

SCHOOL OF INFORMATION TECHNOLOGY

TABLE OF CONTENTS

	Page
ACADEMIC PERSONNEL	81
GENERAL INFORMATION	83
Admission.....	83
Selection.....	83
Statement of symbols.....	83
Medium of instruction.....	83
Bursaries and loans.....	83
Accommodation.....	83
Welcoming day and Academic Information Week.....	83
Prescribed books.....	83
Amendment of regulations and fees.....	83
NEW SYSTEMS OF EDUCATION	84
GLOSSARY OF TERMS	84
DEGREES CONFERRED IN THE FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY, HUMANITIES, ECONOMIC AND MANAGEMENT SCIENCES AND NATURAL AND AGRICULTURAL SCIENCES	85
REGULATIONS	87
Admission to undergraduate study.....	87
Specific requirements for the degree Baccalaureus in Information Technology (B.IT).....	88
Specific prerequisites.....	88
Examinations.....	89
Renewal of registration.....	90
Modules from other faculties.....	90
Change of study direction.....	90
Minimum period of study.....	91
Registration of modules.....	91
Degree with distinction.....	91
Promotion requirements.....	91
CURRICULLA OF PROGRAMMES IN THE SCHOOL	91
Baccalaureus in Information Technology.....	91
Diploma in Information Technology.....	95
POSTGRADUATE PROGRAMMES	97
Magister in Information Technology.....	97
Philosophiae Doctor in Information Technology.....	98
SYLLABI FOR MODULES IN THE SCHOOL	99
MEDALS AND PRIZES IN THE SCHOOL	116

**FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND
INFORMATION TECHNOLOGY**

**ACADEMIC PERSONNEL OF THE SCHOOL OF INFORMATION TECHNOLOGY
AS AT 30 JULY 2000**

DEAN

Prof C.W.I. Pistorius PrEng, BSc(Eng) BEng(Hons)(Pret) MS PhD(Ohio State)
SM(MIT) SMIEEE MASSAf

CHAIRMAN OF THE SCHOOL

Roode, J.D., BSc(Hons) MSc(Fsk) MSc(Wisk)(PU for CHE)
PhD(Leiden) GRVSA LONSA MACM LIRWIT CAIS Director and Professor

Department of Information Science

Bothma, T.J.D., BA(Pret) MA DLitt et Phil(Unisa).....	Professor (Head)
Boon, J.A., BA(PU for CHE) BA(Bibl)(Hons)(Pret) MBibl DLitt et Phil(RAU) Higher Library Dip(Pret) SSAIBI	Extraordinary Professor
De Bruin, H., BLibrary Sc(Hons)(Unisa) MLibrary Sc(Pret) DLibrary Sc(UOFS) SSAIBI	Extraordinary Professor
Lor, P.J., BA (Hons)(Library Sc)(Stell) MLibrary Sc(Pret) DPhil(Pret)	Extraordinary Professor
Malan, C.W., MA(UOFS), HED(Pret), DLitt(UOFS).....	Extraordinary Professor
Cronje, J.C., BA(Hons) MA Med(RGO) DLitt HED(Pret)	Professor
Britz, J.J., BA BD BLibrary Sc(Hons)(Pret) DD(Pret) PSAIBI	Associate Professor
Snyman, M.E. BA(Pret) MA(Pret) DLitt(Pret) HED(Unisa)	Associate Professor
Steyn, J., MA(Pret) PhD(Cape Town)	Associate Professor
Coetzee, H.S., BA(Library Sc) BA(Hons)(Pret) BLibrary Sc (Hons)(Unisa) MLibrary Sc(Pret) HED(Pret) Dip School Library Sc(Unisa) SSAIBI	Senior Lecturer
Cosijn, E., BA(Hons) MA Postgr.Dip in Information Sc(RAU)....	Senior Lecturer
De Wet, K., BA(Hons) BBibl HED MA(Pret) DLitt(Unibo)	Lecturer
Downes-Webb, L.E., BA(HED)(Pret).....	Lecturer
Galloway, F.C.J., BA(UOFS) BA(Hons)(UOFS) MA(UOFS) DLitt(UOFS)	Lecturer
Le Grange, S.G., BA(Unisa) BLibrary Sc(Hons) BA(Hons) (Pret)	Lecturer
Snyman, M.M.M., BA BLibrary Sc(Pret) Postgr Dip in Information Sc(RAU) BLibrary(Hons)(Pret) M(BLibrary)(RAU) DLitt et Phil(RAU)	Lecturer
Squier, M.M., BLibrary(Unisa) BLibrary(Hons)(Pret)	Lecturer
Penzhorn, C.E., BA(Log) BLibrary(Hons)(Pret)	
Thompson, J.E., BA(HED) BEd HDLS MIS(Natal)	Lecturer
Holmner, M.A., BA(Hons) MA(Pret)	Junior Lecturer

Department of Informatics

De Villiers, C., BSc(PU for CHE) BSc(Hons) DCom(Pret) Med DTO HED(Unisa) LRVSA LIRWIT MIRMA MIAIM	Professor (Head)
Du Plooy, N.F., BSc(Hons) MSc(Fsk)(PU for CHE) MBA DCom(Pret) GIRWIT CAIS	Professor (PQAfrica chair)

Information Technology

Burger, A.P., BSc(Hons)(RAU) PhD(Unisa).....	Extraordinary Professor
Roode, J.D., BSc(Hons) MSc (Fsk) MSc(Maths)(PU for CHE) PhD(Leiden) GRVSA LONSA MACM LIRWIT CAIS	Extraordinary Professor
Smith, A.J., BA(PU for CHE) BSc(Hons) MSc(Unisa) DCom(Pret)	Extraordinary Professor
Viktor, H.L., MSc PhD(Stell)	Associate Professor
Heymann, W., BSc MBA(Pret) TOD LRVSA.....	Senior Lecturer
Joubert, P., BSc BCom(Hons) MCom(Pret).....	Senior Lecturer
Leonard, A.C., BSc (Hons)(PU for CHE) MSc(Unisa) DCom(Pret) LRVSA.....	Senior Lecturer
Phahlamohlaka, L.J., BSc(Zululand) MSc(Dalhousie University Canada).....	Senior Lecturer
Badenhorst, H., BCom(Accoun)(Pret) BCom(Hons)(Unisa).....	Lecturer
Le Roux, J.G., BSc(Hons)(Pret)	Lecturer
Mathee, M.C., BSc(Hons) MSc(Wis) DCom(Pret).....	Lecturer

Department of Computer Science

Kourie, D.G., MSc(Pret) MSc(Unisa) PhD(Lancaster)	Professor (Head)
Bishop, J.M., BSc(Hons)(Rhodes) MSc(Natal) PhD (Southampton)	Professor
Van den Heever, R.J., MSc(Pret) MS(Stanford) MEng, PhD(Calif).....	Extraordinary Professor
Lalioti, V., MSc(Cret) PhD(Manchester).....	Associate Professor
Watson, B.W., H.J.B.Math(Waterloo) PhD(Eindhoven).....	Associate Professor
Engelbrecht, A.P., MSc(Stell) PhD(Stell)	Senior Lecturer
Meyer, T.A., MSc(RAU) PhD(Unisa)	Senior Lecturer
Mphahlele, I., SSTC(Setotlwane College) BSc(Unisa) MSc(Unin)	Senior Lecturer
Marshall, L., BSc(Hons)(Pret).....	Lecturer
Ros, N.C.J., BSc HED(Pret) BSc(Hons)(Unisa) MSc(Pret).....	Lecturer
Schoeman, L., BSc(Stell) BSc(Hons)(Unisa) MSc(Pret)	Lecturer

Faculty Manager

Koekemoer, J.F., BSc(Building Management)(Pret) MCom(RAU)

Head: Faculty Administration

Jones, E.

GENERAL INFORMATION

Admission

Any person who wishes to register at the University for the first time, or after an interruption of studies, should apply or reapply for admission. Application for admission to all programmes closes on 30 September.

Selection

A selection procedure takes place prior to admission to the degree courses in the School of Information Technology. The number of students admitted to the undergraduate programme in the School may be limited. Postgraduate selection takes place in accordance with department policy.

Statement of symbols

When registering at this University for the first time, an undergraduate candidate must submit a statement of symbols obtained for subjects in the final Grade 12 examination.

Medium of instruction

In conducting its business, the University uses two official languages, namely Afrikaans and English. In formal education, the medium of instruction is either Afrikaans or English, or both of these languages, provided that there is a demand and that it is academically and economically justifiable. However, it remains the student's responsibility to ascertain on an annual basis in which language a course and any further level of that course is presented.

In respect of administrative and other services, a student has the right to choose whether the University should communicate with him or her in Afrikaans or English.

Bursaries and loans

Particulars of bursaries and loans are available on request.

Accommodation

Applications for accommodation in university residences for a particular year may be submitted as from April 1 of the preceding year. Applications will be considered while vacancies exist, and prospective students are advised to apply well in advance. Please note that admission to the University does not automatically mean that lodging will also be available.

