2012
PROSPECTUS

PART 5

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

ISSN 0258-7343

TSHWANE UNIVERSITY OF TECHNOLOGY

PARTS OF THE PROSPECTUS

PLEASE NOTE

1. Although the information in this Prospectus has been compiled as accurately as possible, the Council accepts no responsibility for any inaccuracies in this publication. This Prospectus is valid for 2012 only.

2. Life Orientation and an achievement level of 1 in a subject is not considered in the calculation of the Admission Point Score (APS).

3. Prospective students will not be admitted to any qualification without prior evaluation.

4. The indicated non-refundable administration fee and certified copies of your identity document, Senior Certificate/National Senior Certificate and all other relevant documents must accompany the completed application form or online application.

5. The closing date for applications for admission to first-semester and year courses is 15 August of the preceding year, except for certain courses and International applicants of which the closing date is 15 June. The closing date for selected second-semester courses is 15 May of the year concerned.

Important:

TUT admission requirements for entry-level programmes adhere to national legislation and therefore the following are required:

- BEd degrees: at least four subjects at a performance level 4.
- National Diplomas: at least four subjects at performance level 3.

Please verify specific and additional requirements per programme as indicated in the prospectus.

ACCEPTANCE IS SUBJECT TO AVAILABLE CAPACITY ACCORDING TO THE STUDENT ENROLMENT PLAN (SEP)

Alternative and international qualifications (e.g. HIGSCE, IGCSE, NSSC A&O Level, IB Higher and Standard Level, etc) are dealt with in a specific manner:

- While there is a legal imperative to submit the certificate of equivalence (issued by SAQA or the CHE) it is recommended that the application process be initiated while the application for certificate is in process.
- The Tshwane University of Technology cannot obtain this certificate on your behalf.

CONVERSION OF ALTERNATIVE/EQUIVALENT RECOGNISED CERTIFICATES

The following provides a guideline on how the University will evaluate the various certificates that may be offered as equivalent to the National Senior Certificate (SA). Where possible, the University will evaluate the listed qualifications as indicated, however the University retains the right to refer any application to the formal application processes through Senate.

APS	NSC	NC-V	HIGCSE	IGCSE/GCSE/ NSSC O-LEVEL		A-LEVEL	IB-HL	IB-SL	SAT
10						A	7		
9									
8						B	6		
7	7 (80 -100)	Outstanding Competent (80-100%)	1	A		C	5	7	80-100
6	6 (70 -79)	4-Highly Competent (70-79%)	2	B		D	4	6	70-79
5	5 (60-69)	3-Competent (60-69%)	3	C	A	E	3	5	60-69
4	4 (50-59)	3-Competent (50-59%)		D	B		2	4	50-59
3	3 (40-49)	Not yet Competent (40-49%)	4	E	C		1	3	40-49
2	2 (30-39)	Not achieved (0-39%)		F	D/E			2	30-39
1	1 (0-29)			G	F/G			1	0-29

NSC	National Senior Certificate
NC-V	National Certificate (Vocational)
IGCSE	International General Certificate of Secondary Education
HIGCSE	Higher International General Certificate of Secondary Education
SAT	Senior Academic Test/Senior Academic Proficiency Test
NSSC	Namibia Senior Secondary Certificate
A-LEVEL	Advanced level
O-LEVEL	Ordinary level
IB	International Baccalaureate Schools (higher and standard levels)

RECOGNITION OF PRIOR LEARNING, STATUS AND EQUIVALENCE

Candidates may also apply for recognition of prior learning or for admission via the Senate's discretionary route at the Office of the Registrar. The specific relevant documentation will be requested from these applicants, and these cases will be handled on an individual basis (refer to details on these options in the section on RPL in Part 1 of the Prospectus).

ENQUIRIES

Contact Centre
Tel: 086 1102 421 Fax: 012 382 5701

Admission Enquiries
Tel: 012 382 5750

The Registrar
Private Bag X680
PRETORIA 0001
Tel: 012 382 5911 Fax: 012 382 5114

ARCADIA CAMPUS
Private Bag X680 175 Nelson Mandela Drive
PRETORIA 0001 PRETORIA
Tel: 012 382 5911 Fax: 012 382 5114

ARTS CAMPUS
Private Bag X680 Cnr. Du Toit and Edmund streets
PRETORIA 0001 PRETORIA
Tel: 012 382 5911 Fax: 012 382 5114

EMALAHLENI CAMPUS
The Campus Director
PO Box 3211 19 Swartbos Avenue
EMALAHLENI 1035 EMALAHLENI
Tel: 013 653 3100 Fax: 013 653 3101

GA-RANKUWA CAMPUS
Private Bag X680 2827, Zone 2, Botsi Street
PRETORIA 0001 GA-RANKUWA
Tel: 012 382 0500 Fax: 012 382 0814

MBOMBELA CAMPUS (NELSPRUIT CAMPUS)
The Campus Director
Private Bag X11312 Madiba Drive
MBOMBELA 1200 MBOMBELA
Tel: 013 745 3500/3603 Fax: 013 745 3512

POLOKWANE CAMPUS
The Campus Director
Private Bag X9496 Cnr. Market and Excelsior streets
POLOKWANE 0700 POLOKWANE
Tel: 015 287 0700 Fax: 015 297 7609

PRETORIA CAMPUS
Private Bag X680 Staatsartillerie Road
PRETORIA 0001 PRETORIA WEST
Tel: 012 382 5911 Fax: 012 382 5114

SOSHANGUVE CAMPUS
Private Bag X680 2 Aubrey Matlala Road, Block K
PRETORIA 0001 SOSHANGUVE
Tel: 012 382 9000 Fax: 012 382 0966

ENQUIRIES RELATING TO FEES:
The Chief Financial Officer
Private Bag X680
PRETORIA 0001
Tel: 086 1102 422 Fax: 012 382 5701

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

Executive Dean:	Prof S O Ojo – BSc (Hons) (Computer Science) (University of Ibadan, Nigeria), PhD (Computing Science) (University of Glasgow, U.K)
Executive Secretary:	Ms M Booysen
Telephone numbers:	012 382 9689/9280
Office:	Room 12-186, Building 12, Soshanguve South Campus
Assistant Registrar:	Ms S Mokgatle
Telephone number:	012 382 9048
Office:	Room 11, Building 7G, Sosghanguve South Campus
Faculty Administrator:	Ms MS Maake
Telephone number:	012 382 9741
Office:	Room 12-182, Building 12, Soshanguve South Campus
Faculty Research Officer:	Mr R Diale
Telephone number:	012 382 9230
Office:	Room 12-178, Building 12, Soshanguve South Campus

VISION

To be a quality-driven locally relevant and internationally comparable university of technology ICT Faculty at the cutting edge of ICT innovation.

MISSION

- Offering a portfolio of locally relevant, internationally recognised and career-focused ICT programmes;
- Producing well rounded ICT graduates who are attuned to the needs of the economy;
- Being a ICT research and innovation hub responsive to the national, regional and global challenges;
- Acting as an incubator for ICT postgraduate study in clearly defined areas of strength;
- Generating, integrating and applying ICT knowledge to stimulate socio-economic development;
- Partnering communities in ICT-enabled sustainable development
- Being student-centred and quality-driven in all our mission endeavour.

FACULTY GENERAL RULES

In the Faculty of ICT the following rules apply:

1. A student may repeat any subject offered in any of the qualifications at the Faculty of Information and Communication Technology only twice. If a student failed to comply with this rule, special permission must be granted by the Head of Department in order for a student to register again. A special intervention may be required by the Head of Department or the Head of Department may decide not to grant permission for re-registration in which case further studies would not be permitted.
2. Students must complete all subjects before registering for Industry Exposure IIIB. Students with only one subject outstanding may be allowed to register for Industry Exposure IIIB, with the approval of the Head of Department (please see all the fields of specialisations).

CONTENTS

SECTION A: DEPARTMENTS AND QUALIFICATIONS

1. ICT FIRST YEARS' AND FOUNDATION UNIT

1.1 PERSONNEL INFORMATION

On 19 July 2011, this department had the following staff members:

Head of Department: Mrs CM Pretorius - BSc (Hons) (UP), MEd (CBT) (UP)
Telephone number: 012 382 9148

Departmental Administrator: Ms M van Schoor

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Mrs M Grimes van Wyk	Lecturer	B Tech (Tertiary Education) (Tech Pta)

1.2 NATIONAL DIPLOMA: INFORMATION TECHNOLOGY
Qualification code: NDIT04/NDIT12

PLEASE NOTE: THIS IS NOT THE NAME OF THE QUALIFICATION WHICH WILL BE AWARDED AT THE END OF A STUDENT'S STUDIES. THE QUALIFICATION WHICH WILL BE ISSUED WILL SHOW A FIELD OF SPECIALISATION AND IT WILL BE AWARDED AT COMPLETION OF 3,000 CREDITS.

Campus where offered: Soshanguve South Campus
eMalahleni Campus - only for students who will slot in with the first year of the National Diploma: Information Technology (Field of specialisation: Software Development)
Polokwane Campus - only for students who will slot in with the first year of the National Diploma: Information Technology (Field of specialisation: Software Development)

REMARKS

Please note:
Students will register for the first year (NDIT04/NDIT12), during which they are introduced to the basic principles of computers and information technology skills.

a. *Admission requirement(s) and selection criteria:*
Please take note: The admission requirements as indicated below will be the only criteria considered when students are admitted to either the National Diploma in Information Technology (NDIT04) or the Extended Curriculum with Foundation Provision (NDITF1). Students already enrolled at another University, University of Technology or SAQA accredited equivalent, who meet the minimum requirements, may officially apply and after acceptance, subject exemptions may be granted. However, any qualification or subjects passed at other institutions do not imply or automatically guarantee admission to the programmes. These students may formally apply for recognition of prior learning (RPL) and prepare a portfolio according to the RPL rules and regulations of TUT. The portfolio will be evaluated by the Faculty EXCO and RESS committee and this process may take up to six months.

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
A Senior Certificate or an equivalent qualification with a 50% pass in Mathematics at the Standard Grade (SG).

Recommended subject(s):
Computer Science and Physical Science.

Selection criteria:
Initial selection is based on school results. Prospective students are assessed according to the following formula:

SYMBOL	HG	SG
A	5	4
B	4	3
C	3	2
D	2	1
E	1	0

Applicants should obtain at least 9 points, as well as at least a D symbol at the Standard Grade for Mathematics, in order to be invited for an assessment.

Prospective students will be notified to make an appointment with the departmental secretary for this assessment. This rule applies to all prospective students, as well as to students who are already registered at other institutions.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

Admission requirement(s):
A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma or an equivalent qualification (FET Certificate (NCV)), with an achievement level of at least 3 for English (home language or first additional language) and 4 for Mathematics.

Candidates with 3 for Mathematics or 5 for Mathematical Literacy will be considered for admission to the Foundation Programme.

Recommended subject(s):
None

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **18** (with Mathematics) or a minimum of **20** (with Mathematical Literacy).

Assessment procedures:
Candidates who meet the minimum requirements will be considered for admission to either the National Diploma or the Foundation Programme.

- Candidates, with a score of at least 4 in Mathematics will be admitted directly to the National Diploma.
- Candidates with a score of 3 in Mathematics or those with a score of at least 5 in Mathematical Literacy will be admitted to the Extended Curriculum with Foundation Provision.

When the final grade 12 results are available –
- Students who were accepted for the Extended Curriculum with Foundation Provision who obtained a final mark of at least 4 for Mathematics will be moved to the National Diploma; and
- Students who were accepted for the National Diploma, whose final mark for Mathematics was only 3, will be moved to the Extended Curriculum with Foundation Provision.

b. Minimum duration:
One year, after which a student will be introduced to a particular specialisation field for another two years.

c. *Presentation:*
Day classes. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

d. *Intake for the qualification:*
January only

e. *Readmission:*
See Chapter 3 of Students' Rules and Regulations.

f. *Qualification codes:*
Students who registered for the qualification before 2012 will register under qualification code NDIT04 and students who registered since 2012 will use NDIT12.

g. *Subject credits:*
Subject credits are shown in brackets after each subject. The total number of credits required for the first year is 1,000.

Key to asterisks:
* Information does not correspond to information in Report 151.
(Deviations approved by the Senex of 22 June 2011.)

OPTION I: FOR STUDENTS WHO REGISTERED BEFORE 2012 (NDIT04)

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
DSO15AT	Development Software IA	(0,125)	
DSO15BT	Development Software IB	(0,125)	
ISY13AT	Information Systems IA	(0,125)	
ITS11AT	Information Technology Skills IA	(0,125)	
SSF11AT	Systems Software IA	(0,125)	
TOTAL CREDITS FOR THE FIRST SEMESTER:		0,625	

SECOND SEMESTER

ISY13BT	Information Systems IB	(0,125)	
ITS11BT	Information Technology Skills IB	(0,125)	
SSF11BT	Systems Software IB	(0,125)	
	plus one of the following subjects (depending on the field of specialisation which will be chosen):		
MIS22AT	Management Information Systems IIA (for specialisation field: Business Applications)	(0,125)	Development Software IA Development Software IB Information Systems IA Information Technology Skills IA Systems Software IA
TPG11AT	Technical Programming IA (for specialisation field: Intelligent Industrial Systems)	(0,125)	Development Software IA Development Software IB Information Systems IA Information Technology Skills IA Systems Software IA
TPG12AT	Technical Programming IA (for specialisation fields: Technical Applications, Communication Networks, Multimedia, Software Development, Web and Application Development)	(0,125)	Development Software IA Development Software IB Information Systems IA Information Technology Skills IA Systems Software IA

TPG14AT	Technical Programming IA (for specialisation field: Support Services)	(0,125)	Development Software IA Development Software IB Information Systems IA Information Technology Skills IA Systems Software IA

TOTAL CREDITS FOR THE SECOND SEMESTER: 0,500

TOTAL CREDITS FOR THE FIRST YEAR: **1,125**

OPTION 2: FOR STUDENTS WHO REGISTER FROM 2012 (NDIT12)

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
CFS10AT	Computing Fundamentals IA*	(0,125)	
CGS10AT	Computing Systems IA*	(0,125)	
CMK10AT	Computing Skills IA*	(0,125)	
DSO17AT	Development Software IA	(0,125)	

TOTAL CREDITS FOR THE SEMESTER: 0,500

SECOND SEMESTER

CFS10BT	Computing Fundamentals IB*	(0,125)	
CGS10BT	Computing Systems IB*	(0,125)	
CMK10BT	Computing Skills IB*	(0,125)	
DSO17BT	Development Software IB	(0,125)	Development Software IA

TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE FIRST YEAR: **1,000**

AS FROM THE SECOND YEAR (BOTH OPTIONS), A STUDENT WILL REGISTER FOR ANY OF THE FOLLOWING FIELDS OF SPECIALISATION (SEE ALL APPLICABLE DEPARTMENTS):

- National Diploma: Information Technology: Business Applications
- National Diploma: Information Technology: Communication Networks
- National Diploma: Information Technology: Intelligent Industrial Systems
- National Diploma: Information Technology: Multimedia
- National Diploma: Information Technology: Software Development
- National Diploma: Information Technology: Support Services
- National Diploma: Information Technology: Technical Applications
- National Diploma: Information Technology: Web and Application Development

1.3 NATIONAL DIPLOMA: INFORMATION TECHNOLOGY (EXTENDED CURRICULUM PROGRAMME WITH FOUNDATION PROVISION)

(pending final approval - DHET)

Qualification code: NDITF1

Campus where offered:	Soshanguve South Campus eMalahleni Campus - only for students who will slot in with the first year of the National Diploma: Information Technology (Field of specialisation: Software Development) Polokwane Campus - only for students who will slot in with the first year of the National Diploma: Information Technology (Field of specialisation: Software Development)

REMARKS

a. *Admission requirement(s) and selection criteria:*
Please take note: The admission requirements as indicated below will be the only criteria considered when students are admitted to the Extended Curriculum with Foundation Provision (NDITF1). Students already enrolled at another University, University of Technology or SAQA accredited equivalent, who meet the minimum requirements, may officially apply and after acceptance subject exemptions may be granted. However, any qualification or subjects passed at other institutions do not imply or automatically guarantee admission to the programme. These students may formally apply for recognition of prior learning (RPL) and prepare a portfolio according to the RPL rules and regulations of TUT. The portfolio will be evaluated by the Faculty EXCO and RESS committee and this process may take up to six months.

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
A Senior Certificate or an equivalent qualification with a 50% pass in Mathematics at the Standard Grade (SG).

Recommended subject(s):
Computer Science and Physical Science.

Selection criteria:
Initial selection is based on school results. Prospective students are assessed according to the following formula:

SYMBOL	HG	SG
A	5	4
B	4	3
C	3	2
D	2	1
E	1	0

Applicants should obtain at least 9 points, as well as at least a D symbol at the Standard Grade for Mathematics, in order to be invited for an assessment.

Prospective students will be notified to make an appointment with the departmental secretary for this assessment. This rule applies to all prospective students, as well as to students who are already registered at other institutions.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

Admission requirement(s):
A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma or an equivalent qualification (FET Certificate (NCV)), withan achievement level of at least 3 for English (home language or first additional language), 3 for mathematics and 5 for Mathematical Literacy.

Recommended subject(s):
None

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **20**.

Assessment procedures:
Candidates who meet the minimum requirements will be considered for admission to the National Diploma (Extended Curriculum).

- Candidates, with a score of at least 4 in Mathematics will be admitted directly to the National Diploma.
- Candidates with a score of 3 in Mathematics or those with a score of at least 5 in Mathematical Literacy will be admitted to the Extended Curriculum with Foundation Provision.

When the final grade 12 results are available –
- Students who were accepted for the Extended Curriculum with Foundation Provision who obtained a final mark of at least 4 for Mathematics will be moved to the National Diploma; and
- Students who were accepted for the National Diploma, whose final mark for Mathematics was only 3, will be moved to the Extended Curriculum with Foundation Provision.

b. Minimum duration:
One year

c. Presentation:
Day classes

d. Intake for the qualification:
January only. **Please note:** A maximum of only 50 students (for eMalahleni Campus) and only 40 students (for Polokwane Campus) will be admitted to this qualification.

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Laboratory periods:
Apart from classes scheduled for these four modules, students will also have to attend compulsory laboratory periods for eight hours per week in order to become familiar with keyboard skills, computational thinking and problem-solving skills, and various other skills needed in the IT environment.

g. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 0,500.

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT
FPITM01	Foundation ICT Mathematical Skills	(0,125)
FPALS01	Foundation Academic and Language Skills	(0,125)
TOTAL CREDITS FOR THE SEMESTER:		0,250

SECOND SEMESTER

FPIDS01	Foundation Information and Software Development Skills	(0,125)
FPPRS01	Foundation Presentation and Reporting Skills	(0,125)
TOTAL CREDITS FOR THE SEMESTER:		0,250
TOTAL CREDITS FOR THE YEAR:		**0,500**

As from the second year (after completing the dedicated foundation year and achieving the full 0,500 credits required) a student will continue onto the general first-year programme which all students directly accepted into the main stream qualifications register for. Once they have successfully completed those four subjects they will then register for more specialised subjects required for the various qualifications offered by the Faculty.

2. DEPARTMENT OF COMPUTER SCIENCE

2.1 PERSONNEL INFORMATION

On 19 July 2011 this department had the following staff members:

Acting Head of Department: Mr M Lall - MSc (Computer Science) (Unisa)
Telephone numbers: 012 382 9568/9631

Departmental Administrator: Ms J van Niekerk

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Ms WR Birch	Lecturer	B Tech (Information Technology) (Tech Pta)
Ms VM Booi	Junior Lecturer	B Tech (Information Technology) (ECT)
Mr AAK Buitendag	Lecturer	M Tech (Information Technology) (TUT)
Prof GEM Ditsa	Professor	PhD (Information Science) (Wollongong Univ)
Mr ML Gadebe	Lecturer	B Tech (Support Services) (TUT)
Mr FG Hattingh	Junior Lecturer	B Tech (Software Development) (TUT)
Mr HJ Jeske	Lecturer	BSc (University of Namibia), HED (Windhoekse Onderwyskollege)
Mr J Jordaan	Lecturer	M Tech (Information Technology) (TUT)
Dr OP Kogeda	Senior Lecturer	PhD (Computer Science) (Univ Western Cape)
Mr M Liebenberg	Lecturer	B Tech (Information Technology) (Tech Pta)
Ms MG Meintjes	Acting Sectional Head and Lecturer	BSc (Computer Science and Mathematics) (UP), B Tech (Information Technology) (Unisa)
Mr VAW Memani	Lecturer	Postgraduate Diploma (Engineering Science) (US), MESCI (US), BSc (Mathematics and Physics) (University of Fort Hare)
Mr S Mhlanga	Lecturer	B Tech (Information Technology) (DUT)
Mr MJ Mmako	Senior Lab Technician (Polokwane Campus)	Dip (Management Assistants) (Seshego Technical College)
Mr MN Moeti	Junior Lecturer (Polokwane Campus)	BSc (Hons) (Computer Sciences) (UL)
Mr SN Mokwena	Section Head (Polokwane Campus)	M Tech (Business Information Systems) (TUT)
Mr K Morutwa	Lecturer	B Tech (Business Applications) (TUT)
Mr WL Ntshinga	Lecturer	M Tech (Information Technology) (TUT)
Mr PJ Retief	Lecturer	B Tech (Information Technology) (Tech Pta)
Mr LA Sekhaolelo	Junior Lecturer	B Tech (Information Technology) (TUT)
Ms KP Tala	Administrative Assistant (Polokwane Campus)	N Dip (Office Management and Technology) (TUT)
Mr FM Tshitake	Junior Lecturer (Polokwane Campus)	B Tech (Information Technology) (TUT)
Mrs T van Niekerk	Academic Technician	N Dip (Laboratory Animal Technology) (TRSA)
Ms V Velupillai	Senior Lecturer	Dip (Datametrics) (Unisa), BSc (Hons) (Statistics) (UJ, Srilanka), MSc (Mathematics Education) (UP)

2.2 MAGISTER TECHNOLOGIAE: INFORMATION NETWORKS (Structured)
Qualification code: MTINS0

Campus where offered: Soshanguve South Campus

Description of the qualification:
This programme is designed to focus on the topic of Enterprise Architecture (EA). Although you will not qualify as an architect, you will gain sufficient exposure to the main themes and topics in this field to start your journey towards such a goal. In particular, your focus will be on the technical perspective of EA with a view to equipping you to take part in architectural work with a more pronounced technical focus. In addition, you will be exposed to knowledge that will help you in the management of projects.

REMARKS

a. Admission requirement(s):
Any four-year Baccalaureus Technologiae degree in Information Technology or an equivalent qualification. A student should preferably have passed Principles of Research IV or a Research Methodology subject before registration, and if not, should definitely pass that subject before their dissertation is accepted.

It is compulsory for all English second-language speakers to take an English proficiency test. If a candidate's results for that test are unsatisfactory, they will have to take an advanced short programme in English. Candidates have to pay for the programme themselves. A scientific writing programme, which forms part of the research report, will also be presented at the University.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of one year and a maximum of three years.

d. Presentation:
Evening or block-based classes. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

FIRST OR SECOND SEMESTER

CODE	SUBJECT	CREDIT
IFN501T	Research Report: Information Networks V (year subject)	(0,500)
IFN501R	Research Report: Information Networks V (re-registration)	(0,000)
RMD511C	Research in Information Networks V	(0,100)

plus four of the following subjects. All subjects are offered as determined by the Head of the Department:

COB501T	Communication Networks V	(0,100)
DEG501T	Data Engineering V	(0,100)
HCA501T	Human Computer Interaction V	(0,100)
ITU501T	Information Security V	(0,100)
ITW501T	IT Law V	(0,100)
NEU501T	Neural Networks V	(0,100)
SFE501T	Software Engineering V	(0,100)
SOL501T	Systems Engineering Solutions V	(0,100)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

2.3 MAGISTER TECHNOLOGIAE: INFORMATION NETWORKS
Qualification code: MTIN01

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
Any four-year Baccalaureus Technologiae degree in Information Technology or an equivalent qualification. A student should preferably have passed Principles of Research IV or a Research Methodology subject before registration, and if not, should definitely pass that subject before their dissertation is accepted.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of one year and a maximum of three years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
IFN500T	Dissertation: Information Networks	(1,000)
IFN500R	Dissertation: Information Networks (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

2.4 DOCTOR TECHNOLOGIAE: COMPUTER SCIENCE AND DATA PROCESSING (provisional accreditation)
(Field of specialisation: Information Networks)
Qualification code: DTIN08

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
Any Masters qualification relevant to the field of specialisation, as approved by the department.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of two years and a maximum of five years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
IFN700T	Thesis: Computer Science and Data Processing: Information Networks	(2,000)
IFN700R	Thesis: Computer Science and Data Processing: Information Networks (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

2.5 NATIONAL DIPLOMA: INFORMATION TECHNOLOGY: TECHNICAL APPLICATIONS
Qualification code: NDIL04/NDIL12

Campus where offered: Soshanguve South Campus

Description of field of specialisation:
This programme is aimed at equipping candidates with specialised programming skills to solve specspecific non-mainstream problems. These skills include component and systems programming, as well as systems configuration. Subjects will include interface programmes between major systems and protocol and device programming.

REMARKS

a. Admission requirement(s) and selection criteria:
See qualification NDIT04/NDIT12 listed under the ICT First Years' and Foundation Unit.

b. Minimum duration:
Three years

c. Presentation:
Day classes. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Industry Exposure IIIB:
Students may register for this subject only with the permission of the Head of the Department. See Chapter 5 of Students' Rules and Regulations (par. 5.2 and 5.3) for further information.

g. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

OPTION I: FOR STUDENTS WHO REGISTERED BEFORE 2012 (NDIL04)

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)

Please note: Students will register for all first year subjects (except for Technical Programming IA) under qualification code NDIT04, during which they are introduced to the basic principles of computers and information technology skills.

TOTAL CREDITS FOR THE FIRST YEAR: **1,125**

SECOND YEAR

FIRST SEMESTER
On completion of all the first-semester subjects in the first year.

DSO23AT	Development Software IIA	(0,125)	
ISY23AT	Information Systems IIA	(0,125)	Information Systems IB
SSF24AT	System Software IIA	(0,125)	System Software IB
TPG12BT	Technical Programming IB	(0,125)	Technical Programming IA

TOTAL CREDITS FOR THE SEMESTER: 0,500

SECOND SEMESTER

DSO23BT	Development Software IIB	(0,125)	Development Software IIA
ISY23BT	Information Systems IIB	(0,125)	Information Systems IB
SSF24BT	System Software IIB	(0,125)	System Software IB
TPG21AT	Technical Programming IIA	(0,125)	Technical Programming IA Technical Programming IB
TPG21BT	Technical Programming IIB	(0,125)	Technical Programming IA Technical Programming IB

TOTAL CREDITS FOR THE SEMESTER: 0,625

TOTAL CREDITS FOR THE SECOND YEAR: **1,125**

THIRD YEAR

FIRST SEMESTER

IDC30AT	Industry Exposure IIIA	(0,125)	
SSF30AT	System Software IIIA	(0,125)	System Software IIA System Software IIB
SSF30BT	System Software IIIB	(0,125)	System Software IIA System Software IIB
TPG30AT	Technical Programming IIIA	(0,125)	Technical Programming IIA Technical Programming IIB
TPG30BT	Technical Programming IIIB	(0,125)	Technical Programming IIA Technical Programming IIB

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER

IDC30BD	Industry Exposure IIIB	(0,125)	Industry Exposure IIIA

TOTAL CREDITS FOR THE SEMESTER: 0,125

TOTAL CREDITS FOR THE THIRD YEAR: **0,750**

OPTION 2: FOR STUDENTS WHO REGISTER FROM 2012 (NDIL12)

FIRST YEAR

Please note: Students will register for all first year subjects under qualification code NDIT12, during which they are introduced to the basic principles of computers and information technology skills.

