NATIONAL DIPLOMA: INFORMATION TECHNOLOGY: BUSINESS APPLICATIONS
(Extended curriculum programme with foundation provision)
Qualification code: NDIBF1 - NQF Level 6

Campus where offered:	Soshanguve South Campus (day classes offered during the week and on Saturdays)
Last year of new intake:	2019
Teach-out (phase-out) date:	31 December 2024

Students registered for this qualification should complete their studies according to the teach-out date prescribed for the qualification, subject to the stipulations of Regulation 3.1.11 and 3.1.13 in the Students' Rules and Regulations.

Information on phased-out programmes can be obtained from the TUT website, www.tut.ac.za.

CURRICULUM
Consult the 2019 Faculty Prospectus for the full contents of the qualification.

Please note that students will register for all first- and second-year subjects under qualification code NDITF1.

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
FIRST SEMESTER			
FPALS01	Foundation Academic and Language Skills	(0,125)	
FPITM01	Foundation ICT Mathematical 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 FIRST YEAR:		**0,500**	

SECOND YEAR
After completion of all first-year subjects.

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
FIRST SEMESTER			
CFS10AT	Computing Fundamentals IA	(0,062)	
CGS10AT	Computing Systems IA	(0,062)	
CMK10AT	Computing Skills IA	(0,063)	
DSO17AT	Development Software IA	(0,063)	
TOTAL CREDITS FOR THE SEMESTER:		0,250	

SECOND SEMESTER

CFS10BT	Computing Fundamentals IB	(0,062)	
CGS10BT	Computing Systems IB	(0,062)	
CMK10BT	Computing Skills IB	(0,063)	
DSO17BT	Development Software IB	(0,063)	Development Software IA
TOTAL CREDITS FOR THE SEMESTER:		0,250	
TOTAL CREDITS FOR THE SECOND YEAR:		**0,500**	

As from the third year, a student will register for the specialisation field: Business Applications (NDIBF1).

THIRD YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
FIRST SEMESTER			
ACS11AT	Accounting Skills IA	(0,125)	
BUA20AT	Business Analysis IIA	(0,125)	Computing Fundamentals IB Computing Skills IA Computing Skills IB
DSO23AT	Development Software IIA	(0,125)	Development Software IB
ISY23AT	Information Systems IIA	(0,125)	Computing Fundamentals IB
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 THIRD YEAR:		**1,250**	

FOURTH YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
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 that subject and Industry Exposure IIIB with the approval of the Head of Department.

IDC30BB	Industry Exposure IIIB	(0,125)
TOTAL CREDITS FOR THE SEMESTER:		0,125
TOTAL CREDITS FOR THE FOURTH YEAR:		**0,750**
TOTAL CREDITS FOR THE QUALIFICATION:		**3,000**

SUBJECT INFORMATION (OVERVIEW OF SYLLABUS)

The syllabus content is subject to change to accommodate industry changes. Please note that a more detailed syllabus is available at the Department or in the study guide that is applicable to a particular subject. At time of publication, the syllabus content was defined as follows:

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 students 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)

B

BUSINESS ANALYSIS IIA (BUA20AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
The student who successfully completes this subject must be able to identify problems and provide creative solutions, apply the appropriate techniques within a team environment; organise and manage their workload in order to meet deadlines; develop a comprehensive business plan for starting up a business in the micro/macro business environment; and identify different communicate protocols that people use at different levels within the project. (Tuition time: ± 60 hours)

BUSINESS ANALYSIS IIB (BUA20BT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
The student who successfully completes this subject should demonstrate knowledge and understanding of the nature of Electronic Commerce and have appreciation of various applications of E-commerce in real life situation by identifying and explaining the principles of E-commerce; identifying and implementing the various e-commerce technology and infrastructures; applying the various selling and marketing strategies on the web, identifying and applying the various business strategies, identifying the e-commerce environment; differentiating between the web server hardware and software; and identifying and explaining the various software, security, payment systems and plans for e-commerce. (Tuition time: ± 60 hours)

BUSINESS ANALYSIS IIIA (BUA30AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
This subject is an in-depth study into object-orientated system analysis and design using the Unified Process. Students will be able to analyse and design the basic models/diagrams of any business system requirements using the Unified Modeling Language. Students who successfully completes this subject must identify and explain the unified process life cycle and methodology, analyse and construct the various UML models based on real life-scenarios, and revise and enhance the models based on user interface layer design, system interface, control, and security design and data access layer. (Tuition time: ± 60 hours)

BUSINESS ANALYSIS IIIB (BUA30BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Informatics)

Business analysis methods apply statistical methods and operational research and their application in the business environment. Students will be able to analyse data using statistical tools and techniques and then interpret the results for the business. The student who successfully completes this subject must identify and explain the various statistical methods and apply them to real life-scenarios. The content entails: measures of central tendency, normal distribution, measure dispersion, sampling, regression analysis, time series, trend analysis, correlation and elementary probability. (Tuition time: ± 60 hours)

