BIT Information Systems (12133300)

**Minimum duration of study**: 3 years

**Total credits**: 377

**NQF level**: 07

**Contact**: Prof C De Villiers  carina.devilliers@up.ac.za  +27 (0)124203085

### Programme information

**Candidates**
The degree is awarded upon successful completion of a minimum of 381 credits, of which 140 are required at first-year level, 121 at second-year level, and 120 at third-year level.

### Admission requirements

- The following persons will be considered for admission: candidates who are in possession of a certificate that is deemed by the University to be equivalent to the required Grade 12 certificate with university endorsement; candidates who are graduates from another tertiary institution or have been granted the status of a graduate of such an institution; and candidates who are graduates of another faculty at the University of Pretoria.
- Life Orientation is excluded when calculating the APS.
- Grade 11 results are used in the conditional admission of prospective students.
- A valid qualification with admission to degree studies is required.
- Minimum subject and achievement requirements, as set out below, are required.
- Tuition will be presented in English only.
- Should a candidate obtain an APS of 26 to 29, consideration for admission will be based on the results of the NBT, provided the numbers of students in designated groups have not been reached.

### Minimum requirements

<table>
<thead>
<tr>
<th>Achievement level</th>
<th>English Home Language or English First Additional Language</th>
<th>Mathematics</th>
<th>APS</th>
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<tbody>
<tr>
<td></td>
<td>NSC/IEB AS Level</td>
<td>NSC/IEB AS Level</td>
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<tr>
<td></td>
<td>5 C</td>
<td>4 D</td>
<td>30</td>
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</table>

(26 - 29 admission based on the NBT)

* Cambridge A level candidates who obtained at least a D in the required subjects, will be considered for admission. International Baccalaureate (IB) HL candidates who obtained at least a 4 in the required subjects, will be considered for admission.
Additional requirements

Also consult the G Regulations.

i. A student is promoted to the following year of study after obtaining the required credits as mentioned below:
   • Second year of study after obtaining at least 70% of the credits of the first year of study.
   • Third year of study after obtaining at least 70% of the credits of the second year of study.

ii. The degree is conferred if all the prescribed modules have been passed.

Promotion to next study year

Pass with distinction

Also consult the G Regulations.

i. A student is promoted to the following year of study after obtaining the required credits as mentioned below:
   • Second year of study after obtaining at least 70% of the credits of the first year of study.
   • Third year of study after obtaining at least 70% of the credits of the second year of study.

ii. The degree is conferred if all the prescribed modules have been passed.
Curriculum: Year 1

Minimum credits: 136


Fundamental modules

Academic information management 101 (AIM 101)

<table>
<thead>
<tr>
<th>Module credits</th>
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<tbody>
<tr>
<td>Faculty of Engineering, Built Environment and Information Technology</td>
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<td>Faculty of Law</td>
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<tr>
<td>Faculty of Health Sciences</td>
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<tr>
<td>Faculty of Natural and Agricultural Sciences</td>
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<tr>
<td>Faculty of Theology and Religion</td>
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<tr>
<td>Faculty of Veterinary Science</td>
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</tbody>
</table>

Prerequisites

No prerequisites.

Contact time

2 lectures per week

Language of tuition

Module is presented in 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. 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)

<table>
<thead>
<tr>
<th>Module credits</th>
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<tr>
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<tr>
<td>Faculty of Education</td>
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<tr>
<td>Faculty of Theology and Religion</td>
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</table>

Prerequisites

No prerequisites.

Contact time

2 lectures per week
<table>
<thead>
<tr>
<th>Language of tuition</th>
<th>Module is presented in English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td>Information Science</td>
</tr>
<tr>
<td>Period of presentation</td>
<td>Semester 1</td>
</tr>
</tbody>
</table>

**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**: Module is presented in 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.
Academic orientation 112 (UPO 112)

Module credits 0.00
Language of tuition Module is presented in English
Department EBIT Deans Office
Period of presentation Year

Core modules

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 Module is presented in 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 Module is presented in 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
<table>
<thead>
<tr>
<th>Prerequisites</th>
<th>A candidate must have passed Mathematics with at least 4 (50-59%) in the Grade 12 examination</th>
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<tbody>
<tr>
<td>Contact time</td>
<td>1 lecture per week, 2 practicals per week</td>
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<tr>
<td>Language of tuition</td>
<td>Module is presented in English</td>
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<tr>
<td>Department</td>
<td>Informatics</td>
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<tr>
<td>Period of presentation</td>
<td>Semester 1</td>
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<tr>
<td>Module content</td>
<td>Introduction to programming.</td>
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</table>