TOTAL CREDITS FOR THE FIRST YEAR: **1,000**

SECOND YEAR

FIRST SEMESTER

DSO23AT	Development Software IIA	(0,125)	Development Software IB
ISY23AT	Information Systems IIA	(0,125)	
SSF24AT	System Software IIA	(0,125)	Computing Systems IB
TPG12AT	Technical Programming IA	(0,125)	Development Software IB
TPG12BT	Technical Programming IB	(0,125)	Development Software IB

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER

DSO23BT	Development Software IIB	(0,125)	Development Software IIA
ISY23BT	Information Systems IIB	(0,125)	
SSF24BT	System Software IIB	(0,125)	Computing Systems IB
TPG21AT	Technical Programming IIA	(0,125)	Technical Programming IB
TPG21BT	Technical Programming IIB	(0,125)	Technical Programming IB

TOTAL CREDITS FOR THE SEMESTER: 0,625

TOTAL CREDITS FOR THE SECOND YEAR: **1,250**

THIRD YEAR

FIRST SEMESTER

IDC30AT	Industry Exposure IIIA	(0,125)	
SSF30AT	System Software IIIA	(0,125)	System Software IIA System Software IIB
SSF30BT	System Software IIIB	(0,125)	System Software IIA System Software IIB
TPG30AT	Technical Programming IIIA	(0,125)	Technical Programming IIA Technical Programming IIB
TPG30BT	Technical Programming IIIB	(0,125)	Technical Programming IIA Technical Programming IIB

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER
On completion of all the above subjects. Students with only one subject outstanding may be allowed to register for the subject with the approval of the Head of the Department.

IDC30BD	Industry Exposure IIIB	(0,125)

TOTAL CREDITS FOR THE SEMESTER: 0,125

TOTAL CREDITS FOR THE THIRD YEAR: **0,750**

2.6 BACCALAUREUS TECHNOLOGIAE: INFORMATION TECHNOLOGY: TECHNICAL APPLICATIONS

Qualification code: BTIL05

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Information Technology: Technical Applications or an equivalent qualification.

b. Selection criteria:
Admission is subject to selection.

c. Minimum duration:
One year

d. Presentation:
Day classes on Saturdays, offered over a period of one and a half years. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

e. Intake for the qualification:
January and July

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Re-registration:
A student may re-register for the subject Project IV only with the permission of the Head of the Department. The purpose of the re-registration is to provide students with an opportunity to complete the Project only and not to re-do it when it is failed.

h. Subject credits:
Subject credits are shown in brackets after each subject.

Key to asterisks:
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in November 2008, May 2011 and Senex of 22 June.)

FIRST OR SECOND SEMESTER

CODE	SUBJECT	CREDIT
ADU401T	Advanced Technical Programming IV (first semester subject)	(0,100)
ATE401T	Application Technology IV (first semester subject)	(0,100)
ITA401T	Information and Technology Management IV	(0,100)
PAJ411T	Principles of Research IV*	(0,100)
PJT410E	Project IV (year subject)	(0,200)
PJT414R	Project IV (re-registration)	(0,000)
TPG401T	Technical Programming IV (second semester subject)	(0,100)
	plus three of the following subjects. All subjects are offered as determine by the Head of the Department:	
AIT401T	Artificial Intelligence IV	(0,100)
DBS401T	Database Systems IV (first semester subject)	(0,100)
DPY401T	Decision Support Systems IV* (second semester subject)	(0,100)
EXS401T	Expert Systems IV	(0,100)
HCI401T	Human Computer Interface Design IV	(0,100)
ITU401T	Information Security IV	(0,100)
NWS421T	Networks IV	(0,100)
NTP401T	New Technology Programming IV*	(0,100)
OSY431T	Operating Systems IV	(0,100)
PJG401C	Project Management IV	(0,100)
SRN401T	Software Requirements and Design IV* (first semester subject)	(0,100)
SYE401T	Systems Engineering IV	(0,100)
UIF401T	User-Interfaces IV (not offered in 2012)	(0,100)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

2.7 MAGISTER TECHNOLOGIAE: INFORMATION TECHNOLOGY (Field of specialisation: Technical Applications)
Qualification code: MTIL95

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Information Technology or an equivalent qualification. A student should preferably have passed Principles of Research IV or a Research Methodology subject before registration, and if not, should definitely pass that subject before their dissertation is accepted.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of one year and a maximum of three years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DTA510T	Dissertation: Information Technology: Technical Applications	(1,000)
DTA510R	Dissertation: Information Technology: Technical Applications (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

2.8 DOCTOR TECHNOLOGIAE: COMPUTER SCIENCE AND DATA PROCESSING (provisional accreditation) (Field of specialisation: Technical Applications)

Qualification code: DTIL08

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
Any Masters qualification relevant to the field of specialisation, as approved by the department.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of two years and a maximum of five years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DTA700T	Thesis: Computer Science and Data Processing: Technical Applications	(2,000)
DTA700R	Thesis: Computer Science and Data Processing: Technical Applications (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

2.9 BACCALAUREUS TECHNOLOGIAE: PROFESSIONAL PRACTICE IN INFORMATION TECHNOLOGY

Qualification code: BTPF03

Campus where offered: Soshanguve South Campus

REMARKS

Please note: A moratorium was placed on new intakes as from 2012 until further notice.

a. Admission requirement(s):
Relevant IT industry experience with recognition of prior learning (RPL) and a minimum of seven years' experience.

b. Selection criteria:
Students should submit a portfolio of relevant experience and qualifications successfully completed, in a set format, to an admission panel. The final decision on admission is based on a combined assessment of the submitted portfolio and a formal assessment of the student to determine the skills and knowledge levels they reached through the relevant studies and industry experience. The outcome of the assessment should be deemed equivalent to at least an M+3 in the computer systems and information technology field.

c. Minimum duration:
One year

d. Presentation:
Day classes on Saturdays, offered over a period of one and a half years. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

e. Intake for the qualification:
January and July

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Re-registration:
A student may re-register for the subject Project IV only with the permission of the Head of the Department. The purpose of the re-registration is to provide students with an opportunity to complete the Project only and not to re-do it when it is failed.

h. Subject credits:
Subject credits are shown in brackets after each subject.

FIRST OR SECOND SEMESTER

CODE	SUBJECT	CREDIT
BUA401T	Business Analysis IV	(0,100)
PAA401T	Personal Attributes/Reflection on Practices IV	(0,100)
PAJ411T	Principles of Research IV	(0,100)
PPJ400T	Professional Practice Project IV (year subject)	(0,200)
PPJ401R	Professional Practice Project IV (re-registration)	(0,000)
PRZ401T	Professional Systems Engineering IV	(0,100)
SBA401T	Strategic Business Analysis IV	(0,200)
	plus two of the following subjects All subjects are offered as determine by the Head of the Department:	
PAB401T	Principles of Enquiry and the Future of IT IV	(0,100)
SIS401T	Software-Intensive Systems Project Management IV	(0,100)
TKM401T	Task Management IV	(0,100)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

2.10 MAGISTER TECHNOLOGIAE: PROFESSIONAL PRACTICE IN INFORMATION TECHNOLOGY (Structured)

Qualification code: MTPFS1

Campus where offered: Soshanguve South Campus

Description of the qualification:
This programme is designed to focus on the topic of Enterprise Architecture (EA). Although you will not qualify as an architect, you will gain sufficient exposure to the main themes and topics in this field to start your journey towards such a goal. In particular, your focus will be on the management of architectural teams as well as architectural projects. The exposure to the technical aspects of EA and the strategic level of business, coupled with project management, will make you an asset in the planning and execution of EA projects.

REMARKS

Please note: A moratorium has been placed on new intakes as from 2012 until further notice.

a. Admission requirement(s):

- Any four-year Baccalaureus Technologiae degree in Information Technology or an equivalent qualification.
  or
- A non-information technology three-year degree, but with at least five years' practical experience in an information technology environment, coupled with some management or supervisory experience.
  or
- At least ten years' practical experience in a technical information technology environment, coupled with some management or supervisory experience. (It is acknowledged that many experienced information technology professionals who work in the industry do not have degrees. Therefore, if an information technology

professional has a minimum of seven years' relevant practical experience and is able to prove their suitability (via an RPL procedure, as set out by this University and approved by the Head of the Department), they may be accepted for this programme.

A student should preferably have passed Principles of Research IV or a Research Methodology subject before registration, and if not, should definitely pass that subject before their dissertation is accepted.

It is compulsory for all English second-language speakers to complete an English proficiency test. If a candidate's results for this test are unsatisfactory, they will have to complete an advanced short programme in English. Candidates have to pay for the programme themselves. A scientific writing programme, which forms part of the research report, will also be presented at the University.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of one year and a maximum of three years.

d. Presentation:
Evening classes. Promotion is based on the assessment of taught subjects through practical work and an examination. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Class attendance:
Subjects are offered on location (Soshanguve South or Pretoria campuses) as determined by the Head of the Department.

g. Subject credits:
Subject credits are shown in brackets after each subject.

FIRST OR SECOND SEMESTER

CODE	SUBJECT	CREDIT
DIZ500T	Research Report: Professional Practice in Information Technology V (year subject)	(0,500)
DIZ501R	Research Report: Professional Practice in Information Technology V (re-registration)	(0,000)
III501T	Innovation in IT V	(0,080)
PRV511T	Professional Systems Engineering V	(0,080)
RMD511D	Research in Professional Practice in Information Technology V	(0,100)
SBG500T	Strategic Business Analysis and Modeling V (year subject)	(0,080)
TKM501T	Task Management V	(0,080)
	plus one of the following subjects:	
DEV511T	Digital Enterprise V	(0,080)
KNT511T	Knowledge Technologies V	(0,080)
SPV511T	IT Services and Projects V	(0,080)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

2.11 MAGISTER TECHNOLOGIAE: PROFESSIONAL PRACTICE IN INFORMATION TECHNOLOGY
Qualification code: MTPF01

Campus where offered: Soshanguve South Campus

REMARKS
Please note: A moratorium has been placed on new intakes as from 2012 until further notice.

a. Admission requirement(s):

- Any four-year Baccalaureus Technologiae degree in Information Technology or an equivalent qualification.
  or
- A non-information technology three-year degree, but with at least five years' practical experience in an information technology environment, coupled with some management or supervisory experience.
  or
- At least ten years' practical experience in a technical information technology environment, coupled with some management or supervisory experience. (It is acknowledged that many experienced information technology professionals who work in the industry do not have degrees. Therefore, if an information technology professional has a minimum of seven years' relevant practical experience and is able to prove their suitability (via an RPL procedure, as set out by this University and approved by the Head of the Department), they may be accepted for this programme.

A student should preferably have passed Principles of Research IV or a Research Methodology subject before registration, and if not, should definitely pass that subject before their dissertation is accepted.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of one year and a maximum of three years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
PPX500T	Dissertation: Professional Practice in Information Technology	(1,000)
PPX500R	Dissertation: Professional Practice in Information Technology (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

2.12 DOCTOR TECHNOLOGIAE: COMPUTER SCIENCE AND DATA PROCESSING (provisional accreditation)
(Field of specialisation: Professional Practice in Information Technology)
Qualification code: DTPF08

Campus where offered: Soshanguve South Campus

REMARKS
Please note: A moratorium has been placed on new intakes as from 2012 until further notice.

a. *Admission requirement(s):*
Any Masters qualification relevant to the field of specialisation, as approved by the department.

b. *Selection criteria:*
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. *Duration:*
A minimum of two years and a maximum of five years.

d. *Presentation:*
Research. The topic should be chosen in consultation with the department.

e. *Rule:*
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. *Subject credits:*
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
PPX700T	Thesis: Computer Science and Data Processing: Professional Practice in Information Technology	(2,000)
PPX700R	Thesis: Computer Science and Data Processing: Professional Practice in Information Technology (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

3. DEPARTMENT OF COMPUTER SYSTEMS ENGINEERING

3.1 PERSONNEL INFORMATION

On 19 July 2011, this department had the following staff members:

Head of Department: Prof SM Ngwira - BSc (Physics) (Unisa), MSc (Electrical Engineering) (Wales), PhD (Electronics Engineering) (Wales)
Telephone numbers: 012 382 9812/9671

Departmental Administrator: Ms LC Koekemoer

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Mr L Botha	Junior Lecturer	B Tech (IT) (Intelligent Industrial Systems) (TUT)
Mrs MCE Jordaan	Senior Lecturer	Magister (Information Technology) (UP)
Mrs LZ Mahlobogwane	Lecturer	B Tech (Engineering) (Electrical) (Telecommunication Technology) (Tech Pta)
Ms NF Matshali	Lecturer	BSc (Hons) (Computer Science) (University of Zululand)
Mrs C Spies	Junior Lecturer	B Tech (Computer Systems Engineering) (TUT)
Mr J Spies	Lecturer	B Tech (Electronic Engineering) (Tech Free State)

3.2 NATIONAL DIPLOMA: ENGINEERING: COMPUTER SYSTEMS
Qualification code: NDCY03

Campus where offered: Soshanguve South Campus

Purpose of qualification:
To instill the necessary knowledge, understanding and skills required for the learner's progression towards becoming a competent practicing Engineering Technician. A candidate who has gone through this training should be able to apply the acquired knowledge, understanding, skills attitudes and values in the South African work setting.

A person in possession of this qualification is able to -
- meet the requirements for registration with the Engineering Council of South African as a candidate Engineering Technician;
- design, maintain and update computer systems including computer networks;
- perform hardware and software integrated designs;
- identify, analyse, conduct and manage a project and give an appropriate presentation of it to varying audiences;
- work both independently and as a member of a team;
- apply the acquired knowledge to new situations in the workplace and/or community;
- relate engineering activity to health and safety, to the environment, and to cultural and economic sustainability; and
- use and interpret mathematical formulae used in engineering calculations.

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

  Admission requirement(s):
  A Senior Certificate or an equivalent qualification with a pass in English and a pass of at least 50% at the Higher Grade or at least 60% at the Standard Grade for Physical Science and Mathematics. Candidates must have access to personal computers to do assignments after hours.

Recommended subject(s):
Computer Studies

Selection criteria:
Initial selection is based on school results. A further selection is based on an assessment. Prospective students will be notified that they should make an appointment with the departmental Administrator for this assessment. This rule applies to all prospective students, as well as to students who are already registered at other institutions.

The selection status of students who have been accepted, but whose final Grade 12 results do not meet the minimum requirements, will automatically change to conditional acceptance. This implies that such students should pass at least 60% of their subjects at the end of the first semester in order to be permitted to continue with the qualification.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

Admission requirement(s):
A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 4 for Mathematics and 3 for Physical Sciences or an equivalent subject considered by the Faculty.

Recommended subject(s):
None

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **24**.

Assessment procedures:
Candidates who meet these minimum requirements will be considered for admission to either the National Diploma or the National Diploma (Information Technology) (Extended Curriculum) (See the ICT First Years' and Foundation Unit). Of these candidates, those with a score of more than 3 in Mathematics will be admitted directly to the National Diploma. Upon admission and before registration the rest of the candidates will be required to do a placement test and may be directed to registration for either the standard or the extended curriculum as my be appropriate.

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Experiential Learning I and II:
See Chapter 5 of Students' Rules and Regulations.

g. Engineering Council of South Africa (ECSA):
The National Diploma: Engineering: Computer Systems is accredited by the Engineering Council of South Africa (ECSA), and students completing the qualification will be able to register with that Council. The Department or ECSA can be contacted for additional information and registration purposes.

h. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
COS101T	Communication Skills I	(0,036)	
CSK101T	Computer Skills I	(0,055)	
DSY131C	Digital Systems I	(0,083)	
EEN111T	Electrical Engineering I	(0,083)	
ELC111T	Electronics I	(0,083)	
MAT141F	Mathematics I	(0,083)	
PGG111T	Programming I	(0,083)	
TOTAL CREDITS FOR THE SEMESTER:		0,506	

SECOND SEMESTER

DSY231C	Digital Systems II	(0,083)	Digital Systems I
ELC211T	Electronics II	(0,083)	Electronics I
MAT251F	Mathematics II	(0,083)	Mathematics I
NSY211T	Network Systems II	(0,083)	
PGG211T	Programming II	(0,083)	Programming I
	plus one of the following subjects:		
DPC201T	Digital Process Control II	(0,083)	
PJT101B	Projects I	(0,083)	Programming I
TOTAL CREDITS FOR THE SEMESTER:		0,498	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,004**	

SECOND YEAR

FIRST SEMESTER

DSY341C	Digital Systems III	(0,083)	Digital Systems II
NSY311T	Network Systems III	(0,083)	Network Systems II
OSY301T	Operating Systems III	(0,083)	Programming II
PGG311T	Programming III	(0,083)	Programming II
SYA201T	Systems Analysis II	(0,083)	
	plus one of the following subjects that was not taken in the previous semesters:		
DPC201T	Digital Process Control II	(0,083)	
DPC301T	Digital Process Control III	(0,083)	Digital Process Control II
MMA301T	Mathematical Applications III	(0,083)	Mathematics II
ORS311T	Operational Research III	(0,083)	Mathematics I
PJT101B	Projects I	(0,083)	Programming I
TOTAL CREDITS FOR THE SEMESTER:		0,498	

SECOND SEMESTER

DBR311T	Database Principles III	(0,083)	Programming II Systems Analysis II
LOD311B	Logic Design III	(0,083)	Digital Systems III
SFE311T	Software Engineering III	(0,083)	Programming III Systems Analysis II

plus two of the following subjects that were not taken in the previous semesters:

DPC201T	Digital Process Control II	(0,083)	
DPC301T	Digital Process Control III	(0,083)	Digital Process Control II
MMA301T	Mathematical Applications III	(0,083)	Mathematics II
ORS311T	Operational Research III	(0,083)	Mathematics I
PJT101B	Projects I	(0,083)	Programming I

TOTAL CREDITS FOR THE SEMESTER: 0,415

TOTAL CREDITS FOR THE SECOND YEAR: **0,913**

THIRD YEAR

FIRST SEMESTER
On completion of all the above subjects.

EXP1ECS	Experiential Learning I	(0,500)	

TOTAL CREDITS FOR THE SEMESTER: 0,500

SECOND SEMESTER

EXP2ECS	Experiential Learning II	(0,500)	Experiential Learning I
PJD301B	Design Project III	(0,083)	

TOTAL CREDITS FOR THE SEMESTER: 0,583

TOTAL CREDITS FOR THE THIRD YEAR: **1,083**

3.3 BACCALAUREUS TECHNOLOGIAE: COMPUTER SYSTEMS
Qualification code: BTCY95

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Engineering: Computer Systems or an equivalent qualification.

b. Selection criteria:
Applications are subject to selection.

c. Minimum duration:
One year

d. Presentation:
Day classes on Saturdays, offered over a period of one and a half years.

e. Intake for the qualification:
January and July

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Re-registration:
A student may re-register for the subject Project IV only with the permission of the Head of the Department. The purpose of the re-registration is to provide students with an opportunity to complete the Project only and not to re-do it when it is failed.

h. Subject credits:
Subject credits are shown in brackets after each subject.

FIRST OR SECOND SEMESTER

CODE	SUBJECT	CREDIT
DBP401T	Database Programming IV (first semester subject)	(0,100)
FUM101T	Functional Management	(0,100)
HWD401T	Hardware Design IV	(0,100)
IPR410B	Industrial Project IV (year subject)	(0,200)
IPR411R	Industrial Project IV (re-registration)	(0,000)
NTP401T	New Technology Programming IV	(0,100)
	plus four of the following subjects. All subjects are offered as determine by the Head of the Department:	
DBA401T	Database Administration IV	(0,100)
DPC401T	Digital Process Control IV	(0,100)
MMA401T	Mathematical Applications IV	(0,100)
NSY401T	Network Systems IV	(0,100)
SWS401T	Software Systems IV	(0,100)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

3.4 MAGISTER TECHNOLOGIAE: COMPUTER SYSTEMS
Qualification code: MTCY95

Campus where offered: Soshanguve South Campus

REMARKS

a. *Admission requirement(s):*
A Baccalaureus Technologiae: Computer Systems or an equivalent qualification. A student should preferably have passed Principles of Research IV or a Research Methodology subject before registration, and if not, should definitely pass that subject before their dissertation is accepted.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of one year and a maximum of three years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subjects credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
COT500T	Dissertation: Computer Systems	(1,000)
COT500R	Dissertation: Computer Systems (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

3.5 DOCTOR TECHNOLOGIAE: COMPUTER SCIENCE AND DATA PROCESSING (provisional accreditation)
(Field of specialisation: Computer Systems)
Qualification code: DTCY08

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
Any Masters qualification relevant to the field of specialisation, as approved by the department.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of two years and a maximum of five years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
COT700T	Thesis: Computer Science and Data Processing: Computer Systems	(2,000)
COT700R	Thesis: Computer Science and Data Processing: Computer Systems (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

3.6 NATIONAL DIPLOMA: INFORMATION TECHNOLOGY: INTELLIGENT INDUSTRIAL SYSTEMS
Qualification code: NDII04/NDII12

Campus where offered: Soshanguve South Campus

Description of field of specialisation:
Students will be qualified to follow careers in the design, development and maintenance of intelligent industrial systems. This qualification includes extensive training in the areas of artificial intelligence, games programming and electronics in the IT field. Students will also receive training in robotics, which includes the programming, electronic design and mechanical construction of a "rover-bot" project. On obtaining this qualification, students will be able to follow careers in factory automation, computer hardware engineering, PLC technology, embedded programming and entertainment software.

REMARKS

a. Admission requirement(s) and selection criteria:
See qualification NDIT04/NDIT12 listed under the ICT First Years' and Foundation Unit.

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Industry Exposure IIIB:
Students may register for this subject only with the permission of the Head of the Department. See Chapter 5 of Students' Rules and Regulations (par. 5.2 and 5.3) for further information.

g. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

OPTION I: FOR STUDENTS WHO REGISTERED BEFORE 2012 (NDIL04)

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)

Please note: Students will register for all first year subjects (except for Technical Programming IA) under qualification code NDIT04, during which they are introduced to the basic principles of computers and information technology skills.

TOTAL CREDITS FOR THE FIRST YEAR: **1,125**

SECOND YEAR

FIRST SEMESTER
On completion of all the first-semester subjects in the first year.

GPM20AT	Games Programming IIA	(0,125)	Technical Programming IA
IIE20AT	IT Electronics IIA	(0,125)	
IIS20AT	Intelligent Industrial Systems IIA	(0,125)	Systems Software IB Technical Programming IA
TPG11BT	Technical Programming IB	(0,125)	Technical Programming IA

TOTAL CREDITS FOR THE SEMESTER: 0,500

SECOND SEMESTER

GPM20BT	Games Programming IIB	(0,125)	Games Programming IIA
IIE20BT	IT Electronics IIB	(0,125)	IT Electronics IIA
IIS20BT	Intelligent Industrial Systems IIB	(0,125)	Intelligent Industrial Systems IIA
TPG201T	Technical Programming II	(0,250)	Technical Programming IB

TOTAL CREDITS FOR THE SEMESTER: 0,625

TOTAL CREDITS FOR THE SECOND YEAR: **1,125**

THIRD YEAR

FIRST SEMESTER

IDC30AT	Industry Exposure IIIA	(0,125)	
IIE30AT	IT Electronics IIIA	(0,125)	Intelligent Industrial Systems IIB IT Electronics IIB
IIE30BT	IT Electronics IIIB	(0,125)	Intelligent Industrial Systems IIB IT Electronics IIB
IIS301T	Intelligent Industrial Systems III	(0,250)	Intelligent Industrial Systems IIB IT Electronics IIB

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER

IDC30BI	Industry Exposure IIIB	(0,125)	Industry Exposure IIIA

TOTAL CREDITS FOR THE SEMESTER: 0,125

TOTAL CREDITS FOR THE THIRD YEAR: **0,750**

OPTION 2: FOR STUDENTS WHO REGISTER FROM 2012 (NDII12)

FIRST YEAR

Please note: Students will register for all first year subjects under qualification NDIT12, during which they are introduced to the basic principles of computers and information technology skills.

TOTAL CREDITS FOR THE FIRST YEAR: **1,000**

SECOND YEAR

FIRST SEMESTER

GPM20AT	Games Programming IIA	(0,125)	Development Software IB
IIE20AT	IT Electronics IIA	(0,125)	
IIS20AT	Intelligent Industrial Systems IIA	(0,125)	Computing Systems IB
TPG11AT	Technical Programming IA	(0,125)	Development Software IB
TPG11BT	Technical Programming IB	(0,125)	Development Software IB

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER

GPM20BT	Games Programming IIB	(0,125)	Games Programming IIA
IIE20BT	IT Electronics IIB	(0,125)	IT Electronics IIA
IIS20BT	Intelligent Industrial Systems IIB	(0,125)	Intelligent Industrial Systems IIA
TPG20AT	Technical Programming IIA	(0,125)	Technical Programming IB
TPG20BT	Technical Programming IIB	(0,125)	Technical Programming IB

TOTAL CREDITS FOR THE SEMESTER: 0,625

TOTAL CREDITS FOR THE SECOND YEAR: **1,250**

THIRD YEAR

FIRST SEMESTER

IDC30AT	Industry Exposure IIIA	(0,125)	
IIE30AT	IT Electronics IIIA	(0,125)	Intelligent Industrial Systems IIB IT Electronics IIB
IIE30BT	IT Electronics IIIB	(0,125)	Intelligent Industrial Systems IIB IT Electronics IIB
IIS301T	Intelligent Industrial Systems III	(0,250)	Intelligent Industrial Systems IIB IT Electronics IIB

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER
On completion of all the above subjects. Students with only one subject outstanding may be allowed to register for the subject with the approval of the Head of the Department.

IDC30BI	Industry Exposure IIIB	(0,125)

TOTAL CREDITS FOR THE SEMESTER: 0,125

TOTAL CREDITS FOR THE THIRD YEAR: **0,750**

3.7 BACCALAUREUS TECHNOLOGIAE: INFORMATION TECHNOLOGY: INTELLIGENT INDUSTRIAL SYSTEMS
Qualification code: BTII05

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Information Technology: Intelligent Industrial Systems or an equivalent qualification.

b. Selection criteria:
Applications are subject to selection.

c. Minimum duration:
One year

d. Presentation:
Day classes on Saturdays, offered over a period of one and a half years. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

e. Intake for the qualification:
January and July

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Re-registration:
Students may re-register for the subject Project IV only with the permission of the Head of the Department. The purpose of the re-registration is to provide students with an opportunity to complete incomplete projects.

h. Subject credits:
Subject credits are shown in brackets after each subject.

Key to asterisks:
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in November 2008 and May 2011.)

