

## DIPLOMA IN MULTIMEDIA COMPUTING

Dip (Multimedia Computing) - NQF Level 6 (360 credits)

**Qualification code: DPMC20**

SAQA ID: 111914, CHE NUMBER: H/H16/E090CAN

Campus where offered:

Soshanguve South Campus

### REMARKS

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

Please take note that all completed applications received within the published due dates will be ranked. After consideration of the Departmental Student Enrolment Plan, only the top ranking applicants will be selected. Once a programme is full, a waiting list will be in place to provide an opportunity for applicants to fill places of those who did not register on time. Applicants will be informed of their status per official letter from the Office of the Registrar, alternatively, they can check their application status on the TUT website, [www.tut.ac.za](http://www.tut.ac.za).

• **APPLICANTS WITH A SENIOR CERTIFICATE OBTAINED 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 Mathematics.

**Recommended subjects:**

Computer Science and Physical Science.

**Selection criteria:**

Swedish formula.

SYMBOL	HG VALUE	SG VALUE
A	5	4
B	4	3
C	3	2
D	2	1
E	1	

Applicants who score 9 or more points according to the formula for academic merit will be invited for an interview or a risk profile test.

Applicants will be notified to make an appointment with the departmental secretary for the interview or test. This rule applies to all applicants, as well as to applicants who are already registered at other institutions.

• **APPLICANTS WITH A NATIONAL SENIOR CERTIFICATE OBTAINED 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 4 for English (home language or first additional language), 5 for Mathematics or Technical Mathematics or 7 for Mathematical Literacy.

**Recommended subjects:**

Information Technology.



**Selection criteria:**

To be considered for this qualification, applicants must have an Admission Point Score (APS) of at least **26** (with Mathematics or Technical Mathematics) or **28** (with Mathematical Literacy). Applicants with a score of **23** (with Mathematics or Technical Mathematics) or **25** (with Mathematical Literacy) will be considered for the extended programme. Life Orientation is excluded for APS calculation. Candidates who successfully completed the National Diploma: Information Technology (Extended) might also be considered.

**Assessment procedure(s):**

No further assessment will be done. Applicants who achieve the minimum APS will be considered until the programme complement is full.

- **APPLICANTS WITH A NATIONAL CERTIFICATE (VOCATIONAL) AT NQF LEVEL 4:**

**Admission requirement(s):**

A National Certificate (Vocational) at NQF Level 4 with a bachelor's degree or a diploma endorsement, with at least 50% (APS of 4) for English (home language or first additional language) and 60% for Mathematics (APS of 5) or 80% for Mathematical Literacy (APS of 7) and 50% for Life Orientation (excluded for APS calculation), and 50% (APS of 4) 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 **26** (with Mathematics) or **28** (with Mathematical Literacy). Applicants with a score of **23** (with Mathematics) or **25** (with Mathematical Literacy) will be considered for the extended programme. Life Orientation is excluded for APS calculation. Candidates who successfully completed the National Diploma: Information Technology (Extended) might also be considered.

**Assessment procedure(s):**

No further assessment will be done. Applicants who achieve the minimum APS will be considered until the programme complement is full.

- **APPLICANTS WITH A NATIONAL N CERTIFICATE AS PUBLISHED IN NATED 191: (NQF LEVEL 4):**

**Admission requirement(s):**

A National Senior Certificate and a National N Certificate as published in Nated 191: N3 (NQF Level 4) issued by both the Department of Higher Education (DHET) and the Council for Quality Assurance in General and Further Education and Training (Umalusi), with at least 50% (APS of 4) for English and 60% (APS of 5) for Mathematics N3.

- b. *Recognition of Prior Learning (RPL), equivalence and status:*  
See Chapter 30 of Students' Rules and Regulations.
- c. *Intake for the qualification:*  
January only.
- d. *Presentation:*  
Day classes. Classes and assessments take place during the week and on Saturdays.
- e. *Minimum duration:*  
Three years.
- f. *Exclusion and readmission:*  
See Chapter 2 of Students' Rules and Regulations.
- g. *WIL (Work-Integrated Learning):*  
See Chapter 5 of Students' Rules and Regulations.



*h. Personal equipment:*

Access to a laptop or desktop computer is essential to participate in multimodal learning experiences as well as to complete assignments and projects. NSFAS students receive an allowance to acquire a laptop, and using this allowance for this purpose is critical for academic success. Students are encouraged to consult the faculty website where the minimum requirements for specific programmes are published.

