1. Programme Specification

1. Awarding Institution	2. Teaching Institution	3. Faculty/Department
October University for Modern Sciences and Arts	October University for Modern Sciences and Arts	Faculty of Pharmacy

4.Departments	Codes	Supervise courses of
Analytical Chemistry Department	PC	Psychology
Biochemistry Department	PB	Mathematics/ Research Methodology
Clinical Pharmacy Department	PL	------
Microbiology and Immunology Department	PM	------
Organic Chemistry Department	PC	English
Pharmaceutics and Industrial Pharmacy Department	PT	Ethics and safety
Pharmacology and Toxicology Department	PO	Anatomy and Histology
Pharmacognosy Department	PG	Computer Science
Pharmaceutical Chemistry Department	PC	Marketing and business

5. Final Award	6. Accredited by:
Bachelor of Pharmacy	Egyptian Supreme Council of Universities (ESCU)

7. External Reference Points, e.g. subject benchmark statements and professional body requirements

- Egyptian Supreme Council of Universities regulations
- Committee for Pharmacy Education set up by the ESCU criteria
- National Academic Reference Standards (NARS)
- QAA subject benchmark statements
- MSA University council
- MSA Faculty of Pharmacy Quality Assurance Audit Unit.

8. Entry Requirements

- MSA follows the regulations and requirements of the Egyptian Supreme Council of Universities and the Egyptian Admission Office for Students Recruitment, which are subject to changes on a yearly basis.
- Prospective students have to pass the MSA English placement test before enrolment.
- For transfer students (from either a different faculty or different University), an Equivalence Committee, comprising the heads of departments and the dean is responsible for reviewing and comparing transferable course descriptions, and deciding which courses are to be considered equivalent to cohort courses delivered in the Faculty, the committee's report is then raised to the University president and the admission office.

9. Educational Aims of the Programme and Potential Career Destinations of Graduates:

The Bachelor of Pharmacy programme aims to provide the graduate with the necessary knowledge, skills and attitudes needed for his/her career development and develop professional competencies in different fields of pharmacy practice especially patient care, community service and industry preparing him/her for various pharmaceutical job careers and helping him/her to be a self and continuous learner.

10.Graduate Attributes

The programme is aimed at developing the MSA graduate attributes, as well as the Greenwich graduate attributes. This is reflected in its learning outcomes and will be embedded in its specific discipline.

The MSA University always aims at developing a graduate who is able to face all the challenges that he/she may face during their future life.

The students are expected to develop the following attributes that will endow them with different skills and behaviors that will prepare them for the future careers.

1. **Scholarship and Autonomy**

The MSA University is committed to developing graduates who:

a. Think creatively, independently, analytically and are interested in new areas of investigation.
b. Understand their discipline or their profession practice.
c. Appreciate discipline and forms of professional practice beyond their own and draw connections between them.
d. Intellectually curious, responsive to challenges, and demonstrate initiatives and resilience.

There are several courses that aid the students in developing independence. For instance, the Research Methodology (RS 402) course supplies him/her with the necessary practical skills in gathering and the utilization of information. In addition, the Ethics and safety course (RS 302) provides the students with the knowledge regarding the different codes of ethics utilized internationally and their application in different environments and conditions and provide him/her with the ability to conduct him/herself ethically in a variety of settings.

In addition, the different clinical courses; Clinical Pharmacokinetics (PL 402), Clinical Pharmacy and Drug Information (PL 504), Pharmacotherapy of Diseases (PL 505) and Therapeutics (PL 503) as well as the Pharmacy Practice course (PL 403) provided by the programme familiarize the student with the techniques and information required to optimize the use of medication in the treatment of disease and the management of patients as well as the dispensing of prescriptions and Over The Counter (OTC) medication. This gives the MSA pharmacy graduates a well-balanced wide understanding of their discipline and the skills required to excel independently in their professional practice. Moreover, these courses provide the students with the skills required to interact with other healthcare professionals to optimize patient management and treatment therefore gaining appreciation towards other healthcare professions.

