programmin Module outcomes:	own learning needs. To interact ef Semester 1 ng	fectively in a learning group.
Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul	own learning needs. To interact ef Semester 1 ng ate a simple mathematical program	fectively in a learning group.
Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given pro	own learning needs. To interact ef Semester 1 ng ate a simple mathematical program blem using basic principles and ide	ming problem. Demonstrate
Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given pro methods using simplex meth	own learning needs. To interact ef Semester 1 ng ate a simple mathematical program blem using basic principles and ide ods and its variations. Show ability	ming problem. Demonstrate ntify appropriate solution to interpret the results
Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given pro methods using simplex meth physically and to communica	own learning needs. To interact ef Semester 1 ng ate a simple mathematical program blem using basic principles and ide ods and its variations. Show ability te these in writing and orally. Show	aming problem. Demonstrate ntify appropriate solution to interpret the results v ability to assess oneself,
Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given pro methods using simplex meth physically and to communica identify and address own lea	own learning needs. To interact ef Semester 1 ng ate a simple mathematical program blem using basic principles and ide ods and its variations. Show ability te these in writing and orally. Show rning needs. Show ability to interac	aming problem. Demonstrate ntify appropriate solution to interpret the results v ability to assess oneself, tt effectively in a learning
Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given pro methods using simplex meth physically and to communica identify and address own lea group.	own learning needs. To interact ef Semester 1 ng ate a simple mathematical program blem using basic principles and ide ods and its variations. Show ability te these in writing and orally. Show rning needs. Show ability to interac	aming problem. Demonstrate ntify appropriate solution to interpret the results v ability to assess oneself, it effectively in a learning
Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given pro methods using simplex meth physically and to communica identify and address own lea group. Module code: APMM 318	own learning needs. To interact ef Semester 1 ng ate a simple mathematical program blem using basic principles and ide ods and its variations. Show ability te these in writing and orally. Show rning needs. Show ability to interac Semester 1	aming problem. Demonstrate ntify appropriate solution to interpret the results v ability to assess oneself, t effectively in a learning
Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given pro methods using simplex meth physically and to communica identify and address own lea group. Module code: APMM 318 Title: Differential Equations and	own learning needs. To interact ef Semester 1 ng ate a simple mathematical program blem using basic principles and ide ods and its variations. Show ability te these in writing and orally. Show rning needs. Show ability to interac Semester 1 t their Applications	aming problem. Demonstrate ntify appropriate solution to interpret the results vability to assess oneself, t effectively in a learning
Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given pro methods using simplex meth physically and to communica identify and address own lea group. Module code: APMM 318 Title: Differential Equations and Module outcomes:	own learning needs. To interact ef Semester 1 ng ate a simple mathematical program blem using basic principles and ide ods and its variations. Show ability te these in writing and orally. Show rning needs. Show ability to interac Semester 1 their Applications	aming problem. Demonstrate ntify appropriate solution to interpret the results v ability to assess oneself, it effectively in a learning
Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given pro methods using simplex meth physically and to communical identify and address own lear group. Module code: APMM 318 Title: Differential Equations and Module outcomes: To identify and formulate ma	own learning needs. To interact ef Semester 1 ng ate a simple mathematical program blem using basic principles and ide ods and its variations. Show ability te these in writing and orally. Show rning needs. Show ability to interac Semester 1 I their Applications thematical models of parabolic, hyperications	aming problem. Demonstrate ntify appropriate solution to interpret the results vability to assess oneself, it effectively in a learning
Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given pro methods using simplex meth physically and to communical identify and address own lear group. Module code: APMM 318 Title: Differential Equations and Module outcomes: To identify and formulate ma together with their boundary	own learning needs. To interact ef Semester 1 ng ate a simple mathematical program blem using basic principles and ide ods and its variations. Show ability te these in writing and orally. Show rning needs. Show ability to interac Semester 1 I their Applications thematical models of parabolic, hyp and initial conditions. To analyze us	aming problem. Demonstrate ntify appropriate solution to interpret the results ability to assess oneself, it effectively in a learning perbolic and elliptic types sing basic principles and
Oneself, identify and address Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given promethods using simplex meth physically and to communication identify and address own lear group. Module code: APMM 318 Title: Differential Equations and Module outcomes: To identify and formulate matogether with their boundary identify solution methods for	own learning needs. To interact ef Semester 1 ng ate a simple mathematical program blem using basic principles and ide ods and its variations. Show ability te these in writing and orally. Show rning needs. Show ability to interac Semester 1 I their Applications thematical models of parabolic, hyp and initial conditions. To analyze us the various homogeneous and non	aming problem. Demonstrate ntify appropriate solution to interpret the results ability to assess oneself, it effectively in a learning perbolic and elliptic types sing basic principles and -homogeneous boundary
Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given pro methods using simplex meth physically and to communica identify and address own lea group. Module code: APMM 318 Title: Differential Equations and Module outcomes: To identify and formulate ma together with their boundary identify solution methods for yalue problems of the model	own learning needs. To interact ef Semester 1 ng ate a simple mathematical program blem using basic principles and ide ods and its variations. Show ability te these in writing and orally. Show rning needs. Show ability to interac Semester 1 I their Applications thematical models of parabolic, hyp and initial conditions. To analyze us the various homogeneous and non s. To interpret the result physically.	aming problem. Demonstrate ntify appropriate solution to interpret the results ability to assess oneself, it effectively in a learning perbolic and elliptic types sing basic principles and -homogeneous boundary and to communicate these in
Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given pro methods using simplex meth physically and to communica identify and address own lea group. Module code: APMM 318 Title: Differential Equations and Module outcomes: To identify and formulate ma together with their boundary identify solution methods for value problems of the model writing and orally. To assess	own learning needs. To interact ef Semester 1 Ig ate a simple mathematical program blem using basic principles and ide ods and its variations. Show ability te these in writing and orally. Show rning needs. Show ability to interac Semester 1 I their Applications thematical models of parabolic, hyp and initial conditions. To analyze us the various homogeneous and non s. To interpret the result physically a oneself identify and address own	aming problem. Demonstrate ntify appropriate solution to interpret the results ability to assess oneself, it effectively in a learning perbolic and elliptic types sing basic principles and -homogeneous boundary and to communicate these in learning peeds
Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given pro- methods using simplex meth physically and to communical identify and address own lear group. Module code: APMM 318 Title: Differential Equations and Module outcomes: To identify and formulate man together with their boundary identify solution methods for value problems of the model writing and orally. To assess	own learning needs. To interact ef Semester 1 Ing ate a simple mathematical program blem using basic principles and ide ods and its variations. Show ability te these in writing and orally. Show rning needs. Show ability to interact Semester 1 I their Applications thematical models of parabolic, hyp and initial conditions. To analyze us the various homogeneous and non s. To interpret the result physically a oneself, identify and address own in Semester 1	aming problem. Demonstrate ntify appropriate solution to interpret the results vability to assess oneself, it effectively in a learning perbolic and elliptic types sing basic principles and -homogeneous boundary and to communicate these in learning needs.
Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given pro- methods using simplex meth physically and to communica- identify and address own lear group. Module code: APMM 318 Title: Differential Equations and Module outcomes: To identify and formulate mar- together with their boundary identify solution methods for value problems of the model writing and orally. To assess Module code: APMM 327 Title: Eluid Mechanice	own learning needs. To interact ef Semester 1 ng ate a simple mathematical program blem using basic principles and ide ods and its variations. Show ability te these in writing and orally. Show rning needs. Show ability to interact Semester 1 their Applications thematical models of parabolic, hype and initial conditions. To analyze us the various homogeneous and non s. To interpret the result physically a oneself, identify and address own in	tectively in a learning group.
Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given pro- methods using simplex meth physically and to communical identify and address own lear group. Module code: APMM 318 Title: Differential Equations and Module outcomes: To identify and formulate man together with their boundary identify solution methods for value problems of the model writing and orally. To assess Module code: APMM 327 Title: Fluid Mechanics	own learning needs. To interact ef Semester 1 ng ate a simple mathematical program blem using basic principles and ide ods and its variations. Show ability te these in writing and orally. Show rning needs. Show ability to interact Semester 1 their Applications thematical models of parabolic, hype and initial conditions. To analyze us the various homogeneous and non s. To interpret the result physically a oneself, identify and address own i Semester 1	tectively in a learning group.
Oneself, identify and address Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given pro methods using simplex meth physically and to communica identify and address own lea group. Module code: APMM 318 Title: Differential Equations and together with their boundary identify solution methods for value problems of the model writing and orally. To assess Module code: APMM 327 Title: Fluid Mechanics Module outcomes: To identify solution methods for value problems of the model writing and orally. To assess	own learning needs. To interact ef Semester 1 ng ate a simple mathematical program blem using basic principles and ide ods and its variations. Show ability te these in writing and orally. Show rning needs. Show ability to interact Semester 1 their Applications thematical models of parabolic, hype and initial conditions. To analyze us the various homogeneous and non s. To interpret the result physically a oneself, identify and address own i Semester 1	berbolic and elliptic types sing basic principles and -homogeneous boundary and to communicate these in learning needs.
Oneself, identify and address Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given pro methods using simplex meth physically and to communica identify and address own lea group. Module code: APMM 318 Title: Differential Equations and together with their boundary identify solution methods for value problems of the model writing and orally. To assess Module code: APMM 327 Title: Fluid Mechanics Module outcomes: To identify solution methods for value problems of the model writing and orally. To assess Module outcomes: To demonstrate knowledge of understand and define the formation of the start	own learning needs. To interact ef Semester 1 ng ate a simple mathematical program blem using basic principles and ide ods and its variations. Show ability te these in writing and orally. Show rning needs. Show ability to interact Semester 1 their Applications thematical models of parabolic, hype and initial conditions. To analyze us the various homogeneous and non s. To interpret the result physically a oneself, identify and address own i Semester 1	berbolic and elliptic types sing basic principles and -homogeneous boundary and to communicate these in learning needs.
oneself, identify and address Module code: APMM 317 Title: Mathematical Programmin Module outcomes: Demonstrate ability to formul ability to analyse a given pro methods using simplex meth physically and to communica identify and address own lea group. Module code: APMM 318 Title: Differential Equations and together with their boundary identify solution methods for value problems of the model writing and orally. To assess Module code: APMM 327 Title: Fluid Mechanics Module outcomes: To identify solution methods for value problems of the model writing and orally. To assess Module outcomes: To demonstrate knowledge of understand and define, the to derive the equation of conse	own learning needs. To interact ef Semester 1 Ig ate a simple mathematical program blem using basic principles and ide ods and its variations. Show ability te these in writing and orally. Show rning needs. Show ability to interact Semester 1 I their Applications thematical models of parabolic, hyp and initial conditions. To analyze us the various homogeneous and non s. To interpret the result physically a oneself, identify and address own l Semester 1 f the Lagrangian and Eulerian appre- erms: inviscid, irrotational, incompre- trans (equation of continu	tectively in a learning group.

