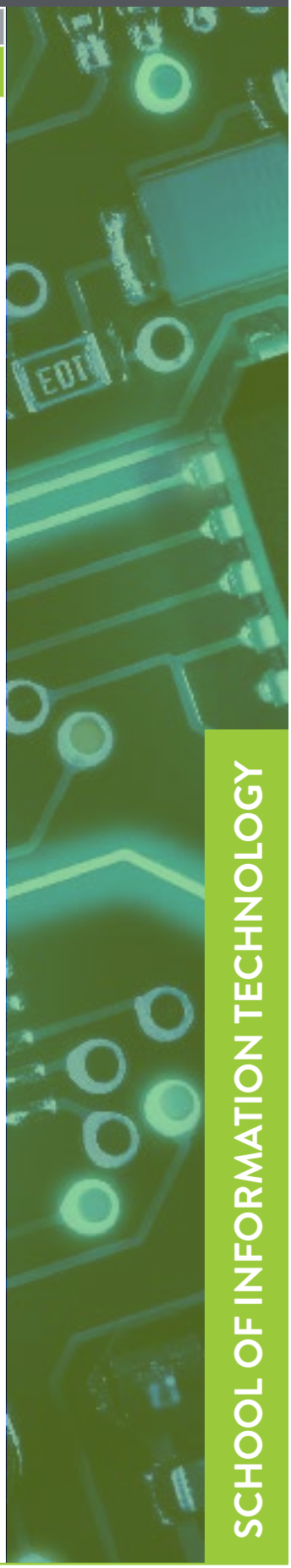
STADIO
HIGHER EDUCATION

BACHELOR OF COMPUTING

NQF 7 | MIN. 370 CREDITS | SAQA ID: 123425 | MIN. 3 YEARS
MODE OF DELIVERY: CONTACT LEARNING

CAMPUS

CENTURION
(PRETORIA)



DESCRIPTION

With information and communication technology (ICT) evolving ever faster, accompanied by new paradigms involving more complex algorithms, optimized programming, and greater execution efficiency, the need for computer scientists who can understand and are able to leverage the latest technology and paradigms grows daily. Being able to write code is no longer a sufficient basis on which to leverage the continual hardware improvements and algorithmic advances. The following quote alludes to this continually changing workplace for computer scientists.

"Computing is usually viewed as a technology field that advances at the breakneck speed of Moore's Law. If we turn away even for a moment, we might miss a game-changing technological breakthrough or an earth-shaking theoretical development."

The aim of the Bachelor of Computing programme (which leads to an NQF level 7 qualification) is to provide a good theoretical and practical basis for working in the ICT industry and a solid foundation for future learning, which is inevitable in this evolving field. The knowledge that students obtain from this degree would benefit numerous ICT professions, including application and systems software development, database administration, systems analysis, software testing, big data analytics, machine learning implementation, and many more.

The main objective of this programme is to equip students with the following theoretical knowledge and associated practical skills:

- In the first year, a broad knowledge of foundational computational aspects, including standard computing hardware, problem solving, introductory programming, databases, and software development. Also covered are the supporting mathematical, statistical and electronic foundations required for computing. Students will also be taught to consider legal, social, and ethical implications in all aspects of the use and development of IT solutions, as well as existing and potential future technologies.

- In the second year, more advanced programming skills and knowledge of systems software, computer architecture, networks, and formal aspects of computing are provided. In addition to the introduction to data analytics, students may also take 30 credits worth of elective courses, such as data science, in an ancillary discipline that relies on the use of innovative computer tools and technology.

- In the final year, information and cybersecurity, data science, and alternative computing paradigms are offered, in addition to coverage of the more recent 4th Industrial Revolution concepts of intelligent systems and machine learning and an introduction to concurrent programming. A substantial integrated research project is included to impart practical research skills and extend problem-solving skills.

ADMISSION REQUIREMENTS

- a Senior Certificate (SC) with degree endorsement and a minimum symbol of E in Mathematics HG, or D in Mathematics SG; **OR**
- a National Senior Certificate (NSC) with a minimum of 50% in four 20-credit subjects, and a minimum of 40% in English Home Language or First Additional Language, and a minimum of 50% in Mathematics or 70% in Mathematical Literacy; **OR**
- a National Senior Certificate – Vocational Level 4 (NC(V)) with a minimum of 60% in three fundamental subjects including English and Mathematics; and minimum 70% in four vocational subjects; **OR**
- a Higher Certificate (NQF 5), Advanced Certificate (NQF 6) or Diploma (NQF 6) in the field of:
  - Software engineering; **OR**
  - Computing; **OR**
  - A related field.

