No. 6 **9 January 2009**

SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)

In accordance with Regulation 24(c) of the National Standards Bodies Regulations of 28 March 1998, the Standards Generating Body (SGB) for

Pharmacy

registered by Organising Field 09 – Health Sciences and Social Services, publishes the following Qualification for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purpose of the Qualification. The full Qualification can be accessed via the SAQA web-site at **www.saqa.org.za**. Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, SAQA House, 1067 Arcadia Street, Hatfield, Pretoria.

Comment on the Qualification should reach SAQA at the address below and ***no later than 9 February 2009*** All correspondence should be marked **Standards Setting – SGB for Pharmacy** and addressed to

The Director: Standards Setting and Development
SAQA
Attention: Mr. E. Brown
Postnet Suite 248
Private Bag X06
Waterkloof
0145
or faxed to 012 – 431-5144
e-mail: ebrown@saqa.org.za

P.P. **D. MPHUTHING**
ACTING DIRECTOR: STANDARDS SETTING AND DEVELOPMENT

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:
Bachelor of Pharmacy

SAQA QUAL ID	***QUALIFICATION TITLE***		
65130	Bachelor of Pharmacy		
ORIGINATOR		***PROVIDER***	
SGB Pharmacy			
QUALIFICATION TYPE	***FIELD***	***SUBFIELD***	
National First Degree	9 - Health Sciences and Social Services	Curative Health	
ABET BAND	***MINIMUM CREDITS***	***NQF LEVEL***	***QUAL CLASS***
Undefined	480	Level 7	Regular-ELOAC

This qualification does not replace any other qualification and is not replaced by another qualification.

PURPOSE AND RATIONALE OF THE QUALIFICATION
Purpose:

This qualification is for those learners who wish to practise in the field of pharmacy. The purpose of the Qualification is to prepare students to practise as entry level generalist pharmacists and to practise in any of the recognised fields of pharmacy.

Pharmacists in South Africa practice in a multidisciplinary health care service environment. The basic education programme (First Degree) for pharmacy is designed to provide graduates with a sound and balanced grounding in the natural, pharmaceutical and health care sciences. It thus forms the required foundation for the practice of their chosen profession in all the relevant pharmacy sectors. This includes community, institutional, industrial and academic pharmacy. Practical skills, knowledge and training are balanced with a comprehensive theoretical background.

The diversity and complexity of medicines requires pharmacists to pay particular attention to patient counselling and advice to ensure that medicine is taken correctly. In many practice settings, pharmacists take responsibility for the management of patients' medicine usage, including medicines used for chronic diseases and those for both ambulatory and hospitalised patients. In addition, the profession has been transformed from one that mainly supplies products, to one that, in co-operation with other health care providers, also provides other health care services. It is therefore critically important to health care in this country to produce pharmacists who are able to satisfy the need for comprehensive pharmaceutical services.

All outcomes must incorporate current legal and ethical requirements pertaining to pharmacy practice.

Qualifying learners will be able to:

> Integrate and apply foundational scientific knowledge and principles to pharmaceutical sciences.
> Apply integrated knowledge of product development and formulation in the compounding, manufacturing, distribution and dispensing of pharmaceutical products.
> Compound, manipulate and prepare medication in compliance with Good Pharmacy Practice (GPP) rules and/or Good Manufacturing Practice (GMP) guidelines, where applicable.

> Manage and control the development, manufacture, packaging and registration of pharmaceutical products.
> Manage the logistics of the selection, procurement, storage, distribution and disposal of pharmaceutical products.
> Dispense medication and ensure optimal pharmaceutical care for a patient in compliance with Good Pharmacy Practice rules (GPP).
> Apply a pharmaceutical care management approach to ensure rational medicine use.
> Initiate therapy, where appropriate, within the scope of practice of a pharmacist.
> Promote public health.
> Integrate and apply management principles in the practice of pharmacy.
> Participate in research.

Rationale:

The National Master Scarce Skills List for South Africa, issued by the Ministry of Labour, reflects the skills that are most needed in South Africa, and on which efforts to acquire and develop skills must be focussed. The 2007 list names pharmacy as a scarce skill, and gives as the reason for its inclusion on the list that pharmacists ensure safe and quality use of medicines and optimise health outcomes by contributing to selecting, prescribing, monitoring and evaluating medicine therapy, and researching, testing and developing pharmaceuticals and medical products.