Welcoming Day and Academic Information Week

Details of the welcoming day to which all parents are cordially invited, and the subsequent Academic Information Week during which all new first-year students **must** be present, are obtainable from the Dean of Students, University of Pretoria 0002.

Prescribed books

Lists of prescribed books are not available. The lecturers will supply information regarding prescribed books to students at the commencement of lectures.

Amendment of regulations and fees

The University retains the right to amend the regulations and to change tuition fees without prior notification.

NEW SYSTEM OF EDUCATION

In 2000 the University of Pretoria started to phase in a new system of education and learning which corresponds with the required guidelines of SAQA (the South African Qualifications Authority) and the NQF (National Qualifications Framework). In this system programmes are offered which are outcomes-based, student-centred and market-orientated.

GLOSSARY OF TERMS

academic year: The duration of the academic year, which is determined by the University Council.

admission regulation: A regulation compiled by the Dean concerning the admission of students to a specific School, which includes a provision regarding the selection process.

credit (or credit value): A value unit linked to learning activities, calculated in accordance with the SAQA norm of **1 credit = 10 notional hours (learning hours)**. Credits are linked to modules and qualifications.

course: see module

curriculum: A series of modules which form a programme, grouped together over a specified period of time and in a certain sequence according to the regulations.

examination mark: The mark a student obtains for an examination in a module, including practical examinations where applicable.

extended study programme: A study programme for a degree or diploma that is completed over a longer period than the minimum duration of the particular degree or diploma.

final mark: The mark calculated on the basis of the semester/year mark and the examination mark a student obtains in a particular course according to a formula which is determined from time to time in the regulations for each module with the proviso that should no semester/year mark be required in a module, the examination mark serves as the final mark.

GS: A combined mark (semester/year mark plus examination mark) of at least 40%.

learning outcome: The end product of a specified learning process, i.e. the learning result (specific skills) that one intends to achieve at the end of the learning process.

level of a module: The academic level (year) of a module, which is indicated in the module code and which gives an indication of the complexity of the module.

Module: An independent, defined learning unit, designed to result in a specific set of learning outcomes, and which is a component of a programme.

module code: Consists of an equal number of letters and digits, which indicate the name of the module, the year of study, the period of study and the level of the module.

notional hours (learning hours): The notional number of hours students should spend to master the learning content of a particular module or programme. The total number of learning hours for a module consists of the time needed for lectures, tutorials and practicals (contact hours), as well as for self-study, examination preparation and any other activity required by the study programme. (**notional hours = credits x10**)

NQF: National Qualifications Framework. This is a national framework in which all SAQA-registered qualifications are listed, arranged on eight levels in accordance with the complexity of the qualification.

programme: This is a comprehensively planned, structured and coherent set of teaching and learning units (modules), designed to attain a specific set of predetermined learning

outcomes at a specific level, which culminates in a students being awarded a particular qualification (diploma, degree).

qualification: In outcomes-based education, a qualification is a diploma or a degree which is obtained after attaining the learning outcomes as specified in a coherent learning programme, expressed as an accumulation of credits at specific levels.

SAQA: South African Qualifications Authority. This body has been established by law and has as its purpose of the registration of qualifications, programmes and unit standards, in order to ensure that specific national and international criteria are achieved.

semester/year mark: The mark a student obtains during the course of a semester or a year for tests, class-work, practical work or any other work in a particular module as approved by regulation.

student-centred learning: Teaching and learning methodology, which facilitates the total own responsibility for the learning process. A prerequisite is that lectures, tutorials and practicals be adapted so that active participation by students is always achieved.

Syllabus: Summary of the contents of a module.

weighted average: the weighted average is composed of the marks of the various modules, weighted with the credits of each course as a fraction of the total number of credits for the semester or year.

DEGREES CONFERRED IN THE SCHOOL OF INFORMATION TECHNOLOGY

The Faculty of Engineering, Built Environment and Information Technology has three schools i.e. the School of Engineering; the School for the Built Environment and the School of Information Technology.

The School of Information Technology consists of three departments i.e. the Department of Informatics; the Department of Information Science and the Department of Computer Science. Three Faculties present the degrees that resort under the School of Information Technology. This implies that although the Department of Informatics resorts under the School for Information Technology, the degree is conferred by the Faculty of Economic and Management Sciences (see below for further details).

Faculty of Engineering, Built Environment and Information Technology

The following degrees are presented in this Faculty:

- (a) Baccalaureus in Information Technology
- (b) Diploma in Information Technology
- (c) Magister in Information Technology
- (d) Philosophiae Doctor

Department of Information Science

The following degrees are conferred by the Faculty of Humanities:

- (a) Baccalaureus Informationis Scientiae - B.IS
 - (i) with specialisation in Library and Information Science
 - (ii) with specialisation in Information Science
 - (iii) with specialisation in Multimedia
 - (iv) with specialisation in Publishing
 - (v) with specialisation in Information and Knowledge Management

Information Technology

- (b) Baccalaureus Informationis Scientiae Honores
 - (i) with specialisation in Library Science
 - (ii) with specialisation in Information Science
 - (iii) with specialisation in Multimedia
 - (iv) with specialisation in Publishing

- (c) Magister Informationis Scientiae (coursework)
 - (i) with specialisation in Library Science
 - (ii) with specialisation in Information Science
 - (iii) with specialisation in Multimedia
 - (iv) with specialisation in Development Communication
 - (v) with specialisation in Publishing

- (d) Magister Informationis Scientiae (research)
 - (i) with specialisation in Library Science
 - (ii) with specialisation in Information Science
 - (iii) with specialisation in Multimedia
 - (iv) with specialisation in Development Communication
 - (v) with specialisation in Publishing

- (e) Philosophiae Doctor
 - (i) Philosophiae Doctor with specialisation in Information Science
 - (ii) Philosophiae Doctor with specialisation in Library and Information Science
 - (iii) Philosophiae Doctor with specialisation in Communication Management
 - (iv) Philosophiae Doctor with specialisation in Publishing

Department of Informatics

The following degrees are conferred by the Faculty of Economic and Management Sciences:

- (a) Baccalaureus Commercii with specialisation in Informatics
- (b) Magister Commercii with specialisation in Informatics
- (c) Doctor Commercii with specialisation in Informatics
- (d) Philosophiae Doctor with specialisation in Informatics

Department of Computer Science

The following degrees are conferred by the Faculty of Natural and Agricultural Sciences:

- (a) Baccalaureus Scientiae with specialisation in Information Technology:
 - (i) Information and Knowledge Systems
 - (ii) Computer Systems
 - (iii) Computer Science
- (b) Baccalaureus Honores Scientiae with specialisation in Computer Science
- (c) Magister Scientiae with specialisation in Computer Science
- (d) Philosophiae Doctor with specialisation in Computer Science

REGULATIONS

IT.1 Admission to undergraduate study**(a) General**

General Regulation G.1. to G.15. is applicable to baccalaureus degrees.

Where the General Regulations have vested authority in the Faculty to determine other rules, these rules appear in this publication.

To register for a first bachelor's degree at the University, a candidate must, in addition to the required Grade 12 certificate with university endorsement, comply with the specific admission requirements for particular courses and fields of study as prescribed in the admission regulations and the faculty regulations.

(b) Computer and Information Literacy

Computer literacy is presented as a compulsory course, but exemption may be granted to students who pass the Computer and Literacy exemption test which takes place at the beginning of the year.

(c) Language Proficiency

It is expected of every new undergraduate student who wishes to register at the University of Pretoria, to complete a language proficiency test. Students who have passed will be granted exemption from the compulsory EO modules.

(d) The following persons may also be considered for admission:

(i) A candidate who is in possession of a certificate which is deemed by the University to be equivalent to the required Grade 12 certificate with university endorsement.

(ii) A candidate who is a graduate from another tertiary institution or has been granted the status of a graduate of such an institution.

(iii) A candidate who passes an entrance examination, which is prescribed by the University from time to time.

Note: A conditional exemption certificate does not grant admission to bachelor's study. However, in certain circumstances some of the faculties do accept a conditional exemption on the basis of mature age and prior knowledge. Candidates are advised to contact the specific faculty administration in this regard.

(e) The Senate may limit the number of students allowed to register for a programme, in which case the Dean concerned may, at his discretion, select from the students who qualify for admission, those who may be admitted.**(f) Subject to faculty regulations and the stipulations of General Regulations G.1.3 and G.62, a candidate will only be admitted to postgraduate studies, if he or she is already in possession of a recognised bachelor's degree.**

IT.2 Specific requirements for the degree Baccalaureus in Information Technology (B.IT) (Code: 02130082)

A candidate should have obtained at least 50% in Mathematics and in Computer Studies on Higher Grade in the final Grade 12 examinations as well as a minimum M score of 18 for admission to this undergraduate study direction in the School of Information Technology. If a candidate, after completion of the Grade 12 examinations and after publication of the matriculation results, does not comply with the admission requirements, but has obtained a D symbol for Mathematics and/or Computer Studies (if applicable) on Higher Grade, and an M score of at least 12, then he/she may write an admissions test. Admission will then be considered on the basis of these results.