and Euler's equation of motion equation for steady incompres use in obtaining fluid streamlin potential, state, prove and apy viscous flow using Navier-Stol solving skills by applying fluid students will demonstrate som transforming a real physical p interpret and communicate the communicate these in writing needs. To interact effectively in	n, given standard assumptions, to sta ssible flow, to understand the concept nes, to solve simple problems involvir oly Milne-Thomson Circle Theorem, to kes equations. To demonstrate vario mechanics to a wide range of problem ne of the skills involved in mathematic roblem into a mathematically tractable e results of the calculation. To interpr and orally. To assess oneself, identify in a learning group.	te and apply Bernoulli's c of stream functions and their ig the complex velocity o solve simple problems of us analytical and problem- ms arising in various fields; cal modelling: namely, e form and then being able to ret the results physically and to y and address own learning
Module code: APMM 328	Semester 1	
Title: Numerical Analysis		
Module outcomes: To demonstrate knowledge ar find numerical solutions to diff polynomials including the trigo orthogonal polynomials for da shooting methods, solve initia problem-solving skills by solvi methods, solving boundary-va of Chebychev polynomials, p physically and to communicat own learning needs. To intera	nd ability to solve initial-value problem ierential equations, find the least squa prometric polynomials and Chebyshe ta/function approximations, solve bou I-value problems using multistep metl ng initial-value problems using Runge alue problems using shooting methods erforming numerical stability analysis e these in writing and orally. To asses tot effectively in a learning group.	as using Runge-Kutta methods, are data, generate orthogonal v polynomials, and use indary-value problems using hods. To demonstrate e-Kutta and multistep s, applying the basic properties . To interpret the results ss oneself, identify and address

MA2.18 MATHEMATICS

Module code: MAYM 116	Semester 1			
Title: General Mathematics				
Module Outcomes:				
Demonstrate fundamental knowledge of the function concept, circle measure and				
trigonometric functions, in	verse functions and inverse trigor	nometric functions, mathematical		
induction, the binomial the	eorem, conic sections, vectors and	d vector operations, limits,		
continuity and differentiab	ility of standard functions, applica	tions of differentiation and the		
indefinite integrals of simp	le functions. Demonstrate problei	m solving skills by analyzing		
known and unknown prob	lems, proving theorems through h	nathematical induction,		
cimple functions and electric	bing them, formulating optimization	on problems in methometical		
terms and using derivative	s to solve them, do computations	and sketching of conics and do		
computations with vectors		and sketching of comes and do		
Module code: MAYM 126	Semester 1			
Title: Calculus and Algebra				
Module Outcomes:				
Demonstrate fundamental	knowledge of the differentiation a	and integration of logarithmic,		
exponential and inverse tr	igonometric functions, application	s of integration, Integration		
techniques, parametric eq	uations and polar coordinates rep	presentations, first order ordinary		
differential equations and	the algebra of complex numbers.	Demonstrate problem solving		
skills by analyzing known and unknown problems, use knowledge of techniques to evaluate				
integrals and improper integrals, apply L'Hopital's rule, determine derivatives and integrals of				
logarithmic, exponential a	logarithmic, exponential and inverse trigonometric functions, solving first order linear			
differential equations, computing areas, length and volumes, do computations with complex				
Modulo codo: MAXM 117	Somootor 1			
Title: Coloulus I	Semester			
Module Outcomes: Demonstrate fundamental exponential and inverse tr techniques, parametric eq differential equations and skills by analyzing known integrals and improper intr logarithmic, exponential a differential equations, com numbers and sketching cu Module code: MAYM 117 Title: Calculus I	knowledge of the differentiation a igonometric functions, application uations and polar coordinates rep the algebra of complex numbers. and unknown problems, use know egrals, apply L'Hopital's rule, dete nd inverse trigonometric functions puting areas, length and volumes irves in polar coordinates. Semester 1	and integration of logarithmic, as of integration, Integration presentations, first order ordinary Demonstrate problem solving wledge of techniques to evaluate ermine derivatives and integrals of s, solving first order linear s, do computations with complex		

Module Outcomes:			
Demonstrate fundamental knowledge of the function concept, circle measure and trigonometric functions, inverse functions and inverse trigonometric functions, mathematical induction, the binomial theorem, conic sections, vectors and vector operations, limits, continuity and differentiability of standard functions, applications of differentiation and the			
indefinite integrals of simple	indefinite integrals of simple functions. Demonstrate problem solving skills by analyzing		
known and unknown probl	ems, proving theorems through m	nathematical induction,	
determining limits of stand	ard functions, computing derivativ	es and indefinite integrals of	
simple functions and sketc	hing them, formulating optimization	on problems in mathematical	
terms and using derivative	s to solve them, do computations	and sketching of conics and do	
computations with vectors.			
Module code: MAYM 127	Semester 1		
Title: Calculus II			
Module Outcomes:			
Demonstrate fundamental exponential and inverse tri techniques, L'Hopital's rule polar coordinates represer of complex numbers.Demo problems, use knowledge L'Hopital's rule, determine trigonometric functions, so length and volumes, do co	knowledge of the differentiation a gonometric functions, application a and its applications, improper in tations, first order ordinary different onstrate problem solving skills by of techniques to evaluate integral derivatives and integrals of logar lving first order linear differential of mputations with complex number	and integration of logarithmic, s of integration, Integration tegrals, parametric equations and ential equations and the algebra analyzing known and unknown s and improper integrals, apply ithmic, exponential and inverse equations, computing areas, s and sketching curves in polar	
Module code: MAVM 217	Semester 1		
Title: Linear Algebra	Semester i		
Module outcomes:			
Module outcomes: Demonstrate problem solving skills and the fundamental knowledge of systems of linear equations, matrices, row echelon form, Gaussian elimination, homogenous systems, matrix algebra, elementary matrices, inverse matrices, determinants, properties of determinants, co- factor expansion, and the Cramer's rule. Demonstrate problem solving skills and the fundamental knowledge of vector spaces, subspaces, linear independence, basis, dimension, row space, column space, null space, rank, nullity, inner products, orthogonality, inner product spaces, orthonormal bases, the Gram-Schmidt process, eigenvalues and eigenvectors, diagonalization of matrices, linear transformations, kernel, range, and change of basis. To interpret the results physically and to communicate these in writing and orally. To assess oneself, identify and address own learning needs. To interact effectively in a learning group.			
	Semester		
Module outcomes:			
Demonstrate fundamental series and power series, th Taylor series, representation integrals, Conservative vector theorem, Stokes theorem, ordinary differential equation unknown problems, using of vector-valued functions surface integrals, using the determining the solutions of coefficient and solving non applicable, using the variou	knowledge of basic methods and ne basic theorems on convergence on of functions by power series, fic tor fields, Green's theorem, para Riccati and Clairaut equations, se ons. Demonstrate problem solving knowledge of theorems and tech and using those in the solving of e Stokes theorem and the Gauss of homogeneous linear differentia h-homogeneous linear equations bus us tests for convergence.	concepts of infinite sequences, the of infinite series and their uses, unctions of several variables, line metric surfaces, Divergence econd order and higher order g skills by analyzing known and niques to calculate line integrals practical problems, computing theorem in solving problems, I equations with constant by means of methods which are	

