University of Pretoria Yearbook 2018

BCom Informatics Information Systems (07130173)

Minimum duration of study	3 years
Total credits	422

Programme information

Informatics studies the application and use of the computer and information systems within the organisation. Our students' strength lies in their broad background of the economic and management sciences, which implies that the world of business is nothing sinister to them. The use of information technology by organisations is growing exponentially and new, more complex and challenging applications are explored and developed on a daily basis. It has the benefit that, in addition to the work of informatics specialists being extremely interesting, there will only be a very small chance that they will ever be without work.

The Informatics specialist has the knowledge to analyse the information needs of organisations, be that businesses, government departments, non-profit organisations or any other group where information is crucial. They not only analyse the needs but then address those needs by designing and implementing information systems. Information systems nowadays refer to computer-based systems (including mobile applica-tions) which store and manipulate data such that people can understand, use, interpret and make decisions based on the information.

The BCom (Informatics) programme at UP is the only degree in South Africa that is internationally accredited by the Accreditation Board for Engineering and Technology (ABET) of the USA.

Admission requirements

- The following persons will be considered for admission: a candidate who is in possession of a certificate that is deemed by the University to be equivalent to the required Grade 12 certificate with university endorsement; a candidate who is a graduate from another tertiary institution or has been granted the status of a graduate of such an institution; and a candidate who is a graduate of another faculty at the University of Pretoria.
- Life Orientation is excluded when calculating the APS.

Minimum requirements								
Achievement level								APS
English				**Mathematics**				
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	4	3	D	D	30

Other programme-specific information

Please note:

- Elective modules can only be taken if they can be accommodated in the class, test and examination timetables. At year-level two students select two 14-week modules or the equivalent (at least 32 credits) of the same

subject and continue with this subject on year-level three by selecting two 14-week modules or the equivalent (at least 40 credits).

- INF 301 is a module that combines INF 315, INF 324, INF 354 and INF 370. Students register for all these modules, but receive a calculated percentage for INF 301. Please refer to table below:

Module outstanding	Register for	Module in which student has to attend class	Examination	
			Exam paper	Write with
INF 315	INF 315	INF 315 + INF 301	INF 315	INF 315
INF 324	INF 324	INF 324 + INF 301	INF 324	INF 324
INF 354	INF 354	INF 354 + INF 301	INF 354	INF 354
INF 370	INF 370	INF 370 + INF 301	INF 370	INF 370

Promotion to next study year

According to General Regulation G.3 students have to comply with certain requirements as set by the Faculty Board.

a. A student must pass at least 4 core semester or 2 core year modules to be admitted to the subsequent year of study.
b. If a student has passed less than the required minimum of 4 core semester or 2 core year modules, he/she will not be readmitted to the Faculty of Economic and Management Sciences. Such a student may apply in writing to the Faculty's Admissions Committee to be readmitted conditionally – with the proviso that the Admissions Committee may set further conditions with regards to the student's academic progress. The Faculty's Admissions Committee may deny a student's application for readmission.
c. If a student has been readmitted conditionally, his/her academic progress will be monitored after the first semester examinations to determine whether he/she has complied with the requirements set by the Admissions Committee. If not, his/her studies will be suspended.
d. A student whose studies have been suspended because of his/her poor academic performance has the right to appeal against the decision of the Faculty's Admissions Committee.
e. A student may be refused promotion to a subsequent year of study if the prescribed tuition fees are not paid.
f. A student may be refused admission to the examination, or promotion to a subsequent year of study or promotion in a module (if applicable) if he/ she fails to fulfil the attendance requirements. Class attendance in all modules and for the full duration of all programmes is compulsory for all students.

Pass with distinction

a. A degree may be awarded with distinction provided the candidate meets the following criteria:

i. Completes the degree within three years;
ii. Obtains a Cumulative Grade Point Average CGPA) of 75%;
iii. Repeated passed modules will not be considered. The initial pass mark of module will be used when calculating the GPA.

b. Transferees from other faculties and from other universities who still complete their bachelor degrees (including credits transferred and recognised from the degrees they registered for originally) within three years will be considered as exceptional cases by the Dean.
c. The GPA will be not be rounded up to a whole number.
d. Exceptional cases will be considered by the Dean.

Curriculum: Year 1

Minimum credits: 145

Core modules

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 and Religion
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	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 and Religion Faculty of Veterinary Science
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	Informatics
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.

