University of Pretoria Yearbook 2021

BScHons Applied Science Structure (12243034)

Department	Civil Engineering
Minimum duration of study	1 year
Total credits	128
NQF level	08

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 relevant 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

1. Three-year BSc (or equivalent) degree (in Natural Sciences)
   with a cumulative weighted average of at least 60% for the degree
   or
   relevant BTech qualification excluding the National Diploma; i.e. one offered by a department of civil engineering at a university of technology in South Africa
   with a cumulative weighted average of at least 75% for the degree
   and
   no modules failed in the BTech degree
   or
   four-year engineering-based university degree not recognised by ECSA for registration as a professional engineer
2. An entrance examination may be required
3. Comprehensive intellectual CV

Other programme-specific information

The remainder of the credits to be chosen from the modules prescribed for the BEngHons (Structural Engineering) programme, as approved by the relevant head of department, and after completion of the appropriate modules as listed.

Curriculum: Final year

Minimum credits: 128

Core modules

Civil research 780 (SSC 780)

Module credits	32.00
NQF Level	08
Contact time	8 contact hours per year
Language of tuition	Module is presented in English
Department	Civil Engineering
Period of presentation	Year

Module content

*This is a compulsory module.

The course will require all honours students to conduct research in an appropriate field of civil engineering, linked to the main discipline in which the student specializes for their honours degree.

Elective modules

Structural mechanics 777 (SIN 777)

Module credits	24.00
NQF Level	08
Prerequisites	No prerequisites.
Contact time	40 Contact hours
Language of tuition	Module is presented in English
Department	Civil Engineering
Period of presentation	Year

Module content

A research term paper will be prepared.

Continuum mechanics. Classical and numerical (finite difference and finite element) solutions for plane and plate structures. Plasticity and failure criteria. Elastic stability. Non-linear analysis.

Pre-stressed concrete design 791 (SIN 791)

Module credits	24.00
NQF Level	08
Prerequisites	No prerequisites.
Contact time	40 Contact hours

Language of tuition	Module is presented in English
Department	Civil Engineering
Period of presentation	Year

Module content

A research term paper will be prepared.

Material properties; prestressing systems; flexural design; losses; effects of continuity; shear; deflections; anchorage; cracking; prestressed concrete slabs and detailing.

Infrastructure management 790 (SSI 790)

Module credits	24.00
NQF Level	08
Prerequisites	No prerequisites.
Contact time	40 Contact hours
Language of tuition	Module is presented in English
Department	Civil Engineering
Period of presentation	Year

Module content

A research term paper will be prepared.

This module will cover the following topics: Asset Management principles, Maintenance Management principles, Maintenance strategies and philosophies, Condition based Maintenance, Reliability Centred Maintenance (RCM), Resource Management, Maintenance Management Systems, Total Productive Maintenance (TPM) and Risk Management. Maintenance management of the following disciplines will be studied in detail: Road infrastructure, Railway infrastructure, Airport infrastructure, Buildings and other structures, Water resources and water supply.

The information published here is subject to change and may be amended after the publication of this information. The General Regulations (G Regulations) apply to all faculties of the University of Pretoria. It is expected of students to familiarise themselves well with these regulations as well as with the information contained in the General Rules section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.