

The background of the cover features a composite image. The upper portion shows three graduates in black academic caps, with the one in the foreground smiling. The lower portion shows a wide, open landscape with a herd of sheep grazing in a field under a bright, hazy sky.

SWASA

Sheep and Wool Academy for Southern Africa

National Diploma: Wool Technologist

STUDY PROSPECTUS
2020/2021

COURSE OVERVIEW

National Diploma: Wool Technologist, NQF 7, 360 Credits

QUALIFICATION RULES

The National Diploma in Wool technology is an academic programme supported by practical hands-on modules, developed for the South African Wool Industry. This qualification focuses on the technical aspects of wool as an international commodity within the technical and management aspects of sheep production skills, the sciences of chemistry and physics, biology, and the technical aspects of wool properties and processing.

The three-year Diploma in Wool Technology will enable qualifying graduates to actively participate in the secondary wool processing value chain, whilst enhancing the overall agrarian process and gaining opportunities to access local, national and international wool processing markets. Competency will be obtained in specialized sub-fields of managing primary wool production processes, the harvesting and classification of wool, the chemical and biological properties of wool as a product with regard to follicle development, histology and morphology, physical characteristics, and ultimately wool processing technology, with a focus on mechanical, chemical, electrical and thermostatic characteristics in the manufacturing processes of pure- and mixed fibre textiles.

WHAT YOU STUDY

First Year modules

Wool Technology I – Sheep and Wool production

1. Production of sheep
2. Production of wool
3. Management of wool sheep
4. Management of the shearing facility
5. Wool harvesting and classification (Cape Wools Wool Classing Certificate)

Second Year modules

Wool Technology II – Wool Sciences

1. Chemistry I
2. Biochemistry I
3. Biology I
4. Anatomy and Physiology
5. Wool Histology
6. Wool follicle development
7. Wool Morphology
8. Wool Characteristics I

Third Year modules

Wool Technology III – Wool processing

1. Wool Characteristics II
2. Chemical behaviour of wool
3. Handling and Processing of wool
4. Manufacturing of textile and products

ADMISSION REQUIREMENTS

The following minimum admission requirements will be required to enter for the Diploma in Wool Technology:

For Scholars attending Agricultural Schools

- Enrolment to the National Senior Certificate (Grade 12), with the following subjects:
 - Agricultural Science
 - Agricultural Management or Agricultural Technology
 - Physical Sciences
 - Life Sciences
 - English Language
- English tuition language with a minimum achievement level 3 (40%)
- Mathematics or Mathematical Literacy

For other candidates

The following minimum admission requirements will be required to enter for the National Diploma:

- National Senior Certificate (Grade 12), or National Certificate (Vocational) that allows entrance to Diploma or Higher Certificate studies
- Minimum Application Point of 20
- English tuition language with a minimum achievement level 3 (40%)
- Mathematical Literacy with a minimum achievement level 4 (50%), or
- Mathematics with a minimum achievement level 2 (30%)

CURRICULUM LAYOUT

First Year:

Wool Technology I – Sheep and Wool production

1. Production of sheep

- Taxonomic and Hierarchy of the sheep
- Sheep behaviour
- Economic importance

- Sheep breeds and characteristics
- Grazing and pasture science
 - Ecology
 - Natural Pastures
 - Grazing systems
 - Cultivated Pastures
 - Sustainable Land Management Systems
- Reproduction management
- Meat classification
- Handling of sheep
- Management of sheep
 - Genetics and selection
 - Mating
 - Ewe management
 - Ram management
 - Breeding and reproduction
 - Lambing systems and facilities
 - Birth giving process
 - Raising lambs
 - Medication and chemotherapeutic agents
 - Management practices
- Sheep Diseases and Biosecurity
- Feeding of sheep

2. Production of wool

- Types of wool - fibre fineness
- Wool crimp
- Wool contamination
- Classification and sorting of wool
- Baling and marking
- The wool value chain

3. Management of the shearing facility

- The Sheering shed and facilities
- Sheering equipment / requisites
- Sheep shearing procedure

5. Communication

- Sustained oral Communication
- Evaluation text and verbal speech
- Communication and language in occupational programmes

- Written text in communicative context
- Research methodology and writing of Academic Assignments

6. Agricultural Management

- Agricultural Economics I
- Introduction to farm management
- Management of Natural and Sustainable Resources
- Financial management in the Agri-business
- Food Safety and Quality Management Systems
- Human Resource Management

7. Practical Outcomes

- Complete sheep practical logbook on a commercial farm
- Obtain a Cape Wools Wool Classification Certificate

Second Year:

Wool Technology II – Wool Science

1. Chemistry and Physics

- Introduction to Chemistry
- Chemical and Physical changes
- Physical changes and how to distinguish them
- Unpacking Chemical Elements
- How to view the periodic table
- Formulas and how to read and write them
- Soil physics, chemistry and biochemistry
- Biochemistry of feeds and feed products
- Water chemistry, properties and quality
- Physical characteristics of wool

2. Biometry

- Introduction to Biometry
- Graphical methods of data description
- Numerical methods of data description
- Statistical probabilities
- Hypothesis testing and confidence intervals
- Analysis of variance
- Solve problems in sequences and series and simulated situations
- Patterns and Inverses of function
- Complex numbers in non-trivial situations

3. Animal Biology

- Animal Anatomy
- Reproductive Physiology
- Physiology of Muscles, Mammary glands and Wool
 - Wool Histology
 - Wool Follicle Development
 - Wool Morphology

4. Practical Outcomes

- 3- Months fieldwork under supervision of a BKB Field agent
- Learner wool classers to obtain full Cape Wools Wool Classification Certificate

Third Year:

Wool Technology III – Wool Processing

1. Wool Science and Physics

- Chemical composition of raw wool
- Chemical behaviour of wool
- Mechanical behaviour of wool
- Electrical behaviour of wool
- Thermostatic behaviour of wool
- The Spinning Count System (Micron System)

2. Laboratory techniques

- Laboratory Health and Safety Procedures
- Laboratory apparatus
- Calibration of apparatus
- Decant and transfer liquids
- Heat substances and evaporate solutions
- Use a mortar and pestle
- Detect odours safely
- Fineness measurement of wool tops using the Airflow apparatus
- Fineness measurement of wool tops using the Projection Microscope
- Fibre Length measurement of wool tops using the Almeter
- Fineness measurement of wool tops using the Laserscan apparatus
- Fineness measurement of wool tops using the OFDA100 apparatus

2. Wool processing

- Cleaning and scouring
- Carding
- Spinning
- Weaving
- Finishing
 - Purpose of fabric finishes
 - Fulling and Stretching
 - Crabbing and Decatsing
 - Carbonizing
 - Pressing
 - Dying
- Textile manufacturing
- Wool fibre mixes with other synthetic fibres
- By-products and waste
- Industrial machinery and equipment
- Industry Occupational Health and Safety
- Legislation and legal requirements

4. Textile Machine Operator

- Scouring machines
- Carding machines
- Spinning machines
- Combing machines
- Weaving machines

SKILLS AND JOB OPPORTUNITIES

You will develop, over the tenure of your studies, a critical understanding of wool production and processing in the modern era and working in a global economy. You will gain practical and relevant skills that will enable you to work as a wool technologist in the wool sectors in South Africa, and across the globe.

All course content is based and supported by the latest industry developments, and these best practices will allow to you to participate meaningfully in primary crop production.

Graduates will be able to enter the secondary agricultural workplace and establish a thriving career through hard work and commitment.

METHODOLOGY

The National Diploma in Wool Technology is presented as an exciting blended programme. This is done through own studies, reading and the online submission of assignments, together with 12 compulsory contact sessions presented by the BKB Wool Industry.

This is a participatory learning programme, where the student will also be able to communicate with fellow students across the country via, Agri-social, our social media platform. This platform allows for questions to be discussed, and the opportunity to upload and share interesting articles, images, and videos.

Throughout the academic year, lecturers will be available on the Agri-social platform. They are also readily accessible via email, SMS, WhatsApp or direct telephonic contact.

Theoretical studies are completed through our online Agri-learn platform and the student is provided with a practical logbook to achieve practical competencies and experiences through specific workplaces provided by BKB. Where needed, students will be assisted towards practical competence through our work placement programme.

ACADEMIC FEES

The following academic fees are applicable for 2020/2021/2022.

Methods of payment:	Year 1 (2020): R 22 500	Year 2 (2021): R32 500	Year 3 (2022): R55 500
At registration:	R 1 500.00	R 1 800.00	R 2 000.00
After registration: 50% deposit	R 10 500.00	R 15 350.00	R 26 750.00
At the start of the second term: (outstanding balance)	R 10 500.00	R 15 350.00	R 26 750.00

ALTERNATIVE PAYMENT ARRANGEMENT

If you are not in a financial position to pay the full quarterly amount, you may apply in writing for the payment of modules on a month to month basis. Please direct your application to: The Financial Director, admin@bkb.swasa.africa



NATIONAL DIPLOMA WOOL TECHNOLOGIST

WHY BKB-SWASA?

- Courses are SAQA accredited
- World class lectures and affiliated academics
- Custom designed online Agricultural Campus that includes e-learning modules and an online encyclopaedia for lifelong support
- Practical training facilities
- Industry accredited outcomes towards employment opportunities

TO FIND OUT MORE:

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