**Informatics 164 (INF 164)**

<table>
<thead>
<tr>
<th>Module credits</th>
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</table>
| 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 | Module is presented in English |
| Department     | Informatics |
| Period of presentation | Semester 2 |
| Module content | Programming. |

**Informatics 171 (INF 171)**

<table>
<thead>
<tr>
<th>Module credits</th>
<th>20.00</th>
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</thead>
</table>
| 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 | Module is presented in 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**
Module is presented in English

**Department**
Business Management

**Period of presentation**
Semester 1

**Module content**
The entrepreneurial mind-set; managers and managing; values, attitudes, emotions, and culture: the manager as a person; ethics and social responsibility; decision making; leadership and responsible leadership; effective groups and teams; managing organizational structure and culture inclusive of the different functions of a generic organisation and how they interact (marketing; finance; operations; human resources and general management); contextualising Sustainable Development Goals (SDG) in each of the topics.

**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**
Module is presented in English

**Department**
Business Management

**Period of presentation**
Semester 2

**Module content**
Value chain management: functional strategies for competitive advantage; human resource management; managing diverse employees in a multicultural environment; motivation and performance; using advanced information technology to increase performance; production and operations management; financial management; corporate entrepreneurship.

**Elective modules**

**Biometry 120 (BME 120)**

**Module credits** 16.00
Service modules
- Faculty of Engineering, Built Environment and Information Technology
- Faculty of Natural and Agricultural Sciences
- Faculty of Veterinary Science

Prerequisites
- At least 4 (50-59%) in Mathematics in the Grade 12 examination, or at least 50% in both Statistics 113, 123

Contact time
- 1 practical per week, 4 lectures per week

Language of tuition
- Module is presented in English

Department
- Statistics

Period of presentation
- Semester 2

Module content

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
- Module is presented in 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
- Module is presented in 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.

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### Financial accounting 111 (FRK 111)

<table>
<thead>
<tr>
<th>Module credits</th>
<th>10.00</th>
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</table>

### 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
- Module is presented in 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.

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### Financial accounting 121 (FRK 121)

<table>
<thead>
<tr>
<th>Module credits</th>
<th>12.00</th>
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</thead>
</table>
## 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

Module is presented in 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

Module is presented in 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.

### 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

Module is presented in English

## Department

Geography Geoinformatics and Meteorology
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.

**Cartography 110 (GMC 110)**

Module credits  
10.00

Service modules  
Faculty of Engineering, Built Environment and Information Technology

Prerequisites  
No prerequisites.

Contact time  
1 practical per week, 3 lectures per week

Language of tuition  
Module is presented in English

Department  
Geography Geoinformatics and Meteorology

Period of presentation  
Semester 2

Module content
History, present and future of cartography. Introductory geodesy: shape of the earth, graticule and grids, datum definition, elementary map projection theory, spherical calculations. Representation of geographical data on maps: Cartographic design, cartographic abstraction, levels of measurement and visual variables. Semiotics for cartography: signs, sign systems, map semantics and syntactics, explicit and implicit meaning of maps (map pragmatics). Critique maps of indicators to measure United Nations Sustainable Development Goals in South Africa.

**Information science 110 (INL 110)**

Module credits  
12.00

Service modules  
Faculty of Humanities

Prerequisites  
No prerequisites.

Contact time  
1 practical per week, 3 lectures per week

Language of tuition  
Module is presented in English

Department  
Information Science

Period of presentation  
Semester 1

Module content
This module is an introduction to the study field of information science and its various professions. Key concepts that will be discussed include the following: the human as information processor and user; the life-cycle of information in terms of processes, products and role-players; as well as the communication of information. The social-ethical impact of globalisation is included as a key concern, with reference to Africa.

**Information science 120 (INL 120)**
### Module credits
- **12.00**

### Service modules
- Faculty of Humanities

### Prerequisites
- No prerequisites.

### Contact time
- 1 practical per week, 3 lectures per week

### Language of tuition
- Module is presented in English

### Department
- Information Science

### Period of presentation
- Semester 2

### Module content

Organisation and representation of information. This module provides the student with an introduction to the basic principles and processes underlying the organisation and representation of information. The process of organising information in documents and on the web, in multimedia formats, by means of document image processing and in databases are dealt with. Themes on the representation of information through the creation of metadata include various general and domain specific metadata schemas such as Dublin Core as a metadata standard for the Web, as well as various other metadata schemas. Practical classes include basic HTML and the design of Web pages incorporating and applying what was covered in theory.

