

# DIPLOMA IN FIRE TECHNOLOGY

## Qualification code: DPF19 - NQF Level 6 (360 credits)

SAQA ID: 100988, CHE NUMBER: H16/14273/HEQSF

Campus where offered: Arcadia Campus

### REMARKS

a. *Admission requirement(s) and selection criteria:*

• **FOR APPLICANTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

**Admission requirement(s):**

A Senior Certificate or an equivalent qualification, with an E symbol at Higher Grade or a D symbol at Standard Grade for English, and an E symbol at Standard Grade for Mathematics and Physical Science.

**Selection criteria:**

Applicants without Mathematics and Physical Science will be selected for admission based on the successful completion of a potential assessment, a science skills knowledge test and an interview.

• **FOR APPLICANTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE IN OR AFTER 2008:**

**Admission requirement(s):**

A National Senior Certificate with a bachelor's degree or a diploma endorsement, or an equivalent qualification, with an achievement level of at least 3 for English (home language or first additional language), 3 for Mathematics or 4 for Mathematical Literacy and 3 for Physical Sciences.

**Selection criteria:**

To be considered for this qualification, applicants must have an Admission Point Score (APS) of at least **18** (with Mathematics) or **19** (with Mathematical Literacy).

• **FOR APPLICANTS WITH A NATIONAL CERTIFICATE (VOCATIONAL):**

**Admission requirement(s):**

A National Certificate (Vocational) with a bachelor's degree or a diploma endorsement, with at least 50% (APS of 4 and N3 level) for English (home language or first additional language), for Engineering Mathematics or Mathematical Literacy, for Engineering Sciences (APS of 5 and N3 level) for any other three compulsory vocational subjects.

**Selection criteria:**

To be considered for this qualification, applicants must have an Admission Point Score (APS) of at least **27**.

b. *Assessment procedures:*

Applicants who are employed by an approved fire or emergency service will be considered for admission to the National Diploma, provided that they meet the minimum APS requirements.

A number of applicants not employed will also be considered, subject to the availability of training space at the Tshwane Metropolitan. These applicants will be invited for an interview with a departmental selection panel and will be required to pass the physical and medical fitness tests prescribed by the emergency services, provided that they meet the minimum APS requirements.

c. *Minimum duration:*

Three years.



- d. *Presentation:*  
Block-mode classes.
- e. *Intake for the qualification:*  
January only.
- f. *Exclusion and readmission:*  
See Chapter 2 of Students' Rules and Regulations.
- g. *Recognition of Prior Learning (RPL), equivalence and status:*  
See Chapter 30 of Students' Rules and Regulations.
- h. *WIL in Fire Technology I and II:*  
See Chapter 5 of Students' Rules and Regulations.
- i. *Module credits:*  
Module credits are shown in brackets after each module.

## CURRICULUM

### FIRST YEAR

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
CAP105X	Communication for Academic Purposes	(5)	(10)	
CPL105X	Computer Literacy	(5)	(10)	
GCH105D	General Chemistry I	(5)	(24)	
GPH105D	General Physics I	(5)	(24)	
INI125D	Information Literacy I (block module)	(5)	(2)	
LF1125X	Life Skills I (block module)	(5)	(2)	

### FIRST SEMESTER

FTE115D	Fire Technology I	(5)	(12)	
MAS115D	Mathematics and Statistics I	(5)	(12)	

### SECOND SEMESTER

EMG115D	Emergency Management I	(5)	(12)	
FCO115D	Building Construction I	(5)	(12)	

TOTAL CREDITS FOR THE FIRST YEAR: **120**

### SECOND YEAR

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
<b>FIRST SEMESTER</b>				
EXF216D	WIL in Fire Technology I (first-or second-semester module)	(6)	(30)	
FCH216D	Fire Chemistry II	(6)	(12)	General Chemistry I
FCO216D	Building Construction II	(6)	(12)	Building Construction I
FPH216D	Fire Physics II	(6)	(18)	General Physics I

TOTAL CREDITS FOR THE SEMESTER: **72**

### SECOND SEMESTER

EMG216D	Emergency Management II	(6)	(12)	Emergency Management I
FHY216D	Fire Hydraulics II	(6)	(18)	



FTE216D	Fire Technology II	(6)	(18)	Fire Technology I
TOTAL CREDITS FOR THE SEMESTER:			48	
TOTAL CREDITS FOR THE SECOND YEAR:			120	

