University of Pretoria Yearbook 2016

BEd Senior Phase and Further Education and Training Teaching (09133031)

Duration of study	4 years
Total credits	680

Other programme-specific information

Please note: The following is effective as from 2016:

WTW 124 Calculus and algebra 124

(Replaces WTW 126 and WTW 128)

WTW 146 Linear algebra 146, and WTW 148 Calculus 148

(Available to BEd students who take only a single full year of Mathematics as an elective with either WTW 114 or WTW 134 as first semester module.)

WTW 161 Linear algebra 161, and WTW 168 Calculus 168

(May be added to lists as alternatives used for recognition to replace WTW 126 and 128 or WTW 146 and 148, but are not available for BEd students.)

Module description	Module code
Fundamental modules	
Academic information management	AIM 101 or AIM 111, 121
Literacies in education	JLZ 110,120 or JLZ 111, 121
First Aid	JNH 454
Core modules	
Conversational competence: One of IsiZulu, Sepedi, Setswana (an exemption can be written)	CCZ 100 or CCI 100 or CCW100

Education	OPV 112, 122 OPV 212, 222 OPV 312, 322
Research project	JNM 461, 464
Teaching practice	PRO 280 PRO 380 PRO 452, 453
Professional studies	JPS 121
Literacies in education	JLZ 300

Elective modules
School subjects that are specific to only the Senior Phase (SP). Students who choose one of these combinations must still take another elective to teach in the Further Education and Training (FET) phase. All modules must be taken, except where options are indicated. See prerequisites listed with the alphabetical list of modules. Modules are chosen according to the class timetable. NO TIMETABLE CLASHES ARE ALLOWED.

Module description	**Module code**
Social sciences *Students choose GGY 252, 283 and 266, or GES 210 and 220	ENV 101 GGY 156, 166 *GGY 252, 283, 266 WKD 164 GES 110, 120 *GES 210, 220
Technology (All modules must be taken)	WTW 133, 143 PHY 133, 143, CMY 133 JTT 120 JOT 240 JOT 330, 340
Natural Sciences	WTW 133, 143 PHY 133, 143 CMY 133, 143 BOT 161 BOT 251 ZEN 161 ZEN 251 ZEN 261 JNS 310

Elective modules
School subjects that can be chosen as SP and FET electives. For SP these modules should be taken up to 2nd year level and for FET up to 3rd year level. All modules must be taken, except where options are indicated. See prerequisites listed with the alphabetical list of modules. Modules are chosen according to the class timetable. NO TIMETABLE CLASHES ARE ALLOWED.

Module description	Module code
Art Education	JKG 100, JKU 101 JKG 200, JKU 201 JKG 300, JKU 301
Music Education /	Beginners: JMO 181, 182 Advanced Music : JMO 101,102 JMO 201, 202, 203, 204 JMO 301,302, 303, 304
IsiZulu	For beginners: ZUL 110, 120 ZUL 210, 220 ZUL 310, AFT 320 For speakers of IsiZulu as a home language or 1st or 2nd additional language: ZUL 111, AFT 121 ZUL 211, AFT 220 ZUL 310, AFT 320
Sepedi	For beginners: SEP 110, 120 SEP 210, 220 SEP 310, AFT 320 For speakers of Sepedi as home language or 1st or 2nd additional language: SEP 111, AFT 121 SEP 211, AFT 220 SEP 310, AFT 320
IsiNdebele	For speakers of IsiNdbele as a home language or first or second additional language. NDE 110, AFT 121 NDE 210, AFT 220 NDE 310, AFT 320
Setswana	For beginners: STW 110, 120 STW 210, 220 STW 310, AFT 320 For speakers of Setswana as a home language or 1st or 2nd additional language: STW 111, AFT 121 STW 211, AFT 220 STW 310, AFT 320

Afrikaans	AFR 110, 120 AFR 214, 220 AFR 311, 321 or JAF 361 (JAF 361 may be taken instead of or in addition to AFR 311, 321)
English	ENG 110, 120 ENG 210, 220 ENG 310, 320 or JEN 361 (JEN 361 may be taken instead of or in addition to ENG 310, 320)
Mathematics A complete first year with JLW 312 and all Methodologies of Mathematics completes the SP elective. A complete second year with WTW 389 or JLW 312 and all Methodologies of Mathematics completes the FET elective.	WTW 114, 124 or WTW 133, 143, 153, 124 WTW 211, 218, 220, 248 WTW 389 or JLW 312
Compulsory combination Life Orientation and Human Movement Studies and Sport Management (Students who choose these electives must take one up to 3rd year and the other up to 2nd year)	 JLO 110, 120 JLO 210, 220 JLO 310, 320 JMB 112, 113, 122, 123 JMB 212, 213, 222, 223 JMB 312, 313, 322, 323
Elective modules **School subjects that are specific to the Further Education and Training Phase (FET). Another elective must be taken for SP from the other combinations listed above. All modules must be taken, except where options are indicated. See prerequisites listed with the alphabetical list of modules. Modules are chosen according to the class timetable. NO TIMETABLE CLASHES ARE ALLOWED.**	
Module description	**Module code**

Computer Application Technology (RTT modules must be taken to 3rd year)	INF 112 INF 154, 164, 171 RTT 230, 240 RTT 330, 340
Business Management	OBS 114, 124 OBS 210, 220
Heritage and cultural Tourism	EFK 110, 120 EFK 210, 220
Mathematical Literacy [JWG must be taken to 3rd year level]	STK 113, 123 JWG 210, 220 JWG 310, 320
Engineering Graphics and Design (JTT must be taken to 3rd year level)	MGC 110 WTW 134 JTT 120 JTT 230, 240 JTT 330, 340
Geography	ENV 101, WKD 164 GGY 156, 166 GGY 252, 283, 266
History	GES 110, GES 120 GES 210, GES 220
Life Sciences (JLW 312 must be taken if Mathematics is taken as a teaching elective)	CMY 117, 127 MLB 111 BOT 161 BOT 251, 261 GTS 161 ZEN161 ZEN 251, ZEN 261 JLS 310 WTW 134
Physical Sciences *Choose between Chemistry and Physics at 2nd year level, If Physics is chosen, then WTW 210, 220, 218 and 248 must be taken.	WTW 114, 124 *WTW 211, 218, 220, 248 JLW 312 CMY 117, 127 *CMY 282, 284, 283, 285 PHY 114, 124 *PHY 255, 263 JPC 310

Economic and Management Sciences	
Business management	OBS 114, 124 OBS 210, 220
Statistics and Economics	STK 110, 120 en EKN 110, 120 EKN 214, 234
Financial Accounting	FRK 111, FRK 121 FRK 211, FRK 221 en INF 281
Heritage and Cultural Tourism	EFK 110, 120 EFK 210, 220
After a Senior Phase and an FET specialisation have been chosen, a student may select only one of the following as an elective. All modules of the specialisation must be taken.	
Module description	**Module code**
Psychology Guidance and Counselling (must be taken to third year)	SLK 110, 120 JVB 210, 220 JVB 301
Religion studies (*Optional,:will be presented only if student numbers are sufficient.).	REL 110, 120 REL 210, 220 *REL 310, 320
Methodology of electives modules Choose at least two methodologies in accordance with the teaching specialisations. The same methodologies will be taken at second, third and fourth-year levels.	
Module description	**Module code**
Methodology of Afrikaans	JMA 200, 300, 451, 454
Methodology of English	JME 200, 300, 451, 454
Methodology of IsiZulu	JZL 200, 300, 451, 454
Methodology of Sepedi	JSP 200, 300, 451, 454
Methodology of IsiNdebele	JND 200, 300, 451, 454
Methodology of Setswana	JSW 200, 300, 451, 454

Methodology of Geography	JMG 200, 300, 451, 454
Methodology of History	JMH 200, 300, 451, 454
Methodology of Music Education	JMM 200, 300, 451, 454
Methodology of Art Education	JMK 201, 301, 451, 454
Methodology of Mathematical Literacy	JMW 202, 300, 451, 454
Methodology of Mathematics	JMW 200, 300, 451, 454
Methodology of Natural Sciences	JMN 204, 304, 451, 454
Methodology of Life Sciences	JMN 208, 308, 452, 458
Methodology of Physical Sciences	JMN 209, 309, 453, 456
Methodology of Life Orientation and Physical Education	JML 200, 300, 451, 454
Methodology of Tourism	JMD 206, 306, 456, 466
Methodology of Business Studies	JMD 205, 305, 455, 465
Methodology of Economics	JMD 201, 301, 451, 461
Methodology of Accounting	JMD 203, 303, 453, 463
Methodology of Engineering Graphics and Design	JMT 204, 304, 451, 454
Methodology of Technology	JMC 200, 300, 451, 454
Methodology of Computer Application Technology	JMI 200, 300, 451, 454
Methodology of Information Technology	JMR 200, 300, 451, 454
Methodology of Religion Studies	JMF 200, 300, 451, 454

Class attendance

The teacher education programmes of the Faculty of Education have been approved and accredited by the Department of Education. Due to the fact that the Faculty places high emphasis on the development of skills and competences, class attendance is compulsory for all student teachers for the full duration of the training period specified by SAQA (South African Qualification Authority).

Programme delivery
The PGCE consists of a university-based learning (UBL) component and a school-based learning (SBL) component. The UBL component is presented in the format of learning shops during which students construct a practice theory of and for education. For the purpose of the SBL component, students are placed in two partnership schools with different compositions for 6 weeks each (a total of 12 weeks), during which they engage in education practice while they are supported and assessed by qualified mentor teachers and university mentor lecturers.

Examinations and pass requirements

Special examinations

- A third-year student who has failed a maximum of four semester modules or the equivalent thereof, with a final mark of at least 40% in each, may be admitted by the Dean to a special examination in those modules during January of the following year, provided that this will enable the student to comply with all requirements for promotion to the fourth year of study.
- A final-year BEd student requiring a maximum of 4 semester modules or the equivalent thereof to complete his or her degree, with a final mark of 40% in each, may be admitted to a special examination, during January of the following year. If the special examination is conducted before 1 February, a student is not required to register again and the examination is treated as a supplementary examination. If the special examination is conducted on or after 1 February, the student must register again for the module(s) in question and the lecturer may require that a semester mark be obtained in an appropriate manner. In such a case, the result of the examination will not be taken into consideration with a view to the graduation ceremonies in March/April.

Pass with distinction

The degree is conferred with distinction to a student who obtains an overall weighted average (GPA) of 75% or higher in the BEd programme, with the condition that the degree is completed in the prescribed 4 years.

Curriculum: Year 1

Minimum credits: 170

Fundamental modules

Literacies in education 110 (JLZ 110)

Module credits	6.00
Prerequisites	Afrikaans Home Language 60% or English Home Language 60% or English 1st Add Language 70%
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Semester 1

Module content

The module is aimed at building on students' personal literacies and relating these to the types of literacy they need to study successfully at university. The primary focus is on academic reading abilities, including reading strategies, acquiring an academic vocabulary and learning to read important academic genres critically, such as examination papers and academic articles.

Literacies in education 111 (JLZ 111)

Module credits	6.00
Prerequisites	Afrikaans Home Language 50% OR English Home Language 50% OR English 1st Add Language 60%
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Semester 1

Module content

The module is aimed at building on students' personal literacies and relating these to the types of literacy they need to study successfully at university. The module focuses primarily on academic reading abilities, including reading strategies, acquiring an academic vocabulary and learning to read important academic genres critically, such as examination papers and academic articles. Additional support is provided through practical tasks and discussions.

Literacies in education 120 (JLZ 120)

Module credits	6.00
Prerequisites	Afrikaans Home Language 60% OR English Home Language 60% OR English 1st Add Language 70%
Contact time	2 lectures per week

Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Semester 2

Module content

The module focuses on producing academic texts. Students learn how to use different modes of writing, including description, discussion, cause and effect, explanation and argumentation. They learn how to plan, write and edit an academic essay using a process approach. Specific attention is paid to engaging with other authors, and referencing appropriately. The module also pays attention to formatting academic work and representing verbal information visually.

Literacies in education 121 (JLZ 121)

Module credits	6.00
Prerequisites	Afrikaans Home Language 50% OR English Home Language 50% OR English 1st Add Language 60%
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Semester 2

Module content

The module focuses on producing academic texts. Students learn how to use different modes of writing, including description, discussion, cause and effect, explanation and argumentation. They learn how to plan, write and edit an academic essay, using a process approach. Specific attention is paid to engaging with other authors, and referencing appropriately. The module also pays attention to formatting academic work and representing verbal information visually. Additional support is provided through practical tasks and discussions.

Academic information management 101 (AIM 101)

Module credits	6.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Economic and Management Sciences Faculty of Humanities Faculty of Law Faculty of Health Sciences Faculty of Natural and Agricultural Sciences Faculty of Theology Faculty of Veterinary Science
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Information Science

Period of presentation	Semester 1

Module content

Find, evaluate, process, manage and present information resources for academic purposes using appropriate technology. Apply effective search strategies in different technological environments. Demonstrate the ethical and fair use of information resources. Integrate 21st-century communications into the management of academic information.

Academic information management 111 (AIM 111)

Module credits	4.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Economic and Management Sciences Faculty of Humanities Faculty of Law Faculty of Health Sciences Faculty of Natural and Agricultural Sciences Faculty of Theology
Prerequisites	No prerequisites.
Contact time	MAMELODI, 2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Information Science
Period of presentation	Semester 1

Module content

Find, evaluate, process, manage and present information resources for academic purposes using appropriate technology.

Academic information management 121 (AIM 121)

Module credits	4.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Economic and Management Sciences Faculty of Humanities Faculty of Law Faculty of Health Sciences Faculty of Natural and Agricultural Sciences Faculty of Theology Faculty of Veterinary Science
Prerequisites	No prerequisites.
Contact time	2 lectures per week, MAMELODI
Language of tuition	Both Afr and Eng
Academic organisation	Information Science

Period of presentation	Semester 2

Module content

Apply effective search strategies in different technological environments. Demonstrate the ethical and fair use of information resources. Integrate 21st-century communications into the management of academic information.

Core modules

Professional studies 121 (JPS 121)

Module credits	6.00
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Semester 2

Module content

This module guides the student to develop teaching skills, plan learning activities, and design learning and teaching materials that are suitable for the South African educational context.

Education 112 (OPV 112)

Module credits	12.00
Service modules	Faculty of Humanities
Prerequisites	No prerequisites.
Contact time	3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Semester 1

Module content

In this module students are guided to develop knowledge, skills and attitudes with regard to the political, professional, historical and cultural complexities of teaching. Selected themes in the history of South African education will be explored to enable students to think critically about their role as engaged professional educators today.

Education 122 (OPV 122)

Module credits	12.00
Service modules	Faculty of Humanities
Prerequisites	No prerequisites.
Contact time	3 lectures per week

Language of tuition	Both Afr and Eng
Academic organisation	Educational Psychology
Period of presentation	Semester 2

Module content

This module focuses on child development and learning. In addition to the underlying principles of developmental psychology and theories of development, child development is discussed in terms of physical growth and motor development; development of perception, cognition and language; emotional development; social development and moral development. Developmental psychopathology is also introduced. In terms of child learning, the principles of learning, theories of learning and barriers to learning are discussed. In addition, school learning is explained in terms of learning, reading and study skills.

Conversational Competence: Sepedi 100 (CCI 100)

Module credits	12.00
Contact time	2 lectures per week
Language of tuition	DMedium+isiNdebele, isiZulu,Se
Academic organisation	African Languages
Period of presentation	Semester 1

Module content

To endow prospective teachers, who has no knowledge of an African language, with a basic conversational competence in Northern Sotho (Sepedi). Successful completion of this module will enable teachers to effectively communicate – verbally and non-verbally - in a multilingual classroom.

Conversational Competence: IsiZulu 100 (CCZ 100)

Module credits	12.00
Contact time	2 lectures per week
Language of tuition	DMedium+isiNdebele, isiZulu,Se
Academic organisation	African Languages
Period of presentation	Semester 1

Module content

To endow prospective teachers, who have no knowledge of an African language, with a basic conversational competence in IsiZulu. Successful completion of this module will enable teachers to effectively communicate – verbally and non-verbally - in a multilingual classroom.

Elective modules

Afrikaans 110 (AFR 110)

Module credits	12.00

Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Economic and Management Sciences Faculty of Law Faculty of Health Sciences
Prerequisites	No prerequisites.
Contact time	2 lectures per week, 2 discussion classes per week
Language of tuition	Afrikaans
Academic organisation	Afrikaans
Period of presentation	Semester 1

Module content

Taalkundekomponent: Inleiding tot die Afrikaanse taalkunde met klem op lees-en skryfvaardigheid.
Letterkundekomponent: Inleiding tot die Afrikaanse en Nederlandse letterkunde aan die hand van kortverhale en gedigte.

Afrikaans 120 (AFR 120)

Module credits	12.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Economic and Management Sciences Faculty of Law Faculty of Health Sciences
Prerequisites	No prerequisites.
Contact time	2 lectures per week, 2 discussion classes per week
Language of tuition	Afrikaans
Academic organisation	Afrikaans
Period of presentation	Semester 2

Module content

Taalkundekomponent: Inleiding tot die Afrikaanse sintaksis, fonetiek en taalgeskiedenis.
Letterkundekomponent:Inleiding tot die Romankuns Inleiding tot die Drama

Plant biology 161 (BOT 161)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	MLB 111 GS
Contact time	fortnightly practicals, 2 lectures per week
Language of tuition	Both Afr and Eng

Academic organisation	Plant and Soil Sciences
Period of presentation	Semester 2

Module content

Basic plant structure and function; introductory plant taxonomy and plant systematics; principles of plant molecular biology and biotechnology; adaptation of plants to stress; medicinal compounds from plants; basic principles of plant ecology and their application in natural resource management.

General chemistry 117 (CMY 117)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Health Sciences Faculty of Veterinary Science
Prerequisites	Final Grade 12 marks of at least 60% for Mathematics and 60% for Physical Sciences.
Contact time	1 practical per week, 4 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Chemistry
Period of presentation	Semester 1

Module content

General introduction to inorganic, analytical and physical chemistry. Atomic structure and periodicity. Molecular structure and chemical bonding using the VSEOR model. Nomenclature of iorganic ions and compounds. Classification of reactions: precipitation, acid-base, redox reactions and gas-forming reactions. Mole concept and stoichiometric calculations concerning chemical formulas and chemical reactions. Principles of reactivity: energy and chemical reactions. Physical behaviour gases, liquids, solids and solutions and the role of intermolecular forces. Rate of reactions: Introduction to chemical kinetics.

