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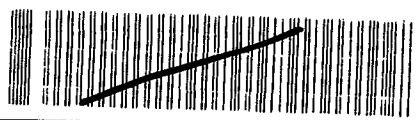
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SOUTH AFRICAN HUMAN SCIENCES RESEARCH COUNCIL

*TRAINING AFTER STANDARD TEN IN THE
REPUBLIC OF SOUTH AFRICA
EXCLUDING UNIVERSITY TRAINING*

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FOREWORD

There is a great need in South Africa of a source or sources which provide comprehensive information on training and training facilities for young people who leave school after or even before Std X and enter the world of work, where they must not only find a field to make a living but also an environment suited to their nature and talents so that they may live decently and happily and contribute to the general welfare of their country and the happiness of its people.

The former National Bureau of Educational and Social Research regularly issued information publications in an attempt to fulfil this need. The Human Sciences Research Council carries on this work.

This publication is a revised version of Post-Std X Training, excluding training at universities and provincial teacher training colleges, which last appeared in 1966. The title has been changed to Training after Standard Ten, excluding university training, and information on teacher training has been added, since such information is apparently not as readily available as has been thought.

An attempt has been made to give information as comprehensively as possible on technical and professional training at institutions other than universities and to indicate employment possibilities. The institutions concerned are the colleges for advanced technical education, technical colleges, technical institutes, teacher training colleges, and the special colleges maintained by, for example, the South African Railways, the Department of Prisons and others for the ad hoc training of their personnel. Only in the case of teacher training has an indication been given of what the universities offer. Further information on university training will be found in Universities in South Africa which is obtainable from the Human Sciences Research Council.

The most recent information available has been supplied, but it must be borne in mind that new courses are continually being added and old ones revised.

It has obviously not been feasible, without producing a book of unwieldy bulk, to give every possible detail on all possible courses of study and facilities, employment possibilities, remuneration and conditions of service. However, the publication should serve as a valuable general source of practical vocational guidance in every high school in the country and even in wider circles. Additional information that candidates may need or desire to decide on a particular vocation can easily be obtained from employers or training institutions. All they have to do is ask for it.

It must also be noted that this book is chiefly concerned with training directly after Std X and not with advanced post-diploma or post-graduate diploma courses, except in the case of teacher training.

The Human Sciences Research Council trusts that this publication will serve the purpose for which it has been compiled and will assist our youth in finding their way into the adult world.

A. M. Rouwette
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CHAPTER I

TECHNICAL EDUCATION

A. TRAINING INSTITUTIONS

Technical education, which is under the control of the Department of National Education, is offered by:

1. Colleges for Advanced Technical Education,
2. Technical Colleges, and
3. Technical Institutes.

1. COLLEGES FOR ADVANCED TECHNICAL EDUCATION

Under Act No. 40 of 1967 the technical colleges in Cape Town, Durban, Johannesburg and Pretoria were established as Colleges for Advanced Technical Education. Since 1967 two other colleges have acquired the same status, namely those in Port Elizabeth and in Vanderbijlpark.

These institutions concentrate mainly on advanced training at post-Std X level and offer a wide variety of technical, commercial and other courses on a full-time or part-time basis.

2. TECHNICAL COLLEGES

There are 26 larger and smaller technical colleges in the country. They are poly-technic in nature in the sense that they offer a variety of technical and commercial courses on a full-time and part-time basis. Many of the courses offered by the colleges for advanced technical education are also provided by the technical colleges.

3. TECHNICAL INSTITUTES

Continuation classes in technical and commercial subjects were established to fulfil the need felt by young employees and adults to increase their knowledge and improve their qualifications, in centres not served by institutions for vocational training. In the course of time the continuation classes, which are now known as Technical Institutes, have expanded to such a degree that they have their own buildings and a full-time staff and thus provide opportunities for post-school technical training at no fewer than 35 centres. They, in turn, can develop into fully fledged technical colleges and even colleges for advanced technical education.

Pupils are prepared for the National Commercial and Technical Examinations at the technical institutes and by means of the subject-success system it is possible for them to obtain the complete certificate in stages. The technical institutes also provide training for apprentices.

B. SYSTEMS OF TRAINING

1. SANDWICH COURSES

The training system which is usually followed for the National Diploma for Technicians is the sandwich course. This means that the candidate must first be appointed to a post as a pupil technician and then, for a period of three or four years, attend classes full-time at a college for advanced technical education for 18 weeks (one semester) per year. The rest of the year is devoted to practical in-service training with the employer. A student may attend either the first or second semester of each year. Examinations are held at the end of each semester.

2. FULL-TIME COURSES

A four-year sandwich course is roughly equivalent to a two-year full-time course. The latter is arranged so that the student first completes all his theoretical training at the College in a period of two years, after which he does his practical training in the service of his employer for a further two years.

There are also full-time courses which extend over one, two or three years, e.g. in the field of Commerce and in Art.

Other courses are arranged so that a student attends classes for three semesters (18 months) on a full-time basis after which he receives practical in-service training

for a further three semesters.

3. PART-TIME COURSES

Some courses for the National Diploma for Technicians are offered on a sandwich as well as a part-time basis. The NTC courses for apprentices can also be taken on a part-time basis. Students who wish to improve their qualifications make use of this system. In the part-time system students attend classes during ordinary working-hours for five days of the week or for eight hours on one day per week. Certain courses are offered after working hours.

4. BLOCK-RELEASE COURSES

These courses have been designed mainly for apprentices and require full-time attendance at a college for 10 weeks followed immediately by an examination period of two weeks.

C. TRAINING COURSES : CERTIFICATES AND DIPLOMAS

1. NATIONAL DIPLOMA FOR TECHNICIANS - NDT

The National Diploma for Technicians is an advanced diploma for which the minimum qualification for admission to the course is a Standard X Certificate, usually with pass marks in Mathematics and a science subject. Candidates who hold the NTC III and who have passed Mathematics and a science subject on the Std X level are also eligible for the NDT course.

(The NTC is the National Technical Certificate on which information is given at a later stage.) The National Diploma for Technicians is offered mainly by the colleges for advanced technical education and in some cases by certain technical colleges as well. The courses are of a high standard, at least on the level of second-year degree study, but of a more practical nature than a degree course in engineering or other fields of study at the university, where academic study and research naturally play a more important role.

Technicians who hold the NDT and university graduates complement one another in the industrial, scientific and technological set-up in our country in a very important way. With the rapid expansion taking place, such high demands are made on engineers and other scientists with regard to research, organization and planning that they cannot cope with the necessary routine work. This responsibility devolves upon the technician. The nature of his work is such that he must be a highly trained person with sound judgment and the ability to assume responsibility and, as co-worker of the engineer or scientist, be able to carry out important tasks efficiently.

A competent technician's salary is more or less equal to the salary of a person who has had three years' training at university, and the technician has the additional advantage of studying at his employer's expense while earning a salary. The demand for technicians is at present much greater than the supply. A suitable candidate cannot go wrong by applying for one of the many available courses for technicians.

Courses for the NDT are offered inter alia in the following fields:

The different branches of engineering, mining, surveying, telecommunications, agriculture, chemistry, microbiology, geology, metallurgy, meteorology, radio-active isotopes and many more.

Particulars regarding courses leading to the NDT are given in this publication.

2. NATIONAL DIPLOMAS IN THE FIELDS OF COMMERCE AND MANAGEMENT

These diploma courses are offered mainly by colleges for advanced technical education and can usually be taken on a part-time or sandwich basis over three years or even full-time in some cases. Diplomas can be obtained, inter alia, in the following fields:

- Cost Accounting
- Organization and Method Study
- State Accounts and Finance
- Public Administration
- Management
- Electronic Data Processing and System Analysis

and many others on which further information is given in this publication. Candidates need only contact the nearest college for advanced technical education or technical college to find out what courses they offer.

3. COURSES FOR EXAMINATIONS OF THE PROFESSIONAL INSTITUTES

The colleges for advanced technical education and technical colleges provide courses to prepare candidates for the examinations of a number of professional institutes e.g. the examinations of the:

- Chartered Institute of Secretaries
- Institute of Administration and Commerce
- Institute of Marketing Management
- Institute of Certified Bookkeepers
- S.A. Institute of Management
- Institute of Bankers

and many others on which further information can be obtained in this publication or from the colleges.

4. NON-EXAMINATION COURSES

The colleges provide many other courses to persons who do not necessarily wish to write examinations, e.g. in languages like English, Afrikaans, French, German, Italian, Portuguese and even Russian; physical education courses in tennis, judo, swimming, folk-dancing etc.; music, art, photography; home economics, etc. Courses are even given in public speaking.

5. VARIOUS OTHER COURSES

Colleges for advanced technical education and technical colleges also offer courses which lead to diplomas and certificates e.g. for

- optometrists, pharmacists and health inspectors
- typists, shorthand-writers
- teachers in Art, Commercial subjects, Home Economics, Music, Commercial and Technical subjects, etc.

Further information on these and other courses are available in this publication.

6. NATIONAL TECHNICAL CERTIFICATE (NTC) AND THE NATIONAL TECHNICAL DIPLOMA (NTD)

Colleges for advanced technical education, technical colleges and technical institutes provide facilities for obtaining the National Technical Certificate (NTC).

The course for the National Technical Certificate offers theoretical training which is in the first place intended for apprentices. After a candidate has obtained a Std VII Certificate in an ordinary school he may apply to an industrial organization or, for example, the South African Railways, to be indentured as an apprentice. He then receives practical manual training under the supervision of a trained artisan. During the first two years of apprenticeship all apprentices must attend technical classes at a college or an institute.

This may be done through the block-release scheme which comprises full-time attendance of classes for approximately ten weeks in each year, or part-time classes during working hours on five days of the week for the duration of any continuous course of study, or attendance for eight hours on one day per week. In some cases correspondence courses for apprentices are provided by the Division of External Studies (Correspondence Courses) of the Witwatersrand College for Advanced Technical Education.

Courses for the NTC I, NTC II and NTC III are, as far as technical subjects are concerned, roughly on the same level as the courses required for the examinations of the higher technical schools and are more or less equal to the technical subjects on the Std VIII, Std IX and Std X level respectively.

Apprenticeship in most trades is of 5 years' duration. Apprentices, however, are permitted to take a voluntary trade test within a prescribed time as determined by their qualifications. If this test is passed, an apprentice immediately receives artisan status.

Candidates who are in possession of the National Senior Certificate of a technical high school or the NTC III can, while they continue working, study at a technical college or college for advanced technical education and first of all obtain the NTC IV and then the NTC V, after which the candidate can study for the National Technical Diploma, which is the highest qualification that an artisan can normally obtain and which enables him to occupy supervisory and managerial posts within his field.

Fields of study for the NTC: The NTC I, II and III may be obtained in one of the

following fields:

Aircraft Mechanics, Armature Winding, Baking, Boatbuilding, Building, Butchery, Cabinetmaking, Chemistry, Electric Lifts, Engineering Science, Footware Manufacture, Hairdressing, Horticulture and Landscape Gardening, Instrument Mechanics, Motor Mechanics, Production Engineering, Road Building, Tailoring, Telecommunication, Vehicle Building, Watchmaking, etc.

The NTC IV and NTC V may be obtained in one or more of the following fields:

Air Conditioning, Aircraft Mechanics, Boatbuilding, Building, Building Inspection, Chemistry, Electrical Engineering, Mechanical Engineering, Production Engineering, Structural Design, Tailoring, Telecommunication, etc.

The National Technical Diploma (NTD) can be obtained in one of the following fields:

Air Conditioning, Aircraft Mechanics, Boatbuilding, Building, Chemistry, Civil Engineering Drawing, Electrical Drawing, Electrical Engineering, Industrial Metallurgy, Mechanical Drawing, Mechanical Engineering, Production Engineering, Structural Design, Surveying and Town Planning, Tailoring, Telecommunication.

D. EMPLOYMENT POSSIBILITIES

For persons with technical qualifications there are many possibilities of employment in large industries like Escom, Iscor, Sasol, the South African Railways, the Atomic Energy Board, the CSIR, the army, air force and navy of the S.A. Defence Force, the motor industry and a number of other larger and smaller industries. The opportunities for candidates who are willing to work and to improve their qualifications are practically unlimited, and they can continue studying at their employer's expense and improve their qualifications while they work and earn.

E. NEW APPROACH TO TECHNICAL TRAINING

The Department of National Education and the colleges for advanced technical education are at present working on a revision of the training system for technicians and artisans, especially with regard to the engineering courses.

Up to now candidates have to take either the course which eventually leads to the NTC V and the National Technical Diploma (NTD) or study for the National Diploma for Technicians (NDT) for which the admission qualifications and training requirements are higher than for the NTC and NTD. To switch over from NTC study to study for the NDT generally implies a start right from the beginning.

The purpose of the revision is partly to arrange the courses so that the NTC, NTD and NDT courses correspond more closely and that all the candidates who take up technical study will be able to attain the highest qualification and will even be able to continue their studies at university and eventually obtain an engineering degree.

Details with regard to the new approach will be announced in due course.

CHAPTER II

PUBLIC SERVICE TRAINING FOR TECHNICIANS

As will be indicated on the following pages, in-service training for technicians is given in various Government departments.

The training courses have common features, particulars of which are set out first, followed by further information about the various courses.

The general admission requirements are as follows:

- (a) A Standard X Certificate with Mathematics and a science subject;
- (b) students must be employed in a Government department where they can receive the appropriate training.

Candidates who have obtained appropriate higher qualifications or who have successfully completed related courses at a university or college for advanced technical education, may obtain exemption in respect of certain parts of the theoretical course.

The training of technicians generally extends over a period of four years and is given on a sandwich basis, i.e. training in which full-time class attendance for an academic half-year (approximately 4½ months) is alternated with practical training in the Government department.

The theoretical training is usually given at a college for advanced technical education, a technical college or other institution.

Class fees of Public Service pupil technicians are paid by the State, but pupil technicians have to meet registration and examination fees. Before being accepted for training, pupil technicians undertake to serve the State upon completion of their training for a period of at least three years.

Pupil technicians are appointed to the Technical Division of the Public Service and as such they enjoy the status of permanent officers of the Department in which they are employed.

Note: Some of the following courses are also open to pupil technicians employed in the private sector.

Apart from the courses provided by the Department of National Education in colleges for advanced technical education or technical colleges for the training of pupil technicians of the Public Service, there are certain other government departments like the South African Railways, the Police and the Department of Prisons which maintain their own training colleges to provide ad hoc training for their specific needs.

A. AGRICULTURE

NATIONAL DIPLOMA FOR TECHNICIANS - GENERAL REMARKS

The Department of Agricultural Technical Services performs an extremely important function in the furthering of agricultural research and extension in the Republic. To ensure that the technicians are able to carry out their duties as efficiently as possible, a comprehensive in-service training scheme has been introduced.

Nature and duration of the course: This training being in-service, pupils receive full pay in respect of the periods during which they are released from normal duties to attend classes. The scheme provides for practical as well as theoretical training over a period of three years, starting from the date on which the pupil is appointed.

Candidates are appointed to posts on the establishment of one of the 10 Research Institutes, 7 Regions or 5 Divisions of the Department. There he will receive in-service training until he is sent to the centre where the course is being offered.

Pupils receive training in one of the following fields: Microbiology; Chemistry; Surveying; Topography; Draughtsmanship; Civil Engineering; and Agriculture.

The specialized fields under Agriculture are:

Research : Botany and Zoology;
Field Services: Extension and Soil Conservation;

Inspection Services: Botany and Zoology; and Agriculture: Mechanical Engineering and Operation Refrigeration Apparatus.

1. NATIONAL DIPLOMA FOR TECHNICIANS (AGRICULTURE : RESEARCH : BOTANY)

Admission qualifications: Applicants must be in possession of a Std X Certificate with a pass in Mathematics.

Subjects:

First semester

Statistics T
Laboratory Practice
Physics
Botany
Chemistry

Second semester

Afrikaans/English TB
Biochemistry or Genetics
Biometry T
Microbiology or Genetics
Plant Physiology

Third semester

Agronomy
Entomology
Agricultural Chemistry
Plant Pathology
Horticulture/Pasture Science

2. NATIONAL DIPLOMA FOR TECHNICIANS (AGRICULTURE : RESEARCH : ZOOLOGY)

Admission qualification: Applicants must be in possession of a Std X Certificate with a pass in Mathematics.

Subjects:

First semester

Zoology I
Statistics T
Laboratory Practice
Physics
Chemistry

Second semester

Afrikaans/English TB
Anatomy and Physiology
Biochemistry or Genetics
Biometry T
Genetics or Microbiology

Third semester

Veterinary Science
Animal Husbandry A
Animal Husbandry B
Nutrition Science
Pasture Science

3. NATIONAL DIPLOMA FOR TECHNICIANS (AGRICULTURE: FIELD SERVICES : EXTENSION AND SOIL CONSERVATION)

Admission qualifications: Applicants must be in possession of a Std X Certificate with a pass in Mathematics.

Subjects:

First semester

Soil Conservation

Agricultural Economics
Afrikaans/English TB
Farm Implements
Soil Conservation Mensuration and Drawing
Soil Conservation Engineering

Second semester

Agronomy
Pasture Science
Agricultural Chemistry
Extension and Farm Planning
Soil Conservation Survey

Third semester

Soil Conservation Structures
Diverse Structures and Water Utilization
Soil Conservation Administration

4. NATIONAL DIPLOMA FOR TECHNICIANS (AGRICULTURE : INSPECTION SERVICES : BOTANY)

Admission qualifications: Applicants must be in possession of a Std X Certificate.

Subjects:

First semester

Vegetable Production
Insect Control
Agricultural Economics
Farm Implements
Agricultural Microbiology
Afrikaans/English TB

Second semester

Agronomy
Entomology
Agricultural Chemistry
Plant Pathology
Horticulture
Pasture Science

Third semester

Programmed course
Plant and Pest control TA and TB
Seed Control TA, TB and TC
Plant Products Inspection TA, TB and TC

5. NATIONAL DIPLOMA FOR TECHNICIANS (AGRICULTURE : INSPECTION SERVICES : ZOOLOGY)

Admission qualifications: Applicants must be in possession of a Std X Certificate.

Subjects:

First semester

Agricultural Economics
Agricultural Microbiology
Poultry Husbandry
Afrikaans/English
Dairying
Veterinary Science A

Second semester

Agricultural Chemistry
Veterinary Science B
Animal Husbandry A
Animal Husbandry B
Nutrition Science

Pasture Science

Third semester

Programmed course

Veterinary Science TC, TD and TE

Meat Inspection TA, TB and TC

Dairy Inspection TA, TB and TC

6. NATIONAL DIPLOMA FOR TECHNICIANS (AGRICULTURE : MECHANICAL ENGINEERING AND OPERATION OF REFRIGERATION APPARATUS)

Admission qualifications: Applicants must be in possession of a Std X Certificate with a pass in Mathematics and one or more of the following subjects: Mechanics, Physical Science, Chemistry or Physics.

Subjects:

First semester

Mathematics T1

Physics TB1

Applied Mechanics T1

Engineering Drawing T1

Afrikaans/English TB

Workshop Technology T1

Principles of Electricity T1

Second semester

Mathematics T2

Applied Mechanics T2

Engineering Drawing T2

Principles of Electricity T2

Physics TB2

Workshop Technology T2

Third semester (Five subjects to be chosen from the following)

Strength of Materials T1

Machine Design T1

*Applied Thermodynamics T1

Theory of Machines T1

Hydraulics T1

Mathematics T3

*Industrial Instruments T1

*For Operation of Refrigeration Apparatus only instead of Machine Design and Mathematics T3.

Training centre:

Pretoria College for Advanced Technical Education, Pretoria

Note: Particulars regarding the other fields in which pupils can be trained, are given under the courses concerned, namely:

Microbiology (See p 18)

Chemistry (See p 17)

Surveying: Topography (See p 20) and

Draughtsmanship: Civil Engineering (See p 16)

B. DEFENCE

1. NATIONAL DIPLOMA FOR TECHNICIANS (CHEMISTRY : DEFENCE)

Admission qualifications: The minimum requirements for admission to the course are passes in Mathematics and Physical Science or another acceptable science subject at the Standard X level.

Nature and duration of the course: The course extends over four semesters and is usually taken over a period of two years' full-time study.

Subjects:

Part A

Mathematics T1
Physics T1
General Chemistry T
Laboratory Organization and Practice T

Part B

Organic Chemistry T1
Physical Chemistry T1
Inorganic Chemistry T1
Analytical Chemistry (Theory) T1
Analytical Chemistry (Practical) T1

Part C

Languages T
Workshop Technology T1
Workshop Technology T2
Industrial Administration N.T.D.*
Mathematics T2

Part D

Physical Chemistry T2
Organic Chemistry T2
Inorganic Chemistry T2
Analytical Chemistry (Theory and Practical) T2

Note:

Part C may be done after Part D
*N.T.D. = National Technical Diploma

Training centre:

Pretoria College for Advanced Technical Education, Pretoria.

2. NATIONAL DIPLOMA FOR TECHNICIANS (INSTRUMENTATION : DEFENCE)

Admission qualifications: The minimum requirements for admission to the course are passes in Mathematics and Physical Science or other acceptable science subjects at the Standard X level.

Nature and duration of the course: The course extends over four semesters and is usually taken over a period of two years' full-time study.

Subjects:

Course I: Instrument Technicians for S.A. Army

Part A

Mathematics T1
Physics TB1
Principles of Electricity T1
Engineering Drawing T1
Languages T
Workshop Technology T1

Part B

Mathematics T2
Physics TB2
Principles of Electricity T2
Workshop Technology T2
Applied Mechanics T1
Engineering Drawing T2

Part C

Mathematics T3

Electronics T
Electronic Measurements T
Inorganic Chemistry
Electrotechnology T1
Industrial Instruments III

Part D

Mathematics T4
Industrial Electronics T
Electrotechnology T2
Physical Chemistry T
Industrial Administration N.T.D.
Industrial Instruments IV

Course II: Instrument and Armament Technicians for S.A. Air Force

Part A

Mathematics T1
Physics TB1
Principles of Electricity T1
Engineering Drawing T1
Languages T
Radio and Electronic Measurements T1

Part B

Mathematics T2
Physics TB2
Principles of Electricity T2
Principles of Radio and Electronics T1
Radio Workshop Practice T1

Part C

Mathematics T3
Electronics T
Principles of Radio and Electronics T2
Radio Workshop Practice T2

Part D

Mathematics T4
Industrial Electronics T
Fault Diagnosis and correction in Electronic Equipment T

Training centre:

Pretoria College for Advanced Technical Education, Pretoria

3. NATIONAL DIPLOMA FOR TECHNICIANS (MUNITION)

Admission qualifications: Applicants must be in possession of a Standard X Certificate with Mathematics, Physical Science, Afrikaans and English or the National Technical Certificate, Part III with the two official languages on the Senior Certificate level. A candidate must be approved by the South African Defence Force.

Nature and duration of the course: The course will be conducted on a sandwich basis over a period of four years as follows:

First year

(a) One semester of College training

Subjects: Mathematics T
Applied Mechanics T1
Principles of Electricity T1
Physics TB1
Chemistry T1
Afrikaans TA or English TA

(b) One semester training by employer

Second year

(a) One semester of College training

Subjects: Engineering Drawing T1
Applied Mechanics T2
Basic Electronics and Practical Measurement Technique T
Physical Metallurgy T1A
Physics TB2
Chemistry of Explosives T1
English T (A or B) or Afrikaans T (A or B) (the language not chosen
in the first year)

(b) One semester training by employer

Third year

(a) One semester of College training

Subjects: Strength of Materials T1
Metrology T
Physical Metallurgy T2A
Chemistry of Explosives T2
Practical Chemistry of Explosives T

(b) One semester training by employer

Fourth year

Practical training under supervision at S.A.D.F. Factory establishments.

The National Diploma for Technicians (Munition) may be awarded to military personnel and such civilian persons who satisfy the following provisos:

- are security cleared by the South African Defence Force
- are actively employed on explosives in an established explosives factory or concern
- satisfy the theoretical examination requirements and successfully complete the practical projects in the fourth year of this course.

Training centre

Pretoria College for Advanced Technical Education, Pretoria.

4. NATIONAL DIPLOMA FOR TECHNICIANS (RADIO ENGINEERING)

Admission qualifications: The minimum requirements for admission to the course are passes in Mathematics and Physical Science or other acceptable science subjects at the Standard X level.

Nature and duration of the course: The course extends over four semesters and is usually taken over a period of two years' full-time study.

Subjects:

Part A

Mathematics T1
Physics TB1
Principles of Electricity T1
Engineering Drawing T1
Radio and Electronic Measurements T1
Languages T

Part B

Mathematics T2
Physics TB2
Principles of Electricity T2
Principles of Radio and Electronics T1
Radio Workshop Practice T1

Part C

Mathematics T3
Principles of Radio and Electronics T2
Radio Workshop Practice T2
Radio Communication T1
Radio Theory and Technique T
Radio and Electronic Measurements (Part C) T2

Part D

Mathematics T4
Radio and Electronic Measurements (Part D) T2
Radio Communication T2

Training centre:

Pretoria College for Advanced Technical Education, Pretoria

Note: This course is also available to pupil technicians in the private sector.

5. NATIONAL DIPLOMA FOR TECHNICIANS (AIRCRAFT ENGINEERING)

Admission qualifications: The minimum requirements for admission to the course are passes in Mathematics and Physical Science or other acceptable science subjects at the Standard X level.

Nature and duration of the course: The course extends over four semesters and is usually taken over a period of two years' full-time study.

Subjects:

Part A

Mathematics T1
Applied Mechanics T1
Engineering Drawing T1
Physics TB1
Principles of Electricity T1
Workshop Technology T1
Inorganic Chemistry T1
Languages T

Part B

Mathematics T2
Applied Mechanics T2
Engineering Drawing T2
Physics TB2
Principles of Electricity T2
Workshop Technology T2

Part C

Mathematics T3
Strength of Materials T1
Hydraulics T1
Aerodynamics T1
Aircraft Design T1
Electrotechnology T1

Part D

Mathematics T4
Strength of Materials T2
Hydraulics T2
Aerodynamics T2
Aircraft Design T2

Training centre:

Pretoria College for Advanced Technical Education, Pretoria

Note: This course is also available to pupil technicians in the private sector.

6. NATIONAL DIPLOMA FOR TECHNICIANS (AUTOMOTIVE ENGINEERING)

Admission qualifications: The minimum requirements for admission to the course are passes in Mathematics and Physical Science or other acceptable science subjects at the Standard X level.

Nature and duration of the course: The course extends over four semesters and is usually taken over a period of two years' full-time study.

Subjects:

Part A

Mathematics T1
Engineering Drawing T1
Physics TB1
Applied Mechanics T1
Principles of Electricity T1
Workshop Technology T1
Languages T

Part B

Mathematics T2
Engineering Drawing T2
Physics TB2
Applied Mechanics T2
Principles of Electricity T2
Workshop Technology T2

Part C

Mathematics T3
Strength of Materials T1
Electrotechnology T1
Internal Combustion Engines III
Hydraulics T1
Automotive Design T1

Part D

At least 6 subjects from the following:

Mathematics T4
Strength of Materials T2
Electrotechnology T2
Internal Combustion Engines IV
Automotive Design (Theory) T2
Automotive Design (Project) T2
Industrial Administration

Training centre:

Pretoria College for Advanced Technical Education, Pretoria.

Note: This course is also available to pupil technicians in the private sector.

7. NATIONAL DIPLOMA FOR TECHNICIANS (ARMAMENT ENGINEERING)

Admission qualifications: The minimum requirements for admission to the course are passes in Mathematics and Physical Science or other acceptable science subjects at the Standard X level.

Nature and duration of the course: The course extends over four semesters and is usually taken over a period of two years' full-time study.

