

# NATIONAL DIPLOMA: AGRICULTURE: CROP PRODUCTION\*

Qualification code: NDAR04 - NQF Level 6

Campus where offered: Pretoria Campus (day classes)

Last year of new intake: 2018

Teach-out (phase-out) date: 31 December 2022

Students registered for this qualification should complete their studies according to the teach-out date prescribed for the qualification, subject to the stipulations of Regulation 3.1.11 and 3.1.13 in the Students' Rules and Regulations.

Information on phased-out programmes can be obtained from the TUT website, [www.tut.ac.za](http://www.tut.ac.za).

Key to asterisks:

\* Information does not correspond to information in Report 151.

(Deviations approved by the Senate in May 2007.)

## CURRICULUM

Consult the 2018 Faculty Prospectus for the full contents of the qualification.

### FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
<b>FIRST SEMESTER</b>			
AAP101T	Agricultural Anatomy and Physiology I	(0,100)*	
AGA111T	Agricultural Calculations I	(0,100)*	
AGB101T	Agricultural Botany I	(0,100)*	
AGH101T	Agricultural Mechanisation I	(0,100)*	
SSC111T	Soil Science I	(0,100)*	
TOTAL CREDITS FOR THE SEMESTER:		0,500	
<b>SECOND SEMESTER</b>			
AEX101C	Agricultural Extension I	(0,100)*	
AGE111T	Agricultural Economics I	(0,100)*	
CRO101T	Crop Production I	(0,100)*	
OBS101T	Crop Protection I	(0,100)*	
SSV201T	Soil Surveys II	(0,100)*	Soil Science I
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE FIRST YEAR:		<b>1,000</b>	

### SECOND YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
<b>FIRST SEMESTER</b>			
AGN201T	Agronomy II	(0,100)*	Crop Production I
AGR201T	Agricultural Marketing II	(0,100)*	Agricultural Economics I
FPR201T	Fruit Production II	(0,100)*	Crop Production I
OBS201T	Crop Protection II	(0,100)*	Crop Protection I
SSC301T	Soil Science III	(0,100)*	Soil Surveys II
TOTAL CREDITS FOR THE SEMESTER:		0,500	



## SECOND SEMESTER

AGN301T	Agronomy III	(0,100)*	Agronomy II
APN301T	Agricultural Production Management III	(0,100)*	Agricultural Marketing II
FPR301T	Fruit Production III	(0,100)*	Fruit Production II
OBS301T	Crop Protection III	(0,100)*	Crop Protection II
VEG101T	Vegetable Production I	(0,100)*	

TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE SECOND YEAR: 1,000

## THIRD YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
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### FIRST OR SECOND SEMESTER

EXP1AGR	Work-Integrated Learning I (on completion of all the above subjects)	(0,500)	
EXP2AGR	Work-Integrated Learning II	(0,500)	Work-Integrated Learning I

TOTAL CREDITS FOR THE THIRD YEAR: 1,000

TOTAL CREDITS FOR THE QUALIFICATION: 3,000

## SUBJECT INFORMATION (OVERVIEW OF SYLLABUS)

Please take note that for the 2020 academic year certain modules will be assessed as continuous assessment. Please contact the Academic Department for further information.

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 subject. On 25 October 2019, the syllabus content was defined as follows:

### A

#### AGRICULTURAL ANATOMY AND PHYSIOLOGY I (AAP101T) 1 X 3-HOUR PAPER

*(Subject custodian: Department of Animal Sciences)*

A systematic, summarised study of the skeleton, muscular system, organs and organ systems of the different farm animals, as well as the physiology of digestion, milk production and endocrinology. (Total tuition time: ± 70 hours)

#### AGRICULTURAL BOTANY I (AGB101T) 1 X 3-HOUR PAPER

*(Subject custodian: Department of Crop Sciences)*

A review of the importance of plants in general and crop plants in particular. The morphology of crop plants: seed and germination, roots, stems, leaves, inflorescence, flowers and fruit. Crop anatomy: the plant cell, roots, stems and leaves. Classification: common and botanical names, development of the botanical classification, plant identification and nomenclature. Crop physiology: photosynthesis, respiration, water absorption and transport, translocation of sugars. (Total tuition time: ± 70 hours)