Furthermore, students are expected to undertake a graduation project during their final year of study which enables the students to think creatively to solve diverse and unexpected problems, to critically analyze different information and results and to respond to the challenges that arise during their work.

2. Creativity and Enterprise

MSA University is committed to encouraging its students to:

a. Recognize and create opportunities and respond effectively to unexpected situations.
b. Generate new ideas and develop creative solutions.
c. Communicate clearly and effectively, in a range of forms with different audiences.
d. Make use of new technologies.
e. Seize and shape opportunities open to them after leaving the University.

Effective communication skills are enhanced gradually through the different assignments carried out by the students in the different courses, where they are expected to communicate their ideas and the information gathered by means of a variety of techniques, such as oral presentations, posters … *etc.*

Creativity and the ability to construct new solutions and ideas is encouraged in this programme through two courses; Drug Delivery Systems (PT 512) and Drug Design (PC 532), which oblige the students to think creatively and to come up with innovative solutions and ideas for the different problems faced in the design and the delivery of medicinal compounds.

Students are expected to undertake 300 hours of training before graduation; this can be done in a variety of fields such as community or hospital pharmacies and industrial facilities. This exposes the students to the various career opportunities in which they can participate in after leaving the University. In addition, the University has a Career Placement Centre (CPC) which provides a wide range of activities related to job and career opportunities, such as recruitment, training and internships. The CPC also provides regular feedback on the skills required in the job market, so these can be enhanced by the training sessions and seminars provided by the University. This provides the students with the confidence, drive and knowledge to create and shape new opportunities and career options for themselves after leaving the University.

Moreover, MSA University encourages students to attend and participate in national and international conferences, workshops and seminars related to different fields of their study, thus exposing and allowing them to appreciate and be aware of new technologies in the field. Furthermore, the programme helps the student to develop the ability for lifelong learning; this allows the students to be always up to date with the new techniques in their field and also confers them with the expertise to respond to unexpected situations that may arise during and after their study in the University.

3. Cross-cultural and International Awareness

The MSA is committed to produce graduates who:

a. Engage effectively in groups whose members come from different backgrounds
b. Appreciate the importance of behaving sustainably
c. Move fluently between different social, cultural and political contexts
d. Value the ability to communicate in more than one language.

The pharmacy programme at MSA provides an opportunity for a joint summer elective abroad course, Advanced Drug Delivery (PT 513) where the theoretical part of the course material is delivered in the MSA campus, while the practical part is delivered in the labs of the University of Greenwich. This offers students the chance to experience and familiarize themselves with the diverse culture, the different communities and the different protocols of the laboratories. Therefore, providing the students with a chance to have culture awareness and the ability to deal with different issues in an international setting.

MSA encourages and facilitates the attendance and participation in international conferences and seminars, as well as the participation in competitions. This allows the students to interact with other participants from a diverse social, cultural and scientific background and consequently, becoming skilled at efficiently engaging and communicating with a widely diverse body of people. In addition, the students are of a diverse cultural and social background and often these students have to participate in a variety of group activities, such as lab work, assignments. Therefore, the students are taught to effectively communicate and work with individuals from a variety of backgrounds. The majority of MSA students are multilingual and thus the students are exposed to a variety of languages and thus appreciate the value of communicating in more than one language.