Subjects:

Part A

Mathematics T1
Engineering Drawing T1
Physics TB1
Applied Mechanics T1
Principles of Electricity T1

Workshop Technology T1
Languages T

Part B

Mathematics T2
Engineering Drawing T2
Physics TB2
Applied Mechanics T2
Principles of Electricity T2
Workshop Technology T2

Part C

Mathematics T3
Strength of Materials T1
Electronics T
Metallurgy T1
Hydraulics T1
Armament Design T1

Part D

Mathematics T4
Strength of Materials T2
Industrial Electronics T
Metallurgy T2
Armament Design T2
Industrial Administration

Training centre: .

Pretoria College for Advanced Technical Education, Pretoria.

C. DRAUGHTSMANSHIP

NATIONAL DIPLOMA FOR TECHNICIANS - GENERAL REMARKS

Admission qualifications: The entrance qualification is a Standard X Certificate with mathematics and at least one of the following subjects:

Physical Science, Physics, Chemistry or Mechanics.

Nature and duration of the course: The courses usually extend over a period of four years. For the first three years approximately 4½ months of each year are spent at a College for Advanced Technical Education where theoretical and related practical instruction is given in the specific field. The rest of the first three years of training is devoted to practical training in a specialized branch of the Government Department in which the trainee has been appointed. The fourth year is devoted exclusively to practical training in the Department concerned.

There are five specialized fields in which the diploma is awarded:

Building, Cartography, Mechanical, Civil Engineering, and Structural.

1. NATIONAL DIPLOMA FOR TECHNICIANS (DRAUGHTSMANSHIP : BUILDING)

This course extends over two years. The third year is devoted to practical training.

Subjects:

First semester

Building Construction IV
Mathematics IV
Strength of Materials T1
Builders' Estimating and Pricing I
Quantity Surveying I
Candidate's Second Language T

Second semester

Building Construction V
Mathematics V

Strength of Materials T2
Architectural Drawing
History of Architecture
Specifications (Builders)

Training centre:

Natal College for Advanced Technical Education, Durban.

Departments in which posts exist:

Community Development; Public Works; Provincial Administration of Natal; Administration of South-West Africa.

2. NATIONAL DIPLOMA FOR TECHNICIANS (DRAUGHTSMANSHIP : CARTOGRAPHY)

Subjects:

First semester

Mathematics I (Surveying)
General Science
Drawing I
Surveying T1
Candidate's Second Language

Second semester

Geography I
Surveying T2
Cartography I
Photogrammetry

Third semester

Cartography II
Cartography III
Map Projections

Training centre:

Pretoria College for Advanced Technical Education, Pretoria

Departments in which posts exist:

Agricultural Credit and Land Tenure; Commerce; Mines; Administration of South-West Africa.

3. NATIONAL DIPLOMA FOR TECHNICIANS (DRAUGHTSMANSHIP : MECHANICAL)

The course at the College for Advanced Technical Education extends over four semesters.

Subjects:

First semester

Mathematics T1
Physics TB1
Inorganic Chemistry (Optional) T1
Principles of Electricity T1
Applied Mechanics T1
Workshop Technology T1
Engineering Drawing T2
Candidate's Second Language T

Second semester

Mathematics T2
Physics TB2
Physical Chemistry T1
Principles of Electricity T2
Applied Mechanics T2
Workshop Technology T2
Engineering Drawing T2

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Third semester

Mathematics T3
Applied Thermodynamics T1
Electrotechnology T1
Strength of Materials T1
Machine Design T1
Theory of Machines T1
*Hydraulics T1
*Workshop Technology T3
*Metallurgy T1

Fourth semester

Mathematics T4
Applied Thermodynamics T2
Electrotechnology T2
Strength of Materials T2
Machine Design T2
Theory of Machines T2
*Hydraulics T2
*Workshop Technology T4

*Indicates Optional subjects.

Training centres:

Witwatersrand College for Advanced Technical Education, Johannesburg
Technical College, Springs

Departments in which posts exist:

Public Works; Transport; Water Affairs; Provincial Administration of the Transvaal

4. NATIONAL DIPLOMA FOR TECHNICIANS (DRAUGHTSMANSHIP : CIVIL ENGINEERING)

Subjects:

First semester

Mathematics I (Surveying)
General Science
Drawing I
Surveying T1
Candidate's Second Language T

Second semester

Mathematics II (Surveying)
Surveying T2
Mechanics and Hydraulics
Civil Engineering Drawing

Third semester

Strength of Materials (Surveyors)
Theory of Structures (Surveyors)
Elementary Civil Engineering

Training centres:

Natal College for Advanced Technical Education, Durban
Pretoria College for Advanced Technical Education, Pretoria
Technical College, Springs

Departments in which posts exist:

Agricultural Technical Services; Bantu Administration and Development; Public Works;
Transport; Water Affairs; Provincial Administrations of the Cape, Natal, Orange Free
State and the Transvaal; Administration of South-West Africa

5. NATIONAL DIPLOMA FOR TECHNICIANS (DRAUGHTSMANSHIP : STRUCTURAL)

The course consists of four parts.

Part A

Mathematics T1
Applied Mechanics T1
Physics TB1
Principles of Electricity T1
Engineering Drawing T1
Workshop Technology T1
Languages T

Part B

Mathematics T2
Applied Mechanics T2
Engineering Drawing T2
Workshop Technology T2
Building and Civil Engineering Construction T1

Part C

Mathematics T3
Hydraulics T1
Structural Design T1
Theory of Structure T1
Civil Engineering Drawing T

Part D

Theory of Structure T2
Structural Design (Theory) T2
Structural Design (Project) T2
Quantity Surveying T1
Surveying T1
Metallurgy T1 (Optional)

Note: This course is for pupil technicians employed in the private sector.

Training centre:

Witwatersrand College for Advanced Technical Education, Johannesburg

D.

LABORATORY

NATIONAL DIPLOMA FOR TECHNICIANS - GENERAL REMARKS

Admission qualifications: The entrance qualification is a Standard X Certificate with Mathematics and Physical Science as subjects.

Nature and duration of the course: The course extends over a period of four years. For the first three years approximately $4\frac{1}{2}$ months of each year are spent at a College for Advanced Technical Education where theoretical and related practical instruction is given. The rest of the first three years of training is devoted to practical training in a specialized branch of the Government Department in which the trainee has been appointed. The fourth year of training is devoted exclusively to practical training in the Department concerned.

There are three specialized fields, viz Analytical Chemistry, Chemistry: Material Testing, and Microbiology.

1. NATIONAL DIPLOMA FOR TECHNICIANS (ANALYTICAL CHEMISTRY)

Subjects:

First semester

Chemistry T1
Physics T1
Laboratory Organization and Technique T
Mathematics T
Candidate's Second Language TB

Second semester

Analytical Chemistry T1

Analytical Chemistry Practical T1
Inorganic Chemistry T1
Organic Chemistry T1
Physical Chemistry T1
Geology T1

Third semester

Analytical Chemistry T2
Chemistry Practical T2
Inorganic Chemistry T2
Organic Chemistry T2
Physical Chemistry T2

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
East London Technical College, East London
Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark

2. NATIONAL DIPLOMA FOR TECHNICIANS (CHEMISTRY : MATERIAL TESTING)

First and second semesters

The courses for the first and second semesters are the same as those for the National Diploma for Technicians (Analytical Chemistry).

Third semester

Analytical Chemistry T2
Chemistry Practical T2
Inorganic Chemistry T2
Geology T2
Soil Mechanics T

Training centre:

Pretoria College for Advanced Technical Education, Pretoria

Departments in which posts exist:

Agricultural Technical Services; Transport; Water Affairs; Provincial Administrations of the Cape, Natal, Orange Free State and Transvaal; Administration of South-West Africa.

3. NATIONAL DIPLOMA FOR TECHNICIANS (MICROBIOLOGY)

Subjects:

First semester

Anatomy and Physiology T
Chemistry T1
Physics T1
Microbiology T1 (Theory and Practical)

Second semester

Microbiology T2 (Theory and Practical)
Histology T (Theory and Practical)
Haematology T (Theory and Practical)
Biochemistry T1

Third semester

Microbiology T3 (Theory and Practical)
Physiological Chemistry T (Theory and Practical)
Parasitology and Mycology (Theory and Practical)
Virology T (Theory and Practical)

Training centres:

Cape College for Advanced Technical Education, Cape Town
Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria

Note: The National Certificate for Technicians (Analytical Chemistry), the National Certificate for Technicians (Chemistry: Material Testing) and the National Certificate for Technicians (Microbiology) are awarded to candidates in the Civil Service who have completed three semesters of theory and who leave the Service before passing the fourth year of practical work.

Departments in which posts exist:

Health; Agricultural Technical Services (Veterinary Research Institute, Onderstepoort).

E. SURVEYING

NATIONAL DIPLOMA FOR TECHNICIANS - GENERAL REMARKS

Admission qualifications: The entrance qualification is a Standard X Certificate with Mathematics and at least one of the following subjects: Physical Science, Physics, Chemistry or Mechanics.

Nature and duration of the course: The course extends over a period of four years. For the first three years approximately 4½ months of each year are spent at the Pretoria College for Advanced Technical Education where theoretical and related practical instruction is given in the specific field. The rest of the first three years of training is devoted to practical training in a specialized branch of the Government Department in which the trainee has been appointed. The fourth year of training is devoted exclusively to practical training in the Department concerned.

There are four specialized fields of study, viz , Geodetic, Engineering, Cadastral and Topographical.

1. NATIONAL DIPLOMA FOR TECHNICIANS (SURVEYING : GEODETIC)

Subjects:

First semester

Mathematics I (Surveying)
General Science
Drawing I
Surveying T1
Candidate's Second Language TB

Second semester

Mathematics II (Surveying)
Surveying T2
Cartography I
Photogrammetry I

Third semester

Surveying T3 - Papers I and II
Photogrammetry II
Departments in which posts exist: See Surveying : Topography.

2. NATIONAL DIPLOMA FOR TECHNICIANS (SURVEYING : CIVIL ENGINEERING)

This course is also offered by the Natal College for Advanced Technical Education, Durban.

Subjects:

First semester

Mathematics I (Surveying)
General Science
Drawing I
Surveying T1
Candidate's Second Language TB

Second semester

Mathematics II (Surveying)
Surveying T2
Mechanics and Hydraulics
Photogrammetry I

Third semester

Surveying T3 - Papers I and II
Elementary Civil Engineering

Departments in which posts exist:

Bantu Administration and Development; Transport; Water Affairs; Provincial Administrations of the Cape; Natal, Orange Free State and the Transvaal; Administration of South-West Africa.

3. NATIONAL DIPLOMA FOR TECHNICIANS (SURVEYING : CADASTRAL)

Subjects:

First semester

Mathematics I (Surveying)
General Science
Drawing I
Surveying T1
Candidate's Second Language TB

Second semester

Geography I
Surveying T2
Cartography I
Photogrammetry I

Third semester

Law I - Surveying
Law II - Land Registration
Law III - Township Layout

Departments in which posts exist:

Agricultural Credit and Land Tenure; Bantu Administration and Development; Administration of South-West Africa.

4. NATIONAL DIPLOMA FOR TECHNICIANS (SURVEYING : TOPOGRAPHICAL)

Subjects:

First semester

Mathematics I (Surveying)
General Science
Drawing I
Surveying T1
Candidate's Second Language TB

Second semester

Mathematics II (Surveying)
Surveying T2
Cartography I
Photogrammetry I

Third semester

Surveying T3 - Papers I and II
Photogrammetry II or Cartography II

Departments in which posts exist:

Agricultural Credit and Land Tenure; Bantu Administration and Development; Community

Development; Transport; Water Affairs; Provincial Administration of the Orange Free State.

F. PUBLIC SERVICE TRAINING IN VARIOUS DEPARTMENTS

1. NATIONAL DIPLOMA FOR TECHNICIANS (AERONAUTICAL RADIO)

Admission qualifications: The Division of Civil Aviation of the Department of Transport undertakes the practical training of suitable candidates who wish to qualify as Aeradio Technicians.

Suitable candidates who are in possession of a Standard X Certificate (or equivalent) with Mathematics and one of the following subjects: Physical Science, Physics, Chemistry or Applied Mechanics may be appointed as pupil technicians (Aeradio).

Nature and duration of the course: The period of training is four years, of which two years are devoted to full-time theoretical training at the Witwatersrand College for Advanced Technical Education or another educational institution on which the Department of Transport may decide. During the remaining two years pupils receive training at the Aeradio Training School at Jan Smuts Airport. The sequence of theoretical and practical training is as follows:

12 months' full-time theoretical training
6 months' practical training in the Department of Transport
12 months' full-time theoretical training
18 months' intensive training in the Department of Transport.

Subjects:

First year (2 semesters)

Mathematics T1 and T2
Physics TB1 and TB2
Applied Mechanics T1
Principles of Electricity T1 and T2
Principles of Radio and Electronics T1
Radio and Electronic Measurement T1
Radio Workshop Practice T1
Languages T

Second year (2 semesters)

Mathematics T3 and T4
Radio Transmission T
Radio Reception T
Principles of Radio and Electronics T2
Radio and Electronic Measurement T2
Radio Workshop Practice T2

Training centre:

Witwatersrand College for Advanced Technical Education, Johannesburg

2. NATIONAL DIPLOMA FOR TECHNICIANS (GEOLOGY)

Admission qualifications: The requirement for admission is a Standard X Certificate with Mathematics and at least one of the following subjects:

Physical Science, Physics, Chemistry or Mechanics.

Nature and duration of the course: The course extends over a period of four years. During each of the first three years, 4½ months are spent at the Pretoria College for Advanced Technical Education where theoretical instruction is given. The remainder of the first three years as well as the whole of the fourth year is devoted to practical training. Trainees receive their practical training in the Department of Mines.

Subjects:

First semester

Mathematics (Surveying) I
General Science

Drawing I
Surveying T1
Candidate's Second Language TB

Second semester

Geology T1
Geophysics (Electric-Magnetic) T
Mathematics (Surveying)
Principles of Electricity T1

Third semester

Geology T2
Geophysics (Gravitation - Seismic) T
Hydrology (Ground-water) I
Basic Electronics and Practical Techniques of Measurement T

Department in which posts exist: The Division Geological Survey in the Department of Mines.

3. NATIONAL DIPLOMA FOR TECHNICIANS (HYDROLOGY)

Admission qualifications: The requirement for admission is a Standard X Certificate with Mathematics and at least one of the following subjects:

Physical Science, Physics, Chemistry or Mechanics.

Nature and duration of the course: The course extends over a period of four years. During each of the first three years, 4½ months are spent at the Pretoria College for Advanced Technical Education where theoretical instruction is given. The remainder of the first three years as well as the whole of the fourth year is devoted to practical training. Trainees receive their practical training in the Department of Water Affairs.

Subjects:

First semester

Mathematics (Surveying) I
Drawing I
Surveying T1
General Science
Candidate's Second Language TB

Second semester

Geology T1
Geophysics (Electric-Magnetic) T
Hydrology I

Third semester

Hydrology (Surface Water) II
Mathematics (Surveying) II
Surveying T2
Mechanics and Hydraulics

4. NATIONAL DIPLOMA FOR TECHNICIANS (METEOROLOGY)

Admission qualifications: The admission qualification for training as a meteorological technician is a Standard X Certificate with Mathematics and a science subject.

Nature and duration of the course: The course for the National Diploma for Technicians (Meteorology) extends over four years and includes three semesters of theoretical training in the subjects indicated, while the rest of the time is devoted to practical training at weather offices.

Besides the existing four year course for the National Diploma, provision is made for a three-year course leading to a National Certificate for Technicians (Meteorology), with the difference that the practical training and the requirement to complete three tasks in the final year of the diploma course are not necessary for the certificate course. Pupils are, however, encouraged to acquire the higher qualification.

First semester

Mathematics T
Physics T1
Geography (Meteorology)
Meteorological Practice
Meteorology and Aviation Knowledge I
Second Language TB

Second semester

Electronics (Meteorology) T
Climatology I
Meteorological Instruments I
Meteorology and Aviation Knowledge II

Third semester

Climatology II
Meteorological Instruments II
Meteorology III
Aviation Knowledge III
A course in Statistical Methods is included in Climatology II.

Training centres: Practical training is given at weather offices at the airports and sometimes at the weather stations on Marion or Gough Islands or at the South African base in the Antarctic.

Theoretical training is given at the head office of the Weather Bureau, Department of Transport, Pretoria. Meteorological subjects are taught at the Weather Bureau, but Mathematics, Physics, Electronics (Meteorology) and the course in Afrikaans/English are followed at the Pretoria College for Advanced Technical Education.

Course fees: The Government is responsible for the training fees, but the examination fees have to be paid by the candidates.

5. NATIONAL DIPLOMA FOR TECHNICIANS (OCEANOGRAPHY)

Admission qualifications: The minimum requirement for admission is a Standard X Certificate with passes in Mathematics and Physics.

Nature and duration of the course: This course extends over a period of four years and is offered on a sandwich basis.

The course was introduced by the Public Service Commission for the Division of Sea Fisheries of the Department of Commerce.

During the first three years trainees attend classes at the Cape College for Advanced Technical Education and during the fourth year they attend classes at the Sea Point Laboratory.

The rest of the time is devoted to working in the laboratories of the Division of Sea Fisheries and going out in boats to gain practical experience.

Subjects:

First semester

General Chemistry T
Physics T1
Mathematics (Laboratory Technology) T

Second semester

Botany (Oceanography)
Zoology (Oceanography)

Third semester

Chemical/Physical Oceanography
Cartography
Laboratory Organization and Practice T

Fourth semester

Biological Oceanography
Candidate's Second Language TB

6. NATIONAL DIPLOMA FOR TECHNICIANS (TOWN AND REGIONAL PLANNING)

Admission qualifications: The minimum qualification is a Standard X Certificate (or an equivalent) with a pass in Mathematics.

Nature and duration of the course: The course extends over a period of four years and is offered on a sandwich basis.

The course is primarily intended as a course of instruction for the Junior Technical Assistants who are staff members of a Town Planning Department of a Municipality or a Provincial Town and Regional Planning Office.

First Year

Mathematics T1
Drawing 1
Surveying T1
English A/B T
Afrikaans A/B T

Second Year

Photogrammetry 1
Cartography 1
Elementary Principles of Civil Engineering T
Drawing and Design T1

Third Year

Photo Interpretation T
Applied Statistics T
History and Principles of Planning T
Drawing and Design T2

Fourth Year

Law and Administration T
Planning Survey and Analysis T
Socio-Economic Organization T
Drawing and Design T3

Note: Candidates who have complied with the examination requirements for the first three years of the course and who are unable to continue with the course, will be awarded the NATIONAL CERTIFICATE FOR TECHNICIANS (TOWN AND REGIONAL PLANNING).

Training centre:

Natal College for Advanced Technical Education, Durban

Departments in which posts exist:

Bantu Administration and Development; Provincial Administrations of the Cape and Natal.

CHAPTER III

FURTHER TRAINING COURSES PROVIDED BY COLLEGES FOR ADVANCED TECHNICAL EDUCATION, TECHNICAL COLLEGES AND OTHER TRAINING INSTITUTIONS

A. ART

NATIONAL DIPLOMA IN ART AND DESIGN - GENERAL REMARKS

This Diploma is issued by the Department of National Education in the following specialized fields: Graphic Design, Ceramics, Textile Design, Dress Design, Fine Art, Industrial Design.

Employment possibilities: Advertising, textile, clothing and other industries.

Admission qualifications: The minimum qualification is a Standard X Certificate or the National Senior Certificate in Art with passes in both the official languages.

1. BASIC FIRST-YEAR COURSE

All students entering for the National Diploma Course in Art and Design, except those entering for the course in Dress Design, must follow the Basic First-Year course.

Subjects:

Group I : Art of Drawing

Object Drawing
Figure Drawing
Perspective
Anatomy

Group II: History of Art

Group III: Design

Basic Design
Lettering
Natural Form and Design
Graphic Art

Group IV: Sculpture

Group V: Ceramics

Group VI: Painting

Training institutions must set an internal examination at the end of the Basic First-Year course.

2. NATIONAL DIPLOMA IN ART AND DESIGN (GRAPHIC DESIGN)

Nature and duration of the course: Two years of full-time study following on the Basic First-Year qualify students to enter for the examination for the Diploma in Graphic Design. This course prepares students for employment as industrial artists and designers in advertising and industry.

The subjects for the second and third years of the course are as follows:

Group I : Art of Drawing

Figure Drawing
Anatomy

Group II : History of Art

Group III: Commercial Illustration

Package and Label Design
Showcard and Poster Design
Advertising Layout
Lettering

Group IV : Typography (Practical)

Photography (Practical)
Graphic Art

Group V : Theory of Reproduction Processes

Training centres:

Free State Technical College, Bloemfontein
Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban,
Technical College, East London
College of Art, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria

3. NATIONAL DIPLOMA IN ART AND DESIGN (CERAMICS)

Nature and duration of the course: The course extends over three years, i.e. two years after completion of the Basic First-Year course.

The subjects for the second and third years of the course are as follows:

Group I : Art of Drawing
Figure Drawing
Anatomy

Group II : History of Art

Group III : History of Ceramics

Group IV : Ceramic Design
Ceramic Modelling
Ceramics (Practical)

Training centre:

Natal College for Advanced Technical Education, Durban
College of Art, Johannesburg.

4. NATIONAL DIPLOMA IN ART AND DESIGN (TEXTILE DESIGN)

Nature and duration of the course: It is a two year full-time course following successful completion of the Basic First-Year course.

The subjects for the second and third years of the course are as follows:

Group I : Art of Drawing
Figure Drawing
Study of Historical Ornaments
Anatomy

Group II : History of Art

Group III : Creative Textile Design
Textile Design Styles

Group IV : Printing (Practical)
Fashion Illustration

Group V : Theory of Textiles

Training centres:

Natal College for Advanced Technical Education, Durban.
Pretoria College for Advanced Technical Education, Pretoria.

5. NATIONAL DIPLOMA IN ART AND DESIGN (FINE ART)

Nature and duration of the course: A two year full-time course following on the Basic First-Year leads to the National Diploma in Fine Art. Students have a choice between painting and sculpture. There are, however, subjects that both groups must take.

The subjects for the second and third years of the course are as follows:

- Group I : Art of Drawing
Figure Drawing
Anatomy
- Group II : History of Art
- Group III : Painting
Composition Painting
Portrait Painting
Figure Painting
or
Sculpture
Composition Sculpture
Portrait Sculpture
Figure Sculpture
- Group IV : General Sculpture
or
General Painting
- Group V : Graphic Art
Advanced Crafts

A National examination in Anatomy is conducted at the end of the second year, and this subject is therefore not offered in the third year.

Candidates who, for example, choose Painting in Group III, must take General Sculpture under Group IV, and those that take Sculpture in Group III must take General Painting under Group IV.

Training centres:

Natal College for Advanced Technical Education, Durban
College of Art, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria.

6. NATIONAL DIPLOMA IN ART AND DESIGN (DRESS DESIGN)

Nature and duration of the course: The course is full-time, extending over three years. Students do not follow the Basic First-Year course.

The subjects for the three years of the course are as follows:

- Group I : Art of Drawing
Figure Drawing
Anatomy
Fashion Drawing
- Group II : History of Costume
- Group III : Creative Dress Design
Dressmaking (Cutting)
Dressmaking (Practical)
Millinery

Training centre:

Natal College for Advanced Technical Education, Durban

7. NATIONAL DIPLOMA IN ART AND DESIGN (INDUSTRIAL DESIGN)

Nature and duration of the course: The course extends over four years, i.e. three years after completion of the Basic First-Year course.

The subjects for the second, third and fourth years of the course are as follows:

- Group I : Art of Drawing
 Presentation Drawing
- Group II : History of Art
- Group III: Production Processes of Materials
 Factory Administration and Management
 Drawing Office Practice
 Market Procedure
- Group IV : Typography (Practical) and Lettering
 Prototypes
 Product Design
 Package and Label Design
 Creative Machine Setting
 Textiles (Practical)
 Industrial Ceramics

Training centre:

College of Art, Johannesburg.

8. NATIONAL TEACHERS' DIPLOMA (ART)

For persons who propose to qualify as art teachers the Department of National Education offers four courses:

Course A: A four-year full-time course for students who hold a Standard X Certificate or a recognized equivalent certificate. The course extends over three years after completion of the Basic First-Year course.

Course B: A three-year full-time course for non-graduates holding a recognized teachers' certificate for which the full-time training is of not less than two years' duration and for which the entrance qualification is a Standard X Certificate or an accepted equivalent certificate.

Course C: A one-year full-time course for holders of an approved B.A. (Fine Arts) degree.

Course D: A two-year part-time course for holders of the National Diploma in Art and Design.

COURSE A: The subjects of the second, third and fourth years of the course are as follows:

Group I

English (written)
 Afrikaans (written)
 English oral
 Afrikaans oral

Group II

Educational Psychology
 Principles of Education and Methods of Teaching
 School Hygiene and First Aid
 History of Education
 Practical Teaching and Blackboard Work
 Practical Teaching, 150 hours
 Methods of Teaching Art Appreciation
 Methods of Teaching Art

Group III

History of Art
 Figure Drawing
 Anatomy
 Elementary School Crafts
 Advanced Crafts
 Graphic Art

Group IV

Painting Group:

Composition Painting

Portrait Painting
Figure Painting

Sculpture Group:

Composition Sculpture
Portrait Sculpture
Figure Sculpture

Group V

General Painting or General Sculpture

Group VI

Physical Education
Cultural Activities
Religious Instruction

Students have the choice between Sculpture and Painting as major subjects.

COURSE B: The subjects for the first, second and third years are as follows:

Group I

Afrikaans oral
English oral

Group II

Practical Teaching and Blackboard Work
Practical Teaching, 100 hours
Method of Teaching Art Appreciation

Groups III to VI

As for Course A

COURSE C: The subjects for the one-year full-time course are as follows:

Group I

English oral
Afrikaans oral

Group II

Educational Psychology
Principles of Education and Methods of Teaching
School Hygiene and First Aid
History of Education
Practical Teaching and Blackboard Work
Practical Teaching, 100 hours
Method of Teaching Art Appreciation

Group III

Elementary School Crafts
Figure Drawing
Graphic Art

Group IV

Composition Painting
or
Composition Sculpture
and
General Painting
or
General Sculpture

Note: If Composition Painting is selected, General Sculpture must be taken, and if Composition Sculpture is selected General Painting must be taken.

Group V

As for Course A (Group VI)

COURSE D: The subjects for the two-year part-time course are as follows:

Group I

English (written)
Afrikaans (written)
English oral
Afrikaans oral

Group II

Educational Psychology
Principles of Education and Methods of Teaching
School Hygiene and First Aid
History of Education
Practical Teaching, 100 hours
Practical Teaching and Blackboard Work
Methods of Teaching Art Appreciation

Group III

Advanced Crafts

Group IV

Fine Art:

Composition Painting
or
Composition Sculpture
and
General Painting
or
General Sculpture

(See Course C (Group IV))

Graphic Design:

Package and Label Design
Showcard and Poster Design

Ceramics:

Ceramic Design
Ceramic Modelling

Textiles:

Creative Textile Design
Textile Design Styles

Dress Design:

Creative Dress Design
Dressmaking Cutting

Industrial Design:

Product Design
Presentation Drawing

Course D can be taken at the Witwatersrand College for Advanced Technical Education, Division of External Studies (Correspondence Courses).

Training centres for the National Teachers' Diploma (Art):

Natal College for Advanced Technical Education, Durban
College of Art, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria

B. COMMERCE AND MANAGEMENT

1. NATIONAL DIPLOMA IN BUSINESS MANAGEMENT

Admission qualifications: The minimum qualification is a Standard X Certificate with Afrikaans and English as subjects. A candidate who has passed in at least five subjects for the Standard X Certificate, or an equivalent examination, may be granted conditional admission to the course, subject to such conditions as the Secretary for National Education may determine.