### Information science 130 (INL 130)

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<th>Module credits</th>
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<tbody>
<tr>
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<td>Faculty of Humanities</td>
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<tr>
<td>Prerequisites</td>
<td>No prerequisites.</td>
</tr>
<tr>
<td>Contact time</td>
<td>1 practical per week, 3 lectures per week</td>
</tr>
<tr>
<td>Language of tuition</td>
<td>Module is presented in English</td>
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<tr>
<td>Department</td>
<td>Information Science</td>
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<tr>
<td>Period of presentation</td>
<td>Semester 1</td>
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</table>

### Module content

Personal information management. This module focuses on personal information management within an organisational context. It deals with managing information and knowledge that is peculiar to an individual and which enables him/her to perform his/her job. Topics include: creating an environment in which the individual can manage his/her information and knowledge; the skills needed to be able to manage personal information and knowledge; information overloading which gives rise to personal information and knowledge management, as well as the manner in which individuals can switch from personal information management to personal knowledge management; personal information and knowledge management as a career.

### Information science 140 (INL 140)

<table>
<thead>
<tr>
<th>Module credits</th>
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<tr>
<td>Service modules</td>
<td>Faculty of Humanities</td>
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**Prerequisites**  
No prerequisites.

**Contact time**  
1 practical per week, 3 lectures per week

**Language of tuition**  
Module is presented in English

**Department**  
Information Science

**Period of presentation**  
Semester 2

**Module content**
Information and communication technology. This module offers a brief overview of hardware and software, telecommunications technology, LANs, WANs and intranets, the information highway, the internet and the World Wide Web, computer ethics, ICTs, e-commerce, mobile computing technology and the influence that new trends and developments have on the distribution of information.

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**Statistics 122 (STC 122)**

**Module credits**  
13.00

**Prerequisites**  
At least a 60% in STK 110 or an average of 60% for either (1) WST 133, WST 143, WST 153; (2) STK 113, STK 123, STK 121; (3) STK 133, STK 134, STK 121; (4) WST 133, WST 143, STK 121 (An aegrotat exam is available to students who obtained 50%-59%)

**Contact time**  
1 practical per week, 1 tutorial per week, 3 lectures per week

**Language of tuition**  
Module is presented in English

**Department**  
Statistics

**Period of presentation**  
Semester 2

**Module content**
*This module is also presented as a summer school for students who initially elected and passed STK 120 with a final mark of at least 60% and then decides to further their studies in statistics as well as for students who achieved a final mark of between 40% - 49% in STC 122 during semester 2.*

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**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 | Module is presented in 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). Supporting mathematical concepts. Statistical concepts are demonstrated and interpreted through practical coding and simulation within a data science framework.
Curriculum: Year 2

Minimum credits: 121


Fundamental modules

Community-based project 202 (JCP 202)

| Module credits | 8.00 |
| Service modules | Faculty of Economic and Management Sciences |
| Prerequisites | No prerequisites. |
| Contact time | 1 other contact session per week |
| Language of tuition | Module is presented in 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 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 this module will include all or most of the following components: evaluation and approval of the project proposal, assessment of oral and/or written progress reports, peer assessment in the event of team projects, written report-back by those at which the project was aimed at, and final assessment on grounds of the submission of a portfolio and a written report.

Core 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
Module is presented in English

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.

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
Module is presented in English

Department
Informatics

Period of presentation
Semester 1

Module content

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 112; AIM 101 or AIM 102 or AIM 111 and AIM 121

Contact time
1 lecture per week, 3 practicals per week

Language of tuition
Module is presented in English

Department
Informatics

Period of presentation
Semester 2
**Module content**
An overview of systems infrastructure and integration.

