



FACULTY OF PHARMACY

TAKE A STEP TO FUTURE FOR A BETTER FUTURE.



IMPORTANT QUESTIONS

Is Pharmacy right for me?

"Choosing the right job for you is the key decision in achieving a happy and fulfilling life".

Think carefully and choose wisely Pharmacy might be your right choice if you:

- Have excellent communication skills and a strong memory.
- Have an eye for details and able to tackle challenging problems.
- Enjoy working as part of a team constantly searches for the latest developments and strive to be up to date.
- Are good in the Natural Sciences.
- Are willing to accept responsibility for your actions as the health of the public depends on you.

If you agree with above fundamentals then the answer is 'Yes', "Pharmay" is the right choice.



What is Pharmacy Profession?

Pharmacy is the profession devoted to the art and science of preparing suitable materials from natural and synthetic sources for distribution and use in the treatment and prevention of diseases. The study involves the knowledge, identification, selection, effects, preservation, compounding, analysis and standardization of medicines. The Pharmacist is responsible for the safe distribution and use of drugs prescribed by physician, dentist, or veterinarian or prepared and sold directly and legally to the consumer. He is also responsible for the patients counseling regarding the proper use of the medication.

Why Study Pharmacy at FUE?

Faculty Standards

1. The Faculty of Pharmaceutical Sciences and Pharmaceutical Industries has designed an Innovative patient as well as product oriented undergraduate program that addresses the needs of healthcare professionals, as well as Pharmaceutical Industries.
2. The faculty was accredited by NAQAAE in September 2016 being the 1st private faculty of pharmacy to pass accreditation revision from 1st round.
3. The Faculty is a recognized leader in the field of pharmacy education and research and is considered one of the largest pharmacy faculties in Egypt, offering the most innovative and cutting-edge pharmacy education program.



Intellectual Development

Education in pharmacy develops your ability to think logically, solve challenging problems and make critical decisions. These skills are invaluable throughout career life.

Friendly Environment

FUE has an enviable reputation in providing a friendly and supportive environment for students.

Excellence of Teaching Staff

Faculty of Pharmacy at FUE is proud to have highly qualified and well-trained teaching staff, who acquired their degrees from well reputed national and international universities. Our academic staff, academic scientists, and pharmacists, have the experience and dedication to work in team with the administrative and technical personnel. Thus, we ensure the quality of the academic atmosphere and offered services. Our faculty staff members are diligent to continue professional development and research through embracing new inventions and modern pharmaceutical techniques. They apply these techniques in their work and their research that are published in reputable national and international Journals.

What are the Career Opportunities?

Studying Pharmacy at FUE offers ample and exciting opportunities for graduate to take advantage of a variety of career opportunities including the following and more:

1. Hospitals in the field of hospital pharmacy or as clinical pharmacist.
2. Public pharmacies as community pharmacist
3. Private pharmacies in clinics and hospitals.
4. Pharmaceutical industries like, pharmaceutical forms, raw materials or complementary materials.
5. Analysis and quality control whether, in companies or in drug control laboratories.
6. Medical storage that maybe whether, in general stores, companies' stores or hospitals.
7. Egyptian Drug Authority (EDA), whether in the administration and participation in the formulation of drug policy or in registration, licensing, or inspection.
8. Drug information centers.
9. Family planning centers and national projects.
10. Ministry of Health laboratories, food and water analysis laboratories, and clinical laboratories.
11. Military pharmacy (in the army or police).
12. The field of media and pharmaceutical marketing.
13. Research centers and universities.
14. Medical supplies factories and their quality.
15. The field of forensic medicine and forensic chemistry.
16. The field of detection and prevention of poisons and narcotics, medication, and prevention.



OVERVIEW ON FACULTY OF PHARMACY AT FUE

Future University in Egypt is a multidisciplinary University established in accordance with the presidential decree no 254 on 2006. It provides high quality education, innovative research, and accountable community services. FUE comprises six Faculties among them, in special position, the Faculty of Pharmacy lies. Faculty of Pharmacy is accredited by the National Authority for Quality Assurance and Accreditation of Education (NAQAEE). The following represent the vision, mission, and strategic objectives of the faculty:

Vision:

Leadership and innovation in the pharmaceutical field locally, regionally and internationally.

Mission:

The Faculty of Pharmacy - FUE is committed to:

- Provide distinguished and qualified pharmacist with creative competencies consistent with international standards , capable of improving health care services and pharmaceutical industries while endorsing lifelong learning.
- Develop research - stimulating environment.
- Establish community partnership that help to achieve sustainable development goals within a framework of international cooperation and ethical values.



Strategic Goals

The First Goal:

Outstanding education that meets international quality standards

The Second Goal:

Stimulating environment for scientific research

The Third Goal:

Sustainable Community Partnership

UCC Certificate

For our graduated students, a certificate is issued by University College Cork (UCC) that confirms that a five-year course of study in Faculty of Pharmacy, Future University in Egypt (FUE) award Bachelor Degree in Pharmacy with set of learning outcomes and curricular standards approved by UCC through a Co-operation Agreement between UCC and FUE on 28th January 2019.





PROGRAM OVERVIEW

The Faculty of Pharmacy designed an innovative clinical-oriented program as well as a drug discovery and development drug focused undergraduate program. Both cover and satisfy the needs of healthcare professionals and Pharmaceutical Industry. In accordance with the extended role of pharmacists and other health care professionals, the Faculty has developed and implemented a portfolio as part of graduation project course for undergraduates under the supervision of academic staff in various faculty departments. The total number of credit hours required for the B.Sc. Pharmacy (PharmD or PharmD-Clinical Pharmacy) is 181 hours divided into 10 semesters over five years. The sixth year of study is devoted to an advanced field training, with six training rounds with a total of 36 weeks (one academic year). The advanced training should include at least four training rounds within hospitals that implement clinical pharmacy practice and one round in a non-clinical pharmacy practice area (pharmaceutical manufacturing, drug control etc.).

The six department of the faculty share teaching 175 hours in different Pharmacy scientific fields including:

1. Pharmaceutical Chemistry
2. Pharmaceutics & Pharmaceutical Technology
3. Pharmacology, Toxicology & Biochemistry
4. Microbiology & Immunology
5. Pharmacognosy & Medicinal Plants
6. Pharmacy Practice & Clinical Pharmacy



ADMISSIONS

Prospective students are encouraged to visit the campus and meet up the faculty delegates. Information sessions are available to offer overviews of Academic and student life, admission requirements, and financial support procedures. For detailed information visit: www.fue.edu.eg/admissions/undergraduate_applicants/admissions_steps

SCHOLARSHIPS

Applicants are eligible for a variety of scholarships according to their academic, sporting, and other achievements in accomplice with University terms and conditions. For detailed information visit: www.fue.edu.eg/admissions/undergraduate_applicants/scholarships



ACCEPTANCE RULES

The Faculty of Pharmacy accepts students who meet the following requirements:

- Earned a high school certificate at science section., or its equivalent in foreign certificates, in accordance with the rules approved by the Council of Private Universities.
- Earned a total grade in high school certificate, science section or its equivalent according to the limits set every year by the Council of Private Universities in this regard.
- The student should successfully pass the admission tests or any other tests in accordance with the rules settled by the University Council.
- The student should successfully pass the medical examination, according to the rules settled by the College Council and approved by the University Council.
- Application to Faculty of Pharmacy opens in the dates announced by the Supreme Council of Universities and the Ministry of Higher Education and Scientific Research in Egypt through the following link

<https://www.cpmu.edu.eg/index.php/admissions-office/progress-and-acceptance>



THE LANGUAGE OF TEACHING IN THE COLLEGE

Studying in Faculty of Pharmacy is in English. However, some courses may be taught in Arabic based on the proposal of the relevant department council, the approval of the college council and the decision of the university council.