It is possible to be admitted to the BInformation Technology degree without having taken Computer Studies at school. In this instance a student will register for COS 160 in the second semester of the first year of study and the duration of the degree will then be lengthened by at least six months.

The M score is calculated as follows:

Symbol	Higher Grade	Standard Grade
A-symbol (80% and more)	5	4
B-symbol (70% to 79%)	4	3
C-symbol (60% to 69%)	3	2
D-symbol (50% to 59%)	2	1
E-symbol (40% to 49%)	1	0

IT.3 Special prerequisites:

A candidate:

- (a) (i) who has passed the Grade 12 examination in Computer Studies with at least 50% (D) at higher grade, obtains admission to the module COS 110 in Computer Science; **or**
- (ii) who has passed COS 130, obtains admission to the module COS 110 in Computer Science; **or**
- (iii) who has passed COS160 as well as Mathematics with at least 50% (D) at higher grade, obtains admission to the module COS 110 in Computer Science; **or**
- (iv) who has passed COS 160 and has been admitted to the module WTW101, obtains admission to the module COS 110 in Computer Science; **or**
- (v) who has passed Mathematics with at least 50% (D) at higher grade, as well as the exemption test for computer programming, obtains admission to the module COS 110 in Computer Science.
- (b) obtained at least 40% in Mathematics at higher grade or 50% in Mathematics at standard grade in the grade 12 examination, or at least 50% in Statistics 113, 123 will be admitted to (i) a module in Banking, Informatics (except INF 153, 154, 163, 164, 253 and 263) or Statistics, and (ii) modules in Marketing Management, Economics, Financial Management and Financial Accounting at 200 level.
- (c) written and passed an exemption examination at the commencement of module FRK 151 that will cover the Accounting syllabus for Grade 12 (matric) will be exempted from FRK 151. These students may immediately

enrol for FRK 181, a subject that covers computer applications in accounting and is offered for the duration of the first semester (14 weeks). Otherwise, students must enrol for FRK 151 – a subject that involves computer-assisted accounting tuition, as well as a number of lectures. In the second semester, the students who did not obtain exemption from FRK 151 but have passed the subject in the interim, must enrol for FRK 181. Modules FRK 151, 152, 121 and 211 will only be recognised for degree purposes once the student has also passed FRK 181.

- (d) obtained at least 50% in Mathematics at higher grade, or 60% in Mathematics at standard grade in the grade 12 examination, or at least 40% in Mathematics higher grade or 50% in Mathematics standard grade in grade 12, as well as a minimum of 60% in Computer Studies higher grade, or 70% in Computer Studies standard grade in grade 12, or an average of at least 60% in Statistics 110, 120, or an average of at least 60% in ((Statistics 113*, 123*) and (Statistics 120*)), will be admitted to Informatics 153, 154, 163, 164, 253 and 263 (*a minimum of 50% is required).

Note:

- 40% on higher grade for these purposes is considered equal to 50% on standard grade.
...the Grade 12 examination... refers to the final matriculation examination.
- A student who follows a module which is presented in another faculty, must acquaint him/herself and comply with the admission requirements of the module in question, subminima requirements, examination periods, etc.

IT.4 Registration for a specific year

A student registers for all the modules he or she intends taking in that specific year (first and second semester modules and year modules) at the beginning of an academic year. Changes to a curriculum at the beginning of the second semester may be made only with the approval of the Dean.

IT.5 Examinations

(a) Examination admission and pass requirements

A student must obtain a minimum semester/year mark of 40% to gain examination admission to a module, with the exception of first quarter/semester modules at 100 level where 30% is required. In addition a student must also comply with all departmental requirements as set out in the description of the syllabi. A subminimum of 40% is required in the examination of each module, except where otherwise stipulated in the faculty regulations. A student must obtain a final mark of at least 50% to pass a module.

(b) Subminima in examinations

Subminima required in examinations (if any), appear in the regulations of the relevant degree and in the syllabi of the modules.

(c) Examinations

The examinations for modules of the first semester are held in May/June, while all other examinations (second semester modules and year modules) are held in October/November.

(d) Ancillary/supplementary examinations

Supplementary examinations in first semester modules at 100 level are granted in accordance with the stipulations of General Regulation G.12.4.2. Also refer to the Rules and Regulations of the faculties where the relevant modules are presented as well as General Rule G.12 for further information.

(e) Re-marking of examination scripts (also consult Reg. G.14)

After the examinations, the Departments must provide the students with information regarding the framework used by the examiners during the examinations. The Head of Department will determine the procedure which will be followed. Students may, after perusal and within 14 days after the commencement of lectures in the following semester apply for the remarking of an examination paper. After payment of the prescribed fee, the paper will be remarked by an examiner who will be appointed by the Head of the Department.

(f) Special examination

In terms of the provisions of General Regulation G.12.6, the Dean may, on the recommendation of the Head of the Department concerned, grant a special examination to a student in the final year of study who has failed a limited number of modules and can therefore not comply with degree requirements, or who is not able to continue with his or her studies in the final semester in a meaningful way. A student must apply in writing to the Dean to be considered for special examination(s).

In the School of Information Technology, students in the final year of study who have failed a maximum of two modules or who require a maximum of two modules to comply with degree requirements and have also obtained examination admission to the modules, qualify for special examinations. The Dean, on the recommendation of the Head of the Department concerned, decides when the special examinations will take place. The particular Head of the Department may, at his or her discretion, prescribe work which must be completed satisfactorily before a student may sit for this examination.

The pass mark for a special examination is 50% and a higher mark will not be awarded.

IT.6 Renewal of registration

Should a student who is repeating a year of study, fails to obtain sufficient credits to be promoted to the subsequent year of study at the end of the year of repetition, he or she will forfeit his or her right of readmission. Student who forfeit the right of readmission, may apply in writing to the Admissions Committee for readmission to the Faculty. Details regarding promotion appear in the regulations of the relevant study direction.

IT.7 Modules in other faculties

A student who follows a module presented by another school or faculty must familiarise himself or herself with the admission requirements of the specific module, the subminima in examination papers, time of supplementary examinations, etc.

IT.8 Change of study direction

Transfer from one field of study to another may only take place with the Dean's approval, after consultation with the relevant Head of Department.

IT.9 Minimum study period

The minimum period of study for the degree is indicated at the relevant degree course.

IT.10 Registration of modules

- (a) Final cut-off dates are set for the change of modules (removing or adding) for each academic year. These dates are available from the Faculty Administration offices.
- (b) A student may not register for a module of a subsequent year if a timetable clash occurs with a module of a previous year which has not yet been passed and which is prescribed for his or her field of study, unless exemption is obtained from class attendance in the latter module.
- (c) Should a student register for modules of the second semester at the beginning of a year of study, and it becomes evident at the end of the first semester that he or she does not comply with the prerequisites of the second semester modules, the registration of such modules will be cancelled. It is also the student's responsibility to ensure at the beginning of the second semester that the cancellation has been brought about.

IT.11 Degree with distinction

The B.IT degree is conferred with distinction on a student who passes all modules in the fourth year of study in a single academic year, and obtains a weighted average of at least 75% in those modules, provided that a subminimum of 65% is required in each of those modules.

IT.12 Promotion requirements

A student is promoted to the following year of study if he/she has passed at least 50% of the modules of the specific study year. A student cannot, however, be promoted to the fourth year of study unless all the modules up to and including the third year of study have been passed. Exceptional cases may be considered by the Director : School of Information Technology.

CURRICULLA OF PROGRAMMES**IT.13 BACCALAUREUS IN INFORMATION TECHNOLOGY (B.IT)(Code 02130082)**

(This degree is conferred by the Faculty of Engineering, Built Environment and Information Technology)

Curriculum

The list of required modules is given below in a proposed study programme. The degree is awarded upon successful completion of a minimum of 680 credits, of which at least 158 are required at first-year level, at least 161 at second-year level, at least 189 at third-year level, and at least 172 at fourth-year level. Note: The module credits set out below are in accordance with SAQA requirements and may differ from those set out in other study directions.

Note:

Minimum requirement

() Code in brackets: (XYZ 151) Admission to examination

GS Code followed by GS: XYZ 151 GS Average of 40% - 49%

† Code followed by †: XYZ 151† Concurrent registration

Deviations from these requirements are only permitted with the approval of the Dean, after consultation with the relevant Head(s) of Department(s).

(a) First year of study (minimum of 148 credits)

University requirements (24 credits)

Passing of an exemption examination on computer literacy

or

CIL 171	Computer and Information Literacy 171	3
CIL 172	Computer and Information Literacy 172	3
CIL 173	Computer and Information Literacy 173	3
CIL 174	Computer and Information Literacy 174	3

Passing of an exemption examination:

or

EOI 151	Language Proficiency 151	3
EOI 152	Language Proficiency 152	3
EOI 153	Language Proficiency 153	3
EOI 154	Language Proficiency 154	3

and

Any two ENG modules (min 12, max 20 credits) according to the requirements set by the Department of English.