C

COMPUTING FUNDAMENTALS IA (CFS10AT) **1 X 3-HOUR PAPER**

(Subject custodian: End User Computing Unit)

The student is introduced to the fundamentals of computers and information systems, computer organisation and data processing. (Total tuition time: ± 90 hours)

COMPUTING FUNDAMENTALS IB (CFS10BT) **1 X 3-HOUR PAPER**

(Subject custodian: End User Computing Unit)

The basic concepts of system development, data management, management information systems, ethics, privacy and security, purchasing and maintaining microcomputers, number systems and binary logic. (Total tuition time: ± 54 hours)

COMPUTING SKILLS IA (CMK10AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Informatics)

This subject aims to equip the student with fundamentals of IT Soft skills for both the ICT industry and other working environments upon which a successful career can be built. In addition, it will also improve the student's relation and interaction abilities needed within the dynamic ICT industry. The student who successfully completes this subject must identify and implement various thinking skills and learning styles, state the legal and cultural sensitivity issues of IT, identify and explain the variety of soft skills including study skills and strategies, research, presentation as well as communication skills, and identify and explain interpersonal skills in relation to character, time management and team building dynamics and conflict resolution. (Total tuition time: ± 60 hours)

COMPUTING SKILLS IB (CMK10BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Informatics)

The aim of this subject is to extend the skills in CMK10 AT so as to improve on student's relations and interaction capabilities that will be applicable within the dynamic ICT industry and the external environment. The student who successfully completes this subject must describe, distinguish and portray changes in terms of personality profiles, emotional intelligence, self-management, stress management and relationship management; identify and apply the notion of team dynamics; deal with conflict and understand the dynamics behind change; report on effective correspondence; produce meeting documents; conduct meetings; and demonstrate the required communication skills to develop interpersonal business relationships through by means of group work. (Total tuition time: ± 60 hours)

COMPUTING SYSTEMS IA (CGS10AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Computer Systems Engineering)

Introduction to hardware, operating systems, motherboards, processors, memory, hard drives, installing and supporting I/O devices, multimedia devices and mass storage, PC maintenance and troubleshooting strategies, and installing and maintenance of Windows. (Total tuition time: ± 54 hours)

COMPUTING SYSTEMS IB (CGS10BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Information Technology)

Provides the foundation of data communications and local area management, OSI model and/ or TCP/IP protocol stack model, data transmission principles, media, major protocols, topologies, routing methods, introduction to networking principles and network operating system fundamentals. (Total tuition time: ± 54 hours)

D

DEVELOPMENT SOFTWARE IA (DSO17AT) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Computer Science)

Aim: To learn to solve problems using the basic programming principles, and then practically apply that knowledge in C++. Objectives: To enable the student 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 focusing on the development of graphical user interfaces to solve real-life practical programming problems. (Total tuition time: ± 72 hours)

DEVELOPMENT SOFTWARE IB (DSO17BT) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Computer Science)

Aim: 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/C++ 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 Computer Science)

This subject introduces Oracle and SQL to students. The subject includes standard queries, joins, functions, sub-queries, report writing, creation of tables and views, data manipulation using the Oracle courseware and the Oracle software. Students 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 Computer Science)

This subject introduces students to PL/SQL programming blocks or program units in the Oracle environment. This subject includes the Development of efficient PL/SQL programs to access Oracle databases, creation of stored procedures and functions for maximum reuse and easy code maintenance using the Oracle courseware and the Oracle software. Students would need the knowledge of Oracle and SQL for this subject. (Total tuition time: ± 59 hours)

DEVELOPMENT SOFTWARE IIIA (DSO34AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Computer Science)

This subject introduces 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 (DSO35BT) **1 X 4-HOUR COMPUTER-BASED**

(Subject custodian: Department of Computer Science)

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: ± 60 hours)

F

FOUNDATION ACADEMIC AND LANGUAGE SKILLS (FPALS01) **1 X 3-HOUR PAPER**

(Subject custodian: ICT First Years' and Foundation Unit)

Aim/Purpose: To provide a sound foundation for, and to enhance basic language proficiency and academic skills necessary for reading, writing and studying in an ICT environment. Objectives: Analyse, adjust and improve study skills. Apply research skills in assignments. Interpret and reflect on all available and relevant resource material in proper English. Communicate in a comprehensible and clear manner in both a general and subject-specific manner showing cultural sensitivity. Demonstrate intermediate-level proficiency in oral and written English. Key topics: Managing adjustment problems: student life, coping with diversity and change, time management, setting goals and note taking, summarising techniques, English vocabulary and grammar, reading and writing skills. (Total tuition time: ± 84 hours)