General chemistry 127 (CMY 127)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Health Sciences Faculty of Veterinary Science
Prerequisites	Natural and Agricultural Sciences students: CMY 117 GS or CMY 154 GS Health Sciences students: none
Contact time	1 practical per week, 4 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Chemistry
Period of presentation	Semester 2

Module content

Theory: General physical-analytical chemistry: Physical behaviour of gases, liquids and solids, intermolecular forces, solutions. Principles of reactivity: energy and chemical reactions, entropy and free energy, electrochemistry. Organic chemistry: Structure (bonding), nomenclature, isomerism, introductory stereochemistry, introduction to chemical reactions and chemical properties of organic compounds and biological compounds, i.e. carbohydrates and amino acids. Practical: Molecular structure (model building), synthesis and properties of simple organic compounds.

Chemistry 133 (CMY 133)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	As for BSc Four-year programme
Contact time	Fortnightly practicals, Foundation Course, 3 discussion classes per week, 2 lectures per week, MAMELODI
Language of tuition	Both Afr and Eng
Academic organisation	Chemistry
Period of presentation	Semester 1

Module content

The field of Chemistry – an overview; Mathematics in Chemistry; atomic theory: historical overview; atoms, molecules and ions; relative atomic mass; electronic structure of atoms; the periodic table; periodicity; chemical bonding.

Chemistry 143 (CMY 143)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	CMY 133
Contact time	2 lectures per week, MAMELODI, 3 discussion classes per week, Foundation Course, Fortnightly practicals
Language of tuition	Both Afr and Eng
Academic organisation	Chemistry
Period of presentation	Semester 1

Module content

Bonding and molecular geometry: VSEPR theory; bonding and organic compounds (structural formulas, classification and nomenclature); matter and its properties; mole concept; reaction stoichiometry; reactions in aqueous solutions: precipitation, acid base and redox.

Heritage and cultural tourism 110 (EFK 110)

Module credits	12.00
Service modules	Faculty of Education
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Historical and Heritage Stud
Period of presentation	Semester 1

Module content

Introduction to the study of Heritage and Cultural Tourism; overview of South African resorts and nature conservation areas as tourist destinations within the broader context of heritage and cultural tourism. An introduction to the basic research skills in the HCT domain.

Heritage and cultural tourism 120 (EFK 120)

Module credits	12.00
Service modules	Faculty of Education
Prerequisites	No prerequisites.
Contact time	2 lectures per week, 1 tutorial per week
Language of tuition	English
Academic organisation	Anthropology and Archaeology
Period of presentation	Semester 2

Module content

Archaeo-tourism
Analysis of tourist and other visitations to archaeological sites. Topics cover international and local legislation, ethics and best practices debates on who interprets and who ‘owns’ the past and profits from it. Also covered are site management plans, condition assessment and a consideration of the politics and ethics of ‘heritage’. Case studies range from large UNESCO World Heritage Sites to small, almost forgotten ‘places of the past’ scattered across the globe.

Economics 110 (EKN 110)

Module credits	10.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	No prerequisites.
Contact time	2 lectures per week, 1 discussion class per week
Language of tuition	Both Afr and Eng

Academic organisation	Economics
Period of presentation	Semester 1

Module content

This module deals with the core principles of economics. A distinction between macroeconomics and microeconomics is made. A discussion of the market system and circular flow of goods, services and money is followed by a section dealing with microeconomic principles, including demand and supply analysis, consumer behaviour and utility maximisation, production and the costs thereof, and the different market models and firm behaviour. Labour market institutions and issues, wage determination, as well as income inequality and poverty are also addressed. A section of money, banking, interest rates and monetary policy concludes the course.

Economics 120 (EKN 120)

Module credits	10.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	EKN 110 GS or EKN 113 GS and at least 4 (50-59%) in Mathematics in the Grade 12 examination or 60% in STK 113 and concurrently registered for STK 123
Contact time	2 lectures per week, 1 discussion class per week
Language of tuition	Both Afr and Eng
Academic organisation	Economics
Period of presentation	Semester 2

Module content

This module deals with the core principles of economics, especially macroeconomic measurement the private and public sectors of the South African economy receive attention, while basic macroeconomic relationships and the measurement of domestic output and national income are discussed. Aggregate demand and supply analysis stands core to this course which is also used to introduce students to the analysis of economic growth, unemployment and inflation. The microeconomics of government is addressed in a separate section, followed by a section on international economics, focusing on international trade, exchange rates and the balance of payments. The economics of developing countries and South Africa in the global economy conclude the course.

English 110 (ENG 110)

Module credits	12.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Economic and Management Sciences Faculty of Law Faculty of Health Sciences
Prerequisites	No prerequisites.
Contact time	1 discussion class per week, 2 lectures per week

Language of tuition	English
Academic organisation	English
Period of presentation	Semester 1

Module content

*Alternative evening classes - 2 discussion classes per week Introduction to Literature in English (1) This module introduces the study of literature by examining a number of texts representing different genres (poetry, prose, drama). The texts studied here will be mainly from the pre-twentieth century era and may include texts written in English from both Africa and other parts of the world. The aim of this module is to equip students with the critical and analytical skills required for a perceptive reading of poetry, novels and plays.

English 120 (ENG 120)

Module credits	12.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Economic and Management Sciences Faculty of Law Faculty of Health Sciences
Prerequisites	No prerequisites.
Contact time	1 discussion class per week, 2 lectures per week
Language of tuition	English
Academic organisation	English
Period of presentation	Semester 2

Module content

*Alternative evening classes: 2 discussion classes per week
Introduction to Literature in English (2)
This module introduces the study of post-nineteenth century literature by examining a number of texts representing different genres (poetry, drama, prose). Texts will be from both Africa and other parts of the world. By the end of this module students should have the background and analytical skills to perceptively read modern and contemporary poetry, novels and plays.

Financial accounting 111 (FRK 111)

Module credits	10.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Law Faculty of Natural and Agricultural Sciences
Prerequisites	No prerequisites.
Contact time	4 lectures per week
Language of tuition	Both Afr and Eng

Academic organisation	Accounting
Period of presentation	Semester 1

Module content

The nature and function of accounting; the development of accounting; financial position; financial result; the recording process; processing of accounting data; treatment of VAT; elementary income statement and balance sheet; flow of documents; accounting systems; introduction to internal control and internal control measures; bank reconciliations; control accounts; adjustments; financial statements of a sole proprietorship; the accounting framework.

Financial accounting 121 (FRK 121)

Module credits	12.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	FRK 111 GS
Contact time	4 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Accounting
Period of presentation	Semester 2

Module content

Property, plant and equipment; intangible assets; inventories; liabilities; presentation of financial statements; enterprises without profit motive; partnerships; companies; close corporations; cash flow statements; analysis and interpretation of financial statements.

History 110 (GES 110)

Module credits	12.00
Service modules	Faculty of Education Faculty of Law Faculty of Health Sciences
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Historical and Heritage Stud
Period of presentation	Semester 1

Module content

The making of the Modern World: a survey
A selection of themes on Asia, Africa, the Americas and Europe and their contribution to the making of the Modern World.

History 120 (GES 120)

Module credits	12.00
Service modules	Faculty of Education Faculty of Law Faculty of Health Sciences
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Historical and Heritage Stud
Period of presentation	Semester 2

Module content

Africa and South Africa: a survey
An overview focusing on the making of African and South African societies from the earliest times to the present with emphasis on the most significant historical forces, factors and events.

Aspects of human geography 156 (GGY 156)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities Faculty of Health Sciences
Prerequisites	No prerequisites.
Contact time	1 tutorial per week, 3 lectures per week
Language of tuition	English
Academic organisation	Geography, Geoinf + Meteor
Period of presentation	Quarter 2

Module content

This module begins by fostering an understanding of human geography. Then follows with the political ordering of space; cultural diversity as well as ethnic geography globally and locally; population geography of the world and South Africa: and four economic levels of development. The purpose is to place South Africa in a world setting and to understand the future of the country.

Southern African geomorphology 166 (GGY 166)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities Faculty of Health Sciences
Prerequisites	No prerequisites.

Contact time	4 lectures per week
Language of tuition	English
Academic organisation	Geography, Geoinf + Meteor
Period of presentation	Quarter 3

Module content

Investigating southern African landscapes and placing them in a theoretical and global context. The geomorphological evolution of southern Africa. Introduction to the concepts of Geomorphology and its relationships with other physical sciences (e.g. meteorology, climatology, geology, hydrology and biology). The processes and controls of landform and landscape evolution. Tutorial exercises cover basic techniques of geomorphological analysis, and topical issues in Geomorphology.

Introductory genetics 161 (GTS 161)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Veterinary Science
Prerequisites	MLB 111 GS
Contact time	fortnightly practicals, 2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Genetics
Period of presentation	Semester 2

Module content

Chromosomes and cell division. Principles of Mendelian inheritance: locus and alleles, dominance interactions and epistasis. Probability studies. Sex determination and sex linked traits. Pedigree analysis. Extranuclear inheritance. Genetic linkage and chromosome mapping. Chromosome variation.

Informatics 112 (INF 112)

Module credits	10.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	Refer to Regulation 1.2(e): A candidate must have passed Mathematics with at least 4 (50-59%) in the Grade 12 examination; or STK 113 60%, STK 123 60% or STK 110
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Informatics
Period of presentation	Semester 1

Module content

Introduction to information systems, information systems in organisations, hardware: input, processing, output, software: systems and application software, organisation of data and information, telecommunications and networks, the Internet and Intranet. Transaction processing systems, management information systems, decision support systems, information systems in business and society, systems analysis, systems design, implementation, maintenance and revision.

Informatics 154 (INF 154)

Module credits	10.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	Refer to Regulation 1.2(f): A candidate must have passed Mathematics with at least 4 (50-59%) in the Grade 12 examination
Contact time	2 practicals per week, 1 lecture per week
Language of tuition	Both Afr and Eng
Academic organisation	Informatics
Period of presentation	Semester 1

Module content

Introduction to programming.

Informatics 164 (INF 164)

Module credits	10.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	INF 154; Regulation 1.2(f): A candidate must have passed Mathematics with at least 4 (50-59%) in the Grade 12 examination; AIM 101 or AIM 102 or AIM 111 and AIM 121
Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Both Afr and Eng
Academic organisation	Informatics
Period of presentation	Semester 2

Module content

Advanced programming, use of a computer-aided software engineering tool.

Art education 101 (JKU 101)

Module credits	18.00
Contact time	2 practicals per week

Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Year

Module content

This module focuses on examining various methods and techniques for stimulating creativity in the classroom, by introducing fundamental art elements and principles, techniques and use of media. This module includes the exploration of concepts of visual literacy, the development of understanding and application thereof by the student in creative ways through experimentation with traditional art media.

Life orientation 110 (JLO 110)

Module credits	12.00
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Early Childhood Education
Period of presentation	Semester 1

Module content

The main focus of this module is on personal development and therefore the question: “Who am I?” is posed. The content is designed to focus on the student as individual and on the various factors that influence individual development. Students are guided to develop relevant knowledge, intrapersonal skills and attitudes to display resilient behaviour.

Life orientation 120 (JLO 120)

Module credits	12.00
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Semester 2

Module content

This module also focuses on personal development, but with the emphasis on the question: “ How is my interaction with other people?” Knowledge and application of interpersonal skills such as conflict management,emotional intelligence and assertiveness will be dealt with.

Music education 101 (JMO 101)

Module credits	16.00
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education

Period of presentation	Year

Module content

To offer students an opportunity to develop their existing music theoretical knowledge to provide them with the requirements needed for the music modules in the following years.

Music education 102 (JMO 102)

Module credits	8.00
Contact time	2 practicals per week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Year

Module content

To offer students musical skills and development with the focus on instrumental and vocal progress. Accompaniment and the performance of concert compositions are included.

Music education 181 (JMO 181)

Module credits	16.00
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Year

Module content

To equip students to specialize in music theory and who have no, or limited previous music training. It is a music course with elementary music theory knowledge.

Music education 182 (JMO 182)

Module credits	8.00
Contact time	2 practicals per week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Year

Module content

To equip students to specialize in practical music skills and who have no, or limited previous music training. It is a music course with elementary practical music skills and fundamental knowledge.

Engineering graphics and design 120 (JTT 120)

Module credits	16.00

Prerequisites	MGC 110 40% GS
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 2

Module content

Drawing standards, geometrical concepts and constructions, scales, 1st and 3rd angle orthographic projections, descriptive geometry: points and line segments, oblique planes. Isometric and perspective drawings. Plane figures, solid geometry, developments and interpenetrations. Conventions, symbols, structures and techniques appropriate to Mechanical and Civil drawings. Freehand sketches. Design principles. Knowledge and skills will be applied in a compulsory design project..

Graphical communication 110 (MGC 110)

Module credits	16.00
Service modules	Faculty of Education
Prerequisites	No prerequisites.
Contact time	3 tutorials per week, 3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Mechanical and Aeronautical En
Period of presentation	Semester 1

Module content

Freehand sketching covering the following: perspective, isometric and orthographic drawings. Drawing conventions, graphical techniques and assembly drawings. Evaluation of drawings and error detection. True lengths of lines, projections and intersections. Practical applications of these techniques. Introduction to computer-aided drawings, including dimensioning, crosshatching and detailing. Introduction to basic manufacturing processes including primary (casting, forging and extrusion) and secondary (drilling, turning, milling, grinding, broaching and sawing) manufacturing procedures.

Molecular and cell biology 111 (MLB 111)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Health Sciences Faculty of Veterinary Science
Prerequisites	Refer to Regulation 1.2: A candidate who has passed Mathematics with at least 50% in the Grade 12 examination
Contact time	4 lectures per week, 1 practical per week
Language of tuition	Both Afr and Eng

Academic organisation	Genetics
Period of presentation	Semester 1

Module content

Introductory study of the ultra structure, function and composition of representative cells and cell components. General principles of cell metabolism, molecular genetics, cell growth, cell division and differentiation.

Introduction to isiNdebele Grammar – Capita selecta 110 (NDE 110)

Module credits	12.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	isiNdebele
Academic organisation	African Languages
Period of presentation	Semester 1

Module content

For speakers of isiNdebele as home language or first or second additional language.
Aspects of the grammar of isiNdebele such as an introduction to the word categories; an introduction to the structure, meaning and use of the noun, the adjective, the relative, the possessive; the verb; writing and spelling rules; dictionaries and dictionary use; grammatical analysis.

Business management 114 (OBS 114)

Module credits	10.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	May not be included in the same curriculum as OBS 155
Contact time	3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Business Management
Period of presentation	Semester 1

Module content

Introduction to business management as a science; the environment in which the enterprise operates; the field of business, the mission and goals of an enterprise; management and entrepreneurship. The choice of a form of enterprise; the choice of products and/or services; profit and cost planning for different sizes of operating units; the choice of location; the nature of production processes and the layout of the plant or operating unit. Introduction to and overview of general management, especially regarding the five management tasks: strategic management; contemporary developments and management issues; financial management; marketing and public relations. Introduction to and overview of the value chain model; management of the input; management of the purchasing function; management of the transformation process with specific reference to production and operations management; human resources management and information management; corporate governance and black economic empowerment (BEE).

Business management 124 (OBS 124)

Module credits	10.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	Admission to the examination in OBS 114
Contact time	3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Business Management
Period of presentation	Semester 2

Module content

Responsible leadership and the role of a business in society. The nature and development of entrepreneurship; the individual entrepreneur and characteristics of South African entrepreneurs. Looking at the window of opportunity. Getting started (business start up). Exploring different routes to entrepreneurship: entering a family business, buying a franchise, home-based business and the business buyout. This semester also covers how entrepreneurs can network and find support in their environments. Case studies of successful entrepreneurs - also South African entrepreneurs - are studied.

Physics for biology students 131 (PHY 131)

Module credits	16.00
Service modules	Faculty of Education Faculty of Health Sciences Faculty of Veterinary Science
Prerequisites	Refer to Regulation 1.2: A candidate must have passed Mathematics with at least 50% in the Grade 12 examination
Contact time	1 practical per week, 4 lectures per week, 1 discussion class per week
Language of tuition	Both Afr and Eng
Academic organisation	Physics

Period of presentation	Semester 1

Module content

Units, vectors, one dimensional kinematics, dynamics, work, equilibrium, sound, liquids, heat, thermodynamic processes, electric potential and capacitance, direct current and alternating current, optics, modern physics, radio activity.

Physics 133 (PHY 133)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	As for BSc Four-year programme
Contact time	MAMELODI, 2 practicals per week, 2 lectures per week, Foundation Course, 2 discussion classes per week
Language of tuition	English
Academic organisation	Physics
Period of presentation	Semester 1

Module content

Heat: temperature and scales, the kinetic molecular model, work, energy and heat, calorimetry, specific heat, expansion, heat transfer. Measurements: SI-units, measuring error and uncertainty, (graphs), significant figures, mathematical modelling. Geometrical optics: reflection, refraction, dispersion, mirrors, thin lenses, instruments.

Physics 143 (PHY 143)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	PHY 133
Contact time	2 practicals per week, Foundation Course, 2 discussion classes per week, 2 lectures per week, MAMELODI
Language of tuition	English
Academic organisation	Physics
Period of presentation	Semester 2

Module content

Vectors. Kinematics of a point: relative motion, projectile, circular motion. Dynamics: Newton’s laws, friction. Work: point masses, ideal gas law, springs, power. Energy: kinetic energy, potential energy, conservative forces, spring, conservation of mechanical energy. Hydrostatics and dynamics: density, pressure, Archimedes' law, continuity, Bernouli.

Sepedi for beginners 110 (SEP 110)

Module credits	12.00

Service modules	Faculty of Education Faculty of Health Sciences
Prerequisites	No prerequisites.
Contact time	1 discussion class per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	African Languages
Period of presentation	Semester 1

Module content

*For absolute beginners only.
*Only students from the School of Healthcare Sciences may take this module during semester 2. All other students must take this module during semester 1. Also note that students from the School of Healthcare Sciences, who already possess the language skills taught in this module, may write an exemption examination. The acquisition of basic Sepedi communicative skills with emphasis on everyday expressions and suitable high frequency vocabulary, within specific social situations.

