University of Pretoria Yearbook 2017

BScHons Applied Science Water Resources (12243033)

Duration of study	1 year
Total credits	128

Programme information

The BScHons (Applied Science) degree is conferred by the following academic departments:

- Chemical Engineering
- Civil Engineering
- Industrial and Systems Engineering
- Materials Science and Metallurgical Engineering
- Mechanical and Aeronautical Engineering
- Mining Engineering

Any specific module is offered on the condition that a minimum number of students are registered for the module, as determined by the head of department and the Dean. Students must consult the relevant head of department in order to compile a meaningful programme, as well as on the syllabi of the modules. The relevant departmental postgraduate brochures must also be consulted.

Admission requirements

An appropriate bachelor's degree, a BTech degree or equivalent qualification is required for admission.

Other programme-specific information

The remainder of the modules must be chosen from the modules prescribed for the BEngHons (Water Resource Engineering) programme, as approved by the head of department, and after completion of the appropriate modules as listed.

The modules CPB 410, CBI 410 and CSS 420 do not form part of the postgraduate block presentations. Individual arrangements have to be made with the relevant lecturer regarding attendance of lectures, study material, tests and assignments.

Curriculum: Final year

Minimum credits: 128

Core modules

Basic statistical methods 797 (SHC 797)

Module credits	24.00
Prerequisites	No prerequisites.
Contact time	40 Contact hours
Language of tuition	Module is presented in English
Academic organisation	Civil Eng
Period of presentation	Year

Module content

Basic mathematical methods. Algebra. Matrices and matrix algebra. Series expansions. Differentiation and integration. Probability theory. Graphic analysis. Discrete and continuous probability distributions. Moments and expectation. Statistical sampling and experimental design. Parameter estimation. Confidence intervals. Hypothesis testing. Regression analysis.

Basic hydraulics 788 (SHW 788)

Module credits	24.00
Prerequisites	No prerequisites.
Contact time	28 Contact hours
Language of tuition	Module is presented in English
Academic organisation	Civil Eng
Period of presentation	Year

Module content

This course covers the basic hydraulic principles and their application. Themes covered include: fluid characteristics, fluid kinematics, pipe flow, pipe networks, introduction to pumps and pump stations, free surface flow, flow measurement, hydraulic assessment of hydraulic structures, storm water drainage and culvert systems and flood hydrology.

Elective modules

Free surface flow 794 (SHC 794)

Module credits	24.00
Prerequisites	No prerequisites.
Contact time	32 Contact hours
Language of tuition	Module is presented in English
Academic organisation	Civil Eng

Period of presentation	Year

Module content

A research term paper will be prepared.

This course entails the calculation of design flows for different return periods, using the statistical, deterministic – and empirical methods. Dambreak analysis is included in this course as well as channel and level pool routing.

Pump systems 785 (SHW 785)

Module credits	24.00
Prerequisites	No prerequisites.
Contact time	32 Contact hours
Language of tuition	Module is presented in English
Academic organisation	Civil Eng
Period of presentation	Year

Module content

A research term paper will be prepared.