FOUNDATIONAL ICT MATHEMATICAL SKILLS (FPITM01) **1 X 3-HOUR PAPER**
(Subject custodian: ICT First Years' and Foundation Unit)
Aim/Purpose: The focus of the subject is to ensure students have the necessary mathematical and numeracy skills needed for ICT. 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. Objectives: To develop the problem solving skills as well as the computational thinking skills of the student and therefore prepare the student for the programming subjects to follow. Key topics: The number system and basic arithmetic; introduction to algebra: expressions and equations; fractions and decimals, algebraic fractions; percentages; ratio and rate; perimeter, area and volume; measuring systems and units; time, distance and speed; Cartesian plane and coordinates; algebraic functions; mtrices. (Total tuition time: ± 96 hours)

FOUNDATION INFORMATION AND SOFTWARE DEVELOPMENT SKILLS (FPIDS01) **1 X 3-HOUR PAPER**
(Subject custodian: ICT First Years' and Foundation Unit)
Aim/Purpose: To prepare students for computer programming by developing logical, critical and lateral thinking skills. Objectives: To develop the students' logical thinking and problem-solving skills as preparation for programming. Abstract logical reasoning and computational thinking skills will therefore be used to solve problems. Key topics: Brain teasers as introduction to problem-solving; analysis and solving of word problems; solving of various day-to-day problems; introduction to algorithmic problem solving - sequence, basic selection, basic repetition steps; statistics; financial matters. (Total tuition time: ± 96 hours)

FOUNDATION PRESENTATION AND REPORTING SKILLS (FPPRS01) **1 X 3-HOUR PAPER**
(Subject custodian: ICT First Years' and Foundation Unit)
Aim/Purpose: To provide a sound foundation for, and to enhance basic language proficiency skills necessary for reading and writing in an ICT environment with specific reference to presentations and reports. Objectives: Preparation of effective and professional reports and PowerPoint presentations. Interpret, relate and reflect on all available and relevant resource material in proper English. Communicate orally in a comprehensible and clear manner specifically when presenting various IT topics, demonstrate intermediate-level proficiency in written English. Key topics: Conflict management; problem solving; interpersonal relationships; stress management; communication theory; listening skills; public speaking and presentation skills; and report writing. (Total tuition time: ± 84 hours)

I

INDUSTRY EXPOSURE IIIA (IDC30AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
This subject enables students to gain insight to organisational characteristics and behaviour, personal and technological entrepreneurship; other issues include ethical and professional conduct in the workplace. The subject will also increase their knowledge of individual behavioural aspects, namely biographical characteristics, values attitudes, job satisfaction and personality and emotions, perceptions and individual decision making; broaden their understanding of the administrative structures of organisations, bureaucratic behaviour in global and diverse context; and develop interpersonal skills in applying and integrating contemporary theories of motivation. (Tuition time: ± 60 hours)

INDUSTRY EXPOSURE IIIB (IDC30BB) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Informatics)
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. (No formal tuition)

INFORMATION SYSTEMS IIA (ISY23AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Computer Science)
Understanding Systems Analysis fundamentals and the role of information technology in today's dynamic business environment; How to analyse a business case in the systems planning phase and the importance of understanding business operations and requirements and how IT projects support a company's overall strategic plan as well as the importance of conducting a preliminary investigation and a feasibility study; Learn about project management and how to plan, schedule, monitor and report on IT projects; Understand how to gather facts about a systems project, prepare documentation, and how to develop or create graphical models that show how the system transforms data into useful information and these models are used to design and develop systems. (Total tuition time: ± 72 hours)

INFORMATION SYSTEMS IIB (ISY23BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Computer Science)

The subject accommodates students from a broad spectrum of disciplines and interest. It includes a theoretical as well as a practical component. Theoretical component covers the systems design, systems implementation and systems support and security phases. Students choose different programming languages and integrate them to design commercial system. This subject provides the knowledge and practical skills needed to complete the development and design phases of a commercial system. (Total tuition time: ± 72 hours)

M

MANAGEMENT INFORMATION SYSTEMS IIA (MIS22AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Informatics)

This subject aims to introduce students to the concepts of Management Information Systems, and Microsoft Visual Basic. The student who successfully completes this subject must, apply modern analysis and design techniques and methodologies in the development of IT software systems, and also utilise the required technical skills to effectively implement the designed solutions in a distributed IT environment. The students must be able to develop a system in VB.NET, apply business principles using information technology, develop validated forms in a VB.NET environment, develop calculations in VB.NET, use arrays, functions and procedures in VB.NET, recommend the potential impact of emerging technologies on the business, learn about electronic commerce and ethics and how it is used in the business environment, apply information to gain competitive advantage in the business environment using information technology, and identify and explain the various types of systems found in the information technology environment. (Total tuition time: ± 75 hours)

MANAGEMENT INFORMATION SYSTEMS IIB (MIS22BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Informatics)

This subject aims to introduce students to the concepts of Project Management. The student who successfully completes this subject must understand the genesis of project management and its importance on improving the success of information technology projects, and apply project management concepts by working on a semester-long group project as team leader or active team member. On completion of this subject, students will be able to identify and examine the concepts of general project management, develop a project based on the outlined project management concepts, and evaluate created projects against industry standards that improve the success of information technology projects. (Total tuition time: ± 60 hours)