Applicants who meet all the stated admission criteria except the Mathematics requirement will be able to enrol for a STADIO Numeracy and Business Mathematics bridging programme to enable them to qualify for admission.

Scan to learn more:

OTHER ACCESS PATHWAYS

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MATURE AGE EXEMPTION

MINIMUM SYSTEM REQUIREMENTS

- Wi-Fi: Reliable broadband Internet access (Wi-Fi is available on all of our campuses, but you may prefer access from home as well).
- Web browser: Edge/Chrome/Safari/Opera/Firefox.
- Computer/Laptop: A current Windows or Apple Mac computer/laptop capable of running the Office 365 software. Office 365 includes Word, Excel, PowerPoint and Outlook.
- PDF Viewer: The free Adobe Acrobat software.
- Scanning documents: Ability to scan and upload documents (typically from your cell phone or smartphone)
- Email/cell phone for notification and communication.
- Communication: A cell phone or smartphone for receiving notifications and communication.

ARTICULATION POSSIBILITIES

Graduates of the Bachelor of Computing will be equipped with practical skills and critical knowledge at NQF level 7, which will enable them to pursue Postgraduate studies in more specialised ICT areas. This will expand their knowledge base and ensure their employability and relevance in industry. As they move forward in their careers, many graduates will move into postgraduate diplomas aimed at business-related fields.

CAREER OPPORTUNITIES

SOFTWARE ENGINEER	SYSTEMS ANALYST
APPLICATION DEVELOPER	DATA SCIENTIST
DATA ANALYST	IT CONSULTANT
MACHINE LEARNING PRACTITIONER	ICT SECURITY ANALYST
AI RESEARCH ASSISTANT / DEVELOPER	

CURRICULUM OUTLINE

YEAR	1st YEAR	2nd YEAR	3rd YEAR
Compulsory Modules	Fundamentals of Information Technology FIT152 (10 credits)	Advanced Programming and Algorithm Analysis APA262 (15 credits) *** Computational thinking and Introduction to Programming (CTIP152)* *** Object-oriented Programming (OOP152)*	Programming Language Implementation PLI372 (15 credits) *** Automata and Formal Languages (AFL262)*
	Technology and Society TAS152 (10 credits)	Computer Architecture CAR262 (10 credits) *** Computational Thinking and Introduction to Programming*	Information Security and Cybersecurity ISC372 (15 credits) *** Computer Networks (CNE262)*
	Computational Thinking and Introduction to Programming CTIP152 (20 credits)	Web and Mobile Development WMD262 (15 credits)	Programming Paradigms PPA372 (10 credits) *** Advanced Programming Algorithm Analysis*
	Introduction to Databases IDB152 (10 credits)	Computer Networks CNE262 (10 credits)	Research Methodology RES372 (15 credits)
	Software Engineering SEN152 (10 credits) ** Fundamentals of Information Technology (FIT152)*	Object-Oriented Analysis OOA262 (10 credits)	Integrated Research Project IRP372 (30 credits) ** Research Methodology (RES372)*
	Object-Oriented Programming OOP152 (15 credits)	Introduction to Operating Systems IOS262 (10 credits) *** Computer Architecture (CAR262)*	Introduction to Artificial Intelligence IAI372 (20 credits)
	Discrete Mathematics DMA152 (15 credits)	Automata and Formal Languages AFL262 (10 credits) *** Discrete Mathematics (DMA152)*	
	Electronics for Computing EFC152 (15 credits)	Fundamentals of Data Analytics FDA262 (20 credits) *** Discrete Mathematics (DMA152)* *** Statistics (STA162)* *** Introduction to Databases (IDB152)*	
	Statistics STA162 (10 credits)		
	Data and Decision-making DDM162 (10 credits)		
Elective Modules		Object-Oriented Design OOD262 (20 credits)	Introduction to Parallel Computing IPC372 (20 credits)
		Information Systems Project Management ISPM262 (20 credits)	Data Science 2 DSC372 (20 credits)
		Virtual Systems and Services VSS262 (20 credits)	
		Cloud Computing CCP262 (20 credits)	
		Data Science 1 DSC262 (20 credits)	
CREDITS PER YEAR	**125**	**120**	**125**

* Corequisite modules must be taken concurrently with another partner module.

** Prerequisite modules must be successfully completed before enrolling in a higher-level or more advanced module.