

# University of Pretoria Yearbook 2020

## BSc Architecture (12132018)

<b>Minimum duration of study</b>	3 years
<b>Total credits</b>	384
<b>NQF level</b>	07
<b>Contact</b>	Dr N Botes <a href="mailto:nico.botes@up.ac.za">nico.botes@up.ac.za</a> +27 (0)124204600

### Programme information

Architecture entails the design of buildings and the spaces between those buildings. Art and science are employed to create liveable environments, that contribute towards the spiritual and material prosperity of the country. Architects are often innovative, critical thinkers that lead and form part of consultant teams. Although they are employed by organisations involved with development, investment, research, marketing, the industry or even education, many architects prefer to be independent consultants and entrepreneurs.

BScArch is regarded as an exit level that enables the graduate to register as a candidate architectural technologist, and BArchHons as candidate senior architectural technologist, at the South African Council for the Architectural Profession. A architectural technologist is a professional person registered by the SACAP in terms of the Act on the Architectural Profession (Act 44 of 2000). Such practitioners provide assistance in the practices of the disciplines of architecture, interior architecture, landscape architecture and urban design where their responsibilities would be the documentation of projects, project administration and site management.

Students are advised to work in the offices of an architect to gain practical experience during the university recesses and during a year out after completion of the BScArch degree.

A graduate wishing to become a professional architect must apply for, and pursue, a further two years of full-time studies in the professional degree programme. The Master of Architecture (Professional) degree is recognised by the South African Council for the Architectural Profession as qualifying the graduate to register as a candidate professional architect in terms of the Act on the Architectural Profession (Act 44 of 2000).

### Admission requirements

- The following persons will be considered for admission: candidates who are in possession of a certificate that is deemed by the University to be equivalent to the required Grade 12 certificate with university endorsement; candidates who are graduates from another tertiary institution or have been granted the status of a graduate of such an institution; and candidates who are graduates of another faculty at the University of Pretoria.
- Life Orientation is excluded when calculating the APS.
- Grade 11 results are used in the conditional admission of prospective students.
- A valid qualification with admission to degree studies is required.
- Minimum subject and achievement requirements, as set out below, are required.
- BSc (Architecture) will only be considered as first study choice. Selection programme: Selection includes an interview.



- Tuition will be presented in English only.

### Minimum requirements

#### Achievement level

#### English Home

#### Language or

#### English First

#### Additional

#### Language

		Mathematics		Physical Science		APS
NSC/IEB	AS Level	NSC/IEB	AS Level	NSC/IEB	AS Level	
5	C	4	D	4	D	<b>27</b>

\* Cambridge A level candidates who obtained at least a D in the required subjects, will be considered for admission. International Baccalaureate (IB) HL candidates who obtained at least a 4 in the required subjects, will be considered for admission.

## Additional requirements

**Please Note:** Students wishing to transfer to other programmes in the Department of Architecture must obtain written consent from the admissions committee.

## Other programme-specific information

### Concurrent presentation

In the third year of study Design, Construction, Design communication, Environmental studies and Earth studies must initially be examined in the same year.

The degree is awarded to those students obtaining all the prescribed credits for the programme modules.

## Promotion to next study year

A student is promoted to a subsequent year of study after acquiring all the prerequisite module credits of the preceding year of study.

A student is deemed to be in the year of study for which he or she is registered in Design.

If the student is not registered for Design the highest passed year of Design determines the year of study.

**Please Note:** Students not promoted to the next year of study must obtain the approval of the programme coordinator and the relevant head of department to register for modules in the subsequent year of study.

Students must re-apply for admission to the Department of Architecture in instances where:

- a student is not promoted to the second year of study;
- a student after repeating any year of study, is not promoted to the following year of study.

## Pass with distinction

The degree is conferred with distinction on a student who, at first registration, passes all modules of the final year of study with a weighted average of 75%. The degree must have been completed within the minimum prescribed time and no supplementary/special examinations may have been written.



