Faculty of **Military Science**

Dean:
Prof MS Tshehla
MSc (UL), PhD (Cape Town)

CALENDAR 2014
PART 13

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General Information

STANDING INVITATION TO PAST STUDENTS

The Registrar cordially invites all past students of Stellenbosch University to notify him in writing or by e-mail (info@sun.ac.za) of any change of address.

The Registrar also welcomes news of distinctions, academic or other, won by our past students, and would appreciate being informed of the titles of any of their publications. The Senior Director: Library and Information Services would be equally happy to receive copies of such publications on behalf of the University Library.

LANGUAGE POLICY

In terms of the contractual agreement between the Department of Defence and Stellenbosch University, the teaching and evaluation of all programmes in the Faculty of Military Science will be conducted in English.

NON-RACISM

Stellenbosch University admits students of any race, colour, nationality or ethnic origin to all rights, privileges, programmes and activities generally accorded or made available to students of the University. The University does not discriminate on the basis of race, colour, nationality or ethnic origin in the implementation of its educational policies, its scholarship and loan programmes, or its sport programmes.

PLEASE NOTE

1. In this publication any expression signifying one of the genders includes the other gender equally, unless inconsistent with the context.

2. Before making a final choice of modules (subjects), every student should closely consult the relevant timetables. Should it then become apparent that two modules fall in the same time slot on a particular timetable, the University will not allow registration as a student in both of them for the same year/semester since they will be an inadmissible combination.

3. The University reserves the right to amend the Calendar at any time. The Council and Senate of the University accept no liability for any inaccuracies there may be in the Calendar. Every reasonable care has been taken, however, to ensure that the relevant information to hand as at the time of going to press is given fully and accurately in the Calendar.

4. Parts 1, 2 and 3 of the Calendar contain general information applicable to all students. Students are urged to note with special care the content of the Provisions relating to Examinations and Promotions in the "University Examinations" chapter of Part 1 of the Calendar.

CALENDAR CLASSIFICATION

The University Calendar is divided into the following parts:

General	Part 1
Bursaries and Loans	Part 2
Student Fees	Part 3
Arts and Social Sciences	Part 4
Science	Part 5
Education	Part 6
AgriSciences	Part 7
Law	Part 8
Theology	Part 9
Economic and Management Sciences	Part 10
Engineering	Part 11
Medicine and Health Sciences	Part 12
Military Science	Part 13

Afrikaans (Part 1 - 12) or English copies of the individual parts may be obtained from the Registrar on request.

COMMUNICATION WITH THE UNIVERSITY

Student Number

In dealing with new formal applications for admission, the University assigns a student number to each applicant. This number serves as the unique identification of the person concerned. However, the mere assignment of a student number does not imply that the applicant has been accepted for the proposed programme of study. You will be advised whether or not you have been accepted in a separate letter.

Once you have been informed of your student number you must please quote it in all future correspondence with the University.

Addresses at the Central Administration

Correspondence on academic matters – i.e. study-related matters, bursaries and loans, etc., as well as residence placements – should be directed to:

The Registrar
Stellenbosch University
Private Bag X1
MATIELAND
7602
E-mail: info@sun.ac.za

Correspondence on matters relating to finance and services, including services at University residences, should be directed to:

The Executive Director: Operations and Finance
Stellenbosch University
Private Bag X1
MATIELAND
7602

USEFUL TELEPHONE AND FAX NUMBERS

For divisions and sections not listed below, please contact the Stellenbosch University Contact Centre on the Stellenbosch campus at 021 808 9111, with fax number 021 808 3822 and e-mail info@sun.ac.za.

Faculty of Military Science	Telephone	Fax
The Dean, Faculty of Military Science, Saldanha	022 702 3003	022 702 3050
Faculty Secretary, Saldanha	022 702 3019	022 702 3050
Interactive Telematic Services Coordinator, Saldanha	022 702 3128	022 702 3049
Faculty Secretary, Stellenbosch	021 808 9111	021 808 3822
Library (JS Gericke) (Stellenbosch)	021 808 4385/ 021 808 4883	021 808 4336

The Faculty of Military Science

The Faculty of Military Science resides in the Military Academy, which is located at Saldanha on the West Coast.

QUALIFICATIONS OFFERED BY THE FACULTY

Preparatory Certificate in Military Studies (PCMS)
Higher Certificate in Military Studies (HCMS)
Bachelor of Military Science (BMil)
Bachelor of Military Science with Honours (BMilHons)
Master of Military Science (MMil)
MPhil in Security Management
PhD in Military Science

SERVICES

1. Academic Development

The following services are provided to prospective and registered students:

1.1 study and career guidance;

1.2 life skills development;

1.3 psychotherapeutic services;

1.4 academic support services.

2. Language Service

Informal isiXhosa, isiZulu, SeSotho, French and German courses are available on request to staff and students.

3. Educational Enrichment of Staff

The Committee for Teaching and Learning provides regular opportunities for academic enrichment. Educational acuity is further ensured through regular interaction with the University, the presentation of papers at national and international conferences and symposia, organising and hosting conferences at the Military Academy and the exchange of guest lecturers.

THE CENTRE FOR MILITARY STUDIES

1. Nature

The aim of the Centre for Military Studies (Cemis) of Stellenbosch University is to analyse security challenges. Cemis reports academically to the Faculty of Military Science, organisationally forms part of the Department of Defence and is located at the Military Academy at Saldanha.

2. Role

Cemis finds itself in a dual position. On the one hand, Cemis conducts research for the Department of Defence, which finances the Centre, and, on the other hand, Cemis is a research institution of Stellenbosch University. The Centre functions within the legal framework of the agreement between the Department of Defence and Stellenbosch University and within the ethical framework for scientific research of the University, and focuses on maintaining scientific standards, academic integrity and intellectual independence.

3. Objectives

3.1 Analysing security, and factors and trends influencing it, in general, as well as in Southern Africa.

3.2 Exchanging information on security trends with other national and international research bodies and, where possible, the undertaking of joint projects.

3.3 Giving guidance to Defence Force members and civilians who research security trends.

3.4 Disseminating research results to the security community and civilian target groups by means of presentations, publications and conferences.

4. Projects

Among the topics on which members of Cemis have already delivered presentations, papers, submissions and publications are the continual expansion of South African thinking on national security; civil-military relations; military human resources and service systems; the management of manpower diversity; the increasing articulation of employee needs in the Department of Defence; military professionalism, ethnicity and race in the Department of Defence; the nature, problems and challenges of the integration process in the Department of Defence; the views of defence force officers on topical issues during the transformation process; the growing influence of information processing on the management of conflict and war; the influence of information on joint training; the nature of the internal deployment of the SA National Defence Force; the connection between urban conflict and religious fundamentalism; the accountability of intelligence services; the principles in accordance with which armed forces, such as the SA National Defence Force, can conduct effective peacekeeping operations; security trends in selected African states; the development, capabilities and roles of African armed forces; long-term trends in conflict and security in Africa; and the characteristics of scientific security research.

5. Address

The Director
Centre for Military Studies
Military Academy
SALDANHA
7395
Tel.: (022) 702 3093
Fax: (022) 702 3002 / 702 3060

INTERACTIVE TELEMATIC SERVICES DEPARTMENT

The Aim of Interactive Telematic Services

The aim of Interactive Telematic Services is to ensure that the academic programmes on offer at the Military Academy become more cost-effective and more readily accessible to all Department of Defence personnel. Interactive Telematic Services has the additional advantage of providing education to personnel whilst they remain active in the labour market and furthermore does not necessitate the high costs associated with the transfer of residential student personnel.

Functions of Interactive Telematic Services

The function of Interactive Telematic Services is to provide quality non-residential, contextual higher military education and provide subjects, modules and programmes for which a student may enrol for either degree or non-degree purposes.

Programmes Offered through Interactive Telematic Services
- BMil programme in Security and Africa Studies
- BMil programme in Human and Organisation Development
- BMil programme in Organisation and Resource Management

Duration of Each Programme
- Degree. Maximum: Six years
- Minimum: Four years

Admission Requirements
- Candidates must be computer literate before commencing with their studies.
- Compliance with the minimum academic admission requirements as prescribed by Stellenbosch University.

Address
Interactive Telematic Services Coordinator
Interactive Telematic Services Department
Faculty of Military Science
Private Bag X2
Saldanha
7395

Tel: 022 702 3128

Fax: 022 702 3049

Interactive Telematic Services Admin Officer
Tel: 022 702 3022
Fax: 022 702 3049

Undergraduate Programmes

1. BACHELOR OF MILITARY SCIENCE (BMil)

The Faculty of Military Science offers the following three-year BMil degree programmes:

BMil in Human and Organisation Development

BMil in Organisation and Resource Management

BMil in Security and Africa Studies

BMil in Technology

BMil in Technology and Defence Management

1.1 Admission to the BMil Programmes

1.1.1 Selection Board

Only individuals who have been selected for undergraduate studies by the Military Academy Selection Board may be admitted to the BMil degree programmes. Prospective students should direct their applications to their respective Services. Information regarding application procedures can be obtained from the Faculty Officer, Military Academy, Private Bag X2, Saldanha, 7395.

1.1.2 Admission Requirements applicable to all BMil Programmes

The following individuals may be admitted to the BMil degree programmes:

*For the Senior Certificate up to 2008***:**

- Individuals in possession of a matriculation certificate or exemption certificate from the Matriculation Board who attained a D aggregate in the final matriculation examination.
- Individuals in possession of a provisional exemption certificate, based on age (23 years and older).
- Individuals in possession of a provisional exemption certificate from the matriculation examination, issued by the Matriculation Board to foreign students.
- Individuals who have achieved a minimum average of 50% to 55% for the Senior Certificate may be subjected to special forms of academic support.

For the National Senior Certificate (NSC) as from 2009:

- A National Senior Certificate (NSC) as certified by Umalusi, with a mark of at least 4 (50% - 59%) in Afrikaans or English, and a mark of at least 4 (50% - 59%) in each of the four school subjects from the list of designated university admission subjects. (The first final examination for the NSC was written at the end of 2008.)

or

- A certificate of full or provisional exemption from the matriculation examination, issued by the Matriculation Board to students from foreign countries or with foreign school qualifications.
- Compliance with the programme- and subject-specific admission requirements of the relevant programme.
- Individuals who have achieved a minimum average of 50% to 55% for the Senior Certificate may be subjected to special forms of academic support.

1.1.3 Additional Admission Requirements

For the Senior Certificate up to 2008:

- Individuals interested in the BMil in Technology must have a D symbol (Higher Grade) or a B symbol (Standard Grade) in both Mathematics and Physical Science for the final matriculation examination.

- Individuals interested in the BMil in Technology and Defence Management must have an E symbol (Higher Grade) or a D symbol (Standard Grade) in both Mathematics and Physical Science for the final matriculation examination.

- Individuals interested in the BMil in Organisation and Resource Management must have an E symbol (Higher Grade) or a C symbol (Standard Grade) in Mathematics for the final matriculation examination. Individuals interested in BMil in Security and Africa Studies, who take elective modules in Organisation and Resource Management, must also fulfil this requirement.

For the National Senior Certificate (NSC) as from 2009:

- Individuals interested in the BMil in Technology must have Mathematics 4 (50% -59%) and Physical Science 4 (50% - 59%).

- Individuals interested in the BMil in Technology and Defence Management must have Mathematics 3 (40% - 49%) and Physical Science 3 (40% - 49%).

- Individuals interested in the BMil in Organisation and Resource Management must have Mathematics 3 (40% - 49%) or Mathematical Literacy 5 (60% - 69%). Individuals interested in BMil in Security and Africa Studies, who take elective modules in Organisation and Resource Management, must also fulfil this requirement.

1.1.4 Admission by way of the Preparatory Certificate in Military Studies

The Preparatory Certificate in Military Studies (PCMS) provides an opportunity for prospective students who do not fully meet the abovementioned minimum requirements for degree studies, but who have the necessary study potential, to gain admission to the BMil degree programmes through the successful completion of this certificate programme.

1.2 General Provisions

1.2.1 All three years of the BMil degree programmes are followed at the Military Academy in Saldanha.

1.2.2 All first-year and second-year modules in academic disciplines successfully completed at the Military Academy will be recognised in the place of the corresponding first- or second-year modules presented in BA, BSc or BComm programmes in other faculties of the University.

1.2.3 All third-year academic subjects presented for the BMil degree may lead to BAHons, BScHons or BCommHons programmes (as the case may be) in the relevant subjects, but additional study may be required by the department concerned.

1.2.4 The bracketed abbreviation (Mil) after subject names indicates that the content of the syllabus for the relevant subject presented at the Military Academy may differ from that of the subject with the same name in the Stellenbosch-based faculties of Arts and Social Sciences, Science, Law, and Economic and Management Sciences.

1.3 Examination and Promotion Regulations

1.3.1 Reassessment

Provision is made for only two examinations of equal value. A student, who is unsuccessful in any module of any of the final examinations (May/June or November) and who qualifies for reassessment, will undergo an oral or a written reassessment immediately after the first examinations (at the same time as the deferred examinations) in order to determine whether he passes or fails.

1.3.2 Determination of Final Mark

Except in the case of continuous assessment, where only a final mark applies, the determination of the student's final mark for a module (0 – 100) shall take into account (i) the class mark (0 - 100), which is based upon the assessments done during the presentation of the module, and (ii) the examination mark (0 – 100), which includes the student's achievement in the final examination (and in the reassessment, if any), provided that:

1.3.2.1 if the examination mark is 50 or higher, the final mark shall not be less than 50;

1.3.2.2 a final mark of less than 50 shall be awarded to a student if, in the final examinations, he has obtained an examination mark of less than 40;

1.3.2.3 a final mark of less than 40 shall be awarded to a student if, in the final examinations, he has obtained an examination mark of less than 30;

1.3.2.4 in the calculation of a student's final mark, his class mark and examination mark shall be combined in the ratio of 40 to 60 in the case of semester modules, and 50 to 50 in the case of year modules.

1.3.3 Admission to Final Examinations

Except where no class mark is required, a student shall not be admitted to the final examinations in a module unless he has obtained in such module a class mark of at least 40, provided that no student shall be refused admission to such final examinations in a module in which his class mark has been based on one assessment only.

1.3.4 Proceeding to a Module

A student shall be admitted to a module in a particular year of study of a subject only if he is not more than half the credits of a single preceding year of study of such subject in arrears, provided that this rule shall be subject to the relevant corequisite, prerequisite and prerequisite pass modules and shall be subject to the relevant class and examination tables.

2. CERTIFICATES

2.1 PREPARATORY CERTIFICATE IN MILITARY STUDIES (PCMS)

Program Outline

The Military Academy, in collaboration with the SANDF, identified the need to provide those selected officers and candidate officers of the SANDF, as well as other defence forces, who do not comply with the minimum admission requirements for degree studies at the University or the Military Academy, and/or those members who did not achieve matriculation exemption, with an entry level tertiary qualification (the Preparatory Certificate in Military Studies).

This certificate programme, which is presented by the Military Academy, serves to equip qualifiers with the generic technological, managerial, interpersonal and communication skills that will contribute to their personal and professional growth and empower them to

perform their professional duty to the fullest. The programme is presented twice a year, once a semester, and was first presented in January 2001. It consists of three compulsory modules, viz. Study and Life Skills, Introduction to Computers, English Writing and Communication, as well as four optional modules, viz. Introduction to Technology A, Introduction to Technology B, Introduction to Management, and Introduction to Human Behaviour and Cultural Studies. As a prerequisite for selecting either or both of the optional modules, Introduction to Technology A and Introduction to Technology B, the prospective student should have at least written the Mathematics paper in the final school examination. Prospective students may gain access to the BMil programmes of the Faculty of Military Science through the successful completion of this programme. Final selection is subject to the specific conditions given under admission requirements for the respective undergraduate programmes offered by this Faculty. A candidate may gain admission to a specific degree programme by achieving the prescribed performance level in one or both of the Introduction to Technology modules (where applicable), as well as the prescribed aggregate performance level for the programme as a whole.