Code	Module	Prerequisite	Credits
COS 110	Program Design and Evaluation110	Par IT.3	16
COS 212	Data Structures and Algorithms 212	COS 110 or TD	12
COS 283	System Integration 283	COS 110 or TD	12
EKN 110	Economics 110 and	-	10
EKN 120	Economics 120	EKN 110 GS	10
	or		
OBS 110	Business Management 110		10
	and		
OBS 120	Business Management 120	OBS 110 GS	10
FRK 151	Financial Accounting 151	Par IT.3	5
FRK 152	Financial Accounting 152	FRK 151, Par IT.3	5
FRK 181	Financial Accounting 181	IT.3 FRK 151 GS	3
FRK 121	Financial Accounting 121	FRK 151, 152 GS	5
INF 153	Informatics153	Par IT.3	5
INF 163	Informatics 163	INF 153 GS	5
INL 111	Information Science 111	-	6
INL 112	Information Science 112	-	6
STK 110	Statistics 110	Par IT.3	13
STK 120	Statistics 120	Par IT.3	13

WTW 115	Discrete Structures 115	Par IT.3	8
WTW 152	Mathematical Modelling 152	Par IT.3	8
(b) Second year of study (minimum 169 credits)			
COS 213	Advanced Programming 213	COS 110 of TD	12
COS 221	Data Bases 221	COS 110 of TD	12
	or		
INF 251	Informatics 251	CIL 171, 172, 173, 174, INF 152 of TD	9
	and		
INF 252	Informatics 252	(INF 251)	9
INF 261	Informatics 261	INF 25 GS	9
FIL 151	Philosophy 151	-	6
FIL 153	Philosophy 153	-	6
COS 222	Operating Systems 222	COS 110 of TD	12
COS 284	Computer Architecture 284	COS 110 of TD	12
INF 253	Informatics253	CIL 171, 172, 173, 174, INF 163, Par IT.3	9
INF 263	Informatics 263	INF 253 GS	9
INL 211	Information Science 211	-	10
INL 212	Information Science 212	-	10
INL 221	Information Science 221	-	10
WTW 285	Discrete Structures 285	WTW 115	12
EKN 251	Economics 251 and	-	8
EKN 252	Economics 252 and	EKN 151,152/ 120 GS, Par IT.3	8
EKN 220	Economics 220	EKN 151, 152, EKN 251, 252 GS	8
	or		
OBS 251	Business Management 251	OBS 151, 152/ OBS 161, 162 GS Par IT.3	8
	and		
OBS 252	Business Management 252	-	8
	and		
OBS 261	Business Management 261	OBS 151, 152/ OBS 161, 162 GS Par IT.3	8
	and		
OBS 262	Business Management 262		8
(c) Third year of study (minimum 191 credits)			
COS 301	Software Engineering 301	COS 110 of TD	18
	or		
INF 353	Information Systems		
Project 353			
	and	INF 253, 263	11
INF 354	Information Systems		
Project 354		INF 263, Par IT.3	11
	and		

Information Technology

INF 363	Information Systems Project 363	INF 353 GS	11
COS 332	Computer Networks 332	COS 283 of TD	18
	or		
INF 351	Informatics 351 and	CIL 171, 172, 173, 174, INF 262	11
INF 352	Informatics 352	(INF 351)	11
INF 361	Informatics 361	INF 263	11
INF 362	Informatics 362	(INF 361)	11
INL 311	Information Science 311	-	15
INL 321	Information Science 321	-	15
INY 311	Multimedia 311	-	15
INY 325	Interface Design 325	-	15
INY 326	Markup Languages 326	-	15
FIL 251	Philosophy 251	-	10
FIL 254	Philosophy 254	-	10

At least **two** of the following:

COS 343	Trends in Information Technology 343	COS 110 of TD	18
COS 314	Artificial Intelligence 314	COS 110 of TD	18
COS 324	Concurrent and Distributed Systems 324	COS 222 of TD	18
COS 333	Comparative Programming Languages 333	COS 110 of TD	18
COS 341	Compiler Construction 341	COS 212 of TD	18

(d) Fourth year of study (minimum 172 credits)

BER 410	Business Law 410	-	12
---------	------------------	---	----

Four modules (minimum 80 credits) from the following, of which at most 2 may be from a particular discipline:

Information Science

INY 771	Information Management 771	32
INY 772	Information Retrieval 772	32
INY 773	Multimedia 773	32

Informatics

INF 781	Information Security 781	20
INF 782	Electronic Commerce 782	20
INF 783	Computer Supported Work 783	20
INF 785	Advanced Data Base Systems 785	20
INF 787	Management of Projects and End Users 787	20

Computer Science

GRF 780	Graphics 780	20
KMI 780	Artificial Intelligence 780	20
PIN 780	Software Engineering 780	20

RNW 780	Networks 780	20
VRS 780	Distributed Computer Systems 780	20

Four modules (minimum 80 credits) from a list of modules to be offered in co-operation with Industry, each equivalent to 20 credits

(e) Requirements for promotion to the following year of study

Also consult General 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 50% of the credits of the first year of study
 - Third year of study after obtaining at least 50% of the credits of the first year of study
 - Fourth year of study after obtaining all credits of the third year of study.
- (iii) The degree is conferred when all prescribed modules have been passed.

IT.14 DIPLOMA IN INFORMATION TECHNOLOGY (Code: 02120030)

(a) Admission requirements:

Candidates in possession of the following qualifications will be admitted to the diploma:

Grade 12 certificate with university endorsement

and

At least 50% for Mathematics higher grade or at least 60% for Mathematics on standard grade.

The Dean may, in conjunction with the Director of the School of Information Technology, consider admission to the diploma on grounds of extraordinary circumstances.

(b) Duration of the diploma

Two years full-time or telematic (254 credits)

(c) First year of study (minimum 107 credits)

Code	Module	Prerequisites	Credits
------	--------	---------------	---------

Fundamental modules (University requirements - 24 credits)

Passing of an exemption examination on computer literacy

or

CIL 171	Computer and Information Literacy 171		3
CIL 172	Computer and Information Literacy 172		3
CIL 173	Computer and Information Literacy 173		3
CIL 174	Computer and Information Literacy 174		3

Information Technology

Passing of an exemption examination:

or

EOI 151	Language Proficiency 151		3
EOI 152	Language Proficiency 152		3
EOI 153	Language Proficiency 153		3
EOI 154	Language Proficiency 154		3

Core modules (74 credits)

COS 130	Computer Science 130		16
and/or			
COS 110	Computer Science 110		16
INF 153	Informatics 153	Par IT.3	5
INF 163	Informatics 163	INF 153 GS	5
INL 111	Information Science 111	-	6
INL 112	Information Science 112	-	6
OBS 110	Business Management 110	-	10
OBS 120	Business Management 120	OBS 110 GS	10

Elective modules (9 credits)

STK 110	Statistics 110	Par IT.3	13
WTW 115	Discrete Structures 115	Par IT.3	8
EKN 110	Economics 110	-	10
FRK 151	Financial Accounting 151	Par IT.3	5
FRK 152	Financial Accounting 152	FRK 151, Par IT.3	5
FRK 181	Financial Accounting 181	IT.3 FRK 151 GS	3
FRK 121	Financial Accounting 121	FRK 151, 152 GS	5

(d) Second year of study

Code	Module	Prerequisite	Credits
Core modules (minimum 129 credits or 135)			
COS 221	Data Bases 221	COS 110 or TD	12
or			
INF 251	Informatics 251	CIL 171, 172, 173, 174, INF 152 or TD	9
and			
INF 252	Informatics 252	(INF 251)	9
INF 253	Informatics 253	CIL 171, 172, 173, 174, INF 163, Par IT.3	9
INF 261	Informatics 261	INF 25 GS	9
INF 263	Informatics 263	INF 253 GS	9
COS 222	Operating Systems 222	COS 110 or TD	12
COS 284	Computer Architecture 284	COS 110 or TD	12
INL 211	Information Science 211	-	10
INL 212	Information Science 212	-	10
INL 221	Information Science 221	-	10
COS 213	Advanced Programming 213	COS 110 or LP	12

COS 222	Operating Systems 222	COS 110 or LP	12
COS 284	Computer Architecture 284	COS 110 or LP	12

(e) Third year of study

Code	Module	Prerequisites	Credits
Core modules (minimum 18 of 22 credits)			
COS 332	Computer Networks 332	COS 283 or TD	18
	or		
INF 351	Informatics 351 and	CIL 171, 172, 173, 174, INF 262	11
INF 352	Informatics 352	(INF 351)	11

POSTGRADUATE PROGRAMMES**IT.15 MAGISTER IN INFORMATION TECHNOLOGY (Coursework)**
(Code: 02250082)

(This degree is only presented in English.)

(a) Admission

Subject to the stipulations of Gen. Reg G.1,3; G.30 and G.62, an appropriate four-year degree is a requirement for admission. Work experience is recommended.