## Curriculum: Year 1

Minimum credits: 116

### Fundamental modules

#### Academic information management 102 (AIM 102)

**Module credits** 6.00

**Service modules**

Faculty of Education  
Faculty of Economic and Management Sciences  
Faculty of Humanities  
Faculty of Law  
Faculty of Health Sciences  
Faculty of Natural and Agricultural Sciences  
Faculty of Theology and Religion  
Faculty of Veterinary Science

**Prerequisites** No prerequisites.

**Contact time** 2 lectures per week

**Language of tuition** Module is presented in English

**Department** Information Science

**Period of presentation** Semester 2

**Module content**

Find, evaluate, process, manage and present information resources for academic purposes using appropriate technology. Apply effective search strategies in different technological environments. Demonstrate the ethical and fair use of information resources. Integrate 21st-century communications into the management of academic information.

#### Academic information management 111 (AIM 111)

**Module credits** 4.00

**Service modules**

Faculty of Engineering, Built Environment and Information Technology  
Faculty of Education  
Faculty of Economic and Management Sciences  
Faculty of Humanities  
Faculty of Law  
Faculty of Health Sciences  
Faculty of Natural and Agricultural Sciences  
Faculty of Theology and Religion

**Prerequisites** No prerequisites.

**Contact time** 2 lectures per week

**Language of tuition** Module is presented in English

**Department** Information Science

**Period of presentation** Semester 1



## Module content

Find, evaluate, process, manage and present information resources for academic purposes using appropriate technology.

### Academic information management 121 (AIM 121)

**Module credits** 4.00

**Service modules**

Faculty of Engineering, Built Environment and Information Technology  
Faculty of Education  
Faculty of Economic and Management Sciences  
Faculty of Humanities  
Faculty of Law  
Faculty of Health Sciences  
Faculty of Natural and Agricultural Sciences  
Faculty of Theology and Religion  
Faculty of Veterinary Science

**Prerequisites** No prerequisites.

**Contact time** 2 lectures per week

**Language of tuition** Module is presented in English

**Department** Informatics

**Period of presentation** Semester 2

## Module content

Apply effective search strategies in different technological environments. Demonstrate the ethical and fair use of information resources. Integrate 21st-century communications into the management of academic information.

### Academic orientation 112 (UPO 112)

**Module credits** 0.00

**Language of tuition** Module is presented in English

**Department** EBIT Deans Office

**Period of presentation** Year

## Core modules

### Earth studies 110 (AAL 110)

**Module credits** 8.00

**Prerequisites** No prerequisites.

**Contact time** 3 lectures per week

**Language of tuition** Module is presented in English

**Department** Architecture

**Period of presentation** Semester 1



### Module content

Introduction to ecosystemic and systems thinking, ecology, natural resources and stress on the environment; social ecological systems and wellbeing; ecological design principles.

## Digital visual communication 110 (ARC 110)

**Module credits** 6.00

**Prerequisites** No prerequisites.

**Language of tuition** Module is presented in English

**Department** Architecture

**Period of presentation** Semester 1

### Module content

Basic overview and understanding of digital architectural visualisation using tools such as prescribed open source photo editing software that enhances hand drawing techniques.

## Construction 111 (KON 111)

**Module credits** 8.00

**Prerequisites** No prerequisites.

**Contact time** 3 lectures per week

**Language of tuition** Module is presented in English

**Department** Architecture

**Period of presentation** Semester 1

### Module content

The context of architectural technology and the relationships between technology, theory, structure and materials. Drawing conventions. The typical city site. The construction and materials of a single storey dwelling with masonry walls and a pitched roof, from preparation for building work to substructure, retaining walls and floors.

## Construction 121 (KON 121)

**Module credits** 8.00

**Prerequisites** KON 111 GS

**Contact time** 1 practical per week, 3 lectures per week

**Language of tuition** Module is presented in English

**Department** Architecture

**Period of presentation** Semester 2

### Module content

Continuation of the construction and materials of a single storey dwelling. Superstructure: walls, opening, roofs, finishes and services.



## Design communication 120 (OKU 120)

<b>Module credits</b>	6.00
<b>Prerequisites</b>	No prerequisites.
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Architecture
<b>Period of presentation</b>	Semester 2

### Module content

Quarter 3: Introduction to basic computer aided design.

Quarter 4: Introduction to the theory of structures: Forces, moments, stresses, strains, Young's Modulus, Structural components: beams, columns and trusses.