Sepedi 120 (SEP 120)

Module credits	12.00
Service modules	Faculty of Education
Prerequisites	SEP 110
Contact time	1 discussion class per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	African Languages
Period of presentation	Semester 2

Module content

Sepedi - communication and grammar
The acquisition of more advanced communication skills in further social situations. More extensive vocabulary and more advanced language structures are acquired and used. Further awareness of the nature and function of language structures. Writing and spelling rules. Dictionaries and dictionary use. Reading and comprehension of basic texts.

Psychology 110 (SLK 110)

Module credits	12.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Health Sciences Faculty of Natural and Agricultural Sciences
Prerequisites	No prerequisites.
Contact time	2 discussion classes per week, 2 lectures per week

Language of tuition	Both Afr and Eng
Academic organisation	Psychology
Period of presentation	Semester 1

Module content

This module is a general orientation to Psychology. An introduction is given to various theoretical approaches in Psychology, and the development of Psychology as a science is discussed. Selected themes from everyday life are explored and integrated with psychological principles. This module focuses on major personality theories. An introduction is given to various paradigmatic approaches in Psychology.

Psychology 120 (SLK 120)

Module credits	12.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Health Sciences Faculty of Natural and Agricultural Sciences
Prerequisites	No prerequisites.
Contact time	2 lectures per week, 2 discussion classes per week
Language of tuition	Both Afr and Eng
Academic organisation	Psychology
Period of presentation	Semester 2

Module content

This module introduces the student to a basic knowledge and understanding of the biological basis of human behaviour. The module addresses the key concepts and terminology related to the biological subsystem, the rules and principles guiding biological psychology, and identification of the interrelatedness of different biological systems and subsystems. In this module various cognitive processes are studied, including perception, memory, thinking, intelligence and creativity. Illustrations are given of various thinking processes, such as problem solving, critical, analytic and integrative thinking.

Statistics 110 (STK 110)

Module credits	13.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	At least 5 (60-69%) in Mathematics in the Grade 12 examination. Candidates who do not qualify for STK 110 must register for STK 113 and STK 123
Contact time	1 tutorial per week, 1 practical per week, 3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Statistics

Period of presentation	Semester 1

Module content

Descriptive statistics:
Sampling and the collection of data; frequency distributions and graphical representations. Descriptive measures of location and dispersion.
Probability and inference:
Introductory probability theory and theoretical distributions. Sampling distributions. Estimation theory and hypothesis testing of sampling averages and proportions (one and two-sample cases). Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques.

Statistics 113 (STK 113)

Module credits	11.00
Service modules	Faculty of Education Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	No prerequisites.
Contact time	1 tutorial per week, 1 practical per week, 3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Statistics
Period of presentation	Semester 1

Module content

*On its own, STK 113 and 123 will not be recognised for degree purposes, but exemption will be granted for STK 110.
Data operations and transformations:
Introductory concepts, the role of statistic, various types of data and the number system. Concepts underlying linear, quadratic, exponential, hyperbolic, logarithmic transformations of quantitative data, graphical representations, solving of equations, interpretations. Determining linear equations in practical situations. Characteristics of logarithmic functions. The relationship between the exponential and logarithmic functions in economic and related problems. Systems of equations in equilibrium. Additional concepts relating to data processing, functions and inverse functions, sigma notation, factorial notation, sequences and series, inequalities (strong, weak, absolute, conditional, double) and absolute values.
Descriptive statistics – Univariate:
Sampling and the collection of data, frequency distributions and graphical representations. Descriptive measures of location and dispersion. Introductory probability theory. Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques.
The weekly one hour practical is presented during the last seven weeks of the semester.

Statistics 120 (STK 120)

Module credits	13.00

Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	STK 110 GS or both STK 113 GS and STK 123 GS or both WST 133 and WST 143 or STK 133 and STK 143 or STK 133 and STK 143
Contact time	1 practical per week, 3 lectures per week, 1 tutorial per week
Language of tuition	Both Afr and Eng
Academic organisation	Statistics
Period of presentation	Semester 2

Module content

Multivariate statistics:
Analysis of variance, categorical data analysis, distribution-free methods, curve fitting, regression and correlation, the analysis of time series and indices.
Statistical and economic applications of quantitative techniques:
Systems of linear equations: drafting, matrices, solving and application. Optimisation; linear functions (two and more independent variables), non-linear functions (one and two independent variables). Marginal and total functions. Stochastic and deterministic variables in statistical and economic context: producers' and consumers' surplus, distribution functions, probability distributions, probability density functions. Identification, use, evaluation, interpretation of statistical computer packages and statistical techniques.
This module is also presented as an anti-semester bilingual module.

Statistics 123 (STK 123)

Module credits	12.00
Service modules	Faculty of Education Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	STK 113 GS
Contact time	1 tutorial per week, 1 practical per week, 3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Statistics
Period of presentation	Semester 2

Module content

*On its own, STK 113 and 123 will not be recognized for degree purposes, but exemption will be granted for STK 110.
Optimisation techniques with economic applications: Data transformations and relationships with economic applications, operations and rules, linear, quadratic, exponential, hyperbolic and logarithmic functions; systems of equations in equilibrium, system of linear inequalities, solving of linear programming problems by means of the graphical and extreme point methods. Applications of differentiation and integration in statistic and economic related problems: the limit of a function, continuity, rate of change, the derivative of a function, differentiation rules, higher order derivatives, optimisation techniques, the area under a curve and applications of definite integrals. Probability and inference: Theoretical distributions. Sampling distributions. Estimation theory and hypothesis testing of sampling averages and proportions (one-sample and two-sample cases). Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques. The weekly one hour practical is presented during the last seven weeks of the semester.

Setswana for beginners 110 (STW 110)

Module credits	12.00
Prerequisites	No prerequisites.
Contact time	2 lectures per week, 1 discussion class per week
Language of tuition	Double Medium
Academic organisation	African Languages
Period of presentation	Semester 1

Module content

* For absolute beginners only.

The acquisition of basic Setswana communicative skills with emphasis on everyday expressions and suitable high frequency vocabulary with specific social situations.

Setswana 120 (STW 120)

Module credits	12.00
Prerequisites	STW 110
Contact time	1 discussion class per week, 2 lectures per week
Language of tuition	English
Academic organisation	African Languages
Period of presentation	Semester 2

Module content

Setswana – communication and grammar
The acquisition of more advanced communication skills in further social situations. More extensive vocabulary and more advanced language structures are acquired and used. Further awareness of the nature and function of language structures. Writing and spelling rules. Dictionaries and dictionary use. Reading and comprehension of basic texts.

Climate and weather of Southern Africa 164 (WKD 164)

Module credits	8.00
Service modules	Faculty of Education Faculty of Humanities
Prerequisites	No prerequisites.
Contact time	4 lectures per week
Language of tuition	English
Academic organisation	Geography, Geoinf + Meteor
Period of presentation	Quarter 4

Module content

An introduction to the climate and general seasonal climatic circulation patterns of Southern Africa. Basic weather types and weather processes within the Southern African context. Interpretation of synoptic maps and synoptic station reports. Impacts of climate change and extreme climate events on society.
*BSc (Geography) and BSc (Environmental Sciences) students may register for WKD 155. Students are not allowed to earn credits for both WKD 155 and WKD 164.

Calculus 114 (WTW 114)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Economic and Management Sciences Faculty of Humanities
Prerequisites	Refer to Regulation 1.2. Mathematics 60% Grade 12.
Contact time	1 tutorial per week, 4 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Mathematics and Applied Maths
Period of presentation	Semester 1

Module content

*This module serves as preparation for students majoring in Mathematics (including all students who intend to enrol for WTW 218 and WTW 220). Students will not be credited for more than one of the following modules for their degree: WTW 114, WTW 158, WTW 134, WTW 165.
Functions, limits and continuity. Differential calculus of single variable functions, rate of change, graph sketching, applications. The mean value theorem, the rule of L'Hospital. Definite and indefinite integrals, evaluating definite integrals using anti-derivatives, the substitution rule.

Precalculus 133 (WTW 133)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Economic and Management Sciences Faculty of Health Sciences
Prerequisites	BSc and BCom students: At least 3 (40-49%) in Mathematics in the Grade 12 examination and must be taken concurrently with WTW133
Contact time	3 lectures per week, Foundation Course, MAMELODI, 1 practical per week
Language of tuition	English
Academic organisation	Mathematics and Applied Maths
Period of presentation	Semester 1

Module content

Real numbers, elementary set notation, exponents and radicals. Algebraic expressions, fractional expressions, linear and quadratic equations, inequalities. Coordinate geometry: lines, circles. Functions: definition, notation, piecewise defined functions, domain and range, graphs, transformations of functions, symmetry, even and odd functions, combining functions, one-to-one functions and inverses, polynomial functions and zeros.
Sequences, summation notation, arithmetic, geometric sequences, infinite geometric series, annuities and instalments. Degrees and radians, unit circle, trigonometric functions, fundamental identities, trigonometric graphs, trigonometric identities, double-angle, half-angle formulae, trigonometric equations, applications.

This module is only offered in English at the Mamelodi Campus for the BSc Extended programme. At the Hatfield and Groenkloof campuses it is offered in English and Afrikaans.

Mathematics 134 (WTW 134)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Veterinary Science
Prerequisites	Refer to Regulation 1.2: At least 50% for Mathematics in the Grade 12 examination .
Contact time	4 lectures per week, 1 tutorial per week
Language of tuition	Both Afr and Eng

Academic organisation	Mathematics and Applied Maths
Period of presentation	Semester 1

Module content

**Students will not be credited for more than one of the following modules for their degree: WTW 134, WTW 165, WTW 114, WTW 158. WTW 134 does not lead to admission to Mathematics at 200 level and is intended for students who require Mathematics at 100 level only. WTW 134 is offered as WTW 165 in the second semester only to students who have applied in the first semester of the current year for the approximately 65 MBChB, or the 5-6 BChD places becoming available in the second semester and who were therefore enrolled for MGW 112 in the first semester of the current year.* Functions, derivatives, interpretation of the derivative, rules of differentiation, applications of differentiation, integration, interpretation of the definite integral, applications of integration. Matrices, solutions of systems of equations. All topics are studied in the context of applications.

Calculus 143 (WTW 143)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Economic and Management Sciences Faculty of Health Sciences
Prerequisites	BSc and BCom students: WTW 133 and WST133 and must be taken concurrently with WTW143
Contact time	Foundation Course, MAMELODI, 1 tutorial per week, 3 lectures per week
Language of tuition	English
Academic organisation	Mathematics and Applied Maths
Period of presentation	Semester 2

Module content

Functions: exponential and logarithmic functions, natural exponential and logarithmic functions, exponential and logarithmic laws, exponential and logarithmic equations, compound interest. Limits: concept of a limit, finding limits numerically and graphically, finding limits algebraically, limit laws without proofs, squeeze theorem without proof, one-sided limits, infinite limits, limits at infinity, vertical, horizontal and slant asymptotes, substitution rule, continuity, laws for continuity without proofs. Differentiation: average and instantaneous change, definition of derivative, differentiation rules without proofs, derivatives of polynomials, chain rule for differentiation, derivatives of trigonometric, exponential and logarithmic functions, applications of differentiation: extreme values, critical numbers, monotone functions, first derivative test, optimisation.

Animal diversity 161 (ZEN 161)

Module credits	8.00
Service modules	Faculty of Education Faculty of Veterinary Science
Prerequisites	MLB 111 GS or TDH
Contact time	2 lectures per week, fortnightly practicals

Language of tuition	Both Afr and Eng
Academic organisation	Zoology and Entomology
Period of presentation	Semester 2

Module content

Animal classification, phylogeny, organization and terminology. Evolution of the various animal phyla, morphological characteristics and life cycles of parasitic and non-parasitic animals. Structure and function of reproductive, respiratory, excretory, circulatory and digestive systems.

isiZulu for beginners 110 (ZUL 110)

Module credits	12.00
Service modules	Faculty of Education Faculty of Health Sciences
Prerequisites	No prerequisites.
Contact time	1 discussion class per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	African Languages
Period of presentation	Semester 1 and Semester 2

Module content

*For absolute beginners only
*Only students from the School of Healthcare Sciences may take this module during semester 2. All other students must take this module during semester 1. Students from the School of Healthcare Sciences, who already possess the language skills taught in this module, may write an exemption examination.
The acquisition of basic isiZulu communicative skills with emphasis on everyday expressions and suitable high frequency vocabulary, within specific situations.

isiZulu 120 (ZUL 120)

Module credits	12.00
Service modules	Faculty of Education
Prerequisites	ZUL 110
Contact time	1 discussion class per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	African Languages
Period of presentation	Semester 2

Module content

isiZulu - communication and grammar
The acquisition of more advanced communication skills in further social situations. More extensive vocabulary and more advanced language structures are acquired and used. Further awareness of the nature and function of language structures. Writing and spelling rules. Dictionaries and dictionary use. Reading and comprehension of basic texts

Human movement studies and sport management 112 (JMB 112)

Module credits	6.00
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Semester 1

Module content

The purposes of physical activities as well as theories and philosophies of movement are studied. In addition, the coaching of young athletes and the challenges facing the teacher as coach receive attention. The importance of planning as the first phase of sports management is emphasised.

Human movement studies and sport management 113 (JMB 113)

Module credits	6.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Semester 1

Module content

In this module the student is required to master and apply basic swimming and life-saving techniques. Attention is also paid to motor skill development and games in the school context.

Human movement studies and sport management 122 (JMB 122)

Module credits	6.00
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Semester 2

Module content

In this module students are introduced to the structure and functions of systems in the human body. The skeletal system and the muscular system receive primary attention. Additionally, students acquire knowledge and skills in management – particularly organizational skills in the sports context.

Human movement studies and sport management 123 (JMB 123)

Module credits	6.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Semester 2

Module content

Skills and methods for hockey and mini hockey are taught and applied. In athletics the acquisition of skills in various track events receive attention.

Introduction to environmental sciences 101 (ENV 101)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities
Prerequisites	No prerequisites.
Contact time	3 lectures per week
Language of tuition	English
Academic organisation	Geography, Geoinf + Meteor
Period of presentation	Quarter 1

Module content

Introducing the basic concepts and interrelationships required to understand the complexity of natural environmental problems, physical and human environment, human induced environmental problems, the ways in which the natural environment affects human society and biodiversity, an introduction to major environmental issues in Southern Africa and sustainable development in the context of environmental issues.

First course in physics 114 (PHY 114)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	Refer to Regulation 1.2: A candidate must have passed Mathematics and Physical Science with at least 60% in the Grade 12 examination
Contact time	4 lectures per week, 1 discussion class per week, 1 practical per week

Language of tuition	Both Afr and Eng
Academic organisation	Physics
Period of presentation	Semester 1

Module content

SI-units. Significant figures. Waves: intensity, superposition, interference, standing waves, resonance, beats, Doppler. Geometrical optics: Reflection, refraction, mirrors, thin lenses, instruments. Physical optics: Young-interference, coherence, diffraction, polarisation. Hydrostatics and dynamics: density, pressure, Archimedes' principle, continuity, Bernoulli. Heat: temperature, specific heat, expansion, heat transfer. Vectors. Kinematics of a point: Relative, projectile, and circular motion. Dynamics: Newton's laws, friction. Work: point masses, gasses (ideal gas law), gravitation, spring, power. Kinetic energy: Conservative forces, gravitation, spring. Conservation of energy. Conservation of momentum. Impulse and collisions. System of particles: Centre of mass, Newton's laws. Rotation: torque, conservation of angular momentum, equilibrium, centre of gravity.

First course in physics 124 (PHY 124)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	WTW 114 GS and PHY 114 GS
Contact time	4 lectures per week, 1 discussion class per week, 1 practical per week
Language of tuition	Both Afr and Eng
Academic organisation	Physics
Period of presentation	Semester 2

Module content

Simple harmonic motion and pendulums. Coulomb's law. Electric field: dipoles, Gauss' law.Electric potential. Capacitance. Electric currents: resistance, resistivity, Ohm's law, energy, power, emf, RC-circuits. Magnetic Field: Hall-effect, Bio-Savart. Faraday's and Lenz's laws. Oscillations: LR-circuits. Alternating current: RLC-circuits, power, transformers. Introductory concepts to modern physics. Nuclear physics: Radioactivity.

African languages literature: Capita selecta 121 (AFT 121)

Module credits	12.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	NDE 110/SEP 111/ ZUL 111
Contact time	2 lectures per week
Language of tuition	English and African languages
Academic organisation	African Languages
Period of presentation	Semester 2

Module content
Aspects of the literature of isiNdebele/isiZulu/Sepedi such as an introduction to literary concepts such as literary text(s), topic, characters, events, time and place; the analysis of selected short stories.

Introduction to Sepedi grammar - Capita Selecta 111 (SEP 111)

Module credits	12.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Sepedi
Academic organisation	African Languages
Period of presentation	Semester 1

Module content
*For speakers of Sepedi as home language or first or second additional language.
Aspects of the grammar of Sepedi such as an introduction to the word categories; an introduction to the structure, meaning and use of the noun, the adjective, the relative, the possessive; the verb; writing and spelling rules; dictionaries and dictionary use; grammatical analysis.

Introduction to isiZulu grammar – Capita selecta 111 (ZUL 111)

Module credits	12.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	isiZulu
Academic organisation	African Languages
Period of presentation	Semester 1

Module content
*For speakers of isiZulu as home language or first or second additional language.
Aspects of the grammar of isiZulu such as an introduction to the word categories; an introduction to the structure, meaning and use of the noun, the adjective, the relative, the possessive; the verb; writing and spelling rules; dictionaries and dictionary use; grammatical analysis.

Religion studies 110 (REL 110)

Module credits	12.00
Service modules	Faculty of Education
Prerequisites	No prerequisites.

Contact time	1 discussion class per week, 2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Theology Dean's Office
Period of presentation	Semester 1

Module content

The world of religion
What is religion? The functions of religion. Studying religion. Perspectives on religion. Common concepts and key terms in various religions will be dealt with - also generic dimensions and aspects. The interdependence of religion, culture and society.

Religion studies 120 (REL 120)

Module credits	12.00
Service modules	Faculty of Education
Prerequisites	No prerequisites.
Contact time	1 discussion class per week, 2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Theology Dean's Office
Period of presentation	Semester 2

Module content

Kaleidoscope of religions
The occurrence of religion in societies. Types of religion. Primal religions. Christianity, Judaism, Islam. A variety of religions will be addressed: capita selecta will be made from Christianity; Hinduism; Buddhism; New Religions; New Age; main developments in the world and South Africa.