Nature and duration of the course: The course extends over a period of three years and is offered on a full-time basis or a day-release basis depending on the College.

First year

Financial Accounting I
Industrial Accounting I
Business Economics
Economics

Second year

Afrikaans A or English A (Diploma standard)
Production and Marketing
Management Principles and Practice I
Management Control 1
Principles of Electronic Data Processing

Third year

English A or B or Afrikaans A or B (whichever was not taken in the second year)
Industrial Legislation
Management Principles and Practice II
Management Control II

Training Centres:

Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark

Employment possibilities: General manager, branch manager, divisional manager in commercial and industrial enterprises.

2. NATIONAL DIPLOMA IN COMMERCE

Admission qualification: The minimum requirement is a Standard X Certificate.

Nature and duration of the course: The course is a three-year full-time course. This diploma is awarded to candidates who have successfully completed twelve courses, of which the two official languages (both at diploma level, and at least one in the higher grade) and two commercial subjects at third-year level are compulsory. The subjects are to be selected from the following:

- (a) Afrikaans A or English A (Diploma)
- (b) Afrikaans A or B or English A or B (Diploma) provided that it is not the language selected under group (a)
- (c) Snelskrif I (80 w.p.m.) and II (120/140 or 160/180 w.p.m.)
- (d) Shorthand I (80 w.p.m.) and II (120/140 or 160/180 w.p.m.)
- (e) Economics I, II and III
- (f) Mercantile Law I, II and III
- (g) Business Economics I, II and III
- (h) Accountancy I, II and III
- (i) Commercial Mathematics I and II
- (j) Typewriting I and II
- (k) Secretarial Practice I and II

Note: Exemption with regard to first-year courses in the commercial subjects will be considered in the case of candidates who have previously passed a commercial subject at the Std. X level or Shorthand and Snelskrif 80 w.p.m. if at least a D symbol was obtained.

Training centres:

This course is provided by all colleges for advanced technical education and technical colleges.

Employment possibilities: Commercial enterprises, municipalities, building societies, provincial administrations, banks and so forth.

3. NATIONAL DIPLOMA IN COST ACCOUNTING

Admission qualifications: Candidates must have obtained a Standard X Certificate with English and Afrikaans as subjects.

Nature and duration of the course: The course can be taken either on a sandwich or part-time basis extending over a period of three years.

First year

Financial Accounting I
Management Accounting I
Economics
Afrikaans or English (Diploma standard)

Second year

Financial Accounting II
Management Accounting II
Business Economics
English or Afrikaans (Diploma standard)
(whichever was not taken in the first year)

Third year

Financial Accounting III
Management Accounting III
Industrial Legislation
Statistical Methods

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Technical College, East London
Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark

Employment possibilities: Provincial Administrations: Accounts sections, insurance companies, co-operatives, commercial and industrial enterprises.

4. NATIONAL DIPLOMA IN ELECTRONIC DATA PROCESSING AND SYSTEM ANALYSIS

Admission qualification: The minimum qualification is a Standard X Certificate with a pass in English, Afrikaans and Mathematics.

Prospective students will have to pass an aptitude test.

Nature and duration of the course: The course extends over a period of three years and is offered on a sandwich basis.

First year

Electronic Data Processing I
Principles of Electronic Data Processing
Organization and Method Study I
Statistical Methods

Second year

Electronic Data Processing II
Organization and Method Study II
Afrikaans A or English A (Diploma standard)
Financial Accounting

Third year

Electronic Data Processing III
Organization and Method Study III
English A or B or Afrikaans A or B (whichever was not chosen in the second year)
Mathematics T1 or Business Economics

Training centres:

Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

Employment possibilities: Organizations with computers, e.g. CSIR, certain Government departments, banks.

5. NATIONAL DIPLOMA FOR ESTATE AGENTS

Admission qualifications: The minimum qualification is a Standard X Certificate (or equivalent) with English and Afrikaans as subjects.

Nature and duration of the course: It is a part-time course extending over three years.

First year

Financial Accounting I
Commercial Arithmetic
Mercantile Law
Afrikaans A or English A

Second year

Financial Accounting II
Business Economics
Statute Law and Case Law on Valuations
English A or B or Afrikaans A or B (the language not taken in the first year)

Third year

Economics
General Building Practice
The Valuer - his functions and methods
Fundamentals of Valuations and Accountancy

Training centres:

Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria.

Employment possibilities: Real estate brokers and township developers.

6. NATIONAL DIPLOMA IN HOTEL MANAGEMENT

Admission qualifications: The minimum qualification is a Standard X Certificate with English and Afrikaans as subjects.

Nature and duration of the course: The course extends over a period of two years of full-time study.

This course has been introduced in co-operation with the Hotel Board.

First year

Hotel Accounting I
Hotel Law I
Hotel Administration I
Hotel Catering I
Hotel Housekeeping
English A or Afrikaans A (Diploma standard)

Second year

Hotel Accounting II
Hotel Law II
Hotel Administration II
Hotel Catering II
Afrikaans A or B or English A or B (Diploma standard) (Provided it is not the language selected in the first year)
French

Training centre:

Witwatersrand College for Advanced Technical Education, Johannesburg.

Employment possibilities: In the hotel industry as hotel managers.

7. NATIONAL DIPLOMA IN ORGANIZATION AND METHOD STUDY

Admission qualification: Candidates must have obtained a Standard X Certificate with English and Afrikaans as subjects.

Duration and nature of the course: The course is taken on a part-time basis over a period of three years.

First year

Organization and Method Study I
Business Economics
English A (Diploma standard) or Afrikaans A (Diploma standard)
Statistical Methods

Second year

Organization and Method Study II
Work Measurement I
Management Accounting
English B or Afrikaans B

Third year

Organization and Method Study III
Work Measurement II
Principles of Electronic Data Processing
Industrial Psychology

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

Employment possibilities: Government departments, provincial administrations, municipalities.

8. NATIONAL DIPLOMA IN PRINTING MANAGEMENT

Admission qualifications: The minimum qualifications are one of the following: National Printer's Diploma, National Printer's Certificate (Part III), National Technical Certificate (Part III), Standard X Certificate or any equivalent qualification.

Nature and duration of the course: The course extends over a period of three years and is offered on a part-time basis.

First year

Printing Processes I
Financial Accounting
English A/B
Afrikaans B/A

Second year

Printing Processes II
Cost Accounting for Printers
Estimating for Printers
Law for Printers

Third year

Printing Processes III
Human Factor in Management
Work Study
Economics
Industrial Legislation

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth.

Employment possibilities: A manager in the printing industry.
Bursaries are available for this course. Further particulars may be obtained from the colleges concerned.

9. NATIONAL DIPLOMA IN PUBLIC ADMINISTRATION

Admission qualifications: The following persons are eligible for admission:

- All officers in the Clerical and Administrative Divisions of the Public Service and officers of the Provincial Administrations, semi-government institutions and public bodies, with a minimum qualification of Standard X with English and Afrikaans as compulsory subjects;
- Candidates who have passed in at least five Standard X subjects, but who did not qualify for the award of such a certificate, will be granted conditional admission to the course on application, provided that the National Diploma in Public Administration will not be issued to such candidates unless they have qualified for the Standard X Certificate.

Nature and duration of the course: The course is taken on a part-time basis over a period of three years.

Subjects:

First year

Public Administration I
Economics I
Afrikaans (Diploma)
English (Diploma)

Second year

Public Administration II
Economics II
Law I
Industrial Psychology I

Third year

Public Administration III
Economics III

Training centres:

Cape College for Advanced Technical Education, Cape Town
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria.

Employment possibilities: Government departments, S.A. Railways, SABS, boards of control, provincial administrations.

10.

NATIONAL DIPLOMA IN STATE ACCOUNTS AND FINANCE

Admission qualification: The following candidates are eligible for admission: (i) All officers in the Accounts Divisions of the Public Service and officers of the Provincial Administrations, semi-government institutions and public bodies with a minimum qualification of a Standard X or equivalent certificate with Afrikaans and English as compulsory subjects. (ii) Candidates who have passed in at least five subjects for the Standard X Certificate (or equivalent), but who have not qualified for the award of such a certificate, will be granted conditional admission to the course on application, provided that this Diploma will not be issued to such candidates unless they have qualified for the award of the Standard X or equivalent certificate.

Duration and nature of the course: The course is taken on a part-time basis over a period of three years.

Subjects:

GENERAL GROUP

First year

Financial Accountancy I
State Finance I
Economics I
Afrikaans A or B or English A or B

Second year

Financial Accountancy II
State Finance II
Business Economics
English A or B or Afrikaans A or B (not taken in the first year)

Third year

Advanced and Machine Accounting
State Finance III
Auditing I
Mercantile Law

INLAND REVENUE GROUP

First year

Financial Accountancy I
Taxation I
Economics
Afrikaans A or B or English A or B

Second year

Financial Accountancy II
Taxation II
State Finance I
English A or B or Afrikaans A or B (not taken in the first year)

Third year

Taxation III
Advanced and Machine Accounting
State Finance II
Mercantile Law I

Issue of Diplomas: A diploma will be issued to the candidate who attended the prescribed lectures at a College for Advanced Technical Education approved by the Department of National Education, passed the examinations and is employed in a public institution where the nature of the work is in connection with the course and where the necessary practical experience has been acquired.

Training centres:

Cape College for Advanced Technical Education, Cape Town
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

Employment possibilities: Government departments, provincial administrations, S.A. Railways, Department of Posts and Telegraphs.

11. NATIONAL DIPLOMA IN TOURISM

Admission qualification: A candidate must be in possession of a Standard X Certificate with Afrikaans and English as subjects.

A candidate who has passed in at least five subjects for the Standard X Certificate or holds an equivalent qualification, may be granted conditional admission to the course, subject to such conditions as the Secretary for National Education may determine.

Nature and duration of the course: The course extends over a period of three years and is offered by Colleges of Advanced Technical Education and correspondence colleges under the control of the Department of National Education.

Subjects:

First year

Tourism I
Tourism Techniques I
Afrikaans A or English A (Diploma standard)
German I or French I

Second year

Tourism II
Tourism Techniques II
German I or French I (the foreign language which was not taken in the first year)
German II or French II (the foreign language which was taken in the first year)

Third year

Tourism III
Tourism Techniques III
German II or French II (the foreign language which was not taken in the second year)
Afrikaans A or B or English A or B (Diploma Standard)(the official language which was not taken in the first year).

Training centres:

Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria.

Employment possibilities: Tourism manager and tourist guide.

12. NATIONAL DIPLOMA IN VALUATIONS

Admission qualification: The minimum qualification is a Standard X Certificate or an equivalent qualification, with English and Afrikaans as subjects.

A candidate who has passed in at least five subjects for the Standard X Certificate and who is at least 23 years old may be granted conditional admission to the course.

Nature and duration of the course: The course extends over three years and is offered on a part-time basis.

First year

Mercantile Law
Economics
General Building Practice
Afrikaans or English (Diploma standard)

Second year

Afrikaans or English (Diploma standard)
Statute Law and Case Law on Valuations
The Valuer - his functions and methods
Fundamentals of Valuations and Accountancy

Third year

The nature and use of Valuation Tables
Practical Examination

Issue of Diplomas: A diploma will be issued to a candidate who has passed the prescribed examinations and who can produce a certificate signed by the General Secretary of the South African Institute of Valuers to the effect that such candidate has satisfactorily completed the practical examination of Part III of the course.

Training centres:

College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria.

Employment possibilities: Government departments, building societies, real estate agents and township developers, municipalities, provincial administrations.

13. NATIONAL CERTIFICATE IN SUPERVISORY MANAGEMENT

Admission qualification: The minimum qualification is a Standard X Certificate or in the case of a person with lesser qualifications, the minimum age for acceptance to the course will be 25 years and 5 years of suitable supervisory experience will be required.

Nature and duration of the course: The course is a sandwich or block-release course entailing attendance at the College for one ten-week period per year for two years.

Course I

English A or Afrikaans A
Theory and Practice of Supervision I
Personnel Management I

Course II

Production Planning and Control I
Costing, Estimating and Cost Control I
Seminar on Supervision I

Training centres:

Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg.

Employment possibilities: Government departments and semi-government institutions, commerce and industry.

14. NATIONAL SECRETARIAL CERTIFICATE (MEDICAL RECEPTIONISTS)

Admission qualifications: The minimum entrance qualification is a Standard X Certificate.

Nature and duration of the course: The course extends over one year of full-time study.

Subjects:

Afrikaans A or English A (Diploma grade)
Afrikaans A or B or English A or B (Diploma grade)
Typewriting I (Senior grade)
Secretarial Practice I

Combination:

Practical Psychology
Principles of Social Work
Elementary Medical Knowledge
Medical Ethics and Legal Aspects

Non-examination subjects:

Office Routine (Practical Office Work)
Consulting Room Practice
Elementary Practical Bookkeeping
Speech and Department

Training centres:

Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark:

15. NATIONAL SECRETARIAL CERTIFICATE (PRIVATE SECRETARIES)

Admission qualification: The minimum entrance qualification is a Standard X Certificate.

A knowledge of commercial subjects is not a prerequisite for enrolment. Candidates with previous knowledge of such subjects will, however, benefit by the advanced training they will receive.

Nature and duration of the course: This course is designed for young women who have completed their secondary education and have the ambition to further their studies and to become Private Secretaries to Senior Executives in Commerce and Industry or one of the Professions.

The course lasts one academic year, i.e. full-time attendance during four college terms.

Group I: All subjects are compulsory:

- (a) Afrikaans A or English A (Diploma grade)
- (b) Afrikaans A or B or English A or B (Diploma grade)
- (c) Typewriting I (Senior grade)
- (d) Secretarial Practice I

Group II: At least TWO, but not more than THREE of the following subjects:

- (a) Shorthand I (80 words per minute)
- (b) Snelskrif I (80 words per minute) (Afrikaans Shorthand)
- (c) Not more than TWO of the following:
 - (i) Mercantile Law I
 - (ii) Business Economics I
 - (iii) Economics I
 - (iv) Accountancy I
- (d) One of the following:
 - (i) Special subjects for Medical Receptionists*
 - (ii) Special subjects for Home Economics

Group III: The following non-examination subjects:

- (a) Speech and Department
- (b) Office Routine

*Offered only by three colleges. See National Secretarial Certificate (Medical Receptionists).

Remarks: Exemption from one of the official languages in the case of immigrants and foreign students will be considered. In such a case a modern foreign language or one of the subjects under Group II must be included in the course.

Exemptions to candidates who have previously passed a commercial subject at Senior level

or Shorthand and Snelskrif (80 w.p.m.) will be considered if at least a D symbol was obtained.

Training centres:

Free State Technical College, Bloemfontein
Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
East London Technical College, East London
Witwatersrand College for Advanced Technical Education, Johannesburg
Northern Cape Technical College, Kimberley
Technical College, Krugersdorp
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Technical College, Stellenbosch
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

Employment possibilities: Commercial enterprises, building societies, municipalities, government departments, industries and manufacturers.

C. ENGINEERING

NATIONAL DIPLOMA FOR TECHNICIANS - GENERAL REMARKS

Admission qualification: The minimum qualification for admission to the course is a Standard X Certificate with passes in Mathematics and a science subject or a National Technical Certificate, Part III (or higher) with the appropriate subjects.

Nature and duration of the courses: The courses extend over a period of four years and are offered on a sandwich or part-time basis.

Employment possibilities: S.A. Railways, Department of Posts and Telegraphs, Escom, city engineering departments, Iscor, Sasol, SABC, CSIR and private industries.

1. NATIONAL DIPLOMA FOR TECHNICIANS (CIVIL ENGINEERING)

Subjects:

Part A

Mathematics T1
Applied Mechanics T1
Engineering Drawing T1
Physics TB1
Principles of Electricity T1
Workshop Technology T1

Part B

Mathematics T2
Applied Mechanics T2
Survey T1
Building and Civil Engineering Construction T1
Civil Engineering Materials T
Geology T

Part C

Mathematics T3
Theory of Structures T1
Structural Design T1
Survey T2
Soil Mechanics T
Hydraulics T1

Part D

Mathematics T4
Theory of Structures T2
Structural Design T2
Building and Civil Engineering Construction T2
Hydraulics T2
Production Control (Civil) T

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
East London Technical College, East London
Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Technical College, Springs
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

2. NATIONAL DIPLOMA FOR TECHNICIANS (ELECTRICAL ENGINEERING : HEAVY CURRENT)

Subjects:

Part A

Mathematics T1
Applied Mechanics T1
Engineering Drawing T1
Physics TB1
Principles of Electricity T1
Languages T
*Workshop Technology T

Part B

Mathematics T2
Applied Mechanics T2
Engineering Drawing T2
Physics TB2
Principles of Electricity T2
*Workshop Technology T2

Part C

Mathematics T3
Electrical Engineering T1
Electronics T

At least THREE subjects to be taken from:

Strength of Materials T1
Theory of Machines T1
Applied Thermodynamics T1
D.C. Machines T
Illuminating Engineering T1

Additional optional subjects:

Metallurgy T1
Workshop Technology T3

Part D

Mathematics T4
Electrical Engineering T2
Industrial Electronics T

At least THREE subjects to be taken from (a) to (g) inclusive:

- (a) Strength of Materials T2
- (b) Theory of Machines T2
- (c) Applied Thermodynamics T2
- (d) Hydraulics T1
- (e) Faults and Failures in Electrical Machines and Apparatus T
- (f) Illuminating Engineering T2
- (g) One subject from:

Electrical Measurement and Testing T
Mining Electrical Plant T
Power Station Practice T

Transmission and Distribution T

Additional optional subjects:

Metallurgy T2
Workshop Technology T4

*Note: Candidates who are apprentices, or who have completed an apprenticeship need not necessarily attend classes in the subject, but they will still have to pass the external examination to be credited with the subject.

Training centres:

Free State Technical College, Bloemfontein
Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
East London Technical College, East London
Witwatersrand College for Advanced Technical Education, Johannesburg
Technical College, Krugersdorp
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Technical College, Springs
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

3. NATIONAL DIPLOMA FOR TECHNICIANS (ELECTRONIC ENGINEERING)

Subjects:

Part A

Mathematics T1
Applied Mechanics T1
Engineering Drawing T1
Physics TB1
Principles of Electricity T1
Languages T
*Workshop Technology T1

Part B

Mathematics T2
Applied Mechanics T2
Engineering Drawing T2
Physics TB2
Principles of Electricity T2
Inorganic Chemistry (Optional) T1
*Workshop Technology T2

Part C

At least SIX subjects to be taken from:

Mathematics T3
Electrical Engineering T1
Electronics T
Radio Engineering T1
Electronic Measurements T1
Physical Chemistry T1 or Radar Theory T1
Illuminating Engineering T1
Automatic Control T1

Part D

At least SIX subjects to be taken from:

Figure and Analogue Technique T
Mathematics T4
Electrical Engineering T2
Industrial Electronics T
Radio Engineering T2
Electronic Measurements T2
Fault Diagnosis and Correction in Electronic Apparatus T
Illuminating Engineering T2
Automatic Control T2

Additional optional subject:

Television T

*Note: Candidates who are apprentices, or who have completed an apprenticeship need not necessarily attend classes in the subject, but they will still have to pass the external examination to be credited with the subject.

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

4. NATIONAL DIPLOMA FOR TECHNICIANS (FOUNDRY ENGINEERING)

The Diploma is generally recognised in South Africa and is supported by the Steel Engineering Industries of South Africa and the South African Institute of Foundrymen. Bursaries are available.

Subjects:

Part A

Mathematics T1
Physics T1
Inorganic Chemistry T1
Engineering Drawing T1
Foundry Technology T1
Languages T

Part B

Physical Metallurgy T1
Fuels and Refractories T
Patternmaking T
Engineering Drawing T2
Mechanical and Thermal
Treatment T or
Foundry Engineering T
Foundry Technology T2

Part C

Physical Metallurgy T2
Mechanical and
Thermal Treatment T or
Foundry Engineering T
Sand Technology T1
Foundry Technology T3
Foundry Projects T1

} Provided one of these subjects has not been taken in
} Part B

Part D

Destructive and Non-destructive
Testing of Metals T
Melting Practices for Foundry Metals and Alloys T
Sand Technology T2
Foundry Technology T4
Foundry Projects T2

Training centres:

Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria.

5. NATIONAL DIPLOMA FOR TECHNICIANS (INSTRUMENTATION AND CONTROL)

Subjects:

Part A

Mathematics T1

Applied Mechanics T1
Physics TB1
Principles of Electricity T1
Industrial Instruments T1
Radio and Electronic Measurements
(Half course) T1

Part B

Mathematics T2
Physics TB2
Industrial Instruments T2
Radio and Electronic Measurements
(Half course) T1
Electronics T
Engineering Drawing T1
Languages T

Part C

Mathematics T3
Industrial Instruments T3
Radio and Electronic Measurements
(Half course) T2
Industrial Electronics T
Automatic Control T1

Part D

Mathematics T4
Industrial Instruments T4
Automatic Control T2
Digital and Analogue Techniques T
Human Factor in Management T
Radio and Electronic Measurements
(Half course) T2

Training centre:

Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

6. NATIONAL DIPLOMA FOR TECHNICIANS (INSTRUMENTATION AND DEVELOPMENT)

Subjects:

Part A

Mathematics T1
Applied Mechanics T1
Physics TB1
Principles of Electricity T1
Engineering Drawing T1
Workshop Technology T1
Languages T

Part B

Mathematics T2
Applied Mechanics T2
Physics TB2
Principles of Electricity T2
Engineering Drawing T2
Workshop Technology T2
Industrial Instruments T1

Part C

Mathematics T3
Strength of Materials T1
Electrotechnology T1
Industrial Instruments T2
Hydraulics T1

Part D

Strength of Materials T2
Electrotechnology T2
Hydraulics T2
Theory of Machines T1
Costing and Estimating T

Training centre:

Pretoria College for Advanced Technical Education, Pretoria.

7. NATIONAL DIPLOMA FOR TECHNICIANS (MARINE ENGINEERING)

Subjects:

Part A

Mathematics T1
Applied Mechanics T1
Engineering Drawing T1
Physics TB1
Principles of Electricity T1
Languages T
*Workshop Technology T1

Part B

Mathematics T2
Applied Mechanics T2
Engineering Drawing T2
Physics TB2
Principles of Electricity T2
Naval Architecture T1
*Workshop Technology T2

Part C

Mathematics T3
Strength of Materials T1
Electrotechnology T1
Naval Architecture T2
Marine Engineering Knowledge T1
Applied Thermodynamics T1

Part D

Strength of Materials T2
Electrotechnology T2
Marine Engineering Knowledge T2
Applied Thermodynamics T2
Hydraulics T1

*Note: Candidates who are apprentices, or who have completed an apprenticeship, need not necessarily attend classes in the subject, but they will still have to pass the external examination to be credited with the subject.

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Pretoria College for Advanced Technical Education, Pretoria.

8. NATIONAL DIPLOMA FOR TECHNICIANS (MECHANICAL ENGINEERING)

Subjects:

Part A

Mathematics T1
Applied Mechanics T1
Engineering Drawing T1
Physics TB1

Principles of Electricity T1
English A/B T
Afrikaans A/B T
*Workshop Technology T1

Part B

Mathematics T2
Applied Mechanics T2
Engineering Drawing T2
Physics TB2
Principles of Electricity T2
*Workshop Technology T2
Inorganic Chemistry T (Optional)

Part C

Mathematics T3
Strength of Materials T1
Theory of Machines T1
Applied Thermodynamics T1
At least TWO subjects to be taken from:
Machine Design T1 or Engineering Drawing T3
Hydraulics T1
Electrotechnology T1
Boiler and Industrial Water (Chemistry and Treatment) T1
Workshop Technology T3

Additional optional subjects:

Metallurgy T1
Illumination Engineering T1

Part D

Strength of Materials T2
Theory of Machines T2
Applied Thermodynamics T2
At least THREE subjects to be taken from:
Machine Design T2
Hydraulics T2
Electrotechnology T2
Boiler and Industrial Water (Chemistry and Treatment) T2
Mathematics T4
Theory of Structures (Special) T
Workshop Technology T4

Additional optional subjects:

Metallurgy T2
Illumination Engineering T2

*Note: Candidates who are apprentices, or who have completed an apprenticeship need not necessarily attend classes in the subject, but they will still have to pass the external examinations to be credited with the subject.

Training centres:

Free State Technical College, Bloemfontein
Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
East London Technical College, East London
Witwatersrand College for Advanced Technical Education, Johannesburg
Technical College, Krugersdorp
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Technical College, Springs
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

9. NATIONAL DIPLOMA FOR TECHNICIANS (METALLURGY)

Subjects:

Part A

Mathematics T1

Physics T1
Chemistry T1
Production of Iron and Steel T1
Languages T

Part B

Physical Chemistry T1
Physical Metallurgy T1
Fuels and Refractories T
Metallurgical Analysis T (Theory and Practical)

Part C

Physical Metallurgy T2
Production of Iron and Steel T2
Mechanical and Thermal Treatment T
Non-ferrous Extraction Metallurgy T

Part D

Foundry Metallurgy T
Properties and Applications of Metals and Alloys T
Destructive and Non-destructive Testing of Metals T

Note: A candidate must produce evidence that he is employed in the metallurgical industry.

Training centres:

Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

10. NATIONAL DIPLOMA FOR TECHNICIANS (PRODUCTION ENGINEERING)

Subjects:

Part A

Mathematics T1
Applied Mechanics T1
Engineering Drawing T1
Physics TB1
Principles of Electricity T1
Workshop Technology T1
Languages T

Part B

Mathematics T2
Applied Mechanics T2
Engineering Drawing T2
Physics TB2
Principles of Electricity T2
Workshop Technology T2
Inorganic Chemistry T (Optional subject)

Part C

Strength of Materials T1
Theory of Machine Tools T1
Jig and Tool Design T1
Work Study T1
Metrology T
Workshop Technology T3
Production, Planning and Control T1

Additional optional subjects:

Metallurgy T1
Mathematics T3

Part D

Strength of Materials T2
Theory of Machine Tools T2
Jig and Tool Design T2
Work Study T2
Production, Planning and Control T2
Costing and Estimating T

Additional optional subjects:

Metallurgy T2
Workshop Technology T4

Note: Students following this course are eligible to become student members of the South African Institute of Production Engineering.

Training centres:

East London Technical College, East London
Witwatersrand College for Advanced Technical Education, Johannesburg
Technical College, Krugersdorp
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Technical College, Springs
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

11. NATIONAL DIPLOMA FOR TECHNICIANS (RAILWAY SIGNAL ENGINEERING)

Subjects:

Part A

Mathematics T1
Applied Mechanics T1
Engineering Drawing T1
Physics TB1
Principles of Electricity T1
Workshop Technology T1
Languages T

Part B

Mathematics T2
Applied Mechanics T2
Engineering Drawing T2
Physics TB2
Principles of Electricity T2
Workshop Technology T2

Part C

Mathematics T3
Electrical Engineering T1
Electronics T
Radio Engineering T1
Electronic Measurements T1
Railway Signal Engineering T1

Part D

Mathematics T4
Electrical Engineering T2
Industrial Electronics T
Radio Engineering T2
Fault Diagnosis and Correction in Electronic Apparatus T
Railway Signal Engineering T2

Training centre:

Pretoria College for Advanced Technical Education, Pretoria.

12. NATIONAL DIPLOMA FOR TECHNICIANS (RADIO ENGINEERING)

Nature and duration of the course: The course is a two-year full-time course which is arranged so that the student first completes all his theoretical training at the college in a period of two years, after which he does his practical training in the service of the employer for a further period of two years. Thus the full training period is four years.