FIRST OR SECOND SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
ADK401T	Advanced Intelligent Industrial Systems IV	(0,100)	Intelligent Industrial Systems IV
IIS401T	Intelligent Industrial Systems IV	(0,100)	
ITA401T	Information and Technology Management IV	(0,100)	
PAJ411T	Principles of Research IV*	(0,100)	
PJT410J	Project IV (year subject)	(0,200)	
PJT418R	Project IV (re-registration)	(0,000)	
	plus four of the following subjects. All subjects are offered as determine by the Head of the Department:		
AIT401T	Artificial Intelligence IV	(0,100)	
ATE401T	Application Technology IV (first semester subject)	(0,100)	
BAB401T	Business Fundamentals IV	(0,100)	
DBS401T	Database Systems IV (first semester subject)	(0,100)	
DPY401T	Decision Support Systems IV* (second semester subject)	(0,100)	
EXS401T	Expert Systems IV	(0,100)	
HCI401T	Human Computer Interface Design IV	(0,100)	
ITB401T	Intelligence Programming IV	(0,100)	
ITU401T	Information Security IV	(0,100)	
KNM401T	Knowledge Management IV	(0,100)	
NWS421T	Networks IV	(0,100)	
OSY431T	Operating Systems IV	(0,100)	
PJG401C	Project Management IV	(0,100)	
SRN401T	Software Requirements and Design IV* (first semester subject)	(0,100)	
SYE401T	Systems Engineering IV	(0,100)	
UIF401T	User-Interfaces IV (not offered in 2012)	(0,100)	
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**	

3.8 MAGISTER TECHNOLOGIAE: INFORMATION TECHNOLOGY (Field of specialisation: Intelligent Industrial Systems)

Qualification code: MTII95

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Information Technology or an equivalent qualification. A student should preferably have passed Principles of Research IV or a Research Methodology subject before registration, and if not, should definitely pass that subject before their dissertation is accepted.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of one year and a maximum of three years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DII510T	Dissertation: Information Technology: Intelligent Industrial Systems	(1,000)
DII510R	Dissertation: Information Technology: Intelligent Industrial Systems (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

3.9 DOCTOR TECHNOLOGIAE: COMPUTER SCIENCE AND DATA PROCESSING (provisional accreditation)
(Field of specialisation: Intelligent Industrial Systems)
Qualification code: DTII08

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
Any Masters qualification relevant to the field of specialisation, as approved by the department.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of two years and a maximum of five years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DII700T	Thesis: Computer Science and Data Processing: Intelligent Industrial Systems	(2,000)
DII700R	Thesis: Computer Science and Data Processing: Intelligent Industrial Systems (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

4. DEPARTMENT OF END-USER COMPUTING

This department only offers service subjects to other departments within this Faculty and other Faculties. No formal qualifications are offered.

4.1 PERSONNEL INFORMATION

On 1 June 2011, this department had the following staff members:

Head of Department: Mrs C Boshoff - MEd (CBT) (UP)
Telephone number: 012 382 9940

Departmental Administrator: Ms L Van der Merwe

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Me GC Botha	Junior Lecturer	B Tech (BIS) (TUT)
Mr JS Dirane	Lecturer	M Tech (Ed) (TNG)
Me MR Kgasi	Junior Lecturer	B Tech (Post-School Ed) (TUT)
Mr AT Kgopa	Junior Lecturer	B Tech (IT) (TUT)
Me R Leus	Junior Lecturer	BSc (IT) (UNW)
Mr L Maako	Lecturer	M Tech (BIS) (TUT)
Mr SR Mashaba	Lecturer	NH Dip (Ed) (TNG)
Mr T Muchenje	Lecturer	MSc (Computer Science) (UJ)
Mr E Rankapola	Junior Lecturer	B Tech (Ed) (TUT)
Me M Phalane	Junior Lecturer	B Tech (Education Management) (Tech Pta)
Me M van Wyk	Junior Lecturer	BSc (Hons) (Counseling Psychology, DTE) (Stellenbosch)

5. DEPARTMENT OF INFORMATICS

5.1 PERSONNEL INFORMATION

On 19 July 2011, this department had the following staff members:

Head of Department: Prof T Iyamu - PhD (Information Systems) (UCT)
Telephone numbers: 012 382 9207/9213

Departmental Administrator: Ms M du Plessis

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Dr A Coleman	Lecturer	M Tech (Business Information Systems) (TUT), PhD (Information Technology) (NMMU)
Ms J Kallis	Junior Lecturer	B Tech (Information Technology) (TUT)
Prof R Kekwaletswe	Senior Lecturer	MSc (Computer Information Systems and Technology) (American University, USA), PhD (Information Systems) (UCT)
Mr MM Makgopela	Lecturer	B Tech (Information Technology) (Unisa)
Mr P Pretorius	Senior Lecturer	MEd (RGO) (UP)
Ms LA van der Merwe	Junior Lecturer	B Tech (Information Technology) (Business Applications) (TUT)

5.2 BACCALAUREUS TECHNOLOGIAE: BUSINESS INFORMATION SYSTEMS

Qualification code: BTBI03

Campus where offered: Soshanguve South Campus

Description of qualification:
The programme introduces the student to the use of Information Systems in the Information Technology environment. As background study, the students are exposed to applications and technologies, networks and utilisation of knowledge in the organisation. The analysis skills of the students are strengthened to be able to apply the analysis skills in the work environment.

Graduates can join the information technology graduates in the IT industry by utilising their analysis skills in the organisation.

REMARKS

a. *Admission requirement(s):*
A National Diploma or an equivalent qualification with four years' work experience, or an honours or Baccalaureus Technologiae degree with three years' work experience. Candidates should be computer literate and skilled in the use of a word processor and spreadsheet programme. Candidates who have already obtained an information technology qualification (national diploma, degree, honours or baccalaureus technologiae degree) do not qualify for this programme.

Candidates who enrol for this programme should have access to personal computers other than those available at the computer laboratories of the University. The Department will set minimum configurational requirements annually.

b. *Selection criteria:*
Admission to this programme is subject to the approval of the Head of the Department.

c. *Minimum duration:*
One year

d. Presentation:
Day classes on Saturdays. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

e. Intake for the qualification:
January and July

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Re-registration:
A student may re-register for the subject Project IV only with the permission of the Head of the Department. The purpose of the re-registration is to provide students with an opportunity to complete the Project only and not to re-do it when it is failed.

h. Subject credits:
Subject credits are shown in brackets after each subject.

Key to asterisks:
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in November 2008 and May 2011.)

FIRST OR SECOND SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
BIF401T	Business Information Systems IV	(0,100)	Principles of Research IV
INH401T	Information Systems Technologies IV	(0,100)	
NDS401T	Networks and Distributed Systems IV	(0,100)	Business Information Systems IV Information Systems Technologies IV
PAJ411T	Principles of Research IV*	(0,100)	
PJT410C	Project IV* (year subject)	(0,200)	
PJT410R	Project IV* (re-registration)	(0,000)	
SYD401T	Systems Development IV	(0,100)	Business Information Systems IV
	plus three of the following subjects. All subjects are offered as determine by the Head of the Department:		
ADQ401T	Advanced Knowledge Management IV*	(0,100)	Knowledge Management IV
BUA401T	Business Analysis IV	(0,100)	Business Information Systems IV
ITA401T	Information and Technology Management IV	(0,100)	
KNM401T	Knowledge Management IV	(0,100)	
KTG401T	Knowledge Technologies IV	(0,100)	
MTI401T	Multimedia and Internet IV	(0,100)	
PRZ401T	Professional Systems Engineering IV	(0,100)	Business Information Systems IV Information Systems Technologies IV
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**	

5.3 MAGISTER TECHNOLOGIAE: BUSINESS INFORMATION SYSTEMS (Structured)
Qualification code: MTBIS1

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
Students who enrol for this option should have a four-year bachelor's degree or honours degree in information systems or related discipline.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of one year and a maximum of three years.

d. Presentation:
Day classes on Saturdays. The qualification consists of structured semester subjects and a research report. The six subjects are presented during the first 12 months through part-time study (on Saturdays). The second part of the Magister Technologiae (minimum of six months) comprises the research report, which carries a weight of 50% of the degree.

e. Rules:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

FIRST OR SECOND SEMESTER

CODE	SUBJECT	CREDIT
BIF501T	Business Information Systems V	(0,080)
BUA501T	Business Analysis V	(0,080)
DEV501T	Digital Enterprise V	(0,080)
DIX500T	Research Report: Business Information Systems V (year subject)	(0,500)
DIX500R	Research Report: Business Information Systems V (re-registration)	(0,000)
KNT501T	Knowledge Technologies V	(0,080)
RMD511B	Research in Business Information Systems V	(0,100)
SPV501T	IT Services and Projects V	(0,080)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

5.4 MAGISTER TECHNOLOGIAE: BUSINESS INFORMATION SYSTEMS
Qualification code: MTBI01

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
Students who enrol for this option should have a four-year bachelor's degree or honours degree in information technology, information systems or related discipline.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of one year and a maximum of three years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rules:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
BIF500T	Dissertation: Business Information Systems	(1,000)
BIF500R	Dissertation: Business Information Systems (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

5.5 DOCTOR TECHNOLOGIAE: COMPUTER SCIENCE AND DATA PROCESSING (provisional accreditation)
(Field of specialisation: Business Information Systems)
Qualification code: DTBI08

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
Any Masters qualification relevant to the field of specialisation, as approved by the department.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of two years and a maximum of five years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rules:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
BIF700T	Thesis: Computer Science and Data Processing: Business Information Systems	(2,000)
BIF700R	Thesis: Computer Science and Data Processing: Business Information Systems (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

5.6 NATIONAL DIPLOMA: INFORMATION TECHNOLOGY: BUSINESS APPLICATIONS
Qualification code: NDIB04/NDIB12

Campus where offered: Soshanguve South Campus

Description of field of specialisation:
One of the most fundamental and challenging information technology posts is that of the business and systems analyst. Business and systems analysts drive a project from its initial state of uncertainty, through a clearly defined and agreed upon set of requirements, to an information system which would solve specific business problems. The analyst is responsible for analysing business needs through a careful study of business processes and communication with clients. Once the analysis is completed, the analyst should communicate the results to the programmers, who will code and implement the solution. The analysts act as a link between the programmers and clients through the entire development and installation process. The analyst is the key to ensuring a good fit between the information system and the organisation. Their role is integral to the success of the information system, and thus to the success of the organisation. Students are trained in information technology skills, business skills and interpersonal relationship skills.

REMARKS

a. Admission requirement(s) and selection criteria:
See qualification NDIT04/NDIT12 listed under the ICT First Years' and Foundation Unit.

b. Minimum duration:
Three years

c. Presentation:
Day classes. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Industry Exposure IIIB:
Students may register for this subject only with the permission of the Head of the Department. See Chapter 5 of Students' Rules and Regulations (par. 5.2 and 5.3) for further information.

g. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

OPTION I: FOR STUDENTS WHO REGISTERED BEFORE 2012 (NDIL04)

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)

Please note: Students will register for all first year subjects (except for Management Information Systems IA) under qualification code NDIT04, during which they are introduced to the basic principles of computers and information technology skills.

TOTAL CREDITS FOR THE FIRST YEAR: **1,125**

SECOND YEAR

FIRST SEMESTER
On completion of all the first-semester subjects in the first year.

ACS11AT	Accounting Skills IA	(0,125)	
BUA20AT	Business Analysis IIA	(0,125)	Information Systems IB
DSO23AT	Development Software IIA	(0,125)	
ISY23AT	Information Systems IIA	(0,125)	Information Systems IB

TOTAL CREDITS FOR THE SEMESTER: 0,500

SECOND SEMESTER

ACS11BT	Accounting Skills IB	(0,125)	
BUA20BT	Business Analysis IIB	(0,125)	Business Analysis IIA
DSO23BT	Development Software IIB	(0,125)	Development Software IIA
ISY23BT	Information Systems IIB	(0,125)	Information Systems IIA
MIS22BT	Management Information Systems IIB	(0,125)	Information Systems IB Management Information Systems IIA

TOTAL CREDITS FOR THE SEMESTER: 0,625

TOTAL CREDITS FOR THE SECOND YEAR: **1,125**

THIRD YEAR

FIRST SEMESTER

BUA30AT	Business Analysis IIIA	(0,125)	Business Analysis IIB
BUA30BT	Business Analysis IIIB	(0,125)	Business Analysis IIB
DSO34AT	Development Software IIIA	(0,125)	Development Software IIB
DSO35BT	Development Software IIIB	(0,125)	Development Software IIB
IDC30AT	Industry Exposure IIIA	(0,125)	

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER

IDC30BB	Industry Exposure IIIB	(0,125)	Industry Exposure IIIA

TOTAL CREDITS FOR THE SEMESTER: 0,125

TOTAL CREDITS FOR THE THIRD YEAR: **0,750**

OPTION 2: FOR STUDENTS WHO REGISTER FROM 2012 (NDIB12)

FIRST YEAR

Please note: Students will register for all first year subjects under qualification code NDIT12, during which they are introduced to the basic principles of computers and information technology skills.

TOTAL CREDITS FOR THE FIRST YEAR: **1,000**

SECOND YEAR

FIRST SEMESTER

ACS11AT	Accounting Skills IA	(0,125)	
BUA20AT	Business Analysis IIA	(0,125)	Computer Skills IA Computer Skills IB Computing Fundamentals IB
DSO23AT	Development Software IIA	(0,125)	
ISY23AT	Information Systems IIA	(0,125)	
MIS22AT	Management information Systems IIA	(0,125)	Development Software IB

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER

ACS11BT	Accounting Skills IB	(0,125)	
BUA20BT	Business Analysis IIB	(0,125)	Business Analysis IIA
DSO23BT	Development Software IIB	(0,125)	Development Software IIA
ISY23BT	Information Systems IIB	(0,125)	Information Systems IIA
MIS22BT	Management Information Systems IIB	(0,125)	Management Information Systems IIA

TOTAL CREDITS FOR THE SEMESTER: 0,625

TOTAL CREDITS FOR THE SECOND YEAR: **1,250**

THIRD YEAR

FIRST SEMESTER

BUA30AT	Business Analysis IIIA	(0,125)	Business Analysis IIB
BUA30BT	Business Analysis IIIB	(0,125)	Business Analysis IIB
DSO34AT	Development Software IIIA	(0,125)	Development Software IIB
DSO35BT	Development Software IIIB	(0,125)	Development Software IIB
IDC30AT	Industry Exposure IIIA	(0,125)	

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER
On completion of all the above subjects. Students with only one subject outstanding may be allowed to register for the subject with the approval of the Head of the Department.

IDC30BB	Industry Exposure IIIB	(0,125)
TOTAL CREDITS FOR THE SEMESTER:		0,125
TOTAL CREDITS FOR THE THIRD YEAR:		**0,750**

5.7 BACCALAUREUS TECHNOLOGIAE: INFORMATION TECHNOLOGY: BUSINESS APPLICATIONS
Qualification code: BTIB05

Campus where offered: Soshanguve South Campus

Description of field of specialisation:
Building on the skills obtained in the national diploma, students can now expand and build on the obtained analysis skills. Enhancing the database knowledge and project management skills will assist in solving specific business problems. Communicating to the client the results of the careful studied business processes will assist the programmers who will code and implement the solution for delivery to the client. Entering the environment of the Business Analyst is the main focus of the programme. Equipped with analysis tools and techniques, the student can become part of the analysis environment.

REMARKS

a. Admission requirement(s):
A National Diploma: Information Technology: Business Applications or an equivalent qualification.

b. Selection criteria:
Admission is subject to selection.

c. Minimum duration:
One year

d. Presentation:
Day classes on Saturdays. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

e. Intake for the qualification:
January and July

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Re-registration:
A student may re-register for the subject Project IV only with the permission of the Head of the Department. The purpose of the re-registration is to provide students with an opportunity to complete the Project only and not to re-do it when it is failed.

h. Subject credits:
Subject credits are shown in brackets after each subject.

Key to asterisks:
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in November 2008 and May 2011.)

FIRST OR SECOND SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
ABL401T	Advanced Business Analysis IV*	(0,100)	Business Analysis
ADQ401T	Advanced Knowledge Management IV	(0,100)	Knowledge Management IV
BUA401T	Business Analysis IV*	(0,100)	
ITA401T	Information and Technology Management IV	(0,100)	
KNM401T	Knowledge Management IV	(0,100)	
PAJ411T	Principles of Research IV*	(0,100)	
PJG401C	Project Management IV	(0,100)	
PJT410C	Project IV (year subject)	(0,200)	
PJT412R	Project IV (re-registration)	(0,000)	
	plus one of the following subjects:		
DBS401T	Database Systems IV (first semester subject)	(0,100)	
DPY401T	Decision Support Systems IV* (second semester subject)	(0,100)	
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**	

5.8 MAGISTER TECHNOLOGIAE: INFORMATION TECHNOLOGY (Field of specialisation: Business Applications)
Qualification code: MTIB95

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Information Technology or an equivalent qualification. A student should preferably have passed Principles of Research IV or a Research Methodology subject before registration, and if not, should definitely pass that subject before their dissertation is accepted.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of one year and a maximum of three years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rules:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DIB510T	Dissertation: Information Technology: Business Applications	(1,000)
DIB510R	Dissertation: Information Technology: Business Applications (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

5.9 DOCTOR TECHNOLOGIAE: COMPUTER SCIENCE AND DATA PROCESSING (provisional accreditation)
(Field of specialisation: Business Applications)
Qualification code: DTIB08

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
Any Masters qualification relevant to the field of specialisation, as approved by the department.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of two years and a maximum of five years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rules:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DIB700T	Thesis: Computer Science and Data Processing: Business Applications	(2,000)
DIB700R	Thesis: Computer Science and Data Processing: Business Applications (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **2,000**

5.10 BACCALAUREUS TECHNOLOGIAE: INFORMATION TECHNOLOGY: INFORMATION MANAGEMENT
Qualification code: BTIX05

Campus where offered: Soshanguve South Campus

Description of field of specialisation:
With an information technology background, the student can enhance their analysis skills as preparation for a Business Analyst career. Skills development in the areas of databases, knowledge and project management will assist in solving specific business problems. Communication is an important skill. Understanding and implementing business processes is necessary to provide the programmers correct information.

REMARKS

a. Admission requirement(s):
A National Diploma: Information Technology or an equivalent qualification.

b. Selection criteria:
Admission is subject to selection.

c. Minimum duration:
One year

d. Presentation:
Day classes on Saturdays. When fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

e. Intake for the qualification:
January and July

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Re-registration:
A student may re-register for the subject Project IV only with the permission of the Head of the Department. The purpose of the re-registration is to provide students with an opportunity to complete the Project only and not to re-do it when it is failed.

h. Subject credits:
Subject credits are shown in brackets after each subject.

Key to asterisks:
* Information does not correspond to information on the approved AA72. (Deviations approved by the Senate in November 2008 and May 2011.)

FIRST OR SECOND SEMESTER

CODE	SUBJECT	CREDIT
ABL401T	Advanced Business Analysis IV*	(0,100)
ADJ401T	Advanced Information and Technology Management IV	(0,100)
BUA401T	Business Analysis IV*	(0,100)
ITA401T	Information and Technology Management IV	(0,100)
PAJ411T	Principles of Research IV*	(0,100)
PJG401C	Project Management IV	(0,100)
PJT410C	Project IV (year subject)	(0,200)
PJT412R	Project IV (re-registration)	(0,000)
STV401B	Strategic Information Systems IV	(0,100)

plus one of the following subjects. All subjects are offered as determine by the Head of the Department:

ATE401T	Application Technology IV (first semester subject)	(0,100)
BAB401B	Business Fundamentals IV	(0,100)
SRN401T	Software Requirements and Design IV* (first semester subject)	(0,100)
UIF401B	User-Interfaces IV (not offered in 2012)	(0,100)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

5.11 MAGISTER TECHNOLOGIAE: INFORMATION TECHNOLOGY (Field of specialisation: Information Management)
Qualification code: MTIM95

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Information Technology or an equivalent qualification. A student should preferably have passed Principles of Research IV or a Research Methodology subject before registration, and if not, should definitely pass that subject before their dissertation is accepted.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of one year and a maximum of three years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rules:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DSR500T	Dissertation: Information Technology: IT Management	(1,000)
DSR500R	Dissertation: Information Technology: IT Management (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

5.12 DOCTOR TECHNOLOGIAE: COMPUTER SCIENCE AND DATA PROCESSING (provisional accreditation)
(Field of specialisation: Information Management)
Qualification code: DTIM08

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
Any Masters qualification relevant to the field of specialisation, as approved by the department.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of two years and a maximum of five years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rules:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DSR700T	Thesis: Computer Science and Data Processing: IT Management	(2,000)
DSR700R	Thesis: Computer Science and Data Processing: IT Management (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

5.13 BACCALAUREUS TECHNOLOGIAE: KNOWLEDGE MANAGEMENT
Qualification code: BTKM03

Campus where offered: Soshanguve South Campus

Description of qualification:
With the focus on the utilisation of knowledge in the organisation, the student is exposed to the skills necessary to analyse, interpret and apply analysis skills. Emphasis is placed on the introduction of the information system in the information technology environment and application of analysis skills. Latest technologies are introduced to provide the student with the necessary analysis techniques.

REMARKS

a. Admission requirement(s):
A National Diploma in information technology or an equivalent qualification and four years' work experience, or any honours or Baccalaureus Technologiae degree in information technology and three years' work experience. Candidates should be computer-literate and skilled in the use of a word processor and spreadsheet program.

Candidates who enrol for this programme should have access to personal computers other than those that are available in the computer laboratories at the University. The Department will set minimum configurational requirements annually.

b. Selection criteria:
Admission is subject to selection.

c. Minimum duration:
One year

d. Presentation:
Day classes on Saturdays. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

e. Intake for the qualification:
January and July

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Re-registration:
A student may re-register for the subject Project IV only with the permission of the Head of the Department. The purpose of the re-registration is to provide students with an opportunity to complete the Project only and not to re-do it when it is failed.

h. Subject credits:
Subject credits are shown in brackets after each subject.

Key to asterisks:
* Information does not correspond to information on Report 151.
(Deviations approved by the Senate in May 2011.)

FIRST OR SECOND SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
ADQ401T	Advanced Knowledge Management IV*	(0,100)	Knowledge Management IV
BIF401T	Business Information Systems IV	(0,100)	
BUA401T	Business Analysis IV	(0,100)	
INH401T	Information Systems Technologies IV	(0,100)	
KNM401T	Knowledge Management IV	(0,100)	
KTG401T	Knowledge Technologies IV	(0,100)	
PAJ411T	Principles of Research IV*	(0,100)	
PJT410C	Project IV* (year subject)	(0,200)	Principles of Research IV
PJT410R	Project IV* (re-registration)	(0,000)	
SYD401T	Systems Development IV	(0,100)	
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**	

5.14 MAGISTER TECHNOLOGIAE: KNOWLEDGE MANAGEMENT
Qualification code: MTKM01

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Knowledge Management or an equivalent qualification. A student should preferably have passed Principles of Research IV or a Research Methodology subject before registration, and if not, should definitely pass that subject before their dissertation is accepted.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of one year and a maximum of three years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rules:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
KNM500T	Dissertation: Knowledge Management	(1,000)
KNM500R	Dissertation: Knowledge Management (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

5.15 DOCTOR TECHNOLOGIAE: COMPUTER SCIENCE AND DATA PROCESSING (provisional accreditation)
(Field of specialisation: Knowledge Management)
Qualification code: DTKM08

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
Any Masters qualification relevant to the field of specialisation, as approved by the department.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of two years and a maximum of five years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rules:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
KNM700T	Thesis: Computer Science and Data Processing: Knowledge Management	(2,000)
KNM700R	Thesis: Computer Science and Data Processing: Knowledge Management	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

6. DEPARTMENT OF INFORMATION TECHNOLOGY

6.1 PERSONNEL INFORMATION

On 19 July 2011, this department had the following staff members:

Acting Head of Department: Mr BS Makoba - BSc (Computer Science) (Wits), Postgraduate Diploma (Computer Science) (Wits)
Telephone numbers: 012 382 9041/9583

Departmental Administrator: Ms P Chokoe

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Mr D Govender	Principal Lecturer	MSc (Engineering) (Electrical) (Wits)
Mr EM Letsoalo	Junior Lecturer	BSc (Hons) (Computer Science) (University of the North)
Mr Z Mapundu	Junior Lecturer	B Tech (Communication Networks) (TUT)
Mr S Maswikaneng	Junior Lecturer	B Tech (Software Development) (TUT), B Tech (Business Information Systems) (TUT)
Mr SDL Papi	Lecturer	B Tech (Support Services) (TUT), BCom (University of Western Cape), MBA (NWU)

6.2 NATIONAL DIPLOMA: INFORMATION TECHNOLOGY: COMMUNICATION NETWORKS

Qualification code: NDIK04/NDIK12

Campus where offered: Soshanguve South Campus

Description of field of specialisation:
This field of specialisation focuses on network systems, including the latest technologies that are available, such as wireless and virtual networks. Students will receive training in all aspects of communication networks, such as network security and management, the design, development and maintenance of networks, troubleshooting, routers and network support. Students who obtain this qualification will be able to work in any area of communication networks; for example, as network designers, network security specialists, network managers or network administrators.

REMARKS

a. Admission requirement(s) and selection criteria:
See qualification NDIT04/NDIT12 listed under the ICT First Years' and Foundation Unit.

b. Minimum duration:
Three years

c. Presentation:
Day classes. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Industry Exposure IIIB:
Students may register for this subject only with the permission of the Head of the Department. See Chapter 5 of Students' Rules and Regulations for further information.

g. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks:
* Information does not correspond to information in Report 151. (Deviations approved by the Senex in June 2011.)

OPTION I: FOR STUDENTS WHO REGISTERED BEFORE 2012 (NDIK04)

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)

Please note: Students will register for all first year subjects (except for Technical Programming IA) under qualification code NDIT04, during which they are introduced to the basic principles of computers and information technology skills.

TOTAL CREDITS FOR THE FIRST YEAR: **1,125**

SECOND YEAR

FIRST SEMESTER
On completion of all the first-semester subjects in the first year.

COB20AT	Communication Networks IIA	(0,125)	System Software IB
DSA20AT	Distributed Systems IIA	(0,125)	Technical Programming IA
IIE20AT	IT Electronics IIA	(0,125)	
ITT10AT	IT Mathematics IA	(0,125)	
TPG12BT	Technical Programming IB	(0,125)	Technical Programming IA

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER

COB20BT	Communication Networks IIB	(0,125)	Communication Networks IIA IT Mathematics IA
DSA20BT	Distributed Systems IIB	(0,125)	Technical Programming IB
IIE20BT	IT Electronics IIB	(0,125)	IT Electronics IIA
ITT10BT	IT Mathematics IB	(0,125)	IT Mathematics IA

TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE SECOND YEAR: **1,125**

THIRD YEAR

FIRST SEMESTER

COB30AT	Communication Networks IIIA	(0,125)	Communication Networks IIB
COB30BT	Communication Networks IIIB	(0,125)	Communication Networks IIB
DSA30AT	Distributed Systems IIIA*	(0,125)	Communication Networks IIB Distributed Systems IIA Distributed Systems IIB
DSA30BT	Distributed Systems IIIB*	(0,125)	Communication Networks IIB Distributed Systems IIA Distributed Systems IIB
IDC30AT	Industry Exposure IIIA	(0,125)	

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER
On completion of all the subjects.

IDC30BC	Industry Exposure IIIB	(0,125)
TOTAL CREDITS FOR THE SEMESTER:		0,125
TOTAL CREDITS FOR THE THIRD YEAR:		**0,750**

OPTION 2: FOR STUDENTS WHO REGISTER FROM 2012 (NDIK12)

FIRST YEAR

Please note: Students will register for all first year subjects under qualification code NDIT12, during which they are introduced to the basic principles of computers and information technology skills.