2.2 HIGHER CERTIFICATE IN MILITARY STUDIES (HCMS)
2.2.1 Admission to the HCMS
The Admission as applicable to the BMil degree programmes applies.

2.2.2 General Provisions
The General Provisions as applicable to the BMil degree programmes apply.

2.2.3 Examination Regulations
The Examination Regulations as applicable to the BMil degree programmes apply.

2.2.4 Articulation from Higher Certificate in Military Studies to BMil Degree

The Department of Defence will annually nominate from the cohort of Certificate students a number of students to be considered by the University for admission to the BMil programme provided that they have achieved an average mark of at least 60% for the Certificate programme. These students must comply with the full requirements of the first year of the BMil programme to continue with the second year of the BMil programme. The Higher Certificate in Military Studies is only awarded to students that do not complete the BMil degree, but have qualified for the Higher Certificate in Military Studies.

HCMS PROGRAMME CONTENT

2.3 HCMS IN HUMAN AND ORGANISATION DEVELOPMENT
Notes
A module of a specific subject in a specific year may only be taken if the corequisite (C), prerequisite (P) and/or prerequisite pass (PP) requirements pertaining to the particular module have been adhered to.

Compulsory Modules
Military Professional Development (12) presented over two semesters, is a core subject.

SEMESTER ONE

Fundamental Modules

English Studies (Mil)	114(12)
Military Ethics	114(8)
Computer Inf. Systems (Mil)	114(12)

Core

Industrial Psychology (Mil)	114(12), 124(12)

Electives

Criminal and Military Law	114(12)

SEMESTER TWO

Fundamental Modules

Military Leadership	144(8) P

Core

Industrial Psychology (Mil)	144(12)
Public and Development Management (Mil)	144(12)

Electives

Criminal and Military Law	144(12)
English Studies (Mil)	144(12)
Military Management	144(12)

Semester Credits	Semester 1	Semester 2
Compulsory	56	44
Elective	12	36
Total Available Credits	68	80
Credits required for programme: 136 from 148		

2.4 HCMS IN ORGANISATION AND RESOURCE MANAGEMENT

Compulsory Modules
Military Professional Development (12) presented over two semesters, is a core subject.

SEMESTER ONE

Fundamental Modules

English Studies (Mil)	114(12)
Computer Inf. Systems (Mil)	114(12)

Core

Military Management	114(12)

Electives

Criminal and Military Law	114(12)
Economics (Mil)	114(12)
Financial Accounting (Mil)	114(12)

SEMESTER TWO
Core

Military Management	144(12)

Electives

Criminal and Military Law	144(12)
Economics (Mil)	144(12)
Financial Accounting (Mil)	144(12) P or
Statistics (Mil)	144(12)
Public and Development Management (Mil)	144(12)
Computer Inf. Systems (Mil)	154(12) or
English Studies (Mil)	144(12)

Semester Credits	Semester 1	Semester 2
Compulsory	48	24
Elective	36	60
Total Available Credits	84	84
Credits required for programme: 120 from 168		

2.5 HCMS IN SECURITY AND AFRICA STUDIES

Compulsory Modules
Military Professional Development (12) presented over two semesters, is a core subject.

SEMESTER ONE

Fundamental Modules

English Studies (Mil)	114(12)
Computer Inf. Systems (Mil)	114(12)

Core

Military History	114(12)
Political Science (Mil)	114(12)

Electives

Military Geography	114(12) or
Economics (Mil)	114(12)

SEMESTER TWO

Core

Military History	144(12) P
Political Science (Mil)	144(12)

Electives

Military Geography	144(12) or
Economics (Mil)	144(12)
English Studies (Mil)	144(12)
Security Law (Mil)	144(12)

Semester Credits	Semester 1	Semester 2
Compulsory	48	36
Elective	12	36
Total Available Credits	60	72
Credits required for programme: 120 from 132		

2.6 HCMS IN MILITARY TECHNOLOGY

Notes

1. Aeronautical Science (Mil) is compulsory for SAAF Pilot/Navigator students.
2. Military Geography is compulsory for Army students.
3. Nautical Science is compulsory for Navy Combat Officer students.

Compulsory Modules

Military Professional Development (12) presented over two semesters, is a core subject.

SEMESTER ONE

Fundamental Modules

English Studies (Mil)	114(12)
Computer Inf. Systems (Mil)	114(12)

Core

Physics (Mil)	114(12) C

And one of the following (where the two Aeronautical Science modules are seen as one):

Aeronautical Science (Mil)	114(12) and 124(12) or
Military Geography	114(12) or
Nautical Science	114(12)

Electives

Mathematics (Mil)	112(6), 122(6)

SEMESTER TWO

Core

Physics (Mil)	144(12) C, P

And one of the following (where the two Aeronautical Science modules are seen as one):

Aeronautical Science (Mil)	144(12) and 154(12) or
Military Geography	144(12) or
Nautical Science	144(12)

Electives

Mathematics (Mil)	142(6) P, 152(6) P
Computer Inf. Systems (Mil)	144(12) PP
Statistics (Mil)	144(12)

Semester Credits	Semester 1	Semester 2
Compulsory	60	48
	48	36
Elective	12	36
Total Available Credits	72	84
	60	72
Credits required for programme: **Aircrew 120 from 156**		
Rest 120 from 132		

2.7 HCMS IN TECHNOLOGY AND DEFENCE MANAGEMENT

Notes
1. Aeronautical Science (Mil) is compulsory for SAAF Pilot/Navigator students.
2. Military Geography is compulsory for Army students.
3. Nautical Science is compulsory for Navy Combat Officer students.
Compulsory Modules
Military Professional Development (12) presented over two semesters, is a core subject.

SEMESTER ONE

Fundamental Modules

English Studies (Mil)	114(12)
Computer Inf. Systems (Mil)	114(12)

Core

Physics (Mil)	124(12) C

And one of the following (see remarks):

Aeronautical Science (Mil)	114(12) and 124(12) or
Military Geography	114(12) or
Nautical Science	114(12)

Electives

Mathematics (Mil)	124(12)
Military History	114(12) (Not available to Aeronautical Science students)

SEMESTER TWO

Core

Physics (Mil)	154(12) C

One of the following (see remarks):

Aeronautical Science (Mil)	144(12) and 154(12) or
Military Geography	144(12) or
Nautical Science	144(12)

Electives

Statistics (Mil)	144(12)
Military History	144(12) P (Not available to Aeronautical Science students)
Military Management	144(12)
Computer Inf. Systems (Mil)	144(12) PP or
Economics (Mil)	144(12) or
Security Law (Mil)	144(12)

Semester Credits		**Semester 1**	**Semester 2**
Compulsory:	Aircrew	60	48
	Rest	48	36
Elective: Aircrew		12	36
Rest		24	48
Total Available Credits:		72	84
Credits required for programme: 120 from 156			

3. BACHELOR OF MILITARY SCIENCE (BMil)

3.1 BMil IN HUMAN AND ORGANISATION DEVELOPMENT

Notes

1. A module of a specific subject in a specific year may only be taken if the corequisite (C), prerequisite (P) and/or prerequisite pass (PP) requirements pertaining to the particular module have been adhered to.

2. A student may take a module of a specific subject in a specific year only if he has passed at least half the credit units of a single preceding year of that specific subject.

3. A student may take a specific module in a specific year only if the class and examination timetables allow it.

4. Military Ethics is a prerequisite for Military Leadership.

YEAR ONE (136 credits)
Compulsory Modules

SEMESTER ONE

Industrial Psychology (Mil)	114(12), 124(12)
Military Ethics	114(8)
English Studies (Mil)	114(12)
Criminal and Military Law	114(12)
Computer Inf. Systems (Mil)	114(12)

SEMESTER TWO

Industrial Psychology (Mil)	144(12)
Military Leadership	144(8) P
Military Management	144(12)
Public and Development Management (Mil)	144(12)
English Studies (Mil)	144(12)
Criminal and Military Law	144(12)

YEAR TWO (128 credits)
Compulsory Modules

SEMESTER ONE

Industrial Psychology (Mil)	214(16)
Public and Development Management (Mil)	214(16)
Contract Law (Mil)	214(16)
Interpretation of Statutes (Mil)	214(16)

SEMESTER TWO

Industrial Psychology (Mil)	244(16), 254(16)
Public and Development Management (Mil)	244(16)
Applied Commercial Law	244(16) C

YEAR THREE (144 credits)
Compulsory Modules
SEMESTER ONE

Industrial Psychology (Mil)	314(24)
Public and Development Management (Mil)	324(24)
Applied Commercial Law	314(24)

SEMESTER TWO

Industrial Psychology (Mil)	344(24)
Military Management	344(24)
Public and Development Management (Mil)	344(24)

Programme Credits 408

3.2 BMil IN ORGANISATION AND RESOURCE MANAGEMENT

Notes

1. A module of a specific subject in a specific year may only be taken if the corequisite (C), prerequisite (P) and/or prerequisite pass (PP) requirements pertaining to the particular module have been adhered to.

2. A student may take a module of a specific subject in a specific year only if he has passed at least half the credit units of a single preceding year of that specific subject.

3. A student may take a specific module in a specific year only if the class and examination timetables allow it.

YEAR ONE (144 credits)

Compulsory Modules

SEMESTER ONE

Military Management	114(12)
Economics (Mil)	114(12)
Financial Accounting (Mil)	114(12)
English Studies (Mil)	114(12)
Criminal and Military Law	114(12)
Computer Inf. Systems (Mil)	114(12)

SEMESTER TWO

Military Management	144(12)
Economics (Mil)	144(12)
Financial Accounting (Mil)	144(12) P, or
Statistics (Mil)	144(12)
Criminal and Military Law	144(12)
English Studies (Mil)	144(12) or
Computer Inf. Systems (Mil)	154(12)
Public and Development Management (Mil)	144(12)

YEAR TWO (128 credits)

Elective Modules

Any three from: Economics (Mil), Auditing (Mil), Military Management or Public and Development Management (Mil) plus Contract Law and Industrial Psychology (Mil) or Applied Commercial Law.

SEMESTER ONE

Military Management	214(16)
Public and Development Management (Mil)	214(16)
Economics (Mil)	214(16) PP
Auditing (Mil)	214(16)
Contract Law (Mil)	214(16)

SEMESTER TWO

Military Management	244(16)
Public and Development Management (Mil)	244(16)
Economics (Mil)	244(16)
Auditing (Mil)	244(16)
Industrial Psychology (Mil)	244(16)
Applied Commercial Law	244(16)

YEAR THREE (144 credits)
Elective Modules
Any three subjects taken in the 2nd year of the Organisation and Resource Management programme

SEMESTER ONE

Military Management	314(24)
Public and Development Management (Mil)	314(24)
Economics (Mil)	314(24)
Management Accounting (Mil)	314(24)

SEMESTER TWO

Military Management	344(24)
Public and Development Management (Mil)	344(24)
Economics (Mil)	344(24)
Management Accounting (Mil)	344(24) P
Programme Credits 416	

3.3 BMil IN TECHNOLOGY

Notes
1. Aeronautical Science (Mil) is compulsory in Year One and Military Technology is compulsory in Year Two and Three for SAAF Pilot/Navigator students.
2. Military Geography is compulsory for Army students.
3. Nautical Science is compulsory for Navy Combat Officer students.
4. A module of a specific subject in a specific year may only be taken if the corequisite (C), prerequisite (P) and/or prerequisite pass (PP) requirements pertaining to the particular module have been adhered to.
5. A student may take a module of a specific subject in a specific year only if he has passed at least half the credit units of a single preceding year of that specific subject.
6. A student may take a specific module in a specific year only if the class and examination timetables allow it.

YEAR ONE (120 or 144 credits)
Elective Modules
One of the following: Aeronautical Science (Mil), Military Geography or Nautical Science; and the rest.
SEMESTER ONE

Aeronautical Science (Mil)	114(12) and 124(12) or
Military Geography	114(12) or
Nautical Science	114(12)
Mathematics (Mil)	112(6) and 122(6)
Physics (Mil)	114(12) C
Computer Inf. Systems (Mil)	114(12)
English Studies (Mil)	114(12)

SEMESTER TWO

Aeronautical Science (Mil)	144(12) and 154(12) or
Military Geography	144(12) or
Nautical Science	144(12)
Mathematics (Mil)	142(6) P and 152(6) P
Physics (Mil)	144(12) C, P
Computer Inf. Systems (Mil)	144(12) PP
Statistics (Mil)	144(12)

YEAR TWO (120 credits)
Elective Modules
One of the following: Military Technology, Military Geography or Nautical Science; and two other subjects.
SEMESTER ONE

Military Technology	212(10) P and 222(10) P or
Military Geography	214(20) or
Nautical Science	214(20)
Aeronautical Science (Mil)	212(10) P and 222(10) P
Mathematics (Mil)	212(10) PP and 222(10) PP
Physics (Mil)	212(10) P and 222(10) PP, PP
Computer Inf. Systems (Mil)	214(20) PP

SEMESTER TWO

Military Technology	242(10) P, P and 252(10) P, P or
Military Geography	244(20) or
Nautical Science	244(20)
Aeronautical Science (Mil)	244(20) P
Mathematics (Mil)	242(10) PP and 252(10) PP
Physics (Mil)	242(10) P, P and 252(10) PP, PP
Computer Inf. Systems (Mil)	244(20) PP

YEAR THREE (120 credits)
Elective Modules
One of the following: Military Technology, Military Geography or Nautical Science; and one other subject and Military Management 314.
SEMESTER ONE

Military Technology	312(12) P and 322(12) P or
Military Geography	314(24) or
Nautical Science	314(24)
Aeronautical Science (Mil)	314(24) P, P
Mathematics (Mil)	312(12) PP and 322(12) PP
Physics (Mil)	312(12) P and 372(12) PP or 322(12) PP and or 332(12) C, PP
Computer Inf. Systems (Mil)	314(24) P
Military Management	314(24)

SEMESTER TWO

Military Technology	342(12) P and 352(12) P
Military Geography	344(24)
Nautical Science	344(24)
Aeronautical Science (Mil)	344(24) P
Mathematics (Mil)	342(12) PP and 352(12) PP
Physics (Mil)	342(12) P and 352(12) PP, PP or 362(12) PP and 382(12) PP
Computer Inf. Systems (Mil)	344(24) PP

Programme Credits 360 or 372

3.4 BMil IN TECHNOLOGY AND DEFENCE MANAGEMENT
Notes
1. Aeronautical Science (Mil) is compulsory for SAAF Pilot/Navigator students.
2. Military Geography is compulsory for Army students.
3. Nautical Science is compulsory for Navy Combat Officer students.
4. A module of a specific subject in a specific year may only be taken if the corequisite (C), prerequisite (P) and/or prerequisite pass (PP) requirements pertaining to the particular module have been adhered to.
5. A student may take a module of a specific subject in a specific year only if he has passed at least half the credit units of a single preceding year of that specific subject.
6. A student may take a specific module in a specific year only if the class and examination timetables allow it.
7. Aeronautical Science (Mil) 124, 154 are compulsory for SAAF Pilot/Navigator students in the place of Military History 114 and 144.