Subjects:

Part A

Mathematics T1
Physics TB1
Principles of Electricity T1
Engineering Drawing T1
Languages T

Part B

Mathematics T2
Physics TB2
Principles of Electricity T2
Principles of Radio and Electronics T1
Applied Mechanics T1
Radio and Electronic Measurements T1
Radio Workshop Practice T1

Part C

Mathematics T3
Principles of Radio and Electronics (Part C) T2
Radio Workshop Practice T2

Part D

Mathematics T4
Principles of Radio and Electronics (Part D) T2
Radio and Electronic Measurements T2
Radio Transmission T
Radio Reception T

Training centres:

Cape College for Advanced Technical Education, Cape Town
Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria.

13. NATIONAL CERTIFICATE IN MARINE ENGINEERING

Admission qualification: The minimum qualification is a Standard X Certificate with Mathematics and Physical Science.

Nature and duration of the course: The Department of Transport has approved an alternative method of training Marine Engineers. Instead of starting as a trade apprentice, the trainee may join a company like S.A. Marine Corporation, Ltd., as a Marine Engineering Cadet. The period of training extends over four years, as follows:

First year: At sea

Second year: Full-time study at the College for Advanced Technical Education.

Subjects:

Applied Mechanics
Heat and Heat Engines
Mathematics
Drawing
Electrotechnology
Elementary Naval Architecture
Engineering Knowledge

Third year: Shore-based workshop training.

Fourth year: At sea; in-service training.

Training centre:

Natal College for Advanced Technical Education, Durban.

14. HIGHER NATIONAL DIPLOMA FOR TECHNICIANS

GENERAL REMARKS

Admission qualification: This course can be taken in an applicable branch after the National Diploma for Technicians has been obtained.

Duration of the course: There is no definite period for completing the course.

This course provides for the following three options:

(i) Electrical Engineering

Subjects:

Mathematics (Higher Diploma)
Advanced Electrical Engineering
Utilization of Electrical Plant

(ii) Mechanical Engineering

Subjects:

Theory of Machines T3
Hydraulics T3
Strength of Materials T3
Applied Thermodynamics T3

(iii) Radio Engineering

Subjects:

Mathematics (Higher Diploma)
Advanced Electrical Engineering
Radio Communication (Higher Diploma)

Training centres:

Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

D. HEALTH SERVICES

1. DIPLOMA IN PHARMACY

Admission qualification: Prospective candidates should hold a Standard X Certificate (Matriculation exemption) with proof of having passed in Mathematics and one of the following subjects: Botany, Chemistry, Physics, Zoology, Biology or Physical Science.

Nature and duration of the course: The course extends over a period of 5 years consisting of four years of full-time study at a College for Advanced Technical Education followed by a period of practical training.

After satisfactory completion of academic training, one year of internship is served in the employment of a retail pharmacy, hospital pharmacy or railway pharmacy, pharmaceutical factory or pharmaceutical laboratory.

Curriculum

Pharmacy I

Chemistry I
Physics
Botany
Zoology

Pharmacy II

Chemistry II
Pharmaceutics I
Physiology
Pharmacognosy

Pharmacy III

Pharmaceutics II
Pharmaceutical Chemistry I
Pharmacology I
Public Health (quarter course)

Pharmacy IV

Pharmaceutics III
Pharmaceutical Chemistry II
Pharmacology II
Forensic Pharmacy (including Business Administration)

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria.

Employment possibilities: Retail, wholesale and hospital pharmacy, pharmaceutical industry and pharmaceutical administration and promotion.

2. FELLOWSHIP DIPLOMA OF THE SOUTH AFRICAN OPTOMETRIC ASSOCIATION

Admission qualification: Candidates should hold a Standard X Certificate (Matriculation exemption). A satisfactory pass in Mathematics is a prerequisite.

Duration of the course: It is a four-year course offered on a full-time basis only.

Training centre:

Witwatersrand College for Advanced Technical Education, Johannesburg

Practical training: This comprises practical work during the second, third and fourth years in the Johannesburg Optometric Clinic which is situated in the College buildings.

Employment possibilities: Own undertaking, partnership with ophthalmic surgeon, hospitals, eye clinics attached to mines, South African Railways and Harbours.

3. NATIONAL CERTIFICATE IN HOUSING MANAGEMENT

Admission qualification: The minimum qualification for admission to this course is a Standard X Certificate or any other certificate recognized by the Department of National Education as equivalent thereto.

Nature and duration of the course: This course extends over one year and may be taken by means of a correspondence course through the Witwatersrand College for Advanced Technical Education.

Subjects:

The course consists of the following theoretical subjects:

Law and Finance
Housing Schemes and Designing of Dwellings
Building Construction, Maintenance and Hygiene
Administration and Tenant Welfare
AND

practical training of not less than six months' duration in an approved centre. (An approved centre is one where a qualified housing manager or other suitably qualified person is employed in the administration of housing schemes with approximately 300 housing units). The Department will approve of only such housing schemes as deal with all aspects of housing.

Training centre:

Witwatersrand College for Advanced Technical Education, Johannesburg.

Employment possibilities: Housing schemes.

4. NATIONAL CERTIFICATE FOR MEDICAL REPRESENTATIVES

Admission qualification: The minimum qualification is a Standard X Certificate with Physical Science as a subject. Persons who hold a Standard X Certificate without Physical Science must first complete an approved course in Physical Science.

A person who does not hold a Standard X Certificate or an equivalent qualification, but who has had appropriate experience of at least five years in an approved laboratory, factory or company, and who has reached the minimum age of 23 years, may on application to the Department of National Education be considered for admission to the course.

Persons who wish to enrol for the course must submit documentary evidence to the training institution that they have completed at least one year's service in an approved laboratory, factory or company or an associated enterprise.

Note: "Approved" means approved by the Department of National Education in consultation with the Society of Pharmaceutical and Chemical Manufacturers.

Nature and duration of the course: Until a part-time or only a sandwich course is justified, instruction will be given by means of a correspondence course through the Witwatersrand College for Advanced Technical Education. The course extends over a period of two years.

Subjects:

First year

Introductory Science
Biology I
Pathology I
Afrikaans A or English A

Second year

Pathology II
Chemotherapy
Pharmacology
English A or B or Afrikaans A or B (provided it is not the language taken during the first year)

Requirements for the award of a certificate

The candidate must pass the prescribed examination, but a certificate will be awarded by the Department of National Education only after documentary proof has been submitted by the training institution where the candidate was trained, to the effect that he has had at least four years' appropriate experience of which at least two years' appropriate experience was in the medical or pharmaceutical field.

Training centre:

Witwatersrand College for Advanced Technical Education, Johannesburg.

Employment possibilities: Manufacturers of medical and pharmaceutical products.

5. NATIONAL CERTIFICATE FOR ORTHOPAEDIC TECHNICIANS

Admission qualification: The minimum educational requirement for this course is a Standard VIII Certificate or any other equivalent certificate which entitles the holder to continue his studies for a Standard X Certificate or an equivalent qualification. However, persons with a Standard X Certificate receive preference. Aptitude and personality are also taken into consideration.

Nature and duration of the course: The course is taken on a full-time basis over a period of three years. The emphasis is mainly on technical, medical and practical training together with clinical experience and further general education.

Subjects:

First year

Orthopaedic Basic Science C1
Orthopaedic Workshop Theory C1
Orthopaedic Workshop Practice C1

Second year

Orthopaedic Basic Science C2
Orthopaedic Workshop Theory C2
Orthopaedic Workshop Practice C2

Third year

Orthopaedic Basic Science C3
Orthopaedic Workshop Theory C3
Orthopaedic Workshop Practice C3
Human Relations for Orthopaedic Technicians C

6. NATIONAL DIPLOMA FOR ORTHOPAEDIC TECHNICIANS

Admission qualifications: Candidates must be in possession of the National Certificate for Orthopaedic Technicians and must also have passed in at least 4 subjects (including the two official languages) on a Standard X or an equivalent level.

Nature and duration of the course: The course extends over a period of two years and is provided on a full-time basis.

First year

Orthopaedics T1
Orthopaedic Workshop Technique and Management T1
Orthopaedic Workshop Practice T1
Human Relations for Orthopaedic Technicians T1

Second year

Orthopaedics T2
Orthopaedic Workshop Technique and Management T2
Orthopaedic Workshop Practice T2
Human Relations for Orthopaedic Technicians T2

Training centres:

Training courses are offered at the following provincial hospitals in the Republic:

Red Cross Hospital, Rondebosch, C.P.
Provincial Hospital, Port Elizabeth, C.P.
Frere Hospital, East London, C.P.
Wentworth Hospital, Jacobs, Natal.
National Hospital, Bloemfontein, O.F.S.
Orthopaedic and Artificial Limb Fitting Centre, Johannesburg, Tv1.
Orthopaedic Hospital, Pretoria, Tv1.

Employment possibilities: Hospitals (See training centres).

Bursary loan: Students of orthopaedics receive a bursary loan in the form of a salary of R1,320 p.a. for the duration of the course. The bursary loans are made available by the provincial administrations (Department of Hospital Services) concerned. The Transvaal Department of Hospital Services does not require students to sign a contract or to re-fund the bursary.

7. NATIONAL DIPLOMA FOR HEALTH INSPECTORS

Admission qualifications: The minimum qualification is a Standard X Certificate with at least a Standard VIII pass in Mathematics. It is, however, preferable that candidates should have passed Mathematics and studied at least one science subject up to Standard X level.

Nature and duration of the course: The course is divided into three sections, which, in the case of full-time classes, extend over three semesters (i.e. 18 months). The training may be interrupted in order to enable students to gain practical experience.

Proof that the student has had 100 days' practical training must be furnished before the diploma is issued. This practical experience includes the following:

40 continuous working days in an approved health department;
40 continuous working days in an approved abattoir; and
20 continuous working days in an approved building section of a municipality, or at the Public Works Department.

First semester

Biology
Chemistry and Physics
Sanitary Science
Building Practice I

Second semester

Building Practice II
Microbiology I
Food Hygiene I

Third semester

Microbiology II
Food Hygiene II
Public Health Legislation and Administration

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria.

Employment possibilities: City and town councils, mining companies, Iscor, South African Railways.

8. NATIONAL DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY

Admission qualifications: The candidate must hold a Standard X Certificate (Matriculation exemption) or a certificate approved by the South African Medical and Dental Council. Candidates should preferably have passed in one or more science subjects.

Nature and duration of the course: The course consists of two parts, viz the intermediate part extending over one-year full-time, or two years' part-time study, and the final part extending over one-year part-time study.

The candidate must be trained for a period of at least four years in a laboratory or other institution approved by the South African Medical and Dental Council.

The intermediate examination comprises the following subjects:

Chemistry
Physics
Anatomy and Physiology
Laboratory Technique

The final examination must be taken in one of the following categories, not less than 3 years after commencement of training as a medical technologist and after not less than 2 years' training in that category in a laboratory or other institution approved by the Council:

Microbiology
Chemical Pathology
Histopathological Technique
Haematology
Virology
Parasitology
Blood Transfusion Technology
Clinical Pathology (which shall comprise the subjects Microbiology, Chemical

Pathology and Haematology)
Exfoliative Cytology

After the candidate has complied with all the above requirements, the South African Medical and Dental Council may grant a certificate of registration as medical technologist to him/her.

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
East London Technical College, East London
Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria.

LABORATORIES APPROVED FOR THE TRAINING OF MEDICAL TECHNOLOGISTS

1. Central Pathology Laboratory, Natal Provincial Administration, Durban
2. Natal Blood Transfusion Service, Durban
3. State Pathology Laboratory, Cape Town
(Including the categories Histopathological Technique and Virology)
4. State Pathological Laboratory, Durban
5. State Pathological Laboratory, East London
6. King George V Hospital, Durban
7. South African Institute for Medical Research, Johannesburg
8. Laboratory of Drs Sims, Bloomberg, Lewin, Holman, Brunt and Aaron, Johannesburg
9. Laboratory of Drs Dunston, Martin and Pepler, Pretoria
10. Laboratory of Drs Drummond, Taylor, Rifkin, Swanepoel, Roach and Ferguson, Durban
(Including the category Exfoliative Cytology and for the training of Cyto-technicians)
11. Laboratory of Drs Davis, Beyers and Mulligan, Cape Town
12. Laboratory of Drs Schapera, Anstey and Slobedman, Cape Town
13. Laboratory of Drs Irving, Schrire, Zent and Gon, Johannesburg
(Including the category Chemical Pathology)
14. Laboratory of Drs Finlayson, Clegg, Peden, Rifkin and Tulloch, Cape Town
15. Department of Pathology, Medical School, Observatory, C.P.
16. Institute for Pathology, Pretoria
17. National Nutrition Research Institute, Council for Scientific and Industrial Research, Pretoria
18. Karl Bremer Hospital, Bellville, C.P.
19. South African Blood Transfusion Service, Johannesburg
20. Western Province Blood Transfusion Service, Cape Town
21. Conradie Hospital, Pinelands, C.P.
22. Frere Hospital Pathology Laboratory, East London
23. The Border Blood Transfusion Service, East London
24. Department of Pathology and Microbiology, University of the Witwatersrand, Johannesburg
(In the categories Histopathological Technique, Chemical Pathology, Haematology, Parasitology and Clinical Pathology)
25. Provincial Blood Grouping Laboratory, Observatory, C.P.
26. Department of Pathology, Faculty of Medicine, University of Stellenbosch, Bellville, C.P.

(In the categories Microbiology, Chemical Pathology, Histopathological Technique, Haematology, Parasitology and Clinical Pathology)

27. Laboratory of Dr Blaine, Salisbury, Rhodesia
28. Laboratory of Drs van Tonder, Meiring and Enslin, Pretoria
(In the categories Clinical Pathology and Chemical Pathology and in the subject Laboratory Technique of the intermediate examination)
29. Laboratory of Drs Ellis and Hofmeyr, Port Elizabeth
(In the category Clinical Pathology)
30. Laboratory of Dr Perold, East London
(In the category Clinical Pathology)
31. Laboratory of Drs Rencken and Naudé, Pietermaritzburg
(In the category Clinical Pathology)
32. State Laboratory for Pathology, George
33. State Laboratory for Pathology, Worcester
34. Laboratory of Dr van Tonder, Bloemfontein
(In the category Clinical Pathology)
35. Siegfried Annecke Institute, Tzaneen
(In the category Parasitology)
36. Laboratory of Drs Gluckman, Isaacson and Abrahams, Johannesburg
(In the categories Histopathological Technique and Exfoliative Cytology)
37. Laboratory of Drs van Drimmelen and Stevens, Johannesburg
(In the categories Clinical Pathology, Microbiology, Haematology, Chemical Pathology and Histopathological Technique)
38. Department of Obstetrics and Gynaecology, Faculty of Medicine, University of Stellenbosch, Bellville, C.P.
(In the category Exfoliative Cytology; also recognised for the training of Cyto-Technicians)
39. South African Institute for Medical Research, Windhoek, S.W.A.
40. South African Institute for Medical Research, Welkom
41. South African Institute for Medical Research, Port Elizabeth

Employment possibilities: South African Institute for Medical Research, South African Blood Transfusion Service, laboratories of private pathologists.

9. NATIONAL DIPLOMA IN OCCUPATIONAL THERAPY

Admission qualifications: Applicants must be at least 17 years of age and be in possession of a Standard X Certificate (Matriculation exemption) or equivalent certificate provided that in exceptional cases the Director of Hospital Services may, on the advice of the Advisory Committee and in consultation with the South African Medical and Dental Council, admit candidates not in possession of such certificates.

Science subjects and Mathematics are strongly recommended.

Nature and duration of the course: The course extends over a period of three years of full-time study.

Examination subjects:

First year

Anatomy - Written
 - Oral

Physiology
Psychology

Second year

Medicine and Neurology in relation to Occupational Therapy

Orthopaedics and Surgery in relation to Occupational Therapy

Psychiatry

Kinesiology - Written
- Oral and Practical

Third year

Occupational Therapy applied to Physical Conditions

Occupational Therapy applied to Psychiatric Conditions

Therapeutic Media and Application - Practical and Oral

Training centre:

Pretoria College for Occupational Therapy, Pretoria

Employment possibilities: Posts are available in General, Psychiatric, Orthopaedic and Children's hospitals, Rehabilitation centres, Special schools and institutions and private nursing homes for qualified occupational therapists.

Bursary loan: Students of occupational therapy receive a bursary loan in the form of a salary of R1,320 p.a. for the duration of the course. The Transvaal Department of Hospital Services does not require students to sign a contract or to refund the bursary loan.

10. NATIONAL DIPLOMA IN PHYSIOTHERAPY

Admission qualifications: The minimum qualification is a Standard X Certificate (Matriculation exemption) with Afrikaans, English and at least Mathematics or a science subject. The minimum age requirement is 17 years.

Nature and duration of the course: The course extends over a period of three years of full-time study.

Subjects (Examination)

First year

Anatomy - Written

- Oral

Physiology - Written

- Oral

Second year

Electrotherapy - Practical and Oral
- Written

Massage and Manipulative Procedures - Practical and Oral
- Written

Movement - Practical and Oral
- Written

Third year

Conditions treated by Physiotherapy - Written

Application of Physiotherapy - Practical and Oral

- Written

Medical and Surgical Conditions - Practical and Oral

- Written

Training centres:

Pretoria College of Physiotherapy, Pretoria.

Employment possibilities: Hospitals and private practice.

Bursary loan: Students of physiotherapy receive a bursary loan in the form of a salary of R1,320 p.a. for the duration of the course. The Transvaal Department of Hospital Services does not require students to sign a contract or to refund the bursary loan.

11. NATIONAL DIPLOMA IN RADIOGRAPHY

Admission qualifications: Candidates must be at least 17 years of age and in possession

of a Standard X Certificate or a certificate recognized by the Department of National Education as equivalent to it, with a pass in Mathematics. At least one science subject is desirable.

Nature and duration of the course: The course extends over a period of two years' full-time study.

Students may qualify in either Diagnostic or Therapeutic Radiography. The examination at the end of the first year shall be common to both groups.

A student who has completed successfully the two-year training in either Diagnostic or Therapeutic Radiography, may, after a full year's training in the other branch, write Part II of the examination in this branch, thereby gaining a dual qualification; it being understood that no part of the final examination in Diagnostic Radiography may be taken at the same time as that in Therapeutic Radiography, and vice versa.

Subjects:

Part I (Common to both Diagnostic and Therapeutic Radiographers)

General Physics
Anatomy and Physiology
Radiographic Photography

Part II (Diagnostic)

Apparatus construction and Radiation Physics (diagnostic)
Radiographic Technique I
Radiographic Technique II

Part II (Therapeutic)

Radiation Physics and Apparatus Construction (therapeutic)
Radiation Therapy I
Radiation Therapy II

Training centres:

Groote Schuur Hospital, Observatory
Karl Bremer Hospital, Bellville
Provincial Hospital, Port Elizabeth
Frere Hospital, East London
Addington Hospital, Durban
National Hospital, Bloemfontein
General Hospital, Johannesburg

Employment possibilities: Hospitals and with Radiologists with private practices.

Bursary loan. Students of radiography receive a bursary loan in the form of a salary of R1,320 p.a. for the duration of the course. The bursary loans are made available by the provincial administration (Department of Hospital Services) concerned. The Transvaal Department of Hospital Services does not require students to sign a contract or to re-fund the bursary loan.

12. NURSING

The training of nurses in the Republic and South-West Africa falls under the jurisdiction of the S.A. Nursing Council, the statutory body, which lays down the requirements for all courses and examinations. Training and examinations take place through the medium of English or Afrikaans, according to the student's own choice.

Admission qualification: The required educational qualifications are a Standard X Certificate for the 3-year general course, and a Standard X Certificate (Matriculation exemption) for the 4-year Bachelor's degree course.

Nurses, who, after completing their basic training, wish to qualify for higher posts, e.g. Sister Tutors, Matrons, Inspectresses, must be in possession of a Standard X Certificate (Matriculation exemption) in order to gain admission to a university for post-basic training.

Nature and duration of the course: The basic course in general nursing extends over three years. The combined course which includes general nursing and midwifery extends over three and a half years.

Students who are in possession of a Standard VIII Certificate and who are at least 16 years of age, are trained as nursing aides. Their training extends over two years.

After completion of this training they can be trained first as general nurses (3-year course) and then take a one-year course in midwifery.

The basic course consists of lectures and demonstrations given during set periods at modern well-equipped colleges of nursing and practical clinical instruction given in hospital wards.

Nurses and male nurses receive a fixed salary during their training period.

Training centres:

Training hospitals and nursing colleges

Some big training hospitals and mine hospitals train male nurses.

E. MINING

NATIONAL DIPLOMA FOR TECHNICIANS - GENERAL REMARKS

Admission qualifications: Applicants must be in possession of a Standard X or equivalent Certificate and be employed as a learner miner official in a mining organization. Applications can be made to the Chamber of Mines or directly to the mining organizations.

Nature and duration of the course: The courses extend over a period of four years and are offered on a sandwich or part-time basis. Those subjects which do not include practical work may be taken by means of correspondence courses through the Witwatersrand College for Advanced Technical Education.

1. NATIONAL DIPLOMA FOR TECHNICIANS (ASSAYING)

Subjects:

Part A

Mathematics T1

Physics T1

Geology T1

Chemistry T1

Part B

Assaying (Theory) T1

Assaying (Practical) T1

Analytical Chemistry (Theory) T2 Existing Analytical Chemistry T1

Analytical Chemistry (Practical) T2 Existing Analytical Chemistry T1

Metallurgy of Gold (Theory) T

Metallurgy of Gold (Practical) T

Determinative Mineralogy T

Part C

Assaying (Theory) T2

Assaying (Practical) T2

Analytical Chemistry (Theory) T3 Existing Analytical Chemistry T2

Metallurgical Analysis (Theory) T

Metallurgical Analysis (Practical) T

Metallurgy (Mining) T1

Part D

Metallurgy (Mining) T2

Metallurgy of Uranium T

Ore dressing T

Afrikaans T

English T

Note: A candidate must produce evidence that he has been employed as a mine assayer, or chemist in an inorganic chemical laboratory or metallurgical laboratory, for a period of at least FOUR YEARS immediately prior to the completion of the course.

A candidate who has satisfied the examination requirements of Parts A, B and C and can produce proof of having been employed as a mine assayer or chemist in an inorganic chemical laboratory or metallurgical laboratory, for a period of at least ONE YEAR immediately prior to the completion of the course may, on application, be awarded a

NATIONAL CERTIFICATE FOR TECHNICIANS (ASSAYING).

Training centre:

Witwatersrand College for Advanced Technical Education, Johannesburg

2. NATIONAL DIPLOMA FOR TECHNICIANS (METALLIFEROUS MINING)

The course is so designed that after three years a student should be able to acquire the Mine Overseer's Certificate of Competency and, on completion of the fourth year, the Mine Manager's Certificate of Competency.

Subjects:

Part A

Mathematics T1
Geology (Mining) T1
Surveying (Mining) T1
Mining (Metalliferous) T1
Mine Engineering T1
Mine Economics T1

Part B

Geology (Mining) T2
Surveying (Mining) T2
Mining (Metal.) T2
Mine Engineering T2
Mine Economics T2

Part C

Mining (Metal.) T3
Mining Economics T3
Mining Plant T
Surveying (Mining) T3
English T
Afrikaans T
Geology (Mining) T3

Part D

Metallurgical Practice T
Mineral Analysis T
Mine Management T
Mining (Metalliferous) T4

Note: A candidate must produce evidence that he has been employed on the underground staff of a metalliferous mine for a period of at least FOUR YEARS immediately prior to the completion of the course.

A candidate who has satisfied the examination requirements of Parts A, B and C and can produce proof that he has been employed on the underground staff of a metalliferous mine for a period of at least ONE YEAR immediately prior to completion of the course, may, on application, be awarded a NATIONAL CERTIFICATE FOR TECHNICIANS (METALLIFEROUS MINING).

Training centres:

Witwatersrand College for Advanced Technical Education, Johannesburg

Learner official training centres:

Rand Mines
Oos Geduld
West Rand Consolidated
Randfontein Estates
Hartebeesfontein
Venterspost
Western Reefs
Anglo-American Corporation (Welkom)

3. NATIONAL DIPLOMA FOR TECHNICIANS (REDUCTION WORK)

Note: Consideration is being given to broadening the syllabuses for the course so that it will lead to a National Diploma in Extraction Metallurgy.

Subjects:

Part A

Mathematics T1
Geology (Mining) T1
Chemistry T1
Metallurgy of Gold (Theory) T
Metallurgy of Gold (Practical) T

Part B

Chemistry (Theory) T2 Existing Analytical Chemistry T1 (Theory)
Chemistry (Practical) T2 Existing Analytical Chemistry T1 (Practical)
Production of Iron and Steel T1
Determinative Mineralogy T

Part C

Physical Metallurgy T1
Production of Iron and Steel T2
Mine Engineering T1
Metallurgical Analysis (Theory) T
Metallurgical Analysis (Practical) T
English T
Afrikaans T

Part D

Mine Engineering T2
Metallurgy of Uranium T
Ore Dressing T
Assaying Theory
Assaying (Practical) T1

Note: A candidate must produce evidence of FOUR YEARS' practical training in the reduction works of a mine or in an appropriate laboratory immediately prior to the completion of the course.

A candidate who has satisfied the examination requirements of Parts A, B and C and can produce proof that he has been employed in the reduction works of a mine or in an appropriate laboratory immediately prior to completion of the course, may, on application, be awarded a NATIONAL CERTIFICATE FOR TECHNICIANS (REDUCTION WORKING).

Training centre:

Witwatersrand College for Advanced Technical Education, Johannesburg.

4. NATIONAL DIPLOMA FOR TECHNICIANS (COAL MINING)

The course is so designed that after three years a student should be able to acquire the Mine Overseer's Certificate of Competency and, on completion of the fourth year, the Mine Manager's Certificate of Competency.

Subjects:

Part A

Mathematics T1
Geology (Mining) T1
Surveying (Mining) T1
Mining (Coal) T1
Mine Engineering T1

Part B

Geology (Coal) T
Surveying (Mining) T2
Mining (Coal) T2
Mine Engineering T2

Part C

Mining (Coal) T3
Mining Plant (Coal) T
Surveying (Mining) T3
Coal Mining Economics T
Afrikaans T
English T

Part D

Mineral Analysis T
Mine Management T
Coal Preparation and Fuels T

Note: A candidate must produce evidence that he has been employed on the underground staff of a coal mine for a period of at least FOUR YEARS immediately prior to the completion of the course.

A candidate who has satisfied the examination requirements of parts A, B and C and can produce proof that he has been employed on the underground staff of a coal mine for a period of at least ONE YEAR immediately prior to completion of the course, may on application be awarded a NATIONAL CERTIFICATE FOR TECHNICIANS (COAL MINING).

This course is supported by the coal mining industry. Learner officials attend 18-week sandwich courses.

Training centre:

Witwatersrand College for Advanced Technical Education, Johannesburg.

Learner official training centres:

Blinkpan Colliery, Witbank-Middelburg Coalfields (General Mining and Investment Company and Anglo-American Corporation).

5. NATIONAL DIPLOMA FOR TECHNICIANS (MINING GEOLOGY)

Subjects:

Part A

Mathematics T1
Chemistry T1
Physics T1
Determinative Mineralogy T
Geology (Mining) T1

Part B

Practical Geology T1
Mineralogy and Petrology T
Mining Economics T1
Palaeontology & Stratigraphy T

Part C

Practical Geology T2
Surveying (Mining) T1
Geomorphology & Structural Geology T
English T
Afrikaans T
Mining (Metal.) T1

Part D

Economic Geology T
Practical Geology T3
Ore Dressing T
Field Mapping T
Earth History and Geophysics T

Note: A candidate must produce evidence that he has been employed on the technical staff of the mining industry for a period of at least FOUR YEARS immediately prior to

the completion of the course.

A candidate who has satisfied the examination requirements of Parts A, B and C, and can produce evidence of having been employed on the technical staff of the mining industry for a period of at least ONE YEAR immediately prior to the completion of the course, may on application be awarded a NATIONAL CERTIFICATE FOR TECHNICIANS (MINING GEOLOGY).