**Informatics 261 (INF 261)**

<table>
<thead>
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<th>Module credits</th>
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</table>
| **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** | Module is presented in English |
| **Department** | Informatics |
| **Period of presentation** | Semester 2 |

**Module content**

**Informatics 271 (INF 271)**

<table>
<thead>
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<th>Module credits</th>
<th>14.00</th>
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<tbody>
<tr>
<td><strong>Service modules</strong></td>
<td>Faculty of Engineering, Built Environment and Information Technology</td>
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<tr>
<td><strong>Prerequisites</strong></td>
<td>AIM 101 or AIM 102 or AIM 111 and AIM 121, INF 164, INF 171</td>
</tr>
<tr>
<td><strong>Contact time</strong></td>
<td>1 discussion class per week, 1 lecture per week, 1 practical per week</td>
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<tr>
<td><strong>Language of tuition</strong></td>
<td>Module is presented in English</td>
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<tr>
<td><strong>Department</strong></td>
<td>Informatics</td>
</tr>
<tr>
<td><strong>Period of presentation</strong></td>
<td>Year</td>
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</tbody>
</table>

**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)**

<table>
<thead>
<tr>
<th>Module credits</th>
<th>14.00</th>
</tr>
</thead>
</table>
| **Service modules** | Faculty of Engineering, Built Environment and Information Technology  
Faculty of Natural and Agricultural Sciences |
| **Prerequisites** | AIM 101 or AIM 102 or AIM 111 and AIM 121, INF 164 and INF 171, Regulation IT.3(g) |
| **Contact time** | 1 lecture per week, 2 practicals per week |
| **Language of tuition** | Module is presented in English |
Department | Informatics
---|---
Period of presentation | Year
Module content | Advanced programming.

**Elective modules**

**Taxation 200 (BEL 200)**

<table>
<thead>
<tr>
<th>Module credits</th>
<th>32.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service modules</td>
<td>Faculty of Engineering, Built Environment and Information Technology</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>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.</td>
</tr>
<tr>
<td>Contact time</td>
<td>1 practical per week, 3 lectures per week</td>
</tr>
<tr>
<td>Language of tuition</td>
<td>Module is presented in English</td>
</tr>
<tr>
<td>Department</td>
<td>Taxation</td>
</tr>
</tbody>
</table>

**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 inclusions, exempt income, general deductions, special deductions, prohibited deductions and allowed assessed losses. 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 covered. Finally an introduction to the basic principles of VAT is included.

**Financial accounting 211 (FRK 211)**

<table>
<thead>
<tr>
<th>Module credits</th>
<th>16.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service modules</td>
<td>Faculty of Engineering, Built Environment and Information Technology</td>
</tr>
<tr>
<td>Faculty of Education</td>
<td></td>
</tr>
<tr>
<td>Prerequisites</td>
<td>FRK 111 and FRK 121 or FRK 100/101</td>
</tr>
<tr>
<td>Contact time</td>
<td>4 lectures per week</td>
</tr>
<tr>
<td>Language of tuition</td>
<td>Module is presented in English</td>
</tr>
<tr>
<td>Department</td>
<td>Accounting</td>
</tr>
<tr>
<td>Period of presentation</td>
<td>Semester 1</td>
</tr>
</tbody>
</table>
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 Module is presented in 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.

Introductory geographic information systems 283 (GGY 283)
Module credits 14.00
Service modules
- Faculty of Engineering, Built Environment and Information Technology
- Faculty of Education
- Faculty of Humanities
Prerequisites GMC 110
Contact time 1 practical per week, 2 lectures per week
Language of tuition Module is presented in English
Department Geography Geoinformatics and Meteorology
Period of presentation Semester 1
Module content
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. This module provides the foundations for more advanced GIS and Geoinformatics topics. Practical assessments and a mini-project make use of South African and African examples and foster learning and application of concepts aligned to the UN Sustainable Development Goals.

Geographic data analysis 220 (GIS 220)

Module credits 14.00
Service modules Faculty of Engineering, Built Environment and Information Technology
Prerequisites GMC 110 and (STK 110 OR BME 120)
Contact time 1 practical per week, 2 lectures per week
Language of tuition Module is presented in English
Department Geography Geoinformatics and Meteorology
Period of presentation Semester 2

Module content
The nature of geographical data and measurement. Application of statistics in the geographical domain. Probability, probability distributions and densities, expected values and variances, Central Limit theorem. Sampling techniques. Exploratory data analysis, descriptive statistics, statistical estimation, hypothesis testing, correlation analysis and regression analysis. Examples used throughout the course are drawn from South African and African case studies and taught within the framework of the UN Sustainable Development Goals.