Academic literacy for Information Technology 121 (ALL 121)

Module credits	6.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Economic and Management Sciences
Prerequisites	No prerequisites.
Contact time	1 web-based period per week, 2 lectures per week
Language of tuition	Module is presented in English
Department	Unit for Academic Literacy
Period of presentation	Semester 2

Module content
By the end of this module students should be able to cope more confidently and competently with the reading, writing and critical thinking demands that are characteristic of the field of Information Technology.

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	1 discussion class per week, 2 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	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	1 discussion class per week, 2 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	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.

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	Separate classes for Afrikaans and English
Department	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	Separate classes for Afrikaans and English
Department	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.

Financial accounting 122 (FRK 122)

Module credits	12.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Law Faculty of Natural and Agricultural Sciences
Prerequisites	FRK 111 GS or FRK 133, FRK 143
Contact time	4 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	Accounting
Period of presentation	Semester 2

Module content

Budgeting, payroll accounting, taxation – income tax and an introduction to other types of taxes, credit and the new Credit Act, insurance, accounting for inventories (focus on inventory and the accounting entries, not calculations), interpretation of financial statements.

Informatics 112 (INF 112)

Module credits	10.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Natural and Agricultural Sciences
Prerequisites	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	Separate classes for Afrikaans and English
Department	Informatics
Period of presentation	Semester 2

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.

Information systems 113 (INF 113)

Module credits	10.00
Contact time	2 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	Informatics
Period of presentation	Semester 1

Module content

Introduction to quantitative methods for Information systems to students.

Informatics 154 (INF 154)

Module credits	10.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Natural and Agricultural Sciences
Prerequisites	A candidate must have passed Mathematics with at least 4 (50-59%) in the Grade 12 examination
Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Separate classes for Afrikaans and English
Department	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 Natural and Agricultural Sciences
Prerequisites	INF 154; 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	Separate classes for Afrikaans and English
Department	Informatics

Period of presentation	Semester 2

Module content

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

Informatics 171 (INF 171)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Natural and Agricultural Sciences
Prerequisites	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	Separate classes for Afrikaans and English
Department	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.

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	Separate classes for Afrikaans and English
Department	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. Responsible leadership and the role of a business in society. 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	Separate classes for Afrikaans and English
Department	Business Management
Period of presentation	Semester 2

Module content

The nature and development of entrepreneurship; the individual entrepreneur and characteristics of South African entrepreneurs. Creativity and innovation, opportunity finding and exploitation. The business plan and resource requirements are explored. 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.

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 practical per week, 1 tutorial per week, 3 lectures per week

Language of tuition	Separate classes for Afrikaans and English
Department	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 practical per week, 1 tutorial per week, 3 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	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
Contact time	1 practical per week, 1 tutorial per week, 3 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	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 practical per week, 1 tutorial per week, 3 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	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.

Academic orientation 107 (UPO 107)

Module credits	0.00
Language of tuition	Afrikaans and English are used in one class
Department	Economic and Management Sciences Deans Office
Period of presentation	Year

Elective modules

Marketing Management 120 (BEM 120)

Module credits	10.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Contact time	3 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	Marketing Management
Period of presentation	Semester 2

Module content

This module provides an overview of the fundamentals of marketing by considering the exchange process, customer value, marketing research and the development of a marketing plan. It also addresses the marketing mix elements with specific focus on the seven service marketing elements namely the service product, physical evidence, people, process, distribution, pricing and integrated marketing communication.

Curriculum: Year 2

Minimum credits: 150

Fundamental modules

Introduction to moral and political philosophy 251 (FIL 251)

Module credits	10.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Economic and Management Sciences
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	Afrikaans and English are used in one class
Department	Philosophy
Period of presentation	Quarter 2, 3 and 4

Module content

In this module students are equipped with an understanding of the moral issues influencing human agency in economic and political contexts. In particular philosophy equips students with analytical reasoning skills necessary to understand and solve complex moral problems related to economic and political decision making. We demonstrate to students how the biggest questions concerning the socio-economic aspects of our lives can be broken down and illuminated through reasoned debate. Examples of themes which may be covered in the module include justice and the common good, a moral consideration of the nature and role of economic markets on society, issues concerning justice and equality, and dilemmas of loyalty. The works of philosophers covered may for instance include that of Aristotle, Locke, Bentham, Mill, Kant, Rawls, Friedman, Nozick, Bernstein, Dworkin, Sandel, Walzer, and MacIntyre.