Training centre:

Witwatersrand College for Advanced Technical Education, Johannesburg.

Learner official training centres:

Rand Mines
East Geduld
West Rand Consolidated
Randfontein Estates
Hartebeesfontein
Venterspost
Western Reefs
Anglo-American Corporation (Welkom).

6. NATIONAL CERTIFICATE FOR TECHNICIANS (MINE SURVEYING)

Admission qualification: Applicants must be in possession of a Standard X Certificate or equivalent.

Nature and duration of the course: The course extends over a period of three years and is offered on a part-time basis. This certificate may also be obtained by means of a correspondence course provided by the Witwatersrand College for Advanced Technical Education.

Part A

Mathematics (Mining) I
Geology (Mining) T1
Mining Economics T1
Surveying (Mining) T1

Part B

Mathematics II
Geology (Mining) T2
Mining Economics T2
Surveying (Mining) T2

Part C

Mathematics T1
Geology (Mining) T3
Mining Economics T3
Surveying (Mining) T3

Note: A candidate must produce evidence that he has been employed as a mine surveyor for a period of at least ONE YEAR immediately prior to the completion of the course.

Training centres:

Witwatersrand College for Advanced Technical Education, Johannesburg.

Learner official training centres:

Venterspost
Carletonville
Hartebeesfontein-Buffelsfontein
Virginia
Odendaalsrus

7. NATIONAL TECHNICAL CERTIFICATE (MINE SAMPLING)

Admission qualification: Applicants must be in possession of a Standard X Certificate or equivalent.

Nature and duration of the course: The course extends over a period of two years and is

offered on a part-time basis. This certificate may also be obtained by means of a correspondence course provided by the Witwatersrand College for Advanced Technical Education.

Subjects:

Part A

Mathematics (Mining) I
Geology (Mining) T1
Mining Economics T1
Surveying (Mining) T1

Part B

Mathematics II
Geology (Mining) T2
Mining Economics T2

Note: A candidate must produce evidence that he has been employed as a mine sampler for a period of at least ONE YEAR immediately prior to the completion of the course.

Training centres:

Witwatersrand College for Advanced Technical Education, Johannesburg.

Learned officials training centres:

Venterspost
Carletonville
Hartebeesfontein-Buffelsfontein
Virginia
Odendaalsrus

F. PHYSICAL SCIENCES

NATIONAL DIPLOMA FOR TECHNICIANS - GENERAL REMARKS

Employment possibilities: Chemical, paint and plastics industry, Sasol, Iscor, Atomic Energy Board, South African Council for Scientific and Industrial Research.

Admission qualifications: The minimum qualification is a Standard X Certificate with passes in Mathematics and Physical Science or other science subjects.

1. NATIONAL DIPLOMA FOR TECHNICIANS (ANALYTICAL CHEMISTRY)

A candidate must be employed in a chemical laboratory or chemical manufacturing concern. (Written proof of at least eighteen months' approved service must be submitted before the Diploma will be issued by the Department of National Education.)

Nature and duration of the course: The course extends over three years and is offered on a sandwich or part-time basis.

Privately enrolled students usually complete the theoretical part of the course during three successive semesters at the Pretoria College for Advanced Technical Education. The practical training takes place in an approved laboratory for a period equal in duration to that of the theoretical part. During his training the student receives a salary from his employer.

First semester

Chemistry T1
Laboratory Organization and Technique T
Mathematics T
Physics T1
Candidate's Second Language TB

Second semester

Analytical Chemistry T1
Analytical Chemistry Practical T1
Inorganic Chemistry T1
Organic Chemistry T1
Physical Chemistry T1
Geology T1

Third semester

Analytical Chemistry T2
Chemistry Practical T2
Inorganic Chemistry T2
Organic Chemistry T2
Physical Chemistry T2

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
East London Technical College, East London
Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

2. NATIONAL DIPLOMA FOR TECHNICIANS (ANALYTICAL CHEMISTRY)

Course for Atomic Energy Board students

Nature and duration of the course: The course is a sandwich course and extends over a period of four years.

First semester

As for Analytical Chemistry

Second semester

Analytical Chemistry T1
Analytical Chemistry Practical T1
Inorganic Chemistry T1
Nuclear Physics and Radio-isotopes T
Organic Chemistry T1
Physical Chemistry T1

Third semester

Analytical Chemistry T2
Chemistry Practical T2
Inorganic Chemistry T2
Organic Chemistry T2
Physical Chemistry T2

Fourth semester

Basic electronics and Practical Measurement Technique T
Engineering Drawing T1
Mathematics T2 A
Welding practice (not for examination)
Uranium and Nuclear Energy T (or Advanced Nuclear Physics T)

Training centre

Pretoria College for Advanced Technical Education

3. NATIONAL DIPLOMA FOR TECHNICIANS (ANALYTICAL PHYSICS)

Nature and duration of the course: The course extends over a period of three years, and is offered on a sandwich basis.

First semester

Laboratory Organization and Practice T
Mathematics T
Instrumentation T
Physics T1
Chemistry T1

Second semester

Mathematics T2A
Physics T2

Physical Chemistry T1
Electronics T
Basic Electronics and Practical Measurement Technique T

Third semester

Physical Chemistry T2 (Theory and Practical)
Statistical Methods T or Applied Statistics
Gaschromatography T
Mass Spectrometry T
Physical Optics and Introduction to Spectra T
X-ray, Electron and Neutron Diffraction T (Optional)

Training centres:

Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

4. NATIONAL DIPLOMA FOR TECHNICIANS (CHEMICAL TECHNOLOGY : PLASTICS)

Nature and duration of the course: The course extends over a period of four years and is offered on a sandwich or part-time basis.

First semester

Chemistry T1
Physics T1
Engineering Drawing T1
Mathematics T

Second semester

Analytical Chemistry T1
Analytical Chemistry Practical T1
Physical Chemistry T1
Organic Chemistry T1
Inorganic Chemistry T1
Afrikaans TA/B
English TA/B

Third semester

Physical Chemistry T2
Organic Chemistry T2
Practical Physical and Organic Chemistry T2
Preparation and properties of Polymers, T1
Processing of plastic materials (Theory) T1
Processing of plastic materials (Practical) T1

Fourth semester

Physics of Polymers T
Testing of plastic materials T (Theory, Practical)
Preparation and properties of Polymers T2
Processing of plastic materials T2 (Theory, Practical)
Production planning and control T1

Practical training: Practical training of full-time students takes place in an approved laboratory for a period of 4 semesters. During practical training the student is paid by his employer. In cases where practical experience has been acquired prior to enrolment it is possible, by application to the Department of National Education, to obtain full or partial exemption in this regard.

Training centres:

Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark

5. NATIONAL DIPLOMA FOR TECHNICIANS (CHEMISTRY : MATERIAL TESTING)

First and second semesters

The courses for the first and second semesters are the same as those for the National Diploma for Technicians (Analytical Chemistry).

Third semester

Analytical Chemistry T2
Chemistry Practical T2
Inorganic Chemistry T2
Geology T2
Soil Mechanics T

Training centre:

Pretoria College for Advanced Technical Education, Pretoria.

6. NATIONAL DIPLOMA FOR TECHNICIANS (CHEMISTRY : PLANT OPERATION)

Nature and duration of the course: The course extends over a period of three years and is offered on a sandwich basis.

This course is of great value to students employed in a chemical plant.

First semester

Inorganic Chemistry T1
Physics T1
Organic Chemistry T1
Mathematics T

Second semester

Inorganic Chemistry T1 or Chemical Technology T
Analytical Chemistry Practical T1 or Applied Thermodynamics T1
Physical Chemistry T1
Laboratory Organization and Practice T or Engineering Drawing T1

Third semester

Chemical Plant T
Chemical Works Organization and Management T
Chemical Technology T
Unit Operations T
Instrumentation T
Physics T2 (Optional)

Training centres:

Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

7. NATIONAL DIPLOMA IN FOOD TECHNOLOGY

Admission qualification: The minimum admission qualification is a Standard X Certificate with one of the science subjects: Biology, Botany, Mathematics, etc.

Nature and duration of the course: The course extends over a period of 18 months (3 semesters) full-time training at the College and 18 months practical experience with remuneration during the practical period.

First semester

Chemistry T1
Physics T1
Microbiology T1
Botany and Zoology T

Second semester

Microbiology T2
Biochemistry T1
Food Technology T1
Machine Operation T1

Third semester

Microbiology T3
Biochemistry T2

Food Technology T2
Machine Operation T2

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Pretoria College for Advanced Technical Education, Pretoria.

8. NATIONAL DIPLOMA FOR TECHNICIANS (MICROBIOLOGY)

Admission qualifications: Students must be in possession of a Standard X Certificate or equivalent with one of the science subjects: Biology, Botany, Physical Science, etc. A knowledge of Std X Mathematics and Physical Science is, however, a great advantage.

Duration of the course:

The course extends over three successive semesters (18 months), but may be interrupted to gain practical experience in a laboratory. The diploma is awarded after successful completion of the examinations and furnishing of proof that the student has acquired 18 months experience in a suitable laboratory.

First semester

Anatomy and Physiology T
Chemistry T1
Physics T1
Microbiology T1 (Theory and Practical)

Second semester

Microbiology T2 (Theory and Practical)
Histology T (Theory and Practical)
Haematology T (Theory and Practical)
Biochemistry T1

Third semester

Microbiology T3 (Theory and Practical)
Physiological Chemistry T (Theory and Practical)
Parasitology and Mycology T (Theory and Practical)
Virology T (Theory and Practical)

Note: Persons who have successfully completed the examinations for this Diploma, may obtain exemption from the Intermediate Examination for Medical Technologists and may take the Final Examination for Medical Technologists after 2½ years' laboratory experience in an approved laboratory.

Persons in possession of the Diploma in Microbiology qualify for posts as laboratory technicians at institutions like the Council for Scientific and Industrial Research, the South African Bureau of Standards, the Department of Agricultural Technical Services (e.g. the Veterinary Research Institute, Onderstepoort), Municipal laboratories, Institute for Pathology, laboratories of private pathologists, etc.

Training centres:

Cape College for Advanced Technical Education, Cape Town
Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria

9. NATIONAL DIPLOMA FOR TECHNICIANS (PAINT SCIENCE)

Nature and duration of the course: The course extends over a period of four years and is offered on a part-time basis.

First and second semesters:

The courses for the first and second semesters are the same as those for the National Diploma for Technicians (Analytical Chemistry).

Third semester

Resins T1
Pigments T1
Oils and Driers T

Solvents T

Fourth semester

Resins T2
Pigments T2
Paint Manufacture T
Organic Chemistry T2
Afrikaans A/B
English A/B

Training centres:

Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria.

10. NATIONAL DIPLOMA FOR TECHNICIANS (PHYSICAL METALLURGY)

Nature and duration of the course: The course extends over four semesters and is offered on a full-time or sandwich basis.

First semester

Chemistry T1
Physics T1
Laboratory Organization and Technique T
Languages T A/B
Mathematics T

Second semester

Analytical Chemistry T1
Analytical Chemistry Practical T1
Inorganic Chemistry T1
Physical Chemistry T1
Physics T2
Nuclear Physics and Radio-isotopes T
Mathematics T2 A

Third semester

Physical Metallurgy T1A
Engineering Drawing T1
Strength of Materials T1
Welding Practice T (not for examination)
Applied Thermodynamics T
Hydraulics T

Fourth semester

Basic Electronics and Practical Measurement Technique T
Physical Metallurgy T2 A
Powder Metallurgy and Stress Analysis T
Theory of Welding T
Uranium and Nuclear Energy T or
Advanced Nuclear Physics T

Training centre:

Pretoria College for Advanced Technical Education, Pretoria.

11. NATIONAL DIPLOMA FOR TECHNICIANS (PHYSICS : RADIO-ACTIVE ISOTOPES)

Nature and duration of the course: The course extends over four semesters and is offered on a sandwich or full-time basis.

First semester

Chemistry T1
Laboratory Organization and Technique T
Mathematics T
Physics T1
Languages T A/B

Second semester

Basic Electronics and Practical Measurement Technique T
Mathematics T2A
Nuclear Physics and Radio-isotopes T
Physical Optics and Introduction to Spectra T
Physics T2
Properties of Matter T

Third semester

Advanced Nuclear Physics T
Electronics T (optional)
Engineering Drawing T1
Physical Chemistry T1
X-ray, Electron and Neutron Diffraction T

Fourth semester

Statistical Methods T
Electronic Measurement T1
Physical Chemistry T2
Welding Practice T (not for examination)

Training centre:

Pretoria College for Advanced Technical Education, Pretoria.

12. NATIONAL DIPLOMA IN SUGAR TECHNOLOGY

Admission qualification: Applicants must have written the Standard X examination, or an equivalent, and must have obtained passes in Mathematics, Chemistry and Physics (or Physical Science instead of Chemistry and Physics).

Nature and duration of the course: The course is sponsored by the Natal Sugar Millers' Association Ltd., in co-operation with the Sugar Milling Research Institute. It is conducted in English at the Natal College for Advanced Technical Education and commences every second year.

Students are selected by the Sugar Milling Research Institute, Howard College, Durban, and are paid an attractive salary while on the course.

A four-year course is offered as follows:

First year

Full-time study at the Natal College for Advanced Technical Education from February to June. The rest of the year is devoted to practical training at a sugar factory.

Subjects:

Factory Control T1
Inorganic Chemistry T1
Mathematics (Lab. Tech.) T
Organic Chemistry T1
Physical Chemistry T
Physics TS1
Sugar Cane Husbandry T1
Sugar Technology T1

Second year

Two full-time courses at the College during the year, the first from February to the end of June and the second from the end of July to the end of November.

Subjects:

First semester

Analytical Chemistry (Theory) T1
Analytical Chemistry (Practical) T1
Languages T
Organic Chemistry TS2
Physics TS2
Sugar Cane Husbandry T2

Sugar Machinery T1

Second semester

Factory Control T2
Instrumental Analysis (Practical) T
Laboratory Organization and Practice T
Sugar Cane Husbandry T3
Sugar Machinery T2
Sugar Technology T2

Third and fourth years

Practical training at a sugar factory.

G. TELECOMMUNICATION - POST OFFICE

(a) NATIONAL DIPLOMA FOR TECHNICIANS - GENERAL REMARKS

Admission qualification: Students who wish to enrol must be in possession of a Standard X Certificate with Mathematics and Physical Science or Physics.

Students apply to the Postmaster of any post office in the Republic of South Africa.

Nature and duration of the course: The course extends over a period of four years. During the first year of training students attend full-time classes at a college for advanced technical education or a technical college for two semesters of 18 weeks each. In the second and fourth years sandwich courses of 18 weeks each are given at the Telecommunication College of the Post Office at Olifantsfontein. During the remainder of the training period practical training is conducted by the Post Office.

1. NATIONAL DIPLOMA FOR TECHNICIANS (TELECOMMUNICATION : ELECTRICAL ENGINEERING)

First semester

Mathematics T1
Physics TB1
Principles of Electricity T1
Engineering Drawing T1
Basic Telecommunication T1
Applied Mechanics T1

Second semester

Mathematics T2
Physics TB2
Principles of Electricity T2
Electronics T
Basic Telecommunication T2

Third semester

Line Plant T
Line Transmission T1
Radio Communication T1
Telegraphy T1
Telephony T1
Mathematics T3

Fourth semester

Line Transmission T2
Radio Communication T2
Telegraphy T2
Telephony T2
Electrical Measurements (Telecommunications) T

Training centres:

Technical College, Bloemfontein
Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth

Pretoria College for Advanced Technical Education, Pretoria.

2. NATIONAL DIPLOMA FOR TECHNICIANS (TELECOMMUNICATION : MECHANICAL ENGINEERING)

First semester

Mathematics T1
Physics TB1
Principles of Electricity T1
Engineering Drawing T1
Basic Telecommunication T1
Applied Mechanics T1

Second semester

Mathematics T2
Physics TB2
Principles of Electricity T2
Applied Mechanics T2
Basic Telecommunication T2
Engineering Drawing T2

Third semester

Mathematics T3
Strength of Materials T1
Theory of Machines T1
Applied Thermodynamics T1
and at least TWO of the following subjects:
Electrotechnology T1
Machine Design T1 or Engineering Drawing T3
Hydraulics T1

Fourth semester

Strength of Materials T2
Theory of Machines T2
Applied Thermodynamics T2
and at least THREE of the following subjects:
Electrotechnology T2
Mathematics T4
Machine Design T2
Hydraulics T2

Training centres:

Technical College, Bloemfontein
Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria.

(b) NATIONAL CERTIFICATE FOR TECHNICIANS - GENERAL REMARKS

Admission qualifications: Admission is granted to pupils in possession of a Standard X Certificate on condition that the pupil has passed both Mathematics and Science at Standard VIII level

or

a Standard VIII Certificate with Mathematics and Physics (or equivalent subject) at Standard X level.

Nature and duration of the course: The course extends over a period of three years. In the first year students attend a sandwich course of 18 weeks at a technical college; the remaining two courses of 18 weeks each are given by the Telecommunication College of the Post Office. During the remainder of the training period practical training is conducted by the Post Office.

Nine specialized courses in telecommunication subjects are provided:

Automatic exchanges, carrier stations, drawing offices, outdoor construction, outstations, radio, subscribers' stations, telegraphy, workshops.

Course fees: The fees for the sandwich course at the technical college are paid by the Post Office. A student may do the sandwich course at the technical college of his choice and, if this college is situated in another centre, his transport expenses to and from the technical college are paid by the Post Office.

Conditions of training: Pupil technicians must undertake to serve the Post Office for a period of at least three years upon completion of their training.

Training centres:

Technical College, Bloemfontein
Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria.

1. NATIONAL CERTIFICATE FOR TECHNICIANS (TELECOMMUNICATION : AUTOMATIC EXCHANGES)

First semester

Mathematics (Telecommunication)
Physics (Telecommunication)
Principles of Telecommunication I
Telecommunications Practice
Telecommunications Drawing

Second semester

Automatic Subscribers' Exchanges I
Automatic Trunk Exchanges I
Principles of Telecommunication II
Construction and Power A
Subscribers' Installations I

Third semester

Automatic Subscribers' Exchanges II
Automatic Trunk Exchanges II
Protection, Earthing and Noise
Private Automatic Branch Exchanges

2. NATIONAL CERTIFICATE FOR TECHNICIANS (TELECOMMUNICATION : OUTSTATIONS)

First semester

As for Automatic Exchanges

Second semester

Trunk Transmission I
Principles of Telecommunication II
Line Construction I
Construction and Power B
Mechanisms

Third semester

Trunk Transmission II
Outstations
Protection, Earthing and Noise
Trunk Line Working

3. NATIONAL CERTIFICATE FOR TECHNICIANS (TELECOMMUNICATION : SUBSCRIBERS' STATIONS)

First semester

As for Automatic Exchanges

Second semester

Subscribers' Installations I
Principles of Telecommunication II
Automatic Subscribers' Exchanges I
Construction and Power A

Line Construction I

Third semester

Subscribers' Installations II
Outstations
Protection, Earthing and Noise
Test Desk

4. NATIONAL CERTIFICATE FOR TECHNICIANS (TELECOMMUNICATION : OUTDOOR CONSTRUCTION)

First semester

As for Automatic Exchanges

Second semester

Cable Construction I
Line Construction I
Principles of Telecommunication II
Subscribers' Installations I
Mechanisms

Third semester

Cable Construction II
Line Construction II
Networks
Protection, Earthing and Noise

5. NATIONAL CERTIFICATE FOR TECHNICIANS (TELECOMMUNICATION : TELEGRAPHY)

First semester

As for Automatic Exchanges

Second semester

Principles of Telecommunication II
Telegraph Switching
Telegraph Mechanisms I
Telegraph Transmission I
Construction and Power A

Third semester

Principles of Telecommunication III
Telegraph Systems
Telegraph Machines
Telegraph Transmission II

6. NATIONAL CERTIFICATE FOR TECHNICIANS (TELECOMMUNICATION : RADIO)

First semester

As for Automatic Exchanges

Second semester

Radio Systems I
Principles of Telecommunication II
Construction and Power B
Mechanisms
Line Construction I

Third semester

Radio Systems II
Principles of Telecommunication III
Trunk Transmission I
Protection, Earthing and Noise

7. NATIONAL CERTIFICATE FOR TECHNICIANS (TELECOMMUNICATION : WORKSHOPS)

First semester

Mathematics (Telecommunication)
Physics (Telecommunication)
Principles of Telecommunication I
Telecommunication Practice
Telecommunication Drawing

Second semester

Machining I
Mechanical Aids I
Principles of Telecommunication II
Welding (Telecommunication)
Mechanisms

Third semester

Machining II
Mechanical Aids II
Toolmaking
Equipment Overhaul

8. NATIONAL CERTIFICATE FOR TECHNICIANS (TELECOMMUNICATION : DRAWING OFFICES)

First semester

As for Workshops

Second semester

Cable Construction I
Line Construction I
Principles of Telecommunication II
Engineering Drawing T2
Mechanisms

Third semester

Cable Construction II
Line Construction II
Networks
Outstations

9. NATIONAL CERTIFICATE FOR TECHNICIANS (TELECOMMUNICATION : CARRIER STATIONS)

First semester

As for Automatic Exchanges

Second semester

Trunk Transmission I
Principles of Telecommunication II
Construction and Power B
Mechanisms
Outstations

Third semester

Trunk Transmission II
Principles of Telecommunication III
Trunk Line Working
Protection, Earthing and Noise

H. OTHER COURSES

1. NATIONAL CERTIFICATE FOR BUILDING DRAUGHTSMEN

Admission qualification: The required academic qualification for this course is a Standard X Certificate or the National Technical Certificate III.

Nature and duration of the course: The course extends over two years. If the training is taken on a sandwich basis then the candidate must attend a college for approximately 18 weeks of each year and spend the rest of the year on in-service training with an architect. The theoretical part may be taken in one year on a full-time basis, followed by a year of practical in-service training with an architect.

Part A

Building Construction T1
Building Materials T1
Draughtsmanship (Building) T1
Setting-out and Levelling T
Drainage and Sanitation T
Languages T

Part B

Building Construction T2
Building Materials T2
Draughtsmanship (Building) T2
Specifications (Building) T
Quantity Surveying T1

Employment possibilities: Building industry or with an architect.

2. NATIONAL CERTIFICATE FOR TECHNICIANS (CERAMICS)

Admission qualification: The minimum qualification is a Standard X Certificate or the National Technical Certificate III.

Nature and duration of the course: The course will be conducted on a sandwich basis over a period of two semesters.

Students are normally sponsored by their employers in the Ceramics industry and a list of firms engaged in Ceramics is available from the College for Advanced Technical Education. The certificate in Ceramic Technology equips the students for responsible positions in the brick, refractory, pottery, tile and glass industries.

First semester

Ceramic Science T1
Fuel Technology T
Elementary Geology T
Elementary Glass Technology T
Ceramics TA. Raw materials and preparation methods
Ceramics TB. Products
Practical Ceramics T1 (Internal)
English TA or Afrikaans TA
Tutorials or specialized lectures

Second semester

Ceramic Science T2
Utilization of Power T
Ceramics TC. Refractories Technology
Ceramics TD. Heavy clay Technology
Ceramics TE. Pottery Technology
Ceramics TF. Glass Technology
Practical Ceramics T2 (Including a project)
Case studies or specialized lectures

Training centre:

Pretoria College for Advanced Technical Education.

3. NATIONAL CERTIFICATE FOR FILM PRODUCTION TECHNICIANS

Admission qualification: The minimum qualification for admission to the course is a Standard X Certificate or the National Technical Certificate III or an equivalent qualification.

Nature and duration of the course: The course has been introduced for the training of film production technicians for the film industry.

The course extends over two years of which the first year consists of full-time study

at a college for advanced technical education and the second year practical training with an employer.

The course at the college consists of two semesters of approximately 18 weeks each. Examinations are written at the end of each semester.

Subjects:

Part A (First semester)

Film Physics T
Film Chemistry and Processing T
Film Practice and Equipment T1
Film Techniques
Film Procedures T1
Afrikaans TA or TB
English TA or TB (at least one language to be taken on the higher grade)

The first two subjects mentioned include laboratory work.

Part B (Second semester)

Film Practice and Equipment T2
Film Procedures T2
Film Art T
Film industry, Organization and Services T
Practical Film Production

The first four subjects mentioned include practical work.

Note:

The award of the certificate will depend on:

- the successful completion of all the subjects in parts A and B
- the successful participation in the production of a short film. This will be an application of all the knowledge acquired during the course, from the writing of the scenario, photography, editing, processing and finally the showing of the motion picture.
- A year's appropriate practical experience in the film industry certified by the employer.

Training centre:

Pretoria College for Advanced Technical Education, Pretoria.

Employment possibilities: Producers of motion pictures, National Film Board.

4. NATIONAL CERTIFICATE IN PHOTOGRAPHY

Admission qualification: The minimum qualification is a Standard X Certificate or equivalent qualification, or in the case of candidates over 23 years of age, a pass in the official languages at the Standard X level.

Nature and duration of the course: It is a course of one year's duration.

Subjects:

Photographic Theory and Practice
Photographic Physics
Photographic Chemistry

Training centre

Natal College for Advanced Technical Education, Durban.

Employment possibilities: A photographer with a newspaper or own enterprise.

5. NATIONAL DIPLOMA FOR CONSTRUCTION SUPERVISORS

Admission qualification: The basic qualifications required are either a Standard X Certificate or a National Technical Certificate III (Building) or National Technical Certificate II (Building) with good symbols in all subjects and a very satisfactory report for

diligence.

Nature and duration of the course: The course extends over a period of three years and is offered on a sandwich basis.

Part A

Building Calculations T1
Building Construction T1
Building Materials T1
Science for Builders T
Site Administration T
English A or B
Afrikaans A or B
(One language to be taken on the A grade)

Part B

Building Calculations T2
Building Construction T2
Building Materials T2
Estimating and Pricing (Builders) T1
Quantity Surveying T1
Site Organization T

Part C

Building Construction T3
Building Materials T3
Building Specifications T
Estimating and Pricing (Builders) T2
General Building Administration T
Quantity Surveying T2

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth.

Employment possibilities: The Building Industry

Note: While the approved candidate attends the college, his fees are paid by the National Development Fund for the Building Industry.

6. NATIONAL DIPLOMA FOR TECHNICIANS (INDUSTRIAL ADMINISTRATION)

Admission qualification: The minimum qualification is a pass in the following subjects at the Standard X level:

English
Afrikaans
Mathematics or Physical Science or Applied Mechanics or Chemistry or Physics or Economics.

The National Diploma for Technicians (Industrial Administration) will be awarded to a candidate who has satisfied the examination requirements and can produce evidence that:

He has been employed for a period of at least two years prior to the completion of the course in a work study, production planning or similar office,

OR

he has attained a National Technical Diploma (formerly known as the National Engineering Diploma) or the National Diploma for Technicians.

Nature and duration of the course: The course is offered on a full-time, sandwich, part-time or correspondence basis. The full-time course extends over one year and the part-time course over two years.

Subjects:

Part A

Production, Planning and Control T1

Work Study T1
Human Factor in Management T
Costing and Estimating T
Languages T

Part B

Production, Planning and Control T2
Work Study T2
Applied Statistics T
Industrial Legislation T

Training centres:

Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

Employment possibilities: Production planning division in a factory.

7. NATIONAL DIPLOMA FOR TECHNICIANS (SPACE COMMUNICATIONS)

Admission qualification: The minimum requirements for admission to the course are passes in Mathematics and Physical Science or Physics or Chemistry at the Standard X level or the National Technical Certificate III (or higher) with appropriate subjects.

Nature and duration of the course: The course extends over a period of four years and is offered on a sandwich basis.