BACHELOR OF PHARMACY (PharmD) DEGREE

It is the primary bachelor pharmacy degree needed to acquire a license to practice the profession in all available pharmaceutical fields. It also qualifies the graduate to register for postgraduate studies in any of the scientific departments in the college.

BACHELOR OF PHARMACY (PharmD-CLINICAL PHARMACY) DEGREE

It is the primary bachelor pharmacy degree needed to acquire a license to practice the profession in pharmacy practice fields, especially clinically oriented fields of pharmacy. It also qualifies the graduate to register for postgraduate studies in any of the scientific departments in the college.

DISTRIBUTION OF COURSES PER SEMESTERS

The following represents the distribution of the study hours over 10 semesters.

BACHELOR OF PHARMACY (PharmD) DEGREE

Level One (Fall Semester)

Course Title/Code		Brief Description of the Course
PC 101	Pharmaceutical Analytical Chemistry-I	This course includes basic information about qualitative inorganic analysis, such as different types of solutions, law of mass action, chemical equilibrium, equilibrium constants [e.g. Ionic product of water (KW), acidity constant (Ka), basicity constant (Kb), solubility product constant (KSP), instability constant (KINST.)], Le Chatelier principle, common ion effect, buffer solutions and amphoteric metals. Types of chemical reactions [e.g. neutralization, precipitation, complexation and redox reactions]. How to write and balance different types of chemical equations. Systematic examination of individual ion (cation or anion) through chemical tests and how to carry out systematic separation and identification of their mixtures.
PC 102	Pharmaceutical Organic Chemistry-I	The objective of this course is to provide students with the basic knowledge in pharmaceutical organic chemistry, which will serve as fundamentals for other courses offered during subsequent semesters. This course involves Electronic structure of atom, alkanes [nomenclature, synthesis and reactions (free radical reactions)], and cycloalkanes. Alkenes, alkadienes and alkynes. Alkyl halides (nomenclature, preparation and chemical reactions (SN1, SN2, E1, E2). Arenes and aromatic compounds (Kekule structure, Huckel rule, Electrophilic aromatic substitution and orientation). In addition it covers Stereochemistry (Optical isomers, racemic modification and nomenclature of configurations).
PT 101	Pharmacy Orientation	This is a course to acquaint the beginning pharmacy student with the multiple aspects of the profession of pharmacy, including the mission of pharmacy, medications, prescriptions and different dosage forms and routes of administration. The course also comprises pharmacy education and pharmaceutical organizations. In addition to the history of pharmacy practice in various civilizations.
PG 101	Medicinal Plants	The aim of the course is to provide students with knowledge to identify and prepare a crude drug from the farm to the firm, acquire knowledge concerning dusting powders, plant cytology and physiology, as well as different classes of secondary metabolites, and the variability in occurrence of pharmacologically active substances in certain official medicinal plants according to their WHO monographs, they are introduced to certain drugs of botanical origin (leaves, bark and wood) and identify drug examples in their entire and powdered forms as well as their major constituents, folk uses.

Level One (Fall Semester)

Course Title/Code		Brief Description of the Course
MD 101	Anatomy and Histology	Students will study cytology, various tissues, organs, and systems. The course will also give introduction to skeletal, muscular, and articular systems, fascia, nervous, cardiovascular, and lymphatic systems, digestive, respiratory, and urogenital systems, endocrine glands. Cytology: blood, liver, spleen, lung, kidney, lymph node, cardiac muscle, aorta, stomach, and intestine.
PD 101	Information Technology	This course tends to provide students with a brief introduction to the world of computers and the concept of information technology including number systems, data representation, AND computer system components. Also it gives an overview about computer networks and internet.
MS 101	Mathematics	Functions and graphs, limits and continuity, differentiation, exponential, logarithmic, and trigonometric functions, integration, basic differential equations, functions of several variables and problems related to them, probability and random variables, and hypothesis testing
ENG KET	English KET	A second tier English language course that focuses on all four skills through the enhancement of language production and reception. The course further builds upon the foundation of the previous course to reinforce language learning. Lexis is drawn from the reading and listening and recycled for consolidation within grammar, writing and speaking. More emphasis is given to fluency thus achieving higher levels of communicative complexity.

Level One (Spring Semester)

Course Title/Code		Brief Description of the Course
PC 203	Pharmaceutical Analytical Chemistry-II	This course deals with quantitative analysis of selected samples either individually or in mixtures. It includes; neutralization reactions in aqueous medium [acids & bases, pH, calculation of pH of different electrolytes, buffer solutions, detection of end point]. Complexation reactions (types of complexing agents, detection of end point, cyanometric, mercurimetric and EDTA titrations). Precipitation reactions [detection of end point, argentometric determinations (Mohr's method, Volhard's method, Fajan's method, Liebig's method)]. Oxidation - reduction reactions, Nernst equation, factors affecting oxidation potential, detection of end point, permanganometry, iodometry, iodimetry.
PC 204	Pharmaceutical Organic Chemistry-II	This course involves different classes of aliphatic and aromatic compounds: aryl halides, Alcohols, Phenols, ethers & epoxides, aldehydes, ketones, carboxylic acid & acid derivatives and polynuclear compounds. The course also aims at giving students knowledge about the mechanism of reactions of Heterocyclic compounds and upon successful completion of this course the students can differentiate most of the heterocyclic organic compounds.
PT 202	Physical Pharmacy	This course provides students with knowledge of physicochemical principles essential for the design of pharmaceutical products. Students are introduced to the fundamental concepts of states of matter, phase equilibrium, colligative properties, solubility, interfacial phenomena, surface active agents, adsorption and rheological behavior of dosage forms focusing on the theory behind phenomena and its application in pharmaceutical dosage form design.
PG 202	Pharmacognosy-I	After completion of the course the student should have the knowledge and skills that enable him/her to differentiate between different organs through their monographs. The course comprises the study of identification of different organs through their monographs. (fruits, flowers, and seeds), including identification of their active constituents, adulterants benefits and precautions of their medicinal uses, side effects and contraindications. Finally the student should have an overview over their phyto-pharmaceuticals available on the market specially the Egyptian market.