In the past two decades, the role of the community pharmacist has changed and developed to meet the needs of the rapidly changing health care environment. The dispensing of prescribed medicines and the provision of advice and self-medication remain vitally important parts of the service provided by pharmacists. An equally important role however, is to advise other health care professionals on the rational and safe use of medicines. They also accept the responsibility for ensuring that medicines are safely and effectively used by patients for optimal therapeutic outcome of the treatment. This applies to both the well-being of the individual and the overall improvement of community health. The changing role thus requires practising pharmacists to make a contribution to appropriate prescribing of medicines and to advise patients on how to use medicines effectively, as well as to educate the community on disease prevention measures and health promotion in general. The implementation of pharmaceutical care principles requires the pharmacist to use a range of processes to facilitate the responsible provision of medicinal treatment and to monitor the progress of the patient until a measurable result is achieved, thus improving the patient's quality of life.

The role of the industrial pharmacist is to ensure that all medicines available in South Africa are of the required quality, safety and efficacy.

The Degree programme for entry level pharmacists has been designed to ensure that the graduate has the necessary skills, knowledge, principles and values to meet the requirements, including the ethical and legal demands, of the profession. A commitment to lifelong continuing professional development must be engendered in every pharmacist to produce a professional competent to deal with the complexity and ever-changing challenges of the healthcare environment.

Pharmacists are required to provide the services in diverse settings in response to a changing set of mainly local health care priorities and needs. Developments in pharmacy practice are also dictated by regional, national and international policies and factors and pharmacists must recognise and respond to these.

RECOGNIZE PREVIOUS LEARNING?
Y

LEARNING ASSUMED IN PLACE

> Mathematics at NQF Level 4 or recognised equivalent.
> Physical Science at NQF Level 4 or recognised equivalent.

Life Sciences at NQF Level 4 or recognised equivalent and Computer literacy at NQF Level 3 are strongly recommended.

It is also strongly recommended that all learners accessing this qualification are able to read, write and communicate in English as most learning material is available only in the English medium.

Recognition of Prior Learning:

This qualification may be achieved in whole or in part through the process of recognition of prior learning at the request of the learner and the discretion of the education and training institution and in agreement with the relevant ETQA.

Access to the Qualification:

Learners who wish to enter into study towards achieving this Qualification, in addition to fulfilling the requirements indicated under the learning assumed to be in place, must be in possession of a Senior Certificate with Matriculation Exemption or equivalent NQF Level 4 qualification and must comply with the Institutional requirements for entry into this Qualification.

QUALIFICATION RULES
In order to be credited with this Qualification, the learner is required to achieve the following combination of credits:

> Fundamental Component: 120 Credits are compulsory.
> Core component: 330 Credits are compulsory.
> Elective component: a minimum of 30 Credits are required.

EXIT LEVEL OUTCOMES
1. Integrate and apply foundational scientific principles and knowledge to pharmaceutical sciences (120 Credits).
> Range of scientific principles and knowledge includes, but is not limited to:
> Chemistry, microbiology, biochemistry, mathematics, physics, physiology, pathophysiology, anatomy, social and behavioural sciences, including biomedical ethics.

2. Apply integrated knowledge of product development and formulation in the compounding, manufacturing, distribution and dispensing of pharmaceutical products (80 Credits).

3. Compound, manipulate and prepare medication for individual patients (50 Credits).

4. Manage the manufacture, packaging and registration of pharmaceutical products (30 Credits).
> Range of pharmaceutical products includes, but is not limited to:
> Medicines, veterinary products, biological products.

5. Manage the logistics of the selection, procurement, storage, distribution and disposal of pharmaceutical products (20 Credits).

6. Dispense medication and ensure optimal pharmaceutical care for the patient in compliance with Good Pharmacy Practice (GPP) (40 Credits).
> Range of dispensing process includes, but is not limited to:
> Interpretation and evaluation, preparation and labelling, provision of information and instructions, therapeutic intervention and supply of medicines to the patient.