## CURRICULUM

### FIRST YEAR

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
16P105X	Communication for Academic Purposes	(5)	(10)	
INF125D	Information Literacy (block module)	(5)	(3)	
LFS125X	Life Skills (block module)	(5)	(2)	

#### FIRST SEMESTER

CFA115D	Computing Fundamentals A	(5)	(15)	
COH115D	Computational Mathematics	(5)	(15)	
PPA115D	Principles of Programming A	(5)	(15)	

#### SECOND SEMESTER

CFB115D	Computing Fundamentals B	(5)	(15)	Computing Fundamentals A
DCT115D	Discrete Structures	(5)	(15)	Computational Mathematics
PPB115D	Principles of Programming B	(5)	(15)	Principles of Programming A
WEB115D	Web Computing	(5)	(15)	Principles of Programming A

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

### SECOND YEAR

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
DTP216D	Database Principles	(6)	(15)	
MTE216D	Multimedia Technology	(6)	(15)	
OOP216D	Object-Orientated Programming	(6)	(15)	Principles of Programming B
TMO216D	3D Modelling	(6)	(15)	

TOTAL CREDITS FOR THE SEMESTER: **60**

#### SECOND SEMESTER

AOP216D	Advanced Object-Orientated Programming	(6)	(15)	Object-Orientated Programming
GMP216D	Games Programming	(6)	(15)	Object-Orientated Programming
MUA216D	Multimedia Applications	(6)	(15)	
TAN216D	3D Animation	(6)	(15)	3D Modelling

TOTAL CREDITS FOR THE SEMESTER: **60**

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



## THIRD YEAR

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
<b>FIRST SEMESTER</b>				
IVE316D	Interactive Virtual Environments	(6)	(15)	Games Programming
MGV316D	Motion Graphics and Visual Effects	(6)	(15)	3D Animation
MMD316D	Multimedia for Mobile Devices	(6)	(15)	Advanced Object-Orientated Programming
SOD316D	Sound Design	(6)	(15)	
TOTAL CREDITS FOR THE SEMESTER:			60	
<b>SECOND SEMESTER</b>				
WCM316D	WIL	(6)	(60)	Interactive Virtual Environments Motion Graphics and Visual Effects Multimedia for Mobile Devices Sound Design
TOTAL CREDITS FOR THE SEMESTER:			60	
TOTAL CREDITS FOR THE THIRD YEAR:			<b>120</b>	
TOTAL CREDITS FOR THE QUALIFICATION:			<b>360</b>	

### 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. At time of publication, the syllabus content was defined as follows:

#### A

#### **ADVANCED OBJECT-ORIENTED PROGRAMMING (AOP216D) 1 X 4-HOUR COMPUTER-BASED** *(Module custodian: Department of Computer Science)*

This module covers advanced concepts of object-orientated programming using the Java language. The module builds upon the knowledge and skills obtained in the "Object-oriented Programming" module offered in the first semester of the second year. The focus of this module is to introduce students to advanced object oriented programming concepts in Java such as data structures (lists and queues), multithreading, database connectivity and client-server applications. The student will be able to apply his/her knowledge of these advanced programming concepts to the problems arising in the software industry. (Total notional time: 150 hours)

#### C

#### **COMMUNICATION FOR ACADEMIC PURPOSES (16P105X) 1 X 3-HOUR PAPER** *(Module custodian: ICT First Years' and Foundation Unit)*

This module applies a variety of listening and note taking skills for academic and professional purposes, different reading strategies appropriate to the purpose for reading in both an academic and professional environment, composes a selection of written texts related to a specific field of study. Plan, draft, revise and edit written work for clarity, coherence, style and appropriateness. (Total notional time: 100 hours)



**COMPUTATIONAL MATHEMATICS (COH115D)****1 X 3-HOUR PAPER****(Module custodian: Department of Computer Science)**

The focus of this module is to teach students mathematical reasoning which will be necessary to solve complex programming problems in other modules. The theoretical knowledge obtained from this module is expected to develop students to solve real world computer systems challenges by applying logic from a mathematical perspective relating to computer applications. (Total notional time: 150 hours)