TOTAL CREDITS FOR THE FIRST YEAR: **1,000**

SECOND YEAR

FIRST SEMESTER

COB20AT	Communication Networks IIA	(0,125)	Computing Systems IB
DSA20AT	Distributed Systems IIA	(0,125)	
IIE20AT	IT Electronics IIA	(0,125)	
ITT10AT	IT Mathematics IA	(0,125)	
TPG12AT	Technical Programming IA	(0,125)	Development Software IB
TOTAL CREDITS FOR THE SEMESTER:		0,625	

SECOND SEMESTER

COB20BT	Communication Networks IIB	(0,125)	Communication Networks IIA IT Mathematics IA
DSA20BT	Distributed Systems IIB	(0,125)	Distributed Systems IIA Technical Programming IA
IIE20BT	IT Electronics IIB	(0,125)	IT Electronics IIA
ITT10BT	IT Mathematics IB	(0,125)	IT Mathematics IA
TPG12BT	Technical Programming IB	(0,125)	Technical Programming IA
TOTAL CREDITS FOR THE SEMESTER:		0,625	
TOTAL CREDITS FOR THE SECOND YEAR:		**1,250**	

THIRD YEAR

FIRST SEMESTER

COB30AT	Communication Networks IIIA	(0,125)	Communication Networks IIB
COB30BT	Communication Networks IIIB	(0,125)	Communication Networks IIB
DSA30AT	Distributed Systems IIIA*	(0,125)	Communication Networks IIB Distributed Systems IIA Distributed Systems IIB
DSA30BT	Distributed Systems IIIB*	(0,125)	Communication Networks IIB Distributed Systems IIA Distributed Systems IIB
IDC30AT	Industry Exposure IIIA	(0,125)	
TOTAL CREDITS FOR THE SEMESTER:		0,625	

SECOND SEMESTER
On completion of all the above subjects. Students with only one subject outstanding may be allowed to register for the subject with the approval of the Head of the Department.

IDC30BC	Industry Exposure IIIB	(0,125)
TOTAL CREDITS FOR THE SEMESTER:		0,125
TOTAL CREDITS FOR THE THIRD YEAR:		**0,750**

6.3 BACCALAUREUS TECHNOLOGIAE: INFORMATION TECHNOLOGY: COMMUNICATION NETWORKS
Qualification code: BTIK05

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Information Technology: Communication Networks or an equivalent qualification.

b. Selection criteria:
Admission is subject to selection.

c. Minimum duration:
One year

d. Presentation:
Day classes on Saturdays, offered over a period of one and a half years. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

e. Intake for the qualification:
January and July

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Re-registration:
A student may re-register for the subject Project IV only with the permission of the Head of the Department. The purpose of the re-registration is to provide students with an opportunity to complete the Project only and not to re-do it when it is failed.

h. Subject credits:
Subject credits are shown in brackets after each subject.

Key to asterisks:
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in November 2008 and May 2011.)

FIRST OR SECOND SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
ADA401T	Advanced Communication Networks IV	(0,100)	Communication Networks IV
COB401T	Communication Networks IV	(0,100)	
ITA401T	Information and Technology Management IV	(0,100)	

PAJ411T	Principles of Research IV*	(0,100)
PJT410D	Project IV (year subject)	(0,200)
PJT413R	Project IV (re-registration)	(0,000)

plus four of the following subjects. All subjects are offered as determine by the Head of the Department:

AIT401T	Artificial Intelligence IV	(0,100)
ATE401T	Application Technology IV (first semester subject)	(0,100)
BAB401T	Business Fundamentals IV	(0,100)
DBS401T	Database Systems IV (first semester subject)	(0,100)
DPY401T	Decision Support Systems IV* (second semester subject)	(0,100)
EXS401T	Expert Systems IV	(0,100)
HCI401T	Human Computer Interface Design IV	(0,100)
ITU401T	Information Security IV	(0,100)
KNM401T	Knowledge Management IV	(0,100)
OSY431T	Operating Systems IV	(0,100)
PJG401C	Project Management IV	(0,100)
SNR401T	Software Requirements and Design IV*	(0,100)
SYE401T	Systems Engineering IV	(0,100)
TPG401T	Technical Programming IV (first semester subject)	(0,100)
UIF401T	User-Interfaces IV (not offered in 2012)	(0,100)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

6.4 MAGISTER TECHNOLOGIAE: INFORMATION TECHNOLOGY (Field of specialisation: Communication Networks)
Qualification code: MTIK95

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Information Technology or an equivalent qualification. A student should preferably have passed Principles of Research IV or a Research Methodology subject before registration, and if not, should definitely pass that subject before his/her dissertation will be accepted.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of one year and a maximum of three years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DCN510T	Dissertation: Information Technology: Communication Networks	(1,000)
DCN510R	Dissertation: Information Technology: Communication Networks (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

6.5 DOCTOR TECHNOLOGIAE: COMPUTER SCIENCE AND DATA PROCESSING (provisional accreditation)
(Field of specialisation: Communication Networks)
Qualification code: DTIK08

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
Any Masters qualification relevant to the field of specialisation, as approved by the department.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of two years and a maximum of five years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DCN700T	Thesis: Computer Science and Data Processing: Communication Networks	(2,000)
DCN700R	Thesis: Computer Science and Data Processing: Communication Networks (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **2,000**

6.6 NATIONAL DIPLOMA: INFORMATION TECHNOLOGY: SUPPORT SERVICES

Qualification code: NDIP04/NDIP12

Campus where offered: Soshanguve South Campus

Description of field of specialisation:
On successful completion of the Support Services qualification, students will have the knowledge and skills to solve hardware and software problems, to set up networks, to give support to end-users and to manage call centres. Career opportunities include computer technician, helpdesk analyst, network analyst, information centre manager and systems administrator.

REMARKS

a. *Admission requirement(s) and selection criteria:*
See qualification NDIT04/NDIT12 listed under the ICT First Years' and Foundation Unit.

b. *Minimum duration:*
Three years

c. *Presentation:*
Day classes. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

d. *Intake for the qualification:*
January only

e. *Readmission:*
See Chapter 3 of Students' Rules and Regulations.

f. *Industry Exposure III (experiential learning):*
See Chapter 5 of Students' Rules and Regulations.

g. *Subject credits:*
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

OPTION I: FOR STUDENTS WHO REGISTERED BEFORE 2012 (NDIP04)

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)

Please note: Students will register for all first year subjects (except for Technical Programming IA) under qualification code NDIT04, during which they are introduced to the basic principles of computers and information technology skills.

TOTAL CREDITS FOR THE FIRST YEAR: **1,125**

SECOND YEAR

FIRST SEMESTER
On completion of all the first-semester subjects in the first year.

GUI10AT	Graphical User-Interface Design IA	(0,125)	Information Systems IB Information Technology skills IB
ISY23AB	Information Systems IIA	(0,125)	Information Systems IB
SSF24AT	System Software IIA	(0,125)	Information Systems IB System Software IB

SUS20AT	Support Services IIA	(0,125)	Information Systems IB System Software IB
TPG14BT	Technical Programming IB	(0,125)	Technical Programming IA

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER

GUI10BT	Graphical User-Interface Design IB	(0,125)	Graphical User-Interface Design IA
ISY23BB	Information Systems IIB	(0,125)	Information Systems IIA
SSF24BT	System Software IIB	(0,125)	System Software IIA
SUS20BT	Support Services IIB	(0,125)	Support Services IIA

TOTAL CREDITS FOR THE SEMESTER: 0,625

TOTAL CREDITS FOR THE SECOND YEAR: **1,125**

THIRD YEAR

FIRST SEMESTER

IDC30AT	Industry Exposure IIIA	(0,125)	
ISY34AB	Information Systems IIIA	(0,125)	Information Systems IIA Information Systems IIB
ISY34BB	Information Systems IIIB	(0,125)	Information Systems IIA Information Systems IIB
SUS30AT	Support Services IIIA	(0,125)	Support Services IIB System Software IIA System Software IIB
SUS30BT	Support Services IIIB	(0,125)	Support Services IIB

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER
On completion of all the subjects.

IDC30BE	Industry Exposure IIIB	(0,125)

TOTAL CREDITS FOR THE SEMESTER: 0,125

TOTAL CREDITS FOR THE THIRD YEAR: **0,750**

OPTION 2: FOR STUDENTS WHO REGISTER FROM 2012 (NDIP12)

FIRST YEAR

Please note: Students will register for all first year subjects under qualification code NDIT12, during which they are introduced to the basic principles of computers and information technology skills.

TOTAL CREDITS FOR THE FIRST YEAR: **1,000**

SECOND YEAR

GUI10AT	Graphical User-Interface Design IA	(0,125)	
ISY23AB	Information Systems IIA	(0,125)	
SSF24AT	System Software IIA	(0,125)	Computing Fundamentals IB Computing Systems IB
SUS20AT	Support Services IIA	(0,125)	Computing Fundamentals IB Computing Systems IB
TPG14AT	Technical Programming IA	(0,125)	Development Software IB

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER

GUI10BT	Graphical User-Interface Design IB	(0,125)	Graphical User-Interface Design IA
ISY23BB	Information Systems IIB	(0,125)	Information Systems IIA
SSF24BT	System Software IIB	(0,125)	System Software IIA
SUS20BT	Support Services IIB	(0,125)	Support Services IIA
TPG14BT	Technical Programming IB	(0,125)	Technical Programming IA

TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE SECOND YEAR: **1,125**

THIRD YEAR

FIRST SEMESTER

IDC30AT	Industry Exposure IIIA	(0,125)	
ISY34AB	Information Systems IIIA	(0,125)	Information Systems IIA Information Systems IIB
ISY34BB	Information Systems IIIB	(0,125)	Information Systems IIA Information Systems IIB
SUS30AT	Support Services IIIA	(0,125)	Support Services IIB System Software IIA System Software IIB
SUS30BT	Support Services IIIB	(0,125)	Support Services IIB

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER
On completion of all the above subjects. Students with only one subject outstanding may be allowed to register for the subject with the approval of the Head of the Department.

IDC30BE	Industry Exposure IIIB	(0,125)

TOTAL CREDITS FOR THE SEMESTER: 0,125

TOTAL CREDITS FOR THE THIRD YEAR: **0,750**

6.7 BACCALAUREUS TECHNOLOGIAE: INFORMATION TECHNOLOGY: SUPPORT SERVICES
Qualification code: BTIP05

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Information Technology: Support Services or an equivalent qualification.

b. Selection criteria:
Admission is subject to selection.

c. Minimum duration:
One year

d. Presentation:
Day classes on Saturdays, offered over a period of one and a half years. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

e. Intake for the qualification:
January and July

f. Re-registration:
A student may re-register for the subject Project IV only with the permission of the Head of the Department. The purpose of the re-registration is to provide students with an opportunity to complete the Project only and not to re-do it when it is failed.

g. Readmission:
See Chapter 3 of Students' Rules and Regulations.

h. Subject credits:
Subject credits are shown in brackets after each subject.

Key to asterisks:
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in November 2008 and May 2011.)

FIRST OR SECOND SEMESTER

CODE	SUBJECT	CREDIT
ADS401T	Advanced Support Services IV	(0,100)
HCI401T	Human Computer Interface Design IV	(0,100)
ITA401T	Information and Technology Management IV	(0,100)
PAJ411T	Principles of Research IV*	(0,100)
PJT410F	Project IV (year subject)	(0,200)
PJT415R	Project IV (re-registration)	(0,000)
SUS401T	Support Services IV	(0,100)
	plus three of the following subjects. All subjects are offered as determine by the Head of the Department:	
DBS401T	Database Systems IV	(0,100)
DPY401T	Decision Support Systems IV* (Second semester subject)	(0,100)
FUM101T	Functional Management	(0,100)
ITU401T	Information Security IV	(0,100)
NWS421T	Networks IV	(0,100)
PJG401C	Project Management IV	(0,100)
STV401T	Strategic Information Systems IV	(0,100)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

7. DEPARTMENT OF SOFTWARE ENGINEERING

7.1 PERSONNEL INFORMATION

On 19 July 2011, this department had the following staff members:

Head of Department: Mr SA Odunaike - MSc (Information Technology Management) (Sunderland)
Telephone numbers: 012 382 9151/9939

Departmental Administrator: Ms M Moche

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Mr ND Chuene	Lecturer	MSc (IT) (Applied) (Monash)
Mr HH Coetzee	Senior Lecturer (Mbombela Campus)	HED (UP), BSc (Hons) (Computer Science) (UP)
Mr RT Hans	Junior Lecturer	BSc (Hons) (Computer Science) (Fort Hare), MBL (SBL) (Unisa)
Mr CK Lepota	Lecturer	MSc (Computer Science) (Louisiana, USA)
Mr HD Masethe	Junior Lecturer	BSc (Hons) (Computer Science) (UP)
Mr SK Mogapi	Lecturer	N Dip (IT) (TUT)
Ms TP Msimanga	Lecturer	B Tech (IT) (Unisa)
Mr HJG Oberholzer	Academic Manager and Senior Lecturer (Mbombela Campus)	MSc (Informatics) (RAU)
Mr TR Phihlela	Senior Lecturer	BSc (Hons) (Computer Science) (UNIN)
Mr MC Phiri	Lecturer	N Dip (IT) (TUT)
Dr AB Pretorius	Academic Manager (eMalahleni Campus)	BSc (Hons) (Information Systems) (Unisa), MBL (Unisa), D Tech (Business Information Systems) (TUT)
Mr K Phuduhudu	Junior Lecturer	BSc (Hons) (Computer Science) (UL)
Ms T Strydom	Principal Lecturer (eMalahleni Campus)	BSc (Hons) (Information Systems) (Unisa), MSc (Physics) (Unisa)
Mr F Viljoen	Lecturer (Mbombela Campus)	HED (UP), BSc (Hons) (Operational Research) (Unisa)

7.2 DESCRIPTION OF QUALIFICATIONS:

Computers have little to offer on their own. It is the software that enables computers to do a variety of things such as web pages to pay traffic fines. Developing such software requires a number of skills: systems analysis, programming, testing and project management. Before one can start to program a software system, it is important to understand and analyse exactly what the system should do. Programming is translating what the system should do into a program that will instruct the computer to do the required task. Errors can be made in developing a system and it is important to develop skills in finding these errors and correcting them. Developing systems can involve a number of different people and has different parts to it. Someone needs to manage the project. On completion of this diploma, a student should have skills in developing a software system. This programme will prepare students for a number of careers: IT systems analyst, systems designer, programmer, systems developer, systems tester and project manager.

7.3 NATIONAL DIPLOMA: INFORMATION TECHNOLOGY: SOFTWARE DEVELOPMENT

Qualification code: NDIS04/NDIS12

Campus where offered: Soshanguve South, eMalahleni and Polokwane campuses

REMARKS

a. *Admission requirement(s) and selection criteria:*
See qualification NDIT04/NDIT12 listed under the ICT First Years' and Foundation Unit.

b. *Minimum duration:*
Three years

c. *Presentation:*
Day classes. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

d. *Intake for the qualification:*
January only

e. *Readmission:*
See Chapter 3 of Students' Rules and Regulations.

f. *Industry Exposure IIIB:*
Students may register for this subject only with the permission of the Head of the Department or section heads at distance learning sites. See Chapter 5 of Students' Rules and Regulations (par. 5.2 and 5.3) for further information.

g. *Subject credits:*
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

OPTION I: FOR STUDENTS WHO REGISTERED BEFORE 2012 (NDIS04)

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)

Please note: Students will register for all first year subjects (except for Technical Programming IA) under qualification code NDIT04, during which they are introduced to the basic principles of computers and information technology skills.

TOTAL CREDITS FOR THE FIRST YEAR: **1,125**

SECOND YEAR

FIRST SEMESTER
On completion of all the first-semester subjects in the first year.

DSO23AT	Development Software IIA	(0,125)	
ISY23AT	Information Systems IIA	(0,125)	Information Systems IB
SSF24AT	System Software IIA	(0,125)	Systems Software IB
TPG11BT	Technical Programming IB	(0,125)	Technical Programming IA

TOTAL CREDITS FOR THE SEMESTER: 0,500

SECOND SEMESTER

DSO23BT	Development Software IIB	(0,125)	Development Software IIA
ISY23BT	Information Systems IIB	(0,125)	Information Systems IIA
SSF24BT	System Software IIB	(0,125)	Systems Software IB
TPG20AT	Technical Programming IIA	(0,125)	Technical Programming IB

TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE SECOND YEAR: **1,000**

THIRD YEAR

FIRST SEMESTER

DSO34AT	Development Software IIIA	(0,125)	Development Software IIB
DSO34BT	Development Software IIIB	(0,125)	Development Software IIB
IDC30AT	Industry Exposure IIIA	(0,125)	Systems Software IIA Systems Software IIB
ISY34AT	Information Systems IIIA	(0,125)	Information Systems IIB
ISY34BT	Information Systems IIIB	(0,125)	Information Systems IIB
TPG20BT	Technical Programming IIB	(0,125)	Technical Programming IIA

TOTAL CREDITS FOR THE SEMESTER: 0,750

SECOND SEMESTER

IDC30BT	Industry Exposure IIIB	(0,125)	Industry Exposure IIIA

TOTAL CREDITS FOR THE SEMESTER: 0,125

TOTAL CREDITS FOR THE THIRD YEAR: **0,875**

OPTION 2: FOR STUDENTS WHO REGISTER FROM 2012 (NDIS12)

FIRST YEAR

Please note: Students will register for all first year subjects under qualification code NDIT12, during which they are introduced to the basic principles of computers and information technology skills.

TOTAL CREDITS FOR THE FIRST YEAR: **1,000**

SECOND YEAR

FIRST SEMESTER

DSO23AT	Development Software IIA	(0,125)	
ISY23AT	Information Systems IIA	(0,125)	
SSF24AT	System Software IIA	(0,125)	Computing Systems IB
TPG11AT	Technical Programming IA	(0,125)	Development Software IB
TPG11BT	Technical Programming IB	(0,125)	Development Software IB

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER

DSO23BT	Development Software IIB	(0,125)	Development Software IIA
ISY23BT	Information Systems IIB	(0,125)	Information Systems IIA
SSF24BT	System Software IIB	(0,125)	Computing Systems IB
TPG20AT	Technical Programming IIA	(0,125)	Technical Programming IB
TPG20BT	Technical Programming IIB	(0,125)	Technical Programming IB

TOTAL CREDITS FOR THE SEMESTER: 0,625

TOTAL CREDITS FOR THE SECOND YEAR: **1,250**

THIRD YEAR

FIRST SEMESTER

DSO34AT	Development Software IIIA	(0,125)	Development Software IIB
DSO34BT	Development Software IIIB	(0,125)	Development Software IIB
IDC30AT	Industry Exposure IIIA	(0,125)	
ISY34AT	Information Systems IIIA	(0,125)	Information Systems IIB
ISY34BT	Information Systems IIIB	(0,125)	Information Systems IIB

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER
On completion of all the above subjects. Students with only one subject outstanding may be allowed to register for the subject with the approval of the Head of the Department.

IDC30BT	Industry Exposure IIIB	(0,125)

TOTAL CREDITS FOR THE SEMESTER: 0,125

TOTAL CREDITS FOR THE THIRD YEAR: **0,750**

7.4 BACCALAUREUS TECHNOLOGIAE: INFORMATION TECHNOLOGY: SOFTWARE DEVELOPMENT

Qualification code: BTIS05

Campus where offered: Soshanguve South and eMalahleni campuses

REMARKS

a. Admission requirement(s):
A National Diploma: Information Technology: Software Development or an equivalent qualification.

b. Selection criteria:
Admission is subject to selection.

c. Minimum duration:
One year

d. Presentation:
Soshanguve South Campus - day classes on Saturdays, offered over a period of one and a half years and eMalahleni Campus - evening classes offered over a period of two years. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

e. Intake for the qualification:
January and July

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Re-registration:
A student may re-register for the subject Project IV only with the permission of the Head of the Department. The purpose of the re-registration is to provide students with an opportunity to complete the Project only and not to re-do it when it is failed.

h. Subject credits:
Subject credits are shown in brackets after each subject.

Key to asterisks:
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in November 2008, May 2011 and SENEX on 22 June 2011.)

FIRST OR SECOND SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
ADH401T	Advanced Development Software IV (second semester subject)	(0,100)	
DSO401T	Development Software IV (first semester subject)	(0,100)	
ITA401T	Information and Technology Management IV	(0,100)	
PAJ411T	Principles of Research IV*	(0,100)	
PJT410B	Project IV (year subject)	(0,200)	
PJT411R	Project IV (re-registration)	(0,000)	
	plus one of the following subjects (subjects are offered at the location determined by the Department):		
SRN401T	Software Requirements and Design IV* (first semester subject)	(0,100)	
TPG401T	Technical Programming IV	(0,100)	
	plus three of the following subjects (subjects are offered at the location determined by the Department):		
ADU401T	Advanced Technical Programming IV (first semester subject)	(0,100)	Technical Programming IV
AIT401T	Artificial Intelligence IV	(0,100)	
ATE401T	Application Technology IV (first semester subject)	(0,100)	
BAB401T	Business Fundamentals IV	(0,100)	
DBA401T	Database Administration IV*	(0,100)	
DBS401T	Database Systems IV (first semester subject)	(0,100)	
DPY401T	Decision Support Systems IV* (second semester subject)	(0,100)	
EXS401T	Expert Systems IV	(0,100)	
HCI401T	Human Computer Interface Design IV	(0,100)	
ITU401T	Information Security IV	(0,100)	
KNM401T	Knowledge Management IV	(0,100)	
OSY431T	Operating Systems IV	(0,100)	
PJG401C	Project Management IV	(0,100)	

SWS401T	Software Systems IV	(0,100)
UIF401T	User-Interfaces IV (not offered in 2012)	(0,100)
SYE401T	Systems Engineering IV	(0,100)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

7.5 MAGISTER TECHNOLOGIAE: INFORMATION TECHNOLOGY (Field of specialisation: Software Development) Qualification code: MTIS95

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Information Technology or an equivalent qualification. A student should preferably have passed Principles of Research IV or a Research Methodology subject before registration, and if not, should definitely pass that subject before his/her dissertation will be accepted.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of one year and a maximum of three years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DSD510T	Dissertation: Information Technology: Software Development	(1,000)
DSD510R	Dissertation: Information Technology: Software Development (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

7.6 DOCTOR TECHNOLOGIAE: COMPUTER SCIENCE AND DATA PROCESSING (provisional accreditation)
(Field of specialisation: Software Development)
Qualification code: DTIS08

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
Any Masters qualification relevant to the field of specialisation, as approved by the department.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of two years and a maximum of five years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DSD700T	Thesis: Computer Science and Data Processing: Software Development	(2,000)
DSD700R	Thesis: Computer Science and Data Processing: Software Development (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

8. DEPARTMENT OF WEB AND MULTIMEDIA COMPUTING

8.1 PERSONNEL INFORMATION

On 19 July 2011, this department had the following staff members:

Head of Department: Mr EA van Wyk - BSc (Hons) (Computer Science) (Unisa), M Tech (Information Technology) (Tech Pta)
Telephone numbers: 012 382 9540/9261

Departmental Administrator: Ms L Seoketsa

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Mr OJ Dehinbo	Senior Lecturer	BSc (Computer Science and Statistics) (OSU), BSc (Hons) (Information Systems) (Unisa), MSc (Information Systems) (Unisa)
Mrs CJ Jordaan	Lecturer	B Tech (Information Technology) (Tech Pta)
Ms RC Mogase	Junior Lecturer	B Tech (Information Technology) (TUT)
Mr VS Msimango	Lecturer	BSc (Hons) (Computer Science) (Unizul)
Mr AP Khoza	Junior Lecturer	B Tech (Information Technology) (TUT)

8.2 NATIONAL DIPLOMA: INFORMATION TECHNOLOGY: MULTIMEDIA
Qualification code: NDIU04/NDIU12

Campus where offered: Soshanguve South Campus

Description of field of specialisation:
The objectives of the Multimedia programme are to provide –
- the knowledge and skills required to become a multimedia programmer;
- a foundation in the technical aspects of multimedia software development through knowledge of the fundamental areas of databases, data communications, multimedia systems and software development; and
- the skills and knowledge to facilitate the development of different types of media, including 3-D animations and interactive simulations incorporating game engines and virtual reality.

This qualification will equip students with the necessary skills to pursue a career in the design, implementation and maintenance of IT systems that make extensive use of multimedia. We focus on multimedia design, technology and programming.

Graduates will not only enjoy the career choices of other information technology graduates in the IT industry, but they can also expect to be in demand for very sophisticated software development in the multimedia industry. Examples of careers choices are multimedia programmer, multimedia designer and games programmer.

REMARKS

a. *Admission requirement(s) and selection criteria:*
See qualification NDIT04/NDIT12 listed under the ICT First Years' and Foundation Unit.

b. *Minimum duration:*
Three years

c. *Presentation:*
Day classes. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Industry Exposure IIIB:
Students may register for this subject only with the permission of the Head of the Department. See Chapter 5 of Students' Rules and Regulations for further information.

g. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

OPTION I: FOR STUDENTS WHO REGISTERED BEFORE 2012 (NDIU04)

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)

Please note: Students should register for all first year subjects (except for Technical Programming IA) under qualification code NDIT04, during which they will be introduced to the basic principles of computers and information technology skills.

TOTAL CREDITS FOR THE FIRST YEAR: **1,125**

SECOND YEAR

FIRST SEMESTER
On completion of all the first-semester subjects in the first year.

GUI10AT	Graphical User-Interface Design IA	(0,125)	
ISY23AT	Information Systems IIA	(0,125)	Information Systems IB
ITN20AT	Internet Programming IIA	(0,125)	
MMN20AT	Multimedia Technology IIA	(0,125)	
TPG12BT	Technical Programming IB	(0,125)	Technical Programming IA

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER

GUI10BT	Graphical User-Interface Design IB	(0,125)	Graphical User-Interface Design IA
ISY23BT	Information Systems IIB	(0,125)	Information Systems IIA
ITN20BT	Internet Programming IIB	(0,125)	Internet Programming IIA
MMN20BT	Multimedia Technology IIB	(0,125)	Multimedia Technology IIA

TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE SECOND YEAR: **1,125**

THIRD YEAR

FIRST SEMESTER

IDC30AT	Industry Exposure IIIA	(0,125)	
MMX30AT	Multimedia Programming IIIA	(0,125)	Internet Programming IIB Technical Programming IA
MMX30BT	Multimedia Programming IIIB	(0,125)	Internet Programming IIB Technical Programming IA

MMZ30AT	Multimedia Design IIIA	(0,125)	Multimedia Technology IIA
MMZ30BT	Multimedia Design IIIB	(0,125)	Multimedia Technology IIA

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER

IDC30BH	Industry Exposure IIIB	(0,125)	Industry Exposure IIIA

TOTAL CREDITS FOR THE SEMESTER: 0,125

TOTAL CREDITS FOR THE THIRD YEAR: **0,750**

OPTION 2: FOR STUDENTS WHO REGISTER FROM 2012 (NDIU12)

FIRST YEAR

Please note: Students should register for all first year subjects under qualification code NDIT12, during which they will be introduced to the basic principles of computers and information technology skills.

TOTAL CREDITS FOR THE FIRST YEAR: **1,000**

SECOND YEAR

FIRST SEMESTER

GUI10AT	Graphical User-Interface Design IA	(0,125)	
ISY23AT	Information Systems IIA	(0,125)	
ITN20AT	Internet Programming IIA	(0,125)	Development Software IB
MMN20AT	Multimedia Technology IIA	(0,125)	Computing Fundamentals IB
TPG12AT	Technical Programming IA	(0,125)	Development Software IB

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER

GUI10BT	Graphical User-Interface Design IB	(0,125)	Graphical User-Interface Design IA
ISY23BT	Information Systems IIB	(0,125)	Information Systems IIA
ITN20BT	Internet Programming IIB	(0,125)	Internet Programming IIA
MMN20BT	Multimedia Technology IIB	(0,125)	Multimedia Technology IIA
TPG12BT	Technical Programming IB	(0,125)	Technical Programming IA

TOTAL CREDITS FOR THE SEMESTER: 0,625

TOTAL CREDITS FOR THE SECOND YEAR: **1,250**

THIRD YEAR

FIRST SEMESTER

IDC30AT	Industry Exposure IIIA	(0,125)	
MMX30AT	Multimedia Programming IIIA	(0,125)	Internet Programming IIB Technical Programming IA
MMX30BT	Multimedia Programming IIIB	(0,125)	Internet Programming IIB Technical Programming IA
MMZ30AT	Multimedia Design IIIA	(0,125)	Multimedia Technology IIA
MMZ30BT	Multimedia Design IIIB	(0,125)	Multimedia Technology IIA

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER
On completion of all the above subjects. Students with only one subject outstanding may be allowed to register for the subject, with the approval of the Head of the Department.