Core modules

Business law 210 (BER 210)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Economic and Management Sciences Faculty of Natural and Agricultural Sciences
Prerequisites	No prerequisites.
Contact time	1 discussion class per week, 2 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	Mercantile Law
Period of presentation	Semester 1

Module content

Basic principles of law of contract. Law of sales, credit agreements, lease.

Business law 220 (BER 220)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Economic and Management Sciences Faculty of Natural and Agricultural Sciences
Prerequisites	Examination entrance for BER 210
Contact time	1 discussion class per week, 2 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	Mercantile Law
Period of presentation	Semester 2

Module content

Labour law. Aspects of security law. Law of insolvency. Entrepreneurial law; company law, law concerning close corporations. Law of partnerships.

Informatics 214 (INF 214)

Module credits	14.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Natural and Agricultural Sciences
Prerequisites	AIM 101 or AIM 111 and AIM 121
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Afrikaans and English are used in one class
Department	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 Natural and Agricultural Sciences
Prerequisites	INF 164 and INF 171; AIM 101 or AIM 102 or AIM 111 and AIM 121
Contact time	1 lecture per week, 3 practicals per week
Language of tuition	Afrikaans and English are used in one class
Department	Informatics

Period of presentation	Semester 2

Module content

An overview of systems infrastructure and integration.

Informatics 261 (INF 261)

Module credits	7.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	INF 214
Contact time	1 lecture per week, 1 practical per week
Language of tuition	Afrikaans and English are used in one class
Department	Informatics
Period of presentation	Semester 2

Module content

Database management: transaction management, concurrent processes, recovery, database administration: new developments: distributed databases, client-server databases: practical implementation of databases.

Informatics 271 (INF 271)

Module credits	14.00
Service modules	Faculty of Education
Prerequisites	AIM 101 or AIM 102 or AIM 111 and AIM 121, INF 163, 164
Contact time	1 discussion class per week, 1 lecture per week, 1 practical per week
Language of tuition	Afrikaans and English are used in one class
Department	Informatics
Period of presentation	Year

Module content

Systems analysis. Systems design: construction; application architecture; input design; output design; interface design; internal controls; program design; object design; project management; system implementation; use of computer-aided development tools.

Informatics 272 (INF 272)

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 102 or AIM 111 and AIM 121, INF 163 and INF 164, Regulation IT.3(g)

Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Afrikaans and English are used in one class
Department	Informatics
Period of presentation	Year

Module content

Use of computer-aided development tools; advanced programming.

Community-based project 201 (JCP 201)

Module credits	8.00
Prerequisites	No prerequisites.
Contact time	1 other contact session per week
Language of tuition	Separate classes for Afrikaans and English
Department	Informatics
Period of presentation	Year

Module content

This project-orientated module is a form of applied learning which is directed at specific community needs and is integrated into all undergraduate academic programmes offered by the Faculty of Engineering, Built Environment and Information Technology. The main objectives with the module are as follows:
(1) The execution of a community related project aimed at achieving a beneficial impact on a chosen section of society, preferably but not exclusively, by engagement with a section of society which is different from the student's own social background.
(2) The development of an awareness of personal, social and cultural values, an attitude to be of service, and an understanding of social issues, for the purpose of being a responsible professional.
(3) The development of important multidisciplinary and life skills, such as communication, interpersonal and leadership skills.
Assessment in the module will include all or most of the following components: evaluation and approval of project proposal, assessment of oral and/or written progress reports, peer assessment in the event of team projects, written reportback by those at which the project was aimed at, and final assessment on grounds of the submission of a portfolio and a written report.

Communication management 284 (KOB 284)

Module credits	5.00
Contact time	3 lectures per week
Language of tuition	Module is presented in English
Department	Divsion of Communication Management
Period of presentation	Quarter 4

Module content

*Module content will be adapted in accordance with the appropriate degree programme. Only one of KOB 281–284 may be taken as a module where necessary for a programme.
Applied business communication skills

Acquiring basic business communication skills will enhance the capabilities of employees, managers and leaders in the business environment. An overview of applied skills on the intrapersonal, dyadic, interpersonal, group (team), organisational, public and mass communication contexts is provided. The practical part of the module (for example, the writing of business reports and presentation skills) concentrates on the performance dimensions of these skills as applied to particular professions.

