

# University of Pretoria Yearbook 2017

## BSc Computer Science (12134001)

**Duration of study** 3 years

**Total credits** 472

### Admission requirements

- The following persons will be considered for admission: a candidate who is in possession of a certificate that is deemed by the University to be equivalent to the required Grade 12 certificate with university endorsement; a candidate who is a graduate from another tertiary institution or has been granted the status of a graduate of such an institution; and a candidate who is a graduate of another faculty at the University of Pretoria.
- Life Orientation is excluded when calculating the APS.
- Grade 11 results are used in the provisional admission of prospective students.
- A valid qualification with admission to degree studies is required.
- Minimum subject and achievement requirements, as set out below, are required. On first-year level a student has a choice between Afrikaans and English as language medium. In certain cases, tuition may be presented in English only, for example in electives, where the lecturer may not speak Afrikaans or in cases where it is not economically or practically viable.
- Should a candidate obtain an APS of 26 to 29, consideration for admission will be based on the results of the NBT, provided the quotas regarding student numbers have not been reached.

Minimum requirements								
Achievement level								
Afrikaans or English				Mathematics				APS
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	30 (26-29 admission based on the NBT)

### Additional requirements

Please note that additional admission requirements may result from certain electives.

Candidates who do not comply with these requirements are advised to register for BSc IT, depending on whether they comply with the admission requirements the programme.

### Promotion to next study year

#### General

- a. A student must pass all the modules of the first year of study, before he or she is permitted to register for any module of the third year of study. Module prerequisites remain applicable. Exceptions to this rule will be considered by the relevant Head of Department and the Dean.
- b. A student must pass all the modules of the second year of study, before he or she is permitted to register for any module of the fourth year of study (in the case of a four-year degree). Module prerequisites remain applicable. Exceptions to this rule will be considered by the relevant Head of Department and the Dean.
- c. A new first-year student, who has failed in all the prescribed modules of the programme at the end of the first semester, will not be permitted to proceed to the second semester in the School of Information Technology.
- d. A student who has not passed at least 70% of the credits of the current year of study after the November examinations will not be re-admitted to the School of Information Technology.
- e. Students who fail a module for a second time, forfeit the privilege of registering for any modules of an advanced year of study.
- f. Students whose academic progress is not acceptable can be suspended from further studies.

### **Procedure: Exclusion from and re-admission to further studies in the School of Information Technology**

- a. A student who is excluded from further studies in terms of the stipulations of the abovementioned regulations will be notified in writing by the Dean or admissions committee of the School of Information Technology at the end of the relevant semester.
- b. A student who has been excluded from further studies may apply in writing to the admissions committee of the School of Information Technology on level 6 in the Engineering building I for re-admission.
- c. Written applications for re-admission to the second semester must be submitted at least 7 days before lectures resume for the second semester.
- d. Written applications for re-admission to the new academic year must be submitted before 12 January.
- e. Late applications will be accepted only in exceptional circumstances after approval by the Dean.
- f. Should a student not be re-admitted to further studies by the admissions committee of the School of Information Technology, he/she will be informed in writing.
- g. A student who is not re-admitted by the admissions committee of the School of Information Technology has the right to appeal to the Appeals Committee: Admissions in the Administration building, room 3-13.
- h. Any decision taken by the Appeals Committee: Admissions is final.
- i. Should the student be re-admitted by the Admissions Committee, strict conditions will be set which the student must comply with in order to proceed with his/her studies.
- j. A student, who is repeating his or her year, may be permitted by the Dean, on recommendation of the relevant head(s) of department, to register for modules of the following year of study in addition to the outstanding modules he or she has failed, providing that he or she complies with the prerequisites of these modules and no timetable clashes occur. In no semester may the total credits for which a student registers, exceed the normal number of credits per semester by more than 16 credits, except with special permission from the relevant Head of Department.

## **Pass with distinction**

A degree (undergraduate) in the School of IT is conferred with distinction on a student who did not repeat any module of his/her final year, obtained a weighted average of at least 75% in all the prescribed modules for the final year, provided that a subminimum of 65% is obtained in each of these modules and provided that the degree is completed in the prescribed minimum period of time. Ad hoc cases will be considered by the Dean, in consultation with the head of the relevant department.

# Curriculum: Year 1

## Minimum credits: 174

Students wishing to continue with Mathematics or Mathematical Statistics on year level 2 or 3 need to take WTW114, WTW124 & WTW162. Students not wishing to continue with Mathematics or Mathematical Statistics on year level 2 or 3, need to take WTW134, WTW146, WTW148.

