

# ***A CAREER IN FOOD SCIENCE AND TECHNOLOGY***

## **THE FOOD INDUSTRY**

The Food Industry employs approximately 1 500 000 people. It is the second largest employer in South Africa, and has an annual turnover in excess of R20 billion. Technical leadership and brainpower in this industry is, and will have to continue to be provided by food scientists and technologists presently available and by those to be educated in the future.

### **SPECTRUM OF EXPERTISE**

Food production demands a wide spectrum of skills and knowledge for the successful processing of safe and wholesome foods. Food science and technology professionals specialise in studying and applying technologies and knowledge in areas such as: baking, brewing, thermal processing, freezing, milling, dehydrating, bottling, food safety, quality and nutrition, to an almost endless number of specific foods and commodities like; dairy products, oils and fats; fish, meat and poultry, preserves, pickled foods and spices, soft drinks, wine, beer, cider, spirits, tea and coffee, sugar and flour confectionery, flavourings and others.

Clearly, no academic or technical training can familiarise students with all aspects of processes, procedures and products in the food and allied industries. Training is therefore geared to first address the basic principles common to all, thus opening up the possibility of specializing at a later stage.

### **STUDY OPTIONS**

Two streams of education are available at present, i.e. Food Science at certain Universities, and Food Technology at certain Universities of Technology.

## **THE FOOD SCIENTIST**

The food scientist is a University graduate educated in all aspects of food science who will eventually be involved in the following areas:

- Investigating the basic nature of food and its nutritional, physical and chemical properties.
- Research into new and economical production procedures.
- Development of new and safe food products.
- Control and management of the quality of processed foods.
- Management within companies involved in food processing and preserving.

A degree in food science addresses the core competencies and principles of food processing and preservation providing in-depth training in food science, food chemistry, food microbiology, food biochemistry, food safety, food engineering, food analysis and food product development. It is structured to enable the student to gain an understanding of the physical and chemical properties and subsequent behaviour of food and food ingredients under different processing conditions.

The aim is to give candidates a thorough basic understanding of processing techniques and mechanisms, to enable them to design novel processing approaches and to undertake product development. Food scientists are employed throughout the food processing and manufacturing industry, as researchers at research institutes, science councils and universities, in laboratories or in various government departments in all of which situations they steadily progress into management positions.

### **Food Science Training:**

Food science degrees are offered at the Universities of the Free State, Pretoria, Stellenbosch and Venda. These institutions offer three and/or four-year undergraduate degree courses similar in basic subject matter, but with considerable variations in ancillary subjects such as economics, biometry, cost accounting, computer science, engineering and personnel management.

### **Further Studies in Food Science:**

Studies towards Masters and Doctoral degrees in food science can be undertaken at all the above mentioned Universities. All of these Universities also have their own specialisation and research areas, giving the prospective student the opportunity to specialise in a field of interest of his/her choice.

### ***More Information on University Courses in Food Science***

More information on courses and other activities of the various departments can be obtained on the following websites:

- University of Pretoria. Department of Food Science:  
<http://www.tuksfost.up.ac.za>
- University of Stellenbosch. Department of Food Science:  
<http://www.sun.ac.za/english/faculty/agri/food-science>
- University of Venda. Dept. Food Science and Technology:  
<http://www.univen.ac.za>
- University of the Free State. Department : Microbiology, Biochemistry & Food Science:  
<http://www.ufs.ac.za/natagri/departments-and-divisions/microbial-biochemical-and-food-biotechnology-home/food-science>

Enquiries regarding entrance qualifications and further detail on courses offered should be addressed to:

**The Registrar (Academic)**, at the addresses listed below:

*University of the Free State, PO Box 339, Bloemfontein. 9300*

*University of Pretoria, Pretoria. 0002*

*University of Stellenbosch, Private Bag X1, Stellenbosch. 7602*

*University of Venda, Private Bag X5050, Thohoyandou. 0950*

### **THE FOOD TECHNOLOGIST.**

Diplomas and degrees in Food Technology provide students with a thorough theoretical, as well as practical and hands-on approach to applied food chemistry, microbiology, process engineering and production, and quality assurance techniques. This is done to foster an understanding of the physical and chemical changes in foods during processing, as well as during the application of appropriate preservation techniques.

Food Technologists are trained in all aspects pertaining to the processing, preservation and development of high quality foods. They are responsible for ensuring that processing and preservation of foodstuffs is carried out effectively, thereby eliminating spoilage and waste, and they often end up managing processing plants or quality assurance laboratories. In addition to working in the larger food manufacturing industry, Food Technologists may also be employed by research institutes, or by government bodies charged with the monitoring of food quality standards.

#### **Food Technology Training:**

Food Technology Diploma and Degree-courses are offered at the following universities of technology: Durban University of Technology, Cape Peninsula University of Technology, Tshwane University of Technology and the University of Johannesburg.

Training at these universities involves fundamentally similar, three-year National Diploma courses in Food Technology which include a one-year experiential learning period in industry. During the experiential learning period, students work in approved food factories, laboratories, or other related institutions, and they are exposed to many aspects of food production, quality assurance, food product development and other important tasks. After a further two years of study, the B.Tech-degree in Food Technology can be obtained. Candidates who proceed to the B.Tech-degree have the opportunity of specialising in areas such as: Food Production, Food Product Development, and Food Quality Assurance as main fields of study.

#### **Further Studies in Food Technology:**

Studies towards Masters and Doctoral degrees can be undertaken at some of the institutions. Research programmes, which offer students the opportunity of specialising in a field of interest of their own choice, are frequently available.

### **More Information on University of Technology Courses:**

More information on diploma and degree courses at universities of technology can be obtained on the following websites:

- Durban University of Technology, Department of Biotechnology and Food Technology:  
[http://www.dut.ac.za/faculty/applied\\_sciences/biotechnology\\_and\\_food\\_technology/](http://www.dut.ac.za/faculty/applied_sciences/biotechnology_and_food_technology/)
- Cape Peninsula University of Technology. Department of Food Technology  
[http://www.cput.ac.za/index.php?option=com\\_jumi&fileid=8&q=217&f=3](http://www.cput.ac.za/index.php?option=com_jumi&fileid=8&q=217&f=3)
- Tshwane University of Technology, Department of Biotechnology and Food Technology:  
<http://www.tut.ac.za/Students/facultiesdepartments/science/departments/biofoodandtech/Pages/default.aspx>
- University of Johannesburg, Department of Food Technology:  
<http://www.uj.ac.za/EN/Faculties/science/departments/foodtech/Pages/default.aspx>

Enquiries regarding entrance qualifications, course duration and other requirements should be addressed to:

***The Registrar (Academic), at any of the Universities listed below:***

*Cape Peninsula University of Technology. P O Box 1906, Bellville. 7535*

*DurbanUniversity of Technology. PO Box 1334, Durban. 4000*

*Tshwane University of Technology. Private Bag X680, Pretoria. 0001*

*University of Johannesburg. PO Box 17011, Doornfontein. 2028*