11. The programme provides opportunities for students to achieve the following outcomes:

Knowledge and understanding:

Students are expected to show considerable understanding of:

1- Principles of basic, pharmaceutical, medical, microbiological, social, behavioral, management, health and environmental sciences as well as pharmacy practice.
2- Physico-chemical properties of various substances used in preparation of medicines and the properties of different pharmaceutical dosage forms.
3- Different analytical techniques, using good laboratory practice (GLP) guidelines and validation procedures.
4- Theories of isolation, synthesis, purification, identification and standardization methods of chemical and pharmaceutical compounds.
5- Pharmacodynamics of pharmaceutical compounds and the structure-activity relationship of groups as well as the fundamentals of drug design, development and targeting.
6- Principles of pharmaceutical drug formulations, characterization and delivery system.
7- Principles of various techniques and instruments of different pharmaceutical industrial processes including sampling, manufacturing, packaging, labeling, storage and distribution.
8- Basics of pharmacokinetics, pharmacodynamics, biopharmaceutics and applying information to individualize drug therapy.
9- Basics of drug monitoring and bioequivalence studies of different dosage forms.
10- Principles of compounding sterile products, including I.V. admixtures, total parenteral nutrition (TPN) and ophthalmics in hospital pharmacies.
11- Principles of public health issues and epidemiology in addition to sources of contamination for pharmaceutical products and methods of prevention as well as the concepts of sterilization and disinfection.
12- Principles of body function in health and diseases states; as well as the etiology, epidemiology, laboratory diagnosis, clinical features of different diseases and their pharmacotherapeutic approaches.
13- Role of genomics and biotechnology in the discovery of new remedies.
14- Pharmacological properties of drugs and natural products including chemistry, nomenclature, mechanisms of action, therapeutic uses, dosage, contraindication, adverse drug reactions, and drug interactions.
15- Principles of therapeutic, pharmacovigilance and the rational use of drugs.
16- Basics of complementary and alternative medicine.
17- Toxicological characteristics of xenobiotics including origin, identification, symptoms and control measures.
18- Basics of mathematics, statistical analysis and pharmaceutical calculations.
19- Principles of sales, marketing, business administration, accounting and management including financial and human resources.
20- Principles of drug information, drug promotion, accounting and pharmacoeconomics.

21- Documentation and filing of pharmaceutical drug products.
22- Pharmaceutical ethics and legislation and laws of pharmacy practice.

12. The programme provides opportunities for students to develop the following skills:

Intellectual skills

Students will be able to:

1- Compound different pharmaceutical drug delivery systems and dosage forms based on gained knowledge.
2- Implement GLP, GCP and GPMP guidelines in pharmacy quality management.
3- Select appropriate tools or analytical methods for the assay and quality control of raw materials and pharmaceutical products for microbiological and chemical QC.
4- Determine and access different types of incompatibilities encountered during compounding and dispensing drugs.
5- Design appropriate methods for isolation using different chromatographic methods, synthesis, purification and identification of various chemicals and pharmaceutical compounds.
6- Adopt computer-aided facilities and bioinformatics databases in drug design.
7- Apply pharmacokinetics and reaction kinetics to detect the ADME of pharmaceutical products and determine their bioequivalence.
8- Apply different principles to develop various biopharmaceuticals.
9- Plan a systematic approach for laboratory diagnosis of common infectious conditions.
10- Appraise the pharmacotherapeutic principles in the proper selection and use of drugs in various diseases.
11- Adjust dosage and dose regimen of medication based on pharmacokinetic principles.
12- Assess possible drug interactions, adverse drug reactions, pharmacovigilance and other drug-related problems, as essential issues in implementing pharmaceutical care.
13- Promote cost/effective pharmacotherapy by applying principles of drug information and pharmacoeconomics.
14- Interpret experimental data and published literatures, based on relevant chemical, pharmaceutical, statistical principles.
15- Evaluate evidence-based information needed in pharmacy practice decisions.

Subject practical skills

Student will be able to do the following:

1- Practice the proper use of different pharmaceutical terms, abbreviations and symbols.
2- Handle chemicals and dispose hazardous solvents in laboratories using safety measures.
3- Acquire the skills of formulating, charactering, dispensing, labeling, storing and distributing medicines in a safe and effective way.