Remote sensing 220 (GMA 220)

Module credits 14.00
Service modules Faculty of Engineering, Built Environment and Information Technology
Prerequisites GMC 110
Contact time 1 practical per week, 2 lectures per week
Language of tuition Module is presented in English
Department Geography Geoinformatics and Meteorology
Period of presentation Semester 1
Module content
This module aims to provide students with a working knowledge and skills to learn methods and techniques for collecting, processing and analysing remotely sensed data. Throughout the module, emphasis will be placed on image processing, image analysis, image classification, remote sensing and applications of remote sensing in geographical analysis and environmental monitoring. The module is composed of lectures, readings, practical exercises research tasks and a project or assignments of at least 64 notional hours. In particular, the practical exercises and research tasks incorporate South African examples using satellite remotely-sensed data, as well as field spectral data measurements, to promote understanding of the state of land cover and land use types (e.g. spanning agricultural resources, water resources, urbanization) and how changes over time could impact on the changing climate in accordance with the United Nation’s Sustainable Development Goals.

Information science 210 (INL 210)
Module credits 20.00
Service modules Faculty of Humanities
Prerequisites AIM 101 or AIM 102 or AIM 111 and 121
Contact time 3 lectures per week, 3 practicals per week
Language of tuition Module is presented in English
Department Information Science
Period of presentation Semester 1
Module content
Information seeking and retrieval. This module explores the theory and practice of effective information seeking and retrieval. It builds on supporting research paradigms such as the systems, user-centred, cognitive and socio-cognitive paradigms. The focus is on the complexities of effective information seeking and retrieval within the context of information behaviour on a personal level, as well as in the context of professional, academic or everyday information needs.

Information science 220 (INL 220)
Module credits 20.00
Service modules Faculty of Humanities
Prerequisites INL 210 or LP
Contact time 3 lectures per week, 3 practicals per week
Language of tuition Module is presented in English
Department Information Science
Period of presentation Semester 2
Module content
Representation and organisation. Information needs to be represented and organised in a system for it to be effectively retrievable. This module deals with the representation and organisation of information on the level of individual entities (e.g. indexing), from the perspective of the users (user profiling), as well as within a document collection (taxonomies and ontologies).
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 Module is presented in 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 Module is presented in 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.

Communication management 284 (KOB 284)

Module credits 5.00

Contact time 3 lectures per week

Language of tuition Module is presented in English

Department Business 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.

**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** Module is presented in 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.

**Design thinking and business innovation 211 (OBS 211)**

**Module credits** 16.00

**Prerequisites** OBS 114 or 124 with admission to the examination in the other.

**Contact time** 3 lectures per week

**Language of tuition** Module is presented in English

**Department** Business Management

**Period of presentation** Semester 1
Module content
Creativity, innovation and identification of opportunities: the role of creativity; techniques to facilitate creativity; barriers to creativity; creative versus critical thinking within the broad business managerial context. Creative problem solving and identification of opportunities: identification of opportunities; development of ideas; evaluation and prioritising of ideas, ideation and design thinking. Creativity and its role in design thinking towards facilitating business innovation. Design thinking techniques are applied with an emphasis on customer empathy. Business innovation is translated from the process of design thinking into incremental or disruptive new products, services and or processes. A clear understanding is created with regards to the following elements in business innovation: types and forms; technology waves; models; processes and sources. The management of innovation is also an integral part of the module.

Business creation 212 (OBS 212)
Module credits 10.00
Prerequisites OBS 213
Contact time 3 lectures per week
Language of tuition Module is presented in English
Department Business Management
Period of presentation Semester 2

Module content

Responsible management 214 (OBS 214)
Module credits 10.00
Prerequisites No prerequisites.
Contact time 3 lectures per week
Language of tuition Module is presented in English
Department Business Management
Period of presentation Semester 1

Module content
Business ethics; sustainability and the economic system; key social challenges; key environmental challenges; key economic challenges; conventional vs. progressive measure of progress; short-term vs long-term orientation; development as an outcome of growth; sustainable development as opposed to conventional development; sustainable development goals; sustainable development goals and the changing role of business in society; implications for the notion of corporate citizenship; global responses and solutions; local responses and solutions.

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. Students from other Faculties are required to have 50% for Mathematics in Grade 12.

### Contact time

3 lectures per week

### Language of tuition

Module is presented in English

### Department

Business Management

### Period of presentation

Semester 2

### Module content

Project management and negotiations:
- 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.
- 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.