Elective modules

Taxation 200 (BEL 200)

Module credits	32.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	FRK 111 and FRK 121 or FRK 100 or FRK 101. Only available to BCom (Option Taxation, Accounting Sciences, Financial Management Sciences, Financial Sciences, Informatics, Investment Management and Law) students.
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	Taxation
Period of presentation	Year

Module content

In this module an introduction to taxation as a discipline in the South African tax environment is provided. The income tax concepts covered in this module are gross income, special inclusion, exempt income, general deduction, special deduction, prohibited deduction and allowed assessed loss. The implications of a capital gains tax event, specific sections of the Income Tax Act applicable on individuals as well as fringe benefits and specific allowances for individuals are discussed. Concepts such as the prepaid tax system, tax implications of donations tax events as well as the tax implications of a deceased person will be provided. Finally an introduction to the basic principles of VAT is included.

Consumer behaviour 212 (BEM 212)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	BEM 120 GS
Contact time	3 lectures per week
Language of tuition	Afrikaans and English are used in one class
Department	Marketing Management

Period of presentation	Semester 1

Module content

Internal and external influencing factors of consumer behaviour, the consumer's decision process and application fields of consumer behaviour, consumerisms and social responsibility, buying behaviour of consumers in both product and service related industries, consumer psychology and the influence thereof on buying behaviour, psychology of pricing, influencing factors in consumer buying behaviour, the impact of various forms of marketing communication on buying behaviour.

Integrated brand communications 224 (BEM 224)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	BEM 120 GS
Contact time	3 lectures per week
Language of tuition	Afrikaans and English are used in one class
Department	Marketing Management
Period of presentation	Semester 2

Module content

Integrated brand communications approach, marketing communication planning, objectives and budgets for integrated marketing communications, principles and strategising of marketing communication elements, new media, the brand name communication process, marketing metrics and evaluation for marketing communication effectiveness.

Financial management 212 (FBS 212)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	FRK 111 and 121/122 or FRK 100 or FRK 101
Contact time	3 lectures per week
Language of tuition	Module is presented in English
Department	Financial Management
Period of presentation	Semester 1

Module content

Role and environment of managerial finance; Financial statement analysis; Cash flow and financial planning; Time value of money; Risk and return. Capital investment decisions; Working capital management.

Financial management 222 (FBS 222)

Module credits	16.00

Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	FRK 111 and 122/121 or FRK 100 or FRK 101
Contact time	3 lectures per week
Language of tuition	Module is presented in English
Department	Financial Management
Period of presentation	Semester 2

Module content

Introduction to management accounting; Cost terms, concepts and classifications; Job-order costing; Process costing; Cost behaviour; Variable versus absorption costing; Cost-volume profit relationships; Budgeting.

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	Separate classes for Afrikaans and English
Department	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	Separate classes for Afrikaans and English
Department	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.

Informatics 281 (INF 281)

Module credits	3.00
Prerequisites	FRK 111, FRK 121 or FRK 100 or FRK 101. Only available to BCom (Accounting Sciences) students.
Contact time	2 practicals per week
Language of tuition	Module is presented in English
Department	Informatics
Period of presentation	Semester 1 and Semester 2

Module content
Computer processing of accounting information.

Internal auditing 211 (IOK 211)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	FRK 111 and FRK 121
Contact time	3 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	Auditing
Period of presentation	Semester 1

Module content
Introduction to the audit environment. Nature, objectives, history and development of internal auditing. The internal auditing profession and the role of the Institute of Internal Auditors (IIA). Ethical code and standards of internal auditors (IPPF). An organisation’s internal control environment and internal control systems. Introduction to Information Technology (IT). General controls and application controls frameworks. The internal audit process and tools and techniques used during the audit Introduction to sampling.

Internal auditing 221 (IOK 221)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	IOK 211 GS
Contact time	1 practical per week, 3 lectures per week

Language of tuition	Separate classes for Afrikaans and English
Department	Auditing
Period of presentation	Semester 2

Module content

Introduction to corporate governance. Relationship between internal auditing and other related disciplines and individuals. Background to external auditing. Internal and external audit approaches.The identification of weaknesses, risks and controls for the revenue and procurement systems in the system. The audit of internal control systems and the audit of financial statements.

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
Language of tuition	Separate classes for Afrikaans and English
Department	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	Separate classes for Afrikaans and English
Department	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.