4- Apply appropriate methods for Extraction, isolation, synthesis Purification, identification and standardization of chemical substances and active constituents of different drug categories.
5- Select the appropriate medication, non-medication and/or radio-therapy for a given disease based on its etiology, pathophysiology, severity, patient medical history, possible interactions and age-related factors.
6- Distinguish between different types of microorganisms, monitor and control microbial growth and carry out laboratory tests for identification of infectious and non-infectious diseases.
7- Investigate toxicity profiles of different xenobiotics and test for poisons in biological samples.
8- Practice the application of different designs for operating pharmaceutical equipment and instruments.
9- Maintain public awareness on rational use of drugs, including antimicrobials and social health hazards of drug abuse and misuse.
10- Counsel the patients and other health care professions about the proper and safe use of medicines from different sources and possible drug interactions.
11- Plan treatment guidelines and pharmaceutical care for the different health problems.
12- Conduct experimental and research studies and present, analyze and interpret the results.
13- Employ principles of documentation and filling of pharmaceutical drug products.

Transferable/key skills

Students will be able to do the following:

1- Demonstrate oral and written communication skills.
2- Search the resources for information, data acquisition, collation and interpretation.
3- Work both independently and in collaboration with others as a member in a team.
4- Use numeracy calculations, statistical methods as well as information technology tools in different fields of pharmacy.
5- Develop self- motivation for continuous education and self managed learning.
6- Adopt an ethical, legal and safe attitude in professional practice.
7- Acquire sales, financial and market management skills.
8- Work effectively in a creative way within pre-determined time frame.
9- Develop comprehensive writing and presentation skills.
10- Practice critical thinking, problem solving and decision making abilities in a variety of theoretical and practical situations.

13. Teaching, Learning and Assessment Methods related to the programme learning outcomes and skills sets

A. Knowledge skills

a. Teaching and learning methods:

A 1 to A 21 are delivered through lectures, tutorials, laboratory/ practical classes. At level one, lectures supply students with core principles and information, while tutorials provide an opportunity for students to apply these principles through participation in interactive learning. However, as students' progress in the programme, towards more independent learning, they will be expected to extend and supplement

material by using literature and electronic sources of information, which include their allowed access to the University of Greenwich electronic library.

b. Assessment methods:

The assessment methods are specified in the course specifications. Courses are assessed in various ways, utilising typically a combination of coursework, laboratory practical sessions and written/oral examinations. The nature of the coursework is appropriate to the subject area and learning outcomes outlined in the course specification.

B. Intellectual skills

a. Teaching and learning methods:

Intellectual skills are developed through lectures, tutorials and coursework assignments. The preparation of an extended independent final year project encourages independent learning activities

b. Assessment methods:

A variety of assessment methods are used that include formal examinations, essay coursework, informal online assessments, oral presentations and a written research in the final year

C. Practical skills

a. Teaching and learning methods:

Subject practical skills are developed in a coordinated and progressive manner throughout the programme. These skills are highlighted in practical laboratory sessions. Practical sessions associated with pharmaceutical analysis, formulation and drug design (integrated into courses at all levels) qualifies the students for employment in different pharmaceutical settings such as Pharmaceutical industry and research institutes; skills are developed throughout the courses in both practical-based and class-based scenarios to help student be able to critically evaluate and criticise data.

b. Assessment methods:

A variety of assessment methods are applied to assess practical skills, such as, evaluating the students' ability to practice modern analytical techniques, and to interpret the pharmaceutical data. All assessed laboratory reports are written according to accepted Good Laboratory Practice (GLP)

D. Transferable skills

a. Teaching and learning methods

Computer, problem-solving, teamwork, practical laboratory and presentation skills are developed. These skills are enhanced in seminars, workshops, practical laboratory sessions and assignments.

b. Assessment Methods

A variety of assessment methods are used to assess transferable key skills. These include problem solving assignments and peer-reviewed oral presentations. These assessments are contextualised in A, B and C above.