YEAR ONE (144 credits)
Elective Modules
SEMESTER ONE
One of the following: Aeronautical Science (Mil), Military Geography or Nautical Science; and the rest

Aeronautical Science (Mil)	114(12) or
Military Geography	114(12) or
Nautical Science	114(12)
Military History	114(12) or
Aeronautical Science (Mil)	124(12)
Computer Inf. Systems (Mil)	114(12)
Physics (Mil)	124(12) C
English Studies (Mil)	114(12)
Mathematics (Mil)	124(12)

SEMESTER TWO
One of the following: Aeronautical Science (Mil), Military Geography or Nautical Science; and one of the following: Computer Information Systems (Mil) or Economics (Mil) or Security Law (Mil); and the rest

Aeronautical Science (Mil)	144(12) or
Military Geography	144(12) or
Nautical Science	144(12)
Military History	144(12) P, or
Aeronautical Science (Mil)	154(12)
Computer Inf. Systems (Mil)	144(12) PP or
Economics (Mil)	144(12) or
Security Law (Mil)	144(12)
Physics (Mil)	154(12) C
Military Management	144(12)
Statistics (Mil)	144(12)

YEAR TWO (120 or 128 credits)
Elective Modules
One of the following: Aeronautical Science (Mil), Military Geography or Nautical Science. Military Technology 254 and two of the following: Computer Information Systems (Mil), Military Management, and Military History/Military Strategy.
SEMESTER ONE

Aeronautical Science (Mil)	212(10) P and 222(10) P, or
Military Geography	214(20) or
Nautical Science	214(20)
Military Management	214(16)
Military History	214(16) P, or
Military Strategy	214(16)
Computer Inf. Systems (Mil)	214(20) PP

SEMESTER TWO

Aeronautical Science (Mil)	244(20) P, or
Military Geography	244(20) or
Nautical Science	244(20)
Military Management	244(16)
Military History	244(16) P or
Military Strategy	244(16)
Computer Inf. Systems (Mil)	244(20) PP
Military Technology	254(16)

YEAR THREE (136 or 144 credits)
Elective Modules
One of the following: Aeronautical Science (Mil), Military Geography or Nautical Science; and two of the rest, where Industrial Psychology (Mil) 214 and Military Technology 344 together can be offered as one choice

SEMESTER ONE

Aeronautical Science (Mil)	314(24) P, or
Military Geography	314(24) or
Nautical Science	314(24)
Military Management	314(24)
Military History	314(24) P or
Military Strategy	314(24)
Computer Inf. Systems (Mil)	314(24) P
Industrial Psychology (Mil)	214(16)

SEMESTER TWO

Aeronautical Science (Mil)	344(24) P, or
Military Geography	344(24) or
Nautical Science	344(24)
Military Management	344(24)
Military History	344(24) P or
Military Strategy	344(24)
Computer Inf. Systems (Mil)	344(24) PP
Military Technology	344(24)
Programme Credits 400 or 408 or 416	

3.5 BMil IN SECURITY AND AFRICA STUDIES
Notes
1. A module of a specific subject in a specific year may only be taken if the corequisite (C), prerequisite (P) and/or prerequisite pass (PP) requirements pertaining to the particular module have been adhered to.
2. A student may take a module of a specific subject in a specific year only if he has passed at least half the credit units of a single preceding year of that specific subject.
3. A student may take a specific module in a specific year only if the class and examination timetables allow it.

YEAR ONE (120 credits)
Elective Modules
One of the following: Military Geography or Economics (Mil); and the rest
SEMESTER ONE

Military Geography	114(12) or
Economics (Mil)	114(12)
Military History	114(12)
Political Science (Mil)	114(12)
English Studies (Mil)	114(12)
Computer Inf. Systems (Mil)	114(12)

SEMESTER TWO

Military Geography	144(12) or
Economics (Mil)	144(12)
Military History	144(12) P
Political Science (Mil)	144(12)
English Studies (Mil)	144(12)
Security Law (Mil)	144(12)

YEAR TWO (128 credits)
Compulsory Modules
SEMESTER ONE

Military History	214(16) P
Military Strategy	214(16)
Political Science (Mil)	214(16)
Military Management	114(12)

SEMESTER TWO

Military Geography	244(20)
Military History	244(16) P
Military Strategy	244(16)
Political Science (Mil)	244(16)

YEAR THREE (128 credits)
Elective Modules
Two of the following: Military History, Military Strategy, Political Science (Mil); and the rest
SEMESTER ONE

Military History	314(24) P
Military Strategy	314(24)
Political Science (Mil)	314(24) P
Industrial Psychology (Mil)	214(16)

SEMESTER TWO

Military History	344(24) P
Military Strategy	344(24)
Political Science (Mil)	344(24) P
Industrial Psychology (Mil)	254(16)

Programme Credits 376

Postgraduate Programmes

1. HONOURS DEGREES

1.1 BACHELOR OF MILITARY SCIENCE WITH HONOURS (BMilHons)

This degree is conferred upon students who:

- have obtained a BMil degree from this University, or any other bachelor's degree approved by the Senate for this purpose, and who, on written request, are allowed by the Senate, or the Executive Committee acting on its behalf, to register for the BMilHons programme; and

- have followed the prescribed honours programme for a minimum of one year (after obtaining the abovementioned bachelor's degree) at the University and have successfully completed the relevant examination.

1.2 BMilHons in Industrial Psychology

Specific Admission Requirements
In consultation with the lecturers in the Department of Industrial Psychology (Mil):

A BMil degree in Human and Organisation Development with a minimum final mark of 60% in Research Methodology and Psychometrics and in Organisational Psychology.

Programme Structure
The programme focuses on six areas of specialisation in Industrial Psychology.

Presentation
The programme is presented on a modular basis (by means of lectures) in collaboration with the Department of Industrial Psychology of the Faculty of Economic and Management Sciences.

Programme Content

Military Career Psychology	711(15)
Military Psychology	712(15)
Human Resource Management	713(15)
Management of Operational Psychopathology	714(15)
Organisational Psychology	715(15)
Research Methodology and Psychometry	742(15)
Research assignment	742(30)

1.3 BMilHons in Military Geography

Specific Admission Requirements
In consultation with the lecturers in the Department of Military Geography:

A BMil degree (or equivalent qualification) with Military Geography as major subject, in which a minimum final mark of 60% was achieved in the final year of study.

Programme Structure
The programme consists of six modules and a research project on a theme associated with the South African military geography environment.

Presentation
The programme is presented on a modular basis (by means of lectures) over two years.
Attendance of scheduled block modules is compulsory.
Programme Content

Geographical Thought	741(15)
Geographical Methodology	742(15)
Geographical Information Systems	743(15)
Political Geography	744(15)
Environmental Studies and Military Action	745(15)
Environmental Skills and Techniques	746(15)
Research Assignment (Mil Geography)	747(30)

1.4 BMilHons in Military History

Specific Admission Requirements
In consultation with the lecturers in the Department of Military History:

A BMil degree with Military History as major subject for which a minimum final mark of 60% was achieved in the final year of study.

Programme Structure
The programme comprises a combination of three compulsory modules and two optional modules.

Presentation
The programme runs over one year in the case of full-time and two years in the case of part-time students.

Programme Content
Compulsory modules

Theoretical History I: Research Methodology	741(20)
Theoretical History II: Philosophy and Historiography	742(20)
Theory and Practice of Military History	743(30)

Optional Modules

Military Strategy	744(20) A theme from General Military History or an optional module from the BMilHons in Military Strategy
Military History of Africa	745(30) Research assignment – a theme from South African Military History or the Military History of Africa

1.5 BMilHons in Military Strategy

Specific Admission Requirements
In consultation with the lecturers in the Department of Military Strategy:

A BMil degree with Military Strategy as major or a B degree in an approved related field of study, for which a final mark of 60% was achieved in the final year of study.

Programme Structure
The programme comprises a combination of two compulsory and three optional modules.

Presentation
The programme runs over one year in the case of full-time and two years in the case of part-time students.

Programme Content

Compulsory modules

Research Methodology (Military Strategy)	744(30)
Research Assignment: National Security of Southern African States	744(30)

Optional modules

Future Warfare	744(20)
Contemporary Warfare in Africa	744(20)
SA Defence Policy since 1994	744(20)
Advanced Study of Military and Operational Strategy	744(20)
Strategic Intelligence and Threat Perception	744(20)

An approved module from the field of Military History or Political Science (20)

1.6 BMilHons in Organisation and Resource Management

Specific Admission Requirements
In consultation with the lecturers in the School of Defence Organisation and Resource Management:

A BMil degree in Organisation and Resource Management, with a minimum final mark of 60% in the final year in two of the following majors: Military Management, Economics, Management Accounting or Public and Development Management, or any other B degree which has been approved for this purpose by the programme coordinator.

Programme Structure
The programme consists of Research Methodology as a compulsory module; a choice from the undermentioned modules, selected in consultation with the programme coordinator; and a research assignment. The student must obtain a minimum of 120 credits.

Presentation
The programme is presented at the Military Academy on a modular basis (by means of lectures) over a period of two years.

Programme Content
Compulsory modules

Research Methodology (Organisation and Resource Management)	744(15)
Research Assignment	742(30)

Optional modules

Strategic Management Accounting	742(20)
Management Accounting Control Systems	744(20)
Development Management	744(15)
Labour Relations	743(15)
Public Management	744(15)
Macroeconomics	744(15)
Microeconomics	744(15)
International Finance	741(15)
International Trade	742(15)
Defence Economics	744(15)
Strategic Management	743(20)
Logistics Management	741(20)
Financial Management	744(20)

1.7 BMilHons in Public and Development Management

Specific Admission Requirements

In consultation with the lecturers in the Department of Public and Development Management:

Any applicable bachelor's degree with a minimum final mark of 60% in each of the two major subjects during the final year.

Programme Structure

The student must attain a minimum total of 120 credits. The programme consists of six modules plus a research assignment.

Programme Content

Development Management	745(15)
Labour Relations	745(15)
Public Management	745(15)
Public Policy Analysis	745(15)
Civil Military Relations	745(15)
Research Methodology (PDM)	745(15)
Research Assignment	745(30)

1.8 BMilHons in Security and Africa Studies

Specific Admission Requirements

In consultation with the lecturers in the School for Security and Africa Studies:

Any BMil degree with Political Science (Mil), Military History or Military Strategy as major, for which a minimum final mark of 60% has been achieved in the final year.

Programme Structure
The programme consists of six compulsory modules.

Presentation
The programme spans one year in the case of full-time and two years in the case of part-time students.

Programme Content

Research Methodology	741(30)
International Political Theory	742(15)
South African political-military profile in Africa	743(15)
Conflict in Africa	744(15)
Africa and the Changed Security Agenda	745(15)
Research assignment: National Security of Southern African States	746(30)

1.9 BMilHons in Technology

Admission Requirements
In consultation with the lecturers in the School of Science and Technology:

The BMil degree in Technology with a minimum final mark of 60% in each of the two major subjects in the final year, or the BMil degree in Technology and Defence Management with a minimum final mark of 60% in Computer Information Systems as well as in one of Aeronautical Science (Mil), Military Geography or Nautical Science in the final year.

Programme Structure
The programme consists of the compulsory research assignment, code 66753 (30), and a selection of modules applicable to the focus of the study of which the total credits should be at least 90. A minimum of 50% of the total credits must be obtained at the Faculty of Military Science.

Programme Content
The student selects relevant modules from one of the specialisation fields listed below. Certain specialisation fields will require the student to follow relevant modules at other departments or faculties. Where these modules are followed at other departments or faculties, the stipulated requirements must be met. The programme comprises the following:

Presentation
The programme runs for two years (on a modular basis).

1.9.1 Physics

General Relativity and Cosmology	771(12)
Applied Computer Physics	771(12)
Applied Wave Theory	771(12)
Computational Physics	772(12)
Nuclear Physics	771(12)
Radiation Detection and Measurement	774(8)
Electromagnetism	776(8)
Digital Signal Processing	775(8)
Introduction to Cosmology	773(8)

1.9.2 Military Technology

Aircraft Mechanics	771(10)
Aerodynamics	771(10)
Aircraft Design	771(10)

1.9.3 Computer Information Systems

Advanced Programming Applications	771(12)
Network Protocols	771(12)
Computer Centre Management	771(12)
Network Security	771(12)
ICT Management	771(12)
Digital Economy and Electronic Commerce	771(12)
ICT Project Management	771(12)
ICT Research Methodologies	771(12)
Computer Graphics	771(12)
Cyber Forensics	752(12)

1.9.4 Mathematics

Linear Algebra	771(5)
Numerical and Serial Solutions of Partial Differential Equations	771(10)
Probability Theory	771(12)
Statistical Inference	771(16)

1.9.5 Nautical Science

Military Oceanography	771(20)

2. MASTER'S DEGREES

2.1 MASTER OF MILITARY SCIENCE (MMil)

This degree is conferred upon students who:

- obtained a BMilHons degree from this University, or any other honours degree approved by the Senate for this purpose, and who, on written request, are allowed by the Senate, or the Executive Committee acting on its behalf, to register for the MMil programme;

- completed an approved research curriculum and/or advanced study of not less than one year (after obtaining the abovementioned honours degree) at this University or at any other institution approved by the Senate; and

- submitted a satisfactory thesis.

2.2 MMil in Military Geography

Admission Requirements
A BMilHons in Military Geography with an average of at least 60%.

Programme Structure
The programme allows for two optional modes of study, both under the guidance of a supervisor.

Option A: the completion of a thesis with prescribed reading in preparation of the research proposal.

Option B: the completion of a structured self-study programme rounded off with a thesis.

Option A (Thesis) (180 credits)

Presentation
The programme is presented over one year.

Programme Content
An approved research topic with prescribed reading is selected in consultation between the candidate and the supervisor. The prescribed reading must lead to a thesis (180) in which the candidate must exhibit the ability to do independent research on a military-related geographical problem.

Option B (Structured) (180 credits)

Presentation
The programme is presented on a modular basis (by means of lectures) over two years. Attendance of scheduled block modules is compulsory.

Programme Content
Advanced study in the form of a structured taught programme in military environmental management, which consists of the following modules:

Military Integrated Environmental Management (30)

Environmental Considerations in Military Operations (30)

Sustainable Military Training Area Management (30)

The completion of a thesis (90), in which the candidate must exhibit the ability to do independent research on a military-related geographical problem.

2.3 MMil in Military History

Admission Requirements
In consultation with the lecturers of the Department of Military History: A BMilHons degree in Military History with a minimum final mark of 60% in each module or another applicable honours degree in which the candidate has duly performed.

Programme Structure
The programme allows for two optional modes of study, both under the guidance of a supervisor.

Option A: The completion of a thesis with prescribed reading in preparation of a research proposal, as well as an oral examination and submission of an article for publication in an accredited journal, or the presentation of a paper at a subject conference or a graduate seminar.

Option B: The completion of a structured self-study programme rounded off by a thesis.

Presentation
Candidates who have already obtained a BMilHons degree may complete the programme after one year of full-time or two years of part-time study.

Option A (Thesis) (180 credits)
Programme Description
Dependent on the academic background of a candidate, the programme coordinator may, in consultation with the subject group, allow the candidate to undertake a thesis based on an approved research proposal on condition that the candidate is in possession of a BMilHons degree in Military History or another applicable honours degree.

A research theme is selected in consultation between the candidate and the supervisor. The research proposal should have a definite focus on the military history of South Africa or Africa and be based on primary (i.e. archival) work.

Programme Content
A thesis (180 credits) in which the candidate must show an ability to undertake independent, scientifically responsible research. The thesis must be drafted in accordance with the guidelines of the University. The candidate must sit for an oral examination. The thesis must be preceded by a literature study leading to a research proposal, which is presented at a Faculty of Military Science Graduate Research Colloquium.