Level One (Spring Semester)

Course Title/Code		Brief Description of the Course
MD 202	Medical Terminology	The course is an introduction to medical and pharmaceutical terminologies, medical abbreviations, medical idioms, suffixes and prefixes, medical terms pertaining to major body systems.
MD 203	Psychology	The course introduces different principles, theories and vocabulary of psychology as a science. The course also aims to provide students with basic concepts of social psychology, medical sociology and interpersonal communication, which relate to the pharmacy practice system that involves patients, pharmacists, physicians, nurses and other health care professionals.
PD 202	Human rights and fighting corruption	This course examines the conceptual foundations of human rights, history of the field, the development of human rights framework and the multidisciplinary character of the field as an area of study. It covers in details the Universal Declaration on Human Rights, the International Covenant on Civil and Political Rights, the International Covenant on Economics, Social and Cultural Rights and all related agreements. It also touches on the state of Human Rights in Egypt and the Arab World.
ENG PET	English PET	An English language course encompassing the lexical approach which focuses on communication by emphasizing fluency and accuracy through the development of sub-skill strategies for interaction, through speaking and writing. Topical and functional lexis provide the reference by which language is introduced and recycled within clear natural contexts. Writing is explored through a range of texts, by understanding genre-specific conventions, and developing confidence by planning and discussions and by applying both process and product approaches.

Level Two (Fall Semester)

Course Title/Code		Brief Description of the Course
PC 305	Instrumental Analysis	Spectroscopic methods of analysis which include UV/VIS spectroscopy, principal, instrumentation, factors affecting absorption and applications in pharmaceutical analysis. Fluorimetric methods, principal instrumentation, factors affecting fluorescence intensity and applications in pharmaceutical analysis. Atomic spectroscopy; principal and instrumentation. Chromatographic methods for analytical chemistry which includes: TLC, gel chromatography, column chromatography, HPLC, UPLC, TLC, gas chromatography, capillary electrophoresis.
PC 306	Pharmaceutical Organic Chemistry-III	This course involves: the principles of nomenclature for heterocyclic compounds and studies the properties, synthesis and chemical reaction of heterocyclic compounds. In addition, it provides an introduction about the use of different spectroscopic tools, including UV, infrared (IR), nuclear magnetic resonance (NMR) and mass spectrometry (MS) for the structural elucidation of organic compounds.
PG 303	Pharmacognosy-II	After completion of the course the student should have the knowledge and skills that enable him/her to differentiate between different organs through their monographs herbs, subterranean organs, unorganized drugs in addition to drugs of marine and animal origin including identification of their active constituent, macro-morphological characteristics, benefits and precautions of their medicinal uses, side effect, contraindications and to have an overview over their phytopharmaceuticals available on the market specially the Egyptian market.
PB 301	Biochemistry-I	The course introduces the students to basics and fundamentals of Biochemistry. It includes an introduction on the biochemical macromolecules including proteins, porphyrins and enzymes as well as a description of bioenergetics and nucleic acids. Some regulations, pathophysiological relevance of biomolecules and their possible protective machineries were also covered.

Level Two (Fall Semester)

Course Title/Code		Brief Description of the Course
MD 304	Physiology	The course is an introduction to normal structure and function of the body and major systems. The course covers body water, homeostasis, transport of materials, nervous systems, neuron structure and function (reflex arc), cardiovascular system, blood, respiratory cycle, gastrointestinal, reproductive, and renal systems, endocrine glands and body temperature regulation.
PT 303	Pharmaceutics-I	This course is a study of the system of measures, mathematical expertise, and pharmaceutical calculations required for pharmacy practice. It is also concerned with all manufacturing formulations aspects, packaging, storage, quality control tests and stability of liquid dosage forms including solutions (aqueous and non-aqueous), suspensions and colloids with emphasis on the technology and pharmaceutical rationale fundamental to their design and development. The incompatibilities occurring during dispensing are also considered.
ENV 101	Environmental Sciences (University Elective)	Environmental Sciences course helps students develop knowledge required to critically evaluate environmental problems and issues, and provide applied solutions. The course is decidedly interdisciplinary in nature, focusing on the underlying natural processes relating to the environment, understanding and employing the scientific methods. The course includes studying natural resources, the relationship between environmental issues and society, as well as sustainable development. This course also perceives how respective official and non-official institutions deal with these issues and what sort of impact they have.
SCT 101	Scientific Thinking (University Elective)	This course provides students with basic understanding of scientific thinking. Students will be exposed to concepts, terminology, principles and theories that comprise a course in thinking scientifically. Topics covered are to synthesize the broad range of knowledge about thinking scientifically, to emphasize research methodology, to encourage critical thinking, and to convey a scientific as well as systematic approach to think over a concept.
SOC 101	Sociology (University Elective)	This course analyses the evolution of human communities from tribal societies to modern states. It examines problems and issues related to the relationship between humans and their environment and their ability to adapt and develop. It also deals with problems of urbanization and hyper-urbanization such as tension, conflict and violence. It also touches on the role of civic society organizations, charities as well as NGOs in creating and maintaining social equilibrium and tranquility.

Level Two (Spring Semester)

Course Title/Code		Brief Description of the Course
PB 402	Biochemistry-II	The course covers macromolecular metabolic pathways, their interconversions and integration in well-fed and fasted states. It also covers different means of regulation of metabolism. The course enables the students to acquire efficient and accurate practical skills, providing them with brief knowledge on how to analyze different biochemical laboratory data and interpret their clinical significance.
PM 401	General microbiology and immunology	The course covers the fundamental aspects of microbiology including: taxonomy, structure, physiology, growth, reproduction and genetics. Basic techniques for staining and identifying microorganisms are emphasized in the laboratory. Moreover, it introduces the basic concepts of medical immunology, with an emphasis on non-specific and specific immunity including antibody and cell-mediated immunity.
PG 404	Phytochemistry-I	Based on complementary medicine and Egyptian medicinal plants that can be used as natural extracts, bioactive raw materials and phytochemical standards to serve the pharmaceuticals, cosmetics and food industries in Egypt. The course aims to give students the knowledge and skills that enable them to understand, describe and deal with the chemistry of volatile oils, resins, miscellaneous terpenoids, bitters and carbohydrates of plant or animal origin and different techniques used for their preparation, identification and determination.
MD 405	Pathology & Pathophysiology	The aim of this course is to provide the students with knowledge and skills for common diseases affecting body organs and system. It helps the student to understand the causes (etiology) of disease, the mechanisms of its development (pathogenesis) and the associated alterations of structure (morphologic changes) and function (clinical manifestations and complications) to be able to determine the most likely diagnosis of the disease.

Level Two (Spring Semester)

Course Title/Code		Brief Description of the Course
PT 404	Pharmaceutics-II	This course covers the topical and transdermal drug delivery systems including basic principles of diffusion through membranes along with factors affecting percutaneous absorption. It also describes the principles and techniques involved in the formulation, manufacturing, and quality control tests of emulsions, traditional dermatological semisolid dosage forms and different types of suppositories as molded solid preparations.
PO 401	Biostatistics	This course provides basic concepts of biostatistics and data analysis. It includes introduction to descriptive and inferential statistics, interpretation of estimates, confidence intervals and significance tests, elementary concepts of probability and sampling; binomial and normal distribution, basic concepts of hypothesis testing, estimation and confidence intervals, t-test and chi-square test, linear regression theory and the analysis of variance.
PD 403	Scientific writing & communication skills	This course is designed to introduce students to the principles of good scientific writing, to be familiar with basic structure of scientific reports and research articles. It covers methods of paraphrasing, common mistakes in scientific writing, different writing styles, how to write a scientific report, proposal and manuscript, appropriate use of tables and figures in data presentation and evaluation of literature and information sources. The course will help students develop necessary written and oral communication and presentation skills to improve inter- and intra-professional collaboration and communication with patients and other health care providers.