Part A

Mathematics T1
Applied Mechanics T1
Principles of Electricity T1
Space Communications T1
Transistor Techniques T1
Technique of Measurement T1

Part B

Mathematics T2
Principles of Electricity T2
Space Communications T2
Transistor Techniques T2
Digital Techniques T1
Technique of Measurement T2

Part C

Mathematics T3
Space Communications T3
Transistor Techniques T3
Digital Techniques T2
Microwave Techniques T1
Technique of Measurement T3

Part D

Space Physics T
Space Communications T4
Digital Techniques T3
Microwave Techniques T2
Languages T
Technique of Measurement T4

Training centre:

Witwatersrand College for Advanced Technical Education, Johannesburg.

Practical training:

Tracking station of the CSIR at Hartebeeshoek

Employment possibilities: Tracking stations, CSIR.

8. NATIONAL DIPLOMA IN HORTICULTURE AND PARKS ADMINISTRATION

Admission qualifications: The qualification for admission to the course is the National Technical Certificate III in Horticulture and Landscape Design or a Standard X Certificate.

Nature and duration of the course: The course extends over two years and is offered on a part-time basis.

First year subjects

Administration I
Architecture and Town Planning I
Art
Landscape Architecture I
Physical Education and Recreation (First Paper)

Second year subjects

Administration II
Architecture and Town Planning II
Landscape Architecture II
Physical Education and Recreation (Second Paper)

Other subjects to be taken in either the first or second year:

Arboriculture
Cemeteries and Crematorium Administration
Cost Accounting and Control

Training centres:

Cape College for Advanced Technical Education, Cape Town
Technical College, Krugersdorp
Pretoria College for Advanced Technical Education, Pretoria

Employment possibilities: City councils, municipalities, private undertaking as a landscape gardener.

9. NATIONAL DIPLOMA IN SAFETY MANAGEMENT

Admission qualification: The qualification for admission to the course is a Standard X Certificate or an equivalent qualification and at least 5 years' appropriate experience.

Candidates who have passed in at least five Standard X or equivalent certificate subjects (two of which shall be the official languages), but do not comply with the requirements for the award of such certificate, may be admitted conditionally, provided that the National Diploma in Safety Management shall not be issued to such candidates unless they have complied with the requirements for the award of a Standard X Certificate equivalent.

Nature and duration of the course: The course can be taken by means of a sandwich course or correspondence.

The sandwich course consists of four parts of 10 weeks duration each over a period of 2 years. The first and second parts will be taken in the first year of study and the third and fourth parts in the second year.

A further 12 months (52 weeks) must be devoted to approved practical training before a diploma is issued by the Department of National Education.

Subjects:

Part A

Mines and Works Act
Industrial Accident Prevention I
Management Principles and Practices
English A or Afrikaans A (Diploma)

Part B

Factories, Machinery and Building Work Act as amended
Industrial Accident Prevention II
Statistical Methods
English A or B or Afrikaans A or B (Language which was not taken in Part A)

Part C

Legislation I
Office Administration
Industrial Accident Prevention III

Part D

Legislation II
Industrial Accident Prevention IV
Projects in Safety Management

Training centres:

Colleges for advanced technical education approved by the Department of National Education.

Employment possibilities: Industries.

10. NATIONAL DIPLOMA IN BREWING TECHNOLOGY

Admission qualification: The admission qualification is a Standard X Certificate.

Nature and duration of the course: The course extends over a period of three years on a sandwich basis or 18 months full-time class attendance at the College and 18 months practical experience in an approved brewery.

First semester

Chemistry T1
Physics T1
Microbiology T1 (Theory and Practical)
Brewing Technology T1 (Theory and Practical)

Second semester

Biochemistry T1 (Theory and Practical)
Brewing Technology T2 (Theory and Practical)
Brewing Microbiology T (Theory and Practical)
Bantu Ethnology T
Afrikaans
English

Third semester

Brewing Technology T3 (Theory and Practical)
Malting and Brewing Biochemistry T (Theory and Practical)
Brewery Economics T

Training centre:

Pretoria College for Advanced Technical Education, Pretoria.

Employment possibilities: Bantu beer industry.

Bursaries: The Department of Bantu Administration and Development offers bursaries for the training of suitable candidates. Applications for bursaries should be addressed to the Organizing Committee, Bursaries for Bantu beer brewers, P.O. Box 395, Pretoria.

I. CORRESPONDENCE COURSES

(a) Colleges for Advanced Technical Education

There are two colleges for advanced technical education which conduct correspondence courses in certain fields of study, namely, the Cape College for Advanced Technical Education which provides commercial and general academic training and the Witwatersrand College for Advanced Technical Education.

At the Witwatersrand College for Advanced Technical Education correspondence courses are provided in a wide range of subjects for certificates and diplomas:

National Technical Certificate Part IV and V
National Technical Diploma (Mechanical and Electrical Engineering)
National Technical Diploma (Production Engineering)
National Technical Diploma (Building)
National Advanced Technical Certificates in the fields of Mining and Metallurgy
Certificates of Competency in the field of Mining
Certificates and Diplomas in Printing
Diplomas in Teacher Training, namely:
National Teachers' Diploma (Commerce)
National Teachers' Diploma (Technical)
National Teachers' Diploma (Workshop)
National Teachers' Diploma (Art) Course D

Other professional courses offered are:

- (1) National Diploma in Business Management (Three-year)
- (2) National Diploma in Housing Management (One-year)
- (3) National Diploma in Electronic Data Processing and System Analysis (Three-year)
- (4) National Diploma in Estate Agency (Three-year)
- (5) National Diploma for Cost Accountants (Three-year)
- (6) National Diploma in Valuations (Three-year)
- (7) National Diploma in Organization and Method Study (Three-year)
- (8) Intermediate Examination of the Public Relations Institute of South Africa
- (9) National Diploma in Industrial Administration (Two-year)
- (10) National Examination (Intermediate) for Medical Technologists (One-year)

Admission qualifications:

Courses (1) to (8): A Standard X Certificate with English and Afrikaans as subjects, or a recognized equivalent certificate.

Course (9): A pass in the following subjects at the Standard X level: English, Afrikaans, Mathematics or Physical Science or Applied Mechanics or Economics or an equivalent subject.

Course 10: A Standard X Certificate (or equivalent) with one of the following subjects: Physical Science, Chemistry, Botany, Hygiene and Physiology or Physics.

(b) Correspondence Colleges:

Correspondence colleges which are registered under the Correspondence Colleges Act, 1965, with the Correspondence College Council, provide correspondence courses in a large number of fields of study.

Professional courses of the following Institutes i.a. are offered:

- Chartered Institute of Secretaries
- Institute of Administration and Commerce
- Institute of Certified Bookkeepers
- Institute of Marketing Management
- Corporation of Secretaries

NTC III courses are also provided as well as courses in Commerce, languages, agriculture and journalism.

J. PROFESSIONAL INSTITUTES

GENERAL REMARKS

The technical colleges and colleges for advanced technical education provide tuition in the subjects prescribed for the examinations set by the professional institutes.

Some of the colleges offer courses on a full-time basis, others on a part-time basis with day or evening classes.

1. CHARTERED INSTITUTE OF SECRETARIES (C.I.S.)

Admission qualifications: Students who wish to follow this course must comply with the following requirements:

They must be not less than 16 years of age and must hold a Standard X Certificate. Students over 21 are not bound by this regulation, but must satisfy the Institute regarding their educational background and the nature of their employment.

In addition to registering as students at the College, applicants must also apply for registration as students to the Secretary, Chartered Institute of Secretaries, P.O. Box 1917, Johannesburg, before 1st August.

Nature and duration of the course: The course extends over three years on a full-time basis and four years on a part-time basis.

Intermediate Examination (One College year)

Economic Theory
Accountancy
General Principles of South African Law
English or Afrikaans

Final Examination: The duration of each PART is one College semester, i.e. altogether $1\frac{1}{2}$ years.

Part I: Economics
 Mercantile Law
 Secretarial and Administrative Practice I

Part II: Advanced Accountancy
 S.A. Company Law
 Secretarial and Administrative Practice II

Part III: Company Secretarial Practice
 Meetings - Law and Procedure
 Secretarial Practice (Taxation)

Training centres:

Free State Technical College, Bloemfontein
Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
East London Technical College, East London
Witwatersrand College for Advanced Technical Education, Johannesburg.
Technical College, Krugersdorp
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

Employment possibilities: Company secretary.

2. CORPORATION OF SECRETARIES (C.C.S.)

Admission qualifications: Students must be at least 16 years of age and must have obtained a Standard X Certificate. Exemption may be granted on grounds of age and experience. In addition to registering as students of the College, applicants must also apply for registration as students to the Secretary, Corporation of Secretaries, 701 Maritime House, 26 Loveday Street, Johannesburg.

Nature and duration of the course: The course extends over four years on a part-time basis.

Intermediate Examination:

Accounting
Economic Theory
English or Afrikaans
General Principles of South African Law

Final Examination:

Part I : South African Mercantile Law

Advanced Economics
Secretarial Practice I

Part II: Accounting
South African Company Law
Secretarial Practice II

Part III: Company Secretarial Practice
Meetings - Law and Procedure
Business Administration

Training centres:

Free State Technical College, Bloemfontein
Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
East London Technical College, East London
Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

Employment possibilities: Secretary of a company in the commercial and industrial fields, banks.

3. INSTITUTE OF ADMINISTRATION AND COMMERCE OF S.A. (I.A.C.)

Admission qualifications: Students must be not less than 16 years of age, and must have obtained a Standard X Certificate. Students not in possession of such certificates but who satisfy the Institute as to their age, employment and general educational background, may be permitted to enter for the Intermediate Examination.

In addition to registering as students at the College, applicants must also apply for registration as students to the Secretary, Institute of Administration and Commerce of S.A., P.O. Box 2907, Cape Town.

Nature and duration of the course: The course extends over four years on a part-time basis.

Students need not take the subjects in the order as shown. Subject successes are accumulated.

I.A.C. can be obtained in different branches. The subjects for the different branches are as follows:

Accountancy Branch

Intermediate:

Accounting I
Mercantile Law I
Commerce
Commercial Arithmetic

Final:

Parts I, II and III
Accounting II, Mercantile Law II
Company Law, Auditing I, Cost Accounting, Income Tax Law and Accounts, Statistics,
Auditing II, Accounting III

Management Branch

Intermediate:

Accounting I
Commerce
English or Afrikaans
Mercantile Law I

Final:

Parts I, II and III
Accounting II, Statistics, Mercantile Law II, Company Law, Secretarial Practice,
Principles and Practice of Management I and II, Industrial Law, Economics

Cost Accountancy Branch

Intermediate:

Accounting I
Commercial Arithmetic
Commerce
Mercantile Law I

Final:

Parts I, II and III
Accounting II, Industrial Law, Cost Accounting, Statistics, Economics, Principles and Practice of Management I and II, Accounting III, Advanced Cost Accounting.

Municipal Services Branch

Intermediate:

Accounting I
Commerce
Mercantile Law
English or Afrikaans

Final:

Parts I, II and III
Municipal Law I, Mercantile Law II, Accounting II, Local Government Finance, Economics I, Auditing, Secretarial Practice, Municipal Administration, Municipal Law II.

Private Secretaries Branch

Intermediate:

Accounting I
Secretarial Practice
Typewriting (35 w.p.m.)
Afrikaans or English

Final:

Parts I, II and III
Accounting II, Snelkskrif or Shorthand (100 w.p.m.), Economy or Second Official Language, Typewriting (45 w.p.m.), Mercantile Law I, Snelkskrif or Shorthand (140 w.p.m.), Company Law, Commerce, Snelkskrif/Shorthand (80 w.p.m.) if not taken before.

Executorship and Trustee Branch

Intermediate:

Accounting I
Commerce
Mercantile Law
Commercial Arithmetic

Final:

Parts I, II and III
Accounting II, Company Law, Mercantile Law II, Principles of Auditing, Income Tax Law and Accounts, Secretarial Practice, Advanced Secretarial Practice, Executorship Law and Accounts, Bankruptcy and Liquidation Law and Accounts.

Other branches: Details of the other branches will be supplied on application to the Institute.

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
East London Technical College, East London
Witwatersrand College for Advanced Technical Education, Johannesburg.
Technical College, Krugersdorp
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

Employment possibilities: Commercial undertakings, banks, building societies, insurance companies, municipalities, public service.

4. INSTITUTE OF CERTIFIED BOOKKEEPERS OF S.A.

Admission qualifications: Applicants must be at least 15 years of age. They must also register with the Secretary, Institute of Certified Bookkeepers of S.A., P.O. Box 2237, Cape Town, before the end of August.

Nature and duration of the course: The course extends over two years and is offered on a part-time basis.

Associate Examination:

Bookkeeping and Accounts
General Commercial Knowledge

One of the following:

Commercial Arithmetic
English
Afrikaans

Fellowship Examination:

Advanced Bookkeeping and Accounts

One of the following:

Elementary Auditing
Income Tax Law and Accounts
Costing

One of the following:

Company Law
Economics
Elements of Mercantile Law

There are TWO examinations and candidates must pass all subjects at one examination.

Training centres:

Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

Employment possibilities: Bookkeeper

5. INSTITUTE OF COST AND WORKS ACCOUNTANTS (C.W.A.)

Admission qualifications: Students must be not less than 16 years of age and must have obtained a Standard X Certificate. Certain concessions are made to students who are over 21 years of age.

Students must also apply for registration to the Secretary, Institute of Cost and Works Accountants, Price Forbes House, 16 Frederick St., Johannesburg.

Nature and duration of the course: The course extends over four years on a part-time basis.

Part I: Industrial Administration
Bookkeeping
Economics
Statistics

Part II: Cost Accountancy (three papers of three hours each)

Part III: Office Management
Financial Accountancy
Industrial and Commercial Law

Part IV: Advanced Cost and Management
 Accountancy (three papers of three hours each)

Part V: Advanced Accountancy and Financial Management
 Management Principles and Practice
 Company Law
 Taxation

Training centres:

Cape College for Advanced Technical Education, Cape Town
Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

Employment possibilities: Commercial enterprises, insurance companies, industry, boards of control, and so forth.

6. INSTITUTE OF MARKETING MANAGEMENT
 DIPLOMA IN MARKETING

Admission qualifications: Students must be at least 21 years of age and must satisfy the Institute that they have had sufficient marketing experience. Students must also apply for registration to the Registrar, Institute of Marketing Management, P.O. Box 8377, Johannesburg, before 15th May in each year.

Nature and duration of the course: The course extends over three years and is offered on a part-time basis.

Part I: Marketing I
 Economics
 Commerce
 Commercial English

Part II: Marketing II
 Economic Geography
 Statistics
 Accounting

Part III: Marketing III
 Advertising
 Market Research
 Legal Aspects of Marketing

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

Employment possibilities: Marketing manager, market research officer, advertising manager.

7. SOUTH AFRICAN INSTITUTE OF MANAGEMENT (S.A.I.M.)

Admission qualifications: The examinations of the Institute are open to all who desire to increase their administrative qualifications. Students must be in possession of a Standard X or equivalent certificate.

Students must also apply for registration to the Secretary, South African Institute of Management, 307 Biccard House, Biccard Street, Johannesburg.

Nature and duration of the course: The course extends over three years on a part-time basis.

Intermediate Examination:

Management Introduction
Economics
Legal Aspects of Commerce and Industry
Financial and Cost Accounting
Statistics

Final Examinations

Part A: Management Principles and Practice
Production
Procurement
Marketing

Part B: Management Control
Business Finance
Personnel Management

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark.

Employment possibilities: Commerce and industry, banks, insurance companies, municipalities, boards of control, government departments.

8. OTHER PROFESSIONAL INSTITUTES

Subject to sufficient enrolment, colleges for advanced technical education and technical colleges offer tuition in the subjects for the examinations set by the following institutes: Further particulars are obtainable from the colleges.

(a) BUILDING SOCIETIES INSTITUTE OF S.A.

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria
Vaal Triangle College for Advanced Technical Education, Vanderbijlpark

(b) THE FACULTY OF ACCOUNTANTS OF S.A.

Natal College for Advanced Technical Education, Durban

(c) INSTITUTE OF BANKERS

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
East London Technical College, East London
Witwatersrand College for Advanced Technical Education, Johannesburg
Technical College, Krugersdorp
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria

(d) INSTITUTE OF MUNICIPAL TREASURERS AND ACCOUNTANTS (I.M.T.A.)

Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria

(e) INSTITUTE OF TRANSPORT

Witwatersrand College for Advanced Technical Education, Johannesburg

(f) PUBLIC RELATIONS INSTITUTE OF SOUTH AFRICA

Pretoria College for Advanced Technical Education, Pretoria

(g) SOCIETY OF CREDIT MANAGERS OF SOUTH AFRICA

Pretoria College for Advanced Technical Education, Pretoria

(h) S.A. INSTITUTE OF PERSONNEL MANAGEMENT

Pretoria College for Advanced Technical Education, Pretoria

(i) S.A. INSTITUTE OF VALUERS (See p 37)

Pretoria College for Advanced Technical Education, Pretoria.

CHAPTER IV

OTHER TRAINING SCHEMES

A. IN THE PUBLIC SERVICE

1. AIR TRAFFIC CONTROLLER

Admission qualifications: Candidates must be in possession of a Standard X Certificate or equivalent. They have to undergo a physical examination for air traffic controllers and pass an aptitude test for suitability.

Air traffic controllers must have normal colour perception, good hearing and eyesight.

Nature and duration of the course: Training facilities are provided by the Department of Transport. The candidate has to undergo a four year practical and theoretical course. The theoretical part of the course is undertaken at the Air Traffic Control training centre, Jan Smuts Airport, (Johannesburg).

The practical part can be undertaken at the following airports:

J.B.M. Hertzog Airport, Bloemfontein
D.F. Malan Airport, Cape Town
Louis Botha Airport, Durban
Ben Schoeman Airport, East London
B.J. Vorster Airport, Kimberley
H.F. Verwoerd Airport, Port Elizabeth
J.G. Strydom Airport, Windhoek

During the four years' training a candidate is taught the fundamentals of:

- The procedures and rules as applicable to air traffic control
- South African Air Navigation Regulations
- principles of air navigation, air plotting and the use of altimeters
- use and limitations of navigation aids
- synoptic charts, weather reports and weather forecasts
- the performance of aircraft of different types in so far as it affects air traffic control operations
- Radar and the use of computers.

2. ASSIZER'S CERTIFICATE

Purpose of the course: The purpose of the course is to train persons so that they may qualify as Inspectors of Weights and Measures who can be appointed to carry out the provisions of the Weights and Measures Act (Act No. 13 of 1958). The enforcement of the act falls within the jurisdiction of the Division of Weights and Measures in the Department of Commerce.

Admission qualification: The minimum qualification for admission to the training course is Mathematics and one of the following subjects at Standard X level: Physical Science, Chemistry or Applied Mechanics.

Candidates who are employed in the Division of Weights and Measures in the Department of Commerce and who do not possess the above-mentioned qualifications will be exempted from service to enable them to attend lectures at the local technical college to obtain the necessary qualifications.

Nature and duration of the course: The course extends over a period of four years and consists of Parts A and B.

Part A extends over one year and is offered by the Colleges for Advanced Technical Education in Pretoria, Johannesburg, Durban and Cape Town.

Subjects:

Mathematics T1
Physics T1
Applied Mechanics T1
Principles of Electricity T1

Workshop Technology T1
Engineering Drawing T1
Second Language TB

Part B extends over three years and is offered by the Division of Weights and Measures in Pretoria. During the first two years candidates must attend two full-time courses of approximately five months each. The third year is devoted to in-service training in regional offices under the supervision of qualified assizers.

Subjects:

First year

Weights and Measures and Price Control Acts
Regulations on Weights and Measures - Parts II to VI and
Regulations on Dairy Glassware
Mensuration - Area and Volume Calculation
Regulations on Weights and Measures - Part I and
Regulations on Price Control and Fireworks.

Second year

Weighing and Measuring Practice - Theoretical
Weighing Practice - Practical
Measuring Practice - Practical

Third year

In-service training in a Regional Office

Note: Candidates must enter into an agreement with the Department that they shall serve the Government for at least three years after completion of training.

3. DIPLOMA IN AGRICULTURE

GENERAL REMARKS

South Africa is divided into seven agro-ecological regions, five of which have one agricultural college each. These colleges are under the jurisdiction of the Department of Agricultural Technical Services.

Three of these colleges offer a two-year diploma course while the other two colleges offer a one-year diploma course.

The main purpose of this course is to train young men as farmers, farm managers or agricultural officers.

The syllabus of the course embraces all the more important branches of farming in South Africa with special emphasis on the agricultural conditions in the specific agro-ecological region which the college serves.

Special attention is given to the following subjects:

Animal Husbandry	Agricultural Engineering
Agronomy	Agricultural Economics
Pasture Science	Veterinary Science
Soil Science	

Admission qualification: The minimum qualification is a Standard VIII Certificate, or equivalent. Preference is given to applicants with a Standard X Certificate, or equivalent, and who have had farming experience after leaving school.

TWO-YEAR DIPLOMA COURSE IN AGRICULTURE

The course is offered by the following colleges:

College of Agriculture, Cedara, Natal: Cedara is situated in the High Rainfall Region east of the Drakensberg. Special attention is given to the development of farming systems best suited to the region concerned.

The course begins in the middle of October and lasts until the end of September two years later.

College of Agriculture, Potchefstroom, Transvaal:

Future farmers receive training with regard to the scientific and practical principles as applicable in the Highveld Region.

The college gives preference to matriculants with science subjects. Applicants from the Highveld also receive preference.

The course begins annually in February.

Stellenbosch-Elzenburg Agricultural College of the University of Stellenbosch, Stellenbosch:

The course is mainly centred on the theoretical and practical training of prospective farmers in the Winter Rainfall Region.

During the first year the course is of a general nature, but in the second year the students may specialise in one of the following major subject fields:

Agronomy - Animal Produce
Viticulture - Pomology
Agronomy - Pomology
Viticulture - Animal Husbandry

ONE-YEAR DIPLOMA COURSE IN AGRICULTURE

The course is offered by the following two colleges:

Grootfontein College of Agriculture, Middelburg, Cape Province:

Young prospective farmers and wool valuers receive their training at this college.

State departments such as the Department of Coloured Relations and the Department of Bantu Administration and Development send their technicians to the college to take this course so that they may qualify as agricultural officers of the Departments concerned.

On account of the climate, rainfall and vegetation the Karoo Region is par excellence suitable for sheepfarming. Thus in the course emphasis is put on the small stock industry, pasture management, the cultivation of crops and soil conservation.

Agricultural College, Glen, Orange Free State:

Besides the One-Year Diploma course in Agriculture this agricultural college also offers a course in Dairying.

DIPLOMA IN DAIRYING

Admission qualification: The minimum qualification is a Standard VIII Certificate, but applicants with a Standard X Certificate receive preference.

Nature and duration of the course: The course trains factory personnel in the general management of a butter and cheese factory. The course consists of two training periods of four months each at the agricultural college and a year's practical training in between the two periods at a recognised butter and cheese factory.

4. DIPLOMA IN FORESTRY

Admission qualification: The educational qualification for appointment as a pupil forester is a Standard X or equivalent certificate with Mathematics and both official languages as subjects. Consideration will also be given to the appointment of candidates in possession of a Standard X or equivalent certificate who have at least a Std. VIII pass in Mathematics.

Nature and duration of the course: The in-service training of pupil foresters consists of three phases:

- (a) One year of practical field training;
- (b) two years of theoretical training at the College for Foresters at Saasveld, George; and
- (c) an additional year of practical field training.

Pupil foresters receive full salary during their training period.

Subjects:

Theoretical training

Silviculture
Forest Botany
Protection of Forests
Forest Exploitation
Forest Utilization
Forest Management
The Law and the Forester
Bookkeeping Procedures
Building Construction and Equipment
Nursery Practice
Forest Mensuration
Plane Surveying
Administration

Instruction is given in both official languages.

After successful completion of both the practical and the theoretical training, a Diploma in Forestry is awarded to pupil foresters.

After pupil foresters have been offered an appointment and before assuming duty in the Department of Forestry they are required to enter into a contract whereby they undertake to serve the Government for a period of at least three years upon completion of their training.

The State annually offers bursary loans through the Public Service Commission to persons who are interested in acquiring the B.Sc. (Forestry) degree. Serving foresters who are interested, are also at liberty to apply for these bursary loans. The University of Stellenbosch is the only university institution offering a degree course in Forestry.

5. NATIONAL DIPLOMA IN DEEDS REGISTRATION (PUBLIC SERVICE)

Admission qualification: All members of the various Deeds Offices who have a minimum qualification of Standard X with English and Afrikaans as compulsory subjects are eligible for admission to the course.

Nature and duration of the course: The course is taken by means of correspondence over a period of three years.

Subjects:

First year

Roman Dutch Law I
Mercantile Law I
Deeds Registry Practice and Procedure I

Second year

Roman Dutch Law II
Mercantile Law II
Deeds Registry Practice and Procedure II
Special Statutes I

Third year

Roman Dutch Law III
Interpretation of Statutes
Deeds Registry Practice and Procedure III
Special Statutes II

Training centres:

An intensive course of lectures lasting two weeks is given annually to candidates by the Organizer of the Diploma Course in the Registration of Deeds and other officials in Cape Town or Pretoria just before they write their examinations.

Enquiries in connection with the course should be directed to the Organizer of the Diploma Course in the Registration of Deeds, Private Bag 9035, Cape Town.

6. PILOT

Admission qualifications: To be accepted for training as pilots in the South African Air Force, candidates must

- be White bilingual citizens of the Republic of South Africa and be unmarried;
- be not younger than 17 years of age and not yet 25 years of age when the course commences;
- be in possession of a Standard X Certificate or an equivalent with Afrikaans, English and Mathematics as subjects;
- be medically fit;
- in the case of minors, have their parents'/guardians' consent to undergo training;
- enter into an agreement with the Government, assisted by their parents or guardians in the case of minors, in terms of which they undertake to serve in the South African Air Force permanently or for a period of not less than ten years after the successful completion of their training.

Persons who wish to undergo private training as pilots, must be at least 17 years of age before they can apply for a learner pilot's licence and they must also fulfil strict medical requirements.

Pilots of the South African Airways must already be in possession of a commercial pilot's licence to be appointed as a pilot.

Training: Basic training in flying can only be obtained in two ways, namely through training offered by private registered flying clubs or in the South African Air Force.

All pilots, whether private or attached to either the S.A. Airways or the S.A. Air Force, must be in constant practice, and in addition they have to receive advanced training when they change over from a smaller to a bigger aircraft.

PRIVATE REGISTERED FLYING CLUBS

All pilots' licences, except those for flight personnel attached to the S.A. Air Force (military pilots) are subject to the provisions of the Aviation Regulations issued by the Department of Transport, Division of Civil Aviation. The following licences can be obtained on these conditions:

- Learner pilot's licence
- Private pilot's licence
- Commercial pilot's licence
- Senior Commercial pilot's licence
- Air-line Transport pilot's licence.

Pilot's licences have only a certain period of validity and must be renewed from time to time. A pupil pilot receives theoretical and practical training before he can undertake solo flights. After his training he must pass an oral examination.

Applicants for the award of the other licences must pass an examination in certain technical subjects. The subjects deal with the general principles of flying and the type of aircraft in respect of which application has been made. A certain number of prescribed flying hours are required for the award of pilots' licences.

Training at private registered flying clubs is an expensive undertaking since there are expenses attached to the award of licences, the periodical renewal of licences, medical and other physiological examinations, examination fees and so forth.

SOUTH AFRICAN AIR FORCE

The training of pilots in the S.A. Air Force takes place annually during two courses which commence in January and July, respectively, and which consist of the stages as set out below:

Stage 1 - Orientation training: This training takes place at the Air Force Gymnasium, Valhalla, during the basic training period of the candidate's compulsory military service. This stage extends over a period of three months.