The candidate must publish, or submit for publication, an article on the study theme in a DOE-accredited journal or present a paper at a subject conference or graduate seminar.

Option B (Structured) (180 credits)
Programme Description
Candidates in possession of a BMilHons degree must complete a *capita selecta* of three study themes and submit a thesis of 90 credits on a theme from the military history of Africa.

Programme Content
Study themes
A theme from General Military History (30)
A theme from South African Military History (30)
A theme from General Military History of Africa (30)
A theme from War and Society (30)

2.4 MMil in Military Strategy
Admission Requirements
In consultation with the lecturers in the Department of Military Strategy: An honours degree in Military Strategy or an approved related field of study with a minimum final mark of 60% in each subject.

Programme Structure
The programme allows for two optional modes of study, both under the guidance of a supervisor.
Option A: The completion of a thesis with prescribed reading in preparation of a research proposal, as well as an oral examination and submission of an article for publication in an accredited journal, or the presentation of a paper at a subject conference or a graduate seminar.

Option B: The completion of a structured self-study programme rounded off by a thesis.

Presentation
Candidates in possession of a BMilHons degree may obtain the MMil degree after one year of full-time or two years of part-time study.

Option A (Thesis) (180 credits)
Programme Description
Depending on the academic background of a candidate, the programme coordinator may, in consultation with the subject group, allow the candidate to undertake a thesis based on an approved research proposal on condition that the candidate is in possession of a BMilHons degree in Military Strategy or another applicable honours degree.

A research theme is selected in consultation between the candidate and the supervisor. The research proposal should have a definite focus on strategic or security-related matters and, if possible, on Africa.

Programme Content
A thesis (180 credits) in which the candidate must show an ability to undertake independent, scientifically responsible research. The thesis must be drafted in accordance with the guidelines of the University. The candidate must sit for an oral examination. The thesis must be preceded by a literature study leading to a research proposal, which is presented at a Faculty of Military Science Graduate Research Colloquium.

The candidate must publish, or submit for publication, an article on the study theme in a DOE-accredited journal or present a paper at a subject conference or graduate seminar.

Option B (Structured) (180 credits)
Programme Description
A candidate in possession of an honours degree must complete a capita selecta of three study themes and submit a thesis on the security milieu of Africa.

Depending on the academic background of the student, the programme coordinator may allow the candidate to follow postgraduate modules in related fields of study. Where these modules are followed in some other faculty or institution, the stipulated requirements must be met.

Programme Content
Compulsory for all candidates
Thesis: A theme that focuses on the African security milieu (90)

Study themes
Contemporary Developments in Strategic Thought (30)

A Study of Military Strategy in Africa (30)

Military Strategy after the Cold War (30)

Warfare in the Post-Cold War Era (30)

2.5 MMil in Organisation and Resource Management
Admission Requirements
The BMilHons in Organisation and Resource Management, BMilHons in Military Management, BMilHons in Public and Development Management or any other related honours qualification as approved by the programme coordinator serves as admission requirement for the two-year MMil degree.

Programme Structure
The programme allows for the following option:

Thesis Option
Programme Description
The student has to submit a thesis (with a credit value of 180) as a result of independent research in Organisation and Resource Management that is chosen after consultation with the programme coordinator and the Chair of the School for Defence Organisation and Resource Management.

2.6 MMil in Security and Africa Studies
Admission Requirements
In consultation with the lecturers of the School for Security and Africa Studies: A BMilHons degree in Security and Africa Studies with a minimum final mark of 60% in each subject or any other honours degree with Military History, Military Strategy, Political Science or another appropriate subject as major, for which a final mark of 60% was achieved in each subject.

Programme Structure
The programme allows for two optional modes of study, both under the guidance of a supervisor.
Option A: The completion of a thesis with prescribed reading in preparation of a research proposal, as well as an oral examination and submission of an article for publication in an accredited journal, or the presentation of a paper at a subject conference or a graduate seminar.

Option B: The completion of a structured self-study programme culminating in a thesis.

Presentation
Candidates must complete the programme after one year of full-time or two years of part-time study.

Option A (Thesis) (180 credits)
Programme Description
Depending on the academic background of a candidate, the programme coordinator may, in consultation with the subject group, allow the candidate to undertake a thesis based on an approved research proposal.

A research theme is selected in consultation between the candidate and the supervisor. The research proposal must have a definite focus on Security and Africa Studies.

Programme Content
A thesis (180 credits) in which the candidate must show an ability to undertake independent, scientifically responsible research. The thesis must be drafted in accordance with the guidelines of the University. The candidate must sit for an oral examination. The thesis must be preceded by a literature study leading to a research proposal, which is presented at a Faculty of Military Science Graduate Research Colloquium.

The candidate must publish, or submit for publication, an article on the study theme in a DOE-accredited journal or present a paper at a subject conference or graduate seminar.

Option B (Structured) (180 credits)

Programme Description

The programme consists of three prescribed modules, as determined by the programme coordinator, as well as a thesis based on an approved research proposal. The research theme for the thesis should be based on the prescribed modules. A research theme is selected in consultation between the candidate and the supervisor. The research proposal must have a definite focus on Security and Africa Studies.

Programme Content

Module 1: Strategy in the Contemporary World (Military Strategy) (30)

Module 2: Conflict in Africa in the Twentieth Century (Military History) (30)

Module 3: International Conflict Resolution and Peacekeeping (Political Science (Mil)) (30)

A thesis (90 credits) in which the candidate must show an ability to undertake independent, scientifically responsible research. The thesis must be drafted in accordance with the guidelines of the University.

2.7 MMil in Technology

Specific Admission Requirements

An applicable BMilHons degree in Technology.

Programme Structure

The student has to submit a thesis with a credit value of 180. It is further expected of the student to write an applicable research article for publication or for presentation at a conference.

Presentation

The programme is presented over at least one year for full-time and two years for part-time students.

2.8 MPhil in Security Management

Specific Admission Requirements

Offering of postgraduate programmes is subject to the availability of staff and the number of students.

3. PhD DEGREE IN MILITARY SCIENCE

Programme Description

For admission to the Doctorate in Military Science (PhD), an applicant shall:

- Hold a Master's Degree in Military Science (final mark 60%) or in any other cognate field of study (final mark 60%) deemed appropriate by the PhD committee and Senate; and

- Successfully prepare a PhD research proposal for selection by the PhD committee, with a period of twelve months to prepare the proposal.

Specific Admission Requirements

Will be offered in 2014 pending accreditation by the HEQC.

Subjects, Modules and Module Content

ABBREVIATION AND NUMBERING SYSTEM

All subjects are represented by a subject number of 5 digits. Each module of the subject is represented by a three-digit module code, in which the year of study and semester of presentation (unless otherwise stated) are combined.

The subjects, as well as the module contents, credit value, prerequisite pass, prerequisite and corequisite modules are summarised and given below.

Example:

22969 MILITARY GEOGRAPHY				
114	12	Concepts and Techniques in Geography	4L, 3P	E

Explanation:

22969 is the subject number and refers to the subject Military Geography. Each such number uniquely identifies the subject to which it has been assigned. Like any other subject, however, Military Geography may involve one or more modules. The module being used here as an example is on the topic of 'Concepts and Techniques in Geography'. This statement of its topic already helps to distinguish it from possible other modules within Military Geography.

The module code of the module in the example is 114(12) (The 12 is normally in brackets).

The first three digits of this module code (above in the first block) are to be understood as follows:

First digit: 1 – shows in which year of study of the curriculum concerned the module is presented: i.e. 1 stands for the first year of study within a curriculum, 2 for the second, etc.

Second digit: 1 – shows the semester or semesters in which the module is presented, in accordance with the scheme below:

1, 2 or 3: modules taught in the first semester;

4, 5 or 6: modules taught in the second semester;

7, 8 or 9: modules extending over both semesters of the academic year, in other words, they are year modules.

Third digit: 4 – has no specific meaning, but can be used to distinguish between modules of the same subject in a specific year of study.

The number in the second block (otherwise in brackets): 12 – shows the credit value attached to the module.

In short: '22969 MILITARY GEOGRAPHY' is the designation of a subject, with '22969' being the subject number. 'Military Geography 114(12)' is one possible designation of the module in question, with '114(12)' being the module number. A fuller designation of the same module would be '22969 MILITARY GEOGRAPHY 114(12)'. In either case, the

module number, 114(12), tells us that the module is presented in the first semester of the first year, and that by passing this module a student obtains 12 credits. The teaching load of each module is indicated in the fourth block, after the module topic.

The following abbreviations are used:

L – lectures lasting 40 minutes each (e.g. 1L, 2L)
P – practical periods lasting 40 minutes each (e.g. 1P, 2P, 3P)
S – seminar lasting 40 minutes (e.g. 1S)
T – tutorials lasting 40 minutes each (e.g. 1T, 2T)

The teaching load of Military Geography 114 consists of four lectures plus three practicals per week for the duration of the module, i.e. one semester.

In the last square, the language specification of each module is indicated.

After the description of the content of the module, the prerequisite pass, prerequisite and/or corequisite modules are given for that module. The following abbreviations are used:

PP   = Prerequisite Pass Module

P   = Prerequisite Module

C   = Corequisite Module

In this regard, the following description applies:

A prerequisite pass module is a module that a student must pass, i.e. achieve a final mark of at least 50%, before he may commence studying the module to which it applies.

A prerequisite module is a module in which a student must have achieved a class mark of at least 40% or a final mark of at least 40% in the case of a module subject to continuous assessment, before study in a module for which it is a prerequisite may commence.

A corequisite module is a module that has to be presented before or in the same academic year to which it is applicable.

Note:
No qualification shall be awarded unless the candidate has passed all the relevant prerequisite and corequisite modules.

15822 AERONAUTICAL SCIENCE (MIL)				
Please Note				
• Qualified SAAF pilots/navigators receive credit for Aeronautical Science (Mil) 114, 124, 144, 154, 212, and 222.				
• Only SAAF pilots/navigators and pupil pilots/navigators are allowed to take Aeronautical Science (Mil) 114, 124, 144, 154, 212 and 222				
114	**12**	**Basic Aviation Theory**	4L, 1T	**E**
Basic aerodynamics: history of flight; basic mathematical concepts; mechanics revision; kinematics revision; symbols and definitions; flow types; pressure distribution; boundary layer theory; lift; drag; wing plan forms; lift augmentation; primary and secondary flight controls. Meteorology: composition of atmosphere; atmospheric characteristics (pressure, temperature, density, humidity, adiabatic process, lapse rate and stability); wind; air masses; clouds; fog and mist; visibility; precipitation; fronts; thunderstorms; turbulence; ice accretion; pressure systems; climatology; aircraft with observations (airport, radar and				

weather satellites); synoptic charts; codes/documentation; meteorological organisations.
Flight Simulator: knowledge, skills and attitude integration; cockpit integration; VFR procedures; IFR procedures.
Home department: AERONAUTICAL SCIENCE (MIL)

124	12	**Basic Aviation Theory**	5L, 4T	**E**

Airmanship: ICAO; Convention of Civil Aviation; South African Civil Aviation Regulations; Part 139; Part 172; CATS; basic flight rules; aircrew utilisation; grading; efficiency maintenance; air traffic control.
Advanced aerodynamics I: stability; spinning theory; propeller theory; aircraft performance theory, turning theory; manoeuvre envelope.
Human performance: basic human physiology for aircrew; effects of pressure changes on the human body; effects of aerobatic manoeuvres on the human body; secondary effects of medicine usage on aircrew; basic aviation psychology for aircrew; effects of cockpit dynamics on aircrew.
Flight Simulator: knowledge, skills and attitude integration; cockpit integration; VFR procedures; IFR procedures.
Home department: AERONAUTICAL SCIENCE (MIL)

144	12	**Basic Aviation Theory**	4L, 1T	**E**

Instrument and magnetism: gyroscopes; atmospheric pressure – instruments; basic magnetic theory; electronic instruments.
Avionics I and II: basic radio theory; navigation systems; basic radar theory; primary and secondary radar systems; flight directors.
Flight Simulator: knowledge, skills and attitude integration; cockpit integration; VFR procedures; IFR procedures.
Home department: AERONAUTICAL SCIENCE (MIL)

154	12	**Basic Aviation Theory**	5L, 4T	**E**

Navigation: basic concepts; distance measurement; scale; map projection principles; Mercator and Lamberts projections; measurement of time; relative velocity.
Engines: internal combustion engines; ignition; lubrication; cooling; fuels; engine performance; mixtures; engine handling; turbine engines; mechanics; ignition; fuel transfer.
Aircraft technical: airframe and aircraft systems; air driven systems; air conditioning; fuel systems; electrical systems; emergency equipment.
Flight Simulator: knowledge, skills and attitude integration; cockpit integration; VFR procedures; IFR procedures.
Home department: AERONAUTICAL SCIENCE (MIL)

212	10	**Basic Aviation Theory (Interactive Telematic Services)**	5L, 1P	**E**

Advanced aerodynamics II: stalling; spinning; aircraft performance; manoeuvres.
Flight operations and procedures: aerodromes and landing areas; ground visual aids and aerodrome lighting; air information publication (AIP); air information circular (AIC); Notams and SAAF flight information manual (FIM); aerodrome facilities and associated chart legends; holding patterns I and II; approach procedures I – IV; radio communication failure; SIDs and STARs; air traffic control; planning for all weather operations; flight plans.

Navigation plotting: navigation on climb and descent; en route navigation; search patterns; PNR and PET.

Flight planning and performance: definitions and terms; airspeed terminology and symbols; meteorology terminology; aerodrome symbols and terminology; take-off flight path; aircraft manuals; mass and balance.

Avionics III: Doppler navigation; satellite navigation; microwave landing system.

P Aeronautical Science (Mil) 114, 124, 144, 154

Home department: AERONAUTICAL SCIENCE (MIL)

222	10	**Basic Aviation Theory (Interactive Telematic Services)**	5L, 1P	**E**

Helicopter aerodynamics: introduction to helicopter aerodynamics; definitions; helicopter control; helicopter flight part I and II: hovering; forward flight; power requirements; autorotation; hazardous conditions and recovery actions; helicopter stability.

High speed aerodynamics: compressibility – part I and II; lift in high speed flight – part I and II; drag in high speed flight; high speed stability and control – part I and II; high speed wing designs – part I, II and III.

Multi-engine aerodynamics: asymmetric forces and couples; control in asymmetric powered flight; minimum control and safety speeds; single-engine performance; asymmetric procedures and manoeuvres.

Electronic warfare: electronic warfare (general); air defence deployment; EW response to the radar threat; introduction to infra-red; SIGINT and ESM – part I and II; ECM and ECCM – part I and II.

Aviation Safety: basic concepts; domino effect; man/machine interaction; human factors in aviation safety.

P Aeronautical Science (Mil) 114, 124, 144, 154

Home department: AERONAUTICAL SCIENCE (MIL)

244	20	**Advanced Avionic Systems I (Interactive Telematic Services)**	5L, 1T	**E**

Advanced avionics: ARINC 429 and 1553 databus architecture; IRS/GPS navigation system; EFIS – electronic flight instruments; head up display (HUD); FLIR; ICNI – integrated comms ident; FADEC – full authority digital engine control; HUMS – health usage monitoring system.

P Aeronautical Science (Mil) 222

Home department: AERONAUTICAL SCIENCE (MIL)

314	24	**Advanced Avionic Systems II (Interactive Telematic Services)**	6L, 1T	**E**

Advanced avionics: night vision goggles (NVG); speech recognition and synthesis; flight management systems; synthetic vision; enhanced situational awareness; TCAS; modelling and simulation; certification.