## Fundamental modules

Academic information management 101 (AIM 101) - Credits: 6.00

Academic literacy for Information Technology 121 (ALL 121) - Credits: 6.00

Academic orientation 112 (UPO 112) - Credits: 0.00

## Core modules

Program design: Introduction 110 (COS 110) - Credits: 16.00

Introduction to computer science 151 (COS 151) - Credits: 8.00

Calculus 114 (WTW 114) - Credits: 16.00

Discrete structures 115 (WTW 115) - Credits: 8.00

Mathematics 134 (WTW 134) - Credits: 16.00

Mathematical modelling 152 (WTW 152) - Credits: 8.00

Dynamical processes 162 (WTW 162) - Credits: 8.00

Imperative programming 132 (COS 132) - Credits: 16.00

Mathematics 124 (WTW 124) - Credits: 16.00

Linear algebra 146 (WTW 146) - Credits: 8.00

Calculus 148 (WTW 148) - Credits: 8.00

Operating systems 122 (COS 122) - Credits: 16.00

## Elective modules

Plant biology 161 (BOT 161) - Credits: 8.00

General chemistry 117 (CMY 117) - Credits: 16.00

General chemistry 127 (CMY 127) - Credits: 16.00

Philosophy 110 (FIL 110) - Credits: 12.00

Philosophy 120 (FIL 120) - Credits: 12.00

Financial accounting 111 (FRK 111) - Credits: 10.00

Historical geology 161 (GLY 161) - Credits: 8.00

Informatics 112 (INF 112) - Credits: 10.00

Informatics 154 (INF 154) - Credits: 10.00

Informatics 164 (INF 164) - Credits: 10.00

Criminology 110 (KRM 110) - Credits: 12.00

Criminology 120 (KRM 120) - Credits: 12.00

Introduction to microbiology 161 (MBY 161) - Credits: 8.00

Molecular and cell biology 111 (MLB 111) - Credits: 16.00

Psychology 110 (SLK 110) - Credits: 12.00

Psychology 120 (SLK 120) - Credits: 12.00

Statistics 110 (STK 110) - Credits: 13.00

Statistics 120 (STK 120) - Credits: 13.00

Mathematical statistics 111 (WST 111) - Credits: 16.00



Mathematical statistics 121 (WST 121) - Credits: 16.00  
Financial accounting 122 (FRK 122) - Credits: 12.00  
Introduction to geology 155 (GLY 155) - Credits: 16.00  
First course in physics 114 (PHY 114) - Credits: 16.00  
First course in physics 124 (PHY 124) - Credits: 16.00



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## Curriculum: Year 2

**Minimum credits: 124**

### Fundamental modules

[Community-based project 202](#) (JCP 202) - Credits: 8.00

### Core modules

[Data structures and algorithms 212](#) (COS 212) - Credits: 16.00

[Software modelling 214](#) (COS 214) - Credits: 16.00

[Netcentric computer systems 216](#) (COS 216) - Credits: 16.00

[Introduction to database systems 221](#) (COS 221) - Credits: 16.00

[Concurrent systems 226](#) (COS 226) - Credits: 16.00

[Computer organisation and architecture 284](#) (COS 284) - Credits: 16.00

[Discrete structures 285](#) (WTW 285) - Credits: 12.00

[Theoretical computer science 210](#) (COS 210) - Credits: 8.00

## Curriculum: Final year

**Minimum credits: 144**

### Core modules

Software engineering 301 (COS 301) - Credits: 27.00  
Computer networks 332 (COS 332) - Credits: 18.00  
Programming languages 333 (COS 333) - Credits: 18.00  
Compiler construction 341 (COS 341) - Credits: 18.00  
Computer security and ethics 330 (COS 330) - Credits: 18.00

### Elective modules

Physical chemistry 382 (CMY 382) - Credits: 18.00  
Analytical chemistry 383 (CMY 383) - Credits: 18.00  
Organic chemistry 384 (CMY 384) - Credits: 18.00  
Artificial intelligence 314 (COS 314) - Credits: 18.00  
Database systems 326 (COS 326) - Credits: 18.00  
Computer graphics 344 (COS 344) - Credits: 18.00  
Information science: Information organisation 310 (INL 310) - Credits: 30.00  
Information science: Information and knowledge management 320 (INL 320) - Credits: 30.00  
Information science: Digital repositories 340 (INL 340) - Credits: 30.00  
Information science: Socio-political aspects of information in global context 360 (INL 360) - Credits: 30.00  
Information science 370 (INL 370) - Credits: 15.00  
Statistical mechanics, solid state physics and modelling 364 (PHY 364) - Credits: 36.00  
Stochastic processes 312 (WST 312) - Credits: 18.00  
Time-series analysis 321 (WST 321) - Credits: 18.00  
Actuarial statistics 322 (WST 322) - Credits: 18.00  
Financial engineering 354 (WTW 354) - Credits: 18.00  
Algebra 381 (WTW 381) - Credits: 18.00  
Numerical analysis 383 (WTW 383) - Credits: 18.00  
Geometry 389 (WTW 389) - Credits: 18.00  
Electronics, electromagnetism and quantum mechanics 356 (PHY 356) - Credits: 36.00  
Information science: Competitive intelligence 380 (INL 380) - Credits: 30.00

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