## Environmental theory 110 (OML 110)

<b>Module credits</b>	6.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	2 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Architecture
<b>Period of presentation</b>	Semester 1

### Module content

Introductory contextualisation of twentieth century artefacts within the framework of history from Antiquity to Modernity. Building types as artefacts of material culture. Approaches and guidelines to the study of history of the environment. Understanding of the process of endemic construction and its monumentalisation, settlement and urbanisation of various ages and environments. An interdisciplinary investigation of living spaces as shapers of social interaction. The history of the environment of the Mediterranean Antique, Bronze Age, Classical and Biblical societies.

## Environmental studies 120 (OML 120)

<b>Module credits</b>	6.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	2 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Architecture
<b>Period of presentation</b>	Semester 2

### Module content

The history of the environment of and the link between North-Europe and the Mediterranean area, the Arabic peninsula and the Indies, from the fall of Jerusalem up until the fall of Constantinople in 1453 AD. Tao, Shinto and the landscape of the Far East.



## Design 100 (ONT 100)

<b>Module credits</b>	60.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	17 studio hours per week, 2 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Architecture
<b>Period of presentation</b>	Year

### Module content

Introduction to design and integration with supporting modules. Design principles, skills and techniques. Small-scale design projects and environmental influences (physical, social, cultural, historical), space requirements and creative interpretation. Acquisition of skills in design communication through imagination, intuition and conceptual thinking. Relation of internal to external space. Anthropometry and ergonomics; visual literacy (visual media, analysis and interpretation) and criticism. The designer as visual thinker. Perception; ideograms. Development of a vocabulary to describe and illustrate the discipline of design. Pertinent theory that informs and supports the design process.



## Curriculum: Year 2

Minimum credits: 136

### Core modules

#### Earth studies 210 (AAL 210)

<b>Module credits</b>	8.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	3 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Architecture
<b>Period of presentation</b>	Semester 1

#### Module content

Designing towards wellbeing within the built environment: responsive and passive design in natural and mesoscale environments.

#### Earth studies 224 (AAL 224)

<b>Module credits</b>	4.00
<b>Prerequisites</b>	No prerequisites.
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Architecture
<b>Period of presentation</b>	Quarter 4

#### Module content

Environmental filters and forecasting techniques:

Sound: the physical nature of sound, physiology of hearing, sound and noise sources, transfer, absorption and isolation, noise control; measurement, levels, frequency analysis, A-loading, room acoustics, reverberation periods.

Light: properties of natural light, design criteria, daylight factors, diffusion, quality, energy requirements and saving.

#### Geomorphology of the built environment 265 (GGY 265)

<b>Module credits</b>	12.00
<b>Service modules</b>	Faculty of Engineering, Built Environment and Information Technology
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	4 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Geography Geoinformatics and Meteorology





**Period of presentation** Quarter 3

### Module content

\*This module is for Architecture and Landscape Architecture students only.

The theory component covers geomorphological aspects of the built environment including landscape identification; weathering or deterioration of natural stone and application to design and preservation of buildings and monuments; slope hydrology and stability conditions; soil erosion processes and construction impacts; drainage modification in urban areas; wetland identification, human impacts and rehabilitation; recreational impacts and management. In addition to the theory a field-based project is undertaken.

## Community-based project 201 (JCP 201)

**Module credits** 8.00

**Prerequisites** No prerequisites.

**Contact time** 1 other contact session per week

**Language of tuition** Module is presented in English

**Department** Informatics

**Period of presentation** Year

### Module content

This project-orientated module is a form of applied learning which is directed at specific community needs and is integrated into all undergraduate academic programmes offered by the Faculty of Engineering, Built Environment and Information Technology. The main objectives with the module are as follows:

(1) The execution of a community related project aimed at achieving a beneficial impact on a chosen section of society, preferably but not exclusively, by engagement with a section of society which is different from the student's own social background.

(2) The development of an awareness of personal, social and cultural values, an attitude to be of service, and an understanding of social issues, for the purpose of being a responsible professional.

(3) The development of important multidisciplinary and life skills, such as communication, interpersonal and leadership skills.

Assessment in the module will include all or most of the following components: evaluation and approval of project proposal, assessment of oral and/or written progress reports, peer assessment in the event of team projects, written reportback by those at which the project was aimed at, and final assessment on grounds of the submission of a portfolio and a written report.

## Construction 210 (KON 210)

**Module credits** 8.00

**Prerequisites** KON 111 and KON 121

**Contact time** 3 lectures per week

**Language of tuition** Module is presented in English

**Department** Architecture

**Period of presentation** Semester 1



### Module content

Double-storeyed buildings: reinforced concrete, steel and timber-framed structures. Offshutter concrete. Load-bearing masonry. Low-pitch roofs and waterproofing, other pitched-roof finishes. Lightweight partitioning. Glass. Joinery. Small precast elements.