(b) Duration

A minimum of two years part-time studies.

(c) Conferment of the degree

The M Information Technology degree is conferred on a student who successfully completes 240 credits.

Project	60 credits
Core modules	60 credits
Fundamental en elective modules	120 credits

(d) Pass requirements

At least 50% has to be obtained in the project as well as the prescribed course work.

(e) Degree with distinction

The degree is conferred with distinction on students who obtain a final mark of at least 75%.

(f) Curriculum

The curriculum is determined in consultation with the programme co-ordinator.

IT.15 PHILOSOPHIAE DOCTOR IN INFORMATION TECHNOLOGY
(Code: 02260593)

Also consult General Regulations G.45 to G.62.

- (a) Subject to the stipulations of Regulations G.45 and G.62, no candidate is admitted to doctoral studies unless he holds an appropriate master's degree.
- (b) Unless the Dean, on the recommendation of the Director of the School, decides otherwise, the PhD degree is conferred on the basis of a thesis and an examination on the thesis.
- (c) Unless the Dean, on the recommendation of the Director of the School, decides otherwise, a student shall submit at least one draft article to a recognised journal for publication, before or concurrent with the submission of the thesis. The draft article must be based on the research undertaken for the thesis and must be acceptable to the supervisor.
- (d) The student must provide proof by means of his work, thesis and examination of advanced original research and/or creative work which makes a real and substantial contribution to the relevant field of research.

SYLLABI FOR THE SCHOOL OF INFORMATION TECHNOLOGY

Note: The number of lectures and practicals indicated below refer to the number presented per week.

THE MODULES LISTED BELOW RESORT UNDER THE SCHOOL FOR INFORMATION TECHNOLOGY
--

(CIL 171) Computer and Information Literacy 171 (2 lectures)

Keyboard and mouse skills, e-mail, basic Internet and Web skills, basic theoretical introduction to hardware and software. Windows as operational system.

(CIL 172) Computer and Information Literacy 172 (2 lectures)

Word processing programs: Creation, editing and formatting of documents, outline editing, automatic numbering and footnotes, tables and columns, insertion of multimedia, data exchanges etc. Presentation programs: Creation of presentations, together with figures, text animation and the insertion of multimedia

(CIL 173) Computer and Information Literacy 173 (2 lectures)

Spreadsheet programs: basic spreadsheet skills including formulas and diagrams. Database programs: Basic database skills including searches, compilation of reports, etc.

(CIL 174) Computer and Information Literacy 174 (2 lectures)

Search strategy formulation: the use of Boolean operators, natural language and controlled language. Searches on CD-ROM and the Internet; the evaluation of Internet search engines. The analysis, organization and synthesizing of information. Resources study.

(COS 110) Program Design and Evaluation 110(4 lectures +1 practical)

The study material is divided into the following parts: - 1. Object-oriented programming, graphical user interfaces and event handling. Emphasis on sound program design, well-structured and documented programs, and robustness (no errors). 2. General background to the discipline of Computer Science.

(COS 130) Introduction to Programming 130 (4 lectures + 1 practical)

Introduction to the programming language C, covering fundamental computer programming concepts in order to write well-structured, efficient programs. Topics that are covered include statement sequences, selection, iteration, arrays, sorting and searching, functions, parameter transfer, basic data structures, pointers and elementary file handling. An introduction is given to more advanced data structures.

(COS 160) Bridging Course 160 (4 lectures + 1 practical)

Introductory programming in an appropriate high-level language as preparation for COS 110. This includes statement sequences, selection, iteration, arrays, sorting and searching, modularity (functions and procedures), parameter transfer, elementary file handling.

(COS 212) Data structures and Algorithms 212 (2 lectures + 1 practical)

Data abstraction for producing correct and reusable software. Designing abstract data types for the classic data structures, i.e. stacks, queues, lists, trees and graphs. Variations that can be made to the implementation of the structures without changing their interfaces. Choosing the appropriate version for efficiency.

Classic algorithms for sorting, searching and traversing, and their efficiency. Recursive implementation of some of the algorithms. The meaning of algorithmic complexity and an appreciation of the limits of computing, through examples of problems that cannot be solved in reasonable time.

(COS 213) Advanced Programming 213 (2 lectures + 1 practical)

The course teaches students advanced programming skills using an object-oriented programming language that is widely used in industry. Formal methods for program design and program verification are also studied, based on a formal notation.

(COS 221) Data Bases 221 (2 lectures + 1 practical)

This module is an introduction to databases, data base management systems and the design of a database. The design of databases is done according to the 'Entity-Relationship' model. The focus is on relational database systems. Distributed databases, object databases and logic databases are also introduced. A 4GL is used on a state-of-the-art enterprise resource planning (ERP) system to practically illustrate theoretical concepts.

(COS 222) Operating Systems 222 (2 lectures + 1 practical)

Design issues for each of the following functional areas of operating systems are studied: process management, memory management, file systems, input/output management and deadlock. A number of case studies of operating systems are analysed as examples of operating system design.

(COS 283) System Integration 283 (2 lectures + 1 practical)

An introduction to proper coding standards. Networking principles focusing on the use of Java for WWW and network programming, including HTML, Java script, applets, ports and sockets. Remote method invocation (RMI) in Java applications. Database connectivity using JDBC.

(COS 284) Computer Architecture 284 (2 lectures + 1 practical)

The aim of this course is to gain a deeper understanding of computers by studying their underlying components. The CPU is studied in great detail, covering design decisions such as CISC/RISC architectures, paging and pipelining. Cache, memory and bus architectures will also be scrutinized. IO architectures will be covered (i.e. polling vs. interrupt driven or DMA).

Topics such as parallel processing (SIMD) are also touched. A brief review of number systems, combinatorial circuits, and sequential circuits (latches, counters etc.). To illustrate many of the concepts in practice, the practicals will cover an assembly language. This will cover topics like interrupts, IO and video memory.

(COS 289) Introduction to Digital Systems 289 (2 lectures + 1 practical)

Introduction to digital circuit design, digital representation of numbers, representation and simplification of logic functions, analysis and design of combinatorial circuits, components of sequential circuits, programmable components for combinatorial and sequential logic, microprocessor fundamentals.

(COS 301) Software Engineering 301 (1 lecture + 1 practical)

The course exposes students to problems associated with software development on an industrial scale. Overall goals of the course are: * to understand the software engineering process and to appreciate its complexity; * to be exposed to a variety of methodologies for tackling different stages of the software lifecycle; * to become familiar with the latest trends in software engineering; * to experience the advantages and problems of working in a group; * to assume a variety of roles within a group, and to understand the different requirements each has; * to complete the development of a fairly large OO-based software product. The focus of the course is on a project that lasts the whole year. The project is tackled in groups of approximately four students.

(COS 314) Artificial Intelligence 314 (2 lectures + 1 practical)

In this course, classical themes in AI are studied such as planning, searching, image recognition, machine learning, etc are studied. A particular focus is placed on the modern AI theme of computational intelligence, with reference to neural networks, intelligent agents, genetic and evolutionary algorithms, etc. Concepts are consolidated through homework and practical assignments.

(COS 324) Concurrent and Distributed Systems 324 (2 lectures + 1 practical)

As its name suggests, this course has two parts. The first looks at concurrency, what it means, how it can be exploited, and what facilities are available for proving programs correct. Classical algorithms for the control and synchronisation of concurrent processes are studied. The second part of the course looks at real distributed systems, in particular operating systems. Issues discussed are communication, clocks, mutual exclusion, atomic transaction, deadlock, file systems, threads and processor allocation – all in a distributed environment. Languages available for concurrent and distributed programming are discussed.

(COS 332) Computer Networks 332 (2 lectures + 1 practical)

The objective of this course is to acquaint the student with the terminology of communication systems and to form a good understanding of exactly how data is transferred in such communication networks, as well as applications that can be found in such environments. The study material includes: concepts and terminology, the hierarchy of protocols according to the OSI and TCP/IP models, protocols on the data level, physical level and network level and the X.25 network interface standard, as well as higher level protocols. Other related areas like high speed networks, ISDN and distributed systems are also discussed. The working of networks is illustrated by means of projects.

(COS 333) Programming Languages 333 (2 lectures + 1 practical)

The overall goal of the course is to survey characteristics of the most important kinds of programming languages. Three paradigms are studied: imperative, functional and logic. The syntax, semantics and implementation of various languages within these paradigms are studied, critiqued and cross-compared. Students are given practical exercises in each of these language paradigms, as well as in scripting languages.

(COS 341) Compiler Construction 341 (2 lectures + 1 practical)

The course illustrates how to build a complete compiler for a mini-language. As such, it serves as an example of a meaningful full-scale software engineering project. The compilation is based on recursive-descent parsing and a generic RISC architecture is used for the target machine. Related themes such as error handling and code optimisation are also discussed.

(COS 343) Trends in Information Technology 343 (2 lectures + 1 practical)

The content of this course is specifically intended to keep students abreast of new and important trends in IT. The course focuses on relevant topics that vary from year to year at the discretion of the department. (NOTE: This course will not be presented in 2001).