Module code: MAYM 317	Semester 1	
Title: Real Analysis		•
Module outcomes: Demonstrate problem solv number system; and in R ⁿ Riemann integral, sequend Spaces. To interpret the re assess oneself, identify ar group.	ring and analytical skills, and fur - sequences, limits, continuous ces of functions and infinite serie esults physically and to commun ad address own learning needs.	ndamental knowledge of the real functions, differentiation, the es, and the Topology of Cartesian nicate these in writing and orally. To To interact effectively in a learning
Module code: MAYM 318	Semester 1	
Title: Differential Equations		
Module outcomes: To demonstrate knowledg equations (odes), Clairaum variables, simultaneous di systems of linear differenti odes, to solve second-ord techniques to solve second equation (pde) of Lagrang methods of characteristics skills by solving odes of th Pfaffin equation, systems To interpret the results phy oneself identify and addre	e of and solve certain nonlinear t equation, Lagrange equations, fferential equations, to use eiger ial equations, to use method of r er odes with one variable absen d-order odes, to identify and sol e type, to classify second-order and separation of variables. To e first-order but not of the first d of first-order odes, first-order pd ysically and to communicate the pass own learning needs. To inter	first-order ordinary differential Pfaffian equation in three nvalues and eigenvectors to solve eduction to solve second-order t, to use miscellaneous solution ve first-order partial differential pdes and solve then using the demonstrate problem-solving egree, Clairaunt, Lagrange and es and second-order linear pdes. se in writing and orally. To assess ract effectively in a learning group
Modulo codo: MAXM 227	Somootor 1	
Title: Complex Analysis	Semester i	
Madula autoomoo		
To demonstrate knowledg analytic functions, Cauchy contour integrals using the basic and extended form, applications. To demonst is analytic, a given function understanding the relation functions, finding Taylor of convergence for each type interpret the results physic oneself, identify and addre	e of the basic facts of complex a 's Theorem, convergence of cor a Cauchy Integral Theorem and to evaluate integrals using resid rate problem-solving skills by sh n is harmonic, finding an analytic ships among the exponential, tr r Laurent Series for simple funct to of series, using residues to eva- cally and to communicate these ass own learning needs. To inter	analysis, the concept and theory of mplex power series, to evaluate the Cauchy Integral Formula in ues, conformal mappings and their owing whether a complex function c function given its real part, igonometric and hyperbolic ion and determining the regions of aluate various contour integrals. To in writing and orally. To assess ract effectively in a learning group.
Module code: MAYM 328	Semester 1	
Title: Abstract Algebra		
Module Outcomes: Demonstrate problem solv binary operations, groups, relations, congruence, the the euclidean algorithm, th groups, generators, direct isomorphism, Cayley's the fundamental homomorphis solving and analytical skill ring isomorphism, fields, c domain and integers, field algorithm and factorizatior	ring and analytical skills, and fur permutations, subgroups, group division algorithm, integers more products, cosets, Lagrange's th porem, kernels, normal subgroup sm theorem, and the isomorphis s, and fundamental knowledge of haracteristic, ordered integral do s of quotients and rational numb n of polynomials, homomorphism	ndamental knowledge of mappings, ps and symmetry, equivalence dulo n, greatest common divisor, metic, elementary properties of eorem, homomorphism, os, quotient groups, the m theorems. Demonstrate problem of rings, integral domains, subrings, omains, well-ordered integral bers, polynomials, the division ns of rings, ideals, principal ideal,

and quotient rings. To interpret the results physically and to communicate these in writing and orally. To assess oneself, identify and address own learning needs. To interact effectively in a learning group.

MA.2.19 NURSING

Module code: EPPM 111	Semester 1			
Title: Ethos and Professional Practice				
Module outcomes:				
The learner should be able to demonstrate knowledge of principles of professional practice				
including relevant legislation.	including relevant legislation. Demonstrate value clarification skills.			
Module code: EPPM 221	Semester 2			
Title: Ethos and Professional Pra	ctice			
Module outcomes:				
Apply relevant legislation and basic professional practice in a clinical situation. Demonstrate				
interpersonal and communicat	ion skills			
Module code: FNSM 122	Semester 2			
Title: Fundamentals of Nursing S	cience and Practicals			
Module outcomes:				
Application of the knowledge of	of safety and security, love and b	elonging, self-esteem and self-		
actualization needs in assessi	ng and planning for the care of ir	idividuals, families and		
communities. Identification of	hazards that individuals, families	and communities are faced with.		
Utilization of the nursing proce	ess in meeting the numan needs	and preventing occurrence of		
Modulo codo: ENSM 111	Somootor 1			
Title: Fundamental Nursing Saio	Semester 1			
Medule autoomoo				
Application of the knowledge of	f physiological poods in assossi	ag and planning for the care of		
individuals families and comm	unities I Itilization of the nursing	process in meeting the		
physiological human needs		process in meeting the		
Module code: GNSM 111	Semester 1			
Title: General Nursing Science I	and Practicals			
Module outcomes:				
Learners should be able to as	sess, diagnose, plan, implement	and evaluate the management of		
patients with respiratory condi	tions. Relate the clinical manifes	tations of the respiratory		
conditions to the patho-Pysiol	ogy. Advise individuals, families	and the communities regarding		
the promotive and preventive	measures of the respiratory conc	litions. Demonstrate the		
knowledge of causes, contribu	tory and potential problems of th	e respiratory conditions.		
Module code: GNSM 122	Semester 2			
Title: General Nursing Science I	and Practicals			
Module outcomes:				
Learners should be able to as	sess, diagnose, plan, implement	and evaluate the management of		
patients with urinary, endocrin	e and nervous system conditions	. Relate the clinical		
manifestations of the urinary,	endocrine and nervous system c	onditions to the patho physiology.		
Advise individuals, families an	d the communities regarding the	promotive and preventive		
measures of the unnary, endo	crine and hervous system condit	ions. Demonstrate the knowledge		
conditions	tential problems of the unnary, e	ndochne and hervous system		
Module code: GNSM 222	Semester 2			
Title General Nursing Science II	and Practicals			
Module outcomes:				
		and avaluate the management of		