### Construction 220 (KON 220)

**Module credits** 8.00

**Prerequisites** KON 210 GS

**Contact time** 3 lectures per week

**Language of tuition** Module is presented in English

**Department** Architecture

**Period of presentation** Semester 2

### Module content

Soil mechanics: foundations, basement construction and waterproofing. Site structures: geotextiles and geomembranes, stairs, walls, retaining walls, fences, ramps, gabions, prefabricated retaining blocks. Built planters, lapas, braais, pavilions, decks.

### Environmental theory 210 (OML 210)

**Module credits** 6.00

**Prerequisites** No prerequisites.

**Contact time** 2 lectures per week

**Language of tuition** Module is presented in English

**Department** Architecture

**Period of presentation** Semester 1

### Module content

The history of the environment and the link between North-Europe and a newly discovered world from the time of the circumnavigation of the southernmost Cape Point of Africa till the Industrial Revolution.

### Environmental studies 220 (OML 220)

**Module credits** 6.00

**Prerequisites** No prerequisites.

**Contact time** 2 lectures per week

**Language of tuition** Module is presented in English

**Department** Architecture

**Period of presentation** Semester 2



## Module content

History of the environment of Western societies and their dominions from the Industrial Revolution up to the intellectual questioning of Modernism. Southern African housing typologies and Western artefacts as manifestation of socio-political realities since 1488 AD.

## Design 200 (ONT 200)

**Module credits** 60.00

**Prerequisites** AAL 110, KON 111, KON 121, OML 110, OML 120 and ONT 100

**Contact time** 17 studio hours per week, 2 lectures per week

**Language of tuition** Module is presented in English

**Department** Architecture

**Period of presentation** Year

## Module content

The process and product of design through the integration of supporting modules. Spatial design as response to tectonic and contextual influences. The production of space and the reading of place as central concerns in the design disciplines. The design of residential and simple public spaces and buildings with the emphasis on planning, plan-making, structure and economy as design determinants. Skills: programming, site analysis, time management, advanced graphic and reprographic techniques.

Pertinent theory that informs and supports the design process in architecture.

## Theory of structures 211 (STU 211)

**Module credits** 8.00

**Prerequisites** No prerequisites.

**Contact time** 3 lectures per week

**Language of tuition** Module is presented in English

**Department** Civil Engineering

**Period of presentation** Semester 1

## Module content

Introduction to structural engineering concepts like design, analysis, sizing and planning of structures. Introduction to Newton's laws, equilibrium, free body diagrams. The application of equilibrium in solving reactions of statically determinate structures. The principles of determinacy and stability of structures. The application of Newton's laws in determining the internal forces in common structural systems like cable structures, trusses, frames and beams. The fundamental principles of weight and forces and how forces are transmitted through structural members and load tracing.

## Theory of structures 221 (STU 221)

**Module credits** 8.00

**Prerequisites** STU 211 GS

**Contact time** 3 lectures per week



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<b>Language of tuition</b>	Module is presented in English
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<b>Department</b>	Civil Engineering
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<b>Period of presentation</b>	Semester 2
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### **Module content**

Introduction to material science in structural engineering. Concepts like stress, strain, elasticity, stress-strain diagrams, elasticity modules, strength and deformation as applied in structural engineering. Cross-sectional properties of structural elements. Types of stresses, and their transmission in structural elements. Introduction to the relationship between stress and strain (deflection) in beams by Coulomb's theory. Introduction to the analysis of compressive structural elements by means of Euler's theory.



## Curriculum: Final year

Minimum credits: 132

### Core modules

#### Earth studies 320 (AAL 320)

<b>Module credits</b>	6.00
<b>Prerequisites</b>	AAL 210
<b>Contact time</b>	2 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Architecture
<b>Period of presentation</b>	Semester 2

#### Module content

Ecosystemic thinking for the designer in terms of culture, science and environment. The designer as critic; analysis of precedents. Application of principles of sustainable development and ecological design including energy demand and efficiency and energy dissipation.

