

POSTGRADUATE DIPLOMA IN WATER SCIENCE AND TECHNOLOGY

PGDip (Water Science and Technology) - NQF Level 8 (120 credits)

Qualification code: PDWS21

SAQA ID: 110442, CHE NUMBER: H/H16/E075CAN

Campus where offered: Arcadia Campus

REMARKS

- a. *Admission requirement(s):*
An Advanced Diploma in Water Science and Technology, **or** a Baccalaureus Technologiae: Water Care, **or** a Bachelor's degree in Water Science, **or** an equivalent qualification at NQF Level 7 with 120 credits (subject to departmental approval). Preference will be given to applicants with an average of 60% or more in the previous qualification.
- Holders of any other equivalent South African or international qualification may also be considered, see Chapter 1 of Students' Rules and Regulations.
- b. *Selection criteria:*
Admission is subject to selection. Applicants will be evaluated based on the marks obtained in the previous qualification and/or work experience.
- Acceptance is subject to available capacity according to the Student Enrolment Plan (SEP). 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.
- c. *Recognition of Prior Learning (RPL), equivalence and status:*
See Chapter 30 of Students' Rules and Regulations.
- d. *Intake for the qualification:*
January only.
- e. *Presentation:*
Block-mode classes.
- f. *Minimum duration:*
Two years.
- g. *Exclusion and readmission:*
See Chapter 2 of Students' Rules and Regulations.
- h. *Re-registration:*
A student may re-register for the module Research Project IV only with the permission of the Head of the Department. The purpose of the re-registration is to provide students with an opportunity to complete the project only, and not to redo it, should they fail the module.

CURRICULUM

ATTENDANCE 2022

CODE	MODULE	NQF-L	CREDIT
REW108G	Research Project IV	(8)	(30)
REW118R	Research Project IV (re-registration) (first-semester module, see paragraph h)	(8)	(0)



plus one of the following combinations:

WAN108G	Advanced Water Analyses IV	(8)	(15)
WCH108G	Water Chemistry IV	(8)	(15)

or

WRM108G	Water Resources Management III	(8)	(15)
WSG108G	Water Services Management III	(8)	(15)

TOTAL CREDITS FOR THE YEAR: **60**

ATTENDANCE 2023

CODE	MODULE	NQF-L	CREDIT
RWS108G	Research Methodology and Skills	(8)	(12)
WTP108G	Water Treatment Process Design IV	(8)	(24)
WWP108G	Wastewater Treatment Process Design IV	(8)	(24)

TOTAL CREDITS FOR THE YEAR: **60**

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

ADVANCED WATER ANALYSES IV (WAN108G)

CONTINUOUS ASSESSMENT

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

Application of the following methods on potable water and wastewater, industrial effluents and mine water samples: Chromatography, Adsorption studies, Filtration process, Organic compounds determination, Biological nutrient removal and Molecular Techniques. (Total notional time: 150 hours)

R

RESEARCH METHODOLOGY AND SKILLS (RWS108G)

CONTINUOUS ASSESSMENT

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

The module focuses on the development of the research capacity and scientific writing skills based on: Literature Review, Hypothesis and research objectives, Research methods, Data collection methods, Data analysis and interpretation, Research ethics and Research report writing. (Total notional time: 120 hours)

RESEARCH PROJECT IV (REW108G, REW118R)

PROJECT ASSESSMENT

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

Content will include, but not limited to: Introduction and Identification of Research Topic, Motivation, Objectives and Experimental Design, Literature Review, Data Collection, Data Analysis, Interpretation, Discussion and Conclusions. The module will include conducting a research project. (Total notional time: 300 hours)



WASTEWATER TREATMENT PROCESS DESIGN IV (WWP108G)**1 X 3-HOUR PAPER****(Module custodian: Department of Environmental, Water and Earth Sciences)**

The module content includes classification of biological processes, basic principles of biological processes, stoichiometry and kinetics in aerobic/anoxic reactors, modelling suspended growth systems and design of biological treatment processes. (Total notional time: 240 hours)

WATER CHEMISTRY IV (WCH108G)**1 X 3-HOUR PAPER****(Module custodian: Department of Environmental, Water and Earth Sciences)**

Analytical techniques included are: Spectroscopic Methods (Ultraviolet and Visible Fluorescence, Fourier Transform Infrared, Nuclear magnetic resonance (NMR, H NMR, C NMR, N NMR, 1- D NMR and 2-D NMR), Other Characterization Methods (ICP AES, GC-MS, FIFFF, FTICR-MS), Chromatographic Methods (Adsorption chromatography, Ion exchange chromatography, Ion pair chromatography, Size exclusion chromatography (gel permeation chromatography), Affinity chromatography, Gradient separation, Analytical HPLC, Gas Chromatography-Mass Spectrometry (Gas Chromatography-Mass Spectrometry(GC- MS), Flow Field-Flow Fractionation (FFFF), Kinetics (Adsorption Kinetic, Adsorption Isotherms Adsorption Thermodynamics). (Total notional time: 150 hours)

WATER RESOURCES MANAGEMENT III (WRM108G)**1 X 3-HOUR PAPER****(Module custodian: Department of Environmental, Water and Earth Sciences)**

The content will include (but not limited to): Watershed degradation and management, Valuing the environment in water resources management, The role and importance of aquatic ecosystems in water resources management and Environmental flows, requirements and assessments, Water quality and the environment. (Total notional time: 150 hours)

WATER SERVICES MANAGEMENT III (WSG108G)**1 X 3-HOUR PAPER****(Module custodian: Department of Environmental, Water and Earth Sciences)**

Water services contracts and the law, Strategic Management, Benchmarking, Customer Management, Managing technology and innovation, Environmental management and sustainable development concepts. (Total notional time: 150 hours)

WATER TREATMENT PROCESS DESIGN IV (WTP108G)**1 X 3-HOUR PAPER****(Module custodian: Department of Environmental, Water and Earth Sciences)**

The contents of this module: Predesign Considerations, Plant Setting, Facilities Design, Special Plant Hydraulics, Construction and Operating Cost Estimation and Modelling. (Total notional time: 240 hours)