Level Three (Fall Semester)

Course Title/Code		Brief Description of the Course
PM 502	Pharmaceutical Microbiology	This course describes different methods for control of microbial growth in the field of pharmaceutical industry / hospitals. It includes different methods of sterilization, and validation of sterilization process. The course addresses classes and modes of action of chemotherapeutic agents and non-antibiotics antimicrobial agents including the new approaches to overcome bacterial resistance. The course includes microbiological evaluation of antibiotics and non-antibiotics. Laboratory procedures such sterility test and evaluation of antimicrobial effectiveness are also covered.
PM 503	Parasitology and Virology	This course includes two distinctive parts, the first part focus on the occurrence of human parasitic diseases with emphasis on diseases causing serious health problems in Egypt. It deals with human parasites including helminthology, protozoology and entomology concerning their morphological features, life cycle, pathogenesis, clinical manifestations, different diagnostic techniques, the most recent lines of treatment and prevention. The other part of the course provides students with the essential virology aspects to recognize the epidemiology, mechanisms of pathogenesis, clinical picture, methods of laboratory diagnosis, treatment, prevention and control measures of viral infections in human caused by different RNA and DNA viruses with emphasis on new emerging human viruses.
PG 505	Phytochemistry-II	In continuation with Phytochemistry I, this course aims to enable students to demonstrate the knowledge and experience that enables her/ him to understand, describe and deal with the chemistry of alkaloids, glycosides, tannins and antioxidants of plant, fungi or animal origin as well as techniques for their isolation, identification and determination in their respective sources. Finally, the course focuses on the structure activity relationships (SAR) of these natural products derived compounds and their pharmacophoric features.

Level Three (Fall Semester)

Course Title/Code		Brief Description of the Course
PT 505	Pharmaceutics-III	The course introduces the students to the kinetics of drug degradation including rate and order of the reaction, factors affecting reaction kinetics, determination of the half-life, and expiration date by different methods, prediction of product shelf-life, stability studies, degradation pathways and how to protect drugs in different pharmaceutical dosage forms. This course is also designed to provide the student with adequate knowledge on sterile dosage forms including parenteral and ophthalmic preparations, regarding principles of formulation, development, sterilization, packaging and quality control testing Principles for calculation and manipulation of parenteral, ophthalmic preparations.
PC 507	Medicinal Chemistry-I	The course includes the study of chemical structures, nomenclatures, interactions with the receptor binding sites (mechanism of action), structure activity relationships, synthesis and metabolic pathways of different chemical classes of various medicinal active agents which includes: Antibiotics, Anti-infective, Anthelmintics, Antifungal drugs, and others Chemotherapeutic agents. Finally, various Anticancer therapies, and related drugs are also covered. The practical course is designed to expose the students to various synthetic and purification techniques in medicinal chemistry and methods of determination of drug substance, dosage forms and purity tests.
PO 502	Pharmacology-I	The general principles of pharmacology are presented with conceptual knowledge of physiology and pathophysiology to disease processes regarding the autonomic and neuromuscular disorders. Besides, drugs used for management of common pulmonary diseases are involved.

Level Three (Spring Semester)

Course Title/Code		Brief Description of the Course
PP 601	Community Pharmacy Practice	The course provides students with competencies and knowledge for the provision of quality pharmaceutical care in a community pharmacy setting aiming at improving use of medicines and therapeutic outcomes. The course covers differentiation between minor and major ailments and responding to minor ailments with over-the-counter products. It also provides concepts of patient assessment and counseling, in community pharmacy and in outpatient care settings and introduces students to pharmaceutical care services for chronic-diseased outpatients and to psychosocial aspects in patient care. In addition, the course provides the students with competencies to promote the public health role of pharmacist including health promotion and disease prevention activities.
PM 604	Medical Microbiology	The course aims at studying microorganisms causing infectious disease of major public health significance in human. The etiology of infectious diseases, their clinical manifestations, route of transmission, treatment and techniques for detection and identification of pathogenic microorganisms are covered.
PT 606	Pharmaceutics-IV	The course includes an in-depth study covering the principles and techniques involved in the formulation, manufacturing, and quality control testing of modified and controlled release solid dosage forms, in addition to studying aerosols and other inhalation products regarding their types, properties and applications.

Level Three (Spring Semester)

Course Title/Code		Brief Description of the Course
PO 603	Pharmacology-II	This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology disease processes regarding drugs acting on cardiovascular systems and central nervous system related disorders. Drugs used in disorders of the gastro-intestinal tract are also included.
PC 608	Medicinal Chemistry-II	This course is tailored to assist the students to gain concrete knowledge about chemical structures, nomenclatures, interactions with the receptor binding sites (mechanism of action), structure activity relationships, synthesis and metabolic pathways of different chemical classes of various medicinal active agents which includes drugs affecting: the autonomic nervous system (ANS), cardiovascular system (CVS), central nervous system (CNS) and drugs affecting neurodegenerative disorders. Moreover, endocrine-related drugs (Diabetes,), antihistamines (H1, H2 blockers and anti-ulcer PPIs), drugs controlling pain and inflammation (NSAIDs) are also studied.

Level Four (Fall Semester)

Course Title/Code		Brief Description of the Course
PT 707	Biopharmaceutics & Pharmacokinetics	This course aims to provide students with an understanding of the relation between the physicochemical properties of the drug and its fate in the body. The course explores the principles of biopharmaceutics and strategies for enhancing bioavailability. Students will also be introduced to the principles of pharmacokinetics (absorption, distribution, metabolism and elimination). The concepts of bioequivalence, biowaivers and in vitro-in vivo correlations (IVIVC's) will be discussed along with different models of drug disposition. The course prepares students for their evolving role in utilizing pharmacokinetics to guide formulation, dosage-regimen design and optimizing drug usage.
PHG 425	Quality Control of Natural Products	After attending this course, the students are expected to deal with the general principles of quality control: definitions, documentation, environmental monitoring, packaging systems, and the finished product. Student should be able to deal with quality control laboratory scheme including qualitative and quantitative microscopy as well as, qualitative and quantitative chromatographic analysis of herbal products, storage, preservation, marker determination, validation and applications of the proposed schemes.
PO 704	Drug Design	In addition, students will be capable of independently using the different spectroscopic methods to elucidate the structures of pure natural products. The course also includes the applications of GC and HPLC in the analysis of herbal constituents.
PB 703	Clinical Biochemistry	The course aimed to provide precise diagnostic means and markers for specific clinical disorders posed by genetic and metabolic disease. The course enables the student to analyze and interpret the different biochemical data related to macromolecules disorders and their clinical correlations with respect to the pathophysiological relevance.