Informatics 171 (INF 171)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	Regulation 1.2: A candidate must have passed Mathematics with at least 4 (50-59%) in the Grade 12 examination
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Informatics
Period of presentation	Year

Module content

General systems theory, creative problem solving, soft systems methodology. The systems analyst, systems development building blocks, systems development, systems analysis methods, process modelling.

Mathematics 124 (WTW 124)

Module credits	16.00
Prerequisites	WTW 114
Contact time	4 lectures per week, 1 tutorial per week
Language of tuition	Both Afr and Eng
Academic organisation	Mathematics and Applied Maths
Period of presentation	Semester 2

Module content

*Students will not be credited for more than one of the following modules for their degree:
WTW 124, WTW 146, WTW 148 and WTW 164. This module serves as preparation for students majoring in Mathematics (including all students who intend to enrol for WTW 218, WTW 211 and WTW 220).

The vector space Rn, vector algebra with applications to lines and planes, matrix algebra, systems of linear equations, determinants. Complex numbers and factorisation of polynomials. Integration techniques and applications of integration. The formal definition of a limit. The fundamental theorem of Calculus and applications. Vector functions, polar curves and quadratic curves.

Linear algebra 146 (WTW 146)

Module credits	8.00
Service modules	Faculty of Education
Prerequisites	Refer to Regulation 1.2
Contact time	2 lectures per week, 1 tutorial per week
Language of tuition	Both Afr and Eng
Academic organisation	Mathematics and Applied Maths
Period of presentation	Semester 2

Module content

*Students will not be credited for more than one of the following modules for their degree:
WTW 124, WTW 146 and WTW 164. The module WTW 146 is designed for students who require Mathematics at 100 level only and does not lead to admission to Mathematics at 200 level.

Vector algebra, lines and planes, matrix algebra, solution of systems of equations, determinants. Complex numbers and polynomial equations. All topics are studied in the context of applications.

Calculus 148 (WTW 148)

Module credits	8.00
Service modules	Faculty of Education
Prerequisites	WTW 114 GS or WTW 134
Contact time	2 lectures per week, 1 tutorial per week
Language of tuition	Both Afr and Eng

Academic organisation	Mathematics and Applied Maths
Period of presentation	Semester 2

Module content

*Students will not be credited for more than one of the following modules for their degree:
WTW 124, WTW 148 and WTW 164. The module WTW 148 is designed for students who require Mathematics at 100 level only and does not lead to admission to Mathematics at 200 level.

Integration techniques. Modelling with differential equations. Functions of several variables, partial derivatives, optimisation. Numerical techniques. All topics are studied in the context of applications.

Art education 100 (JKG 100)

Module credits	6.00
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Year

Module content

This module provides students with an overview of historical and contemporary art movements. Important artists and artworks of this period are emphasized and discussed in context. History of art education within the school context is explored with emphasis on Western art movements and styles.

Introduction to Setswana grammar – capita selecta 111 (STW 111)

Module credits	12.00
Contact time	2 lectures per week
Language of tuition	Setswana
Academic organisation	African Languages
Period of presentation	Semester 1

Module content

*For speakers of Setswana as home language or first or second additional language. Aspects of the grammar of Setswana such as an introduction to the word categories; an introduction to the structure, meaning and use of the noun, the adjective, the relative, the possessive; the verb; writing and spelling rules; dictionaries and dictionary use; grammatical analysis.

Curriculum: Year 2

Minimum credits: 170

Core modules

Teaching practice 280 (PRO 280)

Module credits	6.00
Prerequisites	No prerequisites.
Contact time	3 weeks, attendance only
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Quarter 1

Module content

This is an official full time module where students experience the professional school environment during the first three weeks of the school year. The main focus is on observation of general classroom practice, school administration, extra - mural activities and to act as responsible citizens of the school environment and students have to prepare a professional portfolio. The module includes an observation assignment as well as a reflection on what they have experienced with the designated teachers. Placements for this module may be in schools outside Pretoria.

Education 212 (OPV 212)

Module credits	20.00
Service modules	Faculty of Humanities
Prerequisites	OPV 112 or OPV 122 passed with 40% (GS) in the other module
Contact time	4 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 1

Module content

Curriculum in the classroom:
This module addresses four components that are directly related to classroom teaching and learning. The first unit deals with the foundations of the curriculum covering the work done by Rousseau, Pestalozzi, Montessori, Gandhi, Steiner, Dewey, Piaget, Vygotsky, Illich, Freire and Lakoff. Unit two discusses curriculum design and development and also focuses on the organisation of knowledge through educational taxonomies. The last two units cover teaching strategies as well as issues related to classroom testing and classroom assessment practices.

Education 222 (OPV 222)

Module credits	20.00

Service modules	Faculty of Humanities
Prerequisites	OPV 112 or OPV 122 passed with 40% (GS) in the other module
Contact time	4 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Educational Psychology
Period of presentation	Semester 2

Module content

Supportive learning environments:
Theoretical approaches to learning environments (bio-ecological and asset-based approaches, indigenous knowledge systems, solution-oriented intervention; appreciative inquiry); school-based support in terms of Inclusive Education, whole-school approach, the supportive role of the teacher and the well-being of the child; community-based support in the form of community engagement and community education.

Elective modules

Afrikaans 214 (AFR 214)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	AFR 110 and AFR 120
Contact time	2 lectures per week, 2 discussion classes per week
Language of tuition	Afrikaans
Academic organisation	Afrikaans
Period of presentation	Semester 1

Module content

Taalkundekomponent:
Morfologie, sintaksis, leksikologie en semantiek
Letterkundekomponent:
Afrikaanse poësie

Afrikaans 220 (AFR 220)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	AFR 110 and AFR 120
Contact time	2 discussion classes per week, 2 lectures per week
Language of tuition	Afrikaans
Academic organisation	Afrikaans

Period of presentation	Semester 2

Module content

Afrikaanse prosa
Literatuurteorie en -kritiek

South African flora and vegetation 251 (BOT 251)

Module credits	12.00
Service modules	Faculty of Education
Prerequisites	BOT 161 or TDH
Contact time	1 practical per week, 2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Plant and Soil Sciences
Period of presentation	Semester 1

Module content

Origin and affinity of South African flora and vegetation types; principles of plant geography; plant diversity in southern Africa; characteristics, environments and vegetation of South African biomes and associated key ecological processes; centra of plant endemism; rare and threatened plant species; biodiversity conservation and ecosystem management; invasion biology; conservation status of South African vegetation types.

Plant physiology and biotechnology 261 (BOT 261)

Module credits	12.00
Service modules	Faculty of Education
Prerequisites	BOT 161, CMY 117, CMY 127 or TDH
Contact time	2 lectures per week, 1 practical per week
Language of tuition	Both Afr and Eng
Academic organisation	Plant and Soil Sciences
Period of presentation	Semester 2

Module content

Nitrogen metabolism in plants; nitrogen fixation in Agriculture; plant secondary metabolism and natural products; photosynthesis and carbohydrate metabolism in plants; applications in solar energy; plant growth regulation and the Green Revolution; plant responses to the environment; developing drought tolerant and disease resistant plants.

Physical chemistry 282 (CMY 282)

Module credits	12.00
Service modules	Faculty of Education
Prerequisites	CMY 117 and CMY 127

Contact time	4 lectures per week, 1 tutorial per week, 2 practicals per week
Language of tuition	English
Academic organisation	Chemistry
Period of presentation	Quarter 2

Module content

Theory: Classical chemical thermodynamics, gases, first and second law and applications, physical changes of pure materials and simple compounds. Phase rule: Chemical reactions, chemical kinetics, rates of reactions.

Analytical chemistry 283 (CMY 283)

Module credits	12.00
Service modules	Faculty of Education
Prerequisites	CMY 117 and CMY 127
Contact time	2 practicals per week, 4 lectures per week, 1 tutorial per week
Language of tuition	English
Academic organisation	Chemistry
Period of presentation	Quarter 3

Module content

Theory: Statistical evaluation of data, gravimetric analysis, aqueous solution chemistry, chemical equilibrium, precipitation-, neutralisation- and complex formation titrations, redox titrations, potentiometric methods, introduction to electrochemistry.

Organic chemistry 284 (CMY 284)

Module credits	12.00
Service modules	Faculty of Education
Prerequisites	CMY 117 and CMY 127
Contact time	2 practicals per week, 4 lectures per week, 1 tutorial per week
Language of tuition	English
Academic organisation	Chemistry
Period of presentation	Quarter 1

Module content

Theory: Resonance, conjugation and aromaticity. Acidity and basicity. Introduction to ^{13}C NMR spectroscopy. Electrophilic addition: alkenes. Nucleophilic substitution, elimination, addition: alkyl halides, alcohols, ethers, epoxides, carbonyl compounds: ketones, aldehydes, carboxylic acids and their derivatives.

Inorganic chemistry 285 (CMY 285)

Module credits	12.00
Service modules	Faculty of Education

Prerequisites	CMY 117 and CMY 127
Contact time	2 practicals per week, 1 tutorial per week, 4 lectures per week
Language of tuition	English
Academic organisation	Chemistry
Period of presentation	Quarter 4

Module content

Theory: Atomic structure, structure of solids (ionic model). Coordination chemistry of transition metals: Oxidation states of transition metals, ligands, stereochemistry, crystal field theory, consequences of d-orbital splitting, chemistry of the main group elements, electrochemical properties of transition metals in aqueous solution, industrial applications of transition metals. Introduction to IR spectroscopy.

Heritage and cultural tourism 210 (EFK 210)

Module credits	20.00
Service modules	Faculty of Education
Prerequisites	EFK 110(GS)
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Historical and Heritage Stud
Period of presentation	Semester 1

Module content

Utilisation of SA cultural historical heritage for tourism
Remembrance and commemoration and its utilisation in the tourism industry. Introduction to the historical-constitutional development of South Africa and inter-group relations in the country in the context of the heritage and tourism sector. An introduction to field research in the HCT domain.

Heritage and cultural tourism 220 (EFK 220)

Module credits	20.00
Service modules	Faculty of Education
Prerequisites	No prerequisites.
Contact time	1 tutorial per week, 2 lectures per week
Language of tuition	English
Academic organisation	Anthropology and Archaeology
Period of presentation	Semester 2

Module content

Community-based tourism Development theories and tourism theory: relation between development and tourism. Pro-poor tourism: Opportunities for and constraints on tourism development. Case studies in sub-Saharan Africa.

Economics 214 (EKN 214)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	EKN 110 GS and EKN 120 or EKN 113 GS and EKN 123 and STK 110 GS and STK 120 GS
Contact time	3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Economics
Period of presentation	Semester 1

Module content

Macroeconomics
From Wall and Bay Street to Diagonal Street: a thorough understanding of the mechanisms and theories explaining the workings of the economy is essential. Macroeconomic insight is provided on the real market, the money market, two market equilibrium, monetarism, growth theory, cyclical analysis, inflation, Keynesian general equilibrium analysis and fiscal and monetary policy issues.

Modern English literature and English studies 210 (ENG 210)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	ENG 110, ENG 120
Contact time	2 discussion classes per week, 2 lectures per week
Language of tuition	English
Academic organisation	English
Period of presentation	Semester 1

Module content

*Alternative evening classes - 3 discussion classes per week
Modern English literature and English language studies
This module focuses on post-nineteenth century literature in English as well as on historical and theoretical aspects of the English language.

English 220 (ENG 220)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	ENG 110, ENG 120

Contact time	2 lectures per week, 2 discussion classes per week
Language of tuition	English
Academic organisation	English
Period of presentation	Semester 2

Module content

*Alternative evening classes - 3 discussion classes per week
Twentieth-century, postcolonial and contemporary literature
This module focuses on post-nineteenth century literature in English. Various genres are covered and particular attention is given to postcolonial writing.

Financial accounting 211 (FRK 211)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	FRK 111 and FRK 121 or FRK 100/101
Contact time	4 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Accounting
Period of presentation	Semester 1

Module content

Preparation and presentation of company annual financial statements in compliance with the requirements of the Companies Act, the Framework and Statements of Generally Accepted Accounting Practice relating to the following: presentation of financial statements; revenue; investments; provisions, contingent liabilities and contingent assets; events after the balance sheet date; inventories; income taxes; leases; property, plant and equipment; impairment of assets; intangible assets; investment property, changes in accounting estimates and errors; introduction to financial instruments.

Financial accounting 221 (FRK 221)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	FRK 211 GS
Contact time	4 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Accounting
Period of presentation	Semester 2

Module content

Preparation and presentation of company annual financial statements in compliance with the requirements of Statements of Generally Accepted Accounting Practice relating to the following: employee benefits; the effects of changes in foreign exchange rates; accounting policies; earnings per share; cash flow statements; interests in joint ventures. Branch accounting. Introduction to consolidations, including basic consolidation techniques for both wholly-owned and partly-owned subsidiaries. Introduction to public sector accounting.

History 210 (GES 210)

Module credits	20.00
Service modules	Faculty of Education
Prerequisites	GES 120(GS)
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Historical and Heritage Stud
Period of presentation	Semester 1

Module content

Themes from African History A selection of themes on the history of Africa and its people during pre-colonial, colonial and post-colonial times, focusing on the social, political and economic forces that helped shape the African historical experience.

History 220 (GES 220)

Module credits	20.00
Service modules	Faculty of Education
Prerequisites	GES 110(GS), GES 120(GS)
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Historical and Heritage Stud
Period of presentation	Semester 2

Module content

Rise and fall of segregation and apartheid Focuses on the origin and theoretical foundations of these policies and their entrenchment in SA legislation. The resistance against the institution of these respective policies and the subsequent dismantling of apartheid. The impact on social, cultural and economic terrain.

Process geomorphology 252 (GGY 252)

Module credits	12.00
Service modules	Faculty of Education Faculty of Humanities
Prerequisites	GGY 166 or GLY 155

Contact time	4 lectures per week, 2 practicals per week
Language of tuition	English
Academic organisation	Geography, Geoinf + Meteor
Period of presentation	Quarter 2

Module content

Physical processes that influence the earth's surface and management. Specific processes and their interaction in themes such as weathering; soil erosion; slope, mass movement and fluvial processes. Practical laboratory exercises are based on the themes covered in the module theory component.

Introductory geographic information systems 283 (GGY 283)

Module credits	12.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities
Prerequisites	Only available to students studying the following:12132022, 12132002, 12132004, 02133312, 02133383, 02133361, 02133385, 09133040 and 01130001
Contact time	2 lectures per week, 1 practical per week
Language of tuition	English
Academic organisation	Geography, Geoinf + Meteor
Period of presentation	Semester 1

Module content

*This is a closed module, only available to students studying [BTandRP] (12132022), [BSc(Arch)] (12132002), [BSc(LArch)] (12132004), BSc Meteorology (02133312), BSc Geoinformatics (02133383), BSc Environmental Science (02133361), BSc Geography (02133385), BEd Further Education and Training (General) (09133040), BA (01130001) or as approved by the head of department. The content of this module is the same as GIS 221 and students are not allowed to earn credits for both GGY 283 and GIS 221.
Introduction to Geographic Information Systems (GIS), theoretical concepts and applications of GIS. The focus will be on the GIS process of data input, data analysis, data output and associated technologies.

Informatics 214 (INF 214)

Module credits	14.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	AIM 101 or AIM 111 and AIM 121
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Informatics

Period of presentation	Semester 1

Module content

Database design: the relational model, structured query language (SQL), entity relationship modelling, normalisation, database development life cycle; practical introduction to database design. Databases: advanced entity relationship modelling and normalisation, object-oriented databases, database development life cycle, advanced practical database design.

Informatics 225 (INF 225)

Module credits	14.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	INF 164 and INF 171; AIM 101 or AIM 102 or AIM 111 and AIM 121
Contact time	1 practical per week, 1 lecture per week, 2 discussion classes per week
Language of tuition	Both Afr and Eng
Academic organisation	Informatics
Period of presentation	Semester 2

Module content

An overview of systems infrastructure and integration.

Life orientation 210 (JLO 210)

Module credits	12.00
Prerequisites	No prerequisites.
Language of tuition	Both Afr and Eng
Academic organisation	Early Childhood Education
Period of presentation	Semester 1

Module content

The human being in context: social and community life. Life orientation educator. Social skills.

Life orientation 220 (JLO 220)

Module credits	12.00
Prerequisites	No prerequisites.
Language of tuition	Both Afr and Eng
Academic organisation	Early Childhood Education
Period of presentation	Semester 2

Module content

The human being in the world. Diversity, values and principles. Issues concerning discrimination, race, religion, culture, sexuality, age, abilities. Contemporary issues concerning classrooms, individual and systemic perspectives. Support for matters concerning HIV/Aids. Safe schools. Violence in schools. Crime. Emotional problems. Prevention of deviant social behaviour.

isiNdebele 210 (NDE 210)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	AFT 121 and NDE 110
Contact time	2 lectures per week
Language of tuition	isiNdebele
Academic organisation	African Languages
Period of presentation	Semester 1

Module content

Aspects of the grammar of isiNdebele such as a continuation of the study of the word categories; grammatical analysis; the structure, meaning and use of the pronoun and the enumerative; an introduction to isiNdebele speech sounds/phonetics.

Business management 210 (OBS 210)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	OBS 114 or 124 with admission to the examination in the other
Contact time	3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Business Management
Period of presentation	Semester 1

Module content

Logistics management
The role of logistics in an enterprise; definition and scope of customer service; electronic and other logistics information systems; inventory management; materials management with special reference to Japanese systems; management of the supply chain. Methods of transport and transport costs; types and costs of warehousing; electronic aids in materials handling; cost and price determination of purchases; organising for logistics management; methods for improving logistics performance.

Business management 220 (OBS 220)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	OBS 114 or 124 with admission to the examination in the other
Contact time	3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Business Management
Period of presentation	Semester 2

Module content

Project management: Introduction
Project management concepts; needs identification; the project, the project manager and the project team; types of project organisations; project communication and documentation.
Planning and control: planning, scheduling and schedule control of projects; resource considerations and allocations; cost planning and performance evaluation.