Stage 2 - Basic training in development:

Training in development extends over a period of six months and takes place at the

Military Academy at Saldanha. Training during this stage concentrates on preparing the candidate for his future career as an officer by developing his potentialities for leadership.

Stage 3 - Advanced scientific training in development: Training during this stage of three years duration is academic and the successful candidate obtains the B.Mil. degree (B.A. or B.Sc. course) after completion of this training. Only those who fulfil the requirements for admission to a university are considered for this stage. After completion of Stage 2 candidates are selected for this course with a view to academic training. Those who are not selected for this course immediately begin with Stage 4 training after completion of Stage 2.

Stage 4 - Flying training: Only candidates who have completed Stage 2 and/or Stage 3 successfully may commence with this stage. Flying training extends over a period of 15 months and takes place simultaneously at Dunottar on Harwards and at Langebaan Road on Impalas. The practical aspects of the course in flying training include the following: handling of aircraft, aerobatics, instrument flying, night flying, navigation and day and night crosscountry flying.

Theoretical and general training on the ground are given in the following subjects: Navigation, Aero-dynamics, Flying Instruments, Meteorology, Aviation, Aero-engines, Radio Navigation, Radar, Leadership and Discipline, Physical Education. Time is also given to sport, as well as discussions and debates, while regimental and military training (general drill exercises) continue during this stage.

During the course candidate officers (pilots) are tested periodically to determine whether their progress is satisfactory. If their progress in flying training is unsatisfactory they are discharged and training as a candidate officer (pilot) is suspended.

After completion of the basic flying course on the types of aircraft mentioned candidates are transferred for advanced training, according to their ability and the service requirements, to other types of aircraft like other types of jet aircraft, helicopters and multi-engined aircraft types.

SOUTH AFRICAN AIRWAYS

It has already been mentioned that pilots in the S.A. Airways are appointed on condition that they hold a Commercial pilot's licence. In addition they must hold a Standard X Certificate, be under the age of 35 years and South African citizens.

The training pilots have to undergo in the S.A. Airways thus comprises advanced training to make them more efficient; to enable them to handle bigger aircraft and to fulfil increased demands. Their training includes change-over courses when they change over from a smaller to a bigger aeroplane as well as six-monthly repetition courses for the renewal of licences.

7. POLICE

Admission qualification: A White male person who desires to enlist in the South African Police Force must be a South African citizen; be at least 16 years of age and not older than 35 years; be not less than 5'6" in height without shoes and have a normal chest measurement of not less than 34 inches; be free from all mental and physical defects; have a strong constitution and be fit for police service; produce proof of good character; be in possession of at least a Standard VIII Certificate and be fully bilingual.

Nature and duration of the course: The training of candidates who hold a Standard X Certificate or equivalent and graduates lasts six months while the training of candidates with lesser qualifications lasts twelve months.

Training centre: The South African Police College in Pretoria is the only training centre for White members of the Force. The College is adequately equipped for the training of approximately 2,000 students per year.

After they have entered the police service, candidates receive continued in-service training in the different specialized branches, and the passing of advanced examinations apart from practical ability is a prerequisite for promotion.

Apart from the Police College, the South African Police also has the following training centres:

- (a) The South African Criminal Bureau in Pretoria for the training of experts i.a. in ballistics, identification of fingerprints and investigators into disputed documents and handwriting;

- (b) the South African Police School for Mechanical Training in Benoni where police drivers are trained in driving and maintaining police vehicles; and
- (c) the South African Police Dog Depot in Pretoria for the training of police dogs and dogmasters.

Diploma for Police: The University of South Africa offers a three-year course to members of the Force to improve their academic qualifications in subjects specifically related to their career.

Bursaries: A number of bursaries for extramural studies at a university are awarded annually to members of the Force who possess the necessary qualifications.

8. PRISONS DEPARTMENT

Training College, John Vorster, Kroonstad, OFS.

Candidates receive a basic training course at the training college at Kroonstad under the guidance of graduate officers and specially selected instructors.

Admission qualifications: A candidate must be a citizen of the Republic of South Africa and be not less than 16 years of age; males must be not less than five feet six inches in height, measured without shoes; be free from any mental and/or physical infirmity and of strong constitution; produce references of good character; have passed at least Standard VIII or an equivalent; and if a minor, submit the written consent of his parent or legal guardian.

Nature and duration of the course: The basic training course extends over approximately six months for candidates in possession of a Standard X Certificate and approximately nine months for those with lesser qualifications. In addition to lectures on the Prisons Act, regulations, training in foot and rifle drill, self-defence (Judo), first aid and civics, lectures are also given on the following subjects:

Psychology
Criminology
Bantu Studies
Sociology

Members who do not possess a Standard X Certificate receive instruction together with the basic training in the following Standard X subjects:

Afrikaans
English
Introduction to Anthropology and Criminology.

The Standard X examinations are written at the end of the year. Success in any of the three subjects is recognized by the Department of National Education.

In-service training: Apart from the training referred to above, the Department offers the trainee excellent opportunities for personal development. Besides granting interest-free study loans and study leave to members to enable them to improve their academic qualifications at universities, the Department also arranges free courses so that members may receive specialized training in various fields.

These courses include the following:

Law courses
Course for Supervisors
Agricultural courses
Hospital courses
Courses for Caterers
Dogmasters' course
Organization and Method

Members may also enrol at correspondence colleges, technical colleges and colleges for advanced technical education.

9. SOUTH AFRICAN MERCHANT NAVY ACADEMY "GENERAL BOTHA"

General: The Academy provides both pre-sea and post-sea training for Merchant Navy Officers.

PRE-SEA CADET COURSE

Admission qualification: The admission qualification for this course is a minimum of Standard X Mathematics and Physical Science, although generally the complete Standard X Certificate is required. Candidates must also present themselves for a personal interview and undergo a strict medical examination. All cadets are required to live on the premises of the Academy for the duration of the course.

Nature and duration of the course: The course extends over one year of full-time study and is conducted in the new Academy at Granger Bay.

Subjects such as the following are included:

Principles of Navigation
Naval Architecture
Ship Stability

Practical work includes sailing and upkeep of lifeboats.

Examinations: The examination for the Second Mate's Certificate may only be written after a cadet has served at sea for three and a half years after graduating from the one-year intensive course. This examination ends the cadetship and gives Second Officer's status.

Further details may be obtained from the Captain Superintendent, S.A. Merchant Navy Academy, P.O. Box 2880, Cape Town.

POST-SEA COURSES

Cadets and serving officers return to the Academy at various stages for intensive courses enabling them to write the Second Mate's, First Mate's, Master's and Extra Master's examinations. The examinations are conducted by the Department of Transport.

10. SOUTH AFRICAN RAILWAYS

Admission qualifications:

Clerks: A Standard VIII Certificate at least is required; Standard X pupils receive preference.

Pupil draughtsmen: A Standard X Certificate with Mathematics is required. The training period extends over four years at a technical college.

Pupil engineering assistants: A Standard X Certificate with Mathematics and Physical Science or other science subject.

The training period extends over four years in an engineering option at a College for Advanced Technical Education.

Apprentices: Candidates must be in possession of a Standard VII Certificate at least. Training extends over a period of five years, but an apprentice who passes a departmental competency test after three years of practical training, is immediately paid the salary of an artisan.

Railway College, Esselen Park

At the Railway College, Esselen Park, or at one of its branches young men are trained as caterers, checkers, drivers of diesel, electrical and steam locomotives, firemen, guards, platelayers, policemen, shunters, ticket examiners, etc.

At Esselen Park advanced and specialized training is given as well as courses of a functional nature requiring expensive apparatus and lasting at least $3\frac{1}{2}$ months. All short courses for new entrants to the service, as well as Station Accounts for junior clerks, are provided at the branches.

The Railway College, Esselen Park, has branches in Bloemfontein, Cape Town, Durban, Johannesburg, Port Elizabeth and Pretoria.

Training is also provided to first-level supervisory officers and, when necessary to administrative officers who aim to reach top management posts. Development Courses for senior personnel include such subjects as Finance, Economics, Principles of Scientific Management, Transportation and Human Relations. These courses are conducted by experts from within the Railway Service and by guest lecturers from universities and other organizations.

B. MISCELLANEOUS

1. ACTUARY

Applicants must have obtained a first class pass with a high standard in Mathematics in the examination for the Standard X Certificate (Matriculation exemption) or equivalent.

An applicant must first be interviewed by two qualified actuaries and if approved by them, he is appointed as a junior clerk in the actuary section of an insurance company or a firm of consulting actuaries.

The applicant should enrol as a student of either the Institute of Actuaries (London) or the Faculty of Actuaries (Edinburgh). The enrolment can be arranged in South Africa.

Correspondence courses are available from the Actuarial Tuition Service which has local centres in Cape Town and Johannesburg. The Actuarial Tuition Service is operated jointly by the above-mentioned bodies.

The duration of the course is seven years. Examinations must be written in English.

Further information may be obtained from the Honorary Secretary, The Actuarial Society of South Africa, P.O. Box 4464, Cape Town.

2. DENTAL MECHANIC

Admission qualification: The candidate must be at least 15 years of age and in possession of a Standard VIII Certificate.

Nature and duration of the course: Training takes place by means of a five-year apprenticeship. A prospective dental mechanic must apply to a dental surgeon, dental mechanic contractor or other institution which has a dentist at the head of a laboratory, to be indentured as an apprentice.

Training consists of practical training which takes place in the laboratory of the employer and theoretical training obtained by means of lectures which are annually sent to the apprentices by the Dental Mechanics Board.

At the end of each year apprentices have to sit for practical and written examinations.

Revision of the system of training

The Dental Mechanics Board is at present revising the course. It is hoped that the new system will be introduced by 1972, whereupon the apprenticeship system will be abolished.

Training will take place at the Pretoria College for Advanced Technical Education. It will be a full-time course of two and a half years followed by one year's orientation training in an approved laboratory. The admission qualification will be a Senior Certificate with a science subject.

3. DIPLOMA IN SOCIAL WORK

Admission qualification: The admission qualification is a Standard X Certificate.

Nature and duration of the course: The course extends over a period of three years' full time study and is available for both men and women.

The diploma is recognized as a qualification for registration as social workers.

Training centre:

Hugonote College of the Dutch Reformed Church in South Africa, Wellington, C.P.

Employment possibilities: Social worker especially in the service of the Dutch Reformed Church; and the Department of Social Welfare and Pensions.

4. PATENT AGENT'S EXAMINATION

Admission qualification: To be eligible for admission to any course for the examination a candidate shall be in possession of a Standard X Certificate (Matriculation exemption) or equivalent or a degree conferred by a university recognized for the purpose by the Board for the Recognition of Examinations in Law.

Nature and duration of the course: The duration of the course is at least four years, provided that the Board may, at its discretion, when granting exemption from one or more of the prescribed subjects, determine the period during which a candidate will be permitted to complete the course.

The course must be completed in the following manner:

First year

- Physics
- Chemistry
- Mercantile Law
- Mechanical Engineering Drawing and Design

Second year

- Patent Law and Practice of the Republic, including case law of the Republic and the United Kingdom
- Trade Mark Law and Practice of the Republic, including case law of the Republic and the United Kingdom
- Designs and Copyright Law and Practice of the Republic, including case law of the Republic and the United Kingdom
- Interpretation of Statutes

Third year

- Law of Procedure (Supreme Court)
- Comparative Study of Patent Law (United Kingdom, United States of America, France and Germany)
- Comparative Study of Trade Mark Law (United Kingdom, United States of America, France and Germany)
- Manufacturing and Industrial Processes and Machines

Fourth year

- Drafting of Specifications and Agreements
- Interpretation and Criticism of Specifications
- Patent Agent's Practice

The Board may grant exemption from any subject to a candidate who has passed some other examination in such subject deemed by it to be equivalent to its own examination; provided that no exemption shall be granted in respect of the subjects prescribed for the fourth year of the course.

Training centre:

There is no institution which specifically provides training for the Patent Agent's Examination. Subjects such as Mercantile Law, Interpretation of Statutes and Law of Procedure may be taken by means of a correspondence course through the University of South Africa.

Physics, Chemistry and Mechanical Engineering Drawing and Design may be taken at a technical college or other suitable institution. A first-year university course in these subjects is recommended.

Further information may be obtained from the South African Institute of Patent Agents, P.O. Box 454, Pretoria.

5. TRAFFIC INSPECTOR

Admission qualification: A candidate must be in possession of at least a Standard VIII Certificate and be bilingual.

Nature and duration of the course: Basic training takes place in training schools in the capital cities of the provinces according to the group training system. The basic course extends over three to three and a half months and comprises theoretical and practical training. After completion of the basic course the candidate has to undergo practical training in the region for at least one month. The duration of the regional train-

ing depends on the candidate's background and adaptability.

Employment possibilities: Provincial Administrations of the Cape Province, Natal, Orange Free State and the Transvaal, Administration of South-West Africa and municipalities.



CHAPTER V

TEACHER TRAINING

Teachers are trained at universities, provincial teachers' colleges, colleges for advanced technical education and colleges under the control of the Department of National Education.

A. TRAINING AT UNIVERSITIES

All the eleven South African universities offer advanced academic training for teachers, and award the degrees B.Ed., M.Ed. and D.Ed.

The University of the Witwatersrand has no Faculty of Education and does not offer any professional courses.

The following professional courses are offered by the universities on a full-time basis:

1. UNIVERSITY OF CAPE TOWN

- (a) Higher Primary Teacher's Diploma: Three years after an approved Standard X Certificate. There are four alternative curricula: (i) General Course; (ii) with Speech and Drama; (iii) with Art; and (iv) with Music.
- (b) Certificate for Teachers of Special Classes: One year after an approved Teacher's Certificate.
- (c) Certificate for Teachers of Children Handicapped in Speech and Hearing: One year after an approved Teacher's Certificate.
- (d) Certificate for Teachers of the Deaf: One year after an approved Teacher's Certificate and a Standard X Certificate or its equivalent.

Courses (c) and (d) will be offered in any year only if at least five candidates apply by the 15th September of the year preceding that in which entry is desired.

- (e) Secondary Teacher's Diploma: One year after an approved degree.

Fourth year B.A. (Art) or B.A. (Music) students who have completed all the work of the first three years may be admitted to the course.

- (f) Post-graduate Primary Teacher's Diploma: One year after an approved degree.

Fourth year B.A. (Art) or B.A. (Music) students who have completed all the work of the first three years may be admitted to the course.

- (g) B.A. (Music) - School Music: Three years after a Standard X Certificate (Matriculation exemption). Candidates must also give evidence of a certain degree of proficiency on the pianoforte.
- (h) Teacher's Licenciate Diploma in Music: Three or four years after a recognized Standard X Certificate.
- (i) Teacher's Diploma in Opera: Three years after a recognized Standard X Certificate.
- (j) Special Endorsement in Music for holders of the Primary Teacher's Certificate: One year after the Primary Teacher's Certificate and a recognized Standard X Certificate.
- (k) Teacher's Diploma in Ballet: Three years after a recognized Standard X Certificate.
- (l) Teacher's Certificate in Ballet: Three-year course for students who do not hold a Standard X Certificate. The curriculum is the same as for the Diploma course.
- (m) Certificate in Teaching Physiotherapy: The course extends over a period of three academic terms of full-time study for candidates who hold an approved Standard X Certificate, the Diploma in Physiotherapy and two years' experience in physiotherapy.

2. UNIVERSITY OF NATAL

- (a) University Education Diploma (Graduate): One year after an approved degree.
- (b) University Education Diploma (Non-Graduate): One year after a student has completed courses of study towards an approved degree in Arts or Science, in such a manner that all the requirements of the degree may be fulfilled by one further year of study.

When the requirements of the degree have been fulfilled, the diploma can be converted into a graduate diploma.

- (c) Certificate in Remedial Education: One year after (i) an approved degree plus teaching qualifications; or (ii) the Natal Teacher's Diploma or equivalent qualification plus three years of approved educational experience.

3. UNIVERSITY OF THE ORANGE FREE STATE

- (a) Education Diploma in Commerce: One year after an approved degree.
- (b) Education Diploma in Physical Education: One year after an approved degree.
- (c) Education Diploma in Dramatic Art: One year after an approved degree.
- (d) University Education Diploma: One year after an approved degree.
- (e) U.O.F.S. Education Diploma in Music: Three years after a Standard X Certificate. Teachers' College of the U.O.F.S.
- (f) Higher Primary Teacher's Certificate: Three years after a Standard X Certificate.

4. UNIVERSITY OF PORT ELIZABETH

- (a) Secondary Teachers' Diploma: One year after an approved degree.
- (b) Lower Secondary Teachers' Diploma (L.S.T.D.): Three years after a Standard X Certificate (Matriculation exemption). The candidate must have obtained at least 49% in the Standard X examination.
- (c) Diploma for Teachers of Special Classes for Mentally Handicapped Children (D.T.S.C.): Part-time study extending over two academic years after
 - (i) a university degree and a post-graduate Secondary Teachers' Diploma; or
 - (ii) a university degree and a Lower Secondary Teachers' Diploma; or
 - (iii) a Lower Secondary Teachers' Diploma; or
 - (iv) a Lower Primary Teachers' Certificate of the Cape Education Department; or
 - (v) any other approved teaching qualification.

- (d) Diploma in Musical Education: Three years full-time study

A candidate must satisfy the Director of the Conservatoire that he has attained an adequate standard in a practical major subject equivalent to the Higher Certificate examination in music.

5. POTCHEFSTROOM UNIVERSITY FOR CHRISTIAN HIGHER EDUCATION

- (a) University Education Diploma: One year after an approved degree.
- (b) University Education Diploma (Guidance): One year after an approved degree with a major in Psychology; one course in Sociology or Social Work is recommended for the B.A. degree.
- (c) Baccalaureus Scientiae (Home Economics) (Education option) - B.Sc. (H.E. Ed.): Four years after a Standard X (Matriculation exemption) examination in which the student must have obtained at least 33 per cent in either Mathematics or Physical Science. Physical Science is strongly recommended.
- (d) University Primary School Teachers' Diploma: Three years after an approved Standard X Certificate.

The Diploma may be obtained in the following specialized fields:

- (i) University Primary School Teachers' Diploma

- (ii) University Primary School Teachers' Diploma (School Music)
- (iii) University Primary School Teachers' Diploma (Physical Education)
- (e) Lower University Diploma in Musical Education: Three years after an approved Standard X Certificate.
A candidate must satisfy the Head of the Music Department in a practical and theory test that he has attained an adequate standard to be able to benefit from the course.
- (f) University Education Diploma in Music: One year after a B.Mus. degree. A student can enrol for the B.Mus. degree and the University Education Diploma at the same time and obtain the degree and the diploma after four years.
- (g) Teachers' Diploma in Home Economics: Three years after an approved Standard X Certificate. Physical Science is strongly recommended for the Standard X examination.

6. UNIVERSITY OF PRETORIA

- (a) Higher Education Diploma: Full-time — one year after an approved degree; part-time — three semesters after an approved degree.
- (b) Higher Primary Teachers' Diploma: Three years after an approved Standard X Certificate.
- (c) Higher Primary Teachers' Diploma (Physical Education): Three years after an approved Standard X Certificate and after a medical certificate has been submitted.
- (d) Diploma in Nursery Education: Three years after an approved Standard X Certificate.
- (e) One-Year Diploma in Nursery Education: One year after (i) a recognized Teacher's Certificate and at least two years' teaching experience; or (ii) a degree with Psychology and Sociology as major subjects; or (iii) a three-year Diploma in Social Work; or (iv) a degree in Nursing; or (v) a B.A. (S.W.) degree.
- (f) B.A. (S.W.) degree and Diploma in Nursery Education (Combined): Four years after obtaining a Standard X Certificate (Matriculation exemption).
- (g) Higher Diploma in Nursery Education: Three semesters' full-time study after (i) an approved three-year Diploma in Nursery Education; or (ii) a one-year post-graduate Diploma in Nursery Education; or (iii) B.A. (S.W.) degree and Diploma in Nursery Education.
- (h) Diploma in Special Education (Pedotherapy): One extended academic year after (i) a B.Ed. degree with Vocational Guidance and Psychology II endorsement; or
 - (ii) the degrees B.A. (Hons.) (Psychology); or B.A. (Hons.) (Sociology); or B.A. (S.W.) (Hons.) and Psychology III; or
 - (iii) a Bachelor's degree with Psychology III and H.E.D. or other approved secondary teachers' diploma; or
 - (iv) the B.A. (Log.) degree of the University of Pretoria; or
 - (v) other qualifications which the Faculty Council may regard as adequate.
- (i) Diploma in Special Education (Education of the Deaf): Three semesters (extramural) after a recognized Teacher's Certificate with at least two years' teaching experience, or an approved bachelor's degree.
Note: This course will only be offered if an adequate number of candidates enrol.
- (j) Diploma in Special Education (Education of Mentally Retarded Children): Duration of course and admission qualifications are the same as for (i).
Note: This course will only be offered if an adequate number of candidates enrol.
- (k) Diploma in Special Education (Education of Partially Sighted children): Duration of course and admission qualifications are the same as for (i).
- (l) Diploma in Music (Education): Three years after a Standard X Certificate.
- (m) Teachers' Diploma in Occupational Therapy: The course extends over three semesters for candidates who hold an approved Standard X Certificate and have the necessary qualifications and experience in occupational therapy.
- (n) Teachers' Diploma in Physiotherapy: The course extends over three semesters for

candidates who hold an approved Standard X Certificate and have the necessary qualifications and experience in physiotherapy.

Note: The latter two courses will only be offered if at least three candidates enrol for a particular course in the year concerned.

7. RAND AFRIKAANS UNIVERSITY

- (a) B.Com. (Education) degree
- (b) B.A. (Education) degree
- (c) B.Sc. (Education) degree

The above-mentioned three courses are all four-year courses in which the academic and professional training are integrated. The admission qualification is a Standard X Certificate (Matriculation exemption).

- (d) Secondary Teachers' Diploma: One year after an approved degree.

8. RHODES UNIVERSITY

- (a) University Education Diploma (Graduate) (U.E.D.): One year after an approved degree.
- (b) University Education Diploma (Non-Graduate): One year after a student has completed two years of study towards a bachelor's degree in such a manner that all the requirements for the degree may be fulfilled by one further year of study.

The diploma may be converted into the graduate diploma after the requirements for the degree have been fulfilled.

- (c) Higher Primary Teacher's Certificate (H.P.T.C.): Three years after an approved Standard X Certificate.
- (d) Graduate Primary Teacher's Diploma (G.P.T.D.): One year after an approved degree.
- (e) Lower Secondary Teacher's Diploma (L.S.T.D.): Three years after an approved Standard X Certificate.
- (f) University Art Teacher's Certificate (U.A.T.C.): Four years after an approved Standard X Certificate. This course enables students to take the Diploma in Fine Art and, at the same time, a teaching qualification equivalent to the U.E.D.
- (g) Primary Teacher's Art Certificate (P.T.A.C.): One year after the Primary Teacher's Certificate of the Department of Education of the Cape of Good Hope or another recognized teacher's certificate.
- (h) University Diploma for Teachers of Music (U.D.T.M.): Two years after the Primary Teacher's Certificate of the Department of Education of the Cape of Good Hope or another recognized teacher's certificate. A candidate who holds a Higher Primary Teacher's Certificate in Music may complete the course in one year. The diploma enables holders to teach music in secondary schools.

9. UNIVERSITY OF SOUTH AFRICA

The University of South Africa offers courses which can only be taken by means of correspondence.

- (a) University Education Diploma (U.E.D.): At least one year after a degree and a teacher's certificate obtained after full-time training and two years after a degree and two years' teaching experience.
- (b) Diploma in Special Education (D.S.E.): At least two years after (i) a teacher's certificate obtained after full-time training; or (ii) another equivalent qualification (e.g. in psychology, or in speech therapy or occupational therapy or physiotherapy) and at least two years' teaching experience at an ordinary school or one year's experience at a school for special education.
- (c) Diploma in Nursery Education (D.N.E.): At least two years after (i) a teacher's certificate obtained after full-time training; or (ii) a degree with three courses in one and one course in another of the following subjects: Psychology, Sociology, Social Work, Education, Philosophy; or (iii) a three-year Diploma in Social Work;

or (iv) a bachelor's degree in Nursing or Logopedics

Students taking this course must attend at least one vacation school.

10. UNIVERSITY OF STELLENBOSCH

- (a) Secondary Teacher's Diploma: One year after an approved degree.
- (b) Lower Secondary Teacher's Diploma: Three years after an approved Standard X Certificate.
- (c) Teacher's Diploma in Home Economics and Needlework: Three years after an approved Standard X Certificate.
- (d) Teacher's Diploma in Physical Education: Three years after an approved Standard X Certificate.
- (e) Diploma for Teachers of Art: One year after the Diploma in Fine Art (option: General Art) or qualifications which the Senate may consider as adequate.
- (f) Higher Primary Teacher's Diploma: Three years after a Standard X Certificate. A student may, in the third year, take either the prescribed third-year course for this Diploma or the Diploma course for Teachers of Special Classes. (See (h)).
- (g) Higher Primary Teacher's Diploma after a B. degree: One year after an approved degree.
- (h) Diploma for Teachers of Special Classes: One year after completion of the first two years of the Higher Primary Teacher's Diploma course or an approved teacher's diploma. (See (f)).
- (i) Diploma in Special Education: Three years after a recognized degree with Psychology as a major subject plus a teacher's certificate. Candidates must already be employed as school psychologists and/or teachers of retarded children. The course is offered on a part-time basis. Candidates must attend intensive courses of two weeks each at the University of Stellenbosch twice a year.

B. TRAINING AT PROVINCIAL COLLEGES OF EDUCATION

Each of the four provinces has teachers' training colleges which are controlled by the separate education departments. The provincial colleges of education are chiefly responsible for the training of teachers for the primary schools (grades/substandards to Standard V). These colleges also offer high school orientated courses.

1. DEPARTMENT OF EDUCATION, CAPE OF GOOD HOPE

There are seven teachers' training colleges in the Cape Province:

The Training College, Cape Town
The Training College, Graaff-Reinet
The Training College, Grahamstown
The Training College, Oudtshoorn
The Training College, Paarl
Denneoord Training College, Stellenbosch
The Training College, Wellington

The three-year Primary Teacher's Diploma course which was introduced on the 1st January, 1968, to replace the two-year Primary Teacher's Certificate, is offered by these training colleges.

(a) PRIMARY TEACHER'S DIPLOMA (P.T.D.)

Admission qualification: Candidates who are admitted to the course must:

- (i) hold the Cape Senior Certificate or a certificate which the Department considers to be equivalent to the Cape Senior Certificate;
- (ii) have passed in both the official languages;
- (iii) be certified as medically fit; and
- (iv) be approved by the Department for admission to the course.

Nature and duration of the course: The course extends over three years and is offered on a full-time basis.

The same subjects are prescribed for all students in the first year of study. In the second and third years the training branches into two courses:

- (i) P.T.D. course for the junior primary standards (kindergarten); and
- (ii) P.T.D. course for the senior primary standards (Stds. II to V)

Subjects for both courses:

- Education
- Official languages: Higher grade and Lower grade
- Religious Education
- Practical Teaching
- Academic subjects: Mathematics, Physical Science, History, Geography
- Practical subjects: Bookbinding, Writing and Blackboard technique, Art, Speech and Drama, School Music, Physical Education.

Additional subjects for the P.T.D. course (Junior standards):

- Nursery Literature
- Academic Subject: Social Science
- Method of elementary instruction in languages and Mathematics.

P.T.D. course (Senior standards):

- Practical subjects: Handwork, Agriculture
- Specialization in one of the academic subjects and one of the practical subjects in the third year.

(b) TEACHER'S DIPLOMA (T.D.)