### 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, STC 122 or WST 111, WST 121

### 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


### 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


### Applications in data science 212 (WST 212)

### Module credits

| 12.00 |

### Prerequisites

| WST 111, WST 121 or STK 110, STC 122 |

### Contact time

| 1 practical per week, 2 lectures per week |

### Language of tuition

| Module is presented in English |

### Department

| Statistics |

### Period of presentation

| Semester 1 |

### Module content

Introductory machine learning concepts. Data base design and use. Data preparation and extraction. Statistical modelling using data base structures. Statistical concepts are demonstrated and interpreted through practical coding and simulation within a data science framework.
Curriculum: Final year

Minimum credits: 120


Core modules

Informatics 315 (INF 315)

Module credits 15.00
Service modules Faculty of Engineering, Built Environment and Information Technology
Prerequisites INF 261, INF 225, INF 271 and INF 272
Contact time 2 lectures per week
Language of tuition Module is presented in English
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
Prerequisites INF 261, INF 225, INF 271 and INF 272
Contact time 2 lectures per week
Language of tuition Module is presented in English
Department Informatics
Period of presentation Semester 2

Module content
Information systems in organisations.

Informatics 354 (INF 354)

Module credits 15.00
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 Module is presented in English
<table>
<thead>
<tr>
<th>Department</th>
<th>Informatics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period of presentation</td>
<td>Semester 1</td>
</tr>
<tr>
<td>Module content</td>
<td>Advanced programming.</td>
</tr>
</tbody>
</table>

**Informatics 370 (INF 370)**

<table>
<thead>
<tr>
<th>Module credits</th>
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</thead>
<tbody>
<tr>
<td>Service modules</td>
<td>Faculty of Engineering, Built Environment and Information Technology</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>INF 261, INF 225, INF 271 and INF 272</td>
</tr>
<tr>
<td>Contact time</td>
<td>1 lecture per week, 2 practicals per week</td>
</tr>
<tr>
<td>Language of tuition</td>
<td>Module is presented in English</td>
</tr>
<tr>
<td>Department</td>
<td>Informatics</td>
</tr>
<tr>
<td>Period of presentation</td>
<td>Year</td>
</tr>
</tbody>
</table>

**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)**

<table>
<thead>
<tr>
<th>Module credits</th>
<th>40.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service modules</td>
<td>Faculty of Engineering, Built Environment and Information Technology</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>BEL 200 and FRK 221 or FRK 201</td>
</tr>
<tr>
<td>Contact time</td>
<td>1 discussion class per week, 4 lectures per week</td>
</tr>
<tr>
<td>Language of tuition</td>
<td>Module is presented in English</td>
</tr>
<tr>
<td>Department</td>
<td>Taxation</td>
</tr>
<tr>
<td>Period of presentation</td>
<td>Year</td>
</tr>
</tbody>
</table>

**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.

**Geographic information systems 310 (GIS 310)**

<table>
<thead>
<tr>
<th>Module credits</th>
<th>22.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service modules</td>
<td>Faculty of Engineering, Built Environment and Information Technology</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>GGY 283</td>
</tr>
<tr>
<td>Contact time</td>
<td>1 practical per week, 2 lectures per week</td>
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<tr>
<td>-------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Language of tuition</td>
<td>Module is presented in English</td>
</tr>
<tr>
<td>Department</td>
<td>Geography Geoinformatics and Meteorology</td>
</tr>
<tr>
<td>Period of presentation</td>
<td>Semester 1</td>
</tr>
</tbody>
</table>

**Module content**
Advanced theory and practice of Geographic Information Systems; GIS applications; design and implementation of GIS applications. A project or assignments of at least 64 notional hours. Diverse South African examples will be used to expose the students to various data sources, geospatial analyses, and data representation to support the UN Sustainable Development Goals.

**Spatial analysis 320 (GIS 320)**

<table>
<thead>
<tr>
<th>Module credits</th>
<th>22.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service modules</td>
<td>Faculty of Engineering, Built Environment and Information Technology</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>GIS 220 and GGY 283</td>
</tr>
<tr>
<td>Contact time</td>
<td>1 practical per week, 2 lectures per week</td>
</tr>
<tr>
<td>Language of tuition</td>
<td>Module is presented in English</td>
</tr>
<tr>
<td>Department</td>
<td>Geography Geoinformatics and Meteorology</td>
</tr>
<tr>
<td>Period of presentation</td>
<td>Semester 2</td>
</tr>
</tbody>
</table>

**Module content**
Construction of Raster Geovisualisations, spatial model construction and use, multi-criteria decision analysis. Factor analysis: Principle component analysis. Geostatistics: Spatial dependence modelling, ordinary kriging. Markov chains and cellular Automata, combined models. Examples using data from South Africa are implemented. A project or assignment of at least 64 notional hours.