Level Four (Fall Semester)

Course Title/Code		Brief Description of the Course
PT 708	Pharmaceutical Technology	The course provides students with an introduction to industrial pharmacy. This course is designed to introduce the student to planning and construction of modern pharmaceutical facilities including layout of industrial firms, material for plant construction, environmental considerations, validation, and safety measurements in factories. The course also focuses on the unit operations in the industrial area including particle size reduction and enlargement, powder and liquid mixing, heat transfer, evaporation, extraction, drying, distillation, filtration, centrifugation, crystallization etc... as applied during the production of different dosage forms.
PD 704	Pharmacy legislations and regulatory affairs	Presentation of law that governs the practice of pharmacy, legal principles for non-controlled and controlled prescriptions, OTC drug requirements, medicine registration, pharmacies and medicine stores management, opening new pharmacies, medical stores, factories and scientific offices.
PO 704	Pharmacology III	This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology disease processes regarding drugs related to the endocrine system. Also, the chemotherapeutic drugs are within the scope of the course. Stem cell therapy is also included.

Level Four (Spring Semester)

Course Title/Code		Brief Description of the Course
PP 802	Hospital Pharmacy Practice	The course aims to introduce students to hospital pharmacy organization, structure, management and related activities on both technical and administrative levels in accordance with national and international established guidelines. Administrative services include: the pharmacy, the pharmacy and therapeutic committee and policy making, the hospital formulary, medication purchasing, distribution and dispensing systems. The pharmaceutical (technical) services include: preparation of Intravenous (IV) admixtures, total parenteral nutrition (TPN) fluids, renal dialysis fluids, dispensing and safe handling of radiopharmaceuticals, cytotoxic drugs, and medical gases.
PP 803	Clinical Pharmacokinetics	This course provides revision to basic principles of pharmacokinetics and their application to the clinical setting. Clinical pharmacokinetic equations and calculations Single Intravenous bolus and oral kinetics, IV infusion, multiple IV bolus, short infusion & oral dosing, non-linear pharmacokinetics, pharmacokinetic models. Sources of variability in pharmacokinetics, dosage regimen and dosage adjustment in children, obese, elderly patients, Renal and Hepatic Disease, Dialysis, Heart Failure. Dosage individualization of drugs of narrow therapeutic index (aminoglycosides, vancomycin, digoxin, phenytoin, etc). Therapeutic drug monitoring and pharmacogenomics approaches are applied.
PM 805	Public Health and preventive medicine	The course covers basic concepts and knowledge of public health necessary for health promotion and prevention of diseases, in addition to the components of health care systems in Egypt. Detailed information about all scientific disciplines required for health education and promotion directed to the community health are covered. The control of communicable, non-communicable diseases, improving mental, social, geriatric and family health is provided. The impact of environment on health and the relationship between health and environmental quality such as water, sewage disposal, etc. are provided. In addition to occupational hazards and proper intervention during disasters.

Level Four (Spring Semester)

Course Title/Code		Brief Description of the Course
PM 805	Fundamental and clinical Toxicology	This course provides basics and concepts of toxicology, branches of toxicology, and types of toxic effects. The course covers the mechanism of toxicity, target organ(s) and target molecules of different classes of toxicants. Different methods of management and treatments of intoxications are also involved. The course covers various toxic groups including heavy metals, toxic gases, animal, plant and marine poisons, pesticides and radiation hazards are covered. Environmental, occupational, reproductive, genetic and developmental toxicology, as well as drug abuse are included. Postmortem sampling for detection of poisons, methods of detection, interpretation of results and writing of a report are also covered.
PP 804	Pharmacotherapeutics-I	This course develops the ability of students to integrate, analyze and interpret simulated patients' medication records information in respect to specific clinical condition. In addition, the student can develop rational drug therapy and pharmacotherapeutic care plans to provide safe and effective therapeutic monitoring and management of the diseases concerning: cardio-vascular, pulmonary, gastrointestinal and hepatic disorders. Besides, the role of EBM in making therapeutic decisions is emphasized so that the student can design plans for monitoring the clinical response and toxicity of the pharmacotherapeutics the patient was or is on. In practical sessions, students will develop skills in pharmacy practice and patient counseling

Level Five (Fall Semester)

Course Title/Code		Brief Description of the Course
PM 906	Biotechnology	The course aims to provide students with fundamentals, scope and applications of biotechnology through studying fermentation technology, upstream and downstream processes, scaling up, production of metabolites and enzymes. The course addresses the methods of regulation of gene vaccines and monoclonal antibodies. Recent molecular techniques and other applications of biotechnology including biotransformation, bioremediation, bioleaching, bioinsecticides, biosensors, biosurfactants and energy production are also included.
PM 401	Drug Information	This course introduces the student to the concept and need of drug information, types of drug information resources (primary, secondary and tertiary literature), computerized and online drug information, literature evaluation and critical appraisal, retrieval of information. It also aims at providing the students with the professional skills required to effectively and accurately answer medication-related questions in a systematic and evidence-based approach.
PG 404	Alternative and complementary Medicine	Upon successful completion of this course, the student should understand the basis of complementary and alternative medicine with emphasis on herbal remedies, nutritional supplements, homeopathies, aromatherapy & their effect on maintaining optimum health and prevention of chronic diseases. It includes studying of medicinal plants portfolios in relation to Phyto-pharmaceuticals in Egyptian Market.
MD 405	Pharmacotherapeutics-II	This course develop the ability of students to integrate, analyze and interpret simulated patients medication records information in respect to specific clinical condition.. In addition the student can develop rational drug therapy and pharmacotherapeutic care plans to provide safe and effective therapeutic monitoring and management of the diseases concerning neurological, psychiatric, endocrinological, renal, arthritic and infectious disorders. The role of EBM in making therapeutic decisions is emphasized so that the student can design plans for monitoring the clinical response and toxicity of the pharmacotherapeutics the patient was or is on. In practical sessions, students will develop skills in pharmacy practice and patient counseling

Level Five (Fall Semester)

Course Title/Code		Brief Description of the Course
PT 909	Advanced Drug Delivery Systems	The course aims to provide students with insights and competencies related to the principles of pharmaceutical pre-formulation as a gateway to dosage forms design and formulation. The course also introduces the students to the formulation principles and applications of novel and targeted drug delivery systems for different routes by transforming proteins, genes, and other biotechnology driven compounds into therapeutic products. It also covers the application of polymers and excipients to solve problems/issues concerning the optimization of absorption, selective transport, and targeting. The course will also discuss and explain formulation, characterization and application of nanotechnology for enhancing drug delivery.
PD 905	Drug marketing and Pharmacoeconomics	The objective of this course is to introduce students to the concepts, analyses, and activities that comprise marketing, management, and to provide practice in assessing and solving marketing problems. Topics include marketing strategy, customer behavior, segmentation, market research, product management, pricing, promotion, sales force management and competitive analysis. The course also focuses on basic concepts of health economics, learning basic terms of health economics and understand key principles. Topics cover the economic mechanisms of health care markets as market failures, and government intervention. The course covers the key components of health care financing, and some methods of how to contain health care expenditure. Alongside the major definitions in health technology assessment, students should have an overview about different types of economic evaluation, budget impact analysis and their uses. Moreover, students should get familiar with different methods of pricing among which value-based pricing.
MD 906	First Aid	The course covers topics of basic life support and medical emergency of different emergency situations and how to deal with medical emergencies that required rapid interference.