Statistics 210 (STK 210)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	STK 110, STK 120
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Statistics
Period of presentation	Semester 1

Module content

Counting techniques. Probability theory: Sample spaces, events, rules of probability, conditional probabilities, independent events and Bayes' theorem. Probability distributions and probability densities: cumulative distribution functions, marginal distributions, joint distributions, conditional distributions and independence. Expected values: Moments, Chebyshev's theorem, moment-generating functions, product moments, moments of linear combinations of random variables and conditional expectations. Transformation techniques of random variables. Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques.

Statistics 220 (STK 220)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	STK 210 GS
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Statistics
Period of presentation	Semester 2

Module content

Special probability distributions: the discrete uniform distribution, Bernoulli distribution, binomial distribution, negative binomial and geometric distribution, the hypergeometric distribution, Poisson distribution and multinomial distribution. Special probability densities: Uniform distribution, gamma, exponential and chi-square distributions, the beta distribution, the normal distribution and the bivariate normal distribution. Functions of random variables. Sampling distributions, point estimation, interval estimation and hypothesis testing. Regression Analysis. Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques.

Curriculum: Final year

Minimum credits: 120

Core modules

Informatics 301 (INF 301)

Module credits	80.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	INF 214, INF 225, INF 261, INF 271 and INF 272
Language of tuition	Afrikaans and English are used in one class
Department	Informatics
Period of presentation	Year

Module content

*INF 301 is a module that combines INF 315, INF 324, INF 354 and INF 370. Students register for all these modules, but receive a calculated percentage for INF 301.
A review of current trends that are relevant to the application of information systems within a business environment. Information systems in organisations, social and ethical responsibilities, the role of the Informatician. IT end-user relationships; IT management. Advanced programming. Application of systems analysis and design in a practical project; programming; use of computer-aided development tools.

Informatics 315 (INF 315)

Module credits	15.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	INF 261, INF 225, INF 271 and INF 272
Contact time	2 lectures per week
Language of tuition	Afrikaans and English are used in one class
Department	Informatics
Period of presentation	Semester 1

Module content

A review of current trends which are relevant to the application of information systems within a business environment.

Informatics 324 (INF 324)

Module credits	15.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	INF 261, INF 225, INF 271 and INF 272

Contact time	2 lectures per week
Language of tuition	Afrikaans and English are used in one class
Department	Informatics
Period of presentation	Semester 2

Module content

Information systems in organisations, social and ethical responsibilities, the role of the Informatician. IT end-user relationships; IT management.

Informatics 354 (INF 354)

Module credits	15.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	INF 261, INF 225, INF 271 and INF 272
Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Afrikaans and English are used in one class
Department	Informatics
Period of presentation	Semester 1

Module content

Advanced programming.

Informatics 370 (INF 370)

Module credits	35.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	INF 261, INF 225, INF 271 and INF 272
Contact time	1 lecture per week, 2 practicals per week
Language of tuition	Separate classes for Afrikaans and English
Department	Informatics
Period of presentation	Year

Module content

Application of systems analysis and design in a practical project; programming; use of computer-aided development tools.

Elective modules

Taxation 300 (BEL 300)

Module credits	40.00
Service modules	Faculty of Engineering, Built Environment and Information Technology

Prerequisites	BEL 200 and FRK 221 GS or FRK 201 GS
Contact time	1 discussion class per week, 4 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	Taxation
Period of presentation	Year

Module content

The purpose of the module is to enable the learner to calculate the value-added tax liability and to journalise transactions; calculate the normal tax liability (including the determination of taxable capital gains and assessed capital losses) of individuals, companies, estates and trusts,discuss tax principles on value-added tax and normal tax; and calculate and discuss provisional and employees' tax and to object against an assessment.

Marketing research 314 (BEM 314)

Module credits	20.00
Service modules	Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	BEM 120 and STK 110 GS
Contact time	3 lectures per week
Language of tuition	Afrikaans and English are used in one class
Department	Marketing Management
Period of presentation	Semester 1

Module content

The role of marketing research, the process of marketing research, interpretation of secondary research, qualitative research, survey research, observation, measurement and attitude scaling, questionnaire design, sampling design and sampling procedures, basic data analysis, descriptive statistical analysis, interpretation and reporting of results, research report writing.