General physics 263 (PHY 263)

Module credits	24.00
Service modules	Faculty of Education
Prerequisites	PHY 255 GS and WTW 218 GS and WTW 220# and WTW 248#
Contact time	1 practical per week, 4 lectures per week, 2 discussion classes per week
Language of tuition	English
Academic organisation	Physics
Period of presentation	Semester 2

Module content

Classical mechanics (28 lectures)
Fundamental concepts, energy and angular momentum, calculus of variations and Lagrangian mechanics, conservative central forces and two body problems, scattering, mechanics in rotating reference frames, many body systems.
Physical Optics (14 lectures)
Maxwell’s equations, wave equation and plane wave solution, coherence, interference, diffraction, polarisation.
Physics of Materials (14 lectures)
Classification of materials. Atomic bonding. Crystallography. Defects. Material strength. Phase diagram's, Ceramics. Polymers. Composites. Fracture. Electrical and magnetic properties. Semiconductors. Smart materials Nanotechnology.
Experiments (14 sessions)

Religion studies 210 (REL 210)

Module credits	20.00
Service modules	Faculty of Education
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Double Medium
Academic organisation	Theology Dean's Office
Period of presentation	Semester 1

Module content

Focus on religion
Part 1: Christianity
Jesus as founder of Christianity; Images of Jesus; current research on the 'historical Jesus'; core issues in the debate on the 'historical Jesus'. Capita selecta from themes like: New Testament Christianity; Christian history in survey; Christian missions; After the Industrial Revolution and the Enlightenment; Christianity in a secularist age; The rise of Third World Christianity.
Part 2: Traditional African religiosity
Primal religion and traditional African religion; Traditional life and world view. Key elements like: Concept of time; Concept of God; Ancestral cult; Power doctors, healers and cultic leadership; Ethics: Examples of African religion; San religion; Zulu religion; Shona religion.

Religion studies 220 (REL 220)

Module credits	20.00
Service modules	Faculty of Education
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Double Medium
Academic organisation	Theology Dean's Office
Period of presentation	Semester 2

Module content

Part 1: Myth, symbols and other phenomena
Religion in diachronic and phenomenological perspective; Cosmologies and theologies; Myth and narrative; Ritual; Spirituality; Offices; Symbolism and communication. The module will focus primarily on mythical motives and thought patterns in the Old and New Testaments. By means of a capita selecta the chosen texts are analysed within the timeframe and world view of their own origin.
Part 2: Ancient religions
The content, characteristics and influence of religions in the Ancient Near Eastern and Mediterranean worlds will be studied: e.g. Egypt, Canaan, Mesopotamia, Greece etc. (A selection will be made every year.)

Sepedi 210 (SEP 210)

Module credits	20.00
Service modules	Faculty of Education
Prerequisites	SEP 110, SEP 120
Contact time	2 lectures per week, 1 discussion class per week
Language of tuition	Double Medium
Academic organisation	African Languages
Period of presentation	Semester 1

Module content

Sepedi - communication and grammar The acquisition of advanced communication skills in further social, occupational and educational situations. More extensive vocabulary and advanced language structures are acquired and used. Heightened awareness of the nature and function of language structures. Sepedi - reading and writing Writing of coherent, idiomatic and grammatically correct texts in order to impart ideas and information for a selected range of communicative purposes. Writing entails creative writing as well as reduplication. Reading and comprehension of texts which contain reasonably extensive vocabularies and a relatively large variation of language structures. Commence with the reading of fairly simple literary works. Students are also further trained in the use of the dictionary.

Sepedi 220 (SEP 220)

Module credits	20.00
Service modules	Faculty of Education
Prerequisites	SEP 210
Contact time	1 discussion class per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	African Languages
Period of presentation	Semester 2

Module content

Sepedi - communication, grammar, reading and writing The further acquisition of advanced communication skills in further social, occupational and educational situations. More extensive vocabulary and advanced language structures are acquired and used. Heightened awareness of the nature and function of language structures. Continuation of the writing of coherent, idiomatic and grammatically correct texts in order to impart ideas and information for a range of communicative purposes. An introduction to Sepedi speech sounds / phonetics. Reading and comprehension of texts which contain more extensive vocabularies and a larger variation of language structures. Reading of further literary works.

Calculus 153 (WTW 153)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education

Prerequisites	WTW 143
Contact time	Foundation Course, 1 tutorial per week, 3 lectures per week
Language of tuition	English
Academic organisation	Mathematics and Applied Maths
Period of presentation	Semester 1

Module content

Differential calculus of a single variable with proofs and applications. The mean value theorem, the rule of L'Hospital. Upper and lower sums, definite and indefinite integrals, the Fundamental theorem of Calculus, the mean value theorem for integrals, integration techniques, with some proofs.

Linear algebra 211 (WTW 211)

Module credits	12.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Economic and Management Sciences
Prerequisites	WTW 124
Contact time	1 tutorial per week, 2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Mathematics and Applied Maths
Period of presentation	Semester 1

Module content

This is an introduction to linear algebra on Rn. Matrices and linear equations, linear combinations and spans, linear independence, subspaces, basis and dimension, eigenvalues, eigenvectors, similarity and diagonalisation of matrices, linear transformations.

Calculus 218 (WTW 218)

Module credits	12.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Economic and Management Sciences
Prerequisites	WTW 114 and WTW 124
Contact time	1 tutorial per week, 2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Mathematics and Applied Maths
Period of presentation	Semester 1

Module content

Calculus of multivariable functions, directional derivatives. Extrema and Lagrange multipliers. Multiple integrals, polar, cylindrical and spherical coordinates.

Analysis 220 (WTW 220)

Module credits	12.00
Service modules	Faculty of Education Faculty of Economic and Management Sciences
Prerequisites	WTW 114 and WTW 124
Contact time	1 tutorial per week, 2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Mathematics and Applied Maths
Period of presentation	Semester 2

Module content

Properties of real numbers. Analysis of sequences and series of real numbers. Power series and theorems of convergence. The Bolzano-Weierstrass theorem. The intermediate value theorem and analysis of real-valued functions on an interval. The Riemann integral: Existence and properties of the interval.

Invertebrate biology 251 (ZEN 251)

Module credits	12.00
Service modules	Faculty of Education
Prerequisites	ZEN 161 GS or TDH
Contact time	4 lectures per week, 1 practical per week
Language of tuition	English
Academic organisation	Zoology and Entomology
Period of presentation	Quarter 1

Module content

Origin and extent of modern invertebrate diversity; parasites of man and domestic animals; biology and medical importance of arachnids; insect life styles; the influence of the environment on insect life histories; insect phytophagy, predation and parasitism; insect chemical, visual, and auditory communication; freshwater invertebrates and their use as biological indicators.

African vertebrates 261 (ZEN 261)

Module credits	12.00
Service modules	Faculty of Education
Prerequisites	ZEN 161 GS or TDH
Contact time	1 practical per week, 4 lectures per week

Language of tuition	English
Academic organisation	Zoology and Entomology
Period of presentation	Quarter 3

Module content

Introduction to general vertebrate diversity; African vertebrate diversity; vertebrate structure and function; vertebrate evolution; vertebrate relationships; aquatic vertebrates; terrestrial ectotherms; terrestrial endotherms; vertebrate characteristics; classification; structural adaptations; habits; habitats; conservation problems; impact of humans on other vertebrates.

isiZulu 210 (ZUL 210)

Module credits	20.00
Service modules	Faculty of Education
Prerequisites	ZUL 110, ZUL 120
Contact time	1 discussion class per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	African Languages
Period of presentation	Semester 1

Module content

isiZulu - communication and grammar The acquisition of advanced communication skills in further social, occupational and educational situations. More extensive vocabulary and advanced language structures are acquired and used. Heightened awareness of the nature and function of language structures. isiZulu - reading and writing Writing of coherent, idiomatic and grammatically correct texts in order to impart ideas and information for a selected range of communicative purposes. Writing entails creative writing as well as reduplication. Reading and comprehension of texts which contain reasonably extensive vocabularies and a relatively large variation of language structures. Commence with the reading of fairly simple literary works. Students are also further trained in the use of the dictionary.

Methodology of Business Studies 205 (JMD 205)

Module credits	6.00
Contact time	1 lecture per week
Language of tuition	Double Medium
Academic organisation	Education Management + Policy
Period of presentation	Year

Module content

Analysis of curriculum and practical application as prescribed in the national curriculum statement documents for Business Studies. Lesson design in Business Studies. Application of technology and media in Business Studies teaching.

Methodology of Tourism 206 (JMD 206)

Module credits	6.00
Contact time	1 lecture per week
Language of tuition	Double Medium
Academic organisation	Education Management + Policy
Period of presentation	Year

Module content

Analysis of curriculum and practical application as prescribed in the national curriculum statement documents for Tourism. Lesson design in Tourism. Application of technology and media in Tourism teaching.

Methodology of Geography 200 (JMG 200)

Module credits	6.00
Prerequisites	No prerequisites.
Contact time	1 lecture per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Year

Module content

An intensive study of the 2012 Curriculum and Assessment Policy (CAPS) relating to the teaching of Geography to learners in the FET-, Senior- and Intermediate Learning Phases. The following aspects are addressed: The long-, medium- and short term planning of learning activities, the design of sensible learning activities, assessment, the effective use of teaching media as well as the preparation and presentation of mini lessons with a duration of 18 minutes.

Methodology of Natural Science 204 (JMN 204)

Module credits	6.00
Prerequisites	No prerequisites.
Contact time	1 lecture per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Year

Module content

A thorough overview of the learning content with specific focus on practical application as prescribed by the National Curriculum Statement documents. Emphasis is placed on reaching the prescribed learning outcomes.

Methodology of Life Sciences 208 (JMN 208)

Module credits	6.00
Prerequisites	No prerequisites.
Contact time	1 lecture per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Year

Module content

Analysis of curriculum and policy documents for Life Sciences. Lesson design, and the application of technology and media in the teaching of Life Sciences.

Waves, thermodynamics and modern physics 255 (PHY 255)

Module credits	24.00
Service modules	Faculty of Education
Prerequisites	[PHY114 and PHY124] or [PHY171] or [PHY143 and PHY153 and PHY163] and [WTW211#] and [WTW218#]
Contact time	4 lectures per week, 1 practical per week, 2 discussion classes per week
Language of tuition	English
Academic organisation	Physics
Period of presentation	Semester 1

Module content

Vibrating systems and waves (14 lectures)
Simple harmonic motion (SHM). Superposition (different frequencies, equal frequencies). Perpendicular vibrations (Lissajous figures). Damped SHM. Forced oscillations. Resonance. Q-value. Transverse wave motion. Plane wave solution using method of separation of variables. Reflection and transmission at a boundary. Normal and eigenmodes. Wave packets. Group velocity.
Modern physics (30 lectures)
Special relativity: Galilean and Lorentz transformations. Postulates. Momentum and energy. 4 vectors and tensors. General relativity. Quantum physics. Failure of classical physics. Bohr model. Particle-wave duality. Schrödinger equation. Piece-wise constant potentials. Tunneling. X-rays. Laser. Nuclear physics: Fission. Fusion. Radioactivity.
Heat and thermodynamics (12 lectures)
Heat. First Law. Kinetic theory of gases. Mean free path. Ideal, Clausius, Van der Waals and virial gases. Entropy. Second Law. Engines and refrigerators. Third Law. Thermodynamic potentials: Enthalpy Helmholtz and Gibbs free energies, Chemical potential. Legendre transformations (Maxwell relations). Phase equilibrium. Gibbs phase rule.
Modelling and simulation (7 practical sessions)
Introduction to programming in a high level system: Concept of an algorithm and the basic logic of a computer programme. Symbolic manipulations, graphics, numerical computations. Applications: Selected illustrative examples.
Error Analysis (7 practical sessions)
Experimental uncertainties. Propagation of uncertainties. Statistical analysis of random uncertainties. Normal distribution. Rejection of data. Least-squares fitting. Covariance and correlation.

City structure, environment and society 266 (GGY 266)

Module credits	24.00
Service modules	Faculty of Education Faculty of Humanities
Prerequisites	No prerequisites.
Contact time	1 practical per week, 3 lectures per week
Language of tuition	English
Academic organisation	Geography, Geoinf + Meteor
Period of presentation	Semester 2

Module content

An urbanising world. Urban structure and land use. Urban processes. The urban environment. Social structure and change in cities. Living in the city. Economy, society and politics in the city. Third-world cities and South African cities. Urban futures.

Methodology of Physical Sciences 209 (JMN 209)

Module credits	6.00
Prerequisites	No prerequisites.

Contact time	1 lecture per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Year

Module content

Analysis of curriculum and policy documents for Physical sciences. Lesson design and application of technology and media in teaching Physical sciences.

isiZulu 220 (ZUL 220)

Module credits	20.00
Service modules	Faculty of Education
Prerequisites	ZUL 210
Contact time	2 lectures per week, 1 discussion class per week
Language of tuition	Double Medium
Academic organisation	African Languages
Period of presentation	Semester 2

Module content

isiZulu - communication, grammar, reading and writing
The further acquisition of advanced communication skills in further social, occupational and educational situations. More extensive vocabulary and advanced language structures are acquired and used. Heightened awareness of the nature and function of language structures. Continuation of the writing of coherent, idiomatic and grammatically correct texts in order to impart ideas and information for a range of communicative purposes. An introduction to isiZulu speech sounds/phonetics. Reading and comprehension of texts which contain more extensive vocabularies and a larger variation of language structures. Reading of further literary works.

Informatics 281 (INF 281)

Module credits	3.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	FRK 111, FRK 121 or FRK 100 or FRK 101
Contact time	2 practicals per week
Language of tuition	English
Academic organisation	Informatics
Period of presentation	Semester 1 or Semester 2

Module content

Computer processing of accounting information.

Human movement studies and sport management 212 (JMB 212)

Module credits	10.00
Prerequisites	JMB 112 and JMB 122
Contact time	2 lectures per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Semester 1

Module content

Recreational studies - demarcation and terminology. The importance and development of values for spending free time in a meaningful way in modern society. The importance of leading as a management function in Sport Management is emphasized. Special reference is made to communication, leadership and motivation.

Human movement studies and sport management 213 (JMB 213)

Module credits	10.00
Prerequisites	JMB 113 and JMB 123
Contact time	2 practicals per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Semester 1

Module content

Water activities - mastering and practical execution of some swimming styles as well as life-saving skills. Motor skills - mastering of practical skills for the development of gymnastics, with and without adaptation of large apparatus.

Human movement studies and sport management 222 (JMB 222)

Module credits	10.00
Prerequisites	JMB 112 and JMB 122
Contact time	2 lectures per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Semester 2

Module content

Sport injuries and posture deviations - demarcation and terminology. General principles for prevention and treatment of sport injuries. Posture development and the influence of proper habits in the development of a good posture. Identification and pathology of specific deviations. A theoretical and practical perspective on control as the final phase of the management process in sport to ensure the success of the management process is emphasised.

Human movement studies and sport management 223 (JMB 223)

Module credits	10.00
Prerequisites	JMB 113 and JMB123
Contact time	2 practicals per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Semester 2

Module content

Ladies - dance: mastering of practical skills for dance design and creative dancing.
Men - soccer: mastering of basic skills and techniques of soccer .
Athletics: field events.

Mathematical literacy 210 (JWG 210)

Module credits	12.00
Prerequisites	STK 113 or STK 123 passed with a GS (40%) obtained in the other module, or STK 110 or WTW 134
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 1

Module content

Functions and graphs for teachers:
Functions; graphs of functions; transformations of functions; inverse functions; polynomial functions; polynomial and synthetic division; complex numbers; zeros of polynomial functions; rational functions; inequalities; mathematical modelling.

Mathematical literacy 220 (JWG 220)

Module credits	12.00
Prerequisites	STK 113 or STK 123 passed with 40% (GS) obtained in the other module or STK 110 or WTW 134
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Both Afr and Eng
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 2

Module content

Functions, equations, sequences and series for teachers:
Combination of functions; mathematical modelling; exponential functions and their graphs; logarithmic functions and their graphs; properties of logarithms; exponential and logarithmic equations; exponential and logarithmic models; systems of equations and inequalities; sequences and series.

Engineering graphics and design 230 (JTT 230)

Module credits	12.00
Prerequisites	MGC 110, JTT 120 and WTW 134
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 1

Module content

This module equips students to understand and teach Engineering graphics and design in the FET-Phase. The focus is on the role of visualization in the design process and visualization principles and instruments and free hand drawing and instrument drawing techniques contextualised for the Department of Education's curriculum requirements for Mechanical drawing.

Engineering graphics and design 240 (JTT 240)

Module credits	12.00
Prerequisites	MGC 110, JTT 120, WTW 134
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 2

Module content

This module equips students to understand and teach Engineering graphics and design in the FET-Phase. The focus is on intermediate free hand drawing and instrument drawing techniques contextualised for the Department of Education's curriculum requirements for Isometric drawing and Mechanical drawing conventions. Primary and secondary manufacturing processes including fixed bodies. Descriptive Geometry. Evaluation of drawings and error detection. Practical application of techniques.

Computer application technology 230 (RTT 230)

Module credits	12.00
Prerequisites	COS 151 and INF 112, INF 154, INF 164 and INF 171
Contact time	2 lectures per week, 3 practicals per week
Language of tuition	English

Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 1

Module content

Computer applications: Keyboard skills, speed and accuracy. Proprietary and open source office suites. Text documents, spreadsheets, incorporation of graphs and pictures, merging of documents. Macros.
Computer supported learning: Computer technology in education. Technology integration and the learning process. Examples of software to support learning from foundation phase to high school.

Computer application technology 240 (RTT 240)

Module credits	12.00
Prerequisites	COS 151 and INF 112, INF 154, INF 164 and INF 171
Contact time	2 practicals per week, 1 lecture per week, 1 discussion class per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 2

Module content

Computer applications: Systems infrastructure and integration.

Vector analysis 248 (WTW 248)

Module credits	12.00
Service modules	Faculty of Education
Prerequisites	WTW 218
Contact time	1 discussion class per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Mathematics and Applied Maths
Period of presentation	Semester 2

Module content

Vectors and geometry. Calculus of vector functions with applications to differential geometry, kinematics and dynamics. Vector analysis, including vector fields, line integrals of scalar and vector fields, conservative vector fields, surfaces and surface integrals, the Theorems of Green, Gauss and Stokes with applications.

African languages literature: Capita selecta 220 (AFT 220)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	NDE 210/SEP 211/ZUL 211
Contact time	2 lectures per week

Language of tuition	English and African languages
Academic organisation	African Languages
Period of presentation	Semester 2

Module content

Aspects of the literature of isiNdebele/isiZulu/Sepedi such as the continuation of the study of concepts such as text, topic, characters, events, time and place; the study of plot and style; the critical analysis of a novel/novelette.

Sepedi grammar – Capita selecta 211 (SEP 211)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	SEP 111, AFT 121
Contact time	2 lectures per week
Language of tuition	Sepedi
Academic organisation	African Languages
Period of presentation	Semester 1

Module content

Aspects of the grammar of Sepedi such as a continuation of the study of the word categories; grammatical analysis; the structure, meaning and use of the pronoun and the enumerative; an introduction to Sepedi speech sounds/phonetics.