(COS 344) Computer Graphics 344 (2 lectures + 1 practical)

The aim of this course is to acquire a sound knowledge of the basic theory of Interactive Computer Graphics and basic computer graphics programming techniques. The theory will cover Graphics Systems and Models, Graphics programming, Input and Interaction, Geometric Objects and Transformations, Viewing in 3D, Shading, Rendering Techniques, and introduce advanced concepts, such as Object-Oriented Computer Graphics, Discrete Techniques and Curves and Surfaces and Visualisation.

The course includes a practical component that enables students to apply and test their knowledge in Computer Graphics. The OpenGL graphics library and application programmer's interface (API) and the C programming language will be used for this purpose. After completing the course, a student should be able to design and implement Computer Graphics applications that allow interaction, 3D manipulation of graphic primitives, animation and walk throughs, using the OpenGL language. At a theoretical level the student would have a sound knowledge of the basic concepts and mathematics of Computer Graphics and have an introductory knowledge of more advanced issues.

(COS 389) Microprocessor Systems 389 (2 lectures + 1 practical)

Covers the following areas of the 80x86 IBM PC and compatible computers: microprocessors and supporting chips, memory and memory interfacing, input/output and interfacing, timer and music, interrupts, device drivers, buses, programming in C and assembly language.

(INF 151) Informatics 151 (3 lectures)

Introduction to information systems, information systems in organisations, hardware: input, processing, output, software: systems and applications software, organisation of data and information, telecommunications and networks, the Internet and intranets.

(INF 152) Informatics 152 (3 lectures)

Transaction processing systems, management information systems, decision support systems, information systems in business and society, systems analysis, systems design, implementation, maintenance and revision.

(INF 153) Informatics 153 (2 lectures)

General systems theory, creative problem solving, soft systems methodology.

(INF 154) Informatics 154 (1 lectures + 2 practicals)

Introduction to programming.

(INF 163) Informatics 163 (2 lectures)

The systems analyst, systems development building blocks, systems development, systems analysis methods, process modelling.

(INF 164) Informatics 164 (1 lectures + 2 practicals)

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

(INF 251) Informatics 251 (3 lectures + 2 practicals)

Database design: the relational model, structured query language (SQL), entity relationship modelling, normalization, data base development life cycle; practical introduction to database design.

(INF 252) Informatics 252 (3 lectures + 2 practicals)

Databases: advanced entity relationship modelling and normalization, object-oriented databases, data base development life cycle, advanced practical data base design.

(INF 253) Informatics 253 (3 lectures + 2 practicals)

Systems analysis, systems design: construction, application architecture, input design, output design, interface design, use of computer-aided development tools, programming.

(INF 254) Informatics 254 (1 lectures + 2 practicals)

Application of spreadsheets and query languages in an accounting environment.

(INF 261) Informatics 261 (3 lectures + 2 practicals)

Data base management; transaction management, concurrent processes, recovery, data base administration; new developments: distributed databases, client-server databases; practical implementation of databases.

(INF 262) Informatics 262 (3 lectures + 2 practicals)

Operating systems: memory management, processor management, device management, file management, system management, concurrent processes, practical application in commercial operating systems.

(INF 263) Informatics 263 (3 lectures + 2 practicals)

Systems design: internal controls, program design, object design; project management, system implementation, use of computer-aided development tools, advanced programming.

(INF 264) Informatics 264 (1 lectures + 2 practicals)

Application of spreadsheets and query languages in an accounting environment.

(INF 351) Informatics 351 (3 lectures + 2 practicals)

Data communications and networks: fundamentals of business information communication, wide-area and local-area networks.

(INF 352) Informatics 352 (3 lectures + 2 practicals)

Data communications and networks: applications and management issues.

(INF 353) Informatics 353 (2 lectures + 2 practicals)

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

(INF354) Informatics 354 (2 lectures + 2 practicals)

Advanced programming.

(INF 361) Informatics 361 (3 lectures + 2 practicals)

Information systems in organisations, social and ethical responsibilities, the role of the Informatician.

(INF 362) Informatics 362 (3 lectures + 2 practicals)

IT end user relationships, IT management.

(INF 363) Informatics 363 (2 lectures)+ 2 l.p.w. practicals)

Continuation of application of systems analysis and design in a practical project, programming, use of computer-aided development tools.

**(INL 111) Information Science 111 (3 lectures + 5 practicals)
Information Science**

An introduction to Information Science, information and the information community as concepts, the meaning of the information community for and the influence thereof on enterprises and individuals and the socio-ethical implications thereof. The lifecycle of information: processes, products and role players, description of the information mediator, introduction to value adding.

(INL 112) Information Science 112 (3 lectures + 5 practicals)

Knowledge presentation and organisation

Presentation and organisation of information: meta data, full text, multi-media, etc. Basic HTML and the creation of a web page.

(INL 122) Information Science 122 (3 lectures + 1 practical)

Communication media

General introduction to mass communication, mass communication in the environment, the various perspectives to the study of mass communication, the various contexts and elements of mass communications, the functions of mass media, forms of mass media (printed and not printed) and advertising.

(INL 211) Information Science 211 (3 lectures + 3 practicals)

Information use

Human factors involved in the use of information, the use of information for decision making and creativity, typical activities involved when using information, the character and identification of information needs. Value adding to support typical information activities.

(INL 212) Information Science 212 (3 lectures + 3 practicals)

Information retrieval

Record database, full-text databases. The end-user as information searcher (information search behavior), measures and determination of relevancy, the use of natural and controlled language, evaluation of information systems, electronic document delivery, the role of mediator with regard to information retrieval.

(INL 221) Information Science 221 (3 lectures + 3 practicals)

Information economics & ethics

The various ethical problems applicable to the profession of the information professional, codes of conduct and ethical norms. Infopreneurship: the economic characteristics of information, basic guidelines on how to start an own information business, the business plan, the marketing and pricing of information products and services, the various legal and ethical aspects with regard to the infopreneur.

(INL 311) Information Science 311 (3 lectures + 3 practicals)

Publication formats in the digital environment

The module studies the terrain of multimedia, hypermedia and hypertext fiction with reference to the theories of e.g. Landow, Nielsen, Aarseth and Negroponte. Technological functionality's as well as the influence of the Internet and the WWW on the formats of publications, are investigated. The paper driven and the digital publication environments are compared.

(INL 321) Information Science 321 (3 lectures + 3 practicals)

Information management

Tools and techniques of information management, strategy for information management in organisations, quality management, value-adding, formulation and implementation of an information policy, information audit, information consultation. Data warehousing and data mining.

(INY 111) Information Science 111 (3 lectures)

Information infrastructure and information resources

Information infrastructure of South Africa. Sharing of resources and information consortiums, bibliographical networks.

Different types of information resources (printed and electronic; bibliographical and content).

(INY 122) Information Science 122 (3 lectures + .5 practical)

Publishing

An introduction to publishing studies

This module offers a rudimentary introduction to the concept and background of publishing, the various pockets of publishing, the production and marketing processes, and dealing with authors. *A Capita Selecta* of current trends in publishing will be given as self-study.

(INY 123) Information Science 123 (3 lectures)

Introduction to information and Knowledge Management

Nature and essence of information and knowledge management, impact of socio-economic trends, current problems and constraints in information management, information management in various milieus, responsibilities, position, skills and knowledge of the information manager.

(INY 171) Information Science 171 (3 lectures + 3 practicals)

Mark-up languages

** Closed – requires departmental selection.*

The role of mark-up languages in the information environment, the difference between the logical structure and appearance of documents; the study of HTML and CSS; the building of web sites.

(INY 172) Information Science 172 (3 lectures + 3 Practicals)

Multimedia for the web

** Closed – requires departmental selection.*

The role of multimedia in information products; the use of graphic and animation programs; introduction to basic scripts (for example, JavaScript).

(INY 212) Information Science 212 (3 lectures + 3 practicals)

Publishing

The role of the publisher in the Information Era and the New Economy

The changing role of the publisher as information intermediary in the Information Era and the New Economy of the 21st century is studied in depth. Learners will read widely to gain an insight into the changes that are taking place in society and the dismantling of hierarchical organizational structures; their roles as information intermediaries; and the rise of the learning organization and the lifelong learning individual

(INY 215) Information Science 215 (3 lectures + 3 practicals)

System development

** Closed – requires departmental selection.*

Database construction, project planning and management, determination of consumer needs, systems specifications. An introduction to interface development.

(INY 216) Information Science 216 (3 lectures + 3 practicals)

Multimedia

** Closed – requires departmental selection.*

An introduction to document image processing, full text, multi media and hypermedia; the evaluation of hypermedia databases. The Internet, with the emphasis on the World-Wide Web (WWW) and HTML development.

(INY 217) Information Science 217 (3 lectures + 3 practicals)

Information development

Development theories, information as a central concept in development, information needs in a development context.

(INY 221) Information Science 221 (3 lectures + 3 practicals)

System development

Project planning and management, user needs analysis, system specifications, interface development.