#### AGRICULTURAL CALCULATIONS I (AGA111T) 1 X 2-HOUR PAPER

*(Subject custodian: Department of Mathematics and Statistics)*

Quantifying information through applied mathematics. Elaboration on and presentation of information through appropriate computer programmes. Computer literacy. Agricultural calculations: the use of pocket calculators, fractions, decimals, formulae, exponents, ratios, length, circumference, area, volume, mass, time, percentages and graphs. Computer literacy: the extension and presentation of information by means of applied computer programmes. (Total tuition time: ± 70 hours)



**AGRICULTURAL ECONOMICS I (AGE111T) 1 X 3-HOUR PAPER**

**(Subject custodian: Department of Crop Sciences)**

A study of agricultural economics with the emphasis on micro-economics of production as part of farming management. Functional general management process with internal management information system and enterprise functions, applied to farm labour management and financial management for farmers under conditions of risk and uncertainty. (Total tuition time: ± 70 hours)

**AGRICULTURAL EXTENSION I (AEX101C) 1 X 3-HOUR PAPER**

**(Subject custodian: Department of Crop Sciences)**

Description of the South African agricultural environment. Role-players in the South African agricultural industry. An introduction to agricultural extension and its relation to technology and rural development. An introduction to different extension methods. An introduction to communication theory and practice, including administrative communication. The use of extension programmes. (Total tuition time: ± 70 hours)

**AGRICULTURAL MARKETING II (AGR201T) 1 X 3-HOUR PAPER**

**(Subject custodian: Department of Crop Sciences)**

Principles of price-forming theory and agricultural marketing, with the emphasis on the marketing function, institutions, competition, marketing costs and margins from the enterprise point of view. Purchasing principles and procedures in buying agricultural inputs (especially farm firms and cooperatives). (Total tuition time: ± 70 hours)

**AGRICULTURAL MECHANISATION I (AGH101T) 1 X 3-HOUR PAPER**

**(Subject custodian: Department of Crop Sciences)**

Principles and operation of the basic power units applicable to agriculture. (Total tuition time: ± 70 hours)

**AGRICULTURAL PRODUCTION MANAGEMENT III (APN301T) 1 X 3-HOUR PAPER**

**(Subject custodian: Department of Crop Sciences)**

The purpose of this course is to equip students with skill in and knowledge of farm management, financial management and contemporary issues that are essential to tackle the economic problems related to the farm and agribusiness. (Total tuition time: ± 70 hours)

**AGRONOMY II (AGN201T) 1 X 3-HOUR PAPER**

**(Subject custodian: Department of Crop Sciences)**

The cultivation of field crops, with the emphasis on grain crops and potatoes. This includes the extent of the industry, the growth and development of crops and cultivation practices. (Total tuition time: ± 70 hours)

**AGRONOMY III (AGN301T) 1 X 3-HOUR PAPER**

**(Subject custodian: Department of Crop Sciences)**

The cultivation of field crops, with the emphasis on oil seeds and protein seeds, industrial crops and fodder crops. This includes the extent of the industry, the growth and development of crops and cultivation practices. (Total tuition time: ± 70 hours)

**C**

**CROP PRODUCTION I (CRO101T) 1 X 3-HOUR PAPER**

**(Subject custodian: Department of Crop Sciences)**

An introduction to crop production. Factors influencing the adaptability of crops. The principles of different cultivation practices and crop improvement. Calculations regarding planting dates, crop potential, fertilisation, plant population, yields, calibration of implements. (Total tuition time: ± 70 hours)

**CROP PROTECTION I (OBS101T) 1 X 3-HOUR PAPER**

**(Subject custodian: Department of Crop Sciences)**

Basic entomology: a review of the morphology, development, reproduction, biology and classification of insects and mites, and collection and mounting of insect specimens. Plant pathology: a review of symptoms and the classification of plant diseases, the classification and biology of the different groups of plant pathogens, the disease cycle, the dissemination of plant pathogens. A review of the biology of weeds and methods of weed control: chemical weed control regarding classification, choice and the effectivity of herbicides. (Total tuition time: ± 70 hours)