patients with skeleto-muscular	and immunity conditions. Relate t	the clinical manifestations of the	
skeleto-muscular and immunity conditions to the patho physiology. Advise individuals, families			
and the communities regarding the promotive and preventive measures of the skeleto-muscular			
and immunity conditions. Demonstrate the knowledge of causes, contributory and potential			
problems of the skeleto-muscu	lar and immunity conditions. Prov	ide pre, intra and post operative	
nursing care and care for those	e under anesthesia.		
Module code: GNSM 311	Semester 1		
Title: General Nursing Science II			
Module outcomes:			
Application of leadership theor	ies and styles to manage health ca	are units. Demonstration of	
effective leadership skills in the	e management of health care units	. Application of the leadership	
process for effective managem	ient of health care services.		
Module code: GNSM 321	Semester 2		
Title: General Nursing Science II			
Module outcomes:			
Application of organisational cu	ulture and climate to manage healt	h care units. Demonstration of	
effective management process	es in the management of health c	are nits. Application of the	
decision-making processes and	a conflict resolution through effecti	ve utilization of numan, material	
and linancial resources. Deba	te etnical issues in health care set	ungs.	
Module code: GNSM 311	Semester 1		
Title: Midwifery I and Practicals			
Module outcomes:			
Ensuring normal pregnancy wr	nenever possible, by maintaining a	nd improving general health of	
the pregnant woman. Ensuring	g early detection, referral and man	agement of complications	
during pregnancy. Provision o	r nursing care and careful screening	ig of all pregnant women to	
prevent occurrence of complica	alions. Provision of health educati	on and family planning.	
Title: midwifery Land Dreaticala	Semester 1		
Title: midwifery I and Practicals	Jemester i		
Title: midwifery I and Practicals Module outcomes:		more appending the state	
Title: midwifery I and Practicals Module outcomes: Ensuring normal labour whene	ver possible, by maintaining and in	nproving general health of the	
Title: midwifery I and Practicals Module outcomes: Ensuring normal labour whene pregnant woman. Ensuring ea labour. Provision of pursing ea	ver possible, by maintaining and in rly detection, referral and manage	nproving general health of the ment of complications during	
Title: midwifery I and Practicals Module outcomes: Ensuring normal labour whene pregnant woman. Ensuring ea labour. Provision of nursing ca prevent occurrence of complica	ver possible, by maintaining and in Irly detection, referral and manage are and careful screening of all pre	nproving general health of the ment of complications during gnant women during labour to care and prevention of medico-	
Title: midwifery I and Practicals Module outcomes: Ensuring normal labour whene pregnant woman. Ensuring ea labour. Provision of nursing ca prevent occurrence of complica legal hazards during labour.	ver possible, by maintaining and in Irly detection, referral and manage are and careful screening of all pre ations. Ensuring quality midwifery	nproving general health of the ment of complications during gnant women during labour to care and prevention of medico-	
Title: midwifery I and Practicals Module outcomes: Ensuring normal labour whene pregnant woman. Ensuring ea labour. Provision of nursing ca prevent occurrence of complica legal hazards during labour. Module code: MYIM 411	ver possible, by maintaining and in Infly detection, referral and manage are and careful screening of all pre ations. Ensuring quality midwifery	nproving general health of the ment of complications during gnant women during labour to care and prevention of medico-	
Title: midwifery I and Practicals Module outcomes: Ensuring normal labour whene pregnant woman. Ensuring ea labour. Provision of nursing ca prevent occurrence of complica legal hazards during labour. Module code: MYIM 411 Title: Midwifery II and Practicals	ver possible, by maintaining and in Irly detection, referral and manage are and careful screening of all pre ations. Ensuring quality midwifery	nproving general health of the ment of complications during gnant women during labour to care and prevention of medico-	
Title: midwifery I and Practicals Module outcomes: Ensuring normal labour whene pregnant woman. Ensuring ea labour. Provision of nursing ca prevent occurrence of complica legal hazards during labour. Module code: MYIM 411 Title: Midwifery II and Practicals Module outcomes:	ver possible, by maintaining and in Irly detection, referral and manage are and careful screening of all pre ations. Ensuring quality midwifery Semester 1	nproving general health of the ment of complications during gnant women during labour to care and prevention of medico-	
Title: midwifery I and Practicals Module outcomes: Ensuring normal labour whene pregnant woman. Ensuring ea labour. Provision of nursing ca prevent occurrence of complica legal hazards during labour. Module code: MYIM 411 Title: Midwifery II and Practicals Module outcomes: Ensuring normal and healthy n	ver possible, by maintaining and in Irly detection, referral and manage are and careful screening of all pre ations. Ensuring quality midwifery Semester 1	nproving general health of the ment of complications during gnant women during labour to care and prevention of medico-	
Title: midwifery I and Practicals Module outcomes: Ensuring normal labour whene pregnant woman. Ensuring ea labour. Provision of nursing ca prevent occurrence of complica legal hazards during labour. Module code: MYIM 411 Title: Midwifery II and Practicals Module outcomes: Ensuring normal and healthy n health of the pregnant wom	ver possible, by maintaining and in Infly detection, referral and manage are and careful screening of all pre- ations. Ensuring quality midwifery Semester 1 Newborn whenever possible, by ma- nan. Ensuring early detection.	nproving general health of the ment of complications during gnant women during labour to care and prevention of medico- aintaining and improving general referral and management of	
Title: midwifery I and Practicals Module outcomes: Ensuring normal labour whene pregnant woman. Ensuring ea labour. Provision of nursing ca prevent occurrence of complica legal hazards during labour. Module code: MYIM 411 Title: Midwifery II and Practicals Module outcomes: Ensuring normal and healthy n health of the pregnant wom complications of a newborn aff	ver possible, by maintaining and in Infly detection, referral and manage are and careful screening of all pre- ations. Ensuring quality midwifery Semester 1 Newborn whenever possible, by ma- nan. Ensuring early detection, ter delivery. Provision of nursing	mproving general health of the ment of complications during gnant women during labour to care and prevention of medico- aintaining and improving general referral and management of care and careful screening of all	
Title: midwifery I and Practicals Module outcomes: Ensuring normal labour whene pregnant woman. Ensuring ea labour. Provision of nursing ca prevent occurrence of complica legal hazards during labour. Module code: MYIM 411 Title: Midwifery II and Practicals Module outcomes: Ensuring normal and healthy n health of the pregnant wom complications of a newborn aff newborn babies to prevent occ	ver possible, by maintaining and in Infly detection, referral and manage are and careful screening of all pre- ations. Ensuring quality midwifery Semester 1 Newborn whenever possible, by ma- nan. Ensuring early detection, ter delivery. Provision of nursing of urrence of complications and med	mproving general health of the ment of complications during gnant women during labour to care and prevention of medico- aintaining and improving general referral and management of care and careful screening of all lico-legal hazards.	
Title: midwifery I and Practicals Module outcomes: Ensuring normal labour whene pregnant woman. Ensuring ea labour. Provision of nursing ca prevent occurrence of complica legal hazards during labour. Module code: MYIM 411 Title: Midwifery II and Practicals Module outcomes: Ensuring normal and healthy n health of the pregnant wom complications of a newborn aff newborn babies to prevent occo Module code: MYIM 422	ver possible, by maintaining and ir rly detection, referral and manage are and careful screening of all pre ations. Ensuring quality midwifery Semester 1 Newborn whenever possible, by ma nan. Ensuring early detection, ter delivery. Provision of nursing of urrence of complications and med Semester 2	mproving general health of the ment of complications during gnant women during labour to care and prevention of medico- aintaining and improving general referral and management of care and careful screening of all ico-legal hazards.	
Title: midwifery I and Practicals Module outcomes: Ensuring normal labour whene pregnant woman. Ensuring ea labour. Provision of nursing ca prevent occurrence of complica legal hazards during labour. Module code: MYIM 411 Title: Midwifery II and Practicals Module outcomes: Ensuring normal and healthy n health of the pregnant wom complications of a newborn aff newborn babies to prevent occ Module code: MYIM 422 Title: Midwifery II and Practicals	ver possible, by maintaining and ir rly detection, referral and manage are and careful screening of all pre ations. Ensuring quality midwifery Semester 1 Newborn whenever possible, by ma nan. Ensuring early detection, ter delivery. Provision of nursing of urrence of complications and med Semester 2	mproving general health of the ment of complications during gnant women during labour to care and prevention of medico- aintaining and improving general referral and management of care and careful screening of all ico-legal hazards.	
Title: midwifery I and Practicals Module outcomes: Ensuring normal labour whene pregnant woman. Ensuring ea labour. Provision of nursing ca prevent occurrence of complica legal hazards during labour. Module code: MYIM 411 Title: Midwifery II and Practicals Module outcomes: Ensuring normal and healthy n health of the pregnant wom complications of a newborn aff newborn babies to prevent occ Module code: MYIM 422 Title: Midwifery II and Practicals Module outcomes:	ver possible, by maintaining and ir rrly detection, referral and manage are and careful screening of all pre ations. Ensuring quality midwifery Semester 1 newborn whenever possible, by ma nan. Ensuring early detection, ter delivery. Provision of nursing of surrence of complications and med Semester 2	nproving general health of the ment of complications during gnant women during labour to care and prevention of medico- aintaining and improving general referral and management of care and careful screening of all ico-legal hazards.	
Title: midwifery I and Practicals Module outcomes: Ensuring normal labour whene pregnant woman. Ensuring ea labour. Provision of nursing ca prevent occurrence of complica legal hazards during labour. Module code: MYIM 411 Title: Midwifery II and Practicals Module outcomes: Ensuring normal and healthy n health of the pregnant wom complications of a newborn aff newborn babies to prevent occ Module code: MYIM 422 Title: Midwifery II and Practicals Module outcomes: Ensuring normal puerperium w	ver possible, by maintaining and ir rrly detection, referral and manage are and careful screening of all pre ations. Ensuring quality midwifery Semester 1 ewborn whenever possible, by ma nan. Ensuring early detection, ter delivery. Provision of nursing of currence of complications and med Semester 2	mproving general health of the ment of complications during gnant women during labour to care and prevention of medico- aintaining and improving general referral and management of care and careful screening of all lico-legal hazards.	
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Identification of trends and indi	cators affecting health I Itilization	n of the knowledge of
endemination of iterates and indicators affecting health. Demonstration of the ability to		
epidemiology in determining factors areaching treatment. Demonstration of the ability to		
assessing the communities to identity their health needs, resources and problems.		
Module code: NCHM 122	Semester 2	
Title: Community Nursing Science	o Land Practicals	
Medule autoamoor		
Module outcomes:	hands have a second of the division of	- feasilies and example the
Demonstrate the knowledge of	basic numan needs of individual	s, ramilies and communities.
Demonstrate basic communica	tion processes in interacting with	individuals, families and
communities. Apply the nursing	g process in the assessment and	l diagnosis o the basic needs of
individuals, families and commi	unities.	
Module code: NCHM 211	Semester 1	
Title: Community Nursing Science	e II and Practicals	
Module outcomes:		
Demonstrate the competence of	of assessing, diagnosing, prevent	ing, treating and rehabilitating
common, non- and communica	ble diseases.	
Module code: NCHM 222	Semester ?	
Title: Community Nursing Science	e II and Practicals	
Module outcomes:		
Demonstrate knowledge of hea	Ith care of specific groups in the	community. Apply relevant
policies and legislation in the ca	are of these groups.	
Module code: NCHM 311	Semester 1	
Title:Community Nursing Science	III and Practicals	
Module outcomes:		
Demonstrate the ability to ident	ify emergency and/or disaster sit	uations in the community
Display assessment skills in an	v emergency and/or disaster situ	ation Demonstrate the ability to
participate in the development	of a data base on emergency and	disaster management Apply
relevant policies and legislation	in the management of the said s	situation
Module code: NCHM 311	Semester 1	
Title: Community Nursing Science	o III and Bracticals	
Medule outcomposi		
Domonstrate the shillty to ident	if , actablish and as ardinate as	aultative forume with the
relevent stekeholders in the east	munity, Display assessment of	isuitative forums with the
utilization to improve omnower	ment and consolity building. Dom	Allis of available resource
in the development of health as	nent and capacity building. Dem	
Apply relevant policion and logi	alation in the management of ide	ntified projects
Apply relevant policies and legi	Sation in the management of ide	
	Semester	
The: Research Methodology		
Module outcomes:		
Demonstrate the knowledge of	different research methods. Der	nonstrate the knowledge of the
research process.	-	
Module code: : NRMM 422	Semester 2	
Title: Research Project		
Module outcomes:		
Demonstrate the ability to desig	gn a research proposal. Display t	the ability to conduct a research
study. Compilation of reports of	n research findings.	
Module code: PHMM112	Semester 1	
Title: Pharmacology		
Module outcomes:		
Demonstrate the knowledge of	the development and sources of	drugs. Apply the knowledge of
pharmacodynamics, pharmaco	kinetics and pharmacotherapeuti	cs in prescribing drugs for
patients. Assess patients to ide	entify a potential high risk for adv	erse side effects.
Module code: PNSM 311	Semester 1	