Flight Controls: Fly-by-wire (FBW); design studies.

P Aeronautical Science (Mil) 244

P Physics (Mil) 124, 154 or 114, 144

Home department: AERONAUTICAL SCIENCE (MIL)

344	24	**Human Factors in Aviation and further advanced avionics systems (Interactive Telematic Services)**	6L, 1T	E

Emotional stress; decision making; CRM. Requirements, design analysis, validation and certification: setting requirements; digital avionics modelling and simulation; formal methods; electronic hardware reliability; certification of civil avionics; processes for engineering a system; electromagnetic environment (EME). Software: Ada; RTCA DO-178B/EUROCAE ED-12B. Implementation: fault-tolerant avionics; Boeing B-777; new avionics systems – Airbus A330/A340; McDonnell Douglas MB-11 avionics system; Lockheed F-22 Raptor; advanced distributed architectures. Other Applications: HUMS; FADEC. CRM assignment.
P Aeronautical Science (Mil) 222, 314
Home department: AERONAUTICAL SCIENCE (MIL)

63606 APPLIED COMMERCIAL LAW				
244	**16**	**Applied Commercial Law**	5L	**E**

Specific contracts: contracts of sale, contracts of lease, credit agreements, agency, vicarious liability.
Entrepreneurial law: companies, close corporations, partnerships, business trusts.
C Contract Law (Mil) 214
Home department: MERCANTILE LAW (MIL) AND CRIMINAL LAW (MIL)

314	**24**	**Applied Labour Law**	5L	**E**

Individual Labour Law: introduction, discipline in the workplace, introduction to unfair dismissals, the concepts employee, dismissal and unfair dismissal, automatic unfair dismissals, dismissal for misconduct, dismissal for incapacity, unfair labour practices, employment equity, dispute resolution.
Collective Labour Law: introduction, labour relations act, freedom of association, organisational rights, collective bargaining, statutory bargaining forums, workplace forums, dispute resolution.
Home department: MERCANTILE LAW (MIL) AND CRIMINAL LAW (MIL)

36420 AUDITING (MIL)				
214	**16**	**Auditing**	5L, 1P	**E**

The auditing profession: introduction to auditing and the auditing profession; audit reports and professional ethics.
The auditing process: audit responsibilities and objectives; audit evidence; audit planning; analytical procedures and documentation; materiality and risk; the study of internal control and assessment of control risk; the impact of information technology on the audit process; overall audit planning and audit program.
Home department: ACCOUNTING (MIL) AND AUDITING (MIL)

244	**16**	**Auditing**	5L, 1P	**E**

Application of the auditing process to the sales and collection cycle: audit of sales and collection cycle.

Application of the audit process to other cycles: audit of the acquisition and payment cycle; audit of payroll and personnel cycle; audit of inventory and warehousing cycle; audit of capital acquisition and repayment cycle; audit of cash balances. Completing the audit.
Home department: ACCOUNTING (MIL) AND AUDITING (MIL)

45756 COMPUTER INF. SYSTEMS (MIL)				
114	12	**Information Systems Theory and Practice**	5L, 3P	E

Overview of computer concepts: software and utilities; system unit components; input; output; storage; communications and networks; internet; operating systems and systems software; knowledge of work productivity concepts; advanced software functionality to support personal and group productivity using email, word processing, spreadsheets, presentation software and database tools; tool use for personalisation and optimisation; professional document design.
This module will be continually assessed.
Home department: COMPUTER INFORMATION SYSTEMS (MIL)

144	12	**Software Engineering and Object-oriented Programming**	5L, 3P	E

Software engineering by means of a program-development process: modelling the process and life cycle; requirements analysis and specification; system design; program design, implementation, testing, delivery and maintenance.
Object-oriented programming: object-oriented programming; graphical user interfaces; file handling; strings; arrays; sorting algorithms.
This module will be continuously assessed.
PP Computer Inf. Systems (Mil) 114
Home department: COMPUTER INFORMATION SYSTEMS (MIL)

154	12	**Management Information Systems**	5L, 3P	E

Concept of systems and organisations; strategic uses of information technology; introduction to BPR (Business Process Re-engineering) and Critical Success Factor analysis; various categories of management information systems; ethics of information systems; management of information systems.
Home department: COMPUTER INFORMATION SYSTEMS (MIL)

214	20	**Information Systems Design**	5L, 3P	E

Systems analysis and design: requirements determination, logical design, physical design and implementation; interpersonal skills; interviewing; presentation skills; group dynamics; risk and feasibility analysis; group-based approaches: project management, joint application development (JAD), and structured walkthroughs; structures versus object-orientated methodologies; rapid application development (RAD), prototyping.
ICT project management: managing the systems lifecycle; project tracking; metrics and systems performance evaluation; managing expectations of managers, clients, team members, and others; determining skills requirements and staffing; cost-effectiveness analysis; reporting and presentation techniques; management of behavioural and technical aspects of the project; change management; software tools for change

management and monitoring; team collaboration techniques and tools.
PP Computer Inf. Systems (Mil) 144
Home department: COMPUTER INFORMATION SYSTEMS (MIL)

244	20	**Information Technology Hardware and Systems Software**	5L, 3P	**E**

Hardware: CPU architecture, memory, registers, addressing, modes, busses, instruction sets, multi-processors versus single processors; peripheral devices: hard disks and other storage devices, video display monitors, device controllers, input/output; circuits and gates. Application on the micro-architecture level.
Operating system modules: processes; process management; memory and file system management; examples and contrasts of hardware architectures and operating systems.
This module will be continually assessed.
PP Computer Inf. Systems (Mil) 144
Home department: COMPUTER INFORMATION SYSTEMS (MIL)

314	24	**Cyber Warfare and Data Communication Networks**	6L, 3P	**E**

Introduction to cyber warfare and security: elementary principles of computer and network security; introduction to encryption, public key certificates and protocols.
Data communication and networks: telecommunication configurations; network and web applications; distributed systems; wired and wireless architectures, topologies and protocols; installation, configuration and operation of bridges, routers, switches and gateways; network performance tuning; privacy, security, firewalls, reliability; installation and configuration of networks; monitoring and management of networks; communication standards.
This module will be continually assessed.
P Computer Inf. Systems (Mil) 244
Home department: COMPUTER INFORMATION SYSTEMS (MIL)

344	24	**Databases and Information Systems Management**	6L, 3P	**E**

Databases: introduction to databases; database theory and design; database users; database system concepts and architecture; data modelling using the entity-relationship model, relational constraints and relational algebra; SQL; practical database management; functional dependencies and normalisation for relational databases; practical database design and tuning; emerging database technologies and applications. Information systems management: role of information systems in the digital economy; ethics in information technology management; achieving competitive advantage through strategic use of information systems; implications of the Web revolution; introduction to information and knowledge management; impacts of information systems on organisations, individuals and society.
This module will be continually assessed.
PP Computer Inf. Systems (Mil) 144
Home department: COMPUTER INFORMATION SYSTEMS (MIL)

56987 CONTRACT LAW (MIL)				
214	16	**Contract Law**	5L	**E**

Introduction and basis of contracts: validity requirements, contents and operation of contracts; principles of representation; breach of contract and remedies; termination of

obligations.
Home department: MERCANTILE LAW (MIL) AND CRIMINAL LAW (MIL)

46701 CRIMINAL AND MILITARY LAW

114	12	**Criminal and Military Law**	5L	**E**

General introduction to the study of law: the nature and essence of the law; classification of the South African law; sources of the law; jurisprudence in South Africa.
General principles of criminal law: punishment theories and criminal liability; conduct and prohibition; causation, unlawfulness, culpability.
Home department: MERCANTILE LAW (MIL) AND CRIMINAL LAW (MIL)

144	12	**Criminal and Military Law**	5L	**E**

Law of evidence: introduction to law of evidence; admissibility of evidence; privilege; means of proof; sufficiency of proof and burden of proof.
Military law: introduction and application, military offences; procedure of the disciplinary hearing, procedure of the court of the military judge, boards of inquiry; redress of wrongs, law of armed conflict.
Home department: MERCANTILE LAW (MIL) AND CRIMINAL LAW (MIL)

12092 ECONOMICS (MIL)

114	12	**Micro-economics**	4L, 1T	**E**

Introduction and background to economic issues and theory; overview of economic systems; theory of demand, supply and interaction in markets; government intervention in markets – price control and taxes; theory of demand; theory of production and supply; theory of alternative market structures; introduction to markets for factors of production; inequality and poverty; the case for and against government intervention.
Home department: ECONOMICS (MIL)

144	12	**Introduction to Macro-economics and Monetary Economics**	4L, 1T	**E**

Macro-economics issues: economic growth, unemployment and inflation; the open economy; macro-economic thought; the simple Keynesian analysis of national income, employment and inflation; fiscal policy; money and interest rates; monetary policy; Keynesian and monetarist controversies: the control of aggregate demand, aggregate supply, unemployment and inflation; supply-side economics; international trade, the balance of payments, exchange rates and international economic relationships; economic development.
Home department: ECONOMICS (MIL)

214	16	**Advanced Principles of Economics**	5L, 1T	**E**

Micro-economics: market failure; welfare economics; market for factors of production.
Macro-economics: the four-sector model; the IS/LM model; the AD/AS model.
 PP Economics (Mil) 114, 144
Home department: ECONOMICS (MIL)

244	16	**International Economics**	5L, 1T	**E**

International trade: theory of international trade, tariffs and subsidies.
International finance: foreign exchange markets; the balance of payments; alternative exchange rate regimes; international finance and the international monetary system;

international finance and the debts crisis.

Public finance: introduction to fiscal theory; the role of government allocation and the redistribution function; tax structure theory; public finance in the micro-economic context; the defence budget and economic warfare.

Home department: ECONOMICS (MIL)

314	24	**Applied Economics**	5L	E

Labour economics: the government in the labour market; wage theory; wages and inflation; interaction between supply and labour markets; theory of unemployment; theory of unions and strikes; theory of labour productivity and human capital; South African labour market.

Economic systems and thought: pre-classical thought; neo-classical thought; capitalism; socialism; communism and social democracy; mixed economy.

Defence economics: the functioning of the defence industry; economic warfare; national budget and defence aspects; labour economics from a defence perspective.

Home department: ECONOMICS (MIL)

344	24	**Quantitative Economics**	5L	E

Industrial economics: the structure, conduct and performance of the South African economy.

Quantitative and econometric analysis: index formulation and manipulation of data; real and nominal inflation; purchase-price equilibrium; international trade and exchange rate interaction; introduction to statistics and overview of terminology, methodology and interpretation; application of hypothesis testing; regression analysis and interpretation; use of E-View software; data manipulation and interpretation; research methods and data collection.

Monetary economics: money and interest rates; monetary policy; Keynesian and monetarist differences.

Home department: ECONOMICS (MIL)

56286 ENGLISH STUDIES (MIL)				
114	12	**Academic Writing and Communication in English**	3L, 2S	E

This semester module is presented to students in all programmes offered by the Faculty of Military Science. The purpose of this module is to provide you with the argumentation, critical thinking and general linguistic tools that will allow you to boldly challenge all statements and opinions, not least of all your own, for grammatical, factual and argumentative soundness. Students will investigate the daily act of good and fallacious reasoning through a diversity of contemporary texts.

Too often, bad use of grammar reflects badly on the user of the language and leads to unfair labelling of the speaker/writer as being uneducated. You will be guided in communicating successfully in any discipline by selecting and using language "carefully, purposefully, artfully and based on shared, logical understanding". Grammar makes communication possible, because "without the shared conventions of grammar, without the structure it creates and the patterns it plots, we could not speak to each other across time and space".

Continuous assessment.

Home department: INDUSTRIAL PSYCHOLOGY (MIL)

144	12	**English Language, Literature and Culture in Context**	3L, 2S	**E**

In this semester course there is a greater emphasis on critical reading, appreciation and analysis of literary text, with special reference of English in a South African context. A variety of text, fiction and non-fiction (contemporary news articles, short stories, poetry, films and other genres) will be studied to explore concepts of culture and more general issues of cultural and national identity. Cultural bias in and through literature will, inter alia, be addressed. The fact that "people in various positions of power often use (abuse) language to remain in power" will be critically analyzed, challenged and evaluated.

In order to build on the principles of good language usage taught during the first semester, students are introduced to the diverse ways South Africans speak and write, and their reasons for doing so. The focus on language and culture alerts them about their own, and others' deviations from South African Standard English. It also guides them towards writing in a style and register that suits the tertiary academic environment beyond the familiar military environment.

Continuous assessment.

Home department: INDUSTRIAL PSYCHOLOGY (MIL)

56324 FINANCIAL ACCOUNTING (MIL)				
114	12	**Introduction to Financial Accounting**	5L, 1P	**E**

The basic principles and spheres of accounting: the nature and function of accounting, the nature of accounting theory, financial position, financial result, the double-entry system and the accounting process.

Collecting and processing the accounting data of organisations.

Accountability for current and non-current assets: cash and cash equivalents, trade and other debtors, inventory, property, plant and equipment and other non-current assets.

Accountability for current and non-current liabilities: current liabilities and non-current liabilities.

Accounting reporting: financial statements of a sole trader.

Home department: ACCOUNTING (MIL) AND AUDITING (MIL)

144	12	**Advanced Financial Accounting**	5L, 1P	**E**

Collecting and processing the accounting data unique to a non-profit organisation, a close corporation, a partnership and a company. Preparing the financial statements of a non-profit organisation, a close corporation, a partnership and a company.

Analysis and interpretation of financial statements.

Ethics in financial accounting.