(INY 222) Information Science 222 (3lectures + 3 practicals)

Publishing Practice

Editorial handling of information product: A theoretical and practical introduction to the personality profile of the copy-editor; the three levels of copy-editing; the responsibilities of the copy-editor towards the manuscript, author and financial success of the publishing house; the responsibilities and skills of the proof-reader; proof-reading symbols and the mark-up of texts; legal and ethical aspects.

(INY 223) Information Science 223 (3 lectures + 3 practicals)

Communication media

Changing communication media environment, evolution of the information society, electronic means of mass communication, the role of mass media in development, the use of mass media in Africa, with specific reference to South Africa, ethical and juridical questions regarding the use of mass media, communication media policy.

(INY 224) Information Science 224 (3 lectures + 3 practicals)

Applied information ethics

Cyber ethics: the right to privacy, the right of access to information, intellectual property, confidential treatment of information, data security, information poverty, cyber porn.

(INY 225) Information Science 225 (3 lectures + 3 practicals)

Multimedia

** Closed – requires departmental selection.*

A detailed study of multimedia and hypermedia with the emphasis on applications, hardware and software, the architecture of hypermedia systems, the principles involved in the construction of such databases and the practical creation of a multimedia and hypermedia databases.

(INY 226) Information Science 226 (3 lectures + 3 practicals)

Editing: Information products

** Closed – requires departmental selection.*

Introduction to copy-editing and mark-up of information products, aspects of the handling of visual materials and text (including principles of typography and page lay-out) with the emphasis on accessibility of information to the end user.

(INY 227) Information Science 227 (3 lectures + 3 practicals)

Information dissemination

Principles and methods for establishing information needs, SDI, interest profiles, IT facilities for filtering information, information literacy.

(INY 228) Information Science 228 (3 lectures + 3 practicals)

Information economics (From 2002)

Characteristics of information, information as a national asset, contribution of the information sector to the economy of a country, methods for measuring the size of the information sector in a country, interaction between the information sector and the rest of the economy in a country, the marketing and pricing of information products and services, business intelligence, electronic commerce

(INY 271) Information Science 271 (3 lectures + 3 practicals)

Advanced mark-up language I

** Closed – requires departmental selection.*

Study of new generation markup languages (XML); building multimedia products with the XML family.

(INY 272) Information Science 272 (3 lectures + 3 practicals)

Advanced mark-up language II

** Closed – requires departmental selection.)*

The building of a complex multimedia product with the XML family and related technologies.

(INY 311) Information Science 311 (3 lectures + 3 practicals)

Multimedia

Detailed study of multimedia and hypermedia, the application thereof, software and hardware, hyper media systems, principles of constructing these databases, the creation of a multimedia and hyper media database.

(INY 312) Information Science 312 (3 lectures + 3 practicals)

Developmental information science

The study of development. The relationship between information and development on community as well as personal level, information education, the development and implementation of information education programmes for specific groups.

(INY 313) Information Science 313 (3 lectures + 3 practicals)

Editorial handling of information products

Editing by design & aspects of reproduction

An integrative and comparative approach to typography, lay-out, the use of illustrations and colour as value adding editorial tools in paper based and electronic publications; liaison with designers; editorial responsibilities with regard to cover design; introduction to aspects of reproduction.

(INY 315) Information Science 315 (3 lectures + 3 practicals)

Advanced multimedia

** Closed – requires departmental selection.*

Technical aspects of multimedia hardware and software, version management, practical multimedia project.

(INY 316) Information Science 316 (3 lectures + 3 practicals)

Human-computer interaction

** Closed – requires departmental selection.*

A study of human-computer interaction and human-information interaction, humans as computer and information users, ethical aspects relating to the creation of multimedia information products.

(INY 317) Information Science 317 (3 lectures + 3 practicals)

Information and the law (from 2003)

Legal deposit, copyright, films and publications, labour relations, Labour Relations Act.

(INY 322) Information Science 322 (3 lectures + 3 practicals)

Advanced publishing practice

An introduction to editorial management; commissioning and list building; market research and the publishing decision; scheduling in the pre-production phase; costing and aspects of human resources management.

(INY 323) Information Science 323 (3 lectures + 3 practicals)

Information: socio-political context

Information poverty, information wealth, information superhighway, New world information order, globalization of world information economy and the accompanying flow of data, applicable legislation e.g. "Open Democracy Act".

(INY 324) Information Science 324 (3 lectures + 3 practicals)

Multimedia

A detailed study of multimedia in the WWW environment and markup languages such as HTML and XML. An introduction to SGML, other document formats and electronic style specifications.

(INY 325) Information Science 325 (3 lectures + 3 practicals)

Multimedia

Interface design

Closed – requires departmental selection

A detailed study of the role, composition and functioning of an interface, underlying principles in the design and evaluation of interfaces.

(INY 326) Information Science 326 (3 lectures + 3 practicals)

Mark-up languages

** Closed – requires departmental selection.*

A detailed study of HTML and XML an introduction to SGML, other electronic and document formats and electronic style specifications.

(INY 327) Information Science 327 (3 lectures + 3 practicals)

Information & Knowledge Management (From 2003)

Creating a knowledge-based organisation, relationship between knowledge and organisational learning, roles and responsibilities of the knowledge manager, knowledge management strategies and policies, critical success factors for knowledge management, tools and techniques for knowledge management, knowledge audit.

(INY 328) Information Science 328 (3 lectures + 3 practicals)

Information & Knowledge Management in practice (From 2003)

Project and experiential training in co-operation with industry.

<p>THE FOLLOWING MODULES RESORT UNDER THE FACULTY OF ECONOMIC AND MANAGEMENT SCIENCES</p>
--

(EKN 110) Economics 110 (3 lectures)

The economic environment and problem: working and course of the South African economy; functioning and interrelationships of the different economic sectors. Macro-economic theory and analysis. Analyze and interpret economic performance criteria: economic growth, inflation, job creation, balance of payments and exchange rate stability, income distribution. Calculate and interpret core economic indicators.

Basic micro-economic principles: demand analysis (consumer theory); supply analysis (producer theory). Market analysis: market equilibrium; price determination; market forms; market failure; calculate and interpret price, income and cross elasticities.

(EKN 120) Economics 120 (3 lectures)

Conceptualise the interrelationships of the different sectors in the South African economy. The functioning of international trade, government economics and policy, the labour market, monetary economics, economic development, environmental economics with specific reference to the South African context. The impact of national and international decisions and events on the South African economy.

(EKN 220) Economics 220 (3 lectures)

International economic insight is provided into: international economic relations and history, theory of international trade, international capital movements, international trade politics, economic and customs unions and other forms of regional co-operation and integration, international monetary relations, foreign exchange markets, exchange rate issues and the balance of payments, as well as open economy macro-economic issues.

(EKN 251) Economics 251 (3 lectures)

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

(EKN 252) Economics 252 (3 lectures)

Micro-economic insight is provided into; consumer and producer theory, general micro-economic equilibrium, Pareto-optimality and optimality of the price mechanism, welfare economics, market forms and the production structure of South Africa.

(FRK 121) Financial Accounting 121 (4 lectures)

Elements of financial statements in detail. The conceptual framework. Income statement, balance sheet, cash flow statement and analysis and interpretation of clubs, partnerships, close corporations. Introduction to companies.

(FRK 151) Financial Accounting 151 (4 lectures)

Computer-assisted training

The nature and function of Accounting. The development of Accounting, Financial position, financial result. The recording process. Processing of Accounting data. Elementary income statement and balance sheet.

(FRK 152) Financial Accounting 152 (4 lectures)

Flow of documents. Accounting systems. Introduction to internal control and internal control measures. Bank reconciliations. Control accounts. Adjustments. Financial statements of a sole proprietor.

(FRK 181) Financial Accounting 181 (2 lectures)

Computer processing of accounting information.

(OBS 110) Business Management 110 (3 lectures)

Introduction to Business Management as a science, the environment in which the enterprise operates, the field of business, the mission and goals of an enterprise, management and entrepreneurship. The choice of a form of enterprise, the choice of products and/or services, profit and cost planning for different sizes of operating units, the choice of location, the nature of production processes and the layout of the plant or operating unit.

(OBS 120) Business Management 120 (3 lectures)

Introduction to and overview of general management, especially regarding the five management tasks, strategic management, contemporary developments and management issues, financial management, marketing, public relations.

(Note: For marketing students, marketing is replaced by financial management, and public relations by small business management.)

Introduction to and overview of the value chain model, management of the inputs, management of the purchasing function, management of the transformation process with specific reference to production and operations management, human resources management, and information management.

(Note: For information management students, information management is replaced by small business management.)

(OBS 251) Business Management 251 (3 lectures)

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.

(OBS 252) Business Management 252 (3 lectures)

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.

(OBS 261) Business Management 261 (3 lectures)

Project Management: Introduction

Project management concepts, needs identification, the project, the project manager and the project team, types of project organizations, project communication and documentation.