#### Introduction to construction contract law 322 (KKR 322)

<b>Module credits</b>	8.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	3 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Construction Economics
<b>Period of presentation</b>	Semester 2

#### Module content

An introduction to the principles of construction contract law and an overview of standardised conditions of contract for the built environment.

#### Construction 310 (KON 310)

<b>Module credits</b>	12.00
<b>Prerequisites</b>	KON 210 and KON 220
<b>Contact time</b>	3 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Architecture
<b>Period of presentation</b>	Semester 1



## Module content

Roads: design and construction, materials and finishes, kerbing. Water features: design and construction. Street furniture. Construction equipment. Site and building services: water lines, sanitary plumbing and pipe systems above ground and indoors, underground sewer systems, electricity and gas. Electrical lighting: light, lamp types, luminaires; lighting requirements. Design application.

## Construction 320 (KON 320)

<b>Module credits</b>	12.00
<b>Prerequisites</b>	KON 310 GS
<b>Contact time</b>	2 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Architecture
<b>Period of presentation</b>	Semester 2

## Module content

Integration of the foregoing coursework. Introduction to construction norms and standards, technical drawing practice and specifications. Cost estimates, feasibility and payability. Advanced materials: ceramics, polymers, adhesives, paint, metals, glass. Human transportation systems: types, applications. Design of a small commercial building/landscape/interior space (in DESIGN) and the preparation of its construction drawings.

## Design communication 300 (OKU 300)

<b>Module credits</b>	6.00
<b>Prerequisites</b>	ONT 200/ONT 202/ONT 203
<b>Contact time</b>	1 lecture per week, 1 studio hour per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Architecture
<b>Period of presentation</b>	Year

## Module content

Advanced digital visualisation and representation tools to support design projects. Document and building information management.

## History of the environment 310 (OMG 310)

<b>Module credits</b>	6.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	2 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Architecture
<b>Period of presentation</b>	Semester 1



## Module content

History of the environment of African societies between the tropics within global context until the present.

### History of the environment 320 (OMG 320)

<b>Module credits</b>	6.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	2 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Architecture
<b>Period of presentation</b>	Semester 2

## Module content

History of the environment of Southern African societies from the old Stone Age until the present.

### Design 300 (ONT 300)

<b>Module credits</b>	52.00
<b>Prerequisites</b>	KON 210, KON 220, OML 210, OML 220 and ONT 200
<b>Contact time</b>	17 studio hours per week, 2 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Architecture
<b>Period of presentation</b>	Year

## Module content

The process of design through the integration of supporting modules. Lateral thinking and ritual as design informants.

The design of a mixed-use project in an urban context with a complex programme developed to construction drawings in the Construction modules. Statutory requirements, feasibility and payability studies. Theory of normative positions and the relationship between global intellectual movements and the local debate.

Appraising the state of current design production and the establishment of identity through design.

### Practice management 310 (PJS 310)

<b>Module credits</b>	8.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	3 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Architecture
<b>Period of presentation</b>	Semester 1



## Module content

Management of an architectural practice and architectural project from inception up to local authority submission.

## Theory of structures 311 (STU 311)

<b>Module credits</b>	8.00
<b>Prerequisites</b>	STU 211 and STU 221
<b>Contact time</b>	3 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Civil Engineering
<b>Period of presentation</b>	Semester 1

## Module content

1. Concrete Structures.
  - Loads on concrete structures, Limit-states design principles.
  - Bending, shear and punching: Design of beams, slabs and footings.
  - Compression members: Design of columns.
2. Load bearing brickwork.
  - Limit-states design principles. Effective length and width of compression members.

## Theory of structures 321 (STU 321)

<b>Module credits</b>	8.00
<b>Prerequisites</b>	STU 311 GS
<b>Contact time</b>	3 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Civil Engineering
<b>Period of presentation</b>	Semester 2

## Module content

1. Timber structures
  - Loads on typical timber structures, Limit-states design principles
  - Bending, shear and deflection: Design of flexural members without and with axial loads
  - Tension members: Tension members in roof trusses
  - Compression members: Design of compression members in trusses and as support members for trusses
  - Bracing systems
2. Steel Structures
  - Loads on typical steel structures, Limit-states design principles
  - Bending, shear and deflection: Design of flexural members without and with axial loads
  - Tension members: Tension members in roof trusses
  - Compression members: Design of compression members in trusses and as support members for trusses
  - Bracing systems





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.