IsiZulu grammar – Capita selecta 211 (ZUL 211)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	ZUL 111, AFT 121
Contact time	2 lectures per week
Language of tuition	isiZulu
Academic organisation	African Languages
Period of presentation	Semester 1

Module content

Aspects of the grammar of isiZulu such as a continuation of the study of the word categories; grammatical analysis; the structure, meaning and use of the pronoun and the enumerative; an introduction to isiZulu speech sounds/phonetics.

Design and technology 240 (JOT 240)

Module credits	12.00

Prerequisites	WTW 133, WTW 143, CMY 133, CMY 143, PHY 133 and PHY 143
Contact time	4 lectures per week, 1 practical per week
Language of tuition	Both Afr and Eng
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 2

Module content

This module develops an understanding of the interrelationship between technology, science, society and the environment. It will lead students to understanding the unique character of the design process. Two knowledge strands, namely structures and systems and control will be addressed.

Economics 234 (EKN 234)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	EKN 214, STK 120
Contact time	3 lectures per week
Language of tuition	English
Academic organisation	Economics
Period of presentation	Semester 2

Module content

Macroeconomics
Application of the principles learned in EKN 214 on the world we live in. We look at international markets and dynamic macroeconomic models, and familiarise the students with the current macroeconomic policy debates. We also take a look at the latest macroeconomic research in the world. The course includes topics of the mathematical and econometric analysis of macroeconomic issues.

Mathematics 124 (WTW 124)

Module credits	16.00
Prerequisites	WTW 114
Contact time	4 lectures per week, 1 tutorial per week
Language of tuition	Both Afr and Eng
Academic organisation	Mathematics and Applied Maths
Period of presentation	Semester 2

Module content

*Students will not be credited for more than one of the following modules for their degree:
WTW 124, WTW 146, WTW 148 and WTW 164. This module serves as preparation for students majoring in Mathematics (including all students who intend to enrol for WTW 218, WTW 211 and WTW 220).

The vector space Rn, vector algebra with applications to lines and planes, matrix algebra, systems of linear equations, determinants. Complex numbers and factorisation of polynomials. Integration techniques and applications of integration. The formal definition of a limit. The fundamental theorem of Calculus and applications. Vector functions, polar curves and quadratic curves.

Methodology of isiZulu 200 (JZL 200)

Module credits	6.00
Contact time	2 lectures per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Year

Module content

This module aims to develop students' skills which will enable learners to communicate as effectively as possible on a more academic level in isiZulu. Students learn to compare and contrast approaches to learning and teaching; identify and differentiate concepts used in OBE, NCS and CAPS; implement OBE by planning and preparing lessons using CAPS learning and teaching methodologies and techniques in an integrative manner; and assessing using CAPS assessment methods, tools and techniques.

Methodology of IsiNdebele 200 (JND 200)

Module credits	6.00
Contact time	1 lecture per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Year

Module content

This module aims to develop students' skills which will enable learners to communicate in isiNdebele as effectively as possible on a more academic level. The module offers a thorough overview of the learning content with specific focus on practical application as prescribed by the National Curriculum Statement Documents.

Methodology of Sepedi 200 (JSP 200)

Module credits	6.00
Contact time	1 lecture per week
Language of tuition	Double Medium
Academic organisation	Humanities Education

Period of presentation	Year

Module content

This module aims to develop students' skills which will enable learners to communicate as effectively as possible on a more academic level in Sepedi. Students learn to compare and contrast approaches to learning and teaching; identify and differentiate concepts used in OBE, NCS and CAPS; implement OBE by planning and preparing lessons using NCS and CAPS learning and teaching methodologies and techniques in an integrative manner; and assessing using NCS and CAPS assessment methods, tools and techniques.

Methodology of Setswana 200 (JSW 200)

Module credits	6.00
Contact time	1 lecture per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Year

Module content

This module aims to develop students' skills which will enable school learners to communicate as effectively as possible on a more academic level in Setswana. Students learn to compare and contrast approaches to learning and teaching; identify and differentiate concepts used in OBE, NCS and CAPS; implement OBE by planning and preparing lessons using NCS and CAPS learning and teaching methodologies and techniques in an integrative manner; and assessing using NCS and CAPS assessment methods, tools and techniques.

Methodology of Mathematical Literacy 202 (JMW 202)

Module credits	6.00
Contact time	1 lecture per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Year

Module content

The following are applicable to the Senior phase Mathematics and FET phase Mathematical Literacy: Analysis of the curriculum and policy documents. Lesson design. Application of technology and media in teaching mathematics.

Guidance and counselling 210 (JVB 210)

Module credits	12.00
Contact time	3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Educational Psychology
Period of presentation	Semester 1

Module content

This module gives and overview of guidance and counselling within the school context with the principles of positive psychology as the underlying foundation. The module strives to equip the student teacher with knowledge and skills to screen, identify, assess and support learners with physical and physiological impairment and learners who display challenging behaviour in the classroom. The student teacher will be exposed to how contextual psychosocial care and support as well as career guidance can be implemented in schools.

Guidance and counselling 220 (JVB 220)

Module credits	12.00
Contact time	3 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Educational Psychology
Period of presentation	Semester 2

Module content

This module aims to provide student teachers with knowledge on learners who experience physical and/or physiological barriers, learners who display challenging behaviour in the classroom, together with a focus on risk factors that may cause physical and/or physiological barriers, as well as protective factors which might protect learners against any risks that may harm or impede their development and enhance their well-being. Student teachers will furthermore acquire the necessary knowledge, skills, attitudes and values of how educators can identify, assess, support and accommodate learners who experience physical and/or physiological difficulties, as well as learners who display challenging behaviour in the classroom. The main emphasis of this module is to teach student teachers skills on how to support learners with physical and/or physiological barriers, as well as learners who display challenging behaviour in the classroom and enhance their overall well-being by utilising and mobilising existing assets in the classroom, school and school-community.

Curriculum: Year 3

Minimum credits: 170

Core modules

Teaching practice 380 (PRO 380)

Module credits	6.00
Prerequisites	No prerequisites.
Contact time	3 weeks, attendance only
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Quarter 1

Module content

This is an official full time module where students engage in teaching within the professional school environment under the supervision of an experienced mentor teacher for a period of three weeks at the beginning of the school year. The main focus is on general classroom practice, school administration, extra - mural activities and to act as responsible citizens of the school environment. The students have to compile a professional portfolio and prepare and facilitate a prescribed number of lessons and these are formally assessed by the school. Placements for this module may be in schools outside Pretoria.

Literacies in education 300 (JLZ 300)

Module credits	12.00
Prerequisites	JLZ 110 and JLZ 120 OR JLZ 111 and JLZ 121 OR JLZ 100 OR JLZ 101
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Year

Module content

This module aims to equip students with the necessary communicative and classroom literacies to succeed as a professional in the domain of teaching. Students will show evidence of understanding and being able to implement the theories and strategies underpinning spoken and written communication required within an education context. The development of a critical awareness of language as a non-neutral (biased) conveyor of meaning will also be fostered. An overview of the linguistic diversity encountered in most South African classrooms provides the prospective teacher with strategies for dealing more effectively with multilingualism in a culturally diverse pedagogical context. Students will also enrich their personal language profile by acquiring a functional knowledge of appropriate words and phrases in an African language with the view to facilitating classroom management.

Education 312 (OPV 312)

Module credits	30.00
Service modules	Faculty of Humanities
Prerequisites	OPV 112 or OPV 122 passed with 40% (GS) in the other module
Contact time	4 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Education Management + Policy
Period of presentation	Semester 1

Module content

To gain insight into the global context of the classroom, learners and ideas taught, as well as into the local world and country in which the classroom, learners and school are situated. Diversity and social justice and their importance in the local and global context, as well as their importance for teaching and learning are explored. Through individual and group learning tasks, students come to understand the overlapping themes of globalisation; understanding the nation state and its place in the regional and global world; and the role of technology and the media in globalisation and education. Significant social, political, historical and economic factors influencing the classroom are also investigated. Students collect, organise and critically evaluate information; appreciate the value of diversity in various social contexts; apply problem solving skills to learning tasks; and communicate ideas effectively in group tasks.

Education 322 (OPV 322)

Module credits	30.00
Service modules	Faculty of Humanities
Prerequisites	OPV 112 or OPV 122 passed with a 40% (GS) in the other module
Contact time	4 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Education Management + Policy
Period of presentation	Semester 2

Module content

The module deals with the understanding and application of the Bill of Rights in creating a safe and disciplined classrooms. The second theme deals with managing a classroom through relationship building, participative decision-making, effective planning and monitoring, motivation and communication.

Elective modules

Afrikaans 311 (AFR 311)

Module credits	30.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	AFR 214 and AFR 220

Contact time	2 lectures per week, 2 discussion classes per week
Language of tuition	Afrikaans
Academic organisation	Afrikaans
Period of presentation	Semester 1

Module content

Taalkundekomponent
Capita selecta uit die Afrikaanse taalkunde
Letterkundekomponent
Afrikaanse prosa

Afrikaans 321 (AFR 321)

Module credits	30.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	AFR 214 and AFR 220
Contact time	2 lectures per week, 2 discussion classes per week
Language of tuition	Afrikaans
Academic organisation	Afrikaans
Period of presentation	Semester 2

Module content

Afrikaanse poësie
'n Keuse uit eietydse Nederlandstalige literatuur; analitiese teksondersoeke met aandag aan agtergrond- en resepsieaangeleenthede.
Die Afrikaanse drama word binne die breër konteks van die Afrikaanse letterkunde geplaas.

English 310 (ENG 310)

Module credits	30.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	ENG 210, ENG 220
Contact time	2 lectures per week, 2 discussion classes per week
Language of tuition	English
Academic organisation	English
Period of presentation	Semester 1

Module content

Mediaeval and Renaissance literature
In this module students study the works of representative writers from Chaucer to Shakespeare and Milton. The general characteristics and techniques of these authors are discussed in relation to developments in aesthetic theory, generic conventions and socio-historical change.

English 320 (ENG 320)

Module credits	30.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	ENG 220
Contact time	2 discussion classes per week, 2 lectures per week
Language of tuition	English
Academic organisation	English
Period of presentation	Semester 2

Module content

Augustan, Romantic and 19th-century literature
In this module students read a representative selection of 18th- and 19th-century texts in English. The general characteristics and techniques of these texts are discussed in relation to developments in aesthetic theory, generic conventions and socio-historical change.

Art education 300 (JKG 300)

Module credits	8.00
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Year

Module content

History of art and theory of visual literacy is explored. Focus is placed on South African art by studying pioneers, including contemporary trends, styles and techniques. Theoretical frameworks used in the interpretation, analysis and evaluation of visual culture studies are investigated. Emphasis is placed on interaction of image and text evaluation and analysis of visual art.

Art education 301 (JKU 301)

Module credits	32.00
Contact time	4 practicals per week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education

Period of presentation	Year

Module content

A significantly higher level of understanding and mastery in terms of the intellectual, perceptual, aesthetic and technical aspects of art education is explored. The aim of this module is to extend the student's personal visual vocabulary and promote self-expression. Emphasis is placed on visualising and expressing ideas and conceptual development of the individual student. Opportunities for advanced technical and conceptual skills are provided, including the experimentation of two- and three-dimensional forms, problem solving and evaluation.

Life orientation 310 (JLO 310)

Module credits	20.00
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Semester 1

Module content

The human being in the world: citizenship. Theoretical foundation of citizenship. Human rights and responsibilities. Political awareness and voluntary participation. Social and environmental concerns. Social responsibility. Service Learning: theory and practice. Service Learning project.

Life orientation 320 (JLO 320)

Module credits	20.00
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Semester 2

Module content

The human being in interaction: lifelong learner. Strategies and learning domains. Perspectives on the future. Economic independence. Career development: theoretical approach to career orientation. Career guidance. Integration of careers and opportunities for training in the world of careers. Skills for obtaining employment. Work ethics.

Methodology of Afrikaans 300 (JMA 300)

Module credits	12.00
Prerequisites	No prerequisites.
Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Afrikaans
Academic organisation	Humanities Education
Period of presentation	Year

Module content

* This module is only presented in Afrikaans.
Die module bemagtig die student om die verskillende taalvaardighede in al die onderrigfases te kan beplan, aanbied en assesseer. Hierdie module gaan in detail op die onderrig van elk van die taalvaardighede in. Studente behoort ook na afloop van hierdie studie-eenheid in staat te wees om die verskillende taalvaardighede te kan integreer met die spesifieke genres (bv. Poësie, Prosa, Drama en Taal).

Methodology of Economics 301 (JMD 301)

Module credits	12.00
Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Education Management + Policy
Period of presentation	Year

Module content

Theoretical underpinnings and concepts specific to the field of Economics teaching in South Africa. Best practices, instructional design, assessment and reflective practice in Economics teaching.

Methodology of Accounting 303 (JMD 303)

Module credits	12.00
Contact time	2 practicals per week, 1 lecture per week
Language of tuition	Double Medium
Academic organisation	Education Management + Policy
Period of presentation	Year

Module content

Theoretical underpinnings and concepts specific to the field of Accounting teaching in South Africa. Best practices, instructional design, assessment and reflective practice in Accounting teaching.

Methodology of Business Studies 305 (JMD 305)

Module credits	12.00
Contact time	2 practicals per week, 1 lecture per week
Language of tuition	Double Medium
Academic organisation	Education Management + Policy
Period of presentation	Year

Module content

Theoretical underpinnings and concepts specific to the field of Business Studies teaching in South Africa. Best practices, instructional design, assessment and reflective practice in Business Studies teaching.

Methodology of Tourism 306 (JMD 306)

Module credits	12.00
Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Education Management + Policy
Period of presentation	Year

Module content

Theoretical underpinnings and concepts specific to the field of Tourism teaching in South Africa. Best practices, instructional design, assessment and reflective practice in Tourism teaching.

Methodology of English 300 (JME 300)

Module credits	12.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 1 lecture per week
Language of tuition	English
Academic organisation	Humanities Education
Period of presentation	Year

Module content

This module follows progressively on JME 200 and pays in-depth attention to the practical aspects of teaching and assessing expressive and receptive communicative skills in accordance with national policy documents. A sound understanding of lesson planning based on constructive alignment is evidenced by a comprehensive portfolio.

Methodology: Religion studies 300 (JMF 300)

Module credits	12.00
Prerequisites	No prerequisites.
Contact time	1 lecture per week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Year

Module content
As required by the National Curriculum.

Methodology of Geography 300 (JMG 300)

Module credits	12.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 1 lecture per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Year

Module content
An in-depth study of the effective use of teaching media, the construction of models, the explanation and teaching of problematic theoretical and practical Geographic concepts, practical work, the implementation of GIS in the teaching of Geography, the design of sensible class and homework activities, assessment, the art of lesson presentation and the preparation and presentation of 18 minute duration mini-lessons.

Methodology of History 300 (JMH 300)

Module credits	12.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 1 lecture per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Year

Module content
The module is aimed at equipping students to successfully present History as prescribed in the NCS and CAPS for History. Students will study the theoretical underpinning of historical writing, content of the syllabus and how to address it, as well as the requirements expected of learners qualifying for the FET-examinations in History. Students are expected to prepare teaching activities according to the requirements of the school syllabus to prepare them for their role as teachers of history. Students present lessons through micro-teaching and apply appropriate assessment and questioning; study the use of cartoons in questioning in this phase; apply cross-curriculation in lesson planning; set a Heritage assignment; plan and prepare for a History excursion and apply previously acquired communication skills in the teaching of History.

Methodology: Computer application technology 300 (JMI 300)

Module credits	12.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 1 lecture per week

Language of tuition	Both Afr and Eng
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Year

Module content

The module builds progressively on previous acquired knowledge and skills obtained in JMI 200. Students analyse the content of the CAT grade 10 and 11 curriculum and are familiarised with the principles contained in the NCS and CAPS. Students learn principles of classroom management and practice and draw up their own question papers, memoranda and rubrics for assessment. Students apply the principles of backward design in designing outcomes according to Bloom's levels, plan for assessment strategies and teaching. Students use learner management systems in their planning of activities for grade 10's and 11's.

Methodology of Art education 301 (JMK 301)

Module credits	12.00
Prerequisites	No prerequisites.
Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Year

Module content

The focus of this module is on a deeper theoretical and practical understanding and knowledge of the subject matter relating to the visual art discipline. Emphasis is placed on effectively collecting, analysing, organising and critically evaluating contemporary visual culture, as well as the creative process as stipulated by the Curriculum and Assessment Policy Statement (CAPS).

Methodology of Music education 300 (JMM 300)

Module credits	12.00
Prerequisites	No prerequisites.
Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Year

Module content

A study of the theoretical and practical aspects of choral conducting and stage productions. It builds on previously acquired knowledge and skills obtained. Music serves as primary focus, but the integration of other art forms is also included.

Methodology of Natural Science 304 (JMN 304)

Module credits	12.00

Prerequisites	No prerequisites.
Contact time	2 practicals per week, 1 lecture per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Year

Module content

Theoretical underpinnings and concepts specific to the field of Natural Science teaching in South Africa.. Best practices, instructional design, assessment and reflective practice in Natural Science teaching.

Methodology of Life Sciences 308 (JMN 308)

Module credits	12.00
Prerequisites	No prerequisites.
Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Year

Module content

Theoretical underpinnings and concepts specific to the field of Life Sciences including conceptual change and concepts specific to the field of Life Sciences. Teaching Life Sciences in South Africa. Instructional design, assessment and reflective practice in teaching Life Sciences. Best practices.

Music education 301 (JMO 301)

Module credits	10.00
Contact time	1 lecture per week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Year

Module content

To build on the knowledge of music theory obtained in the previous year to provide them with the requirements needed for the music modules in the following years.

Music education 302 (JMO 302)

Module credits	10.00
Contact time	1 lecture per week
Language of tuition	Both Afr and Eng

Academic organisation	Humanities Education
Period of presentation	Year

Module content

This module offers further development of technical aspects and musical development with the focus on instrumental and vocal progress. Accompaniment and the performance of concert compositions are included on a more developed level than that in previous year modules.

Music education 303 (JMO 303)

Module credits	12.00
Contact time	1 lecture per week, 1 practical per week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Year

Module content

To equip students with the necessary knowledge to apply the principles of Music Education in practice so that they can present Music Education as part of the subject Creative Arts from Grades 4 to 9. The module content is a progression of knowledge (music concepts) and skills (music activities) acquired in the previous related module.

