

## HIGHER CERTIFICATE IN WATER TREATMENT

HCert (Water Treatment) - NQF Level 5 (120 credits)

**Qualification code: HCWT19**

SAQA ID: 101588, CHE NUMBER: H/H16/E047CAN

Campus where offered:

Arcadia Campus

### REMARKS

a. *Admission requirement(s) and selection criteria:*

Acceptance is subject to available capacity according to the Student Enrolment Plan (SEP). Once a programme is full, a waiting list will be in place to provide an opportunity for applicants to fill places of those who did not register on time. Applicants will be informed of their status per official letter from the Office of the Registrar, alternatively, they can check their application status on the TUT website, [www.tut.ac.za](http://www.tut.ac.za).

• **APPLICANTS WITH A SENIOR CERTIFICATE OBTAINED BEFORE 2008:**

**Admission requirement(s):**

A Senior Certificate or an equivalent qualification, with at least an E symbol for English, Mathematics and Physical Science.

**Selection criteria:**

To be considered for this qualification, applicants must have an Admission Point Score (APS) of at least **18**.

• **APPLICANTS WITH A NATIONAL SENIOR CERTIFICATE OBTAINED IN OR AFTER 2008:**

**Admission requirement(s):**

A National Senior Certificate with a higher certificate endorsement, or an equivalent qualification, with an achievement level of at least 3 for English (home language or first additional language), 3 for Mathematics or Technical Mathematics (or 6 for Mathematical Literacy) and 3 for Physical Sciences or Technical Sciences.

**Selection criteria:**

To be considered for this qualification, applicants must have an Admission Point Score (APS) of at least **18** (with Mathematics or Technical Mathematics) or **21** (with Mathematical Literacy). Life Orientation is excluded from the APS calculation.

**Assessment procedure(s):**

Applicants with a score of 18 and more will be considered for admission.

• **APPLICANTS WITH A NATIONAL CERTIFICATE (VOCATIONAL) AT NQF LEVEL 4:**

**Admission requirement(s):**

A National Certificate (Vocational) at NQF Level 4 with a higher certificate endorsement, issued by the Council for Quality Assurance in General and Further Education and Training (Umalusi), with at least 50% for English and 50% Mathematics or 40% for Mathematical Literacy, and 50% for Sciences, and 40% for Life Orientation (excluded for APS calculation) and 50% for any two vocational subjects.

**Selection criteria:**

To be considered for this qualification, applicants must have an Admission Point Score (APS) of at least **18** (with Mathematics) or **21** (with Mathematical Literacy). Life Orientation is excluded from the APS calculation.



**Assessment procedure(s):**

Applicants with a score of 18 and more will be considered for admission.

- **APPLICANTS WITH A NATIONAL N CERTIFICATE AS PUBLISHED IN NATED 191: N3 (NQF LEVEL 4):**

**Admission requirement(s):**

- A National Senior Certificate or a National N Certificate as published in Nated 191: N3 (NQF Level 4) issued by both the Department of Higher Education (DHET) and the Council for Quality Assurance in General and Further Education and Training (Umalusi), with at least 50% for English, 50% for Mathematics N3, Engineering Science N3, and any two additional N3 subjects; **or**
- A Further Education and Training Certificate: Water and Wastewater Treatment Process Control Supervision, or any other equivalent qualification at NQF Level 4.

**Selection criteria:**

To be considered for this qualification, applicants must have an Admission Point Score (APS) of at least **24**.

- **APPLICANTS WITH AN N4 CERTIFICATE IN AN ENGINEERING FIELD AS PUBLISHED IN NATED 191: N4:**

**Admission requirement(s):**

An N4 Certificate in a related Engineering field as published in Nated 191: N4 issued by both the Department of Higher Education and Training (DHET) and the Council for Quality Assurance in General and Further Education and Training (Umalusi), with at least 50% for English N3, and with at least an average of 50% for the qualification.

**Selection criteria:**

To be considered for this qualification, applicants must have an Admission Point Score (APS) of at least **24**.

- b. *Recognition of Prior Learning (RPL), equivalence and status:*  
See Chapter 30 of Students' Rules and Regulations.
- c. *Intake for the qualification:*  
January only.
- d. *Presentation:*  
Day and block-mode classes (block-mode classes are only offered to students who are employed).
- e. *Minimum duration:*  
One year.
- f. *Exclusion and readmission:*  
See Chapter 2 of Students' Rules and Regulations.