IDC30BH	Industry Exposure IIIB	(0,125)
TOTAL CREDITS FOR THE SEMESTER:		0,125
TOTAL CREDITS FOR THE THIRD YEAR:		**0,750**

8.3 BACCALAUREUS TECHNOLOGIAE: INFORMATION TECHNOLOGY: MULTIMEDIA
Qualification code: BTIU05

Campus where offered: Soshanguve South Campus

Description of field of specialisation:
The objectives of the Multimedia programme are to provide –
- the knowledge and skills required to become a multimedia programmer;
- a foundation in the technical aspects of multimedia software development through knowledge of the fundamental areas of databases, data communications, multimedia systems and software development; and
- the skills and knowledge to facilitate the development of different types of media, including 3-D animations and interactive simulations incorporating game engines and virtual reality.

The course also focuses on multimedia development using motion capture devices, as well as the development of e-learning courseware through the use of multimedia.

Graduates will not only enjoy all the career choices of other information technology graduates in the IT industry, but can also expect to be in demand for very sophisticated software development in the multimedia industry. Examples of careers choices are multimedia programmer, multimedia designer and games programmer, courseware developer and interactive simulations developer.

REMARKS

a. Admission requirement(s):
A National Diploma: Information Technology: Multimedia or an equivalent qualification.

b. Selection criteria:
Admission is subject to selection.

c. Minimum duration:
One year

d. Presentation:
Day classes on Saturdays, offered over a period of one and a half years. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

e. Intake for the qualification:
January and July

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Re-registration:
A student may re-register for the subject Project IV only with the permission of the Head of the Department. The purpose of the re-registration is to provide students with an opportunity to complete the Project only and not to re-do it when it is failed.

h. Subject credits:
Subject credits are shown in brackets after each subject.

Key to asterisks:
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in November 2008 and May 2011.)

FIRST OR SECOND SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
HCI401T	Human Computer Interface Design IV	(0,100)	
ITA401T	Information and Technology Management IV	(0,100)	
MMO401T	Advanced Multimedia Programming IV (second semester subject)	(0,100)	Multimedia Programming IV
MMX401T	Multimedia Programming IV (first semester subject)	(0,100)	
PAJ411T	Principles of Research IV*	(0,100)	
PJT410I	Project IV (year subject)	(0,200)	
PJT417R	Project IV (re-registration)	(0,000)	
	plus three of the following subjects. All subjects are offered as determined by the Head of the Department:		
AIT401T	Artificial Intelligence IV	(0,100)	
ATE401T	Application Technology IV (first semester subject)	(0,100)	
DBS401T	Database Systems IV (first semester subject)	(0,100)	
DPY401T	Decision Support Systems IV* (second semester subject)	(0,100)	
EXS401T	Expert Systems IV	(0,100)	
ITU401T	Information Security IV	(0,100)	
KNM401T	Knowledge Management IV	(0,100)	
NWS421T	Networks IV	(0,100)	
OSY431T	Operating Systems IV	(0,100)	
PJG401C	Project Management IV	(0,100)	
SRN401T	Software Requirements and Design IV* (first semester subject)	(0,100)	
UIF401T	User-Interfaces IV (not offered in 2012)	(0,100)	
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**	

8.4 MAGISTER TECHNOLOGIAE: INFORMATION TECHNOLOGY (Field of specialisation: Multimedia)
Qualification code: MTIU95

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Information Technology or an equivalent qualification. A student should preferably have passed Principles of Research IV or a Research Methodology subject before registration, and if not, should definitely pass that subject before their dissertation is accepted.

b. Selection criteria:
Selection is based on a personal interview with the departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of one year and a maximum of three years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DIM510T	Dissertation: Information Technology: Multimedia	(1,000)
DIM510R	Dissertation: Information Technology: Multimedia (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

8.5 DOCTOR TECHNOLOGIAE: COMPUTER SCIENCE AND DATA PROCESSING (provisional accreditation) (Field of specialisation: Multimedia) Qualification code: DTIU08

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
Any Masters qualification relevant to the field of specialisation, as approved by the department.

b. Selection criteria:
Selection is based on a personal interview with the departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of two years and a maximum of five years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DIM700T	Thesis: Computer Science and Data Processing: Multimedia	(2,000)
DIM700R	Thesis: Computer Science and Data Processing: Multimedia (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

8.6 NATIONAL DIPLOMA: INFORMATION TECHNOLOGY: WEB AND APPLICATION DEVELOPMENT

Qualification code: NDIW04/NDIW12

Campus where offered: Soshanguve South Campus

Description of field of specialisation:
The purpose of this qualification is to equip students with the necessary skills to pursue careers in IT by creating, building, maintaining and managing web solutions.

On completion of this qualification, students should be able to apply –
- modern analysis and design techniques and methodologies in the development of IT software systems;
- user-interface design principles; and
- the appropriate software programming language and development environments to implement designed Internet solutions.

The course focuses on website design and administration, and Internet programming by using various scripting languages and GUI programming environments.

REMARKS

a. Admission requirement(s) and selection criteria:
See qualification NDIT04/NDIT12 listed under the ICT First Years' and Foundation Unit.

b. Minimum duration:
Three years

c. Presentation:
Day classes. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Industry Exposure IIIB:
Students may register for this subject only with the permission of the Head of the Department. See Chapter 5 of Students' Rules and Regulations for further information.

g. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

OPTION I: FOR STUDENTS WHO REGISTERED BEFORE 2012 (NDIW04)

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)

Please note: Students should register for all first year subjects (except for Technical Programming IA) under qualification code NDIT04, during which they will be introduced to the basic principles of computers and information technology skills.

TOTAL CREDITS FOR THE FIRST YEAR: **1,125**

SECOND YEAR

FIRST SEMESTER
On completion of all the first-semester subjects in the first year.

GUI10AT	Graphical User-Interface Design IA	(0,125)	
ISY23AT	Information Systems IIA	(0,125)	Information Systems IB
ITN20AT	Internet Programming IIA	(0,125)	
TPG12BT	Technical Programming IB	(0,125)	Technical Programming IA
WEB20AT	Web Management IIA	(0,125)	

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER

GUI10BT	Graphical User-Interface Design IB	(0,125)	Graphical User-Interface Design IA
ISY23BT	Information Systems IIB	(0,125)	Information Systems IIA
ITN20BT	Internet Programming IIB	(0,125)	Internet Programming IIA
WEB20BT	Web Management IIB	(0,125)	Web Management IIA

TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE SECOND YEAR: **1,125**

THIRD YEAR

FIRST SEMESTER

IDC30AT	Industry Exposure IIIA	(0,125)	
ITN30AT	Internet Programming IIIA	(0,125)	Internet Programming IIB Technical Programming IA
ITN30BT	Internet Programming IIIB	(0,125)	Internet Programming IIB Technical Programming IA
WEB30AT	Web Management IIIA	(0,125)	Web Management IIB
WEB30BT	Web Management IIIB	(0,125)	Web Management IIB

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER

IDC30BF	Industry Exposure IIIB	(0,125)	Industry Exposure IIIA

TOTAL CREDITS FOR THE SEMESTER: 0,125

TOTAL CREDITS FOR THE THIRD YEAR: **0,750**

OPTION 2: FOR STUDENTS WHO REGISTER FROM 2012 (NDIW12)

FIRST YEAR

Please note: Students should register for all first year subjects under qualification code NDIT12, during which they will be introduced to the basic principles of computers and information technology skills.

TOTAL CREDITS FOR THE FIRST YEAR: **1,000**

SECOND YEAR

FIRST SEMESTER

GUI10AT	Graphical User-Interface Design IA	(0,125)	
ISY23AT	Information Systems IIA	(0,125)	
ITN20AT	Internet Programming IIA	(0,125)	Development Software IB
TPG12AT	Technical Programming IA	(0,125)	Development Software IB
WEB20AT	Web Management IIA	(0,125)	

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER

GUI10BT	Graphical User-Interface Design IB	(0,125)	Graphical User-Interface Design IA
ISY23BT	Information Systems IIB	(0,125)	Information Systems IIA
ITN20BT	Internet Programming IIB	(0,125)	Internet Programming IIA
TPG12BT	Technical Programming IB	(0,125)	Technical Programming IA
WEB20BT	Web Management IIB	(0,125)	Web Management IIA

TOTAL CREDITS FOR THE SEMESTER: 0,625

TOTAL CREDITS FOR THE SECOND YEAR: **1,250**

THIRD YEAR

FIRST SEMESTER

IDC30AT	Industry Exposure IIIA	(0,125)	
ITN30AT	Internet Programming IIIA	(0,125)	Internet Programming IIB Technical Programming IA
ITN30BT	Internet Programming IIIB	(0,125)	Internet Programming IIB Technical Programming IA
WEB30AT	Web Management IIIA	(0,125)	Web Management IIB
WEB30BT	Web Management IIIB	(0,125)	Web Management IIB

TOTAL CREDITS FOR THE SEMESTER: 0,625

SECOND SEMESTER

On completion of all the above subjects. Students with only one subject outstanding may be allowed to register for the subject with the approval of the Head of the Department.

IDC30BF	Industry Exposure IIIB	(0,125)

TOTAL CREDITS FOR THE SEMESTER: 0,125

TOTAL CREDITS FOR THE THIRD YEAR: **0,750**

8.7 BACCALAUREUS TECHNOLOGIAE: INFORMATION TECHNOLOGY: WEB AND APPLICATION DEVELOPMENT
Qualification code: BTIW05

Campus where offered: Soshanguve South Campus

Description of field of specialisation:
The purpose of this qualification is to equip students with the necessary skills to pursue careers in IT by creating, building, maintaining and managing web solutions.

On completion of this qualification, students should be able to –
- apply modern analysis and design techniques and methodologies in the development of IT software systems;
- apply user-interface design principles;
- apply the appropriate software programming language and development environments to implement designed Internet solutions; and
- demonstrate an ability to understand and apply advanced Web management principles.

REMARKS

a. Admission requirement(s):
A National Diploma: Information Technology: Web and Application Development or an equivalent qualification.

b. Selection criteria:
Admission is subject to selection.

c. Minimum duration:
One year

d. Presentation:
Day classes on Saturdays, offered over a period of one and a half years. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

e. Intake for the qualification:
January and July

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Re-registration:
A student may re-register for the subject Project IV only with the permission of the Head of the Department. The purpose of the re-registration is to provide students with an opportunity to complete the Project only and not to re-do it when it is failed.

h. Subject credits:
Subject credits are shown in brackets after each subject.

Key to asterisks:
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in November 2008 and May 2011.)

FIRST OR SECOND SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
ADN401T	Advanced Internet Programming and E-Commerce IV (second semester subject)	(0,100)	Internet Programming and E-Commerce IV

HCI401T	Human Computer Interface Design IV	(0,100)
ITA401T	Information and Technology Management IV	(0,100)
ITC401T	Internet Programming and E-Commerce IV (first semester subject)	(0,100)
PAJ411T	Principles of Research IV*	(0,100)
PJT410H	Project IV (year subject)	(0,200)
PJT416R	Project IV (re-registration)	(0,000)
WEM401T	Web Management IV	(0,100)

plus two of the following subjects. All subjects are offered as determined by the Head of the Department:

AIT401T	Artificial Intelligence IV	(0,100)
ATE401T	Application Technology IV (first semester subject)	(0,100)
DPY401T	Decision Support Systems IV* (second semester subject)	(0,100)
DBS401T	Database Systems IV (first semester subject)	(0,100)
EXS401T	Expert Systems IV	(0,100)
ITU401T	Information Security IV	(0,100)
KNM401T	Knowledge Management IV	(0,100)
NWS421T	Networks IV	(0,100)
OSY431T	Operating Systems IV	(0,100)
PJG401C	Project Management IV	(0,100)
SRN401T	Software Requirements and Design IV* (first semester subject)	(0,100)
UIF401T	User-Interfaces IV (not offered in 2012)	(0,100)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

8.8 MAGISTER TECHNOLOGIAE: INFORMATION TECHNOLOGY (Field of specialisation: Web and Application Development) Qualification code: MTIW95

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Information Technology or an equivalent qualification. A student should preferably have passed Principles of Research IV or a Research Methodology subject before registration, and if not, should definitely pass that subject before their dissertation is accepted.

b. Selection criteria:
Selection is based on a personal interview with the departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of one year and a maximum of three years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DWA510T	Dissertation: Information Technology: Web and Application Development	(1,000)
DWA510R	Dissertation: Information Technology: Web and Application Development (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

8.9 DOCTOR TECHNOLOGIAE: COMPUTER SCIENCE AND DATA PROCESSING (provisional accreditation)
(Field of specialisation: Web and Application Development)
Qualification code: DTIW08

Campus where offered: Soshanguve South Campus

REMARKS

a. Admission requirement(s):
Any Masters qualification relevant to the field of specialisation, as approved by the department.

b. Selection criteria:
Selection is based on a personal interview with the departmental selection panel, and the approval of a study field with acceptable research proposal idea, following the guidelines of the Postgraduate Policy and Procedures. These procedures will be fully explained to the prospective student during the personal interview.

c. Duration:
A minimum of two years and a maximum of five years.

d. Presentation:
Research. The topic should be chosen in consultation with the department.

e. Rule:
See the rules on postgraduate studies in the Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DWA700T	Thesis: Computer Science and Data Processing: Web and Application Development	(2,000)
DWA700R	Thesis: Computer Science and Data Processing: Web and Application Development (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **2,000**

8.10 NATIONAL CERTIFICATE: WEBMASTER
Qualification code: NCWE03

Campus where offered: Pretoria Campus

REMARKS
Please note: A moratorium was placed on new intakes as from 2012 until further notice.

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

  Admission requirement(s):
  A Senior Certificate or an equivalent qualification (no Lower Grade subjects), with E symbols for Mathematics and English.

  Recommended subject(s):
  Computer Studies

  Selection criteria:
  Candidates may be required to pass an aptitude test.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

  Admission requirement(s):
  A National Senior Certificate with an endorsement of a Bachelor's degree, a diploma, a Higher Certificate, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language) and 3 for Mathematics or 5 for Mathematical Literacy.

  Candidates who successfully completed the FET or vocational certificate: National Certificate: Information Technology and Computer Science will be allowed to enrol for the National Diploma: Information Technology without an Admission Points Score or an assessment test.

  Recommended subject(s):
  Computer Applications Technology (3), Information Technology (3), and Physical Sciences (3).

  Selection criteria:
  To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19**.

  Assessment procedures:
  Candidates who meet these minimum requirements will be considered for admission to the National Diploma.

b. Minimum duration:
One year

c. Presentation:
Evening classes. If fewer than 15 students are enrolled for a specific subject, the Department may decide not to offer the subject.

d. Intake for this qualification:
January and July

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. *Rules:*
Students should attend all scheduled workshops, submit the assignments and projects and write the tests as required per module. Should a student fail to write a test due to illness or extraordinary circumstances, the test may be rewritten, subject to the module facilitator receiving proof of the reason for absence within one week after the scheduled test date.

g. *Subject credits:*
Subject credits are shown in brackets after each subject.

FIRST OR SECOND SEMESTER

Not all subjects are offered in every semester. Subjects will rotate every semester.

CODE	SUBJECT	CREDIT
COY101B	Computer Technology I	(0,100)
EKM111T	E-Commerce I	(0,100)
IWR101T	Internetworking Principles I	(0,100)
MTM101T	Multimedia I	(0,100)
WEP101T	Web Project I	(0,200)
WSN101T	Website Design I	(0,100)
WSS101T	Website Security I	(0,100)
	plus two of the following subjects:	
EMK101T	Electronic Marketing I	(0,100)
PGC101T	Programming Concepts I	(0,100)
WDS101T	Web Databases I	(0,100)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

SECTION B: PHASING OUT QUALIFICATIONS

1. ICT FIRST YEARS' AND FOUNDATION UNIT

1.1 NATIONAL DIPLOMA: INFORMATION TECHNOLOGY (EXTENDED CURRICULUM PROGRAMME WITH FOUNDATION PROVISION)

Qualification code: NDITF0

Campus where offered: Soshanguve South Campus (day classes)

NO NEW REGISTRATIONS FOR THIS QUALIFICATION ARE ACCEPTED AS FROM 2010. STUDENTS WHO ARE CURRENTLY REGISTERED FOR THIS QUALIFICATION HAVE UNTIL 2012 TO OBTAIN IT, SUBJECT TO THE STIPULATIONS OF REGULATION 3.1.1 ON THE MAXIMUM DURATION OF STUDY.

Phase-out date: 31 December 2012

It is recommended that students who have registered for the ICT Foundation Programme (NDITF0) for the first time before 2011 do not register for more than three modules per semester. In extraordinary circumstances, based on student results, permission may be granted for an extra subject if there are no clashes on the time table.

The structure of the first eighteen months of the extended curriculum is as follows:

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
ISY13AF	Foundation Information Systems IA	(0,125)	
ITS11AF	Foundation Information Technology Skills IA	(0,125)	
SSF11AF	Foundation Systems Software IA	(0,125)	
TOTAL CREDITS FOR THE SEMESTER:		0,375	

SECOND SEMESTER

DSO15AF	Foundation Development Software IA	(0,125)	
DSO15BF	Foundation Development Software IB	(0,125)	
ISY13BF	Foundation Information Systems IB	(0,125)	Foundation Information Systems IA
TOTAL CREDITS FOR THE SEMESTER:		0,375	
TOTAL CREDITS FOR THE FIRST YEAR:		**0,750**	

SECOND YEAR

FIRST SEMESTER

ITS11BF	Foundation Information Technology Skills IB	(0,125)
SSF11BF	Foundation Systems Software IB	(0,125)

Students who have passed all subjects during the first and second semester of the first year may also register for one of the following subjects in the third semester (first semester of the second year):

One of the following:

MIS22AT	Management Information Systems IIA (for specialisation field: Business Applications)	(0,125)
TPG11AT	Technical Programming IA (for specialisation fields: Industrial Information Systems and Systems Development)	(0,125)
TPG12AT	Technical Programming IA (for specialisation fields: Communication Networks, Multimedia, Technical Applications and Web and Application Development)	(0,125)
TPG14AT	Technical Programming IA (for specialisation field: Support Services)	(0,125)
TOTAL CREDITS FOR THE SEMESTER:		0,375

As from the second semester of the second year of study, a student will register under another qualification code for the specific Information Technology specialisation field.

2. DEPARTMENT OF COMPUTER SCIENCE

2.1 NATIONAL DIPLOMA: COMPUTER STUDIES
Qualification code: NDCS04

Campus where offered: Polokwane (day classes)

NO NEW REGISTRATIONS FOR THIS QUALIFICATION ARE ACCEPTED AS FROM 2012. STUDENTS WHO ARE CURRENTLY REGISTERED FOR THIS QUALIFICATION HAVE UNTIL 2016 TO OBTAIN IT, SUBJECT TO THE STIPULATIONS OF REGULATION 3.1.1 ON THE MAXIMUM DURATION OF STUDY.

Phase-out date: 31 December 2016

Not all electives and compulsory subjects will be offered in every semester. Subjects will rotate in every semester. Subjects are offered as determined by the Head of the Department.

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
BUC101B	Business Communication I	(0,100)	
BUO101B	Business Organisation I	(0,100)	
COY101B	Computer Technology I	(0,100)	
PBB101B	Practical Business Project I	(0,200)	
SYD101B	Systems Development I	(0,100)	
	plus four of the following subjects:		
EKM101B	E-Commerce I	(0,100)	
ITN101B	Internet Programming I	(0,100)	

MTM101B	Multimedia I	(0,100)	
NST101B	Network Support I	(0,100)	
PUZ101B	PC Support I	(0,100)	
STU101B	Structured Programming Methods I	(0,100)	
VIS101B	Visual Programming I	(0,100)	
WEV101B	Website Development I	(0,100)	

TOTAL CREDITS FOR THE FIRST YEAR: **1,000**

SECOND YEAR

BSD201B	Systems Design II	(0,100)	Systems Development I
DDD201B	Database Design and Development II	(0,100)	Systems Development I
ENW201B	Enterprise Networking II	(0,100)	
PBB201B	Practical Business Project II	(0,200)	Practical Business Project I
SYA202B	Systems Analysis II	(0,100)	Systems Development I
	plus four of the following subjects:		
BPJ201B	Business Projects Management II	(0,100)	Business Organisation I
IAI201B	Internet and Intranet Security II	(0,100)	
ISA201B	Internet Systems Administration II	(0,100)	
ITN201B	Internet Programming II	(0,100)	Internet Programming I
OOP201B	Object-Orientated Programming Methods II	(0,100)	Structured Programming Methods I
VIS201B	Visual Programming II	(0,100)	Structured Programming Methods I Visual Programming I

TOTAL CREDITS FOR THE SECOND YEAR: **1,000**

THIRD YEAR

AVD302T	Advanced Database Management Systems III	(0,250)
DPY302T	Decision Support Systems III	(0,250)
NCS302T	Network Communication Systems Management III	(0,250)
SWG302T	Software Engineering Methods III	(0,250)

TOTAL CREDITS FOR THE THIRD YEAR: **1,000**

SECTION C: SUBJECT INFORMATION (OVERVIEW OF SYLLABUS)

Syllabus content is subject to change to accommodate industry changes. **Please note:** a more detailed syllabus is available at the department or in the study guide of the applicable subject.

A

ACCOUNTING SKILLS IA (ACS11AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Accounting)
A study of the basic principles of accounting to enable learners to record transactions, prepare subsidiary journals, prepare a trial balance and to prepare the elementary financial statements of sole trader. (Total tuition time: ± 60 hours)

ACCOUNTING SKILLS IB (ACS11BT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Accounting)
A study of the practical application of the basic accounting principles in respect of different entities, by preparing their financial statements. (Total tuition time: ± 60 hours)

ADVANCED BUSINESS ANALYSIS IV (ABL401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
The focus is primarily on software project management, which comprises measurement and metrics, estimation, risk analysis, schedules, tracking and control. Students work through the design of a software system by using UML. (Total tuition time: not available)

ADVANCED COMMUNICATION NETWORKS IV (ADA401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Information Technology)
This module focuses on the designing of networks according to methodologies recommended by Cisco. Areas covered include pre-design procedures such as the PDIOO methodology, designing modular network topologies according to the enterprise composite model, enterprise WAN design, Cisco IOS queuing methods and designing secure networks. (Total tuition time: ± 20 hours)

ADVANCED DATABASE MANAGEMENT SYSTEMS III (AVD302T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Software Engineering)
This unit builds upon students' general understanding of database management systems, enabling them to design and implement complex database systems. This subject has a strong element of practical database design and implementation. (Total tuition time: not available)

ADVANCED DEVELOPMENT SOFTWARE IV (ADH401T) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Software Engineering)
The primary purpose is on developing PL/SQL web applications using oracle 10g/11g as a tool and Oracle Application Server configurations. The contents include generating HTML output from PL/SQL, passing parameters to a PL/SQL web application, performing network operations within PL/SQL stored procedures, and embedding PL/SQL code in web pages and the use of JavaScript in PL/SQL web applications. (Total tuition time: ± 26 hours)

ADVANCED INFORMATION AND TECHNOLOGY MANAGEMENT IV (ADJ401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Development and use of enterprise architecture using a specific framework. This module teaches students about the planning, design and construction of systems (manual or automated) that are needed to support the enterprise. Students will have the ability to understand and determine the ongoing needs of integration, alignment, change and responsiveness of the business to technology and the marketplace. (Total tuition time: ± 40 hours)

ADVANCED INTELLIGENT INDUSTRIAL SYSTEMS IV (ADK401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
The design and implementation of advanced intelligent systems. (Total tuition time: ± 40 hours)

ADVANCED INTERNET PROGRAMMING AND E-COMMERCE IV (ADN401T) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Web and Multimedia Computing)
Advanced Internet programming and e-commerce on the Oracle Web platform. (Total tuition time: not available)

ADVANCED KNOWLEDGE MANAGEMENT IV (ADQ401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Selected advanced topics on knowledge management. Innovation and standardisation. Systems thinking and methods of inquiry. (Total tuition time: not available)

ADVANCED MULTIMEDIA PROGRAMMING IV (MMO401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Web and Multimedia Computing)
This subject covers the use of advanced multimedia concepts in the context of education. The topics covered include approaches to education and different multimedia approaches. After completing this subject, the student will know how to apply pedagogic paradigms to the design and development of multimedia education systems, be able to decide which multimedia approach is appropriate for a given context, and manage the development of a multimedia system from conception to deployment. In addition, the student will gain practical experience in working with a limited number of multimedia systems. (Total tuition time: not available)

ADVANCED SUPPORT SERVICES IV (ADS401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Information Technology)
The general purpose of this subject is to understand how networks are designed, how they are maintained, what the underlying infrastructure is and what interactions are needed among different functional components. (Total tuition time: not available)

ADVANCED TECHNICAL PROGRAMMING IV (ADU401T) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Computer Science)
AIM/PURPOSE: This subject focuses on introducing students to server-side component architecture using Enterprise Java Bean (EJB3.0). The students are exposed to EJB specification, and the subject intends to provide a standard way to implement the back-end 'business' code typically found in enterprise applications. OBJECTIVES: Understand EJB in relation to the J2EE architecture, annotation-based EJB programming model, persistence model for entity beans. KEY TOPICS: Session Bean, Entity Bean, Message-driven Bean, Annotations, Web services. (Total tuition time: ± 26 hours)

APPLICATION TECHNOLOGY IV (ATE401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Science)
AIM/PURPOSE: To introduce the students to Semantic Web services. OBJECTIVES: To introduce the students to the issues and standards for interchangeable semantic data. Introduction to Web ontology languages, simple Semantic Web Architecture and Protocols, Resource description framework are covered. MAIN TOPICS: Mark-up languages, Resource description framework, OWL, OWL-S, Semantic tools. (Total tuition time: ± 20 hours)

ARTIFICIAL INTELLIGENCE IV (AIT401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
AIM/PURPOSE: To introduce the fundamentals of the art of creating machines that perform functions that require intelligence when performed by people. The field includes Problem solving; Communicating, perceiving and acting; Learning; Knowledge, reasoning and planning; Uncertain knowledge and reasoning. (Total tuition time: ± 26 hours)

B

BUSINESS ANALYSIS IIA (BUA20AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
The principles of business management and the functional areas of a business. The application of those principles in the creation of a business plan. (Total tuition time: not available)

BUSINESS ANALYSIS IIB (BUA20BT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Introduction to e-commerce and the changing e-business environment. The topics that are dealt with are strategy, technology, policy and financing in the networked economy. Practical component: creation of an e-commerce application. (Total tuition time: not available)

BUSINESS ANALYSIS IIIA (BUA30AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
An in-depth study in object-orientated systems analysis and design, and UML. (Total tuition time: not available)

BUSINESS ANALYSIS IIIB (BUA30BT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Business analysis methods applying statistical methods and operational research and their application in the business environment with a practical component in advanced applied Excel. (Total tuition time: not available)

BUSINESS ANALYSIS IV (BUA401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Methodology and techniques of the analysis of business requirements with a view to designing appropriate information systems. (Total tuition time: not available)