(OBS 262) Business Management 262 (3lectures)

Project Management

Planning and control: Planning, scheduling and schedule control of projects, resource considerations and allocations, cost planning and performance evaluation.

(STK 110) Statistics 110 (3 lectures + 1 hour practical)

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.

(STK120) Statistics 120 (3 lectures + 1 hour practical)

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 economical applications of quantitative techniques

Systems of linear equations: Drafting, matrices, solving and application. Optimization: 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 economical context: producers' surplus, consumers' surplus, distribution functions, probability distributions and probability density functions. Identification, use, evaluation and interpretation of statistical computer packages and statistical techniques.

THE FOLLOWING MODULES RESORT UNDER THE FACULTY OF NATURAL AND AGRICULTURAL SCIENCES

(WTW115) Discrete Structures 115 (2 lectures + 1 practical)

Propositional logic: truth tables, logical equivalence, implication, arguments. Mathematical induction and well-ordering principle. Counting techniques: elementary probability, multiplication and addition rules, permutations and combinations, binomial theorem, inclusion-exclusion rule. (2 lectures and 1 tutorial of 1½ hours).

(WTW152) Mathematical Modelling 152 (2 lectures + 1 practical)

Introduction to the modelling of dynamical processes using difference equations. Continuous dynamical systems. Applications to real-life situations in, among others, finance, economics and ecology. (2 lectures and 1 tutorial of 1½ hours).

(WTW 285) Discrete Structures 285 (2 lectures + 1 practical)

Counting techniques: combinations with repetition, functions. Pigeon-hole principle. Countability and computability. Setting up and solving recurrence relations. Graphs: paths, cycles, trees, isomorphism. Graph algorithms: Kruskal, Prim, Fleury, loop invariants. (2 lectures and 1 tutorial of 1½ hours).

THE FOLLOWING MODULES RESORT UNDER THE FACULTY OF HUMANITIES

(ENG 103) English 103 (3 lectures)

English for specific purposes

(Closed - for specific groups only)

Lectures and tutorials with practical work on academic reading and writing in various subjects: previewing, skimming, close reading and summarizing of academic texts.

(ENG 151) English151 (3 lectures)

Introduction to English poetry

In this module, students are introduced to the critical study of poetry in English. After an initial outline of analytical methods and poetic techniques, students will study poems written in different periods of English literature from the Middle Ages to contemporary South Africa.

(ENG 152) English 152 (3 lectures)

Critical language skills

Introduction to critical reading, writing and language skills is a module intended to improve student proficiency in English. Students will learn the rules of English grammar, to extract arguments from passages of prose and to provide a synopsis of a single argument as well as a synthesis of a number of such arguments. Practice in criticizing short fictional prose is also included.

(ENG 153) English 153 (3 lectures)

Introduction to prose

This module introduces the study of the novel and embraces both metropolitan and African texts. By the end of this module, students should be proficient in the skills of reading a novel perceptively and of writing critically on the novel.

(ENG 154) English 154 (3 lectures)

Introduction to drama

This module introduces the study of drama by examining a number of plays representing different genres, periods and contexts, including both African and metropolitan texts. By the end of the module, students should be proficient in the skills of reading a play perceptively and of writing critically on drama.

(ENG 155) English 155 (3 lectures)

Academic reading skills

** Cannot continue with English on 2nd level.*

Academic reading skills in English including summarizing, speed-reading, vocabulary building and critical reading are covered in this module.

(ENG 156) English 156 (3 lectures)

Academic writing skills

** Cannot continue with English on 2nd level.*

Academic writing skills including synthesis, structuring and sustaining arguments and basic English grammatical and editing skills are covered in this module.

(ENG 157) English 157 (3 lectures)

Eng for specific purposes (1)

** Cannot continue with English on 2nd level.*

Students choose between basic English for Law, Architecture and Language Practitioners provided numbers warrant it.

(ENG 158) English 158 (3 lectures)

Eng for specific purposes (2)

** Requires ENG 157*

** Cannot continue with English on 2nd level.*

Students continue with advanced English for Law, Architecture or Language Practitioners provided numbers warrant it.

(ENG 159) English 159 (3 lectures)

Communication in organizations

** Cannot continue with English on 2nd level.*

This module introduces students to advertising and persuasive skills, the writing of a CV, and interviewing techniques. Practical sessions are included to give students the opportunity to act as both interviewer and interviewee. By the end of this module, students should be able to apply advertising, persuasive and interviewing techniques in an organizational, business or legal context.

(ENG 160) English 160 (3 lectures)

Communication in organizations

** Cannot continue with English on 2nd level.*

This module introduces students to meeting procedures and writing skills in the organizational/business or legal environment. A major component is a practical course on public speaking in which students are trained in the techniques and delivery of both impromptu and prepared speeches on contentious issues. Ideally this module should follow ENG 159, although it can be taken independently.

(EOI 151) Language Proficiency 151 (2 lectures)

(Presented by the Unit for Development of Language Proficiency)

Knowledge of basic grammar and basic vocabulary is revised, using documentary texts that are thematically subject related. In terms of skills the focus is placed on the development of the receptive skills (listening and reading) on text level, while the development of the productive skills (speaking and writing) will also receive attention, but only on paragraph level.

(EOI 152) Language Proficiency 152 (2 lectures)

(Presented by the Unit for Development of Language Proficiency)

Knowledge of general academic vocabulary is developed by means of general academic texts, which are thematically subject related. A foundation is laid in the knowledge of text grammar and argumentation forms. All four the linguistic skills (listening, reading, speaking and writing) are practiced on text level.

(EOI 153) Language Proficiency 153 (2 lectures)

(Presented by the Unit for Development of Language Proficiency)

Knowledge of subject-specific vocabulary is developed, using subject-specific academic and scientific texts. Basic knowledge of text grammar and argumentation forms is broadened. Specific attention is given to the application of the two receptive skills (listening and reading) for academic purposes.

(EOI 154) Language Proficiency 154 (2 lectures)

(Presented by the Unit for Development of Language Proficiency)

The focus is on developing and applying the four linguistic skills on text level for academic purposes. The two productive skills (speaking and writing) will receive special attention.

(FIL 151) Philosophy 151 (2 lectures)

Humankind, World & Philosophy

Characteristics of philosophy and other sciences. What is being a human? What is correct argumentation? (logic) What is truth? (epistemology) The phenomenon of violence. Ethical views and the contemporary world. The universe and mankind's position in it (cosmology). Oriental v. Occidental world views.

(FIL 153) Philosophy 153 (2 lectures)

Critical Thinking and Logic

Conditions of correct argumentation; the issue of truth: most important theories of truth; argumentation within the sciences; nature of rationality; critical thinking and the weighing of alternative arguments; practical decision making; the scope and limits of knowledge; can computers think and argue?

(FIL 251) Philosophy 251 (2 lectures)

Western Intellectual History II

A concise history of Western thinking from the Renaissance to the late modern (post-modern) era. The following themes are dealt with: the Renaissance, Reformation, Scientific Revolution (Copernicus, Kepler, Galileo, Newton, Bacon, Descartes), foundations of the modern world view, triumph of secularism, paradox of modernity and the changing image of the human (from Copernicus through Freud), self-critique of the modern mind (Locke, Hume, Kant, Hegel), conflicting streams of culture (temperaments): Enlightenment vs Romanticism, the significance of Nietzsche, Existentialism and Nihilism, the postmodern mind and its challenges to the contemporary intellectual and cultural milieu.

(FIL 254) Philosophy 254 (2 lectures)

Philosophy of Science

Contemporary issues in science and technology. Causal and other explanations. Does science grow revolutionary or evolutionary? What is life? What is the theory of evolution? The scientific quest to understand humans and animals. Philosophy of the theory of relativity (Einstein); quantum theory and chaos/complexity theory.

THE FOLLOWING MODULE RESORTS UNDER THE FACULTY OF LAW

(BER 410) Business Law 410 (4 lectures)

(Offered by Department of Mercantile Law – Faculty of Law)

Introduction to law; general principles of contract law; specific contracts: purchase contracts, employment contracts, job contracting, representative law; general aspects of business law dispute resolution – mediation and arbitration.

MEDALS AND PRIZES IN THE SCHOOL OF INFORMATION TECHNOLOGY

Name	Donor	Award
Department of Computer Science		
The ISIS Software-Engineering Prize	ISIS	For the best project in software by a group of final-year students in Computer Science.
The Roelf van den Heever and EPI-USE Award	Roelf van den Heever and EPI-USE	For the best academic achievement in Computer Science on honours level.
The Microsoft Prize	Microsoft	For the best female student in Computer Science on 300 level.
The Microsoft Prize	Microsoft	For the best student in the module Industrial Systems on 200 level.
The Microsoft Prize	Microsoft	For the best student in Computer Science on 100 level.
Department of Informatics		
AST Prize	AST	Best achievement in Informatics on 100 level.
AST Prize	AST	Best achievement in Informatics on 200 level.
AST Prize	AST	Best achievement in Informatics on 300 level.
AST Prize	Inbekon Pty Ltd	For the best project in Informatics.