· · ·	e I and Practicals
Module outcomes:	
Demonstrate the knowledge of	the history of psychiatric nursing care. Apply the ethical, legal
and statutory aspects of psych	iatric nursing practices. Demonstrate the ability to assess.
diagnose, plan, implement and	evaluate nursing care of common psychiatric disorders.
Module code: PNSM 322	Semester 2
Title: Psychiatric Nursing Science	e Land Practicals
Module outcompos	
Domonstrate the ability to grad	to an appluaive therapoutic environment in payabietric purging
Demonstrate the ability to crea	te an conducive merapeutic environment in psychiatric nursing
care. Demonstrate competence	ce in intervening during an emotional crisis. Demonstrate the
ability to participate and utilize	group therapy in a psychiatric institution.
Module code: PNSM 411	Semester 1
Title: Psychiatric Nursing Science	e II and Practicals
Module outcomes:	
Demonstrate competence in as	ssessment, diagnosing, planning, implementing and evaluation of
nursing care of the mentally ha	indicapped/retarded individuals.
Module code: PNSM 422	Semester 2
Title: Psychiatric Nursing Science	e II and Practicals
Module outcomes:	
Demonstrate competence in fo	rensic psychiatric nursing. Demonstrate the ability to promote
mental health through health e	ducation programmes.
Module code: BIYM 114	Semester 1
Title: Microbiology	
Module outcomes:	
Classify micro-organisms acco	rding to morphology. Describe the lifecycle of micro organisms
the portals of entry and modes	of spread of micro-organisms. Apply knowledge of microbiology
in clinical practice	or spread of micro organisms. Apply knowledge of microbiology
Module code: SOCS 111	Semester 1
TITLE: Introduction to Sociology	r: Basic Concents and Themes
Modulo outcomos:	. Basic concepts and memes
Domonstrate actisfactory famili	inity with appialagical concents like appiaty, appial structure and
Demonstrate satisfactory familie	ianty with sociological concepts like society, social structure and
Interaction. Exhibit sufficient b	asic knowledge in basic research methodology and sociological
perspectives. Apply theoretica	asic knowledge in basic research methodology and sociological I perspectives to different themes in sociology: class, poverty, inderstanding of the South African project within a comparative
perspectives. Apply theoretica race, gender. Demonstrate Un	asic knowledge in basic research methodology and sociological I perspectives to different themes in sociology: class, poverty, inderstanding of the South African society within a comparative
perspectives. Apply theoretica race, gender. Demonstrate Un perspective.	asic knowledge in basic research methodology and sociological l perspectives to different themes in sociology: class, poverty, inderstanding of the South African society within a comparative
Interaction. Exhibit sufficient b. perspectives. Apply theoretica race, gender. Demonstrate Un perspective. Module code: SOCS 122 Title: Intractication To Cosiciliary	asic knowledge in basic research methodology and sociological l perspectives to different themes in sociology: class, poverty, iderstanding of the South African society within a comparative Semester 2
Interaction. Exhibit sufficient b. perspectives. Apply theoretica race, gender. Demonstrate Un perspective. Module code: SOCS 122 Title: Introduction To Sociology:	asic knowledge in basic research methodology and sociological l perspectives to different themes in sociology: class, poverty, inderstanding of the South African society within a comparative Semester 2 Institutions and The Southern Africa Context
Interaction. Exhibit sufficient b. perspectives. Apply theoretica race, gender. Demonstrate Un perspective. Module code: SOCS 122 Title: Introduction To Sociology: Module outcomes: With the sector sect	asic knowledge in basic research methodology and sociological il perspectives to different themes in sociology: class, poverty, inderstanding of the South African society within a comparative Semester 2 Institutions and The Southern Africa Context
Interaction. Exhibit sufficient biggstress perspectives. Apply theoretica race, gender. Demonstrate Unperspective. Module code: SOCS 122 Title: Introduction To Sociology: Module outcomes: Critically analyze different social	asic knowledge in basic research methodology and sociological il perspectives to different themes in sociology: class, poverty, iderstanding of the South African society within a comparative Semester 2 Institutions and The Southern Africa Context al institutions like family, education, economy, religion, politics,
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Interaction. Exhibit sufficient b. perspectives. Apply theoretica race, gender. Demonstrate Unperspective. Module code: SOCS 122 Title: Introduction To Sociology: Module outcomes: Critically analyze different social health, and media using sociolar and perspectives to the Souther Module code: AGLE 121	Asic knowledge in basic research methodology and sociological al perspectives to different themes in sociology: class, poverty, inderstanding of the South African society within a comparative Semester 2 Institutions and The Southern Africa Context al institutions like family, education, economy, religion, politics, ogical perspectives. Contextualize and apply relevant concepts ern African developmental context. Semester 2
Interaction. Exhibit sufficient b. perspectives. Apply theoretica race, gender. Demonstrate Unperspective. Module code: SOCS 122 Title: Introduction To Sociology: Module outcomes: Critically analyze different social health, and media using sociol and perspectives to the Souther Module code: AGLE 121 Title: Academic Literacy	Asic knowledge in basic research methodology and sociological all perspectives to different themes in sociology: class, poverty, inderstanding of the South African society within a comparative Semester 2 Institutions and The Southern Africa Context al institutions like family, education, economy, religion, politics, ogical perspectives. Contextualize and apply relevant concepts ern African developmental context. Semester 2
Interaction. Exhibit sufficient b. perspectives. Apply theoretica race, gender. Demonstrate Un perspective. Module code: SOCS 122 Title: Introduction To Sociology: Module outcomes: Critically analyze different social health, and media using sociole and perspectives to the Souther Module code: AGLE 121 Title: Academic Literacy Module outcomes:	asic knowledge in basic research methodology and sociological l perspectives to different themes in sociology: class, poverty, inderstanding of the South African society within a comparative Semester 2 Institutions and The Southern Africa Context al institutions like family, education, economy, religion, politics, ogical perspectives. Contextualize and apply relevant concepts ern African developmental context. Semester 2
Interaction. Exhibit sufficient b. perspectives. Apply theoretica race, gender. Demonstrate Un perspective. Module code: SOCS 122 Title: Introduction To Sociology: Module outcomes: Critically analyze different social health, and media using sociole and perspectives to the Souther Module code: AGLE 121 Title: Academic Literacy Module outcomes: Possess basic knowledge of additional contents	asic knowledge in basic research methodology and sociological il perspectives to different themes in sociology: class, poverty, inderstanding of the South African society within a comparative Semester 2 Institutions and The Southern Africa Context al institutions like family, education, economy, religion, politics, ogical perspectives. Contextualize and apply relevant concepts orn African developmental context. Semester 2 cademic vocabulary and register as well as the reading and
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Interaction. Exhibit sufficient b. perspectives. Apply theoretica race, gender. Demonstrate Un perspective. Module code: SOCS 122 Title: Introduction To Sociology: Module outcomes: Critically analyze different social health, and media using sociole and perspectives to the Southes Module code: AGLE 121 Title: Academic Literacy Module outcomes: Possess basic knowledge of act writing of academic texts in ord Communicate effectively orally and evaluate basic academic to by making use of accurate and accurately, fluently and approp Module code: PSYC 111	Asic knowledge in basic research methodology and sociological li perspectives to different themes in sociology: class, poverty, inderstanding of the South African society within a comparative Semester 2 Institutions and The Southern Africa Context al institutions like family, education, economy, religion, politics, ogical perspectives. Contextualize and apply relevant concepts ern African developmental context. Semester 2 Cademic vocabulary and register as well as the reading and der to function effectively in the academic environment; and in writing in an academic environment; Understand, interpret, exts and write appropriate academic genres in a coherent manner lappropriate academic conventions; Listen, speak, read and write triately in an ethical framework. Semester 1
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Demonstrate the knowledge of human physical and cognitive p	basic contextually relevant psych processes within cultural diverse	nological processes in relation to environment. Display the
motivational process within cult	tural diverse environment.	
Module code: PSYC 121	Semester 2	
Title: Refer HSS calender		
Module outcomes:		
Demonstrate the knowledge of	theoretical foundations and value	e application in the field of
behavioral sciences in relation	to interpersonal, health , social a	nd community psychology.
Module code: BIYM 111	Semester 1	
Title: Anatomy & Biophysics		
Module outcomes:		
Describe and explain the struct	ure of the tissues, organs, and s	ensory ,respiratory, gastro
intestinal, cardiovascular syst	ems. Describe and explain the b	iophysics related to sensory,
respiratory, gastro intestinal, o	ardiovascular system. Apply kno	owledge of human anatomy and
related biophysics in clinical pr	actice.	
Module code: BIYM 112	Semester 1	
Litle: Anatomy & Biophysics		
Module outcomes:		
Describe and explain the struct	ure of the tissues, organs, and o	rgans of nervous, urinary,
reproductive and endocrine sys	stems. Describe and explain the l	olophysics related to hervous,
biophysics in clinical practice	chne systems. Apply knowledge	or numan anatomy and related
Module code: BIVM121	Somester 2	
Title: Physiology & Biochomstry	Semester 2	
Modulo outcomoo		
Describe the physiology of the	tissues and organs of the respire	tony spacial sonsos gastro
intestinal and cardio vascular s	lissues and organs of the respira	1019, special senses, gastro –
	vetome accurately as related to r	ursing practice Describe the
hiochemistry and hiophysics re	systems accurately as related to r	nursing practice. Describe the
biochemistry and biophysics re cardio vascular systems Appl	systems accurately as related to r lated to the respiratory, special s	nursing practice. Describe the enses, gastro –intestinal and ny and related biochemistry in
biochemistry and biophysics re cardio vascular systems. Apply clinical practice	systems accurately as related to r lated to the respiratory, special s y knowledge of relevant physiolog	nursing practice. Describe the enses, gastro –intestinal and gy and related biochemistry in
biochemistry and biophysics re cardio vascular systems. Apply clinical practice Module code: BIYM 122	systems accurately as related to r lated to the respiratory, special s y knowledge of relevant physiolog	nursing practice. Describe the enses, gastro –intestinal and gy and related biochemistry in
biochemistry and biophysics re cardio vascular systems. Apply clinical practice Module code: BIYM 122 Title Physiology & Biochemstry	systems accurately as related to r lated to the respiratory, special s y knowledge of relevant physiolog	nursing practice. Describe the enses, gastro –intestinal and gy and related biochemistry in
biochemistry and biophysics re cardio vascular systems. Apply clinical practice Module code: BIYM 122 Title:Physiology & Biochemstry Module outcomes:	systems accurately as related to r lated to the respiratory, special s y knowledge of relevant physiolog	nursing practice. Describe the enses, gastro –intestinal and gy and related biochemistry in
biochemistry and biophysics re cardio vascular systems. Apply clinical practice Module code: BIYM 122 Title:Physiology & Biochemstry Module outcomes: Describe the physiology of the	systems accurately as related to r lated to the respiratory, special s y knowledge of relevant physiolog Semester 2	nursing practice. Describe the enses, gastro –intestinal and gy and related biochemistry in
biochemistry and biophysics re cardio vascular systems. Appl clinical practice Module code: BIYM 122 Title:Physiology & Biochemstry Module outcomes: Describe the physiology of the endocrine systems systems ac	systems accurately as related to r lated to the respiratory, special s y knowledge of relevant physiolog Semester 2 tissues and organs of nervous, u curately as related to nursing pra	rinary, reproductive and ctice. Describe the enses, gastro –intestinal and gy and related biochemistry in
biochemistry and biophysics re cardio vascular systems. Apply clinical practice Module code: BIYM 122 Title:Physiology & Biochemstry Module outcomes: Describe the physiology of the endocrine systems systems ac and biophysics related to the n	systems accurately as related to r lated to the respiratory, special s y knowledge of relevant physiolog Semester 2 tissues and organs of nervous, u curately as related to nursing pra ervous, urinary, reproductive and	rinary, reproductive and ctice. Describe the denses, gastro –intestinal and gy and related biochemistry in rinary, reproductive and ctice. Describe the biochemistry endocrine systems systems.