**COMPUTING FUNDAMENTALS A (CFA115D)****1 X 3-HOUR PAPER****(Module custodian: End User Computing Unit)**

The focus of this module is to lay the foundation for the design and implementation of computer programming solutions on different platforms, including the web and mobile devices by enabling students to gain basic computer professional skills in the area of computer structure, operating systems, security and computer professional practice. (Total notional time: 150 hours)

**COMPUTING FUNDAMENTALS B (CFB115D)****1 X 3-HOUR PAPER****(Module custodian: End User Computing Unit)**

This module prepares the student to apply programming and software engineering principles to provide solutions to a range of problems emanating from the IT industry. The focus of this module is to lay the foundation for the design and implementation of computer programming solutions on different platforms, including the web and mobile devices. The student will be able to apply his/her knowledge of concepts and principles relating to information systems, databases, systems analysis, system's requirements, IT project justification and internet (web). (Total notional time: 150 hours)

**D****DATABASE PRINCIPLES (DTP216D)****1 X 4-HOUR COMPUTER-BASED****(Module custodian: Department of Computer Science)**

The focus of this module is to lay the foundation for the design and implementation of database programming solutions on different platforms, including the web and mobile devices. The student will be able to apply his/her knowledge of database concepts such as data insertion and data selection (data retrieval), database normalisation to solve database related problems arising in the software industry. (Total notional time: 150 hours)

**DISCRETE STRUCTURES (DCT115D)****1 X 3-HOUR PAPER****(Module custodian: Department of Computer Science)**

The focus of this module is to teach students notations used in Discrete Structures related to Computer Science. The module will teach the rudiments of elementary mathematical reasoning which will be necessary to solve complex programming problems in other modules. The student will be able to apply his/her knowledge of discrete structures principles, algorithms, number theory and cryptography to the problems arising in the software industry. (Total notional time: 150 hours)

**G****GAMES PROGRAMMING (GMP216D)****1 X 4-HOUR COMPUTER-BASED****(Module custodian: Department of Computer Science)**

This module provides an overview coverage of game design, programming, and implementation of 3D games on different platforms, including the mobile, web and computer platforms. The focus of this module is to lay the foundation for the design and implementation of gaming solutions. (Total notional time: 150 hours)

**I****INFORMATION LITERACY (INF125D)****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. Organisation and management of information. (Total notional time: 30 hours)



**INTERACTIVE VIRTUAL ENVIRONMENTS (IVE316D)****1 X 4-HOUR COMPUTER-BASED****(Module custodian: Department of Computer Science)**

This module provides an overview of planning, designing, and developing effective desktop, mobile, and browser-based interactive virtual environments. The focus of this module is to lay the foundation for the design and implementation of interactive virtual environment solutions on various platforms. (Total notional time: 150 hours)

**L****LIFE SKILLS (LFS125X)****CONTINUOUS ASSESSMENT****(Module custodian: Directorate of Student Development and Support)**

Personal, socio-emotional and academic skills development for students in higher education. This module includes 1. Intra- and interpersonal skills (e.g. emotional intelligence, relationships, and conflict management); 2. General study skills (e.g. time management, goal setting, learning styles); 3. Health and wellness (e.g. HIV/AIDS, GBV issues, substance abuse); 4. Student life and adjustment (e.g. identity development, adjusting to a higher education environment); and 5. Financial management. (Total notional time: 20 hours)

**M****MOTION GRAPHICS AND VISUAL EFFECTS (MGV316D)****1 X 4-HOUR COMPUTER-BASED****(Module custodian: Department of Computer Science)**

This module prepares the student to apply motion graphics principles to provide solutions to a range of problems emanating from the IT industry. The focus of this module is to lay the foundation for the design and implementation of motion graphics solutions on different platforms, including the web and mobile devices. The module builds upon the knowledge and skills obtained in the "3D modelling" module. (Total notional time: 150 hours)

**MULTIMEDIA APPLICATIONS (MUA216D)****1 X 4-HOUR COMPUTER-BASED****(Module custodian: Department of Computer Science)**

This module prepares the student to develop 2D animations to be incorporated on the Web, computer, and mobile applications. The focus of this module is to lay the foundation for the design and implementation of 2D animation applications. (Total notional time: 150 hours)

**MULTIMEDIA FOR MOBILE DEVICES (MMD316D)****1 X 4-HOUR COMPUTER-BASED****(Module custodian: Department of Computer Science)**