BUSINESS ANALYSIS V (BUA501T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Informatics)
Analysis of different business information systems in companies and the application of different business models in an IT environment. (Total tuition time: not available)

BUSINESS COMMUNICATION I (BUC101B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Students develop the basic communication skills and concepts required at the interpersonal level. They acquire the ability to relate these to the broader information needs of organisations, so that the knowledge of information systems and appropriate communication may be applied intelligently and effectively. (Total tuition time: not available)

BUSINESS FUNDAMENTALS IV (BAB401B, BAB401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
This subject covers the terminology of the business world and provides a working knowledge of the start-up and management of a business. The basic principles of globalisation are also covered. Students will complete a number of case studies to prove their mastery of this topic. (Total tuition time: ± 40 hours)

BUSINESS INFORMATION SYSTEMS IV (BIF401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Exploring the broad context within which information systems operate, and investigating their implications. (Total tuition time: not available)

BUSINESS INFORMATION SYSTEMS V (BIF501T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Informatics)
Exploring the context of information system applications in IT environments. (Total tuition time: not available)

BUSINESS ORGANISATION I (BUO101B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Students acquire an understanding of the various types of organisations, the principal functional areas within organisations and the needs of organisations, as well as the needs of employees in the workplace. (Total tuition time: not available)

BUSINESS PROJECTS MANAGEMENT II (BPJ201B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Students are familiarised with the principles of project management and control, and examine the impact of people on projects. Particular attention is paid to information technology projects, such as systems development and implementation. (Total tuition time: not available)

C

COMMUNICATION NETWORKS IIA (COB20AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Information Technology)
This subject covers various aspects and technologies involved in data communication and networking. Students are introduced to topics such as network topologies, transmission fundamentals, contention protocols, data compression techniques, data security and integrity, flow-control protocols and the various IEEE standards. The emphasis is on giving students a sound understanding of local area networks (LANs), although aspects of wide area networks (WANs) are also covered briefly. (Total tuition time: ± 80 hours)

COMMUNICATION NETWORKS IIB (COB20BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Information Technology)

This subject imparts the necessary skills to design and implement solutions in the data communications, networking. The subject, building on COB20AT, covers the TCP/IP protocol stack functionality - with emphasis on design and algorithms' analysis of the protocols, services and quality of service, provided at the data-link, network, and transport layers respectively. (Total tuition time: ± 80 hours)

COMMUNICATION NETWORKS IIIA (COB30AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Information Technology)

The overview of the subject is to provide a practical survey of network security applications and standards. The subject covers concise survey of the cryptographic algorithms and protocols underlying network security applications, network security tools and applications, and system-level security issues. (Total tuition time: ± 80 hours)

COMMUNICATION NETWORKS IIIB (COB30BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Information Technology)

This subject covers various aspects and technologies involved in wireless and mobile networks. Students are introduced to topics such as ad-hoc network, wireless routing protocols, vehicular area network, wireless sensor networks, IEEE 802.11 (WLAN), Bluetooth, GSM network, handoff and roaming, channel allocation, and satellite systems. The subject is aimed at giving students a solid understanding of wireless networks, mobile systems and satellite systems. (Total tuition time: ± 80 hours)

COMMUNICATION NETWORKS IV (COB401T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Information Technology)

The configuration of network routers and the implementation of networks. At the end of this course, the learner will be able to apply the acquired skills to install, configure, and operate LAN, WAN, and dial access services for small Cisco networks (100 nodes or fewer) using the following protocols: IP, EIGRP, Serial, Frame Relay, IP RIP, VLANs, RIP, Ethernet, Access Lists. (Total tuition time: ± 40 hours)

COMMUNICATION NETWORKS V (COB501T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Information Technology)

A study of advanced communication networks. (Total tuition time: not available)

COMMUNICATION SKILLS I (COS101T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Applied Languages)

Communication theory, non-verbal communication (body language, etc.), oral presentations, interviews, developing leadership and participation skills. Technical reports and correspondence. (Total tuition time: ± 20 hours)

COMPUTER SKILLS I (CSK101T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of End-User Computing)

Windows Operating System, Microsoft Word, Excel, PowerPoint and Access are covered in the practical component. (Total tuition time: ± 40 hours)

COMPUTER TECHNOLOGY I (COY101B) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Web and Multimedia Computing)

Students are equipped with a detailed and secure foundation in the various computer technologies required to function effectively in a technical role. (Total tuition time: not available)

COMPUTING FUNDAMENTALS IA (CFS10AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Web and Multimedia Computing)

The aim of this subject is to introduce the student to the fundamentals of computers and information systems, computer organisation and data processing. Knowledge attained from this forms a foundation to most of their second and third level subjects. The content covered for this subject was carefully selected to introduce all aspects of the different specialisation fields in the ICT faculty which serves as a guideline for the students when they start with their specialisation field in the second level. This course covers a vast spectrum of information, information systems and technology which includes teaching students to become computer literate, understanding parts of the computer, the Use of Internet, building Application Software, Networking and security in the business world. The subject is presented in two modes: Theory classes – to coordinate and integrate learning material, and Practical sessions – for word applications and excel spreadsheets. (Total tuition time: ± 90 hours)

COMPUTING FUNDAMENTALS IB (CFS10BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Software Engineering)

The basic concepts of system development, data management, management information systems, ethics, privacy and security, purchasing and maintaining microcomputers, number systems and binary logic. Knowledge attained from this subject is used in selecting student's second- and third-level subjects. (Total tuition time: ± 54 hours)

COMPUTING SKILLS IA (CMK10AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Informatics)

Thinking skills, learning styles, study skills, research skills, presentation skills, legal issues in IT, communication skills, and cultural sensitivity. (Total tuition time: ± 36 hours)

COMPUTING SKILLS IB (CMK10BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Informatics)

Personality types, emotional intelligence, self-management, stress and time management, team dynamics, conflict, negotiation and assertiveness, dealing with change, relationship management. (Total tuition time: ± 54 hours)

COMPUTING SYSTEMS IA (CGS10AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Computer Systems Engineering)

This subject deals with different aspects and technologies in data communication and networks, including concepts, such as network architecture, transmission, protocols and a number of IEEE standards. (Total tuition time: ± 54 hours)

COMPUTING SYSTEMS IB (CGS10BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of information Technology)

Basic functions of operating systems are dealt with by using DOS and Windows platforms. (Total tuition time: ± 54 hours)

D

DATA ENGINEERING V (DEG501T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Software Engineering)

AIM/PURPOSE: To introduce the students to the tools and techniques of Data mining, Data warehousing and Knowledge engineering. OBJECTIVES: On completion of the module, the students should be able to apply the various tools and techniques of Data mining, Data warehousing and Knowledge engineering. Introduction to Cloud concepts. KEY TOPICS: Data sampling, modelling, processing, Decision tree induction, Model evaluations, classification tools, Clustering tools association tools, Genetic algorithm, customer-relationship management. (Total tuition time: ± 20 hours)

DATABASE ADMINISTRATION IV (DBA401T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Software Engineering)

An introduction to the management of database systems. Problems in current database administration, as well as possible solutions to those problems, are discussed. The subject focuses on the design of data structures and storage techniques, tuning, distributed systems, database administration and support tools. (Total tuition time: ± 20 hours)

DATABASE DESIGN AND DEVELOPMENT II (DDD201B) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Software Engineering)

An essential introduction to modern database technology and the development of database systems, with the emphasis on the practicalities of using database systems in the ongoing development of information systems. (Total tuition time: not available)

DATABASE PRINCIPLES III (DBR311T) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Software Engineering)

An introduction to databases and database management principles. Theoretical principles are applied in the query language SQL, using Oracle SQL. Students' insight and skills are tested in the development, design and implementation of a relational database. (Total tuition time: ± 80 hours)

DATABASE PROGRAMMING IV (DBP401T) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Software Engineering)

The focus is on PL/SQL programming using Oracle 10g/11g as a tool, the content includes PL/SQL architecture, and PL/SQL nested control structures, PL/SQL iterative structures, records, exception handling, PL/SQL tables, explicit cursors, PL/SQL procedures, functions, packages and triggers. (Total tuition time: ± 26 hours)

DATABASE SYSTEMS IV (DBS401T) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Software Engineering)

The focus on database systems provides strong practice in database design methodology, comprehensive treatment of distributed, object-oriented, and object-oriented DBMS. The subject introduces dependent data mart structure and dimensional modeling approach through data warehouse, the application of OLAP, data mining and fact-finding techniques. (Total tuition time: ± 26 hours)

DECISION SUPPORT SYSTEMS III (DPY302T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Software Engineering)

Functions and applications of computer-based information systems used in business for the support of management – management information systems, decision support systems, executive information systems, etc. (Total tuition time: not available)

DECISION SUPPORT SYSTEMS IV (DPY401T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Software Engineering)

The subject focuses on Decision Support Systems, Human Decision making processes, Types of Decision support systems, and the CART Algorithm. (Total tuition time: ± 26 hours)

DESIGN PROJECT III (PJD301B) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Computer Systems Engineering)

The planning, design and implementation of an industry-related project by applying the knowledge obtained and the tools students were introduced to in the programme. The project should deal with an actual computer science problem and should include hardware and software elements. This subject is supported by short project management and entrepreneurship programmes. (Total tuition time: ± 10 hours)

DEVELOPMENT SOFTWARE IA (DSO15AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Computer Science)

AIM/PURPOSE: To learn to solve programmes using the basic programming principles, and then practically apply it in VB.NET. OBJECTIVES: To enable the learner to be able to: understand problems and know how to solve them by using a computer; understand the general concepts and arithmetic used in programming; write algorithms containing sequential steps, selection and iteration control structures, applying it in VB.NET. KEY TOPICS: Basics of problem solving, solving problems using: the sequential control structure, the selection control structure, the iteration control structure and these three control structures together, all applied in VB.NET. (Total tuition time: ± 72 hours)

DEVELOPMENT SOFTWARE IA (DSO17AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Computer Science)

AIM/PURPOSE: To learn to solve problems using the basic programming principles, and then practically apply it in VB.NET. OBJECTIVES: To enable the student to be able to: understand problems and know how to solve them by using a computer; understand the general concepts and arithmetic used in programming; sequence, selection and iteration control structures and a variety of built-in data types including strings. The students are exposed to the concept of event driven programming in a visual programming environment focussing on the development of graphical user interfaces to solve real life practical programming problems. (Total tuition time: ± 72 hours)

DEVELOPMENT SOFTWARE IB (DSO15BT) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Computer Science)

AIM/PURPOSE: To expand on the already obtained knowledge of Development Software IA, to solve programmes using the basic programming principles, and then practically apply it in VB.NET. OBJECTIVES: Using the knowledge obtained in Development Software IA, enable the learner to be able to: write an algorithm using functions and sub procedures; write an algorithm containing one-dimensional arrays; do string manipulation; use standard functions, all applied in VB.NET. KEY TOPICS: Modularization, Functions, Procedures and one-dimensional arrays, applied in VB.NET. (Total tuition time: ± 72 hours)

DEVELOPMENT SOFTWARE IB (DSO17BT) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Computer Science)

AIM/PURPOSE: To expand on the already mastered knowledge obtained in Development Software IA. OBJECTIVES: To broaden the programming skills base of the student by adding the following topics: write an algorithm and applying it in VB.NET using functions and sub procedures; and write an algorithm containing one-dimensional arrays. String manipulation will be continued as well as a brief introduction to text file processing. (Total tuition time: ± 72 hours)

DEVELOPMENT SOFTWARE IIA (DSO23AT) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Software Engineering)

Students learn the query language SQL, using the ORACLE Database. They also learn how to create and maintain database objects and how to store, retrieve and manipulate data. (Total tuition time: ± 59 hours)

DEVELOPMENT SOFTWARE IIB (DSO23BT) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Software Engineering)

This is a senior second year subject that focuses to teach students how to create PL/SQL programming blocks in the Oracle environment. This is mainly a practical programming subject, using the Oracle courseware and the Oracle software to convey these principles. (Total tuition time: ± 59 hours)

DEVELOPMENT SOFTWARE IIIA (DSO34AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Software Engineering)

The purpose of this subject is to introduce students to the various database concepts, the design, implementation and management of a database system. The subject will prepare the student for practical applications in the design, implementation and management of database systems. The student should be competent in: the principles of developing and implementing small IT systems. On completion the student should be able to create, maintain and administer databases according to the DBLC. Students should also be able to grasp how the database design fits into the Software Development Life Cycle. (Total tuition time: ± 59 hours)

DEVELOPMENT SOFTWARE IIIB (DSO34BT) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Software Engineering)

This subject may be seen as a culmination of everything that the student has learnt up to now in the qualification. It integrates knowledge across all study fields of the qualification including: systems analysis and design; networking principles; project management; database design and implementation; and programming. On completion of the subject, the qualifying learner should have the ability to: analyse and design software solutions to industry-related Information Technology problems; utilise the required technical skills to effectively implement the designed solutions in a distributed IT environment; utilise the required technical skill to design and implement solutions in data communications, networks and the internet environment. (Total tuition time: ± 59 hours)

DEVELOPMENT SOFTWARE IIIB (DSO35BT) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Software Engineering)

This subject gives students an opportunity to broaden their Developer/2000 form-building skills. Using Project Builder to manage their application files, students create multiple form applications and learn how to manage multiple transactions across modules. Students also practise enhancing their applications with customised menus, reports and charts. (Total tuition time: not available)

DEVELOPMENT SOFTWARE IV (DSO401T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Software Engineering)

The focus is on advanced PL/SQL programming using Oracle 10g/11G as a tool, the content includes PL/SQL tables, Nested blocks in PL/SQL, Dynamic SQL and Dynamic PL/SQL blocks, recompiling functions and procedures, package forward declarations, package dependency, package overloading, and bulking in PL/SQL. (Total tuition time: ± 26 hours)

DIGITAL ENTERPRISE V (DEV501T, DEV511T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Informatics)

An analysis of how businesses are changing in the digital era. (Total tuition time: not available)

DIGITAL PROCESS CONTROL II (DPC201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Computer Systems Engineering)

Introduction to basic digital control techniques using an emulated PLC. Various realistic and practical projects are studied using the printer port as PLC. (Total tuition time: ± 80 hours)

DIGITAL PROCESS CONTROL III (DPC301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Computer Systems Engineering)

A detailed examination of the functional operations of a PLC, as used in factory automation. An introduction to robotics, electromechanical and sensory tactics and methods. (Total tuition time: ± 80 hours)

DIGITAL PROCESS CONTROL IV (DPC401T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Computer Systems Engineering)

Investigating the use of digital processes and how to control their functions. (Total tuition time: ± 20 hours)

DIGITAL SYSTEMS I (DSY131C) **1 X 3 HOUR PAPER**

(Subject custodian: Department of Computer Systems Engineering)

History and overview of digital systems, Number systems and codes, Binary arithmetic, Boolean algebra, Basic logic gates (AND, OR, NOT, NAND, NOR, XOR), Physical properties of logic gates(technology, fan-in, fan out, propagation delay), Networks of logic gates, 2-level networks (AND-OR, OR-AND, NAND-NAND, NOR-NOR), Elimination of timing hazards/glitches, Combinational systems, Arithmetic functions (adders, subtracters, carry look ahead), Introduction to memory elements. (Total tuition time: ± 70 hours)

DIGITAL SYSTEMS II (DSY231C) **1 X 3 HOUR PAPER**

(Subject custodian: Department of Computer Systems Engineering)

Un-clocked and clocked memory devices(latches, flip flops), Level vs edge sensitive and master- slave devices, Basic flip flops (SR, D, JK, T), Asynchronous flip flop inputs (preset, clear), Timing constraints (setup time, hold time) and propagation delays, Sequential logic circuits: data registers, shift registers, counters; Introduction to Finite state machines (FSM), CPLDs, FPGAs, ROMs, RAM, FLASH. (Total tuition time: ± 70 hours)

DIGITAL SYSTEMS III (DSY341C) **1 X 3 HOUR PAPER**

(Subject custodian: Department of Computer Systems Engineering)

Structure of a computer system (CPU, memory, I/O devices on a bus); CPU families used in microcontrollers (4-bit, 8-bit, 16-32-bit) and microprocessors; Basic I/O devices (timers/counters, GPIO, A/D, D/A), Polled I/O vs Interrupt driven I/O, Vectored and prioritised Interrupts, DMA transfers, MMU, Memory architectures and caches; Introduction of embedded application designs. (Total tuition time: ± 70 hours)

DISTRIBUTED SYSTEMS IIA (DSA20AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Information Technology)

This module introduces the student to distributed systems. Aspects covered are characterisation of a distributed system, systems models, processes, inter-process communication, and naming services. (Total tuition time: ± 80 hours)

DISTRIBUTED SYSTEMS IIB (DSA20BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Software Engineering)

This module builds on DSA20AT. It covers synchronisation with time and events, mutual exclusion, synchronisation algorithms in distributed systems, and peer-peer systems. (Total tuition time: ± 80 hours)

DISTRIBUTED SYSTEMS IIIA (DSA30AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Information Technology)

This subject provides an understanding of the principles and paradigms on which distributed systems are based, their architecture, distributed algorithms and design of distributed systems. It covers architectures vs middleware, co-ordination and agreement algorithms, consistency and replication, fault tolerance, distributed object-based systems, distributed file systems and distributed we-based systems. (Total tuition time: ± 80 hours)

DISTRIBUTED SYSTEMS IIIB (DSA30BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Information Technology)

This subject covers aspects of advanced system administration and user management in Linux. Students are introduced to creation of user and group accounts, managing storage and disk devices, creating file systems and system services, TCP/IP, configuring a network environment, securing the network environment, and configuring servers such as DNS, FTP, email server, and samba sever. This subject is aimed at giving students a thorough understanding of Linux system administration. (Total tuition time: ± 80 hours)

E

E-COMMERCE I (EKM101B, EKM111T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Informatics)

Students acquire a thorough understanding of the major issues associated with the development of e-commerce solutions and applications, particularly in relation to both the business and commercial considerations and the technical requirements. (Total tuition time: not available)

ELECTRICAL ENGINEERING I (EEN111T) **1 X 3 HOUR PAPER**

(Subject custodian: Department of Electrical Engineering)

Students are introduced to the correct use of SI units and their applications, the construction and maintenance of batteries, a network analysis of direct current circuits and AC theory, a study of various measuring instruments. An investigation into the effects of magnetic lines of force, the application and use of magnetic fields, inductance and the factors affecting it, capacitors and their operation. (Total tuition time: ± 70 hours)

ELECTRONIC MARKETING I (EMK101T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Informatics)

A study of e-marketing principles and strategies. (Total tuition time: not available)

ELECTRONICS I (ELC111T) **1 X 3 HOUR PAPER**

(Subject custodian: Department of Electrical Engineering)

Introduction to electronic components, analysis and design using measuring instruments, diodes and rectification, simple power supplies, DC operating point of single-stage bipolar junction- and field-effect transistor amplifiers and basic operational amplifier configurations. Theory supported by assessed practical experiments in a laboratory, including soldered and proto-board projects. (Total tuition time: ± 70 hours)

ELECTRONICS II (ELC211T) **1 X 3 HOUR PAPER**

(Subject custodian: Department of Electrical Engineering)

Modelling of electronic components and their application in circuit analysis and design. Unregulated and regulated linear power supplies with transistor and operational amplifier error correction, short-circuit protection and heat sink principles. Small-signal modelling of transistor amplifiers. Theory is supported by assessed project and practical experiments in a laboratory. (Total tuition time: ± 80 hours)

ENTERPRISE NETWORKING II (ENW201B) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Information Technology)

Students acquire an understanding of the basic functions and characteristics of the telecommunications networks used by businesses for transporting information. (Total tuition time: not available)

EXPERIENTIAL LEARNING I (EXP1ECS) **EXPERIENTIAL LEARNING**

(Subject custodian: Department of Computer Systems Engineering)

Students experience the industry realistically by becoming involved in its day-to-day operations. (Total tuition time: not available)

EXPERIENTIAL LEARNING II (EXP2ECS) **EXPERIENTIAL LEARNING**

(Subject custodian: Department of Computer Systems Engineering)

Students function at a higher level in an IT-related industry by becoming involved in its operations. (Total tuition time: not available)

EXPERT SYSTEMS IV (EXS401T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Software Engineering)

Expert systems and their application in various environments. (Total tuition time: ± 26 hours)

F

FOUNDATION ACADEMIC AND LANGUAGE SKILLS (FPALS01) **1 X 3-HOUR PAPER**

(Subject custodian: ICT First Years' and Foundation Unit)

Interpret, relate and reflect on all available and relevant resource material in proper English. Communicate orally in a comprehensible and clear manner in both general and subject-specific communication. Demonstrate intermediate-level proficiency in written English. Computational and critical thinking skills, learning styles, study skills, research skills, presentation skills, legal issues in IT, communication skills and cultural sensitivity. (Total tuition time: ± 84 hours)

FOUNDATION DEVELOPMENT SOFTWARE IA (DSO15AF) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Computer Science)

The general purpose of this module is to learn to solve programs using the basic programming principles. The module focuses on the planning and understanding of problems and logical thinking skills. After completion of this module, the learner must be able to: understand problems and know how to solve them by using a computer; understand the general concepts and arithmetic used in programming; write algorithms containing sequential steps, selection and iteration control structures; write an algorithm using functions and sub procedures; and write an algorithm containing one-dimensional arrays. Additional notes and exercises will be provided in order

to make the content more understandable. The additional foundation provision will also include brain teasers and games like SUDOKU in order to stimulate problem-solving and logical thinking skills. (Total tuition time: ± 108 hours)

FOUNDATION DEVELOPMENT SOFTWARE IB (DSO15BF) 1 X 4-HOUR COMPUTER-BASED
(Subject custodian: Department of Computer Science)
The general purpose of this module is to apply the basic programming principles studied in DSO15AT in Visual Basic.NET. The emphasis will not be on all the visual effects of the language, but to make the students competent problem solvers that can design and write VB.NET programs that will be error free, reliable and easy to modify and maintain. After completion of this module, the learner must be able to: create user interfaces with basic controls; understand the general concepts and arithmetic used in VB.NET; write VB.NET programs containing sequential steps, selection and iteration control structures; write VB.NET programs containing functions and sub procedures; and write VB.NET programs containing one-dimensional arrays. Students on this course will receive additional compulsory assignments on a weekly basis in order to practice VB.NET and to make the content more understandable. They will also receive additional time per week in order to complete these assignments. (Total tuition time: ± 108 hours)

FOUNDATIONAL ICT MATHEMATICAL SKILLS (FPITM01) 1 X 3-HOUR PAPER
(Subject custodian: ICT First Years' and Foundation Unit)
The following topics will be covered: Arithmetic and Basic Algebra. The subject will be offered in an interactive way in order to stimulate logical reasoning, problem-solving and computational thinking skills.
(Total tuition time: ± 96 hours)

FOUNDATION INFORMATION AND SOFTWARE DEVELOPMENT SKILLS (FPIDS01) 1 X 3-HOURPAPER
(Subject custodian: ICT First Years' and Foundation Unit)
Brain teasers will be used as an initial stimulus to get students interested in the problem-solving process. Various word problems will be provided and students will learn how to analyse these problems in a systematic way as the starting point in the problem-solving approach. The subject focuses on the utilisation of various tools to develop the cognitive problem-solving skills of the student, including computational thinking pedagogical software tools. Students will also be introduced to abstract logical reasoning and computational thinking skills. These skills are further developed through practical exercises relating to various day-to-day problem-solving activities. Introduction to algorithmic problem solving is further supported by the application of a graphical programming tool. (Total tuition time: ± 96 hours)

FOUNDATION INFORMATION SYSTEMS IA (ISY13AF) 1 X 3-HOUR PAPER
(Subject custodian: Department of Web and Multimedia Computing)
An introduction to Windows including skills in handling a mouse and keyboard, file structures (what a file, drive and folder are, where and how to save and retrieve from folders), copy and paste, regular backups and formatting of disks. The subject includes the study of the basic principles and background of computers, hardware, peripherals, computer software concepts, information system concepts and the impact of computers on society. The subject also contains a mathematical component which covers Basic Arithmetic, Essentials of Algebra and Fundamentals of Plane Geometry to help students develop critical thinking and analytical skills needed for better Computer Programming. Practicals: Microsoft Word and Microsoft Excel. (Total tuition time: ± 90 hours)

FOUNDATION INFORMATION SYSTEMS IB (ISY13BF) 1 X 3-HOUR PAPER
(Subject custodian: Department of Software Development)
A study of the basic concepts of systems of development, data management, management information systems, artificial intelligence and object-orientated programming, ethics, privacy and security, purchasing and maintenance of microcomputers, number systems and binary logic. The subject also contains a mathematical component which extends algebra concepts and explores arithmetic operations in a computer, numbering systems, counting methods, probability and odds, basic statistics, vectors and matrices. Practicals: Microsoft Access and the internet. (Total tuition time: ± 90 hours)

FOUNDATION INFORMATION TECHNOLOGY SKILLS IA (ITS11AF) 2 X 3-HOUR PAPER
(Subject custodian: Department of Informatics)
Interpret, relate and reflect on all available and relevant resource material in proper English. Communicate orally in a comprehensible and clear manner in both general and subject-specific communication. Demonstrate intermediate-level proficiency in written English. Thinking skills, learning styles, study skills, research skills, presentation skills, legal issues in IT, communication skills, cultural sensitivity. (Total tuition time: ± 72 hours)

FOUNDATION INFORMATION TECHNOLOGY SKILLS IB (ITS11BF) **2 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Personality types, emotional intelligence, self-management, stress and time management, team dynamics, conflict, negotiation and assertiveness, dealing with change, relationship management. Continued training in English communication in order to interpret, relate and reflect on all available and relevant resource material in proper English. Communicate orally in a comprehensible and clear manner in both general and subject-specific communication. Demonstrate intermediate-level proficiency in written English. (Total tuition time: ± 108 hours)

FOUNDATION PRESENTATION AND REPORTING SKILLS (FPPRS01) **1 X 3-HOUR PAPER**
(Subject custodian: ICT First Years' and Foundation Unit)
Personality types, emotional intelligence, self management, stress and time management, team dynamics, conflict, negotiation and assertiveness, dealing with change, relationship management. Continued training in English communication in order to interpret, relate and reflect on all available and relevant resource material in proper English. Communicate orally in a comprehensible and clear manner in both general and subject-specific communication. Demonstrate intermediate-level proficiency in written English, and critical thinking skills. (Total tuition time: ± 84 hours)

FOUNDATION SYSTEMS SOFTWARE IA (SSF11AF) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
Basic functions of operating systems by using DOS and Windows platforms. Computer architecture, file handling, input/output and maintenance procedures. Additional instructions on A+ Managing and maintaining your PC. (Total tuition time: ± 90 hours)

FOUNDATION SYSTEMS SOFTWARE IB (SSF11BF) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Information Technology)
This subject deals with different aspects and technologies in data communication and networks, including concepts, such as network architecture, transmission, protocols and a number of IEEE standards. This subject includes more practical exercises, assignments and examples to give the students a better understanding. (Total tuition time: ± 90 hours)

FUNCTIONAL MANAGEMENT (FUM101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
A study of the effective management of information systems with the emphasis on the intersection of strategic management and information systems. Students will understand and be able to apply the principles, tools and techniques that are used in IS management situations. (Total Tuition time: not available)

G

GAMES PROGRAMMING IIA (GPM20AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
Students are introduced to games programming techniques and learn how to apply them practically. The emphasis is placed on the design and integration of artificial intelligence engineering for the purpose of controlling virtual-world objects. (Total tuition time: ± 80 hours)

GAMES PROGRAMMING IIB (GPM20BT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
Advanced games programming techniques are applied practically. The application of concepts such as 3D graphics and network synchronisation is explored. The focus is on 3D virtual-world object AI manipulation and more advanced AI techniques. (Total tuition time: ± 80 hours)