### THIRD YEAR

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
<b>FIRST SEMESTER</b>				
EXF316D	WIL in Fire Technology II (first-or second-semester module)	(6)	(30)	WIL in Fire Technology I
FCO316D	Building Construction III	(6)	(12)	Building Construction II
FHY316D	Fire Hydraulics III	(6)	(15)	Fire Hydraulics II
FTE316D	Fire Technology III	(6)	(24)	Fire Technology II
TOTAL CREDITS FOR THE SEMESTER:			81	
<b>SECOND SEMESTER</b>				
EMG316D	Emergency Management III	(6)	(12)	Emergency Management II
FCH316D	Fire Chemistry III	(6)	(15)	Fire Chemistry II
FPH316D	Fire Physics III	(6)	(12)	Fire Physics II
TOTAL CREDITS FOR THE SEMESTER:			39	
TOTAL CREDITS FOR THE THIRD YEAR:			120	
TOTAL CREDITS FOR THE QUALIFICATION:			360	

## MODULE INFORMATION (OVERVIEW OF SYLLABUS)

The syllabus content is subject to change to accommodate industry changes. Please note that a more detailed syllabus is available at the Department or in the study guide that is applicable to a particular module. On 01 August 2018, the syllabus content was defined as follows:

### B

#### **BUILDING CONSTRUCTION I (FCO115D)** **1 X 3-HOUR PAPER** *(Module custodian: Department of Physics)*

Identify unsafe conditions during building construction: building processes and site works, building drawings, foundation, earthwork and concrete, walls and partitions, fireplaces, floor structures and finishing, roofs, glazing and windows, doors, and stairs. (Total tuition time: ± 140 hours)

#### **BUILDING CONSTRUCTION II (FCO216D)** **1 X 3-HOUR PAPER** *(Module custodian: Department of Physics)*

Identify hazards: fire detection and alarm systems, water supply, fire pumps, automatic sprinkler systems, stand-pipe and hose systems, special extinguishing systems, and portable fire extinguishers. (Total tuition time: not available)

#### **BUILDING CONSTRUCTION III (FCO316D)** **1 X 3-HOUR PAPER** *(Module custodian: Department of Physics)*

Fire safety and the National Building Regulations: preliminary plans and enquiries, classification and designation of occupancies, fire protection plan, fire performance, fire resistance of occupancy and division, separating elements, fire stability of structural elements or components. (Total tuition time: not available)



**C****COMMUNICATION FOR ACADEMIC PURPOSES (CAP105X)****1 X 3-HOUR PAPER****(Module custodian: Department of Applied Languages)**

A workable knowledge of English is an essential skill for any graduate who is required to conduct themselves successfully in a professional working environment. This module will equip students with the competencies required to compose a selection of written texts related to communicating both internally and externally within a professional environment. In addition, the module includes strategies that are essential for the effective communication in various situations, including small groups to avoid unproductive conflict, a multicultural context, etc. (Total tuition time: not available)

**COMPUTER LITERACY (CPL105X)****CONTINUOUS ASSESSMENT****(Module custodian: End User Computing Unit)**

Introduction of information literacy. Development of a search strategy and application of a search string to search engines and academic databases. Evaluation of information sources. Ethical and legal use of information. (Total tuition time: not available)

**E****EMERGENCY MANAGEMENT I (EMG115D)****1 X 3-HOUR PAPER****(Module custodian: Department of Physics)**

Introduction to management: planning, organising and delegating, motivation, control, ethics, corporate social responsibility and corporate governance. Introduction to entrepreneurship: business idea, feasibility studies, setting up a business. (Total tuition time: not available)

**EMERGENCY MANAGEMENT II (EMG216D)****1 X 3-HOUR PAPER****(Module custodian: Department of Physics)**

Communication theory, incident leadership, motivation and self-confidence, team health and safety, conflict management, incident command systems. (Total tuition time: not available)

**EMERGENCY MANAGEMENT III (EMG316D)****1 X 3-HOUR PAPER****(Module custodian: Department of Physics)**

Disaster and emergency management: size up and incident command system (ICS), ICS rightsizing for each event, incident rehabilitation, civil unrest, ICS vehicle fires. (Total tuition time: not available)

**F****FIRE CHEMISTRY II (FCH216D)****1 X 3-HOUR PAPER****(Module custodian: Department of Chemistry)**

Chemical hazardous materials, principles of chemical reactions, hazardous materials regulations, chemistry of common elements. (Total tuition time: not available)

**FIRE CHEMISTRY III (FCH316D)****1 X 3-HOUR PAPER****(Module custodian: Department of Chemistry)**

Corrosive materials, water reactive materials, toxic substances, oxidisers. (Total tuition time: not available)

**FIRE HYDRAULICS II (FHY216D)****1 X 3-HOUR PAPER****(Module custodian: Department of Physics)**

Fluid properties, pressure in fluids, hydrostatic forces, buoyancy, fluid flow, Bernoulli's equation. (Total tuition time: not available)