P Financial Accounting (Mil) 114

Home department: ACCOUNTING (MIL) AND AUDITING (MIL)

43826 INDUSTRIAL PSYCHOLOGY (MIL)				
114	12	**Introduction to Human and Organisational Development**	5L	**E**

Introduction: history of psychology; definitions, schools of thought and areas within industrial psychology. Physical dimension: central nervous system and brain, senses,

perception, attention, memory, information processing, heredity, development. Psychological dimension: intellectual and volitional processes, emotions. Man as a social being in interaction with his environment. Theoretical perspectives on personality; stress and unhealthy habits; human reactions to stress, mental health problems; identification, classification and treatment of psychopathological behaviour.
Home department: INDUSTRIAL PSYCHOLOGY (MIL)

124	12	**Ergonomics**	5L	E

Ergonomics: introduction to ergonomics. Approaches and models in ergonomics. Basic principles and business perspectives in ergonomics; the man-machine interface; information and operation incorporating information processing, controls, displays and control panels. Applied ergonomics, human factors in systems, posture, movement, applied anthropometry, physical space and arrangements, and workspace guidelines for design. The workplace: vision and lighting, climate factors and temperature, chemical substances and toxicology, noise and vibration, cumulative trauma and the built environment. Legislation, human error and safety, inspection and maintenance, quality and productivity; ergonomic approach to workplace programmes. Practical component: students complete a practical project and make presentations (part of assessment).
Home department: INDUSTRIAL PSYCHOLOGY (MIL)

144	12	**Career Psychology**	5L	E

Introduction: outlining the area of study and key concepts; fundamentals of career psychology. Sustaining a career and the course of a career: the employee in interaction with the work environment, career dynamics within a career developmental framework; entry into the world of work; the psychological contract; career anchors; early career stage, establishment, middle career, pre-retirement and preparation for retirement. Theory of organisational choice, organisational entry; organisational change and implications for careers; dual career families; job loss. Industrial mental health: promoting industrial mental health on an individual as well as organisational level.
Home department: INDUSTRIAL PSYCHOLOGY (MIL)

214	16	**Military Psychology**	5L, 1P	E

An introduction to military psychology. Personality theory and war: the role of personality in the declaration of war, explained in terms of the personality theory of Jung. Adjustment psychology: a definition of maladjustment; the transition from adolescence to adulthood during military training; the conflict between a military identity and a youth identity. Operational psychology: the psychological preparation of soldiers for operations; the psychological effects of combat on the soldier; combat motivation; factors involved in combat stress; the identification of post-traumatic stress disorder; the psychological debriefing of trauma. Peacekeeping psychology: the psychological model to support soldiers and their dependants during deployment on peacekeeping operations; the various stressors experienced by soldiers during the different phases of peacekeeping operations; the psychological effects of being held as a prisoner of war during peacekeeping operations. Psychological Warfare: the content focuses on the model for and ethical use of Psychological War Operation.
Home department: INDUSTRIAL PSYCHOLOGY (MIL)

244	16	**Human Resources Management**	4L, 1P	E

Human resources management in perspective: introduction, role and environment of human resources management, an overview of human resources management in South

Africa, research methods, problem statement, the design of the research study, major research methods, measurement of variables, analysis of data. Human resource management pre-selection practices: planning for human resources, analysing jobs, determine criteria and standards for decision-making, conceptual versus actual criteria, criterion deficiency, relevance and contamination, objective criteria versus subjective criteria, the relationship among job performance criteria. Human resource management selection practices: assessing the quality of predictors, reliability and validity, psychological tests and inventories, ethical standards in testing, sources of information about testing, test content, interviews, assessment centre evaluations, work samples and situational exercises, biographical information, letters of recommendation, newer and controversial methods. Models of personnel decisions, recruitment, selection, placement and classification. Human resource management post-selection practices: the strategic value of training and development, assessing training needs, methods of training and development, management development issues, equal employment opportunity and training, evaluation of training programmes quality of work life, appraising job performance, sources of job performance appraisal, performance appraisal methods, rater training, self- and peer appraisals, feedback of appraisal information to employees, job evaluation, compensation, factors influencing compensation, employee benefits and services, motivation and compensation. Human resources (HR) planning: the need for HR planning, strategic business planning, the HR planning process, evaluation of the HR planning process. Factors that influence human resource management practices: safety and health, technology and international trends. People challenges in the new economy, managing a virtual workplace, implications of globalised markets, mergers and downsizing. Changes in the world population and demography.
Home department: INDUSTRIAL PSYCHOLOGY (MIL)

254	16	**The Management of Cultural Diversity**	4L, 1P	E

Culture and psychology: introduction to cross-cultural psychology; culture and the self; culture and basic psychological processes; cultural perspectives of the developmental theories of Piaget, Kohlberg and Erikson; culture and behaviour in organisations; approaches to the classification and analysis of culture; cross-cultural issues; stereotypes, biases and prejudices; cross-cultural conflict; cross-cultural abnormal psychology; cross-cultural counselling; cross-cultural training; culture and communication; cross-cultural management and leadership. The management of diversity: introduction to diversity and concepts; diversity in South African society; diversity issues in the military; diversity initiatives in organisations; a model for the management of diversity in the South African National Defence Force; cross-cultural psychology in operations; co-operation with multinational forces; culture and deployment in foreign countries.
Home department: INDUSTRIAL PSYCHOLOGY (MIL)

314	24	**Research Methodology and Psychometrics**	5L, 1P	E

Research methodology: introduction to research methods; introduction; using scientific methods in psychology. Introduction to psychometrics and its history.
The research process: definitions; formulating the research problem, setting up hypotheses, concepts, constructs, variables, levels of measurement; research design and strategy; significance, purpose and principles; design criteria.

Types of research: ex post facto, laboratory and field experiments, quasi-experimental designs, surveys. Control, reliability and validity testing.

Basic statistics: introduction to statistics in psychology. Basic statistical concepts; grouping and graphic representation of data; central tendency, variability, normal distribution, standard scores; correlation statistics, product correlation, rank correlation and regression; probability and the normal sampling distribution; testing of hypotheses, errors of decision; distribution: t-test, chi-square, F-test; using test statistics; non-parametric statistics.

Basic psychological testing: measurement theory, principles, validity and reliability; test construction and norms; scales of measurements, types of measurement procedures, and criteria. Measuring aptitude, interest and personality; setting up a measurement programme and the procedure for its application; interpreting, systematising and describing the sets of measurements; ethical aspects of psychological measurement. Report writing and decision-making based on measurements.
Home department: INDUSTRIAL PSYCHOLOGY (MIL)

344	24	**Organisational Psychology**	5L, 4P	E

Introduction and historical perspective, micro processes: differences in individual behaviour, nature and formation of groups, intergroup behaviour and group dynamics. Basic motivational processes: job motivation, theories of motivation, behaviour modification, coping with conflict. Power politics and organisation politics. Management: theories of leadership, management development, managerial decision-making and control, processes of communication. Macro processes: organisational design, structuring and development; organisational change and resistance to it. Organisation research: action research; consultant/client relations; contingency approach and expectations theory. The military organisation: the development of an "us/them" culture. Reactions to the military environment. Work-related attitudes of military personnel.
Home department: INDUSTRIAL PSYCHOLOGY (MIL)

56960 INTERPRETATION OF STATUTES (MIL)				
214	16	**Interpretation of Statutes**	1L	E

Basic introduction, hierarchy and structure of legislation, commencement and demise of legislation, re-enactment and amendment of legislation, traditional approaches towards interpretation of statutes, the presumptions, methods of interpretation and the impact of Constitutional interpretation on statutory interpretation.
Home department: MERCANTILE LAW (MIL) AND CRIMINAL LAW (MIL)

56979 MANAGEMENT ACCOUNTING (MIL)				
314	24	**Management Accounting**	5L, 1P	E

Cost accounting fundamentals: the accountant's role in the organisation; an introduction to cost terms and purposes; cost-volume-profit analysis; costing systems; activity-based costing and management.

Cost allocation: general cost allocation; cost allocation: joint products and by-products; allocation of support department costs, common costs and revenues; process costing.

Cost information for decisions and control: flexible budgets; standard costs; variances and management control; inventory costing and capacity analysis.

Cost information for decisions: determining how costs behave; decision making and relevant information; pricing decisions and cost management. Home department: ACCOUNTING (MIL) AND AUDITING (MIL)				
344	**24**	**Management Accounting**	5L, 1P	**E**
Tools for planning and control: income effects of alternative inventory costing methods, the master budget, responsibility accounting and relevance, cost and the decision process. Cost information for decisions: determining how costs behave; decision making and relevant information; pricing decisions and cost management; strategy, balanced scorecard and strategic profitability analysis. Quantitative decision making: quantitative methods and the decision-making process, regression analysis and learning curves. Quality and just-in-time: quality, time, and theory of constraints; inventory management, just-in-time, and backflush costing; spoilage, reprocessing and scrap. Investment decisions and management control systems: capital budgeting and cost analysis; management control systems, transfer pricing, and multinational considerations; performance measurements, compensation, and multinational considerations. *P Management Accounting (Mil) 314* Home department: ACCOUNTING (MIL) AND AUDITING (MIL)				

21563 MATHEMATICS (MIL)				
112	**6**	**Calculus I**	3L, 1T	**E**
Limits; continuity; differentiation; definite and indefinite integration. Home department: MATHEMATICS (MIL)				
122	**6**	**Linear Algebra I**	3L, 1T	**E**
Vectors; straight lines and planes; circles and spheres; transformation of coordinates; solving of systems of linear equations. Home department: MATHEMATICS (MIL)				
124	**12**	**Service Course in Mathematics**	6L, 2T	**E**
Fundamental concepts: products; factorisation; simplifying algebraic expressions; solving equations and inequalities; functions and graphs. Radian measure. Trigonometry. Vectors. Limits and derivative: algebraic techniques for finding limits; continuous functions; tangent lines; instantaneous velocity; differentiation rules; rates of change; derivative of exponential, logarithmic and trigonometric functions; higher order derivatives; partial derivatives. Applications of derivative: optimisation problems; Newton-Raphson algorithm; applications to economics. Integrals: basic rules of integration; definite integral; properties of definite integral; applications. Matrix algebra: introductory matrix concepts; matrix addition and subtraction; transpose of a matrix; scalar multiplication; determinant and inverse of a matrix; solving systems of linear equations. Linear programming: geometric approach to linear programming problems; simplex tableau; simplex method. Home department: MATHEMATICS (MIL)				
142	**6**	**Calculus II**	3L, 1T	**E**
Applications of differentiation; techniques of integration; applications of the definite integral; numerical integration, partial differentiation. *P Mathematics (Mil) 112*				

Home department: MATHEMATICS (MIL)				
152	**6**	**Linear Algebra II**	3L, 1T	**E**

Complex numbers; determinants; real vector spaces; conic sections.
P Mathematics (Mil) 122

Home department: MATHEMATICS (MIL)				
212	**10**	**Analysis I**	3L, 1T	**E**

Multiple integration; line integrals; Green's theorem; surface integrals; divergence theorem; Stokes' theorem; first-order differential equations; higher-order linear differential equations.
PP Mathematics (Mil) 112, 142

Home department: MATHEMATICS (MIL)				
222	**10**	**Linear Algebra I**	3L, 1T	**E**

Real vector spaces; linear transformations and matrix representations.
PP Mathematics (Mil) 122, 152

Home department: MATHEMATICS (MIL)				
242	**10**	**Analysis II**	3L, 1T	**E**

Convergence of sequences; convergence or divergence of series; alternating series; power series; Taylor and Maclaurin series.
C Mathematics (Mil) 212
PP Mathematics (Mil) 112, 142

Home department: MATHEMATICS (MIL)				
252	**10**	**Linear Algebra II**	3L, 1T	**E**

Introduction to linear programming and network analysis; eigenvalues and eigenvectors
C Mathematics (Mil) 222
PP Mathematics (Mil) 122, 152

Home department: MATHEMATICS (MIL)				
312	**12**	**Introductory Topology**	3L, 1T	**E**

Metric and topological spaces; basic concepts; sequences; continuous mappings; uniform continuity; compact spaces and sets; connected spaces and sets.
C Mathematics (Mil) 322
PP Mathematics (Mil) 212, 222, 242, 252

Home department: MATHEMATICS (MIL)				
322	**12**	**Complex Analyses**	3L, 1T	**E**

The differentiability of complex functions; conformal mappings; integration along a path; power series; classification of singularities; residues; applications of contour integration.
C Mathematics (Mil) 312
PP Mathematics (Mil) 212, 222, 242, 252

Home department: MATHEMATICS (MIL)				
342	**12**	**Numerical Analyses**	3L, 1T	**E**

Mathematical preliminaries and error analysis; solutions of equations in one variable; interpolation and polynomial approximation; numerical differentiation and integration; initial value problems for ordinary differential equations; direct methods for solving linear systems.
C Mathematics (Mil) 312, 322
PP Mathematics (Mil) 212, 222, 242, 252

Home department: MATHEMATICS (MIL)				
352	**12**	**Non-linear Programming**	3L, 1T	**E**

Classical optimisation techniques; convex sets and convex functions; one-dimensional minimisation methods; multivariable unconstrained optimisation techniques; constrained optimisation.

C Mathematics (Mil) 312, 322

PP Mathematics (Mil) 212, 222, 242, 252

Home department: MATHEMATICS (MIL)

12478 MILITARY ETHICS				
114	**8**	**Military Ethics**	5L	**E**

This module will enhance student knowledge about military ethics with links to human rights and international humanitarian law. The student will learn the role of military ethics in military command, be empowered with a dynamic model on moral judgement and how to apply it as a commander.

Home department: INDUSTRIAL PSYCHOLOGY (MIL)

22969 MILITARY GEOGRAPHY				
114	**12**	**Concepts and Techniques in Geography**	4L, 3P	**E**

The origin, nature and four main traditions of geography; the impact of man on the environment; population geography; cultural geography; the geography of spatial behaviour; political geography, economic geography; the geography of natural resources; urban geography; the regional concept; the historical development of cartography; cartometry (map scale, map projections); data acquisition (topographic surveying, aerial photography and remote sensing); map communication (layout, design, map symbols and representation); data classification (statistical, thematic and quantitative); computer assisted mapping and animated cartography.

Home department: MILITARY GEOGRAPHY

144	**12**	**The Physical Environment**	4L, 3P	**E**

Movement and seasons of the earth; atmosphere of the earth; insulation and temperature; atmospheric pressure and winds; atmospheric flows and disturbances; atmospheric moisture; the hydrosphere; the South African weather and climate; interpretation of climatological data; synoptic weather charts and climogrammes. The internal structure of the earth; endogenesis of continental, sub-continental and regional scale; exogenic processes (weathering and mass wasting, fluvial processes, ground water and karst topography, water and wind in arid regions); ocean processes (tides, waves, sea currents, coastal processes and landforms); the South African geomorphological landscape; terrain representation and contour interpretation; stream orders; profiles and slopes; aerial photo interpretation of the physical environment.

Continuous Assessment

Home department: MILITARY GEOGRAPHY

214	20	**Military Conduct and the Environment**	4L, 3P	E
Introduction to environmental theory; the environment as a system; South African environmental law: an overview; environmental resources and conflict; the urban environment and related environmental problems; military actions and the environment; environmental management in the military context – internationally and in South Africa; data capturing techniques (sampling techniques, questionnaires, workshops, etc.); data processing and interpretation; the procedure for environmental impact assessment. Continuous Assessment Home department: MILITARY GEOGRAPHY					
244	20	**The Geography of Sub-Saharan Africa**	4L, 3P	E
The following issues regarding the sub-Saharan African region will be studied: the physical landscape; population geography; the human impact on the environment; historical background; culture, conflict and change; development; the political landscape; medical geography; urban geography; agricultural development; natural resources. Geographical report writing about the region. Home department: MILITARY GEOGRAPHY					
314	24	**Geographical Information Systems**	4L, 3P	E
Defining geographical information systems (GIS); fundamental geographical concepts for GIS-science; geographic information technology in the community with specific reference to the military community; the capturing, storing, retrieval, manipulation, querying and displaying of digital geographic data. Home department: MILITARY GEOGRAPHY					
344	24	**Remote Sensing**	4L, 3P	E
Electromagnetic energy and remote sensing; sensors and platforms; radiometric correction; geometric aspects; image enhancement and visualisation; visual image interpretation; digital classification. Home department: MILITARY GEOGRAPHY					

15377 MILITARY HISTORY				
114	12	**General Military History to 1914**	5L, 1T	E
Introduction to the study of military history: the nature, approach and function of military history, basic concepts in military history; warfare in antiquity; medieval warfare; warfare in the early modern era; limited warfare in the eighteenth century; Napoleonic warfare wars of the Industrial Revolution: the American Civil War, Austro-Prussian War, Franco-Prussian War, Anglo-Boer War and the Russo-Japanese War; introduction to war and technology in the twentieth century. Home department: MILITARY HISTORY					
144	12	**The Military History of Africa to 1945**	5L, 1T	E
Introduction to the history of Africa: African historiography; warfare in sub-Sahara Africa since the earliest times; state formation and empires; Islam; trade and slavery;					

internecine warfare; resistance to colonial conquest; wars of colonial competition; introduction to national liberation, independence and internal conflict in Africa.