7. Apply a pharmaceutical care management approach to ensure rational medicine use (45 Credits).

8. Initiate therapy, where appropriate, within the scope of practice of a pharmacist (25 Credits).

9. Promote public health (20 Credits).

10. Integrate and apply management principles in the practice of pharmacy (20 Credits).

11. Participate in research (30 Credits).

Critical Cross-field Outcomes:

> Identify, analyse and solve problems related to the provision of pharmaceutical care using creative approaches.
> Work effectively with others as a member of a team of health care professionals in applying pharmaceutical care management principles.
> Organise and manage activities responsibly and effectively in contributing to the institution and broader community.
> Collect, analyse, organise and critically evaluate information in a chosen topic to develop a pharmaceutical product or enhance pharmaceutical care programmes and services.
> Communicate effectively using visual, mathematical and/or language skills in the modes of oral, written and/or practical presentation in a sustained discourse.
> Use science and technology in pharmacy effectively and critically, showing responsibility towards the environment and health of others by promoting ethical conduct in all contexts.
> Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.

ASSOCIATED ASSESSMENT CRITERIA
Assessment Criteria for Exit Level Outcome 1:

1.1 Physical, chemical and biological principles are integrated and applied in the development, formulation, compounding, manufacturing, drug supply management and dispensing of pharmaceutical products.
1.2 Anatomical, physiological, biochemical and pathophysiological principles and knowledge are integrated and applied in the initiation of therapy and provision of pharmaceutical care.
1.3 Social and behavioural principles and knowledge are integrated and applied in the initiation of therapy and provision of pharmaceutical care.

Assessment Criteria for Exit Level Outcome 2:

2.1 Physicochemical and biopharmaceutical principles are applied in the formulation and development of pharmaceutical products.
2.2 Physical, chemical and biological principles are applied in the manufacturing, compounding and quality assurance of pharmaceutical products.
2.3 Physicochemical and biopharmaceutical principles are applied in compounding and dispensing of pharmaceutical products.
2.4 Pharmaceutical product integrity is maintained during storage and distribution according to GPP.

Assessment Criteria for Exit Level Outcome 3:

3.1 Standard Operating Procedures (SOPs) are generated and implemented in compliance with GPP.
3.2 Pharmaceutical preparations are compounded in accordance with GMP.

3.3 Sterile admixtures are produced in accordance with aseptic techniques and principles of GMP and GPP.
3.4 Records are generated for each of the preparations produced according to organisational procedures and legal requirements.

Assessment Criteria for Exit Level Outcome 4:

4.1 Medicines registration dossiers for pharmaceutical products using the supplied data and documentation are compiled in accordance with the current relevant legislation.
4.2 Master production documentation for the manufacture of pharmaceutical products is interpreted in terms of GMP.
4.3 The GMP requirements for generation and reconciliation of batch manufacturing documents are described.
4.4 Dosage forms are manufactured on a laboratory scale according to plan and standard operating procedures.
> Range of dosage forms includes, but is not limited to:
> Solid, liquid, semi-solid, sterile and non-sterile.
4.5 Packaging labelling and package inserts are contextualised according to the product, GMP and the current relevant legislation.
4.6 A Quality Management System (QMS) is critically evaluated in accordance with GMP.
> Range aspects of QMS includes, but is not limited to:
> Quality assurance (QA) and quality control procedures, in-process controls, validation, qualification and Good Laboratory Practice (GLP).

Assessment Criteria for Exit Level Outcome 5:

5.1 The selection of medicines and related products is managed according to rational scientific and evidence-based principles and patient needs.
> Range of selection criteria includes, but is not limited to:
> Morbidity, pharmaco-epidemiological data, quality medicine products, bioavailability, therapeutic equivalence, generic equivalence and pharmaco-economic data and availability.
5.2 The quantity of medicines needed is identified according to standard methods.
> Range of methods includes, but is not limited to:
> Patient morbidity, standard treatment guidelines and the adjusted consumption method.
5.3 The procurement of medicines and related products is managed according to organisational policies and procedures.
> Range of procurement criteria include, but is not limited to:
> Vendor qualification, reliability and cost effectiveness.
5.4 Pharmaco-economic knowledge, principles, models and theories are applied in the provision of cost-effective therapy and pharmaceutical services.
5.5 The storage and distribution of medicines and related products is managed according to Good Pharmacy Practice (GPP), Good Distribution Practice (GDP) and Good Wholesaling Practice (GWP).
> Range of storage and distribution considerations includes, but is not limited to:
> Storage conditions, security, pest control and storage space.
5.6 Disposal of expired and unwanted pharmaceutical products is managed according current relevant legislation and guidelines.