Marketing management 321 (BEM 321)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	BEM 120
Contact time	3 lectures per week
Language of tuition	Module is presented in English
Department	Marketing Management
Period of presentation	Semester 2

Module content
Strategic issues in marketing, strategic marketing, strategic analysis (market analysis, customer analysis, competitor analysis and internal analysis), market strategies (competitive strategies, strategies in the product life cycle and relationship building strategies) and strategy implementation and control.

Financial accounting 311 (FRK 311)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	FRK 211, 221 and INF 281
Contact time	4 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	Accounting
Period of presentation	Semester 1

Module content

Preparation and presentation of company annual financial statements in compliance with the requirements of International Financial Reporting Standards (IFRS) relating to the following: income taxes; property, plant and equipment; impairment; non-current assets held for sale; intangible assets; investment property; borrowing costs; leases; accounting policies; changes in accounting estimates and errors; segment reporting; certain aspects of financial instruments.

Financial accounting 321 (FRK 321)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	FRK 311 GS and INF 281
Contact time	4 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	Accounting
Period of presentation	Semester 2

Module content

Preparation and presentation of company annual financial statements in compliance with the requirements of International Financial Reporting Standards (IFRS) relating to the following: the effects of changes in foreign exchange rates; earnings per share; related party disclosure; associates. Complex consolidation issues, including intra-group transactions; dividends; preference shares; revaluations; horizontal, vertical and mixed groups; insolvent subsidiaries; change of interest; consolidated cash flow statement.

Internal auditing 311 (IOK 311)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology

Prerequisites	IOK 211 and IOK 221
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	Auditing
Period of presentation	Semester 1

Module content

General and application IT controls. The identification of weaknesses, risks and controls for the inventory, bank and cash systems. Statistical sampling. The audit of internal control systems and the audit of financial statements. Internal audit and external audit reports.

Internal auditing 321 (IOK 321)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	IOK 311 GS
Contact time	3 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	Auditing
Period of presentation	Semester 2

Module content

The identification of weaknesses, risks and controls for the payroll system and health and safety environment. The audit of internal control systems and the audit of financial statements. Computer Assisted Audit Techniques (CAATS). Introduction to performing an operational/performance audit. Relevant legislation and other guidelines that affect the internal audit profession. Introduction to the public sector internal audit environment.

Business management 310 (OBS 310)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	OBS 114 or 124 with admission to the examination in the other
Contact time	3 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Department	Business Management
Period of presentation	Semester 1

Module content

Human resource management and development
The environment in which human resource management takes place; job analysis; strategic human resource planning; equal employment opportunities; planning and management of training; development and careers; functioning in a global environment.
Negotiation and collective bargaining
The nature of negotiation; preparation for negotiation; negotiating for purposes of climate creation; persuasive communication; handling conflict and aggression; specialised negotiation and collective bargaining in the South African context.

Business management 320 (OBS 320)

Module credits	20.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	OBS 114 or 124 with admission to the examination in the other
Language of tuition	Separate classes for Afrikaans and English
Department	Business Management
Period of presentation	Semester 2

Module content

Strategic management analysis and formulation
Basic concepts; formulation of mission; policy and objectives; external evaluation of the business environment; internal evaluation of the enterprise; including intellectual assets; the formulation and development of a strategic plan.
Strategic management implementation
The role of management in strategy implementation; budgets as instrument in the implementation process; leading processes of change within enterprises; supporting policies, procedures and information systems for implementation in the various functional areas; evaluation and control of implementation.

Statistics 310 (STK 310)

Module credits	25.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	STK 210, STK 220
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Statistics
Period of presentation	Semester 1

Module content

Regression analysis: simple and multiple regression; nonlinear regression; correlation and the use of dummy variables. Multivariate distributions: normal, multinomial and poisson distribution. Linear combinations of normal variables. Analysis of variance and covariance. Regression analysis extensions: heteroscedasticity, serial correlation and lag structures. Applications of matrices, differentiation and integration in the economic and management sciences. Evaluation of simple economic models. Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques.

Statistics 320 (STK 320)

Module credits	25.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	STK 210, STK 220.
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Statistics
Period of presentation	Semester 2

Module content

Only one of the modules WST 321 or STK 320 may be included in any study programme. Stationary and non-stationary univariate time series. Properties of autoregressive moving average (ARMA) and autoregressive integrated moving average (ARIMA) processes. Identification, estimation and diagnostic testing of a time series model. Forecasting. Multivariate time series. Practical statistical modelling and analysis using statistical computer packages. Categorical data analysis. Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques. Student seminars.