**Information science: Information organisation 310 (INL 310)**

<table>
<thead>
<tr>
<th>Module credits</th>
<th>30.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service modules</td>
<td>Faculty of Humanities</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>No prerequisites.</td>
</tr>
<tr>
<td>Contact time</td>
<td>3 lectures per week, 3 practicals per week</td>
</tr>
<tr>
<td>Language of tuition</td>
<td>Module is presented in English</td>
</tr>
<tr>
<td>Department</td>
<td>Information Science</td>
</tr>
<tr>
<td>Period of presentation</td>
<td>Semester 1</td>
</tr>
</tbody>
</table>

**Module content**
Information Organisation. The module is concerned with the organisation of information in the digital environment focusing on the structure and use of document management and workflow systems, as well as distribution channels and virtual environments. The characteristics and application of the internet, intranets, as well as portals and applications use, are considered.
### Information science: Information and knowledge management 320 (INL 320)

<table>
<thead>
<tr>
<th><strong>Module credits</strong></th>
<th>30.00</th>
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</thead>
<tbody>
<tr>
<td><strong>Service modules</strong></td>
<td>Faculty of Humanities</td>
</tr>
<tr>
<td><strong>Prerequisites</strong></td>
<td>No prerequisites.</td>
</tr>
<tr>
<td><strong>Contact time</strong></td>
<td>3 lectures per week, 3 practicals per week</td>
</tr>
<tr>
<td><strong>Language of tuition</strong></td>
<td>Module is presented in English</td>
</tr>
<tr>
<td><strong>Department</strong></td>
<td>Information Science</td>
</tr>
<tr>
<td><strong>Period of presentation</strong></td>
<td>Semester 2</td>
</tr>
</tbody>
</table>

**Module content**

Information and Knowledge Management. This module focuses on information and knowledge management at an operational level and introduces information and knowledge management at a corporate strategic level. It deals with the management of information and knowledge, which enables the organisation to be competitive. In this module the focus is on four aspects, namely: the 21st century organisation, the external and internal stakeholders that have an interest in information products, as well as the infrastructure that should be in place in organisations to manage information products. The module concludes with a few topics relating to information management at a corporate strategic level.

### Internal auditing 311 (IOK 311)

<table>
<thead>
<tr>
<th><strong>Module credits</strong></th>
<th>20.00</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Service modules</strong></td>
<td>Faculty of Engineering, Built Environment and Information Technology</td>
</tr>
<tr>
<td><strong>Prerequisites</strong></td>
<td>IOK 211 and IOK 221</td>
</tr>
<tr>
<td><strong>Contact time</strong></td>
<td>1 practical per week, 3 lectures per week</td>
</tr>
<tr>
<td><strong>Language of tuition</strong></td>
<td>Module is presented in English</td>
</tr>
<tr>
<td><strong>Department</strong></td>
<td>Auditing</td>
</tr>
<tr>
<td><strong>Period of presentation</strong></td>
<td>Semester 1</td>
</tr>
</tbody>
</table>

**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)

<table>
<thead>
<tr>
<th><strong>Module credits</strong></th>
<th>20.00</th>
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</thead>
<tbody>
<tr>
<td><strong>Service modules</strong></td>
<td>Faculty of Engineering, Built Environment and Information Technology</td>
</tr>
<tr>
<td><strong>Prerequisites</strong></td>
<td>IOK 311 GS</td>
</tr>
<tr>
<td><strong>Contact time</strong></td>
<td>3 lectures per week</td>
</tr>
<tr>
<td><strong>Language of tuition</strong></td>
<td>Module is presented in English</td>
</tr>
<tr>
<td><strong>Department</strong></td>
<td>Auditing</td>
</tr>
</tbody>
</table>
### 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)

<table>
<thead>
<tr>
<th>Module credits</th>
<th>20.00</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Service modules</strong></td>
<td>Faculty of Engineering, Built Environment and Information Technology</td>
</tr>
<tr>
<td><strong>Prerequisites</strong></td>
<td>OBS 114 or 124 with admission to the examination in the other</td>
</tr>
<tr>
<td><strong>Contact time</strong></td>
<td>3 lectures per week</td>
</tr>
<tr>
<td><strong>Language of tuition</strong></td>
<td>Module is presented in English</td>
</tr>
<tr>
<td><strong>Department</strong></td>
<td>Business Management</td>
</tr>
<tr>
<td><strong>Period of presentation</strong></td>
<td>Semester 1</td>
</tr>
</tbody>
</table>

### Module content
Strategy formulation: the deliberate strategy process of formulating a vision and mission statement, conducting internal and external environmental analyses and selecting appropriate strategies. It will enhance an understanding of the level of strategy formulation, gaining competitive advantage in your market place and thinking strategically.