MA.2.20 NURSING EDUCATION : BN (Education) N110M

Module code: NADM112	Semester 2	
Title: Ethos and Professional	Practice	
Module outcomes:		
Apply principles of profession responsibility for effective n	onalism in nursing and midwifery ursing and midwifery care. Mair	practice. Assume autonomy, tain professional excellence.
Module code: CHNM 111	Semester 1	
Title: Community Nursing Scie	ence	
Module outcomes:		
To recognize all factors influ	uencing health in communities.	To apply relevant knowledge and
skills for community assess	ment and development.	
Module code: NADM 111	Semester 1	
Title: Nursing Mangement 1		

Module outcomes:		
Application of leadership th	eories and styles to manage hea	alth care units. Demonstration of
effective leadership skills in	the management of health care	units. Application of the leadership
process for effective manage	gement of health care services.	
Module code: NEDM 111	Semester 1	
Title: Nursing Education 1		
Module outcomes:		
Application of the nature of	human cognition and the theorie	es of teaching-learning into the
teaching-learning process.	Demonstration of the knowledge	e of factors influencing the teaching-
learning process. Applicati	on of different educational philos	sophies and styles into the teaching-
learning environment.		
Module code: NADM 122	Semester 2	
Little: Nursing Management 1		
Module outcomes:	den and states to see a state of	at he alther and with Demonstrate
Analyse management theorem	ries and styles to manage differe	ent health care units. Demonstrate
the ability to apply the princ	fiples of participatory manageme	int in nealth care delivery. Apply the
to use communication skills	and self-assessment managing	bealth care units
Module code: NEDM 122	Semester 2	
Title: Nursing Education 1	Semester 2	
Modulo outcomos:		
Demonstrate the knowledge	a of different teaching-learning s	trategies to facilitate a learning
session Demonstrate com	potonce in using relevant teaching s	na materials during a teaching
learning session Demonst	rate the ability to utilize relevant	technology in facilitating a teaching
learning session. Demonst	arte the ability to consider cultur	al divdersity in the utilization of
teaching learning, strategie	s and technology.	
Module code: NADM 211	Semester 1	
Title: Nursing Management II a	and Praticals	
Module outcomes:		
Formulation of organization	al structures for health care unit	s. Formulation of mission. vision.
philosophy, objectives and	policies of a unit - Management	of a nursing unit. Mangement of a
nursing unit.		0
Module code: CHNM 211	Semester 1	
Title: Community Nursing Scie	ence	
Module outcomes:		
Demonstrate knowledge of	fundamental principles of compr	rehensive health care. Demonstrate
the ability to assess and pro	ovide treatment to individuals, fa	milies and communities. Display the
ability to utilize the primary	health care approach in assessi	ng and managing conditions in
communities		
Module code: SOCS 111	Semester 1	
Title: Introduction to Sociolog	Jy : Basic Concepts and Them	es
Module outcomes:		
Demonstrate satisfactory fa	miliarity with sociological concer	ots like society, social structure and
interaction. Exhibit sufficient	nt basic knowledge in basic rese	arch methodology and sociological
perspectives. Apply theore	tical perspectives to different the	emes in sociology: class, poverty,
race, gender.		
Module code: MANM 111		
Title : Introduction To Manage	Semester 1	
	Semester 1 ment	
Module outcomes:	Semester 1 ment	
Module outcomes: Explain the concepts of nee	Semester 1 ment eds and needs satisfaction in bus	siness and organizations. Explain
Module outcomes: Explain the concepts of nee the concepts of manageme	Semester 1 ment eds and needs satisfaction in bus nt within organizations. Utilize b	siness and organizations. Explain pasic planning, organize, leading,
Module outcomes: Explain the concepts of nee the concepts of manageme motivation and controlling in	Semester 1 ment eds and needs satisfaction in bus nt within organizations. Utilize b n business and public sector dep	siness and organizations. Explain pasic planning, organize, leading, partments as pillars of the

services.		
Module code: NADM 222	Semester 2	
Title: Nursing Management II	and Praticals	
Module outcomes: Application of principles and the ability to manage and re theories and modalities to p productivity and preventing	d processes of decision-making a esolve conflict in an organization. provide effective service delivery. absenteeism as well.	and problem solving. Demonstrate Application of organizational Apply strategies enhancing
Module code: CHNM 222	Semester 2	
Title: Community Nursing Scie	ence	
Module outcomes: Demonstrate knowledge of policies and legislation in th	health care of specific groups in the care of these groups.	the community. Apply relevant
Module code: SOCS	Semester 2	
121		
Title: Sociology		
Demonstrate satisfactory fa interaction. Exhibit sufficier perspectives. Apply theore race, gender.	miliarity with sociological concept to basic knowledge in basic resear- tical perspectives to different the	ts like society, social structure and arch methodology and sociological mes in sociology: class, poverty,
Module code: MANM 121	Semester 2	
Title: Financial Management		
Module outcomes: Explain the concepts marke in organizations. Utilize the	eting, finance, operations and hu	nan resources, and their relevance ns.
Module code: NADM 311	Semester 1	
Title: Nursing Management II a	and Praticals	
Module outcomes: Demonstrate the ability to p to plan and manage time. I Identify and reduce risks in manage them.	lan strategically for effective hea Demonstrate the ability to plan, n the organization. Identify persor	Ith care delivery. Utilize strategies nanage, and implement change. nel and unit sources of stress and
Module code: CHNM 311	Semester 1	
Title: Community Nursing Scie	ence	
Module outcomes: Demonstrate the ability to it Display assessment skills in participate in the developm relevant policies and legisla ability to set, monitor and e	dentify emergency and/or disastent of any emergency and/or disaster ent of a data base on emergency tion in the management of the sa nsure standards in the various no	er situations in the community. situation. Demonstrate the ability to and disaster management. Apply aid situation. Demonstrate the ursing care.
Module code: NRMM 311	Semester 1	
Title: Nursing Research Metho	odology	
Module outcomes: Demonstrate the knowledge research process	e of different research methods.	Demonstrate the knowledge of the
Module code: HCOM 111	Semester 1	
Title: Public Relations		
Module outcomes: Demonstrate understanding effects on societal morals. I theories. Module code: NADM 322	g of cultural and media values. Demonstrate understanding of m	Demonstrate knowledge of media ass communication and press
MOULIE COLE. MADIN 322	Jennester 2	

Title: Nursing Management		
Module outcomes:		
Demonstrate communication	on skills to facilitate effective mar	agement and collaboration
processes. Demonstrate the	ne ability to render quality nursing	care and prevent health risks
against consumers of healt	h.	
Module code: NRPM 322	Semester 2	
Title: Nursing Research Project	ct	
Module outcomes:		
Demonstrate the ability to c	lesign a research proposal. Disp	lay the ability to conduct a research
study. Compilation of repo	rts on research findings.	
Module code: CHNM 322		
Title: Community Nursing Scie	ence III and Practicals	
Module outcomes:		
Demonstrate the ability to it	dentify, establish and co-ordinate	e consultative forums with the
relevant stakeholders in the	community. Display assessme	nt skills of available resource
utilization to improve empo	werment and capacity building.	Demonstrate the ability to participate

in the development of health care projects in collaboration with the necessary stakeholders. Apply relevant policies and legislation in the management of identified projects.