Music education 304 (JMO 304)

Module credits	12.00
Contact time	1 lecture per week, 1 practical per week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Year

Module content

To equip students with the necessary knowledge, skills, values and attitudes needed to apply in practice and to develop and enhance the inherent musicality of all learners. The emphasis is placed on a study of the theoretical and practical aspects of choral education and other performance-based activities.

Methodology: Information technology 300 (JMR 300)

Module credits	12.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 1 lecture per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed

Period of presentation	Year

Module content

Theoretical underpinnings and concepts specific to the field of teaching IT in South Africa. Instructional design, assessment and reflective practice in IT teaching. Best practice and micro teaching in IT. Grade 11 and 12 subject specific content.

Methodology: Engineering graphics and design 304 (JMT 304)

Module credits	12.00
Prerequisites	No prerequisites.
Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Year

Module content

Theoretical underpinnings of Engineering Graphics and Design, including concepts specific to Engineering Graphics and Design will be addressed; teaching Engineering Graphics and Design in South Africa will be investigated; instructional design, assessment and reflective practice in Engineering Graphics and Design are dealt with; best practice in teaching Engineering Graphics and Design is investigated. Micro teaching will be addressed.

Methodology of Mathematics 300 (JMW 300)

Module credits	12.00
Prerequisites	No prerequisites.
Contact time	1 lecture per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Year

Module content

Theoretical underpinnings and concepts in teaching of Mathematics for all phases and Mathematical Literacy in South Africa; instructional design, assessment and reflective practice.

isiNdebele 310 (NDE 310)

Module credits	30.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	NDE 210, AFT 220
Contact time	2 lectures per week
Language of tuition	isiNdebele

Academic organisation	African Languages
Period of presentation	Semester 1

Module content

Aspects of the grammar of isiNdebele such as a continuation of the study of the word categories; grammatical analysis; more intensive study of the structure, meaning and use of the noun (specifically derived nouns) and verb (specifically moods and verbal extensions); an introduction to the sound changes/phonology of isiNdebele.

Religion studies 310 (REL 310)

Module credits	30.00
Service modules	Faculty of Education
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Double Medium
Academic organisation	Theology Dean's Office
Period of presentation	Semester 1

Module content

Part 1: Reflecting on religion
Theories about religion; Religion and ideology; Secularism; Uniqueness; Doctrinal issues, etc.
Part 2: Topical issues
The relationship between religion and various topical issues in society will be addressed, like: Religion and society; religion and gender; religion and economics; religion, politics and the state; religion and the environment, etc.

Religion studies 320 (REL 320)

Module credits	30.00
Service modules	Faculty of Education
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Double Medium
Academic organisation	Theology Dean's Office
Period of presentation	Semester 2

Module content

Part 1: Religions as neighbours
Plurality; Religious interaction; Practical issues, e.g. Themes to be addressed are: conflict, propaganda, indoctrination, dialogue, syncretism, respect and tolerance. Models of dealing with plurality will be studied, e.g. fundamentalism, relativism, pluralism, inclusivism, exclusivism, secularism and co-responsibility and cooperation.
Part 2: Religion and the arts
Iconography; overview on the exposition of biblical themes in the expressive arts and music; religious aspects of well-known artefacts and musical compositions; function of art and music in worship.

Sepedi 310 (SEP 310)

Module credits	30.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	SEP 210, SEP 220 will be required for students who completed SEP 110, SEP 120 at year level 1 and SEP 211, AFT 220 will be required for students who completed SEP 111, AFT 121 at year level 1
Contact time	2 lectures per week, 1 discussion class per week
Language of tuition	Double Medium
Academic organisation	African Languages
Period of presentation	Semester 1

Module content

Sepedi grammar - Capita selecta
Aspects of the grammar of Sepedi such as a continuation of the study of the word categories; grammatical analysis; more intensive study of the structure, meaning and use of the noun (specifically derived nouns) and verb (specifically moods and verbal extensions); an introduction to the sound changes / phonology of Sepedi. The acquisition and inculcation of advanced communicative skills within a larger number of social, occupational and educational situations. Awareness of the nature and function of language structures is heightened further. Attention is also paid to cultural phenomena.

Geometry 389 (WTW 389)

Module credits	18.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Humanities
Prerequisites	WTW 211
Contact time	2 lectures per week, 1 tutorial per week
Language of tuition	Double Medium
Academic organisation	Mathematics and Applied Maths
Period of presentation	Semester 2

Module content

Axiomatic development of neutral, Euclidean and hyperbolic geometry. Using models of geometries to show that the parallel postulate is independent of the other postulates of Euclid.

isiZulu 310 (ZUL 310)

Module credits	30.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	ZUL 210, ZUL 220 will be required for students who completed ZUL 110, ZUL 120 at year level 1 and ZUL 211, AFT 220 will be required for students who completed ZUL 111, AFT 121 at year level 1
Contact time	1 discussion class per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	African Languages
Period of presentation	Semester 1

Module content

isiZulu grammar - Capita selecta
Aspects of the grammar of isiZulu such as a continuation of the study of the word categories; grammatical analysis; more intensive study of the structure, meaning and use of the noun (specifically derived nouns) and verb (specifically moods and verbal extensions); an introduction to the sound changes/phonology of isiZulu. The acquisition and inculcation of advanced communicative skills within a larger number of social, occupational and educational situations. Awareness of the nature and function of language structures is heightened further. Attention is also paid to cultural phenomena.

Methodology of Physical Sciences 309 (JMN 309)

Module credits	12.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 1 lecture per week
Language of tuition	Double Medium
Academic organisation	Science, Mathematics and Tech
Period of presentation	Year

Module content

Theoretical underpinnings and concepts specific to the field of Physical science teaching in South Africa. Best practices, instructional design, assessment and reflective practice in Physical science teaching.

Mathematical literacy 310 (JWG 310)

Module credits	20.00
Prerequisites	JWG 210
Contact time	2 practicals per week, 2 lectures per week

Language of tuition	Both Afr and Eng
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 1

Module content

Trigonometry and financial mathematics for teachers:
Trigonometric functions; triangle trigonometry; graphs of trigonometric functions; identities; trigonometric equations; law of sine and law of cosines; applications and models; financial mathematics: percentage, interest, loans and amortisation.

Mathematical literacy 320 (JWG 320)

Module credits	20.00
Prerequisites	JWG 220
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 2

Module content

Geometry and applications for teachers:
Volume and surface area; polygons and their properties; analytical geometry; transformation geometry; circle geometry; proofs; axiomatic systems; applications and modelling.

Engineering graphics and design 330 (JTT 330)

Module credits	20.00
Prerequisites	JTT 230
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 1

Module content

This module equips students to understand and teach Engineering graphics and design in the FET-Phase. The focus is on free hand drawing and CAD- drawing techniques contextualised for the Department of Education's curriculum requirements for Civil drawing conventions. Perspective drawings. Evaluation of drawings and error detection. Practical application of techniques.

Engineering graphics and design 340 (JTT 340)

Module credits	20.00
Prerequisites	JTT 240

Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 2

Module content

This module equips students to understand and teach Engineering graphics and design in the FET-Phase. The focus is on free hand drawing and CAD- drawing techniques contextualised for the Department of Education's curriculum requirements for advanced Mechanical drawing techniques and application. Primary and secondary manufacturing processes. Evaluation of drawings and error detection. Practical application of techniques.

Computer application technology 330 (RTT 330)

Module credits	20.00
Prerequisites	RTT 230
Contact time	2 practicals per week, 3 lectures per week
Language of tuition	English
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 1

Module content

Integrated office suites, advanced components: Presentation, spreadsheet packages. Databases: Database concepts, tables and relationships, forms, reports. Web applications. Open source operating and network systems, installation and maintenance.

Computer application technology 340 (RTT 340)

Module credits	20.00
Prerequisites	RTT 240
Contact time	2 practicals per week, 3 lectures per week
Language of tuition	English
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 2

Module content

Computer supported learning: Learning management systems. Evaluating educational technology. Evaluating the effectiveness of technology integration. Ethics and the information age. Emerging technologies. Mobile technologies. Web technologies.

African languages literature: Capita selecta 320 (AFT 320)

Module credits	30.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education

Prerequisites	NDE 310/SEP 310/ZUL 310
Contact time	1 discussion class per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	African Languages
Period of presentation	Semester 2

Module content

Aspects of the literature of isiNdebele/isiZulu/Sepedi such as the critical analysis of a dramatic work and poetry (selected poems).

Design and technology 330 (JOT 330)

Module credits	20.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 4 lectures per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 1

Module content

This module develops an understanding of the unique nature of Design and technology and the design process. Visualization principles and free hand drawing and instrument drawing techniques are addressed. Two knowledge strands, namely processing and structures will be covered.

Design and technology 340 (JOT 340)

Module credits	20.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 4 lectures per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 2

Module content

This module develops an understanding of designing and design theory. It addresses problem solving and the development of solutions to technological problems. Two knowledge strands, namely mechanical and electrical systems and control will be covered.

Human movement studies and sport management 312 (JMB 312)

Module credits	15.00
Prerequisites	JMB 212 and JMB 222
Contact time	3 lectures per week

Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Semester 1

Module content

Effects of physical activities on the human body, energy sources, etc. Exercise and fitness factors, principles of gymnasium practice. Revision of general managerial principles (year 1-2). Specialisation in the legal principle of sport. Dealing with stress and conflict in the domain of Sport Management.

Human movement studies and sport management 313 (JMB 313)

Module credits	15.00
Prerequisites	JMB 213 and JMB 223
Contact time	2 practicals per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Semester 1

Module content

Gymnastics. Mass sport: organisation and presentation. Dance for ladies who focus on cultural dance. Cricket for men who focus on basic cricket skills and cricket as sport.

Human movement studies and sport management 322 (JMB 322)

Module credits	15.00
Prerequisites	JMB 212 and JMB 222
Contact time	3 lectures per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Semester 2

Module content

The nature and essence of this discipline; different biomechanical aspects in sport e.g. balance, centre of gravity, laws of nature. Measurement and evaluation: Techniques in obtaining variables: mean deviations, standard deviations, curve types. Anthropometric measurement and the processing of that data. The nature and character of marketing with special reference to sport. The sociological basis of sport, a description of its nature and character.

Human movement studies and sport management 323 (JMB 323)

Module credits	15.00
Prerequisites	JMB 213 and JMB 223
Contact time	2 practicals per week

Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Semester 2

Module content

Motor skills in ladies netball, mini-netball and rugby for men. Motor skills for softball, mini-tennis and tennis.

English education 361 (JEN 361)

Module credits	12.00
Contact time	4 lectures per week
Language of tuition	English
Academic organisation	Humanities Education
Period of presentation	Quarter 1

Module content

This module serves as an advanced study of a selection of English dramas, novels and poetry, as dealt with in their elective, and endeavours to enhance the students' skills in the critical reading of a variety of literary genres. Students are required to display critical reading and academic writing skills in English in order to understand and appreciate the complexity and value of the selected genres. The teaching and learning will have as its focus the specific application of the selected literary genres to the teaching thereof. How to approach a play, novel or poem, and how to teach the relevant components in the various phases and grades will be dealt with.

Afrikaans education 361 (JAF 361)

Module credits	12.00
Contact time	4 lectures per week
Language of tuition	Afrikaans
Academic organisation	School for Teachers Training
Period of presentation	Quarter 2

Module content

*This module is only presented in Afrikaans.

In hierdie module maak die student kennis met die teorie en praktyk van Afrikaans. Inhoude word verbesonder vir die eise van die onderwysprofessie. Die manifestasies van.die taalwetenskap, taalkwessies en taalvariëteite in die onderwys vorm die taalgedeelte van die module. Op letterkundige vlak bestudeer die student teorieë, werkswyses en tekste met betrekking tot Afrikaanse drama, prosa en poësie.

Methodology of isiZulu 300 (JZL 300)

Module credits	12.00

Contact time	2 practicals per week, 1 lecture per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Year

Module content

Following on JZL 200, this module aims to further develop students' skills which will enable learners to communicate as effectively as possible on a more academic level in isiZulu. Students learn to compare and contrast approaches to learning and teaching; identify and differentiate concepts used in OBE, NCS and CAPS; implement OBE by planning and preparing lessons using CAPS learning and teaching methodologies and techniques in an integrative manner; and assessing using CAPS assessment methods, tools and techniques.

Methodology of IsiNdebele 300 (JND 300)

Module credits	12.00
Contact time	2 practicals per week, 1 lecture per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Year

Module content

Following on JND 200, this module aims for students to further develop skills which will enable learners to communicate as effectively as possible on a more academic level in isiNdebele. Students learn to compare and contrast approaches to learning and teaching; identify and differentiate concepts used in OBE, NCS and CAPS; implement OBE by planning and preparing lessons using NCS and CAPS learning and teaching methodologies and techniques in an integrative manner; and assessing using NCS and CAPS assessment methods, tools and techniques.

Methodology of Sepedi 300 (JSP 300)

Module credits	12.00
Contact time	2 practicals per week, 1 lecture per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Year

Module content

Following on JSP 200, this module aims for students to further develop skills which will enable learners to communicate as effectively as possible on a more academic level in Sepedi. Students learn to compare and contrast approaches to learning and teaching; identify and differentiate concepts used in OBE, NCS and CAPS; implement OBE by planning and preparing lessons using NCS and CAPS learning and teaching methodologies and techniques in an integrative manner; and assessing using NCS and CAPS assessment methods, tools and techniques.

Methodology of Setswana 300 (JSW 300)

Module credits	12.00
Contact time	2 practicals per week, 1 lecture per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Year

Module content

Following on JSW 200, this module aims for students to further develop skills which will enable school learners to communicate as effectively as possible on a more academic level in Setswana. Students learn to compare and contrast approaches to learning and teaching; identify and differentiate concepts used in OBE, NCS and CAPS; implement OBE by planning and preparing lessons using NCS and CAPS learning and teaching methodologies and techniques in an integrative manner; and assessing using NCS and CAPS assessment methods, tools and techniques.

Guidance and counselling 301 (JVB 301)

Module credits	40.00
Contact time	4 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Educational Psychology
Period of presentation	Year

Module content

This one year module aims to empower future teachers who have basic knowledge of psychology modules with specialised skills to promote the personal, social, educational, and career development of all learners in schools. Student teachers will acquire learning opportunities which will enable them to proactively design and implement in a preventive manner school programs on academic, career, personal / social and community development to ensuring that all learners can have the opportunity to achieve success and develop to the best of their abilities**.**

Physical sciences education 310 (JPC 310)

Module credits	12.00
Contact time	2 lectures per week, 2 practicals per week
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 1

Module content

Application of vectors in one and two dimensions in motion and forces.Newton’s laws, Momentum, Work and Energy, Waves, Sound and Light Electrostatics, Electric circuits, Magnetism, Electromagnetism, Electrodynamics,Atomic structure, Chemical bonding, Chemical reactions, Stoichiometry, Energy and Chemical change, Reaction rate, Chemical equilibrium, Electrochemistry,Ideal gasses, Properties of materials

Life sciences education 310 (JLS 310)

Module credits	12.00
Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 1

Module content

This module helps develop an understanding of the scope and content of the Life Sciences school curriculum for the Further Education and Training Phase Grades 10 – 12. The module comprises knowledge on the nature of Life Sciences, the molecules of life, selected processes of life, including photosynthesis and respiration, eukaryotic tissues, eukaryotic organs and organ systems, biodiversity, evolution and ecology as it relates to the school curriculum.

Mathematics education 312 (JLW 312)

Module credits	12.00
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 1

Module content

Statistics, analytical geometry, trigonometry, Euclidian geometry and measurement, and the associated mathematical reasoning and technological skills.

Curriculum: Final year

Minimum credits: 170

Fundamental modules

First aid 454 (JNH 454)

Module credits	3.00
Prerequisites	No prerequisites.
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Consult the department

Module content

A practical course in the basic skills of first aid.

Professional practice 471 (JFP 471)

Module credits	3.00
Prerequisites	No prerequisites
Contact time	2 four hour practicals for one week
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Quarter 1

Module content

Themes that prepare students for professional practice. School expectations. Ethics, professional appearance, assessment frameworks; record keeping; discipline. Role and organising of extra-curricular activities. Dealing with emergencies.

Core modules

Teaching practice 452 (PRO 452)

Module credits	28.00
Prerequisites	PRO 280 and PRO 380 passed.
Contact time	8 weeks, attendance only
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Year

Module content

This is an official full time module where students engage in teaching within the professional school environment under the mentorship of an experienced mentor teacher as well as an experienced mentor lecturer for a period of 8 weeks in the second term of the school year. The main focus is on general classroom practice, school administration, extra - mural activities and to act as responsible citizens of the school environment. The students have to prepare a professional portfolio and facilitate a prescribed number of lessons and these are formally assessed by the school as well as an experienced designated mentor lecturer. Placements for this module will only be in schools in the Pretoria area. Supportive micro teaching lessons will take place before, during and after the teaching practice PRO 452.

Teaching practice 453 (PRO 453)

Module credits	28.00
Prerequisites	PRO 280 and PRO 380 passed.
Contact time	8 weeks, attendance only
Language of tuition	Both Afr and Eng
Academic organisation	Humanities Education
Period of presentation	Quarter 3

Module content

This is an official full-time module where students fully engage in teaching within the professional school environment under the mentorship of an experienced mentor teacher as well as an experienced mentor lecturer for a period of 8 weeks in the third term of the school year. The main focus is on general classroom practice, school administration, extra - mural activities and to act as responsible citizens of the school environment. The students have to prepare a professional portfolio and facilitate a prescribed number of lessons and these are continuously formally assessed by the school. The professional portfolio will be assessed by the designated mentor lecturer. Placements for this module can take place in schools nationally or internationally.

Reseach project 461 (JNM 461)

Module credits	12.00
Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Quarter 1

Module content

The module helps develop a theoretical and practical frame of reference of the field of research and introduces students to the collection of information and identification and formulation of a research problem. Research ethics as well as qualitative and quantitative approaches including principles of action research are addressed. A research proposal and plan is created and assessed.

Reseach project 464 (JNM 464)

Module credits	12.00

Contact time	2 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Quarter 4

Module content

The module comprises the practical implementation of theory in a research project. Research contexts may include the work-integrated learning or community focus. Research according to the proposal of JNM 461 is performed, and a research report is provided by the student under the direction of a supervisor. The report is assessed.