On the 1st January, 1971, one-year Teacher's Diploma courses which follow on the Primary Teacher's Diploma course will be introduced. It will then be possible for primary teachers to receive four years of training.

Admission qualification: Candidates must hold the Primary Teacher's Diploma or have followed a course which the Department recognizes as its equivalent. Teachers who are in service must be approved for admission by the Department.

Nature and duration of the course: It is a one-year course in which students may specialize in one of the following subjects: Woodwork and Metalwork, Physical Education, Agricultural Science, Art, Needlework or School Music.

Note: These specialization courses enable students to apply for posts as teachers of the subjects concerned in high schools.

Contents:

Education
Religious Instruction
Practical Teaching
Theory of the Subject
Practice of the Subject

Training centres:

The courses are offered by the following colleges:

The Training College, Cape Town

Teacher's Diploma in Physical Education for Women
Teacher's Diploma in Art

The Training College, Grahamstown

Teacher's Diploma in Needlework

The Training College, Graaff-Reinet

Teacher's Diploma in Woodwork and Metalwork
Teacher's Diploma in Physical Education for Women

The Training College, Oudtshoorn

Teacher's Diploma in Agricultural Science

The Training College, Paarl

Teacher's Diploma in Physical Education for Men
Teacher's Diploma in Wood- and Metalwork
Teacher's Diploma in Needlework

The Training College, Wellington

Teacher's Diploma in School Music
Teacher's Diploma in Needlework

2. NATAL EDUCATION DEPARTMENT

There are three training colleges in Natal:

Natal Training College, Pietermaritzburg (English medium)
Edgewood Teachers' Training College, Pinetown (English medium)
Durban Teachers' Training College, Durban (Afrikaans medium)

NATAL TEACHER'S SENIOR DIPLOMA

The Natal Teacher's Senior Diploma includes the following courses:

- (i) General course for the Primary school
- (ii) Special course for those who wish to specialize in one of the following subjects: Geography, Infant Teaching, Librarianship, Bible Study, History, Homecraft, Art, Physical Education, Linguistics and Literature, Music

The above-mentioned two courses are offered by all three training colleges.

- (iii) Mathematics Course
- (iv) Science Course
- (v) Biology Course
- (vi) Industrial Arts (Wood- and Metalwork).

Courses (iii) to (vi) are not available at Edgewood Teachers' Training College.

- (vii) Commercial Course

Course (vii) is available at the Durban Teacher's Training College only.

The duration of all the courses is three years.

Admission qualification: The admission qualification for all seven courses is the Natal Senior Certificate or equivalent certificate, with at least 40% in the First Language and 33 $\frac{1}{3}$ % in the Second Language (Advanced Grade). Matriculation exemption is not essential and applications from students who have obtained the Natal Senior Certificate (Ordinary Grade) will also be considered if their results are of a sufficiently high standard.

3. O.F.S. DEPARTMENT OF EDUCATION

There is one training college in the Orange Free State, viz Teachers' College, Park Road, Bloemfontein.

At the College training is given either through Afrikaans or English medium in the first and second years of the course. In the third year the medium of instruction is mainly Afrikaans.

HIGHER PRIMARY TEACHER'S CERTIFICATE (H.P.T.C.)

Students are trained for general and specialized teaching in the primary school OR for general teaching in the primary school and specialized subject-teaching in the secondary

school.

Admission qualification: Candidates must be in possession of either the Matriculation Certificate, the O.F.S. School Leaving Certificate or another recognized school leaving certificate. Matriculation Exemption is not essential.

Students who took an approved first-year degree course at a recognized university and passed in at least four subjects, can obtain the Higher Primary Teacher's Certificate after completion of the first and second-year courses at the Teacher's College.

Such a student will also have to pass a two-year degree course in any school subject during or after the two-year professional course.

Nature and duration of the course: The course extends over three years of full-time training.

Subjects:

First and second-year subjects

- Education (with Psychology)
 - Religious Education
 - Afrikaans-Nederlands I (B.A. degree course)
 - English (Professional) (B.A. degree course)
 - Arithmetic
 - General Science (with Hygiene) (Primary school)
 - Geography/History
 - Audiovisual Education (with Writing, Blackboard work and School Librarianship)
TWO of the following: Domestic Science, Needlework, Mathematics, General Science (High School), Technical Drawing, Woodwork, Art, Singing, Physical Education
- N.B. (i) Students who choose Domestic Science must also take Needlework; they are exempted from Geography/History.
- (ii) Students who choose Mathematics must also take General Science (High School) and vice versa; they are exempted from General Science (Primary School) and Arithmetic.
- (iii) Students who choose Technical Drawing must also take Woodwork.

During the second year students take Afrikaans and English with Speech, Drama and Elocution.

Third year

Students choose one of the following fields:

- (i) Junior Primary Work
- (ii) Higher Primary Work
- (iii) Education for Deviate Pupils
- (iv) High School Work

4. TRANSVAAL EDUCATION DEPARTMENT

There are four training colleges in the Transvaal.

Die Goudstadse Onderwyskollege, Johannesburg
The Johannesburg College of Education, Johannesburg
Die Potchefstroomse Onderwyskollege, Potchefstroom
Die Pretoriase Onderwyskollege, Pretoria

The colleges offer courses for primary school, high school and nursery school education.

(a) COURSES FOR THE PRIMARY SCHOOL

TWO general primary school orientated courses were introduced at the beginning of 1967, namely: Junior Work where the emphasis is on the teaching of the grades up to and including Standard I; and Senior Primary Work which is especially directed towards teaching in Standards II to V.

Students who follow these courses can also follow a semi-specialization course in one of the following subjects:

Physical Education, Music, Art and Arts and Crafts, School Librarianship, Needlework or Drama.

For the first two years all Junior Work students must also select one academic subject from the following: Afrikaans, English, History, Geography, Biblical Studies and Biology, and Senior Primary students one subject from the aforementioned subjects and one from the following subjects: Mathematics, Arithmetic, Physics and Chemistry, according to what the particular college of education offers.

After three years' training has been completed, the student is ready for teaching, but he can study for a further year with the emphasis on intensive training and/or specialization.

The following diplomas are awarded:

- (i) After three years: the Transvaal Education Diploma in Junior Work or Senior Primary Work (T.E.D.); and
- (ii) after four years: the Transvaal Higher Education Diploma in Junior Work or Senior Primary Work (T.H.E.D.)

The admission qualification is a Standard X Certificate with or without University Entrance.

(b) COURSES FOR THE HIGH SCHOOL

The following four-year courses for the high school have been introduced:

- (i) The T.H.E.D. (Combined degree and diploma),
and
- (ii) the T.H.E.D. (Professional).

T.H.E.D. Combined: This is a course where an approved degree (B.A., B.Sc., B.Com., B.Sc. Agriculture, etc.) at a university, together with a professional course at a college of education, can be completed in four years (or five years if a degree course takes four years).

The admission qualification is a Standard X Certificate with University Entrance. The university also has further requirements with regard to certain subjects.

T.H.E.D. Professional: This is a four-year course in which students receive intensive training at a college of education in one or two academic high school subjects with particular attention to a specialization course which they select from the following:

Specialization Courses: Music, Art, Industrial Arts, Home Economics, Physical Education, School Librarianship

High School subjects: Afrikaans, English, Bantu Languages, Biblical Studies, Botany and Zoology, Physics and Chemistry, Mathematics, Arithmetic and Commercial subjects.

Admission qualification: The admission qualification is a Standard X Certificate with or without university entrance.

For admission to the academic subjects of the high school orientated courses candidates must have obtained at least a D symbol in the selected major subjects in the final examination of the secondary school.

For admission to a high school specialization course, candidates must have taken the subject for the secondary school examination or pass a test to the satisfaction of the Rector. The following will serve as a guide:

Physical Education: Students will be tested at the colleges.

School Librarianship: Selection according to interest and language competence.

Industrial Arts: A pass in the subject in the Std. X examination and Mathematics to have been taken up to the final school examination.

Art: Students will be tested at the colleges, but preference will be given to those who have taken the subject for Std. X and have done well at school.

Music: A pass in Music in the Standard X examination or the Intermediate music examination or an equivalent examination and/or a pass in a test to the satisfaction

of the Rector.

Home Economics: A pass in the subject in the Std. X examination and/or Biology and/or Physics/Chemistry.

(c) The four-year course for the training of teachers for special education is offered by the Potchefstroom College of Education.

(d) COURSE FOR NURSERY SCHOOL EDUCATION

All four the colleges of education offer this course. It comprises a specialization course combined with the junior primary course. The course extends over four years and a T.H.E.D. in Junior Work and Nursery Education is awarded.

C. TRAINING AT COLLEGES FOR ADVANCED TECHNICAL EDUCATION AND OTHER COLLEGES OF THE DEPARTMENT OF NATIONAL EDUCATION

The National Education Policy Act, 1967 (Act No. 39 of 1967) determines that the training of white persons as teachers in secondary schools may be provided at a university only, but that the Minister may grant permission that training may also be provided by the following institutions.

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Johannesburg Teachers' College for Home Economics, Johannesburg
Johannesburg College of Art, Johannesburg.

The Act further determines that the training of white persons as teachers for primary and pre-primary schools may be provided at a university or at the following institutions:

Barkly House Training College for Nursery Education, Cape Town
Johannesburg Training College for Nursery School Teachers, Johannesburg.

The following diploma courses can be taken at the above-mentioned colleges by persons with a Std. X Certificate:

(a) NATIONAL TEACHERS' DIPLOMA (COMMERCE)

The course extends over three years on a full-time basis after a Standard X. On a part-time or correspondence basis the course extends over a period of two years after (i) a degree in Commerce; or (ii) the Chartered Accountants' Certificate; or (iii) the National Diploma in Commerce which includes the two official languages and at least three commercial subjects; or (iv) an approved professional certificate in Commerce or Accountancy (Bookkeeping); or (v) the Diploma in State Accounts and Finance;

AND

at least two years' approved business experience.

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria.

(b) NATIONAL TEACHER'S DIPLOMA (HOME ECONOMICS)

The course extends over three years on a full-time basis after Standard X.

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Johannesburg Teachers' College for Home Economics, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria.

(c) NATIONAL TEACHER'S DIPLOMA (NURSERY EDUCATION)

Students who are in possession of a Standard X Certificate or an equivalent are accepted for the three-year full-time course.

Admission to the one-year full-time course is restricted to students in possession of:

- (i) An approved university degree or diploma involving not less than three years' full-time study;
- (ii) a secondary or higher teacher's certificate or diploma, involving, in all, not less than three years' full-time study; or
- (iii) an approved infant or primary teacher's certificate involving not less than two years' post-matriculation full-time training.

Training centres:

Barkly House Training College for Nursery Education, Claremont, Cape Town
Johannesburg Training College for Nursery School Teachers, Johannesburg.

(d) NATIONAL TEACHER'S DIPLOMA (ART)

For particulars regarding this course please refer to page 28.

Training centres:

Natal College for Advanced Technical Education, Durban
College for Advanced Technical Education, Port Elizabeth
Pretoria College for Advanced Technical Education, Pretoria
Johannesburg College of Art, Johannesburg.

(e) NATIONAL TEACHER'S DIPLOMA (TECHNICAL)

The course extends over one year on a full-time basis or two years on a part-time or correspondence basis.

For admission to the course students must hold (i) a degree in Engineering or in Pure Science or in Applied Science; or (ii) a National Diploma (and both official languages on the Std. X level); or (iii) a recognized equivalent qualification.

Note: National Diplomas include diplomas such as the Engineering Diploma, the Building Diploma, the Production Engineering Diploma, the technician diplomas and the Diploma in Pharmacy.

Graduate candidates for this course, unless in full-time teaching posts, must have had three years' post-graduate industrial experience.

Training centres:

Cape College for Advanced Technical Education, Cape Town
Natal College for Advanced Technical Education, Durban
Witwatersrand College for Advanced Technical Education, Johannesburg
Pretoria College for Advanced Technical Education, Pretoria.

(f) NATIONAL TEACHERS' DIPLOMA (WORKSHOP)

The course extends over one year on a full-time basis or two years on a part-time or correspondence basis.

For admission to the course students must hold (i) the National Senior Certificate (Technical) and an apprenticeship; or (ii) the National Technical Certificate Part III and the two official languages on the Std. X level as well as an apprenticeship; or (iii) a recognized equivalent certificate, the two official languages (Std. X level) and an apprenticeship.

N.B.: Candidates must have had at least two years' recognized post-apprenticeship experience in industry.

Training centres: The colleges for advanced technical education which offer training for the National Teacher's Diploma (Technical) also offer training for this course.

(g) TRAINING BY MEANS OF CORRESPONDENCE

The Division External Studies (Correspondence Courses) of the Witwatersrand College for Advanced Technical Education, offers the following courses:

National Teacher's Diploma (Commerce)
National Teacher's Diploma (Technical)

National Teacher's Diploma (Workshop)
National Teacher's Diploma (Art): Course D*

The courses extend over two years on a correspondence basis. The admission qualifications are given under (a), (e) and (f) for the courses concerned.

*See page 30.

A P P E N D I C E S A, B A N D C

A. BURSARIES

A large number of firms sponsor their own students, especially students attending sandwich courses. In some cases bursaries have been made available.

The Steel and Engineering Industries Federation of South Africa (S.E.I.F.S.A.) has made bursaries available to those interested in enrolling for the sandwich courses. By means of these bursaries, a student, even if not employed, may attend the College for the first session either for 18 weeks or for a full year. The full year course includes practical training in the College workshops. S.E.I.F.S.A. will generally find employment for the student, and for the rest of the course the student may be sponsored by S.E.I.F.S.A. or by his employer.

S.E.I.F.S.A. bursaries are available for study in the following courses: Cost Accounting; Electronic Data Processing; Supervisory Management; Engineering; Chemistry.

Application for bursaries should be made to The Head, Division of Training and Education, S.E.I.F.S.A., P.O. Box 1338, Johannesburg.

The Hotel Board has also made a bursary available to cover tuition, boarding and examination fees for students taking the National Diploma course in Hotel Management.

The Colleges for Advanced Technical Education Information on bursaries for study at the colleges may be obtained from the College concerned.

The Provincial Education Departments and the Administration of South West Africa have made bursaries and study loans available for prospective teachers.

The Public Service Commission offers bursary loans tenable at Colleges for Advanced Technical Education for the purpose of training teachers in Commerce and Home Economics.

The South African Nurses' Association administers bursaries for post-basic training.

Certain manufacturers, wholesale houses and various individuals have established bursaries, grants and loans for students and prospective students of pharmacy. These funds are distributed by the Foundation for Pharmaceutical Education and details of these bursaries, etc., may be obtained from the Secretary of the Foundation, P.O. Box 31360, Braamfontein, Tvl.

The Provincial Administrations (Department of Hospital Services) pay students of occupational therapy, physiotherapy, orthopaedics and radiography a bursary loan in the form of a salary of R1,320 p.a. for the duration of the course.

Student nurses receive a salary of R1,320 p.a. while they study. A boarding fee of R22 per month is subtracted from their monthly salary if they live in the nursing colleges.

B. LIST OF ADDRESSES OF ORGANIZATIONS AND INSTITUTIONS WHICH OFFER TRAINING AND/OR ADDITIONAL INFORMATION

1. COLLEGES FOR ADVANCED TECHNICAL EDUCATION

The Registrar,
Cape College for Advanced Technical Education,
P.O. Box 652,
CAPE TOWN.

The Registrar,
Natal College for Advanced Technical Education,
P.O. Box 953,
DURBAN.

The Registrar,
Witwatersrand College for Advanced Technical Education,
P.O. Box 3293,
JOHANNESBURG.

The Rector,
College for Advanced Technical Education,
Private Bag 6011,
PORT ELIZABETH.

The Registrar,
Pretoria College for Advanced Technical Education,
420 Church Street,
PRETORIA.

The Registrar,
Vaal Triangle College for Advanced Technical Education,
Private Bag X021,
VANDERBIJLPARK.

2. TECHNICAL COLLEGES

Enquiries must be addressed to the Principal.

Technical College,
Private Bag 1004,
BENONI.

Free State Technical College,
Private Bag X0542,
BLOEMFONTEIN.

Technical College,
Private Bag,
BOKSBURG NORTH.

Technical College
Private Bag,
Brenthurst,
BRAKPAN.

Technical College,
Private Bag,
CARLETONVILLE.

Technical College,
Private Bag,
Congella,
DURBAN.

East London Technical College,
Private Bag,
EAST LONDON.

Technical College,
Private Bag 1030,
GERMISTON.

Technical College,
Private Bag 23,
JOHANNESBURG.

Northern Cape Technical College,
Private Bag 31,
KIMBERLEY.

Technical College,
Private Bag A 13,
KLERKSDORP.

Technical College,
Private Bag 22,
KROONSTAD.

Technical College,
Private Bag 2004,
KRUGERSDORP.

Pietermaritzburg Technical College,
Private Bag 9032,
PIETERMARITZBURG.

Technical College,
Private Bag,
Howard Place,
PINELANDS, C.P.

Technical College,
Private Bag 6040,
PORT ELIZABETH.

Technical College,
Private Bag,
RANDFONTEIN.

Technical College,
Private Bag 2086,
RUSTENBURG.

Technical College,
Private Bag X2009,
SASOLBURG.

Technical College,
Private Bag 21,
SPRINGS.

Technical College,
Private Bag 5012,
STELLENBOSCH.

Technical College,
Private Bag,
UITENHAGE.

Technical College,
Private Bag X05,
VANDERBIJLPARK.

Technical College,
Private Bag,
VEREENIGING

O.F.S. G...lds Technical College,
Private Bag X21,
WELKOM.

Technical College,
Private Bag 1215,
WITBANK.

3. AGRICULTURAL COLLEGES

The Chief: Karoo Region,
Department of Agricultural Technical Services,
Grootfontein College of Agriculture and Research Station,
MIDDELBURG, C.P.

The Chief,
The Stellenbosch-Elsenburg Agricultural College of the University of Stellenbosch,
Winter Rainfall Region,
Department of Agricultural Technical Services,
STELLENBOSCH, C.P.

The Chief: Natal Region,
Department of Agricultural Technical Services,
College of Agriculture and Research Station,
CEDARA, NATAL.

The Chief: Orange Free State Region,
Department of Agricultural Technical Services,
Agricultural Research Institute and Agricultural College,
P.O. GLEN, O.F.S.

The Chief: Highveld Region,
Department of Agricultural Technical Services,
College of Agriculture and Research Institute,
Private Bag 804,
POTCHEFSTROOM, TVL.

4. TEACHER TRAINING INSTITUTIONS UNDER THE DEPARTMENT OF NATIONAL EDUCATION

The Principal,
Barkly House Training College for Nursery Education,
Private Bag,
CLAREMONT, C.P.

The Principal,
College of Art,
c/o Claim and Bok Streets,
JOHANNESBURG.

The Principal,
Johannesburg Teachers' College for Home Economics,
52 Leyds Street,
JOHANNESBURG.

The Principal,
Training College for Nursery School Teachers,
1 Louis Botha Ave ,
Houghton,
JOHANNESBURG.

5. PROVINCIAL EDUCATION DEPARTMENTS

The Director of Education,
Department of Education, Cape of Good Hope,
P.O. Box 13,
CAPE TOWN.

The Director of Education,
Natal Education Department,
Private Bag 9044,
PIETERMARITZBURG.

The Director of Education,
O.F.S. Department of Education,
P.O. Box 521,
BLOEMFONTEIN.

The Director of Education,
Transvaal Education Department,
Private Bag 76,
PRETORIA.

6. PROVINCIAL TEACHERS' TRAINING COLLEGES

Cape Province

The Rector,
Teachers' Training College,
Highbury Road,
Mowbray,
CAPE TOWN.

The Rector,
Teachers' Training College,
P.O. Box 102,
GRAAFF-REINET, C.P.

The Rector,
Teachers' Training College,
GRAHAMSTOWN, C.P.

The Rector,
Teachers' Training College,
West Bank,
OUDTSHOORN, C.P.

The Rector,
Teachers' Training College,
PAARL, C.P.

The Rector,
Denneoord Training College,
De Waal Street,
STELLENBOSCH, C.P.

The Rector,
Teachers' Training College,
WELLINGTON, C.P.

Natal

The Rector,
Durban Teachers' Training College,
Queen Mary Avenue,
DURBAN.

The Rector,
Natal Teachers' Training College,
P.O. Box 566,
PIETERMARITZBURG.

The Rector,
Edgewood College of Education.
Pine Street,
Ashley,
PINETOWN, NATAL.

Orange Free State

The Director,
Teachers' Training College,
Park Road,
BLOEMFONTEIN, O.F.S.

Transvaal

The Rector,
College of Education,
Mears Street,
Sunnyside,
PRETORIA.

The Rector,
College of Education,
President Street,
POTCHEFSTROOM.

The Rector,
The Johannesburg College of Education,
P.O. Box 1013,
JOHANNESBURG.

The Rector,
Goudstad College of Education,
Private Bag 2,
JOHANNESBURG.

7. STATE DEPARTMENTS WHICH OFFER TRAINING

The Secretary for Agricultural Credit and Land Tenure,
Department of Agricultural Credit and Land Tenure,
Private Bag 118,
PRETORIA.

The Secretary for Agricultural Technical Services,
Department of Agricultural Technical Services,
Private Bag 116,
PRETORIA.

The Secretary for Bantu Administration and Development,
Department of Bantu Administration and Development,
P.O. Box 384,
PRETORIA.

The Secretary for Commerce,
Department of Commerce,
Private Bag 84,
PRETORIA.

The Director,
Division of Sea Fisheries,
Department of Commerce,
Private Bag,
SEA POINT, C.P.

The Superintendent,
Division of Weights and Measures,
Department of Commerce,
P.O. Box 431,
PRETORIA.

The Secretary for Community Development,
Department of Community Development,
Private Bag 149,
PRETORIA.

Chief of Defence Force Administration,
Defence Headquarters,
Potgieter Street,
PRETORIA.

The Secretary for Forestry,
Department of Forestry,
P.O. Box 334,
PRETORIA.

The Secretary for Health,
Department of Health,
P.O. Box 386,
PRETORIA.

The Divisional Inspector of Labour,
Department of Labour,
Private Bag 117,
PRETORIA.

The Head,
Geological Survey,
Department of Mines,
Private Bag 112,
PRETORIA.

The Secretary for National Education,
Department of National Education,
Private Bag 122,
PRETORIA.

Commissioner of Prisons,
Prisons Department,
Private Bag 136,
PRETORIA.

The Secretary,
Public Service Commission,
Private Bag 121,
PRETORIA.

The Secretary for Public Works,
Department of Public Works,
Private Bag 65,
PRETORIA.

Commissioner of the South African Police,
South African Police,
Private Bag 94,
PRETORIA.

The General Manager,
South African Railways,
Paul Kruger Building,
Wolmarans Street,
JOHANNESBURG.

The Director,
Civil Aviation Division,
Department of Transport,
Private Bag 193,
PRETORIA.

The Director,
Weather Bureau Division,
Department of Transport,
Private Bag 193,
PRETORIA.

The Secretary for Water Affairs,
Department of Water Affairs,
Private Bag 313,
PRETORIA.

8. PROVINCIAL ADMINISTRATIONS AND THE ADMINISTRATION OF SOUTH-WEST AFRICA

The Provincial Secretary,
Provincial Administration of the Cape of Good Hope,
P.O. Box 659,
CAPE TOWN.

The Provincial Secretary,
Provincial Administration of Natal,
PIETERMARITZBURG.

The Provincial Secretary,
Provincial Administration of the Orange Free State,
BLOEMFONTEIN.

The Provincial Secretary,
Provincial Administration of the Transvaal,
P.O. Box 383,
PRETORIA.

The Secretary for South-West Africa,
Administrator's Office,
WINDHOEK.

9. OTHER BODIES AND ORGANIZATIONS

The President,
Human Sciences Research Council,
Private Bag 41,
PRETORIA.

The Personnel Officer,
Atomic Energy Board,
Private Bag 256,
PRETORIA.

The Principal,
College of Occupational Therapy,
P.O. Box 437,
PRETORIA.

The Registrar,
The Dental Mechanics Board,
531 City Centre,
Pretorius Street,

or

P.O. Box 995,
PRETORIA.

The Registrar,
South African Pharmacy Board,
P.O. Box 96,
PRETORIA.

The Secretary,
The Pharmaceutical Society of South Africa,
P.O. Box 31360,
BRAAMFONTEIN, TVL.

The Director of Hospital Services,
Transvaal Department of Hospital Services,
Private Bag 221,
PRETORIA.

The Director of Hospital Services,
Cape Provincial Hospitals Department,
P.O. Box 2060,
CAPE TOWN.

The Director of Hospital Services,
Natal Department of Hospital Services,
Private Bag 9051,
PIETERMARITZBURG.

The Director of Hospital Services,
OFS Department of Hospital Services,
Provincial Administration,
BLOEMFONTEIN.

The Secretary,
Chamber of Mines of South Africa,
P.O. Box 809,
JOHANNESBURG.

The Control Technician : Training,
Department of Posts and Telegraphs,
Private Bag 51,
PRETORIA.

The Secretary,
South African Association of Correspondence Colleges,
P.O. Box 3742,
JOHANNESBURG.

The Secretary,
South African Broadcasting Corporation,
P.O. Box 8606,
JOHANNESBURG.

The Director,
South African Bureau of Standards,
Private Bag 191,
PRETORIA.

The Manager,
Personnel Department,
South African Coal, Oil and Gas Corporation Ltd.,
P.O. Box 1,
SASOLBURG, O.F.S.

The Secretary,
South African Council for Scientific and Industrial Research,
P.O. Box 395,
PRETORIA.

The Personnel Manager,
South African Iron and Steel Industrial Corporation, Limited,
P.O. Box 450,
PRETORIA.

The Registrar,
South African Medical and Dental Council,
6115 Oranje-Nassau Building,
Schoeman Street,
PRETORIA.

The Registrar,
South African Nursing Council,
P.O. Box 1123,
PRETORIA.

The Secretary,
South African Optometric Association,
P.O. Box 4790,
JOHANNESBURG.

10. UNIVERSITIES

The Registrar,
University of Cape Town,
Private Bag,
RONDEBOSCH, CAPE PROVINCE.

The Registrar,
University of Natal,
King George V Ave ,
DURBAN.

The Registrar,
University of the Orange Free State,
P.O. Box 339,
BLOEMFONTEIN.

The Registrar,
University of Port Elizabeth,
P.O. Box 1600,
PORT ELIZABETH.

The Registrar,
Potchefstroom University for Christian Higher Education,
POTCHEFSTROOM.

The Registrar (Academic),
University of Pretoria,
Hillcrest,
PRETORIA.

The Registrar,
Rand Afrikaans University,
P.O. Box 524,
JOHANNESBURG.

The Registrar,
Rhodes University,
P.O. Box 94,
GRAHAMSTOWN.

The Registrar,
University of South Africa,
P.O. Box 392,
PRETORIA.

The Registrar,
University of Stellenbosch,
STELLENBOSCH.

The Registrar,
University of the Witwatersrand,
Jan Smuts Ave ,
JOHANNESBURG.

C. OTHER PUBLICATIONS OF THE HUMAN SCIENCES RESEARCH COUNCIL WHICH GIVE INFORMATION ON EDUCATION

1. Awards available for post-graduate study in the Republic of South Africa and overseas. 1967.

This publication, which is available in Afrikaans also, is being revised.

2. Universities in South Africa. 1968.
3. Toekennings beskikbaar vir voorgraadse studie aan Suid-Afrikaanse universiteite. Deel I (UQVS, UPE, PU vir CHO, UP, RAU, US, UNISA en Algemeen), by C. Geggus, 1969.
4. Awards available for undergraduate study at South African universities. Vol. II (UCT, UN, UPE, RU, UNISA, WITS and General), by C. Geggus, 1969.
5. Education in South Africa, by C.M. Stimie, 1970.

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