GRAPHICAL USER-INTERFACE DESIGN IA (GUI10AT) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Web and Multimedia Computing)
This subject introduces and teaches students Web design concepts and techniques in a Web authoring course that covers HTML and Adobe Dreamweaver. The objective of this course is to present a practical approach to Web design using a blend of traditional development with current technologies, giving students an in-depth understanding of Web design concepts and techniques that are essential to planning, creating, testing, publishing, and maintaining Web sites. Contents include introduction to the Web environment and its tools, Web publish fundamentals, successful planning of Web sites, Typography and graphics, Multimedia and interactivity on the Web and promoting and Maintaining of Web sites. (Total tuition time: ± 80 hours)

GRAPHICAL USER-INTERFACE DESIGN IA (GUI10AB) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Web and Multimedia Computing)
This subject teaches the learner the skills and knowledge to facilitate the alignment of IT and business processes using ICT Web solutions. The content offers creative projects, concise instructions, and a complete coverage of basic and advanced Macromedia Flash 8 skills, helping you to create and publish Flash animation. After completion of the subject students will be able to analyse and design Web solutions to industry related Information Technology problems, utilise the required technical skills to effectively implement the designed solutions in a distributed IT environment. Demonstrate the effective utilisation of business and management skills to bridge the gap between the IT discipline and the business functional areas in industry. (Total tuition time: ± 80 hours)

GRAPHICAL USER-INTERFACE DESIGN IB (GUI10BT) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Web and Multimedia Computing)
This subject teaches the learner the skills and knowledge to facilitate the alignment of IT and business processes using ICT Web solutions. The content offers creative projects, concise instructions, and a complete coverage of basic and advanced Macromedia Flash 8 skills, helping you to create and publish Flash animation. After completion of the subject, students will be able to analyse and design Web solutions to industry related Information Technology problems, utilise the required technical skills to effectively implement the designed solutions in a distributed IT environment. Demonstrate the effective utilisation of business and management skills to bridge the gap between the IT discipline and the business functional areas in industry. (Total tuition time: ± 80 hours)

GRAPHICAL USER-INTERFACE DESIGN IB (GUI10BB) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Web and Multimedia Computing)
This subject introduces and teaches students Web design concepts and techniques in a Web authoring course that covers HTML and Adobe Dreamweaver. The objective of this course is to present a practical approach to Web design using a blend of traditional development with current technologies, giving students an in-depth understanding of Web design concepts and techniques that are essential to planning, creating, testing, publishing, and maintaining Web sites. Contents include introduction to the Web environment and its tools, Web publish fundamentals, successful planning of Web sites, Typography and graphics, Multimedia and interactivity on the Web and promoting and Maintaining of Web sites. (Total tuition time: ± 80 hours)

H

HARDWARE DESIGN IV (HWD401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
An introduction to the methodology of computer hardware design. The problems of current computer hardware design, as well as possible solutions to these problems, are discussed. The focal points are embedded design, PC design and interfacing, the design of logic devices and the use of software support tools for design. (Total tuition time: ± 20 hours)

HUMAN COMPUTER INTERACTION V (HCA501T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Web and Multimedia Computing)
The aim of this subject is to gain advanced knowledge of Human Computer Interaction design and development. Contents include usability goals, usability design and principles, the process of interaction design, prototypes, usability engineering life-cycle model, data gathering, understanding users, activity, designing for collaboration and communication, affective aspects, persuasive technologies, identifying needs and establishing requirements, design, prototyping and construction, introducing evaluation, usability testing and field studies. (Total tuition time: ± 20 hours)

HUMAN COMPUTER INTERFACE DESIGN IV (HCI401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Web and Multimedia Computing)
The aim of the subject is to teach students knowledge and skills require for designing interactive products to support the way people communicate and interact in their everyday and working life. Students should know how to generate user requirement, design, evaluate and implement interactive computing systems for human use with other human factors and ergonomics. The subject's main topics include: the use of general HCI principles to design screens for Windows application and for the Web; understanding users and user-centred design; identifying needs and establishing requirements; doing conceptual design, prototyping and construction of Human Computer interfaces for different types of users, e.g. learning disabled or very young learners; including visualisation and sound in the design process, e.g. for GIS software; data and Video analysis as well as collaborative interface design; Components of interaction design and user experience; understanding users and conceptualising interaction; Social mechanisms in communication and collaboration; expressive interfaces and positive emotions; interface types and interaction; evaluation approaches/methods. (Total tuition time: ± 90 hours)

I

INDUSTRIAL PROJECT IV (IPR410B) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Computer Systems Engineering)
The planning, design and implementation of an industry-related project in which the knowledge acquired in other subjects is applied. (Total tuition time: ± 20 hours)

INDUSTRY EXPOSURE IIIA (IDC30AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Organisational characteristics and behaviour, personal financial skills and techno-entrepreneurship. Ethical and professional conduct in the workplace. (Total tuition time: 6 months)

INDUSTRY EXPOSURE IIIB (IDC30BB, IDC30BC, IDC30BD, IDC30BE, IDC30BF, IDC30BH, IDC30BI) **CONTINUOUS ASSESSMENT**
(Subject custodians: Departments of Computer Science, Computer Systems Engineering, Informatics, Information Technology, Web and Multimedia Computing)
Industry Exposure IIIB is career-orientated and is aimed at integrating academic training with practical skills, as demanded by industry. Students work in industry for six months. (Total tuition time: not available)

INDUSTRY EXPOSURE IIIB (IDC30BT) **CONTINUOUS ASSESSMENT**
Subject custodians: Departments of Software Engineering)
Industry Exposure IIIB is career-orientated work integrated learning aimed at integrating academic learning with practical skills as required by the industry. (No formal tuition)

INFORMATION AND TECHNOLOGY MANAGEMENT IV (ITA401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
The effective management of information systems with the emphasis on the interaction between strategic management and information systems. Students learn to master the principles, tools and techniques that are used in IS management situations. (Total tuition time: not available)

INFORMATION SECURITY IV (ITU401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Information Technology)
Encryption and decryption algorithms, protocols, operating systems, databases and network security. (Total tuition time: ± 20 hours)

INFORMATION SECURITY V (ITU501T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Information Technology)
Advanced network security is covered in this subject. (Total tuition time: not available)

INFORMATION SYSTEMS IA (ISY13AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Web and Multimedia Computing)
The aim of this subject is to introduce the student to the fundamentals of computers and information systems, computer organisation and data processing. Knowledge attained from this forms a foundation to most of their second and third level subjects. The content covered for this subject was carefully selected to introduce all aspects of the different specialisation fields in the ICT faculty which serves as a guideline for the students when they start with their specialisation field in the second level. This course covers a vast spectrum of information, information systems and technology which includes teaching students to become computer literate, understanding parts of the computer, the Use of Internet, building Application Software, Networking and security in the business world. The subject is presented in two modes: Theory classes – to coordinate and integrate learning material, and Practical sessions – for word applications and excel spreadsheets. (Total tuition time: ± 90 hours)

INFORMATION SYSTEMS IB (ISY13BT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Software Engineering)
The basic concepts of system development, data management, management information systems, ethics, privacy and security, purchasing and maintaining microcomputers, number systems and binary logic. Knowledge attained from this subject is used in selecting student's second- and third-level subjects. (Total tuition time: ± 54 hours)

INFORMATION SYSTEMS IIA (ISY23AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Software Engineering)

The subject covers: 1. The five phases of the systems development life cycle (SDLC). 2. How to translate business requirements into information systems that support a company's short- and long-term objectives; 3. How information technology (IT) supports operational and business requirements; 4. How systems analysts interact with users, management, and other IT professionals in typical business environment; 5. Introduction to System Analysis and Design; 6. How to analyse the Business Case, managing Systems Project, Requirements Modeling, and Data and Process Modeling. We also teach some important communication tools and CASE tools a System Analyst can use. (Total tuition time: not available)

INFORMATION SYSTEMS IIA (ISY23AB) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Software Engineering)

An introduction to Oracle and SQL, including tables and views, data manipulation, standard queries, joins, functions, sub-queries and report writing. (Total tuition time: not available)

INFORMATION SYSTEMS IIB (ISY23BT, ISY24BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Software Engineering)

The subject accommodates students from a broad spectrum of disciplines and interest. It includes a theoretical as well as a practical component. This module provides the knowledge and practical skills needed to complete the development and design phases of a commercial system. (Total tuition time: not available)

INFORMATION SYSTEMS IIB (ISY23BB) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Software Engineering)

An overview of information systems, focusing on the systems development life cycle and systems analysis techniques. It also includes topics on client/server architecture. (Total tuition time: not available)

INFORMATION SYSTEMS IIIA (ISY34AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Software Engineering)

The purpose of this subject is: to provide the knowledge and practical skills needed to develop and present a computerised design of the system that students plan and analyse, using a system design and development methodology. 1. Gain a clear understanding of the role of a Systems Analyst and information technology in today's dynamic business environment. 2. In addition, the following are emphasised: identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made; organise and manage activities responsibly and effectively; use science and technology effectively and critically; demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation. (Total tuition time: ± 59 hours)

INFORMATION SYSTEMS IIIA (ISY34AB) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Software Engineering)

A study of the database environment, data concepts and modelling, as well as the design of databases, data administration, advanced database concepts and new developments. (Total tuition time: not available)

INFORMATION SYSTEMS IIIB (ISY34BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Software Engineering)

Its purpose is to introduce students to concepts of project management within an ICT environment. Topics that are covered include: project life cycle, project process groups, project management knowledge areas which include risk, time, cost, and scope management. A student is expected to have knowledge of systems analysis and design in the IT field. On completion students are expected to be competent in project selection, project scheduling using Gantt/PERT charts, project cost estimation and project risk analysis. (Total tuition time: ± 59 hours)

INFORMATION SYSTEMS IIIB (ISY34BB) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Software Engineering)

Project management and software engineering. (Total tuition time: not available)

INFORMATION SYSTEMS TECHNOLOGIES IV (INH401T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Informatics)

Introduction to the technologies that underpin information systems in organisations. (Total tuition time: not available)

INFORMATION TECHNOLOGY SKILLS IA (ITS11AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Thinking skills, learning styles, study skills, research skills, presentation skills, legal issues in IT, communication skills, cultural sensitivity. (Total tuition time: ± 36 hours)

INFORMATION TECHNOLOGY SKILLS IB (ITS11BT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Personality types, emotional intelligence, self-management, stress and time management, team dynamics, conflict, negotiation and assertiveness, dealing with change, relationship management. (Total tuition time: ± 54 hours)

INNOVATION IN IT V (III501T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Computer Science)
Principles of innovation in organisations. Application of IT for effective innovation. Principles of standardisation in IT. Innovation in relation to standardisation. (Total tuition time: not available)

INTELLIGENCE PROGRAMMING IV (ITB401T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Computer Science)
A study of language assessment, artificial intelligence programming and new trends. (Total tuition time: ± 20 hours)

INTELLIGENT INDUSTRIAL SYSTEMS IIA (IIS20AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
A study of system software assembly language and practical projects, using the printer port as PLC. (Total tuition time: ± 80 hours)

INTELLIGENT INDUSTRIAL SYSTEMS IIB (IIS20BT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
A more detailed study of the factory process to determine the controls regarding efficiency and safety of the environment that will have to be placed in the process. (Total tuition time: ± 20 hours)

INTELLIGENT INDUSTRIAL SYSTEMS III (IIS301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
The building of a PLC, including the programming and design. The development and configuration of a PLC operating environment that allows for updates, maintenance and status reporting of a PLC system through remote Internet technologies. (Total tuition time: ± 80 hours)

INTELLIGENT INDUSTRIAL SYSTEMS IV (IIS401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
A study of advanced PLC concepts. (Total tuition time: ± 20 hours)

INTERNET AND INTRANET SECURITY II (IAI201B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Information Technology)
Students acquire the skills required to avoid security breaches and develop strategies for secure systems. (Total tuition time: not available)

INTERNET PROGRAMMING AND E-COMMERCE IV (ITC401T) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Web and Multimedia Computing)
The aim of this course is to introduce students to the Rapid application development with the Ruby on Rails framework and databases for interacting with, and storing data for end users. Topics include Advanced architectural design of e-commerce systems with high availability and scalability, developing front-end/back-end functionality, security/logins, system administration etc. (Total tuition time: ± 30 hours)

INTERNET PROGRAMMING I (ITN101B) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Computer Science)
Students acquire an understanding of the core principles of Java and they learn how to produce well-designed, effective applications using some of the more advanced features of the language. (Total tuition time: not available)

INTERNET PROGRAMMING II (ITN201B) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Web and Multimedia Computing)
Client-side programming using HTML and scripting languages. Advanced client-side programming. (Total tuition time: not available)

INTERNET PROGRAMMING IIA (ITN20AT) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Web and Multimedia Computing)

This subject teaches how to design and develop websites using client side technologies including XHTML, Cascading Style Sheets, and JavaScript. At the end of this subject, students should show the ability to develop interactive client side websites. Contents include: Basic XHTML, Imaging for the web (Image Basics, Raster and vector graphics, Common image formats), Advanced XHTML (Meta Elements, Span and Div elements, Image Maps, Tables, Forms, Frames), Cascading Style Sheets, JavaScript Introduction + Arithmetic, JavaScript Control Structures, JavaScript Functions, JavaScript Arrays, JavaScript Objects, DHTML + DHTML Events model (The on click, on load, on error, Mouse and Form events, Event Bubbling, etc) (Total tuition time: ± 90 hours)

INTERNET PROGRAMMING IIB (ITN20BT) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Web and Multimedia Computing)

This subject teaches how to design and develop and deploy dynamic web applications using server-side technologies namely ASP.NET, c#, IIS /Tomcat server & Database. At the end of this subject, students should show the ability to develop dynamic and interactive 3-tier client-server-database web applications using c# in an ASP.NET development environment. Contents include reasons for using Server-Side Web scripting, Introduction to C#, Exception handling, object oriented programming in C# and the .NET framework; introduction to the Visual Studio IDE and the basic concepts of ASP.NET. (The parts of the IDE and MSDN; ASP.NET files; Web Form Layout; Basic Controls; Master Pages; Code Behind; Post-back), Validation Controls, Login Controls, Menu Controls, State Management, important concepts and classes that are essential for programming ASP. NET applications (HTTP Classes, Application and Session, Page object, Page Lifecycle), theory and practice of SQL using Microsoft SQL Server Express, debugging applications and navigating the integrated SQL Server Express/Visual Studio IDE, the retrieval of data, the insertion of data and the updating/deleting of data from SQL Server Express database. (Total tuition time: ± 90 hours)

INTERNET PROGRAMMING IIIA (ITN30AT) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Web and Multimedia Computing)

This subject teaches how to design and develop and deploy advanced dynamic web applications using server-side technologies including PHP, IIS /Tomcat server & Database. At the end of this subject, students should show the ability to tie together various aspects previously studied in the course of the Diploma in Web Application development and develop dynamic and interactive 3-tier client-server-database web applications. Contents include overview of: Reasons for using PHP, MySQL and, Server-Side Web Scripting, Getting Started with PHP, Adding PHP to HTML, Syntax and Variables, Control and Functions, Passing Information between Pages, Strings, Arrays and Array Functions, Numbers. Advanced contents include: Object-Oriented Programming with PHP, Advanced Array Functions, String and Regular Expression Functions, File system and System Functions, Sessions, Cookies, and HTTP basics, Types and Type Conversions, Advanced Use of Functions, Security, Configuration, Exceptions and Error Handling, Debugging; Choosing a Database for PHP; SQL Tutorial; MySQL Database Administration; PHP/MySQL Functions; Displaying Queries in Tables; Building Forms from Queries; PHP/MySQL Efficiency; PostgreSQL; Oracle; PEAR Database Functions; E-mail; PHP and JavaScript/Java/ XML/Web Services; Graphics; Weblogs; User Authentication. (Total tuition time: ± 90 hours)

INTERNET PROGRAMMING IIIB (ITN30BT) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Web and Multimedia Computing)

The purpose of this course is to introduce students to the various database concepts, the design, implementation and management of a database system, as well as Standard Query Language and the practical application of SQL. The SQL principles will be applied practically in the use of the Oracle SQL courseware and software. The qualifying learner should have a broad understanding of the environment within which the software component of a computer-based system is developed; to enable them, for example, to liaise between end users and system designers/programmers; to recommend particular software packages and to write and modify programmes. The qualifying learner should be able to explain and apply database concepts and approaches to database design. The practical part includes programming with MySQL as a database management system (DBMS). (Total tuition time: ± 90 hours)

INTERNET SYSTEMS ADMINISTRATION II (ISA201B) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Web and Multimedia Computing)

Students acquire the knowledge to manage Internet infrastructures. (Total tuition time: not available)

INTERNETWORKING PRINCIPLES I (IWR101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Web and Multimedia Computing)

Students acquire a thorough understanding of how networks operate. Networks are now a core aspect of every level of computing. The wide acceptance of the Internet means that the smallest business or user of a personal computer has a need to connect one computer to another. (Total tuition time: not available)

IT ELECTRONICS IIA (IIE20AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Computer Systems Engineering)

Basic components of digital circuits, such as NOT, AND and OR gates. The more complex gate and logic functions are built by using these basic components. Boolean algebra and Karnaugh maps are used to simplify functions. Combination logic circuits, including adders, multi-vibrators, comparators, decoders, encoders, multiplexers and de-multiplexers, are discussed. Binary, octal, decimal and hexadecimal number systems are included. Theoretical presentations are supported by practical experiments in a laboratory. (Total tuition time: ± 80 hours)

IT ELECTRONICS IIB (IIE20BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Computer Systems Engineering)

Basic components of sequential circuits, namely latches and flip-flops. More complex memory components, such as adders and registers, are derived from the basic components. Different analogue-to-digital and digital-to-analogue converters are discussed. In the introduction to microprocessor systems, the central processor, memory, ports and interrupts are dealt with. (Total tuition time: ± 80 hours)

IT ELECTRONICS IIIA (IIE30AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Computer Systems Engineering)

The student should show a conceptual understanding of microcomputer systems, including microprocessors, microcomputers, microcontrollers and the MCS-51 family. Memory devices and design. Microcomputer programming. The MCS-51 instruction set, the use of serial and parallel ports, interrupts and timers (counters). The student should be able to perform a variety of tasks relating to the theoretical aspect of the subject, such as operating equipment, programming the 8031 and representing findings in a report. (Total tuition time: ± 80 hours)

IT ELECTRONICS IIIB (IIE30BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Computer Systems Engineering)

The use of a data sheet to control a specific component. Buses, such as the one-wire protocol and the I2C network, are studied. (Total tuition time: ± 80 hours)

IT LAW V (ITW501T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Informatics)

Interpretation and implementation of Bills and Acts relevant to the IT industry, e.g. Electronic Communication and Transaction Act and Access to Information and Privacy Acts. (Total tuition time: not available)

IT MATHEMATICS IA (ITT10AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Mathematics and Statistics)

Basic mathematics. Differentiation. Integration. Matrices and determinants. Vectors. Data handling. Complex numbers or mensuration. (Total tuition time: ± 90 hours)

IT MATHEMATICS IB (ITT10BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Mathematics and Statistics)

Revision of differentiation (Mathematics I). Differentiation of functions with more than one variable. Further integration. Numerical methods. First-order ordinary differential equations. Matrices (Gauss elimination). (Total tuition time: ± 90 hours)

IT SERVICES AND PROJECTS V (SPV501T, SPV511T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Informatics)

Understanding the character of managing IT department offerings. (Total tuition time: not available)

K

KNOWLEDGE MANAGEMENT IV (KNM401T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Informatics)

Introduction to theory of organisations as a foundation for the consideration of knowledge management. Principles and practice of knowledge management in organisations. (Total tuition time: not available)

KNOWLEDGE TECHNOLOGIES IV (KTG401T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Informatics)

Knowledge engineering and technologies underpinning knowledge systems, such as decision support systems, group support systems, expert systems, data warehousing, data mining, document management and information searches. (Total tuition time: not available)

KNOWLEDGE TECHNOLOGIES V (KNT501T, KNT511T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Informatics)
Knowledge engineering and technologies underpinning knowledge systems, such as decision support systems, group support systems, expert systems, data warehousing, data mining, document management and information searches. (Total tuition time: not available)

L

LOGIC DESIGN III (LOD311B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
Logic design using hardware description language (WHDL) to realise logic circuits. (Total tuition time: ± 80 hours)

M

MANAGEMENT INFORMATION SYSTEMS IIA (MIS22AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Information systems for the information age with a practical component in linear programming, Expert Choice and SAS EIS. (Total tuition time: ± 54 hours)

MANAGEMENT INFORMATION SYSTEMS IIB (MIS22BT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Project management with a practical component in MS Project and an advanced Excel assignment. (Total tuition time: not available)

MATHEMATICAL APPLICATIONS III (MMA301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Mathematics and Statistics)
First-order differential equations. Higher-order differential equations. Basic mathematical modeling. Laplace transforms. Systems of differential equations. Numerical solutions of differential equations. Fourier Series. (Total tuition time: ± 90 hours)

MATHEMATICAL APPLICATIONS IV (MMA401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Mathematics and Statistics)
Advanced mathematical concepts are used in complex analysis and transforms. Complex variables. Complex differentiation. Complex integration. Z-transforms. Complex Fourier series. Fourier transforms. Solution of the wave equations. Matrix analysis (single-input-single-output systems). (Total tuition time: ± 70 hours)

MATHEMATICS I (MAT141F) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Mathematics and Statistics)
Basic mathematics. Differentiation. Integration. Matrices and determinants. Vectors. Data handling. Complex numbers or mensuration. (Total tuition time: ± 90 hours)

MATHEMATICS II (MAT251F) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Mathematics and Statistics)
Revision of differentiation (Mathematics I). Differentiation of functions with more than one variable. Further integration. Numerical methods. First-order ordinary differential equations. Matrices (Gauss elimination). (Total tuition time: ± 90 hours)

MULTIMEDIA AND INTERNET IV (MTI401T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Web and Multimedia Computing)
Basics of multimedia technologies and their applications in the context of the Internet. (Total tuition time: not available)

MULTIMEDIA DESIGN IIIA (MMZ30AT) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Web and Multimedia Computing)
The purpose of this subject is to provide overview coverage of advanced design principles and applications. The theory component covers the basic elements and principles of two- and three-dimensional design, cultivate creativity, problem seeking and problem solving and the aspects and elements of time design. The practical component aims to assist in teaching the basics covered in the theory component. Microsoft PowerPoint and Adobe Photoshop will be used as tools. The qualifying learner should be able to explain and apply design elements and concepts and design and develop multimedia solutions by using various technologies and

packages. Content include: design and art theory, design concepts and principles, two-dimensional and three-dimensional design, time design, visual communication, concepts of critical thinking, cultivating creativity and idea forming, presentations skills and design, vector design, script writing, storyboarding and video editing. (Total tuition time: ± 90 hours)

MULTIMEDIA DESIGN IIIB (MMZ30BT) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Web and Multimedia Computing)

The aim of this subject is to teach students the process of creating a video. Qualified students should understand the basics of sound, how to draw sound graphs, how to create a storyboard, and how to edit videos and sounds. Content include: Audacity, Adobe after effects. Advanced content include: Camera skills, storyboarding, use lights in studio, audacity can be used to record sound, modify a sound file which require functions such as cut, copy, paste, and amplify, balancing sound. Adobe after effects allows students to create/modify video files, it requires skills such as importing files, keying, color range, add layers, add text, text effects, fade in/out, and rendering. (Total tuition time: ± 90 hours)

MULTIMEDIA I (MTM101B) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Web and Multimedia Computing)

Exploring the techniques involved in the design of effective multimedia interactive systems. The emphasis is on understanding the concepts of multimedia and their application. (Total tuition time: not available)

MULTIMEDIA I (MTM101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Web and Multimedia Computing)

Exploring the techniques involved in the design of effective multimedia interactive systems. The emphasis is on understanding the concepts of multimedia and their application. (Total tuition time: not available)

MULTIMEDIA PROGRAMMING IIIA (MMX30AT) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Web and Multimedia Computing)

The aim of this course is to expose the student to solving real world problems through the creation of interactive objects, basic interactive solutions, or fully developed 3D simulation applications using EON Studio or EON Professional. With background knowledge in 3D design from earlier modules, students are further introduced to the concept of building low poly models using 3Ds Max, which are then imported into the EON Studio environment to make it functional, real and interactive. Students learn to modify object appearance as well as adding behaviour and interactivity to objects. They learn about the fundamentals of media and applying sound and video elements to a simulation. The student will develop customised EON prototypes as well as learn to apply scripting to enhance interactive simulations using JScript. When completed, the student should be well equipped to create visually stimulating interactive applications for use in the sciences, medicine, entertainment, engineering and educational fields. These applications, including virtual reality, simulations and games help to bring real or imaginary objects to life. (Total tuition time: ± 90 hours)

MULTIMEDIA PROGRAMMING IIIB (MMX30BT) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Web and Multimedia Computing)

This subject teaches how to design and develop and deploy advanced dynamic web applications using server-side technologies including PHP, IIS /Tomcat server & Database. At the end of this subject, students should show the ability to tie together various aspects previously studied in the course of the Diploma in Web Application development and develop dynamic and interactive 3-tier client-server-database web applications. Contents include overview of: Reasons for using PHP, MySQL and, Server-Side Web Scripting, Getting Started with PHP, Adding PHP to HTML, Syntax and Variables, Control and Functions, Passing Information between Pages, Strings, Arrays and Array Functions, Numbers. Advanced contents include: Object-Oriented Programming with PHP, Advanced Array Functions, String and Regular Expression Functions, File-system and System Functions, Sessions, Cookies, and HTTP basics, Types and Type Conversions, Advanced Use of Functions, Security, Configuration, Exceptions and Error Handling, Debugging; Choosing a Database for PHP; SQL; MySQL Database Administration; PHP/MySQL Functions; Displaying Queries in Tables; Building Forms from Queries; PHP/MySQL Efficiency; PostgreSQL; Oracle; PEAR Database Functions; E-mail; PHP and JavaScript/Java/XML/Web Services; Graphics; Weblogs; User Authentication. (Total tuition time: ± 90 hours)

MULTIMEDIA PROGRAMMING IV (MMX401T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Web and Multimedia Computing)

This subject deals with advanced concepts in computer animation. The topics covered are motion capture and advanced principles of animation, and scripts and production documentation for animated productions. After completing this module, the student will be able to discuss motion capture, discuss the technical principles of animation in-depth and prepare for motion capture or animation sessions by analysing scripts and preparing

supporting documentation and setup a production pipeline. In addition, the student will practice some practical aspects of the multimedia production process. (Total tuition time: not available)

MULTIMEDIA TECHNOLOGY IIA (MMN20AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Web and Multimedia Computing)
The purpose of this subject is to introduce the student to the various multimedia elements, digital still image photography and digital editing skills. The learner will be competent in all multimedia concepts and have a solid foundation in the planning process and design considerations, while covering industry standard applications and emerging technologies. The learner will also be competent in digital photography capturing, editing, manipulation and application. This subject consists of two components over one semester. The theory component covers the most essential multimedia concepts for the Web, planning the multimedia Web site, designing the user interface and the five multimedia elements: text, graphics, animation, sound, and video. The practical component consists of basic digital photography and digital editing skills using Adobe Photoshop CS as a tool. (Total tuition time: ± 90 hours)