P Military History 114

Home department: MILITARY HISTORY

214	16	**South African Military History to the 21st Century**	5L, 1T	E

South African military historiography; early South African military history c. 1200 – 1652; intergroup conflict at the Cape, 1652 – 1795; the British Conquest of the Cape; the Difaqane/ Mfecane, 1815 – 1834; conflicts between the Voortrekkers, Matabeles and Zulus, 1836 – 1845; military power and the establishment of white hegemony during the second half of the 19th century; the First Anglo-Boer War, 1880 – 1881; the Second Anglo-Boer War, 1899 – 1902; the establishment and history of the Union Defence Force, 1912 – 1957; South African defence policy and imperial defence; the crisis year 1922; the rise of black resistance in the twentieth century; the South African Defence Force, 1957 – 1994; the South African National Defence Force: integration and transformation since 1994.

P Military History 114, 144

Home department: MILITARY HISTORY

244	16	**The First and Second World Wars, 1914 – 1945**	5L, 1T	E

European armies, weapon systems and doctrines on the eve of the First World War; the First World War, 1914 – 1918; South Africa's participation in the First World War, 1914 – 1918; the causes of the Second World War; military developments, 1919 – 1939; the opposing forces in 1939; the Axis conquest of Central and Western Europe, 1939 – 1941; operations in the Mediterranean and North Africa, 1940 – 1943; the German campaigns in Russia, 1941 – 1942; total war against the Axis forces, 1942 – 1945; the war in the Pacific, 1941 – 1945; the revolution in military technology, 1942 – 1945; South Africa's participation in the Second World War; war and society in the era of total war; military historiography to 1945; the social and historiographic impact of the Second World War.

P Military History 214

Home department: MILITARY HISTORY

314	24	**Contemporary Warfare**	5L, 1T	E

The Cold War; the Korean War, 1950 – 1953; the Vietnam War, 1965 – 1975; the Arab-Israeli Conflict, 1948 – 1982; the Indo-Pakistani War, 1965 – 1971; the Iran-Iraq War (1st Gulf War), 1980 – 1988; the Falkland War, 1982; the 2nd Gulf War, 1991; the 3rd Gulf War, 2003; the influence of technology on conventional warfare since 1945; the post-Cold War era; peacekeeping operations; trends in contemporary military historiography.

P Military History 244

Home department: MILITARY HISTORY

344	24	**Low-Intensity Conflict in Africa since 1945**	5L, 1T	E

Theoretical background of revolutionary war/internal conflict/low-intensity conflict, with particular reference to the revolutions in Russia, China and Cuba; trends in global terrorism; low-intensity conflict and revolution in Algeria, 1830 – 1962; insurgency, counterinsurgency and civil war in Angola, 1961 – 2001; insurgency, counterinsurgency

and civil war in Mozambique, 1964 – 1991; the internal war in Rhodesia, 1972 – 1980; the internal conflict in South Africa, 1976 – 1994; South African counterinsurgency operations in South West Africa/Namibia and Angola, 1966 – 1989; the low-intensity conflict in the Democratic Republic of the Congo, 1960 – 2002; the SANDF, peace-support operations and military intervention in Africa, 1998 – 2002; military history and military professionalism.
P Military History 314
Home department: MILITARY HISTORY

12479 MILITARY LEADERSHIP

144	8	**Military Leadership**	3L, 2P	E

The module will empower students with knowledge on ethical, participative and autocratic leadership, the role of military ethics to be a commander, the dark side of obedience, and how to apply military ethics in different scenarios in the military – with its links to the code of conduct of the SANDF and the Constitution of South Africa.
P Military Ethics 114
Home department: INDUSTRIAL PSYCHOLOGY (MIL)

50210 MILITARY MANAGEMENT

114	12	**Introduction to Organisation and Resource Management**	5L	E

This module will focus on the role of managers in the public sector by providing an overview of the management of the different functions within an organisation. Attention will be focused on the unique nature of the public sector; the ethical foundations for public sector officials; the environment in which the public sector manager operates as well as the management functions of the public sector manager.
Home department: MILITARY MANAGEMENT

144	12	**General Management**	5L	E

An overview; the management environment; management of diversity; planning skills; creative problem solving; strategic and operational planning processes; organising skills; organising and delegation; management of change; leadership skills; group and team development; power; conflict and stress; control skills; control of human resources; financial controls of organisation.
Home department: MILITARY MANAGEMENT

214	16	**Logistics Management**	5L	E

The role of logistics in the economy and organisation; customer service; logistics information systems; inventory management; managing materials flow; transport; ware-housing; materials handling and packaging; purchasing; global logistics; organising for effective logistics; methods to control logistics performance; supply-chain management; implementation of logistics strategy.
Home department: MILITARY MANAGEMENT

244	16	**Financial Management**	5L	E

An introduction to financial management with reference to the analysis of financial statements and long-term financial planning. The valuation of cash flows, shares and bonds. The analysis of capital budgeting and budget control, short-term financial

planning and management. Home department: MILITARY MANAGEMENT				
314	**24**	**Project Management**	5L	**E**
Project management concepts, needs identification, proposed solutions and the implementation of projects are addressed as part of the project life cycle. The project manager, project team, types of project organisations and project communication and documentation are analysed as part of the personnel management function. Lastly, project planning and control is studied as part of planning, scheduling, scheduling control, resource considerations and cost planning and performance. Home department: MILITARY MANAGEMENT				
344	**24**	**Strategic Management**	5L	**E**
Overview of strategic management: formulation of strategy (formulation of a vision/mission, external and internal analysis, determining long-term objectives, development of corporate and business strategies, strategic analysis and choice), strategy implementation (operationalisation and institutionalisation of a strategy) and strategic control. Home department: MILITARY MANAGEMENT				

30815 MILITARY PROFESSIONAL DEVELOPMENT				
178	**12**	**Military Professional Development**	1L	**E**
Civic education, Convention of Service Writing (CSW), military history, musketry, regimental aspects, profession of arms. Home department: MILITARY MANAGEMENT				

13048 PHYSICS (MIL)				
114	**12**	**Mechanics**	5L, 4P	**E**
Motion along a straight line; vector algebra; motion in two and three dimensions; force and motion; work and kinetic energy; law of conservation of energy; systems of particles; collisions; rotation; rolling and sliding; torque; angular momentum; equilibrium; density and pressure; fluids in motion; oscillations; waves. Practical experiments and reports to support and supplement the theoretical work will be continuously assessed. *C Mathematics (Mil) 112, 122* Home department: PHYSICS (MIL)				

124	12	**Introduction to Motion, Waves and Optics**	5L, 3P	E

Kinematics in one dimension; kinematics in two dimensions; forces and Newton's laws of motion; dynamics of uniform circular motion; work and energy; impulse and momentum; rotational kinematics; rotational dynamics; elasticity and simple harmonic motion; pressure; fluids in motion; electromagnetic waves; mirrors, lenses and optical instruments; interference and the wave nature of light.
Practical experiments and reports to support and supplement the theoretical work will be continuously assessed.
C Mathematics (Mil) 124
Home department: PHYSICS (MIL)

144	12	**Electricity and Thermodynamics**	5L, 4P	E

Electric charge; electric fields; Gauss's law; electric potential; capacitance; current and resistance; basic circuits; electric currents and magnetic fields; inductance; electromagnetic oscillations and alternating current; temperature; heat; laws of thermodynamics; kinetic theory of gases; electromagnetic waves; images; interference; diffraction.
Practical experiments and reports to support and supplement the theoretical work will be continuously assessed.
C Mathematics (Mil) 142, 152
P Physics (Mil) 114
Home department: PHYSICS (MIL)

154	12	**Principles of Electromagnetism and Thermodynamics**	5L, 3P	E

Electric forces and electric fields; electric potential energy and the electric potential; basic electric circuits; magnetic forces and fields; electromagnetic induction; alternating current circuits; temperature and heat; transfer of heat; laws of thermodynamics; heat engines; refrigerators; waves and sound; principle of linear superposition; interference phenomena.
Practical experiments and reports to support and supplement the theoretical work will be continuously assessed.
C Mathematics (Mil) 124
Home department: PHYSICS (MIL)

212	10	**Applied Wave Theory**	3L, 2P	E

Basic wave concepts; wave equation; superposition and interference; lenses and mirrors; waves incident on a boundary; transmission spectra; aberration; military application of lasers; stealth.
Practical experiments and reports to support and supplement the theoretical work will be continuously assessed.
PP Physics (Mil) 114
Home department: PHYSICS (MIL)

222	10	**Alternating Current Theory**	2L, 2P	E

Capacitance; inductance; transient and steady state currents in LR and RC circuits; phasors in the complex plane; complex power; three-phase electricity; transformers; LCR circuits; impedance; resonance; frequency filtering; Fourier analysis.

Practical experiments and reports to support and supplement the theoretical work will be continuously assessed.

PP Physics (Mil) 144
PP Mathematics (Mil) 142, 152

Home department: PHYSICS (MIL)

242	10	**Modern Physics**	2L, 2P	**E**

Simple atomic models; wave properties of particles; wave/particle duality; Heisenberg's uncertainty principle; special relativity; Schrödinger's equation; particle in a box; harmonic oscillator; eigenfunctions and eigenvalues; time dependence; barrier penetration. Basic statistical physics; black-body radiation; rate equations; population inversions; principals of lasers.

Practical experiments and reports to support and supplement the theoretical work will be continuously assessed.

PP Physics (Mil) 144, 212
PP Mathematics (Mil) 212

Home department: PHYSICS (MIL)

252	10	**Electromagnetism**	2L, 2P	**E**

Electrical current and magnetic field; materials in magnetic fields; Biot-Savart's law; Ampère's law; Divergence and Curl of Electrostatic fields; Steady Currents; Faraday's law; Electrodynamics and Relativity; Laws of electricity and magnetism in integral form; gradient, divergence and rotation of fields; fundamental theorems of integration, divergence and rotation and their physical implications; Maxwell's equations; electromagnetic waves.

Practical experiments and reports to support and supplement the theoretical work will be continuously assessed.

PP Physics (Mil) 222
PP Mathematics (Mil) 212

Home department: PHYSICS (MIL)

312	12	**Nuclear Physics**	3L, 2P	**E**

Nuclear structure; nuclear models; radioactive decay; a-decay; b-decay; gamma radiation; nuclear reactions; detection; accelerators; elementary particles; nuclear weapons.

Practical experiments and reports to support and supplement the theoretical work will be continuously assessed.

PP Physics (Mil) 242

Home department: PHYSICS (MIL)

322	12	**Electronics I**	2L, 2P	**E**

Measuring instrument; semiconductor theory; diodes; bipolar junction transistors; field effect transistors; other electronic components; transistor amplifiers; operational amplifiers; feedback and stability; z and h parameters.

Practical experiments and reports to support and supplement the theoretical work will be continuously assessed.

PP Physics (Mil) 222

Home department: PHYSICS (MIL)

332	12	**Electronics II**	2L, 2P	**E**

Oscillator circuits; modulation; coding; microwave components; transmission lines; antennas; AD converters; logic; noise; signal processing computer programs.
Practical experiments and reports to support and supplement the theoretical work will be continuously assessed.
C Physics (Mil) 322
PP Physics (Mil) 222
Home department: PHYSICS (MIL)

342	12	**Statistical Physics**	3L, 2P	**E**

First law of thermodynamics; second law of thermodynamics; third law of thermodynamics; paramagnetism; simple systems; phase equilibria; classical gas; quantum gas; black-body radiation; FD and BE statistics.
Practical experiments and reports to support and supplement the theoretical work will be continuously assessed.
PP Physics (Mil) 242
Home department: PHYSICS (MIL)

352	12	**Solid State Physics**	3L, 2P	**E**

Crystal structure; Crystal lattice geometry; binding forces in crystal; X-ray diffraction; Defects in crystals; the influence of defects; point defects; vacancies; grain boundaries; dislocations; kinetic theory of gases; equipartition of energy; Boltzman distribution law; distribution of speeds; mean free path; Statistical mechanics; Boltzman, Maxwell and Planck distribution; Phonos in crystals; one-dimensional chain; Debye model; Lattice specific heat; Electrons in metals; electronic structure of atoms; conduction electrons; free electron theory; Fermi-Dirac statistics; electrical conductivity; contact potential; motion in magnetic fields; energy bands; electrons in semiconductors; instrinsic semiconductors; doped semiconductors; mobility and the Hall effect; p-n junctions.
Practical experiments and reports to support and supplement the theoretical work will be continuously assessed.
PP Physics (Mil) 212, 222
Home department: PHYSICS (MIL)

362	12	**Radar**	3L, 2P	**E**

Radar fundamentals: range; Doppler; coherence; radar; jamming effects; losses. CW radar: CW equation; FM; linear FM; multiple frequency; resolving range and Doppler.
Radar detection: noise; probability of detection; probability of false-alarm; coherent and non-coherent pulse integration; detection threshold; CFAR.
Radar waveforms: low and band-pass signals; quadrature components; CW and pulsed; linear FM; high resolution; stepped frequency.
Pulse compression: analogue; digital.
Radar wave propagation: earth atmosphere; refraction; reflection; pattern propagation factor; diffraction; AREPS.
Clutter and MTI: single and dual line cancellars.
Radar antennas: directivity; power; gain; circular dish; array antennas; conventional beam forming.
Target tracking: single target track; multiple target track.
Signal processing: Fourier transform and series; convolution and correlation; Z transform.
PP Physics (Mil) 322, 332

Home department: PHYSICS (MIL)				
372	**12**	**Quantum Mechanics A**	3L, 2P	**E**
Mathematical structure of quantum mechanics: Operators, eigenstates. Schrodinger equation in spherical coordinates. Free particle, wave packet. One-dimensional problems: Infinite-square well, harmonic oscillator. Angular Momentum, orbital and spin quantum numbers. Hydrogen atom, quantum numbers. Two-particle systems. Atoms, Solids, and Quantum Statistical Mechanics. Practical experiments and reports to support and supplement the theoretical work will be continuously assessed. *P Physics (Mil) 242* *PP Mathematics (Mil) 212, 242* Home department: PHYSICS (MIL)				
382	**12**	**Electronic communication**	3L, 1T	**E**
Digital communication systems. Data communications systems. Microwave radio communications systems. Satellite communications systems: Kepler's laws, Clark orbits, limits of visibility, satellite radio navigation and Navstar GPS. Optical fibre communications systems: light sources, optical power, optical sources and link budget. Cellular and PCS telephone systems: trellis encoding, CCITT modem recommendations, PCM line speed, extended super format, wavelength division multiplexing. *PP Physics (Mil) 322, 332* Home department: PHYSICS (MIL)				

46663 MILITARY STRATEGY				
214	**16**	**Study of Strategic Thought and Concepts**	6L	**E**
Battlefield to security; modern and post-modern concepts in the formulation and execution of strategy; political guidance and civilian control over the formulation and execution of strategy; the theory of strategy and modern problematic; traditional land, aerial and maritime thought, the execution of military strategy on the operational level of war. Home department: MILITARY STRATEGY				
244	**16**	**Introduction to African Security**	6L	**E**
Theoretical approaches to security co-operation: the concept of security, typology of security, security regimes, security communities, collective security. Studies in African security co-operation: Southern African security co-operation, West African security co-operation, peace and security architecture of the African Union. African security and the changed global agenda: economic development and the prospect for economic security in Africa, democracy and security in Africa, the environment and African security, ethnicity, ethnic conflict and security in Africa. National security policy of South Africa. Home department: MILITARY STRATEGY				

314	24	**Contemporary Thought on Low-intensity Conflict**	6L	**E**
The internal conflict spectrum. The aetiology of internal conflict. Insurgency: types and strategy. Civil war: the African dimension. Civil violence: popular and external support. Political terrorism; peace support operations. Organisational profiles: militant movements and government forces. Home department: MILITARY STRATEGY				
344	24	**Conventional Schools of Thought and Future Warfare**	6L	**E**
Introduction: impact of technology on conventional warfare; the philosophy of conventional warfare; the continental school of thought; the aerospace school of thought; the maritime school of thought; South African doctrine on conventional warfare; conventional warfare and the revolution in military affairs. Home department: MILITARY STRATEGY				

46698 MILITARY TECHNOLOGY				
212	10	**Strength of Materials**	3L, 2T	**E**
Statics: forces, moments and couples; equilibrium of forces; free-body diagrams; pulleys; forces in frames; method of sections, loads and structural members; forces in space; centriods of areas and moments of inertia. Stresses and strains: stress and strain relationships; direct stress relationship; Hooke's law; stress concentrations; temperature stresses. Rivets and welding joints: rivet joints; stresses in and yielding of riveted joints; stresses in thin-walled cylinders under high pressure; types of welding joints; strength and design of welding joints. Normal and shear stresses: torque; torque equation; angular displacement; power on axles; ending moments and shear stresses in straight beams; yielding of beams; compound tresses; Mohr's circle; elastic stability of columns; Euler's equations and relevant restrictions. *P Mathematics (Mil) 142, 152* Home department: MILITARY TECHNOLOGY				
222	10	**Fluid Mechanics**	3L, 2T	**E**
Fundamental concepts: definition of fluid; viscosity, compressibility; ideal fluid; ideal gas. Statics: pressure distribution; pressure measurement; forces on submerged bodies; buoyancy and stability of submerged floating bodies. Dynamics: Euler and Lagrange descriptions; continuity, momentum, and energy equations derived for a control volume. Dimensional analysis: geometric, kinematics and dynamic similitude; Raleigh method; Buckingham Pi-theorem. *P Mathematics (Mil) 112, 122, 142, 152* Home department: MILITARY TECHNOLOGY				
242	10	**Fluid Mechanics**	3L, 1T	**E**
Fluid in closed conduits: laminar and turbulent flow; effect of viscosity; equation of motion; friction factors and pipe roughness; minor losses; pumps and piping systems.				