2.21 PHYSICS

Module code: PHYM 115	Semester 1	
Title: Mechanics and Heat Ene	rgy	
Module outcomes:		
Knowledge:		
At the end of this module st	udents acquire formal mathemat	ical knowledge of the topics covered
and fundamental concepts	such as force, work, energy and	momentum, elasticity, simple
harmonic motion, waves, hy	/drostatics, hydrodynamics and h	neat. State the laws, definitions and
principles of abovementione	ed concepts concisely in their ov	vn words without excluding any
relevant information.		
Skills:	use differential and integral colour	lations in natural science problems
The students learn now to L	ise differential and integral-calcu	lations in natural science problems.
At the end of the module, it	ney are skillul enough to use the	se techniques when describing
certain sections of theory a	tudente develop ekille in megeuri	ng coloulations and report writing of
areas. In the practical the si	which extent beyond field of Phys	rig, calculations and report writing of
those they have met in the	examples: the problems to be so	lyed are applications of the
abovementioned topics. Als	solve unfamiliar problem at the	same level Demonstrate basic
knowledge and insight of th	e concepts studied in the module	content In practical sessions
students perform a variety of	of experiments successfully, com	pute the results and be able to
present the results graphica	ally, thereafter they should be abl	e to meaningfully and scientifically
communicate through a rep	ort.	
Module code: PHYM 128	Semester 2	
Title: Basic Electromagnetism	and Modern Physics	
Module outcomes:		
Knowledge:		
At the end of this module st	udents acquire formal mathemat	ical knowledge of the topics
covered, electricity, magnet	ism, optics and other topics from	atomic and nuclear physics. State
the laws, definitions and pri	nciples of abovementioned conc	epts concisely in their own words
without excluding any relevant	ant information.	
Skills:		
Students further develop th	eir skills in solving scientific prob	lems and explaining physics
processes using differential	and integral calculations. Demo	onstrate basic knowledge and insight

of the abovemer similar to those i the abovementic in the module co	ntioned physical phenome n they have met in the ex oned topics. Demonstrate ontent. In practical sessio	ana as they occur amples; the problem basic knowledge ns students performed	in everyday life. Solve problems ems to be solved are applications of and insight of the concepts studied m a variety of experiments
successfull, com	ipute the result and be ab	le to present the r	esults graphically.
Module code: PHYN	A 215 Semester	1	
Title: Mechanics and	d Thermal Physics		
Module outcomes:			
Knowledge:			
At the end of this covered, fundar behaviour of fluid principles of abo relevant informa	s module students acquire nental concepts and expe ds at different temperature wementioned concepts co tion.	e a formal mathen rimental aspects r es and pressures. oncisely in their ov	natical knowledge of the topics elated to rotational dynamics and the State the laws, definitions and wn words without excluding any
Skills:		and take and the last	detions is not well a demonstrated and
involving rotation combinatorics to problems similar applications of th concepts studied experiments suc thereafter they s	an now to use differential nal dynamics, when dealin derive the physical beha to those they have met in the abovementioned topics d in the module content. the cessfully, compute the re hould be able to meaning	and integral-calc ng with gases the viour of gases from n the examples, th s. Demonstrate b in practical sessio sult and be able to gfully and scientifi	Justions in natural science problems students can use aspects of m the molecular level. Solve ne problems to be solved are asic knowledge and insight of the ns students perform a variety of o present the results graphically, cally communicate through a report.
Module code: PHYN	A 216 Semester	2	
Title: Atomic Physic	s		
Module outcomes:			
Knowledge:			
At the end of this covered and ho experimental asp principles of avo relevant informa to use graphical Compton effect. Discuss the four use it to identify matter.	s module the students acc w to describe the atomic pects related to charge ra vementioned concepts co tion (physics and mathem methods for illustration. Describe the production laws of atomic physics in atoms. Discuss the de B	quire a formal mat view of matter and diation, atomic sp poncisely in their ov hatics). Explain wi Explain the photog of X-rays and atte detail. Explain cl roglie wavelength	hematical knowledge of the topics d the fundamental concepts and ectra. State the laws definitions and wn words without excluding any hat thermal radiation is and be able electric effect and explain the enuation of X-rays in materials. haracteristic X-rays and know how to and describe the dual nature of
Skills:			
The students lea involving charge structure of matt compute the res able to meaning	arn how to use differential radiation, atomic and mo er. In practical sessions ults and be able to prese fully and scientifically con	and integral-calcule ecular spectra, la students perform the results grap municate through	Jations in natural science problems users, X-ray production, atomic a variety of experiments successfully hically, thereafter they should be a report.
Module code: PHYN	A 221 Semester :	2	
Title:Waves and Qu	antum Mechanics		
Module outcomes:			
At the end of this covered on how motion; describe concepts in qual concepts concis aforementioned	s module the students acc to solve simple oscillatio e mathematically the supe ntum mechanics. State the ely in their own words, wi differential equations as is situations with time. Disc	quire a formal mat n problems that in rposition of waves he laws, definitions thout excluding ar nitial value proble use the basenet	hematical knowledge of the topics wolve damped and driven harmonic s; study and apply fundamental s and principles of abovementioned by relevant information. Solve the ms. Discuss the evolution of the err uncertainty principle
concepts in quar concepts concis aforementioned aforementioned	namemancally the supe ntum mechanics. State the ely in their own words, wi differential equations as i situations with time. Disc	thout excluding ar nitial value proble	study and apply fundamental s and principles of abovementioned by relevant information. Solve the ms. Discuss the evolution of the erg uncertainty principle

meaningfully.

Solve Schrödinger equation for

(i) a free particle and the related concepts

(ii) a particle in an infinite square well

Solve problems similar to those in they have met in the examples; the problems to be solved are applications of the abovementioned topics

Skills:

The students learn how to use differential and integral-calculations in natural science problems involving wave motion at macroscopic and microscopic level. Demonstrate basic knowledge and insight of the concepts studied in the module content. Model oscillating single oscillating particles by finding the appropriate differential equations. Demonstrate an understanding of the dictates of choosing between classical mechanics and quantum mechanics. Perform a variety of experiments successfully, compute the result and be able to present the results graphically; thereafter they should be able to meaningfully and scientifically communicate through a report.

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Module code: PHY	′M 222	Semester 2			
Title: Electricity and	d Magnetisn	n			

Module outcomes:

Knowledge:

The students acquire mathematical knowledge of presenting the electric and magnetic fields using vector theory and integral calculus. State the laws, definitions and principles of abovementioned concepts concisely in their own words without excluding any relevant information. Discuss the electric flux density vector and the divergence theorem. Determine the potential difference about a point charge and a charge system. Determine the energy expended to build up a system of charges. Discuss vector magnetic potentials. Discuss magnetic material. Describe inductance and time varying fields. Solve problems similar to those they have met in the examples, the problems to be solved are applications of the abovementioned topics. Demonstrate basic knowledge and insight of the concepts studied in the module content.

Skills:

Students further develop their skills in solving scientific problems and explaining the electric field and magnetic fields using differential and integral calculations and vector theory. In practical session students demonstrate basic knowledge and insight of the abovementioned physical phenomena as they occur in everyday life. Handle electrostatic fields using vectors in Cartesian, cylindrical and spherical coordinate systems. Perform a variety of experiments successfully, compute the results and be able to present the results graphically, thereafter they should be able to meaningfully and scientifically communicate through a report.

	- ,	
Module code: PHYM 315	Semester 1	
Title: Classical Mechanics		
Module outcomes:		
Knowledge:		
At the end of this module the dynamic problems that invo- as special relativity. Use di- and acceleration of a partic and insight of the concepts Discuss Kepler's laws of pla Set up and solve the energy equations associated with a Describe the motion of rigid systems and solve the equa Use the Lorentz transformal speeds. Solve problems si	ne students have a formal mather plve central forces, moving coordi- ifferential vector calculus to deter le in a moving coordinate system studied in the module content. If anetary motion. Derive the poter y equation of an orbit in a central a dynamics of systems of particle d bodies in three dimensinons. D ations of motion. Derive the equ- ation for finding the momentum, r imilar to those they have met in t	natical knowledge of how to solve inate systems, Lagrangians as well mine the position vector, velocity 1. Demonstrate basic knowledge Discuss a central force field. I force field. Solve the differential as as initial value problems. Verive the Lagrangian of simple ations used in Lorentz tranformtions. nass and energy at relativistic ne examples, the problems to be

solved are applications of the abovementioned topics. Skills:

The students learn how to use differential and integral-calculations in natural science problems

involving grovitational field	theory and transformations both	an avatama of avaa . In practical
sessions students perform	a variety of experiments success	sfully compute the result and be able
to present the results grap	nically, thereafter they should be	able to meaningfully and
scientifically communicate	through a report.	
Module code: PHYM 316	Semester 1	
Title: Solid State Physics		
Module outcomes:		
Knowledge:		
At the end of this module the	ne students should have the know	wledge to discuss crystal structures
and the models used. Des	cribe the basic concepts of the s	tructure of solids and the principles
of structure determination.	Describe the elementary models	s for bonding of atoms and
proportion (clootrical thorm	Jenual classifications used in sol	aluding details of the expected
crystal structures to the me	chanical properties Perfom sim	onle calcutations involving cubic
structures and hexagonal of	lose-packed structure, which are	e commonly found in nature. Explain
how the problem of elastic	scattering of X-rays by a crystal	is treated using the concept of the
reciprocal lattice. Give a d	escription of the feature of the vil	brations of monatomic and of
diatomic linear chains. Exp	plain the significance of dispersion	on curves in three dimensions.
Describe the free electron	model and the effective mass, th	e density of states, the Fermi level.
Explain qualitatively the ba	nd theory. Distinguish between	an insulator, a semiconductor and a
The students learn how to	use mathematical abstraction to	represent and solve problems
involving periodic structure	s	represent and solve problems
Module code: PHYM 317	Semester 1	
Title: Quantum Mechanics		
Module outcomes:		
Knowledge:		
At the end of this module the	ne students will have gained know	wledge and insight into the motion of
microscopic particles. The	student should be able to, Demo	onstrate basic knowledge and insight
of the abovementioned phy	vsical phenomena as they occur	in everyday life. State the laws,
definitions and principles o	abovementioned concepts concerts concepts concertation	to those in their own words, without
examples: the problems to	be solved are applications of the	abovementioned tonics
Demonstrate basic knowle	dge and insight of the concepts	studied in the module content
Skill:		
The students learn how to	use analytical and approximatio	n methods to solve a variety of
problems.	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	2
Module code: PHYM 318	Semester 1	
Title: Project and Research		
Module outcomes:		
At the end of the module the	e students should be able to pro	duce a self-contained written report
about a scientific experime	nt which clearly explain the expe	rimental methods, results, data
analysis and estimation of	uncertainties and which also disc	cuss results.
	Semester	
Medule outcomagnetism		
Knowledge:		
At the end of this module the	ne students will have gained kno	wledge and insight into the motion of
a microscopic particle. Stu	dents should be able to do the fo	plowing, demonstrate basic
knowledge and insight of th	te abovementioned physical phe	nomena as they occur in everyday
life. State the laws, definiti	ons and principles of abovement	tioned concepts concisely in their
own words, without excludi	ng any relevant information. Der	nonstrate basic knowledge and
insight of the concepts stud	lied in the module content.	