Assessment Criteria for Exit Level Outcome 6:

6.1 The prescription is evaluated in terms of the appropriateness of the prescribed medication according to GPP.
> Range of evaluation criteria includes, but is not limited to:
> Indications, safety, possible contra-indications, interactions, treatment duplication, legal and economic implications.

6.2 Medicines are prepared and labelled in accordance with GPP and current legislative requirements.
6.3 Appropriate drug information sources and information systems are accessed and the relevant information communicated to the patient in order to optimise therapeutic outcomes.
6.4 A pharmaceutical care plan, including design, implementation and monitoring, is developed in collaboration with other health care professionals and the patient.
6.5 Records are kept in accordance with the GPP and current legislative requirements.

Assessment Criteria for Exit Level Outcome 7:

7.1 The philosophy and principles of pharmaceutical care are demonstrated in terms of optimising therapeutic outcomes for a specific patient.
7.2 A pharmaceutical care management approach is applied in collaboration with other health care professionals and the patient.
7.3 Rational drug use is facilitated by applying pharmaceutical care, medicine utilisation reviews and the principles of pharmaco-economics.
7.4 Pharmacovigilance is practised and Adverse Drug Events are reported.

Assessment Criteria for Exit Level Outcome 8:

8.1 Relevant clinical information and history is obtained from the patient.
8.2 Appropriate advice, including referral, and/or medicines are supplied for specific symptoms according to GPP and principles of pharmaceutical care.
8.3 Appropriate records are kept and therapeutic outcomes monitored in accordance with GPP and principles of pharmaceutical care.

Assessment Criteria for Exit Level Outcome 9:

9.1 Advice on disease management is provided in terms of use of medicinal and non-medicinal options.
9.2 Tools are designed to inform the public on health care and lifestyle, in health promotion, disease prevention, disease management and medicine usage, in addition to enabling the recognition and management of risk factors.
9.3 Promotive health services are offered in terms of current health policy, epidemiological information and current legislative requirements.
9.4 The public are assisted to recognise and manage health risk factors in terms of medication and disease states.
9.5 Screening tests are used to assist in counselling, therapeutic intervention, referral and early detection of disease.
9.6 Appropriate records are kept and therapeutic outcomes monitored in accordance with GPP and pharmaceutical care principles.

Assessment Criteria for Exit Level Outcome 10:

10.1 Basic financial management principles are applied in the practice of pharmacy.
10.2 Human resource management principles are applied in the practice of pharmacy.
10.3 Strategic management principles are applied in the practice of pharmacy.
10.4 Marketing management and change management principles are applied in the practice of pharmacy.
10.5 Logistics management principles are applied throughout in the medicines supply chain.
10.6 Relationships with patients, caregivers and other health professionals and workers are managed in accordance with professional practice standards.

Assessment Criteria for Exit Level Outcome 11:

11.1 The principles of qualitative and qualitative research are explained.

11.2 A research proposal is formulated.
> Range of formulation requirements includes, but is not limited to:
> Delineating the problem selecting the research methodology, conducting literature review and structure.
11.3 Research is conducted ethically in accordance with established research methodology practice.
> Range of research conduct includes, but is not limited to:
> Gathering and processing, capturing, and interpreting information.
11.4 Findings and conclusions are presented in oral and written formats in accordance with established research practice.

Integrated Assessment:

Integrated assessment at the level of the qualification provides an opportunity for learners to show that they are able to integrate concepts, ideas and actions across exit level outcomes to achieve competence that is grounded and coherent in relation to the purpose of the qualification. Integrated assessment should show how already demonstrated competence in individual areas can be linked and applied for the achievement of a holistic outcome as described in the exit level outcomes. Both formative and summative forms of assessment should be applied appropriately throughout the assessment process.