Level Five (Spring Semester)

Course Title/Code		Brief Description of the Course
PT 010	Quality Assurance of Pharmaceuticals and GMP	This course is designed to let the student have the necessary knowledge about the inter-relationship between quality control, quality assurance and good manufacturing practice as well as the concept of process validation (prospective, retrospective, concurrent and revalidation). In addition, the course covers quality by design, pharmaceutical regulations according to FDA & EMA (European medicine agency), ISO, BSI and documentation. It will also cover the subjects related to good laboratory and analytical practice and sampling, including validation parameters for analytical methods according to ICH Guidelines Q2 R1, establishment of analytical methods of raw materials and end products, development of stability indicating assays, sampling methods and procedures.
PM 503	Clinical Pharmacy Practice and Ethics	Definition and concepts of clinical pharmacy and pharmaceutical care, and qualification to become a clinical pharmacy. Patient history, medication reconciliation, therapeutic planning, and drug-related problems. Interpretation of clinical laboratory data and physical examination. Providing Medication Therapy management services
PP 008	Pharmacotherapeutics-III	This course develops the ability of students to integrate, analyze and interpret simulated patients' medication records information in respect to specific clinical condition. In addition, the student can develop rational drug therapy and pharmacotherapeutic care plans to provide safe and effective therapeutic monitoring and management of oncologic: hematologic and solid tumors as well as patients with acute multiple comorbidities in critical care setting (e.g., cardiovascular diseases, gastrointestinal diseases, respiratory diseases, endocrine diseases, obstetrics and gynecology, rheumatic diseases, renal diseases, CNS diseases).

Level Five (Spring Semester)

Course Title/Code		Brief Description of the Course
PD 006	Entrepreneurship	This course is designed to enhance students' knowledge in leadership, business, and financial skills in pharmacy practice while learning the traits of an entrepreneur, current topics in entrepreneurship with a specific focus on pharmacy practice and patient care programs. This course will teach the participants a comprehensive set of critical skills needed to develop a profitable business project. The course is designed to acquaint students with the personal and business tools including risk-taking, strategic planning, marketing, competitiveness, and social responsibility to make the transition from the academic environment to the daily practice of pharmacy now and in the future, with an emphasis on entrepreneurship.
PP 009	Clinical Research, Pharmacovigilance and Pharmacoepidemiology	This course introduces the student to the basic principles of clinical research, design of research studies, types of research studies, clinical trials, statistical presentation of research data and ethical guidelines in drug research. This course addresses a range of study designs and analytic techniques for observational studies on the utilization, safety, and effectiveness of pharmaceuticals. Students will develop an understanding of how to plan, implement, analyze, and criticize pharmacoepidemiological studies. This course also provides the student's with understanding of pharmacovigilance importance, concept, processes, systems, global safety standards and regulations and reporting systems.

Elective Courses

Course Title/Code		Brief Description of the Course
PCE 001	Applied Analytical Chemistry	This course includes, application of the previously studied techniques of analysis for Analysis of: Water to ensure that it is suitable for its intended use (Pharmaceutical water, industrial water and potable water), through its physical examination [its color, odor, taste, turbidity, electrical conductivity, pH] and chemical examination [its total solids, acidity, alkalinity, chloride , fluoride, hardness as well as gases (CO ₂ , Cl ₂ , O ₂ , H ₂ S) and different metals in addition to evaluation of water pollution through determination of O ₂ absorbed and dissolved, NO-3, NO-2, NH ₃ . Food & cosmetics: Student will be introduced to oils and fats concerning composition, physical and chemical examination for detection and determination of adulterants and suitability of lipid for human consumption. The course will also introduce the classification of cosmetics, types and analysis of its active ingredients, additives, preservatives, volatile and non-volatile materials, water content and nitrogen content
PCE 002	Chemistry of Medicinal Heterocycles	The course deals with the modern aspects of the chemistry of medicinally important heterocycles and the correlation of the physical and chemical properties of these pharmacophores and drug activity. In addition, the course covers the chemistry of nucleosides and their functional groups transformations involving both the heterocyclic bases and the sugar tails.
PTE 003	Skin Care and Cosmetology	The course comprises the function of skin, hair and nails; their response to environmental, physiological and aging factors; cosmetic regulations pertaining to cosmetic product safety. Formulation of skin bleaches, sunscreens, antiperspirants, deodorants, anti-acne, masks, scrubs, cleansing products, shaving preparations, color cosmetics, nail polishes, shampoos and hair setting products as well as depilatories are included in this course. The course also deals with dermatological reactions of the skin, hair and nails to cosmetic raw materials and formulations; functions, properties, stability, and possible side effects of the active and inactive cosmetic ingredients and formulations.
PTE 004	Radiopharmaceuticals	This course is designed to let the student familiar with fundamentals of radiopharmaceuticals with emphasis on production and application of radioisotopes in pharmacy, therapy, diagnosis and in research work. In addition, students will get acquainted with the methods of handling, disposal and protection from radiation and gain ability to conduct basic radiation dosimetry calculations and dose estimates.
POE 005	Biological Standardization	Students will study the general principles of drug screening from simple one to more sophisticated programmed screening. These screening tests are crucial for drug evaluation and discovery. The course offers knowledge about an array of experimental models both in-vitro and in-vivo, which are required for the evaluation of a plethora of drug classes. The course presents also good knowledge of the biological standardization of a myriad of drugs.

Elective Courses

Course Title/Code		Brief Description of the Course
POE 006	Substance Abuse	The course enables the students to distinguish between the different medical terms used in drug abuse and to learn the neurochemical basis of drug dependence of the psychoactive CNS depressant and psychostimulant drugs. Besides, the trendy designer drugs are also an integral part of the curriculum. Recent trends in the management of dependence associated with the drug classes are also provided.
POE 007	Veterinary Pharmacy	This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology disease processes regarding veterinary drugs in the Egyptian field. The veterinary medicinal products available in the Egyptian market will be also introduced.
PBE 008	Clinical Nutrition	This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology disease processes regarding veterinary drugs in the Egyptian field. The veterinary medicinal products available in the Egyptian market will be also introduced.
PBE 009	Molecular Biology	The course enables students to develop a comprehensive understanding of the genome organization in prokaryotes and eukaryotes. The students gain further insight into mutation and its associated diseases. It outlines the recent advances and techniques in gene discovery and emphasizes the use of new molecular approaches for diagnosis of diseases as well as the application of gene manipulation in controlling different diseases.
PGE 010	Quality Control of Natural Products	This course deals with identifying quality control procedures required for the assurance of the herbal preparations and valuable extracts. It gives knowledge about different pharmacopeial quality control values. It will enable the students to analyze different herbal drugs and preparation using advanced chromatographic techniques as HPLC, GC, UPLC ...etc. By the end of this course, the students will be able to evaluate and standardize different herbal preparations and natural products.
PGE 011	Forensic Pharmacognosy	The aim of this course is to provide the pharmacy student with sufficient knowledge concerning plants and their natural products that constitute health hazards, or intended for criminal uses to produce, abortion, loss of mental control, hallucination, heart arrest. It also includes the study of drug dependents, narcotics, analgesics psych energetics, euphoric. Mycotoxin as a serious threat to general health and safety of community, contamination of food material with poisonous fungi.