Skill:		
The students learn how to	use analytical and approximation	methods to solve a variety of
problemsSolve problems s	milar to those in they have met in	the examples; the problems to be
solved are applications of t	he abovementioned topics	
Module code: PHYM 322	Semester 1	
Title: Nuclear Physics		
Module outcomes:		
Knowledge:		
At the end of this module the	ne students will have gained know	vledge and insight into the structure
and benaviour of nuclear si	tructures. Students should be ab	le to do the following, demonstrate
basic knowledge and insign	nt of the abovementioned physica	al pnenomena as they occur in
everyday llie. State the la	excluding any relevant information	abovementioned concepts concisely
and insight of the concents	studied in the module content	on. Demonstrate basic knowledge
Skill.	Studied in the module content	
The students learn how to	use analytical and approximation	methods to solve a variety of
problems. Solve problems	similar to those in they have met	in the examples: the problems to be
solved are applications of t	he abovementioned topics.	···· ···· ····························
Madula aada, DHVM 222	O a ma a star O	
	Semester 2	
Title: Statistical Physics	Semester 2	
Title: Statistical Physics Module outcomes:	Semester 2	
Title: Statistical Physics Module outcomes: Knowledge:	Semester 2	
Title: Statistical Physics Module outcomes: Knowledge: At the end of this module th	ne students will have gained know	vledge and insight into the motion of
Title: Statistical Physics Module outcomes: Knowledge: At the end of this module th a microscopic particle. Stud	ne students will have gained know	vledge and insight into the motion of lowing , State the laws, definitions
Title: Statistical Physics Module outcomes: Knowledge: At the end of this module th a microscopic particle. Stud and principles of abovement	ne students will have gained know dents should be able to do the fol ntioned concepts concisely in the	vledge and insight into the motion of lowing , State the laws, definitions ir own words, without excluding any
Title: Statistical Physics Module outcomes: Knowledge: At the end of this module th a microscopic particle. Stud and principles of abovement relevant information. Solve	ne students will have gained know dents should be able to do the fol ntioned concepts concisely in the problems similar to those in the	vledge and insight into the motion of lowing , State the laws, definitions ir own words, without excluding any y have met in the examples; the
Title: Statistical Physics Module outcomes: Knowledge: At the end of this module th a microscopic particle. Stud and principles of abovement relevant information. Solve problems to be solved are	ne students will have gained know dents should be able to do the fol ntioned concepts concisely in the problems similar to those in the applications of the abovemention	vledge and insight into the motion of lowing , State the laws, definitions ir own words, without excluding any y have met in the examples; the ed topics. Demonstrate basic
Title: Statistical Physics Module outcomes: Knowledge: At the end of this module th a microscopic particle. Stud and principles of abovement relevant information. Solve problems to be solved are and knowledge and insight of th	ne students will have gained know dents should be able to do the fol ntioned concepts concisely in the problems similar to those in the applications of the abovemention ne concepts studied in the module	vledge and insight into the motion of lowing , State the laws, definitions ir own words, without excluding any y have met in the examples; the ed topics. Demonstrate basic e content
Title: Statistical Physics Module outcomes: Knowledge: At the end of this module th a microscopic particle. Stud and principles of abovement relevant information. Solve problems to be solved are a knowledge and insight of th Skill:	ne students will have gained know dents should be able to do the fol tioned concepts concisely in the problems similar to those in the applications of the abovemention ne concepts studied in the module	vledge and insight into the motion of lowing , State the laws, definitions ir own words, without excluding any y have met in the examples; the ed topics. Demonstrate basic e content
Title: Statistical Physics Module outcomes: Knowledge: At the end of this module th a microscopic particle. Stud and principles of abovement relevant information. Solve problems to be solved are a knowledge and insight of the Skill: The students learn how to be problems. Demonstrate how to be problems. Based on the based on t	ne students will have gained know dents should be able to do the fol tioned concepts concisely in the problems similar to those in the applications of the abovemention he concepts studied in the module use analytical and approximation	vledge and insight into the motion of lowing , State the laws, definitions ir own words, without excluding any y have met in the examples; the ed topics. Demonstrate basic e content methods to solve a variety of
Title: Statistical Physics Module outcomes: Knowledge: At the end of this module th a microscopic particle. Stud and principles of abovement relevant information. Solve problems to be solved are a knowledge and insight of th Skill: The students learn how to be problems. Demonstrate be phenomena as they occurs	ne students will have gained know dents should be able to do the fol tioned concepts concisely in the problems similar to those in the applications of the abovemention he concepts studied in the module use analytical and approximation usic knowledge and insight of the in evenue	vledge and insight into the motion of lowing , State the laws, definitions ir own words, without excluding any y have met in the examples; the ed topics. Demonstrate basic e content methods to solve a variety of abovementioned physical
Title: Statistical Physics Module outcomes: Knowledge: At the end of this module th a microscopic particle. Stud and principles of abovement relevant information. Solve problems to be solved are at knowledge and insight of th Skill: The students learn how to be problems. Demonstrate be phenomena as they occur	ne students will have gained know dents should be able to do the fol tioned concepts concisely in the problems similar to those in the applications of the abovemention he concepts studied in the module use analytical and approximation usic knowledge and insight of the in everyday life.	vledge and insight into the motion of lowing , State the laws, definitions ir own words, without excluding any y have met in the examples; the ed topics. Demonstrate basic e content methods to solve a variety of abovementioned physical
Title: Statistical Physics Module outcomes: Knowledge: At the end of this module th a microscopic particle. Stud and principles of abovement relevant information. Solve problems to be solved are at knowledge and insight of th Skill: The students learn how to be problems. Demonstrate be phenomena as they occur Module code: PHYM 324 Title: Project and Besearch	ne students will have gained know dents should be able to do the fol tioned concepts concisely in the problems similar to those in the applications of the abovemention he concepts studied in the module use analytical and approximation usic knowledge and insight of the in everyday life. Semester 2	vledge and insight into the motion of lowing , State the laws, definitions ir own words, without excluding any y have met in the examples; the ed topics. Demonstrate basic e content methods to solve a variety of abovementioned physical
Title: Statistical Physics Module outcomes: Knowledge: At the end of this module th a microscopic particle. Stud and principles of abovement relevant information. Solve problems to be solved are at knowledge and insight of th Skill: The students learn how to be problems. Demonstrate be phenomena as they occur Module code: PHYM 324 Title: Project and Research Module outcomes:	ne students will have gained know dents should be able to do the fol ntioned concepts concisely in the applications of the abovemention the concepts studied in the module use analytical and approximation usic knowledge and insight of the in everyday life. Semester 2	vledge and insight into the motion of lowing , State the laws, definitions ir own words, without excluding any y have met in the examples; the ed topics. Demonstrate basic e content methods to solve a variety of abovementioned physical
Title: Statistical Physics Module outcomes: Knowledge: At the end of this module th a microscopic particle. Stud and principles of abovement relevant information. Solve problems to be solved are at knowledge and insight of th Skill: The students learn how to be problems. Demonstrate be phenomena as they occur Module code: PHYM 324 Title: Project and Research Module outcomes: At the end of the module th	ne students will have gained know dents should be able to do the fol ntioned concepts concisely in the applications of the abovemention he concepts studied in the module use analytical and approximation usic knowledge and insight of the in everyday life. Semester 2	vledge and insight into the motion of lowing , State the laws, definitions ir own words, without excluding any y have met in the examples; the ed topics. Demonstrate basic e content methods to solve a variety of abovementioned physical
Title: Statistical Physics Module outcomes: Knowledge: At the end of this module th a microscopic particle. Stud and principles of abovemen relevant information. Solve problems to be solved are a knowledge and insight of th Skill: The students learn how to problems. Demonstrate ba phenomena as they occur Module code: PHYM 324 Title: Project and Research Module outcomes: At the end of the module th about a scientific experime	The students will have gained know dents should be able to do the fol ntioned concepts concisely in the applications of the abovemention the concepts studied in the module use analytical and approximation usic knowledge and insight of the in everyday life. Semester 2	vledge and insight into the motion of lowing , State the laws, definitions ir own words, without excluding any y have met in the examples; the ed topics. Demonstrate basic e content methods to solve a variety of abovementioned physical