This module prepares the student to apply mobile computing principles to provide solutions to a range of problems emanating from the IT industry. The focus of this module is to lay the foundation for the design and implementation of mobile applications on Google Android Operating System. The student will be able to apply his/her knowledge of basic programming concepts such as Android development platform, Android user interface design and programming; Multi-threading in Android, Android storage techniques; and Location-based Services and notifications to the problems arising in the software industry. (Total notional time: 150 hours)

**MULTIMEDIA TECHNOLOGY (MTE216D)****1 X 4-HOUR COMPUTER-BASED****(Module custodian: Department of Computer Science)**

This module prepares the student to be competent in all multimedia concepts and have a solid foundation in the planning process and design considerations, while covering industry standard applications and emerging technologies. The focus of this module is to lay the foundation for the design and implementation of graphical editing tools as well as digital photography. The module builds the foundation for higher-level modules that deal with graphical solutions. (Total notional time: 150 hours)

**O****OBJECT-ORIENTED PROGRAMMING (OOP216D)****1 X 4-HOUR COMPUTER-BASED****(Module custodian: Department of Computer Science)**

This module covers intermediate concepts of object-orientated programming using the Java language. The module builds upon the knowledge and skills obtained in the "Principles of Programming B" module offered in the second semester of the first year. Furthermore, it introduces students to intermediate object oriented programming concepts in Java such as arrays of objects, inheritance, polymorphism, exception handling, files and graphical user interface components. The student will be able to apply his/her knowledge of these advanced programming concepts to the problems arising in the software industry. (Total notional time: 150 hours)



**P****PRINCIPLES OF PROGRAMMING A (PPA115D)****1 X 4-HOUR COMPUTER-BASED****(Module custodian: Department of Computer Science)**

The focus of this module is to introduce students to the basic object oriented programming (OOP) concepts in VB.NET such as the importance of OOP in the software industry, identification of objects from problem statements, relationship between objects and classes, usage of predefined classes in programs, arithmetic operators, data types and their conversion. (Total notional time: 150 hours)

**PRINCIPLES OF PROGRAMMING B (PPB115D)****1 X 4-HOUR COMPUTER-BASED****(Module custodian: Department of Computer Science)**

This module introduces students to intermediate object oriented programming concepts in VB.NET such as selection control structures, iteration control structures; and manipulation of strings, characters and primitive arrays. (Total notional time: 150 hours)

**S****SOUND DESIGN (SOD316D)****1 X 4-HOUR COMPUTER-BASED****(Module custodian: Department of Computer Science)**

This module prepares the student to apply audio design principles to provide solutions to a range of problems emanating from the IT industry. The focus of this module is to lay the foundation for the design and implementation of audible sound solutions on different platforms, including the web and mobile devices. (Total notional time: 150 hours)

**T****3D ANIMATION (TAN216D)****1 X 4-HOUR COMPUTER-BASED****(Module custodian: Department of Computer Science)**

This module prepares the student to produce 3D animations and video outputs to provide solutions to a wide range of disciplines. The focus of this module is to design and implement 3D animations on different platforms, including web, games, simulations and virtual reality applications. (Total notional time: 150 hours)

**3D MODELLING (TMO216D)****1 X 4-HOUR COMPUTER-BASED****(Module custodian: Department of Computer Science)**

This module provides an overview on planning, designing, and developing effective 3D models using 3D modelling software. The focus of this module is to lay the foundation for the design, texturing and implementation of 3D models on different platforms, including the 3D games and simulation environments. (Total notional time: 150 hours)

**W****WEB COMPUTING (WEB115D)****1 X 4-HOUR COMPUTER-BASED****(Module custodian: Department of Computer Science)**

This module prepares the student to apply programming and software engineering principles to provide solutions to a range of problems emanating from the IT industry. The focus of this module is to lay the foundation for the design and implementation of computer programming solutions on different platforms, including the web and mobile devices. The student will be able to apply his/her knowledge of basic programming concepts such planning, designing, scripting and developing effective Web applications using client-side Web technologies to the problems arising in the software industry. (Total notional time: 150 hours)

**WIL (WCM316D)****WORK-INTEGRATED LEARNING****(Subject custodian: Department of Computer Science)**

This module prepares the student to integrate the application of the concepts and principles learned through the theoretical learning of all the modules in the qualification. The student will be able to apply his/her knowledge of theory acquired in the qualification. Upon completion of the module, the student will be able to analyse and behave professionally in the working environment. (Total notional time: 600 hours)