Elective Courses

Course Title/Code		Brief Description of the Course
PGE 012	Industrialization of Medicinal Plants	The course deals with the different methods for cultivation of medicinal plants as well as quality control procedures and standardization of herbal pharmaceuticals. The course focuses on the potentialities of industrialization of medicinal and aromatic plants with emphasis on the production of standardized herbals and phyto-pharmaceuticals. Also, it covers the modern methods for production of active constituents of natural sources by tissue culture and precautions to be taken for the optimum yield.
PME 013	Infection and Immunity	The course deals with the study of mechanisms of microbial pathogenicity including both overt microbial factors and complex interactions with the host that produce symptoms of the disease. The cellular, biochemical, molecular, and genetic basis for modern understanding of microbial disease will be included. An in-depth study of the advanced topics in immunology, primarily focusing on the genetics, mechanisms, and regulation of the immune system will be covered. In addition, the immune response during a variety of disease conditions and immune chemistry will be discussed.
PPE 014	Medical Devices	The role of medical devices in healthcare is essential. The diversity and innovativeness of this sector contribute significantly to enhance the quality and efficacy of healthcare. Covering a wide range of products, from simple bandages to the most sophisticated life-supporting products.
PPE 015	Evidence Based Medicine	This course teaches the principles of drug information and literature evaluation using the concepts of evidence based practice. Skills include identifying resources to answer clinical questions, developing search strategies, and critically evaluating scientific literature, applying the evidence in clinical practice, allowing students to identify, utilize the best evidence to make decisions regarding patient care and exploring.
PPE 016	Pharmacotherapy of Infectious Disease	General concepts of antimicrobial drug selection, bacterial resistance and antimicrobial stewardship programs will be addressed. Principles of pharmacotherapy and management of different bacterial, fungal, viral and parasitic infections will be discussed in details: CNS infections, upper and lower respiratory infections, sepsis, human immunodeficiency virus infection (HIV), cytomegalovirus, amebiasis and malaria, superficial and invasive fungal infections.

Elective Courses

Course Title/Code		Brief Description of the Course
PPE 017	Enteral and Parenteral Nutrition (Patient Assessment)	Assessment of the nutritional status patients, protein and calorie goals are assessed on the basis of the disease status and body weight of the patient, Nutritional support regimens should be tailored on the basis of the requirements, response, and tolerance of the patient. The fluid needs of patients are determined. Appropriate nutritional assessment after the initiation of therapy, prevention of overfeeding problems, and a gradual and conservative approach to instituting nutritional support should be used to prevent potential metabolic abnormalities.
PPE 018	Pharmacotherapy of Dermatological and Musculoskeletal Diseases	This course integrates the pathophysiology, causes, clinical presentation, diagnosis, construction of pharmaceutical care plans, the pharmacotherapy and management of most popular skin, and musculoskeletal disorders: drug induced dermatologic disorders
PP 019	Family Planning and Women's Health	This course integrates the pathophysiology, causes, clinical presentation, diagnosis, construction of pharmaceutical care plans, the pharmacotherapy and management of most popular skin, and musculoskeletal disorders: drug induced dermatologic disorders
PGP 020	Graduation Project	This course includes research project and e-portfolio. The e-portfolio serves as a learning tool for self-assessment, self-awareness and lifelong learning and supports evidence of competency defined by established performance standards.
	Summer Training	The aim of the summer training is to provide students with field practice to acquire professional and practical skills required in order to start their career proficiently as soon as they graduate. Also, it aims to gain experience in various fields including outpatient and inpatient prescribing practices, prescription problems, communication and counseling skills, preparation and dispensing of prescribed products, recommending over the counter products and pharmacy management, handling of cytotoxic drugs, laboratory data review, intravenous admixture, communicating with other healthcare providers and reporting of adverse drug reactions. The student will acquire experience in Good Manufacturing Practice (GMP) concepts in production processes, packaging and labelling, quality assurance measures during the manufacture process, quality control testing after production (pharmacopoeial and regulatory requirements) as well as research and development activities. Moreover, the students will learn to follow a systematic approach to address medication information needs via effective searching, retrieving, evaluation of the literature, appropriate communication and tailoring of the information to the patient care situation. Also, the summer training can cover designing of a clinical research, critical appraisal of scientific articles and research papers. Finally, the student will induce sales of pharmaceutical drugs through a variety of promotional strategies.

DISTRIBUTION OF COURSES PER SEMESTERS

The following represents the distribution of the study hours over 10 semesters.

BACHELOR OF PHARMACY (PharmD - CLINICAL PHARMACY) DEGREE

Level One (Fall Semester)

Course Title/Code		Brief Description of the Course
PD 101	Informational Technology	This course tends to provide students of all university's faculties with a brief introduction to the world of computers and the concept of information technology including: number systems and data representation, computer system components: hardware & software, storage and input/output systems, Operating systems and Utility Systems, software applications. Also, it gives an overview about computer networks and internet: data communication, transmission modes, transmission media, computer networks, internet protocol, and internet services. It practices some computer applications in the laboratory such as Internet Access, word processing and power point. It gives students a practical experience on developing projects related to the specialty of each faculty.
PC 101	Pharmaceutical Analytical Chemistry-I	This course includes basic information about qualitative inorganic analysis, such as different types of solutions, law of mass action, chemical equilibrium, equilibrium constants [e.g., Ionic product of water (KW), acidity constant (Ka), basicity constant (Kb), solubility product constant (KSP), instability constant (KINST.)], Le Chatelier principle, common ion effect, buffer solutions and amphoteric metals. Types of chemical reactions [e.g., neutralization, precipitation, complexation, and redox reactions]. How to write and balance different types of chemical equations. Systematic examination of individual ion (cation or anion) through chemical tests and how to carry out systematic separation and identification of their mixtures.
PC 102	Pharmaceutical Organic Chemistry-I	The objective of this course is to provide students with the basic knowledge in pharmaceutical organic chemistry, which will serve as fundamentals for other courses offered during subsequent semesters. This course involves Electronic structure of atom, alkanes [nomenclature, synthesis and reactions (free radical reactions)], and cycloalkanes. Alkenes, alkadienes and alkynes. Alkyl halides (nomenclature, preparation and chemical reactions (SN1, SN2, E1, E2). Arenes and aromatic compounds (Kekule structure, Huckel rule, Electrophilic aromatic substitution and orientation). In addition it covers Stereochemistry (Optical isomers, racemic modification and nomenclature of configurations).

Level One (Fall Semester)

Course Title/Code		Brief Description of the Course
PT 101	Pharmacy Orientation	This is a course to acquaint the beginning pharmacy student with the multiple aspects of the profession of pharmacy, including the mission of pharmacy, medications, prescriptions, different dosage forms and routes of administration. The course also comprises pharmacy education and pharmaceutical organizations, in addition to the history of pharmacy practice in various civilizations.
MS 101	Mathematics	This course represents an introduction of the students to functions and graphs, limits and continuity, differentiation, exponential, logarithmic, and trigonometric functions, integration, basic differential equations, functions of several variables and problems related to them, probability and random variables, and hypothesis testing.
MD 101	Anatomy & Histology	The aim of the course is to provide students with knowledge to identify and prepare a crude drug from the farm to the firm, acquire knowledge concerning dusting powders, plant cytology and physiology, as well as different classes of secondary metabolites, and the variability in occurrence of pharmacologically active substances in certain official medicinal plants according to their WHO monographs, they are introduced to certain drugs of botanical origin (leaves, bark and wood) and identify drug examples in their entire and powdered forms as well as their major constituents, folk uses.