**CROP PROTECTION II (OBS201T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Crop Sciences)**

Pest control: a review of various pesticides, the use of standard reference material, a review of various pest control methods, the biology and control of known South African agricultural pests. Disease control: a review of different disease management strategies, separation of host and pathogen, cultural control, biological control, physical control, immunisation and resistance, and chemical control, with appropriate examples. Pathogen resistance: mechanisms of resistance and management of resistance. Application: a review of the different types of application equipment and the principles of application, and calibration of application equipment, with appropriate examples. Legislation and the safe use of agrochemicals: discussion of Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947) and Hazardous Substances Amendment Act, 1992 (Act No. 53 of 1992) and various other important agricultural laws relating to pest control, a review of the safe use of agrochemicals. (Total tuition time: ± 70 hours)

**CROP PROTECTION III (OBS301T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Crop Sciences)**

Pest control: a review of insect behaviour relevant to pest control in agriculture, a comprehensive explanation of the principles of biological and integrated control, Insect Pest Management (IPM). Disease epidemiology: a study of various epidemics and the disease management strategies they require, the influence of environmental, human, pathogen, host and time span factors on the development of epidemics, classification of epidemics, development of integrated disease management strategies through applicable case studies. (Total tuition time: ± 70 hours)

**F****FRUIT PRODUCTION II (FPR201T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Crop Sciences)**

An introduction to the South African fruit industry and the classification of the fruit. Important climatic factors for fruit production. Establishment and maintenance of the orchard. Structure growth development and production of tree fruit, maturity indices for harvesting, basics of harvesting, field handling and determining the fruit quality parameters with an emphasis of popular temperate fruit. (Total tuition time: ± 70 hours)

**FRUIT PRODUCTION III (FPR301T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Crop Sciences)**

Introduction to a nursery practice. Pre-harvest quality improvement measures. Growth regulators of tree fruit and the harvest and postharvest control of fruit. Important climatic factors for fruit production. Structure growth development and production of tree fruit, maturity indices for harvesting, basics of harvesting, field handling and determining the fruit quality parameters with an emphasis of popular tropical and subtropical fruit. (Total tuition time: ± 70 hours)

**S****SOIL SCIENCE I (SSC111T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Crop Sciences)**

Basic principles of chemistry: a basic introduction to the structure of an atom and the properties of the periodic table, including the naming of inorganic compounds, properties and the influence of soil pH on nutrient availability with special emphasis on the sources and properties of different fertilisers used. (Total tuition time: ± 100 hours)

**SOIL SCIENCE III (SSC301T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Crop Sciences)**

Plant nutrition and the properties of fertilisers: properties of plant nutrients and their role in plant growth, properties of fertilisers. Fertiliser recommendations and methods of application: sampling soil and leaf analysis, calculations, fertiliser recommendations, factors that influence placing, methods of placing and calibration of equipment. Irrigation scheduling: soil-water relationships, classification of soil water, measurement of water content, infiltration water movement in soils, evapotranspiration, plant-water relationships, irrigation scheduling. (Total tuition time: ± 70 hours)



**SOIL SURVEYS II (SSV201T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Physics)**

The systematic investigation, description, classification and mapping of soils. The agricultural potential of the most important soils. Basic principles of physics: measurements, units and conversions, mechanics, heat and electricity. (Total tuition time: ± 100 hours)

**V****VEGETABLE PRODUCTION I (VEG101T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Crop Sciences)**

An introduction to the vegetable industry. The structure, growth, development and production of important vegetable crops in South Africa. (Total tuition time: ± 70 hours)

**W****WORK-INTEGRATED LEARNING I (EXP1AGR)****WORK-INTEGRATED LEARNING****WORK-INTEGRATED LEARNING II (EXP2AGR)****WORK-INTEGRATED LEARNING****(Subject custodian: Department of Crop Sciences)**

A practical internship of one semester at an approved agriculture-related enterprise. A report on the internship, as well as tasks relating to the specialisation field of the student. An oral examination is taken at the end of the period. (Total tuition time: six months)