**FIRE HYDRAULICS III (FHY316D)****1 X 3-HOUR PAPER****(Module custodian: Department of Physics)**

Fluid flow types, control fluid volume principles and applications, conservation of mass flow and energy, application of extended Bernoulli's equation and draining of tanks, hydraulic power, fluid pumps. (Total tuition time: not available)



**FIRE PHYSICS II (FPH216D)****1 X 3-HOUR PAPER****(Module custodian: Department of Physics)**

Rotational kinematics and dynamics, waves and sound, electric forces and fields, electric circuits, magnetic forces and fields, electromagnetic induction, thermodynamics, nuclear physics. (Total tuition time: not available)

**FIRE PHYSICS III (FPH316D)****1 X 3-HOUR PAPER****(Module custodian: Department of Physics)**

Heat transfer, frames and structures, thermal expansion of materials, strength of materials, diffusion flames and fire plumes, refrigeration, thermodynamics, automatic fire detectors, radioactivity. (Total tuition time: not available)

**FIRE TECHNOLOGY I (FTE115D)****1 X 3-HOUR PAPER****(Module custodian: Department of Physics)**

Overview of the firefighting career in South Africa, fire appliance maintenance, dash warning lights, vehicle systems, turntable ladder, dust explosion, ventilation, wildland firefighting, marine firefighting. (Total tuition time: not available)

**FIRE TECHNOLOGY II (FTE216D)****1 X 3-HOUR PAPER****(Module custodian: Department of Physics)**

Overview of the aviation environment, general aviation, airport environment, communication, aircraft familiarisation, emergency planning, general aviation incidents, incidents on and off airport property, training and incident management. (Total tuition time: not available)

**FIRE TECHNOLOGY III (FTE316D)****1 X 3-HOUR PAPER****(Module custodian: Department of Physics)**

Fire behaviour, fire extinguishment, safety on fire ground, incident command system (ICS), pre-fire planning, high rise building fires, occupational health and safety, fire department communication, managing customer service, overview of disaster management. (Total tuition time: not available)

**G****GENERAL CHEMISTRY I (GCH105D)****1 X 3-HOUR PAPER****(Module custodian: Department of Chemistry)**

The role and importance of chemistry in everyday life. Classification and properties of matter. Units of measurement. Atoms, molecules and ions. The modern view of atomic structure and the use of electron configurations in chemical bonding. The periodic table of elements. The use of IUPAC rules for naming inorganic compounds. Application of the mole concept in stoichiometric calculations. Reactions in aqueous solutions. Chemical equilibrium. Fundamental concepts in electrochemistry. Organic nomenclature. (Total tuition time: ± 240 hours)

**GENERAL PHYSICS I (GPH105D)****1 X 3-HOUR PAPER****(Module custodian: Department of Physics)**

Basic mathematical concepts for physics and measurements. Motion in one dimension. Motion in a plane (projectile motion). Forces and Newton's Law of Motion. Equilibrium condition and torque. Work, energy and power. Linear momentum and impulse. Properties of static and dynamic fluids. Temperature and heat. Heat transfer. General properties of waves. Reflection. Refraction. Electrostatics. Electric circuits. Basic nuclear physics. (Total tuition time: not available)

**I****INFORMATION LITERACY I (INI125D)****CONTINUOUS ASSESSMENT****(Module custodian: Directorate of Library and Information Services)**

Introduction of information literacy. Development of a search strategy and application of a search string to search engines and academic databases. Evaluation of information sources. Ethical and legal use of information. (Total tuition time: not available)



**L****LIFE SKILLS I (LF1125X)****CONTINUOUS ASSESSMENT**

*(Module custodian: Directorate of Student Development and Support)*

Academic, personal and socio-emotional skills development for students in higher education. Personal and social dimensions address: effective planning and self-management (goal setting and time management); Adjusting to university life (student life, diversity and change); Intra- and interpersonal skills development (conflict management, self-esteem, relationship management); Effective living (healthy living, HIV education, substance abuse); Academic dimension addresses: academic skills for university (e.g. critical thinking, creativity, managing assignments and assessments). (Total tuition time: not available)

**M****MATHEMATICS AND STATISTICS I (MAS115D)****1 X 3-HOUR PAPER**

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

Numerical computations, mensuration, equations, functions, descriptive statistics, linear regression and curve fitting. (Total tuition time: ± 60 hours)

**W****WIL IN FIRE TECHNOLOGY I (EXF216D)****WORK-INTEGRATED LEARNING****WIL IN FIRE TECHNOLOGY II (EXF316D)****WORK-INTEGRATED LEARNING**

*(Module custodian: Department of Physics)*

Training and experience necessary to achieve a specific position or rank. Students are evaluated in the critical tasks necessary to safely and adequately function in the required position. Practical training includes: human resource management, community and government relations, administration, inspection and investigation, emergency service delivery, communication and radio procedures, safety and facility management. (Total tuition time: not available)