Integrated assessment must judge the quality of the observable performance, and also the quality of the thinking that lies behind it. Assessment tools must encourage learners to give an account of the thinking and decision-making that underpin their demonstrated performance. Some assessment practices will demand practical evidence while others may be more theoretical, depending on the type of outcomes to be assessed. The ratio between action and interpretation is not fixed, but varies according to the demands of the particular exit level outcome of the qualification. A broad range of task-orientated and theoretical assessment tools may be used, with the distinction between practical knowledge and disciplinary knowledge maintained so that each takes its rightful place.

INTERNATIONAL COMPARABILITY
The global Federation of Pharmacists and Pharmaceutical Scientists (FIP) represent two million pharmacists around the world through Member Organisations and Individual Members. FIP sets global pharmacy standards through professional and scientific guidelines, policy statements and declarations, as well as through its collaboration with other international organisations, including the World Health Organization (WHO) and other United Nations (UN) agencies. As a member organisation, The South African Pharmacy Council ensures that approved pharmacy schools embed these standards and guidelines in their learning programmes. The South African Bachelor of Pharmacy has been designed and generated with these standards and guidelines in mind.

Although all member countries offer pharmacy training in line with FIP and their offerings are therefore comparable, institutions from the following countries were considered for the purpose of identifying best practice: Australia, Egypt, India, the United States of America and the United Kingdom.

Australia:

The University of South Australia offers a four year programme requiring students to complete a total of 144 units of study. The first two years of the program provide a comprehensive coverage of biological and chemical sciences, followed in the third and fourth years by instruction and practical experience in the major disciplines of pharmacotherapeutics and pharmacology. The requirements for professional recognition are similar to the South African context. The programme comprises the following modules:

First Year:

> Chemistry 100.
> Mathematics 100.
> Biological Science 100.
> Communication in Health 100.
> Pharmaceutical Chemistry 101.
> Statistics and Research Methods.
> Biological Science 101.
> Pharmaceutics P 101.

Second Year:

> Biochemistry P 200.
> Physiology N 200.
> Pharmaceutical Chemistry 200.
> Pharmaceutics 200.
> Molecular and Chemical Basis of Therapeutics 201.
> Microbiology and Immunology P 201.
> Pharmaceutics P 201.
> Pharmacokinetics and Biopharmaceutics P 201.

Third Year:

> Pharmaceutics 300.
> Applied Pharmacotherapeutics 300.
> Pharmacology 300.
> Molecular and Chemical Basis of Therapeutics 300.
> Applied Pharmacotherapeutics 301.
> Pharmacology 301.
> Molecular and Chemical Basis of Therapeutics 301.

Fourth Year:

> Applied Pharmacotherapeutics 400 - Theory.
> Applied Pharmacotherapeutics 400 - Professional Practice.
> Ethics in Pharmacy.
> Pharmacy Elective 400
OR
> Pharmacy Honours Thesis 400.
> Applied Pharmacotherapeutics 401 - Theory.
> Applied Pharmacotherapeutics 401 - Professional Practice.
> Pharmacy Elective 401.
OR
> Pharmacy Honours Thesis 401.
> BUGE Elective.

Egypt:

The Faculty of Pharmacy at the Ain Shams University offers the Bachelor Degree in Pharmaceutical Sciences over five years, comprising the following modules:

Preparatory year:

> Inorganic Chemistry.

> Physics.
> Zoology.
> Botany.
> English Language.
> Mathematics in Pharmacy.
> Medical Terminology & Pharmacy Orientation.
> Physical Chemistry.
> Biophysics.
> Organic Chemistry.
> Botany.
> Anatomy & Histology.
> Computer Science and Biostatistics.

First year:

> Pharmaceutical organic chemistry.
> Pharmaceutics.
> Analytical pharmaceutical chemistry.
> Pharmacognosy.
> Physiology.
> Psychology & Sociology.
> Analytical Pharmaceutical chemistry.
> Physical Pharmacy.
> General microbiology & Immunology.

