

BACCALAUREUS TECHNOLOGIAE: CHEMISTRY

Qualification code: BTCH02 - NQF Level 7

Campus where offered: Arcadia Campus (day and block-mode classes)
Last year of new intake: 2019
Teach-out (phase-out) date: 31 December 2022

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.

FIRST SEMESTER

CODE	SUBJECT	CREDIT
ANC411T	Analytical Chemistry IV	(0,200)
CPJ401T	Chemistry Project IV (offered in both semesters)	(0,200)
CPJ401R	Chemistry Project IV (re-registration) (offered in both semesters)	(0,000)
OCH421T	Organic Chemistry IV	(0,200)
TOTAL CREDITS FOR THE SEMESTER:		0,600

SECOND SEMESTER

CODE	SUBJECT	CREDIT
ICH421T	Inorganic Chemistry IV	(0,200)
PCB421T	Physical Chemistry IV	(0,200)
TOTAL CREDITS FOR THE SEMESTER:		0,400
TOTAL CREDITS FOR THE QUALIFICATION:		1,000

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

ANALYTICAL CHEMISTRY IV (ANC411T)

2 X 3-HOUR PAPER

(Subject custodian: Department of Chemistry)

Advanced atomic spectroscopic techniques. Instrumentation, applications and quantitative analysis of: Atomic absorption spectrometry: X-ray fluorescence (XRF) and electrothermal atomisation (ETAAS). Atomic emission spectrometry: inductively coupled plasma (ICP) atomic emission spectrometry (AES) and ICP-mass spectrometry (MS). Specialised sample introduction, advanced background correction, applications and quantitative analysis. Molecular spectroscopy: UV-Vis and IR spectroscopy. Chromatography: HPLC, HPLC-MS, GC, GC-MS. Electroanalysis: voltammetry, ASV. Thermal analysis: DSC and DTA. Automated analysis: flow injection analysis. Practical: experimental techniques related to the theory. (Total tuition time: ± 128 hours)



C**CHEMISTRY PROJECT IV (CPJ401T/R)****PROJECT ASSESSMENT****(Subject custodian: Department of Chemistry)**

This project should be conducted with the cooperation of the student's employer (or a suitable alternative, in the case of private students). The project must, as far as possible, be of an applied nature. Introduction to research methodology. (Total tuition time: Determined per individual - Research)

I**INORGANIC CHEMISTRY IV (ICH421T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Chemistry)**

Molecular symmetry. Ligand substitution reactions. Molecular orbital theory of diatomic and polyatomic molecules. Electron absorption spectroscopy. Organometallic chemistry. Homogeneous catalysis. Fischer-Tropsch synthesis. Practical: experiments related to the theory. (Total tuition time: ± 128 hours)

O**ORGANIC CHEMISTRY IV (OCH421T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Chemistry)**

Introduction to spectroscopic methods of analyses and structure elucidation of organic molecules (UV, IR, MS, H-NMR, C-NMR), synthetic organic chemistry (addition, elimination and substitution reactions), industrial organic chemistry polymer chemistry. Practical organic chemistry. (Total tuition time: ± 128 hours)

P**PHYSICAL CHEMISTRY IV (PCB421T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Chemistry)**

Thermodynamics. Electrochemistry, electrocyclics, Butler-Volmer equation, corrosion, tafel plots, pourbaix diagrams. Surface chemistry. Kinetics. Practical: experiments related to the theory. (Total tuition time: ± 128 hours)