Elective modules

Methodology of Afrikaans 451 (JMA 451)

Module credits	3.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Afrikaans
Academic organisation	Humanities Education
Period of presentation	Quarter 1

Module content

* This module is only presented in Afrikaans.

Klem word gelê op die bereiking van die voorgeskrewe leeruitkomste in die Nasionale Kurrikulumverklaringsdokumente . Afrikaansonderrig as huis- en addisionele taal soos in die nasionale kurrikulum vervat, word uitgelig. 'n Teoretiese grondslag word vasgelê vir die ontwerp en aanbied van lesse.

Methodology of Economics 451 (JMD 451)

Module credits	3.00
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Education Management + Policy
Period of presentation	Quarter 1

Module content

Innovative teaching methods and teaching skills in Economics. Thematic planning, selection and use of multiple resources in the teaching of Economics. Assessment practices; communication skills and classroom management. Teaching philosophy and reflective practice in the teaching of Economics.

Methodology of Accounting 453 (JMD 453)

Module credits	3.00
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Education Management + Policy
Period of presentation	Quarter 1

Module content

Innovative teaching methods and teaching skills in Accounting. Thematic planning, selection and use of multiple resources in the teaching of Accounting. Assessment practices; communication skills and classroom management. Teaching philosophy and reflective practice in the teaching of Accounting.

Methodology of Business Studies 455 (JMD 455)

Module credits	3.00
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Education Management + Policy
Period of presentation	Quarter 1

Module content

Innovative teaching methods and teaching skills in Business Studies. Thematic planning, selection and use of multiple resources in the teaching of Business Studies. Assessment practices; communication skills and classroom management. Teaching philosophy and reflective practice in the teaching of Business Studies.

Methodology of Tourism 456 (JMD 456)

Module credits	3.00
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Education Management + Policy
Period of presentation	Quarter 1

Module content

Innovative teaching methods and teaching skills in Tourism. Thematic planning, selection and use of multiple resources in the teaching of Tourism. Assessment practices; communication skills and classroom management. Teaching philosophy and reflective practices.

Methodology: Religion studies 451 (JMF 451)

Module credits	6.00
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Quarter 1

Module content

A thorough overview of the learning content with specific focus on practical application as prescribed by the National Curriculum Statement documents. Emphasis is placed on reaching the prescribed learning outcomes.

Methodology of Geography 451 (JMG 451)

Module credits	3.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Quarter 1

Module content

The art of lesson presentation and the preparation and presentation of 18 minute duration mini-lessons (to be continued from the end of the Third Year of study).

Methodology of History 451 (JMH 451)

Module credits	3.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Quarter 1

Module content

This module aims to equip students to successfully present History in the Senior and/or Further Education and Training Phase. The theoretical underpinning of historical writing, content of the syllabus as well as the requirements expected to guide learners studying History as subject are studied. Students are expected to prepare phase specific teaching activities according to the requirements of the school syllabus for the phase in which they are enrolled to prepare them for their role as teachers of history. Students present lessons through micro-teaching and apply appropriate assessment and questioning; present an oral history assignment and apply previously acquired communication skills in the teaching of History.

Methodology of music education 451 (JMM 451)

Module credits	3.00
Prerequisites	No prerequisites.
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Quarter 1

Module content

Students are equipped with the necessary knowledge, skills, values and attitude needed to apply in practice and to develop and enhance the inherent musicality of all learners. This module builds on previously acquired knowledge and skills which are progressively applied in the methodologies. Music serves as primary focus, but the integration of other art forms is also included.

Methodology of natural science 454 (JMN 454)

Module credits	3.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Quarter 1

Module content

Innovative teaching methods and teaching skills in Natural Science. Thematic planning, selection and use of multiple resources in Natural Science. Assessment practices; communication skills and classroom management in Natural Science. Teaching philosophy and reflective practices in Natural Science.

Methodology of art education 451 (JMK 451)

Module credits	3.00
Prerequisites	No prerequisites.
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Quarter 1

Module content

This module provides an advanced understanding of the visual arts discipline in the different phases as stipulated by the Curriculum and Assessment Policy Statement (CAPS). Furthermore, these modules enable students to teach the visual art subject matter responsibly and effectively as successful art educators. Students are expected to identify a problem, plan and present their research, as well as explore art classroom management and learner needs.

Methodology of mathematics 451 (JMW 451)

Module credits	3.00
Prerequisites	No prerequisites.
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Quarter 1

Module content

Innovative and creative teaching methods and teaching skills in mathematics. Thematic planning. Selection and use of multiple resources in mathematics. Assessment practices. Communication skills. Classroom management. Pedagogical content knowledge of Mathematics in all phases and Mathematical Literacy.

Methodology of Design and technology 451 (JMC 451)

Module credits	3.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Quarter 1

Module content

Innovative and creative teaching skills in Design and Technology are dealt with. The following are also addressed: thematic planning; selection and use of multiple resources; assessment practices in Design and Technology; communication skills and classroom management in Design and Technology; and teaching philosophy in Design and Technology.

Methodology of English 451 (JME 451)

Module credits	3.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	English

Academic organisation	Humanities Education
Period of presentation	Quarter 1

Module content

This module builds progressively on previously acquired knowledge and skills obtained in JPS 121, JME 200 and JME 300. This knowledge and skills are progressively applied in the methodologies (JME 200, 300 and 451/454). The module offers a thorough overview of the learning content with specific focus on practical application as prescribed by the National Curriculum Statement Documents. It focuses on developing learning experiences for the four language skills, namely listening, speaking, reading and writing, as well as language structure and grammar. Designing of lessons and learning and teaching support materials (LTSM) are developed. Various teaching styles and paradigmatic orientations relevant to the learning experience are dealt with.

Methodology of Computer application technology 451 (JMI 451)

Module credits	3.00
Prerequisites	RTT 330 and RTT 340
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Quarter 1

Module content

The module builds progressively on previous acquired knowledge and skills obtained in JMI 200 and 300. Students are guided in the theory of instructional design as they practise planning, designing and presenting optimal learning opportunities. Students are familiarised with the principles contained in the NCS and CAPS. Students analyse the content of the CAT grade 12 curriculum and learn how to use teacher-directed and learner-centred methods to improve learning, they create teaching media, and apply all forms of assessment as prescribed in the CAPS.

Methodology of Information technology 451 (JMR 451)

Module credits	3.00
Prerequisites	No prerequisites.
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Quarter 1

Module content

Innovative and creative teaching methods and teaching skills in IT. Thematic planning, selection and use of multiple resources in IT. Assessment practices, communication skills and classroom management in IT.

Methodology of Physical sciences 456 (JMN 456)

Module credits	3.00

Prerequisites	No prerequisites.
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Quarter 4

Module content

Reflective practices and misconceptions in Physical sciences. Pedagogical content knowledge.

Methodology of Life Sciences 458 (JMN 458)

Module credits	3.00
Prerequisites	No prerequisites.
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Quarter 4

Module content

A thorough overview of the learning content with specific focus on practical application as prescribed by the National Curriculum documents. Emphasis is placed on reaching the prescribed learning outcomes.

Methodology of Engineering graphics and design 454 (JMT 454)

Module credits	3.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Quarter 4

Module content

Reflection on teaching practice will be done as well as optimising of instruction. Technological pedagogical content knowledge (TPACK) will be dealt with.

Methodology of Life sciences 452 (JMN 452)

Module credits	3.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium

Academic organisation	Science, Maths + Techno Ed
Period of presentation	Quarter 4

Module content

Innovative and creative teaching and teaching skills. Thematic planning, selection and use of multiple resources in Life Sciences. Assessment practices.

Methodology of physical sciences 453 (JMN 453)

Module credits	3.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Semester 1

Module content

Innovative and creative teaching methods and teaching skills in Physical sciences; thematic planning; selection and use of multiple resources in Physical sciences; assessment practices; communication skills and classroom management in Physical sciences teaching. Pedagogical content knowledge.

Methodology of Afrikaans 454 (JMA 454)

Module credits	3.00
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Afrikaans
Academic organisation	Humanities Education
Period of presentation	Quarter 4

Module content

* This module is only presented in Afrikaans.

Klem word gelê op die bereiking van die voorgeskrewe leeruitkomste in die Nasionale Kurrikulumverklaringsdokumente. Afrikaansonderrig as huis- en addisionele taal soos in die nasionale kurrikulum vervat, word uitgelig. 'n Teoretiese grondslag word vasgelê vir die ontwerp en aanbied van lesse.

Methodology of English 454 (JME 454)

Module credits	3.00
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	English
Academic organisation	Humanities Education
Period of presentation	Quarter 4

Module content
The module is a continuation of the principles and practices of teaching and learning in the English classroom. Further development of planning learning experiences for the four language skills, namely listening, speaking, reading and writing, as well as language structure and grammar is focused on, based on the principles of inquiry-led learning, blended learning and constructive alignment. Designing of lessons and learning and teaching support materials (LTSM) are developed, with a strong focus on technology and e-learning. Various teaching styles relevant to the learning experience are dealt with.

Methodology of Geography 454 (JMG 454)

Module credits	3.00
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Quarter 4

Module content
After the Internship during the Second Semester: Reflection on Internship, school textbook evaluation, applied project work and fieldwork.

Methodology of History 454 (JMH 454)

Module credits	3.00
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Quarter 4

Module content
This module aims to equip students to successfully present History in the Senior and/or Further Education and Training Phase. The theoretical underpinning of historical writing, content of the syllabus as well as the requirements expected to guide learners studying History as subject are studied. Students are expected to prepare phase specific teaching activities according to the requirements of the school syllabus for the phase in which they are enrolled to prepare them for their role as teachers of history. Students present lessons through micro-teaching and apply appropriate assessment and questioning; present an oral history assignment and apply previously acquired communication skills in the teaching of History.

Methodology of isiZulu 451 (JZL 451)

Module credits	3.00
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Quarter 1

Module content

The module comprises the following themes: The NCS and CAPS processing (scheme of work, schedule and assessment); multiple Intelligences; facilitating grammar lessons; facilitating literature lessons; facilitating creative writing lessons and the marking of letters and compositions; questioning skills for facilitating assessment (methods, techniques and tools); and using technology in teaching.

Methodology of isiZulu 454 (JZL 454)

Module credits	3.00
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Quarter 4

Module content

Lesson design and application of design (continuing and applying second and third year methodology content); phase specific application; application, adaptation and integration of outcomes so that straddling can take place; subject specific principles of assessment and application; innovative teaching; thematic planning; finding, using and adapting resources for teaching; selection and assessment of authentic texts as well as textbooks; facilitating and mediating learning; multi-level teaching (adapting the curriculum to meet the needs of diverse learners); differentiation (learning styles and individual differences, multiple intelligences) and inclusive education; co-operative learning; electronic resource training, e-learning and micro teaching.

Methodology of IsiNdebele 451 (JND 451)

Module credits	3.00
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Quarter 1

Module content

The module comprises the following themes: history of the different phases of education in South Africa and different teaching methods used in each phase; NCS and CAPS processing (scheme of work, schedule and assessment); multiple intelligences; facilitating grammar lessons; facilitating literature lessons; facilitating creative writing lessons and marking of letters and compositions; questioning skills for facilitating assessment (methods, techniques and tools); and using technology in teaching.

Methodology of IsiNdebele 454 (JND 454)

Module credits	3.00
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Humanities Education

Period of presentation	Quarter 4

Module content

Lesson design and application of design (continuing and applying second and third year methodology content); phase specific application; application, adaptation and integration of outcomes so that straddling can take place; subject specific principles of assessment and application; innovative teaching; thematic planning; finding, using and adapting resources for teaching; selection and assessment of authentic texts as well as textbooks; facilitating and mediating learning; multi-level teaching (adapting the curriculum to meet the needs of diverse learners); differentiation (learning styles and individual differences, multiple intelligences) and inclusive education; co-operative learning; electronic resource training, e-learning and micro teaching.

Methodology of art education 454 (JMK 454)

Module credits	3.00
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Quarter 4

Module content

This module provides an advanced understanding of the visual arts discipline in the different phases as stipulated in the Curriculum and Assessment Policy Statement (CAPS). Furthermore, these modules enable students to teach the visual art subject matter responsibly and effectively as successful art educators. Students are expected to identify a problem, plan and present their research, as well as explore art classroom management and learner needs.

Methodology of Sepedi 451 (JSP 451)

Module credits	3.00
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Quarter 1

Module content

This module aims to equip students with the necessary knowledge and skills regarding the following components of teaching Sepedi at schools: education policies and teaching methods; grammar; literature; creative writing; assessment; and e-learning. The module comprises the following themes: history of the different phases of education in South Africa and different teaching methods used in each phase; NCS and CAPS processing (scheme of work, schedule and assessment); multiple intelligences; facilitating grammar lessons; facilitating literature lessons; facilitating creative writing lesson and marking of letters and compositions; questioning skills for facilitating assessment (methods, techniques and tools); and using technology in teaching.

Methodology of Sepedi 454 (JSP 454)

Module credits	3.00

Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Quarter 4

Module content

Lesson design and application of design (continuing and applying second and third year methodology content); phase specific application; application, adaptation and integration of outcomes so that straddling can take place; subject specific principles of assessment and application; innovative teaching; thematic planning; finding, using and adapting resources for teaching; selection and assessment of authentic texts as well as textbooks; facilitating and mediating learning; multi-level teaching (adapting the curriculum to meet the needs of diverse learners); differentiation (learning styles and individual differences, multiple intelligences) and inclusive education; co-operative learning; electronic resource training, e-learning and micro teaching.

Methodology of Setswana 451 (JSW 451)

Module credits	3.00
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Quarter 1

Module content

This module aims to equip students with the necessary knowledge and skills regarding the following components of teaching Setswana at schools: education policies and teaching methods; grammar; literature; creative and composition writing; assessment; and e-learning. The module comprises the following themes: history of the different phases of education in South Africa and different teaching methods used in each phase; The NCS and CAPS processing (scheme of work; schedule and assessment); multiple Intelligences; facilitating grammar lessons; facilitating literature lessons; facilitating creative writing lessons and marking of letters and compositions; questioning skills for facilitating assessment (methods, techniques and tools); and using technology in teaching.

Methodology of Setswana 454 (JSW 454)

Module credits	3.00
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Quarter 4

Module content

Lesson design and application of design (continuing and applying second and third year methodology content); phase specific application; application, adaptation and integration of outcome so that straddling can take place; subject specific principles of assessment and application; innovative teaching; thematic planning; finding, using and adapting resources for teaching; selection and assessment of authentic texts as well as textbooks; facilitating and mediating learning; multi-level teaching (adapting the curriculum to meet the needs of diverse learners); differentiation (learning styles and individual differences, multiple intelligences) and inclusive education; co-operative learning; electronic resource training, e-learning and micro teaching.

Methodology of Music education 454 (JMM 454)

Module credits	3.00
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Humanities Education
Period of presentation	Quarter 4

Module content

An application of previous academic knowledge and practical skills towards a stage production. The focus is on a community based project.

Methodology of mathematics 454 (JMW 454)

Module credits	3.00
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Quarter 4

Module content

Reflective practices and misconceptions in mathematics. Pedagogical content knowledge in Mathematics for all phases and Mathematical Literacy.

Methodology of Natural science 451 (JMN 451)

Module credits	3.00
Contact time	2 practicals per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Quarter 1

Module content

Innovative teaching methods and teaching skills in Natural Science. Thematic planning, selection and use of multiple resources in Natural Science. Assessment practices; communication skills and classroom management in Natural Science. Teaching philosophy and reflective practices in Natural Science.

Methodology of Tourism 466 (JMD 466)

Module credits	3.00
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Education Management + Policy
Period of presentation	Quarter 4

Module content

Innovative teaching methods and teaching skills in Tourism Thematic planning, selection and use of multiple resources in the teaching of Tourism. Assessment practices; communication skills and classroom management . Teaching philosophy and reflective practices.

Methodology of Business studies 465 (JMD 465)

Module credits	3.00
Contact time	2 lectures per week, 2 practicals per week
Academic organisation	Education Management + Policy
Period of presentation	Quarter 4

Module content

Innovative teaching methods and teaching skills in Business Studies. Thematic planning, selection and use of multiple resources in the teaching of Business Studies. Assessment practices; communication skills and classroom management.Teaching philosophy and reflective practices.

Methodology of Economics 461 (JMD 461)

Module credits	3.00
Contact time	2 practicals per week, 2 lectures per week
Academic organisation	Education Management + Policy
Period of presentation	Quarter 4

Module content

Innovative teaching methods and teaching skills in Economics Thematic planning, selection and use of multiple resources in the teaching of Economics. Assessment practices; communication skills and classroom management . Teaching philosophy and reflective practices.

Methodology of Accounting 463 (JMD 463)

Module credits	3.00
Contact time	2 lectures per week, 2 practicals per week
Academic organisation	Education Management + Policy
Period of presentation	Quarter 4

Module content

Innovative teaching methods and teaching skills in Accounting. Thematic planning, selection and use of multiple resources in the teaching of Accounting. Assessment practices; communication skills and classroom management . Teaching philosophy and reflective practices.

Methodology of Computer application technology 454 (JMI 454)

Module credits	3.00
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Quarter 4

Module content

The module builds progressively on previous acquired knowledge and skills obtained in JMI 200 and 300. Students are guided in the theory of instructional design as they practise planning, designing and presenting optimal learning opportunities. Students are familiarised with the principles contained in the NCS and CAPS. Students analyse the content of the CAT grade 12 curriculum and learn how to use teacher-directed and learner-centred methods to improve learning, they create teaching media, and apply all forms of assessment as prescribed in the CAPS.

Methodology of Engineering Graphics and Design 451 (JMT 451)

Module credits	3.00
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Quarter 1

Module content
Innovative and creative teaching and teaching skills in Engineering Graphics and Design are dealt with. The following are also addressed: thematic planning; selection and use of multiple resources; assessment practices in Engineering Graphics and Design; communication skills and classroom management in Engineering Graphics and Design; and teaching philosophy in Engineering Graphics and Design.

Methodology of Design and Technology 454 (JMC 454)

Module credits	3.00
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Quarter 4

Module content

Reflection on teaching practice will be done as well as optimising of instruction. Technological pedagogical content knowledge (TPACK) will be dealt with.

Methodology of Information Technology 454 (JMR 454)

Module credits	3.00
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Science, Maths + Techno Ed
Period of presentation	Quarter 4

Module content

Development of a teaching philosophy and reflective practice in IT teaching.