## CURRICULUM

### YEAR MODULES

CODE	MODULE	NQF-L	CREDIT
ALI125X	Academic Literacy (block module)	(5)	(2)
COE105X	Communication for Academic Purpose	(5)	(10)
CPL105X	Computer Literacy	(5)	(10)
ESA115C	Equipment and Safety I (second-semester module)	(5)	(18)

LFS125X	Life Skills (block module)	(5)	(2)
WQU105C	Water Quality I	(5)	(18)
WSC105C	Water Science I	(5)	(18)
WTR105C	Water Treatment I	(5)	(21)
WWT105C	Wastewater Treatment I	(5)	(21)

TOTAL CREDITS FOR THE QUALIFICATION: **120**

## MODULE 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 module. At time of publication, the syllabus content was defined as follows:

### A

#### **ACADEMIC LITERACY (ALI125X)**

**CONTINUOUS ASSESSMENT**

*(Module custodian: Directorate of Library and Information Services)*

Introduction of information literacy. Development of a search strategy and application of a search string to search engines and academic databases. Evaluation of information sources. Ethical and legal use of information. (Total notional time: 20 hours)

### C

#### **COMMUNICATION FOR ACADEMIC PURPOSE (COE105X)**

**1 X 3-HOUR PAPER**

*(Module custodian: Office of the Executive Dean)*

A workable knowledge of English is an essential skill for any graduate who is required to conduct themselves successfully in a professional working environment. This module will equip students with the competencies required to compose a selection of written texts related to communicating both internally and externally within a professional environment. In addition, the module includes strategies that are essential for the effective communication in various situations, including small groups to avoid unproductive conflict, a multicultural context, etc. (Total notional time: 100 hours)

#### **COMPUTER LITERACY (CPL105X)**

**CONTINUOUS ASSESSMENT**

*(Module custodian: End User Computing Unit)*

This module provides students with foundational knowledge in computing fundamentals, essential digital skills in key applications based on MS Office Suite and network basics (i.e. MS Outlook and Internet). Online exams are mapped with End-User Computing: SAQA 49077 (61591) Core Element as well as Internet and Computing Core Certification (IC3). (Total notional time: 100 hours)

### E

#### **EQUIPMENT AND SAFETY I (ESA115C)**

**1 X 3-HOUR PAPER**

*(Module custodian: Department of Environmental, Water and Earth Sciences)*

This module prepares the student to apply knowledge and skills about water treatment equipment in the distribution system, wastewater treatment and wastewater collection systems, and for the production of safe drinking water. The student will be able to apply his/her knowledge of equipment used in the various unit processes to produce effluents of the required quality sustainably and to operate a treatment plant safely. Upon completion of the module, the student will be able to operate and maintain pumps, pipes, valves, instruments and processes equipment safely. (Total notional time: 180 hours)



**L****LIFE SKILLS (LFS125X)****CONTINUOUS ASSESSMENT****(Module custodian: Directorate of Student Development and Support)**

Personal, socio-emotional and academic skills development for students in higher education. This module includes 1. Intra- and interpersonal skills (e.g. emotional intelligence, relationships, and conflict management); 2. General study skills (e.g. time management, goal setting, learning styles); 3. Health and wellness (e.g. HIV/AIDS, GBV issues, substance abuse); 4. Student life and adjustment (e.g. identity development, adjusting to a higher education environment); and 5. Financial management. (Total notional time: 20 hours)

**W****WASTEWATER TREATMENT I (WWT105C)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental, Water and Earth Sciences)**

This module prepares the student to demonstrate an understanding of wastewater treatment practice in ways that produce good quality wastewater effluents. The student will be able to apply his/her knowledge of the various unit processes to produce wastewater effluents that comply with the effluents standards as set by the custodian (Department of Water Affairs and Forestry). Upon completion of this module, the student will be equipped to understand, explain and discuss the roles of a process controller such as to safely operate and maintain wastewater treatment facilities. This will include correct handling of machinery and chemicals; safe and effective performance of the control tests, and their interpretation and application in the plant operation; as well as the regular reporting and recording of day to day activities. (Total notional time: 210 hours)

**WATER QUALITY I (WQU105C)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental, Water and Earth Sciences)**

This module prepares the student to apply knowledge and skills about maintaining water quality from water sources and evaluating the quality of water produced by water and wastewater treatment plants. The student will be able to apply his/her knowledge of various laboratory techniques to evaluate the performance of water treatment plants in order to produce effluents which are acceptable according to water quality guidelines. Upon completion of the module, the student will be able to apply his/her knowledge and skills to evaluate the quality of water from different water sources and treatment plant unit processes. The student will also have knowledge and skills to perform basic water analysis. (Total notional time: 180 hours)

**WATER SCIENCE I (WSC105C)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental, Water and Earth Sciences)**

This module prepares the student to apply basic science knowledge and skills in the production of drinking water and the treatment of wastewater. The student will be equipped with knowledge of chemical reactions which take place in water, and microbial processes in water treatment, as well as basic mathematics and physics concepts and competencies relevant to water treatment operations. Upon completion, the student will be able to apply his/her knowledge of chemistry, microbiology, mathematics and physics to operate and control water and wastewater treatment plants. (Total notional time: 180 hours)

**WATER TREATMENT I (WTR105C)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental, Water and Earth Sciences)**

This module prepares the student to apply knowledge and skills about water treatment unit processes and equipment to produce drinking water from a variety of raw water sources. The student will be able to apply his/her knowledge of the various unit processes to produce effluents that comply with the relevant legislation and water quality guidelines in a sustainable manner. Upon completion of the module, the student will be able to apply his/her knowledge and skills to treat potable water in a conventional treatment process by making use of the following unit processes: coagulation, flocculation, sedimentation, filtration and disinfection. The student will also have knowledge and skills about a range of unit processes that can be used to treat water to address specific water quality problems such as stability, hardness, fluoride and salinity. (Total notional time: 210 hours)