Flow over immersed bodies: introduction to boundary layer theory; drag on various two-dimensional and three-dimensional bodies; introduction to lift on airfoils. Navier-Stokes equations: equations of motion; applications to laminar flow; introduction to turbulent flow. Propellers: propellers and propulsion; Froude's momentum theory of propulsion; blade element theory; momentum theory applied to helicopter rotor.
P Military Technology 222
P Mathematics (Mil) 112, 122, 142, 152
Home department: MILITARY TECHNOLOGY

252	**10**	**Numerical Techniques**	3L, 2T	**E**

Computer representation and truncation of numbers: number representation; truncation error; rounding error; error propagation. Simultaneous linear equations: Gaussian elimination; matrix inverse; determinants; matrix conditioning. Interpolation: Horner's rule; Taylor's polynomials; polynomial interpolation; Lagrange interpolation; spline functions. Numerical differentiation and integration: interpolatory differentiation; interpolatory quadrature; compound quadrature formulas; Gauss quadrature; improper integrals; estimation and error control; adaptive quadrature. Non-linear equations: graphical approach; bisection method; secant method; Newton's method; convergence and error properties; polynomial roots. Function approximation and data fitting: least-squares approximation; stabilisation of least-squares methods; Fourier analysis. Ordinary differential equations: elementary methods; Runge-Kutta methods; simultaneous and higher-order differential equations; two-point boundary value problems; adaptive step-size; error control.
P Computer Inf. Systems (Mil) 114
P Mathematics (Mil) 112, 122, 142, 152
Home department: MILITARY TECHNOLOGY

254	**16**	**Information Warfare**	5L, 1T	**E**

Theory of IW: resources; players; offensive IW; defensive IW.
The IW battlegrounds: play; crime; rights of the individual; national security.
Offensive IW: open sources; psy-ops and perception management; insiders; signal interception; computer break-ins and hacking; masquerade; cyber plagues.
Defensive IW: secret codes and hideaways; fake recognition; monitors and gatekeepers.
System security: security awareness; risk management; incident handling; protecting critical infrastructure; encryption policy.
Home department: MILITARY TECHNOLOGY

312	**12**	**Aerodynamics**	3L, 2T	**E**

Fluid mechanics: continuity, momentum and energy equation in differential form for incompressible flow. Potential flow: definitions of velocity potential and stream function; standard flow, source and sink in terms of stream function; Biot-Savart's law; determination of flow around a Rankine oval and rotating cylinder; introduction to numerical potential flow. Two-dimensional aerofoil theory: development and solution of general model. Finite aerofoil theory: Helmholtz's vortex theorems; Lancaster-Prandtl aerofoil model; aerofoil properties for finite series distributions; monoplane equation; simplified horseshoe vortex; formation flying effects, ground effect. Computational fluid mechanics: introduction to computational fluid mechanics; Navier-Stokes and Euler equations; finite difference formulations; numerical solution of Euler equations for elementary flows. Drag: definition of drag components; boundary layer theory.

P Military Technology 242, 252				
Home department: MILITARY TECHNOLOGY				
322	**12**	**Gas Dynamics**	3L, 2T	**E**

Fluid mechanics: continuity, momentum and energy equations in differential form for compressible flow; isentropic flow; propagation of small disturbances; stagnation conditions; steady one-dimensional flow of an ideal gas with changing area; Da Laval nozzles; propulsion nozzles. Shock waves: normal and oblique shock waves in ideal gases. Expansion waves: expansion waves in ideal gases. Aerofoils in compressible flow: qualitative discussion on the Prandtl-Glauert corrections and Ackert's theory. Finite wings in supersonic flow: qualitative discussion on the flow model and solution procedures. Transonic and hypersonic flow: qualitative aspects of transonic and hypersonic flow.

P Military Technology 242, 252				
Home department: MILITARY TECHNOLOGY				
342	**12**	**Aircraft Mechanics: Performance Analysis**	3L, 2T	**E**

Aircraft propulsion: Froude's momentum theory applied to a propeller; blade element theory; characteristics of propulsion configurations. Aircraft performance: aircraft performance in steady and accelerating flight, including gliding flight, climbing flight, take-off, landing and horizontal turning flight; determination of speeds for minimum drag and minimum power; optimisation of flight profiles for range and endurance; influence of adverse atmospheric conditions on aircraft performance.

P Military Technology 312				
Home department: MILITARY TECHNOLOGY				
344	**24**	**Electronic Warfare**	3L, 1T	**E**

Mathematics and physics: logarithms; exponents; decibel; electromagnetic principles. Electronic warfare (EW): introduction; glossary of terms; EW background and structures; objectives; EW analysis and vulnerability; receiver antenna resonance; antenna parameters and characteristics; the ideal receiver; receiver parameters; receiver noise; types of EW receivers; EW processing.
Radar: basic radar; the radar equation; radar countermeasures; chaff.
Infrared: the IR spectrum and guidance principles; IR countermeasures; IR counter-countermeasures.
COMINT: introduction to communication systems; advanced communication systems.

Home department: MILITARY TECHNOLOGY				
352	**12**	**Aircraft mechanics: Stability and control**	3L, 2T	**E**

Static stability and control of aircraft: co-ordinate system; stick-fixed and stick-free static longitudinal stability; longitudinal control; manoeuvring; stick-fixed and stick-free lateral and directional stability; directional control; lateral control. Dynamic stability and control of aircraft: general equations of motion; linearisation of equations; analytical and numerical solution of equations; characteristic motions; handling quality; coupling effects.

P Military Technology 312				
Home department: MILITARY TECHNOLOGY				

33057 NAUTICAL SCIENCE				
114	**12**	**General Navigation**	6L, 4P	**E**
Coastal and deep-sea navigation; astro-navigation. Home department: NAUTICAL SCIENCE (MIL)				
144	**12**	**Navigational Theory**	6L, 2P	**E**
Elements of oceanography; chart projections and chart construction; spherical trigonometry; loxodromic and orthodomic sailing methods. Home department: NAUTICAL SCIENCE (MIL)				
214	**20**	**Navigational Systems**	6L, 4P	**E**
Radar and electronic navigation systems; compasses; INS; GMDSS. Home department: NAUTICAL SCIENCE (MIL)				
244	**20**	**Introduction to Marine Engineering Principles**	6L, 4P	**E**
Propulsion systems and power output; ship services and auxiliaries; control systems; stabilisers; submarine systems; combat and explosive damage. Home department: NAUTICAL SCIENCE (MIL)				
314	**24**	**Ship Stability**	6L, 4P	**E**
General ship stability; transverse static stability; introductory dynamical stability; introductory submarine stability. Home department: NAUTICAL SCIENCE (MIL)				
344	**24**	**Introduction to Naval Architecture**	6L, 4P	**E**
General ship knowledge; conventional hull forms; tonnages and drafts; resistance; hydrodynamic supported vessels; hydrofoils; air cushion vessels; propulsion devices; steering devices. Home department: NAUTICAL SCIENCE (MIL)				

48283 POLITICAL SCIENCE (MIL.)				
114	**12**	**Introduction to Politics**	6L	**E**
The nature and study of politics; the classification of governments and political systems; political ideologies; models of democracy and their application; the theory and the role of the state; the mass media and political communication; representation, elections and voter behaviour; political parties and party systems; the theory of the *trias politica* with an application to South Africa. Home department: POLITICAL SCIENCE (MIL)				
144	**12**	**Introduction to International Relations and Civil-Military Relations**	6L	**E**
International Relations: the study of International Relations; theories of International Relations; states and the inter-state system; non-state actors in international relations; Africa's international relations. Civil-military relations: politics, the military and 'control'; reforming civil-military relations; challenges for military transformation; parliamentary oversight of the defence sector in South Africa and Tanzania. Home department: POLITICAL SCIENCE (MIL)				

214	16	**South Africa and the International Community**	5L	E

Phenomenon of globalisation; institutionalised international co-operation; international inter-governmental organisations; regional sub-system of Southern Africa; conflict and conflict management in Africa; goals and scope of foreign policy; goals and scope of diplomacy; foreign policy in South Africa since 1994; the military dimension in South Africa's foreign policy; South African philosophy and policy on participation in peace missions; principles of best practice engagement in peace missions for Africa and South Africa; division of labour between the UN and regional organisations with regards to peacekeeping.
Home department: POLITICAL SCIENCE (MIL)

244	16	**Introduction to African Politics**	5L	E

The core introductory themes in the study of African politics and society; the main theoretical approaches to the study of African politics; the political and economic context of pre-colonial Africa; the political and economic impact of colonialism on Africa, the factors behind the rise of nationalism and the emergence of independence movements; the role of ethnicity and class in contemporary African politics and society; the main trends and dynamics in state-society relations in Africa; the nature and dynamics of military intervention in African politics and society; the manifestation of democratic experiments and multiparty politics in Africa; the foreign policy-making context and the pan-African ideal in African political co-operation; the African continent in the 20th century and contemporary international politics and relations.
Home department: POLITICAL SCIENCE (MIL)

314	24	**African Political Thought**	5L	E

Understanding social research; ideology and the spectrum of political attitudes; the nation-state, nationalism and African nationalism; modern democracy and the search for democratic government in Africa; Marxism, socialism and African socialism; capitalism and political economies of African states; ideologies in the Developing World; ideology and the politics of development in Africa; the manifestation and practice of ideology in post-colonial Tanzania; the manifestation and practice of ideology in post-colonial Senegal; the manifestation and practice of ideology in post-colonial Zambia; tenets and manifestation of Pan-Africanism.
P Political Science (Mil) 214, 244
Home department: POLITICAL SCIENCE (MIL)

344	24	**Africa and the International Political Economy**	5L	E

Definitions and descriptions central to the study of political economy and the main characteristics of the world economic system; the evolution of the International Political Economy; the study of International Political Economy as a specific field of scholarly interest; Africa's contemporary economic history; internal and external causes of economic decline in Africa; the NEPAD strategy as a remedy for Africa's developmental challenges; lessons from successful states in the Developing World; U.S. foreign aid after September 11; the U.S., China and Africa in contemporary political-economic context; 'war economies' and the role of natural resources; the role of natural resources in the conflict in Sudan; the role of 'conflict diamonds' in Angola and Sierra Leone.
P Political Science (Mil) 214, 244
Home department: POLITICAL SCIENCE (MIL)

53449 PUBLIC AND DEVELOPMENT MANAGEMENT (MIL)				
144	12	**Budget Management**	5L	E

Introduction; why states require funds; objectives of the modern state; functions of the state and service provision; sources of income for the state; tax regimes; state expenses; functions of the budget; expense responsibility; the budget cycle and the defence budget.
Home department: PUBLIC AND DEVELOPMENT MANAGEMENT (MIL)

214	16	**Public Labour Relations**	5L	E

Introduction; definitions; analysis; interaction and the processes in which the labour relations function. Labour relations systems; role of the state; South African labour relations systems in an historical context; the legal framework; labour unions and employer organisations in a theoretical context; communications in the workplace and labour relations procedures. Labour relations in the military environment and labour unions.
Home department: PUBLIC AND DEVELOPMENT MANAGEMENT (MIL)

244	16	**Development Management**	5L	E

Introduction; differing views; theories and an overview of development experiences in South Africa. The developing world; classifications, components, characteristics and measurement of development. Selected issues such as poverty, unemployment and urbanisation. Development management and strategies: the role of the state and NGOs in development. Development planning, participation, community development and the role of the military in development.
Home department: PUBLIC AND DEVELOPMENT MANAGEMENT (MIL)

314	24	**Organisational Science**	5L	E

This module focuses on the development of organisational theory. It addresses the following: organisations as systems; the components of the macro environment; the internal environment of the organisation; organisational effectiveness; the structure and design of institutions; contemporary problems of organisational growth and development of organisational culture and of organisational change and renewal.
Home department: PUBLIC AND DEVELOPMENT MANAGEMENT (MIL)

324	24	**Human Resource Development**	5L	E

The focus of the module is to empower the student with knowledge and skills to evaluate and develop military courses and study material. The module includes the following; strategic training needs analysis; organisational training needs analysis; an analysis of individual training needs for different levels of military courses; development of training material, manuals and programmes; selection of training techniques; presentation skills, training in interpersonal skills, training the officer to become an instructor.
Home department: INDUSTRIAL PSYCHOLOGY (MIL)

344	24	**Public Management under Administrative Law Principles**	5L	E

The module provides an introduction to South African administrative law as a set of guidelines for effective public management. Attention is given to basic concepts of constitutional law; general principles of administrative law; co-operative government and the sources of administrative law, administrative law relationships, legal subjects and administrative acts; just administrative action and control over administrative action and how these concepts relate to the actions of a public manager.

Home department: PUBLIC AND DEVELOPMENT MANAGEMENT (MIL)

56294 SECURITY LAW (MIL)

144	12	**Security Law**	5L	E

International Law: introduction, sources of international law, international law and municipal law, states and governments, international organisations, individuals, companies and groups, jurisdiction, immunity from jurisdiction, treaties.
Humanitarian Law: human rights, ius ad bellum, ius in bello, the United Nations and peace and security.
Operational Law: private defence, necessity, obedience to orders, official capacity.
Home department: MERCANTILE LAW (MIL) AND CRIMINAL LAW (MIL)

45764 STATISTICS (MIL)

144	12	**Statistics for Managers**	6L, 2P	E

Frequency distributions and graphical representations. Descriptive measures of location and dispersion. Sampling. Introductory probability theory, theoretical distributions and sampling distributions. Introduction to statistical inference: estimation theory and hypothesis testing of sampling averages and proportions. Regression and correlation. Analysis of variance. Introductory categorical data analysis and distribution-free methods. Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques.
Home department: MATHEMATICS (MIL)