MULTIMEDIA TECHNOLOGY IIB (MMN20BT) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Web and Multimedia Computing)
The aim of this subject is to introduce the virtual world to students. Students will create any objects in 3D with 3D's Max, as well as animation. Students should have the ability to create virtual 3D objects as well as animation which can be applied to virtual reality or create a gaming character with animation. Content include: Complete coverage of 3Ds' Max, various modeling skills as well as character animation. Advanced content include: model an object, create lights, create background images, apply material to an objects, effects on the material, generate path for an object, creating bone objects to characters, apply animation to character, and render a scene to a video file. (Total tuition time: ± 90 hours)

N

NETWORK COMMUNICATION SYSTEMS MANAGEMENT III (NCS302T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Information Technology)
Building on earlier knowledge and equipping students with the knowledge and skills to communicate effectively with both technical and managerial staff in a communications systems context. (Total tuition time: not available)

NETWORK SUPPORT I (NST101B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Information Technology)
Networks, while once used widely in large organisations only, now form an integral part of every area of computing. The widespread acceptance of the Internet means that the smallest business or personal user of a computer has a need to connect one computer to another. This subject teaches students to fulfil that need and to cover all the common aspects of networking. (Total tuition time: not available)

NETWORK SYSTEMS II (NSY211T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of information Technology)
This subject covers various aspects and technologies involved in data communications and networking. Students are introduced to topics, such as network topologies, transmission fundamentals, contention protocols, data compression techniques, data security and integrity, flow-control protocols and the various IEEE standards. The subject is aimed at giving students a solid understanding of local area networks (LANs), although aspects of wide area networks (WANs) are also covered briefly. (Total tuition time: ± 80 hours)

NETWORK SYSTEMS III (NSY311T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Information Technology)
TCP and related protocols. The practical component concentrates on the application protocol of TCP/IP. (Total tuition time: ± 80 hours)

NETWORK SYSTEMS IV (NSY401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Information Technology)
Wireless networks, which include spread-spectrum analyses, roaming and hand-over. (Total tuition time: ± 20 hours)

NETWORKS AND DISTRIBUTED SYSTEMS IV (NDS401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
Technologies and methodologies underpinning the design and development of networked and distributed information systems. (Total tuition time: not available)

NETWORKS IV (NWS421T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Information Technology)
A study of advanced network management. (Total tuition time: not available)

NEURAL NETWORKS V (NEU501T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Computer Systems Engineering)
Genetic algorithms and the application of neural networks in different environments. (Total tuition time: not available)

NEW TECHNOLOGY PROGRAMMING IV (NTP401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Science)
AIM/PURPOSE: To expose students to a programming paradigm not covered by typical application design strategies. OBJECTIVE: The learner must be able to identify mobile agents from similar technologies, create a mobile agent solution, understand the privacy and security concerns related to mobile agents and theorise on improvements which can be brought to bear on this paradigm. KEY TOPICS: Software agents, Intelligent Agents, AI, Relocatable code, RPC's, RMI's, Process Migration, Execution environments, Killer Apps. (Total tuition time: ± 20 hours)

O

OBJECT-ORIENTATED PROGRAMMING METHODS II (OOP201B) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Computer Science)
Students are exposed to extensive coverage of the three basic programming structures. (Total tuition time: not available)

OPERATING SYSTEMS III (OSY301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
The development of the operating system as a control programme and resource manager. Principles to take into consideration when designing a modern operating system, such as memory management, process management, scheduling and input/output. The LINUX operating system. CPU scheduling, parallelism, secondary memory management, LINUX applications. (Total tuition time: ± 80 hours)

OPERATING SYSTEMS IV (OSY431T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
The main objective of this subject is to design and program a simple operating system (using layered technology), programmed in Assembler, C or C++ programming languages. The simple operating system will have a programmed boot process (written in Assembler only), a kernel (can be written in Assembler, C or C++ combination), file system (can be written in Assembler, C or C++ combination), and command interpreter or shell (can be written in Assembler, C or C++). Students should have prior (and solid) knowledge of operating systems and C or C++ programming language before embarking on this subject. The subject starts off with a revision of Assembler programming only. No revision of C or C++ is done, as this is required from students. When time permits, advanced concepts (in theory only), such as memory management, process management and process scheduling, as well as types of operating systems, such as distributed, parallel, embedded and/or real-time operating systems, are evaluated theoretically. (Total tuition time: ± 26 hours)

OPERATIONAL RESEARCH III (ORS311T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Science)
AIM/PURPOSE: To introduce students to the scientific approach to solving management science problems. OBJECTIVES: To be introduced to linear programming processes, Network modules, Queuing and decision analysis, Project scheduling, decision theory, forecasting, queuing models, simulation, inventory control. KEY TOPICS: Linear Programming, Distribution and assignment problems, Network Modules, Project scheduling. (Total tuition time: ± 72 hours)

P

PC SUPPORT I (PUZ101B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
The A+ (PC Support) syllabus gives students a thorough understanding of the technical and practical skills involved in PC technical support and is divided into two distinct parts, namely hardware and software support. (Total tuition time: not available)

PERSONAL ATTRIBUTES/REFLECTION ON PRACTICES IV (PAA401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Science)
Attributes, skills and tools for delivering service in network environments. (Total tuition time: not available)

PRACTICAL BUSINESS PROJECT I (PBB101B) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Computer Science)
Students are given practical experience in the application of the subjects studied as electives. All work for a project should be additional to any work done for the subject or as an assignment. (Total tuition time: not available)

PRACTICAL BUSINESS PROJECT II (PBB201B) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Computer Science)
Students are given practical experience in the planning, analysis, design, documentation and (as far as possible) development, testing, implementation and project management of a computer-based system to enable them to play a significant role in a systems development project. (Total tuition time: not available)

PRINCIPLES OF ENQUIRY AND THE FUTURE OF IT IV (PAB401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Science)
Analysing the future possibilities of IT and how the principles of enquiry can operate in such an environment. (Total tuition time: not available)

PRINCIPLES OF RESEARCH IV (PAJ411T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Software Engineering)
Basics of paradigms, methodologies, and techniques of research in the behavioural sciences and their application in information technology. (Total tuition time: ± 40 hours)

PROFESSIONAL PRACTICE PROJECT IV (PPJ400T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Computer Science)
Managing the development of information systems and the specification and design of network systems. (Total tuition time: not available)

PROFESSIONAL SYSTEMS ENGINEERING IV (PRZ401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Science)
Managing the development of information systems. Specification and design of networks. (Total tuition time: not available)

PROFESSIONAL SYSTEMS ENGINEERING V (PRV511T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Computer Science)
Knowledge and skills required to manage the development of IS by using workgroup products, ERP systems, customer relations, supply chain and quality management. (Total tuition time: not available)

PROGRAMMING CONCEPTS I (PGC101T) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Computer Science)
Java has become an important language for programming on the Internet and, in particular, for website development. For anyone planning a career in this area, knowledge of Java is essential. This module equips students with an understanding of the core principles of Java and introduces well-designed, effective applications that use some of the more advanced features of the language. (Total tuition time: not available)

PROGRAMMING I (PGG111T) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Computer Science)
AIM/PURPOSE: To introduce students to the scientific approach to solving management science problems. OBJECTIVES: To be introduced to linear programming processes, Network modules, Queuing and decision analysis, Project scheduling, decision theory, forecasting, queuing models, simulation, inventory control. KEY TOPICS: Linear Programming, Distribution and assignment problems, Network Modules, Project scheduling. (Total tuition time: ± 72 hours)

PROGRAMMING II (PGG211T) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Computer Science)
AIM/PURPOSE: The aim of this subject is to cover advanced OOP (Object Oriented Programming) principles, including inheritance and abstract programming, as well as other advanced concepts in C++. OBJECTIVES: To enable students to be able to create and manipulate one- and two-dimensional arrays, manipulate a collection of characters as strings, Read and write data from text files, Apply advanced class features. KEY TOPICS:

One- and Two-Dimensional Arrays, Strings and Character Manipulation, Text Files, Additional Class Features, Inheritance, Polymorphism, Dynamic Memory Allocation. (Total tuition time: ± 72 hours)

PROGRAMMING III (PGG311T) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Computer Science)
AIM/PURPOSE: The student is introduced to a modern C++ Rapid Application Development Tool for Win32 with the purpose of creating a human interface for pre-engineered C and assembly applications. OBJECTIVE: Through the approach of problem solving the student will be confronted with industrial challenges to be solved inside the framework of the current GUI environment. Manipulation of standard Windows components, graphical images, multiple forms, grid structures, selection structures, menu systems, dynamically created objects. The integration of C as well as assembly language routines including pre-manufactured as well as self-manufactured objects. A medium sized C++ GUI project is expected to be completed towards the end of the semester. KEY TOPICS: Advanced OOP, C++, C, ASM, Dynamic object instantiation, Event driven Programming, Back-end classes, Strategic solution planning, Systematic program design, Flat file data handling. (Total tuition time: ± 72 hours)

PROJECT IV (PJT410B, PJT410C, PJT410D, PJT410E, PJD410F, PJT410H, PJT410I, PJT410J) **CONTINUOUS ASSESSMENT**
(Subject custodians: Department of Software Engineering, Informatics and Information Technology)
The subject focuses on IT research and the application of research paradigms, methodologies and research techniques in the IT environment. (Total tuition time: not available)

PROJECT MANAGEMENT IV (PJG401C) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Advanced topics in project management are covered. The subject builds on the traditional PMBOK knowledge by giving the fourth-year IT student an in-depth understanding of project management in the IT industry. (Total tuition time: not available)

PROJECTS I (PJT101B) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Computer Systems Engineering)
Use of instruments and equipment, such as multimeter, oscilloscope, power supply and function generator. Measurement of alternating and direct current, voltage and frequency. Component identification, application, measurement and testing. Reading basic schematic diagrams. Construction and testing of an electronic project. Stripping and insulating conductors. Writing and placing components. Basic health and safety. Laboratory policies and procedures. Basic hand skills such as soldering, metal working including drilling. Building of a project into an enclosure. Web programming using appropriate Web system engineering environment such as http/html/php/MySqL/FORMS, which includes direct socket connections. (Total tuition time: ± 70 hours)

R

RESEARCH IN BUSINESS INFORMATION SYSTEMS V (RMD511B) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Informatics)
It covers the basics of paradigms, methodologies, and techniques of research. Also how to conceptualise and plan research, and structure and complete a research-based project in the form of a dissertation or thesis. It provides a holistic overview of the research process and practical methods of implementing the knowledge obtained in the business information systems industry or environment. (Total tuition time: not available)

RESEARCH IN INFORMATION NETWORKS V (RMD511C) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Computer Science)
AIM/PURPOSE: To introduce the basics of paradigms, methodologies, and techniques of scientific research. OBJECTIVES: To provide a holistic overview of the research processes, be able to write a good research proposal and to implement it into a form of a dissertation. (Total tuition time: ± 20 hours)

RESEARCH IN PROFESSIONAL PRACTICE IN INFORMATION TECHNOLOGY V (RMD511D) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Computer Science)
It covers the basics of paradigms, methodologies, and techniques of research. Also how to conceptualise and plan research, and structure and complete a research-based project in the form of a dissertation or thesis. It provides a holistic overview of the research process and practical methods of implementing the knowledge obtained in the information technology industry or environment. (Total tuition time: not available)

S

SOFTWARE ENGINEERING III (SFE311T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Software Engineering)
The technical concepts, methods and measurements that are applicable to the analysis, design and testing of object-orientated software are studied in detail. Concepts, such as the planning and management of object-orientated software projects. Object-orientated analysis by using UML. (Total tuition time: ± 80 hours)

SOFTWARE ENGINEERING V (SFE501T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Software Engineering)
Development of high-level business processes by using UML, cost and risk management and team organisation. (Total tuition time: not available)

SOFTWARE ENGINEERING METHODS III (SWG302T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Software Engineering)
Students acquire experience of large-scale software development. The emphasis is on the individual working as a member of a team. (Total tuition time: not available)

SOFTWARE-INTENSIVE SYSTEMS PROJECT MANAGEMENT IV (SIS401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Investigating how the different systems can support management. (Total tuition time: not available)

SOFTWARE REQUIREMENTS AND DESIGN IV (SRN401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Software Engineering)
Software engineering subject that concentrate on software requirements, software design, software construction and software testing knowledge area in addition to software project management. (Total tuition time: ± 26 hours)

SOFTWARE SYSTEMS IV (SWS401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Software Engineering)
The subject focuses on the techniques for maintenance, software configuration management, and software engineering process and software quality. (Total tuition time: ± 26 hours)

STRATEGIC BUSINESS ANALYSIS AND MODELLING V (SBG500T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Informatics)
Exploring issues surrounding the application of IT in order to define and implement strategic objectives. Reflecting on the purpose of strategic analysis, strategic planning and the application of tools and techniques during this process. (Total tuition time: not available)

STRATEGIC BUSINESS ANALYSIS IV (SBA401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Science)
Information is viewed as a strategic resource which involves the role of COI, strategic planning, aspects of ICT project management, management issues of outsourcing, ethical, and security and privacy issues. (Total tuition time: not available)

STRATEGIC INFORMATION SYSTEMS IV (STV401B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Not available. Please contact the Head of the Department.

STRATEGIC INFORMATION SYSTEMS IV (STV401T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Informatics)
A study of advanced strategic information systems. (Total tuition time: not available)

STRUCTURED PROGRAMMING METHODS I (STU101B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Science)
Students acquire a thorough understanding of the key concepts, techniques and methods that have emerged over time as programming has evolved into a process with increasingly formalised approaches. This subject focuses on the development of transferable ideas and skills, and is not language-specific. (Total tuition time: not available)

SUPPORT SERVICES IIA (SUS20AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Information Technology)
Building on knowledge gained from Information Systems I and System Software I, the emphasis is on Microsoft Windows 2000. This subject partially corresponds to the Comptia A+ Operating Systems Certification programme. Students acquire hands-on experience in assembling and repairing personal computers. (Total tuition time: not available)

SUPPORT SERVICES IIB (SUS20BT) **1 X 3-HOUR PAPER**
(Subject custodian: *Department of* Information Technology)
An introduction to the fundamentals of customer support, helpdesks and support centres. The emphasis is on how excellent customer support can be obtained through implementing the desired components in a helpdesk or a support centre environment. (Total tuition time: not available)

SUPPORT SERVICES IIIA (SUS30AT) **1 X 3-HOUR PAPER**
(Subject custodian: *Department of* Information Technology)
This subject introduces the concepts of administering a windows 2000 Active Directory server. This subject partially corresponds to the MCSE Certification program. (Total tuition time: ± 80 hours)

SUPPORT SERVICES IIIB (SUS30BT) **1 X 3-HOUR PAPER**
(Subject custodian: *Department of* Information Technology)
This subject offers the necessary skills to harden a Windows XP client machine and a Windows 2000 Active Directory server. This subject partially corresponds to the Security+ Certification program. (Total tuition time: ± 80 hours)

SUPPORT SERVICES IV (SUS401T) **1 X 3-HOUR PAPER**
(Subject custodian: *Department of* Information Technology)
Scriptings, solutions and technologies for systems software. (Total tuition time: not available)

SYSTEM SOFTWARE IA (SSF1AT) **1 X 3-HOUR PAPER**
(Subject custodians: Departments of Computer Systems Engineering)
This subject deals with different aspects and technologies in data communication and networks, including concepts such as network architecture, transmission, protocols and a number of IEEE standards. (Total tuition time: ± 54 hours)

SYSTEM SOFTWARE IB (SSF1BT) **1 X 3-HOUR PAPER**
(Subject custodians: Departments of Information Technology)
Basic functions of operating systems are dealt with by DOS and Windows platforms. (Total tuition time: ± 54 hours)

SYSTEM SOFTWARE IIA (SSF24AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
Students are introduced to the basic system administration knowledge of Red Hat Linux, as well as to network administration in the Linux environment. (Total tuition time: ± 78 hours)

SYSTEM SOFTWARE IIB (SSF24BT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
Network concepts defined in System Software I will be further explored. The emphasis is on the TCP/IP protocol suite and services, and building a TCP/IP network. LAN and WAN infrastructures, remote networking, network security and disaster recovery form an integral part of this module. (Total tuition time: ± 78 hours)

SYSTEM SOFTWARE IIIA (SSF30AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
Exposure to the latest enterprise operations systems, including Microsoft technologies. (Total tuition time: not available)

SYSTEM SOFTWARE IIIB (SSF30BT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Systems Engineering)
Design and implementation of a basic operating system. (Total tuition time: not available)

SYSTEMS ANALYSIS II (SYA202B) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Software Engineering)
Students acquire the technical, interpersonal and administrative skills that are required for systems analysts. (Total tuition time: not available)

SYSTEMS ANALYSIS II (SYA201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Software Engineering)

A detailed study of the five phases of the systems development life cycle (SDLC), giving the student an in-depth understanding of how information technology supports operational and business requirements in today's competitive environment. The importance of communication, economic analysis and project planning skills in all phases of the SDLC is discussed. (Total tuition time: ± 80 hours)

SYSTEMS DESIGN II (BSD201B) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Software Engineering)

Students acquire the technical, interpersonal and management skills that are required for systems designers. Students will be able to select and use appropriate systems design techniques and tools, introduce controls to ensure availability, integrity and privacy of systems, and plan the implementation of systems. (Total tuition time: not available)

SYSTEMS DEVELOPMENT I (SYD101B) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Computer Science)

Students acquire the knowledge of the methods, disciplines, techniques and skills used by IT systems to development teams. This provides them with a thorough appreciation of how such teams operate. (Total tuition time: not available)

SYSTEMS DEVELOPMENT IV (SYD401T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Informatics)

Methodology and techniques of design and development of information systems. (Total tuition time: not available)

SYSTEMS ENGINEERING IV (SYE401T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Software Engineering)

The subject focuses on system engineering concepts, system engineering life cycle management, requirements, system design, integration and verification, integration and verification, transition and validation, operation, maintenance and support. (Total tuition time: ± 26 hours)

SYSTEMS ENGINEERING SOLUTIONS V (SOL501T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Computer Science)

AIM/PURPOSE: To introduce students to the various aspects of SOA. OBJECTIVE: On completion of the module, the students should acquire the knowledge and skills required to manage an SOA project. Have an understanding of the security concerns, activity management, composition, transaction management, and Service modelling. (Total tuition time: ± 20 hours)

SYSTEMS SOFTWARE IA (SSF11AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Computer Systems Engineering)

This subject deals with different aspects and technologies in data communication and networks, including concepts such as network architecture, transmission, protocols and a number of IEEE standards. (Total tuition time: ± 54 hours)

SYSTEMS SOFTWARE IB (SSF11BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of information Technology)

Basic functions of operating systems are dealt with by using DOS and Windows platforms. (Total tuition time: ± 54 hours)

T

TASK MANAGEMENT IV (TKM401T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Informatics)

The operations of IT management. (Total tuition time: not available)

TASK MANAGEMENT V (TKM501T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Informatics)

Students acquire the knowledge and skills to handle the uncertainty of task management with specific reference to the features of information systems projects. Assessment of human behaviour and communication. (Total tuition time: not available)

TECHNICAL PROGRAMMING IA (TPG11AT, TPG12AT, TPG14AT) 1 X 4-HOUR COMPUTER-BASED
(Subject custodian: Department of Computer Science)
Basic to intermediate technical programming. An introduction to object-orientated programming, basic control structures and stream manipulation. (C++, JAVA and Visual Basic). (Total tuition time: ± 78 hours)

TECHNICAL PROGRAMMING IB (TPG11BT, TPG12BT, TPG14BT) 1 X 4-HOUR COMPUTER-BASED
(Subject custodian: Department of Computer Science)
Advanced object-orientated concepts, including inheritance, polymorphism, exception handling and stream manipulation. (Total tuition time: ± 80 hours)

TECHNICAL PROGRAMMING II (TPG201T) 1 X 4-HOUR COMPUTER-BASED
(Subject custodian: Department of Computer Science)
Development of applications for a graphic windows environment. (Total tuition time: ± 80 hours)

TECHNICAL PROGRAMMING IIA (TPG20AT, TPG21AT) 1 X 4-HOUR COMPUTER-BASED
(Subject custodian: Department of Computer Science)
AIM/PURPOSE: The student is introduced to a modern C++ Rapid Application Development Tool for Win32 with the purpose of solving every day programming challenges. OBJECTIVE: Through the approach of problem solving the student will be confronted with industrial challenges to be solved inside the framework of the current GUI environment. More complex manipulations of standard Windows components form the basis of the course, e.g. graphical images, multiple forms, grid structures, selection structures, menu systems, and dynamically created objects. The course is completely OOP compliant and includes pre-manufactured as well as self-manufactured objects interacting. A medium sized C++ project ready to be sold is expected to be completed towards the end of the semester. KEY TOPICS: Advanced OOP, C++, Dynamic object instantiation, Event driven Programming, Back-end classes, Strategic solution planning, Systematic programme design, Flat file data handling. (Total tuition time: ± 72 hours)

TECHNICAL PROGRAMMING IIB (TPG20BT, TPG21BT) 1 X 4-HOUR COMPUTER-BASED
(Subject custodian: Department of Computer Science)
AIM/PURPOSE: This subject covers Data Driven application development in the Embarcadero RAD Studio (C++ Builder) environment, focusing on two-tier and three-tier applications. OBJECTIVE: Analyse and design software solutions to industry related Information Technology problems, utilise the required technical skills to effectively implement the designed solutions in a distributed IT environment, utilise the required technical skill to design and implement DB-solutions across different operating systems and demonstrate the effective utilisation of programmers teaming up to develop a DB system efficiently. KEY TOPICS: Relational database application development, defensive programming, SQL implementation, triggers, events, implementation of data structures, advanced methods in data aware application development. (Total tuition time: ± 72 hours)

TECHNICAL PROGRAMMING IIIA (TPG30AT) 1 X 4-HOUR COMPUTER-BASED
(Subject custodian: Department of Computer Science)
AIM/PURPOSE: To introduce the students to advance features of Mobile Device programming. The students create messaging applications such as Email, SMS and MMS. OBJECTIVES: To create a mobile application using some of the optional packages as well as MIDP2.1; To be able to read and write to a file using FileConnection; To be able to use HttpConnector to send and receive data over the internet. KEY TOPICS: Wireless Messaging API to send and receive a SMS and a MMS, Mobile messaging Applications – Email, PIM, Access to backend Databases. (Total tuition time: ± 72 hours)

TECHNICAL PROGRAMMING IIIB (TPG30BT) 1 X 4-HOUR COMPUTER-BASED
(Subject custodian: Department of Computer Science)
AIM/PURPOSE: This module focuses on introducing students to Web components using Java servlet/JSP technologies. To create a web application using Servlets and JSPs. OBJECTIVES: Understand Servlet and JSP life cycle, understand the Server setup (Tomcat). Handling client requests; Generating Server response; Handling Cookies; JSP tags and page directives. KEY TOPICS: Servlet API, JSP directives, Server setup, Redirect and Dispatcher, Cookies and JSP page directives. (Total tuition time: ± 72 hours)

TECHNICAL PROGRAMMING IV (TPG401T) 1 X 4-HOUR COMPUTER-BASED
(Subject custodian: Department of Computer Science)
AIM/PURPOSE: To introduce the students to the creation and design of software systems to support interoperable machine-to-machine interactions over a network. OBJECTIVE: To introduce students to Web services architecture, anatomy of WSDL document, SOAP-RPC, SOAP format, SOAP fault and extensions, overview of UDDI. KEY TOPICS: SOA, WSDL, SOAP, Restful Web services, UDDI. (Total tuition time: ± 20 hours)

U

USER-INTERFACES IV (UIF401B, UIF401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Web and Multimedia Computing)
Interface standardisation, computer graphics, computer user interfaces and I/O peripherals. (Total tuition time: not available)

V

VISUAL PROGRAMMING I (VIS101B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Science)
Students acquire a firm foundation and knowledge of the Visual Basic programming environment based on sound programming techniques. (Total tuition time: not available)

VISUAL PROGRAMMING II (VIS201B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Science)
Students acquire in-depth knowledge of advanced programming design in Visual Basic. (Total tuition time: not available)

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WEB DATABASES I (WDS101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Software Engineering)
A study of database principles and distributed databases. (Total tuition time: not available)

WEB MANAGEMENT IIA (WEB20AT) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Web and Multimedia Computing)
The aim of this subject is to introduce the students to the basics of Server and Web server Management, Installation and configuration of Web Servers. The course exposes students to Microsoft and Linux server environments, Installing and testing web server programming environment, maintaining security, controlling access to network resources and monitoring network systems. Knowledge gained from this subject forms a foundation to an understanding of Website hosting and development which makes up the core of second and third level subjects. On completing the course, the student will be able to understand the difference between Servers and Web Servers, distinguish between the roles of Server Administrators and web server administrators, distinguish between static and dynamic web servers, identify the importance of and distinguish between Client and server side scripting languages. They should be able to install, configure, and host single or multiple websites using IP address, Port number or based on Host name. (Total tuition time: ± 90 hours)

WEB MANAGEMENT IIB (WEB20BT) **1 X 4-HOUR COMPUTER-BASED**
(Subject custodian: Department of Web and Multimedia Computing)
The aim of this subject is to teach students how to create interactive Websites from the simplest form through to complex, secure e-commerce sites using both open source and commercial technologies such as Dreamweaver, PHP and MySQL. The subject will take a learner through the planning, design and building of web projects such as the following: User authentication and personalisation; Shopping carts; Content Management Systems (CMS); Web based email; Mailing list managers; web forums; pdf document generation; Web services with XML and SOAP. Upon completion of this subject the student should be able to: embed PHP in HTML and add dynamic content to a website; understand the web architecture and how file systems and MySQL database fits in; effectively use MySQL and PHP to create database users and assign permissions, create databases, tables and indexes, populate the database, query the database from the web interface. Specific contents include PHP crash course, storing and retrieving data using files, String manipulation and regular expressions, Reusing code and writing functions, Interacting with the server and file system, using network and protocol functions, designing and creating web database, accessing MySQL database from the Web with PHP. (Total tuition time: ± 90 hours)

WEB MANAGEMENT IIIA (WEB30AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Web and Multimedia Computing)

The aim of the subject is to teach students strategies for developing highly ranked search engine website, by optimising the use of website development elements and the general management of website. Students should be able to distinguish between different types of available search engines and understand website goal conversion. The subject's main topics include: Components of search engine; understanding search engine optimisation; Website search strategies; managing website contents; evaluation approaches and methods. (Total tuition time: ± 90 hours)

WEB MANAGEMENT IIIB (WEB30BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Informatics)

Introduction to e-commerce and the changing e-business environment, focusing on strategy, technology, policy and financing in the networked economy. Practical component: creation of an e-commerce application. (Total tuition time: not available)

WEB MANAGEMENT IV (WEM401T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Web and Multimedia Computing)

This subject focuses on Programming web services. Topics include the Semantic Web stack, XLM and RDF, ontologies, software agents and their use on the Semantic Web, symmetric and asymmetric cryptography works. (Total tuition time: ± 30 hours)

WEB PROJECT I (WEP101T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Web and Multimedia Computing)

An integrated project covering website design, security and programming. (Total tuition time: not available)

WEBSITE DESIGN I (WSN101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Web and Multimedia Computing)

The emphasis is on the technical skills required to create and manage a website. It will enable students to design and build relatively complex websites, based on sound design and business principles. (Total tuition time: not available)

WEBSITE DEVELOPMENT I (WEV101B) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Web and Multimedia Computing)

Students are equipped with the knowledge and skills to design and build relatively complex websites based on sound design principles. They will be able to demonstrate both practical skills, such as website construction using HTML, and an understanding of the use of websites as a business tool. (Total tuition time: not available)

WEBSITE SECURITY I (WSS101T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Information Technology)

Students acquire knowledge and understanding of e-commerce from a security risk management and control perspective, including cryptography, firewalls and intelligent agents. (Total tuition time: not available)