#### Business management 330 (OBS 330)

<table>
<thead>
<tr>
<th>Module credits</th>
<th>20.00</th>
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</thead>
<tbody>
<tr>
<td><strong>Prerequisites</strong></td>
<td>No prerequisites.</td>
</tr>
<tr>
<td><strong>Contact time</strong></td>
<td>3 lectures per week</td>
</tr>
<tr>
<td><strong>Language of tuition</strong></td>
<td>Module is presented in English</td>
</tr>
<tr>
<td><strong>Department</strong></td>
<td>Business Management</td>
</tr>
<tr>
<td><strong>Period of presentation</strong></td>
<td>Semester 2</td>
</tr>
</tbody>
</table>

### Module content
Strategy execution: 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. South African case studies to create contextual relevance.

#### International business management 359 (OBS 359)

<table>
<thead>
<tr>
<th>Module credits</th>
<th>20.00</th>
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</thead>
<tbody>
<tr>
<td><strong>Service modules</strong></td>
<td>Faculty of Engineering, Built Environment and Information Technology</td>
</tr>
<tr>
<td><strong>Prerequisites</strong></td>
<td>OBS 114 or OBS 124 with admission to the examination in the other</td>
</tr>
</tbody>
</table>
### Contact time
- 2 lectures per week

### Language of tuition
- Separate classes for Afrikaans and English

### Department
- Business Management

### Period of presentation
- Semester 1

### Module content
**Introduction to international management**
- International business management; the process of internationalisation; growth in international trade and investment; the evolution of multinational enterprises; management perspectives on international trade and international trade theories; international trade regulation; economic integration; the formation of trading blocks, and free-trade areas.

**The international business environment**
- The cultural environment of international business; the political and legal environments as well as the economic environment of international business; the international monetary system; the foreign exchange market; and international capital markets.

### Business analytics 370 (OBS 370)

<table>
<thead>
<tr>
<th>Module credits</th>
<th>20.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prerequisites</td>
<td>Admission to exam in OBS 359.</td>
</tr>
<tr>
<td>Contact time</td>
<td>3 lectures per week</td>
</tr>
<tr>
<td>Language of tuition</td>
<td>Module is presented in English</td>
</tr>
<tr>
<td>Department</td>
<td>Business Management</td>
</tr>
<tr>
<td>Period of presentation</td>
<td>Semester 2</td>
</tr>
</tbody>
</table>

### Module content
- Evaluates how to strategically align, plan for and direct investments in, and governance of, processes for continuous renewal of analytic deployments in business. An overview of analytics in the business context will be provided that will cover: concepts of strategic and operational analytics; overview of concepts like dimensional modeling, the Model Life cycle, data mining, big data, KPIs and metrics, ERP and analytics, in-database/memory analytics; real-time analytics and data stream analysis. The applied decision making aspect will focus on mastering quantitative modeling tools and techniques for business decision-making and deterministic optimisation techniques.

### Statistics 310 (STK 310)

<table>
<thead>
<tr>
<th>Module credits</th>
<th>25.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service modules</td>
<td>Faculty of Engineering, Built Environment and Information Technology</td>
</tr>
<tr>
<td></td>
<td>Faculty of Humanities</td>
</tr>
<tr>
<td></td>
<td>Faculty of Natural and Agricultural Sciences</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>STK 210, STK 220</td>
</tr>
<tr>
<td>Contact time</td>
<td>1 practical per week, 3 lectures per week</td>
</tr>
<tr>
<td>Language of tuition</td>
<td>Module is presented in English</td>
</tr>
</tbody>
</table>
**Department**  
Statistics

**Period of presentation**  
Semester 1

**Module content**

**The science of data analytics 353 (STK 353)**

**Module credits**  
25.00

**Service modules**  
Faculty of Natural and Agricultural Sciences

**Prerequisites**  
STK 210, STK 220, WST 212 or WST 211, WST 221, WST 212

**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**

The information published here is subject to change and may be amended after the publication of this information. The General Regulations (G Regulations) apply to all faculties of the University of Pretoria. It is expected of each student to familiarise himself or herself well with these regulations as well as with the information contained in the General Rules section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.