

University of Pretoria Yearbook 2016

BScHons Applied Science Applied Science: Control (12243012)

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.

Other programme-specific information

A limited number of appropriate postgraduate modules from other departments are allowed. Not all modules listed are presented each year. Please consult the departmental postgraduate brochure.

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

Process integration 732 (CIP 732)

Module credits	32.00
Prerequisites	No prerequisites.
Contact time	44 contact hours per semester
Language of tuition	English
Academic organisation	Chemical Engineering
Period of presentation	Semester 1

Chemical Engineering 787 (CIR 787)

Module credits	16.00
Prerequisites	No prerequisites.
Contact time	10 lectures per week
Language of tuition	English
Academic organisation	Chemical Engineering
Period of presentation	Semester 1 or Semester 2

Process control 410 (CPB 410)

Module credits	16.00
Prerequisites	CPN 321 GS
Contact time	3 tutorials per week, 4 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Chemical Engineering
Period of presentation	Semester 1

Module content

Dynamic properties of equipment, instruments and processes. Mathematical modelling and computer simulation of processes in the time, Laplace and frequency domains. Linearisation and non-linear processes. Stability of control systems. Controller tuning. Methods for process identification. Digital process control. Z-transforms. Use of computers and microprocessors. Introduction to modern control theory: state-space approach. Applied process control. Choice of control instrumentation. Plantwide control strategy. Development of P and ID's.

Separation technology 732 (CSK 732)

Module credits	32.00
Prerequisites	No prerequisites.



Contact time	32 contact hours per semester
Language of tuition	English
Academic organisation	Chemical Engineering
Period of presentation	Semester 1

Process control system development 732 (CSP 732)

Module credits	32.00
Prerequisites	No prerequisites.
Contact time	32 contact hours per semester
Language of tuition	English
Academic organisation	Chemical Engineering
Period of presentation	Semester 1

Specialisation 420 (CSS 420)

Module credits	16.00
Prerequisites	CPJ 421#
Contact time	4 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Chemical Engineering
Period of presentation	Semester 2

Module content

A module to be selected from the list of available specialisation topics, including Process Control, Chemical Product Design, Environmental Engineering, Nuclear Engineering, Polymer Processing, Reactor Design, and Water Utilisation Engineering.

Particle technology 410 (CPA 410)

Module credits	16.00
Prerequisites	COP 311
Contact time	3 tutorials per week, 4 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Chemical Engineering
Period of presentation	Semester 1

Module content

Humidification and dehumidification of air. Water cooling, drying, crystallisation, ion exchange, particle technology, particle movement in a fluid, sedimentation. Hydrocyclones, flotation, filtration. Centrifuges. Fluidised bed technology. Mixing. Comminution. Pneumatic transport.

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.