Second year:

> Pharmaceutical organic chemistry & Spectroscopy.
> Pharmaceutical microbiology.
> Pharmaceutics.
> Biochemistry.
> Parasitology.
> Instrumental analysis.
> Pharmaceutics.
> Medical microbiology.
> Biochemistry.
> Chemistry of Natural Products.
> Pathology.
> Pharmacy Administration.

Third year:

> Drug Design.
> Pharmacology (2).
> Clinical Biochemistry.
> Toxicology.
> Clinical Pharmacy (1).
> Pharmacokinetics.
> Industrial Pharmacy (2).
> Clinical Pharmacy (2).
> Clinical Pharmacology.
> Pharmacy Practice.
> Clinical Toxicology.
> Biotechnology.

> Pharmaceutical Chemistry.
> Pharmacy Law.
> First aid.

Fourth year:

> Dosage form design.
> Public Health.
> Analysis of food and cosmetics.
> Good Manufacturing Practice.
> Drug & Poison information.
> Quality Control of herbal products.
> Elective course (1).
> Elective course (2).

Elective Courses:

> Chemistry & Analysis of drugs.
> Chemotherapy.
> Planning, Marketing and Economics of Drugs.
> Clinical Pharmacy.
> Cosmetics.
> Hospital Pharmacy.
> Drug Interactions.
> Clinical Pharmacy Practice.
> Dosage Form Design.
> Clinical Pharmacokinetics.
> Drug Stability.
> Drugs of abuse & addiction.
> Nonprescription drugs (OTC).
> Communications in Pharmacy.
> Drugs spectrophotometric Quality Control.
> Microbiological Quality Control.
> Clinical Nutrition.
> Production of medicinal & aromatic plants.
> Tissue Culture.
> Industrial Microbiology.

India:

The Al-Ameen College of Pharmacy offers a Bachelor of Pharmacy over a period of four academic years comprising the following modules of study:

First year:

> Human Anatomy and Physiology.
> Pharmaceutics (Dispensing and General Pharmacy).
> Pharmacognosy.
> Pharmaceutical Organic Chemistry.
> Pharmaceutical Inorganic Chemistry.
> Mathematics or Biology.
> Computer Sciences.

Second year:

> Physical Pharmaceutics.
> Pharmaceutical Microbiology and Biotechnology.
> Pathophysiology.
> Applied Biochemistry.
> Pharmaceutical Organic Chemistry.

Third year:

> Medicinal Chemistry.
> Pharmaceutical Jurisprudence.
> Pharmacognosy and Pathochemistry.
> Pharmaceutical Engineering.
> Pharmcology.

Fourth year:

> Pharmcology and Biopharmaceutics.
> Instrumental and Biomedical Analysis.
> Pharmcology and Toxicology.
> Medicinal Chemistry.
> Industrial Pharmacognosy.

Electives:

> Industrial Pharmacy.
> Advanced Industrial Pharmacy.
> Pharmaceutical Production Management or Total Quality Management or Pharmaceutical.
> Management and Marketing or Herbal Rug Technology.
> Pharmacy Practice.
> Pharmacokinetics and Therapeutic drug monitoring.
> Hospital and Community Pharmacy or Clinical Pharmacy and Therapeutics.

United States of America (USA):

The Accreditation Council for Pharmacy Education stipulates that in addition to a first professional degree, which prepares the pharmacist for practice in the field, pharmacists may also choose to complete postgraduate study, which may consist of a non-degree residency experience, a graduate degree programme, or both.

A license to practice pharmacy in the USA s required in all states and territories of the USA. Each state has its own licensure procedure. To obtain a license, one must graduate from an accredited college of pharmacy with a Doctor of Pharmacy degree (Pharm.D), pass a state examination, and serve an internship under a licensed pharmacist. Many pharmacists are licensed to practice in more than one state and most states require continuing education for license renewal.

In the USA, few colleges of pharmacy admit students directly from high school. Most require one or two years of university level pre-pharmacy or pre-professional education. Pre-professional courses can be taken at any regionally accredited university, college, or junior college in the USA that offers a pre-pharmacy programme.

At least 5 years of study beyond secondary school are required to graduate from programmes accredited by the American Council on Pharmaceutical Education. A Bachelor of Science (BS) in Pharmacy, the degree traditionally received by most graduates, takes 5 years. The curriculum for the BS includes courses on:

> Pharmaceutical chemistry.
> Pharmacognosy.
> Pharmacology.
> Clinical pharmacy.
> Pharmacy administration.
> Pharmacy practice in the workplace.

United Kingdom (UK):

The School of Pharmacy at the University of London offers the Master of Pharmacy which is a 4 year undergraduate degree that leads, after a further year of paid pre-registration training, to registration as a pharmacist in Great Britain and is accredited by the Royal Pharmaceutical Society of Great Britain (RPSGB). British registration is recognised in other member states of the European Union.

The M Pharm degree is structured into two courses each year, with option modules and a project in the third and fourth years. The first year covers core concepts in:

> Chemistry.
> Biochemistry.
> Physiology.
> Pharmacy practice.

The second year covers:

> The science that underpins the delivery of drug molecules to their sites of action in the body.
> The discovery, synthesis and analysis of drugs, which includes those obtained from plants or by genetic technology.
> The mechanisms of action of drugs, which includes the study of physiology, cell biology and biochemistry.

The specialist options offered are in the disciplines of:

> Biochemistry.
> Chemistry.
> Drug delivery.
> Microbiology.
> Natural products.
> Pharmaceutics.
> Pharmacology.
> Pharmacy practice and toxicology.
> All students undertake a research project under the supervision of a member of academic staff.

Year One:

> Fundamentals of Pharmaceutical Science.
> Scientific Basis of Pharmacy.

Two:

> Pharmaceutical & Pharmacological Approaches to Therapeutics.
> Drug Development: From Design to Client.

Three:

Pharmaceutical & Biomedical Aspects of Cell & Molecular Biology:

> Research Project.
OR
> Extramural Placement in the UK or abroad.

Four:

> Research Project.
> Preparation for Practice.

The programme also covers the social and behavioural concepts of pharmacy practice, including the roles and responsibilities of the pharmacist in the provision of health care, prescription interpretation, dispensing and clinical pharmacy, and the law and ethics of pharmacy.

Conclusion:

Although this Qualification is geared towards meeting the specific needs of South Africa, it can be seen that it compares favourably with similar qualifications offered throughout the world and is in keeping with international best practice as advocated in particular by the FIP through the WHO.

ARTICULATION OPTIONS
This Qualification articulates horizontally with:

> Bachelor of Pharmaceutical Sciences, NQF Level 7.

This Qualification articulates vertically with:

> Master of Pharmacy, NQF Level 8.

MODERATION OPTIONS
> Any institution offering learning that will enable achievement of this qualification must be accredited by the relevant ETQA.

> External moderation of assessment will take place.

> The accredited training provider will oversee internal and external moderation of assessment in agreement with the relevant EQTA.

> Moderation should encompass achievement of competence described in exit level outcomes, critical cross-field outcomes and the integrated competence described in the qualification.

CRITERIA FOR THE REGISTRATION OF ASSESSORS
> Assessors and moderators must be registered as assessors and/or moderators with the relevant ETQA or an ETQA that has a Memorandum of Understanding with the relevant ETQA.
> Assessors and/or moderators must be in possession of a qualification at a minimum of one level above that of this Qualification in a relevant field of study and must have experience in pharmacy practice.

NOTES
> All learners must be registered as learners with the South African Pharmacy Council (SAPC) for the duration of the period of learning as specified current relevant legislation and in agreement with the relevant ETQA.

> In addition, once they have successfully completed the Qualification, those learners who wish to practise as Pharmacists will be required to register with the SAPC as pharmacy interns and carry out the duties of a pharmacist intern as defined in the relevant Scope of Practice. Upon completion of the internship and satisfying the pre-registration requirements of the SAPC, they will register as Pharmacists with the SAPC. For the first year after registration they are required to perform pharmaceutical service, as defined in the relevant Regulations of the current Pharmacy Act.
> The range of elective learning areas offered will be dependent on the approval of the provider and the relevant ETQA, in agreement with the SAPC.
> Credit values reflected for each exit level outcome should be regarded as a guideline only.

UNIT STANDARDS
This qualification is not based on Unit Standards.

LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION
None