Level One (Spring Semester)

Course Title/Code		Brief Description of the Course
PD 202	Human Rights and Fighting Corruption	This course examines the conceptual foundations of human rights, history of the field, the development of human rights framework and the multidisciplinary character of the field as an area of study. It covers in details the Universal Declaration on Human Rights, the International Covenant on Civil and Political Rights, the International Covenant on Economics, Social and Cultural Rights and all related agreements. It also touches on the state of Human Rights in Egypt and the Arab World.
PC 203	Pharmaceutical Analytical Chemistry II	This course deals with quantitative analysis of selected samples either individually or in mixtures. It includes; neutralization reactions in aqueous medium [acids & bases, pH, calculation of pH of different electrolytes, buffer solutions, detection of end point]. Complexation reactions (types of complexing agents, detection of end point, cyanometric, mercurimetric and EDTA titrations). Precipitation reactions [detection of end point, argentometric determinations (Mohr's method, Volhard's method, Fajan's method, Liebig's method)]. Oxidation - reduction reactions, Nernst equation, factors affecting oxidation potential, detection of end point, permanganometry, iodometry, iodimetry.
PC 204	Pharmaceutical Organic Chemistry-II	This course involves different classes of aliphatic and aromatic compounds: aryl halides, Alcohols, Phenols, ethers & epoxides, aldehydes, ketones, carboxylic acid & acid derivatives and polynuclear compounds. The course also aims at giving students knowledge about the mechanism of reactions of Heterocyclic compounds and upon successful completion of this course the students can differentiate most of the heterocyclic organic compounds.
PT 202	Physical Pharmacy	This course provides students with knowledge of physicochemical principles essential for the design of pharmaceutical products. Students are introduced to the fundamental concepts of states of matter, phase equilibrium, colligative properties, solubility, interfacial phenomena, surface active agents, adsorption and rheological behavior of dosage forms focusing on the theory behind phenomena and its application in pharmaceutical dosage form design.

Level One (Spring Semester)

Course Title/Code		Brief Description of the Course
PG 202	Pharmacognosy I	After completion of the course the student should have the knowledge and skills that enable him/her to differentiate between different organs of through their monographs. The course comprises the study of identification of different organs through their monographs: (fruits, flowers, seeds); including their active constituents and adulterants, describe micro- and macro-morphological characteristics, benefits and precautions of their medicinal uses, side effects and contraindications
MD 202	Medical Terminology	The course is an introduction to medical and pharmaceutical terminologies, medical abbreviations, medical idioms, suffixes and prefixes, medical terms pertaining to major body systems, including muscular system, skeletal system, respiratory system, cardiovascular system, digestive system, reproductive system, and urinary system
MD 203	Psychology	The course introduces different principles, theories and vocabulary of psychology as a science. The course also aims to provide students with basic concepts of social psychology, medical sociology and interpersonal communication which relate to the pharmacy practice system that involves patients, pharmacists, physicians, nurses and other health care professionals

Level Two (Fall Semester)

Course Title/Code		Brief Description of the Course
PM 301	General Microbiology and Immunology	The course covers the fundamental aspects of microbiology including: taxonomy, structure, physiology, growth, reproduction and genetics. Basic techniques for staining and identifying microorganisms are emphasized in the laboratory. Moreover, it introduces the basic concepts of medical immunology, with an emphasis on non-specific and specific immunity including antibody and cell-mediated immunity.
PT 303	Pharmaceutical Dosage Forms I	This course is a study of the system of measures, mathematical expertise, and pharmaceutical calculations required for pharmacy practice. It is also concerned with all manufacturing formulations aspects, packaging, storage, quality control tests and stability of liquid dosage forms including solutions (aqueous and non-aqueous), suspensions and colloids with emphasis on the technology and pharmaceutical rationale fundamental to their design and development. The incompatibilities occurring during dispensing are also considered.
PG 303	Pharmacognosy II	After completion of the course the student should have the knowledge and skills that enable the student to differentiate between different organs through their monographs: (herbs, subterranean organs, unorganized drugs in addition to drugs of marine and animal origin) including identification of their active constituent , macro-morphological characteristics, benefits and precautions of their medicinal uses, side effect , contraindications and to have an overview over their phytopharmaceuticals available on the market specially the Egyptian market
PB 301	Biochemistry-I	The course introduces the students to basics and fundamentals of Biochemistry. It includes an introduction on the biochemical macromolecules including proteins, porphyrins and enzymes as well as a description of energy metabolism, nucleic acids and flow of genetic information. Some regulations, pathophysiological relevance of biomolecules and their possible protective machineries were also covered

Level Two (Fall Semester)

Course Title/Code		Brief Description of the Course
MD 304	Physiology	The course is an introduction to normal structure and function of the body and major systems. The course covers body water, homeostasis, transport of materials, nervous systems, neuron structure and function (reflex arc), cardiovascular system, blood, respiratory cycle, gastrointestinal, reproductive, and renal systems, endocrine glands and body temperature regulation.
PP 301	Pharmaceutical Legislations and Practice Ethics	A detailed presentation of law that governs and affects the practice of pharmacy, legal principles for non-controlled and controlled prescriptions, opening new pharmacies, opening medical stores, opening factories, opening scientific offices, medicine registration, pharmacies and medicine stores management. Pharmacist duties and responsibilities, pharmacist-patient relationship, patient's rights and ethical principles and moral rules are also included.
PD 303	Scientific Writing & Communication skills	This course is designed to introduce students to the principles of good scientific writing, to be familiar with basic structure of scientific reports and research articles. It covers methods of paraphrasing, common mistakes in scientific writing, different writing styles, how to write a scientific report, proposal and manuscript, appropriate use of tables and figures in data presentation and evaluation of literature and information sources. The course will help students develop necessary written and oral communication and presentation skills to improve inter- and intra-professional collaboration and communication with patients and other health care providers.

Level Two (Spring Semester)

Course Title/Code		Brief Description of the Course
PM 402	Parasitology and Virology	This course includes two distinctive parts, the first part focus on the occurrence of human parasitic diseases with emphasis on diseases causing serious health problems in Egypt. It deals with human parasites including helminthology, protozoology and entomology concerning their morphological features, life cycle, pathogenesis, clinical manifestations, different diagnostic techniques, the most recent lines of treatment and prevention. The other part of the course provides students with the essential virology aspects to recognize the epidemiology, mechanisms of pathogenesis, clinical picture, methods of laboratory diagnosis, treatment, prevention and control measures of viral infections in human caused by different RNA and DNA viruses with emphasis on new emerging human viruses.
PT 404	Pharmaceutical Dosage Forms II	This course covers the topical and transdermal drug delivery systems including basic principles of diffusion through membranes along with factors affecting percutaneous absorption. It also describes the principles and techniques involved in the formulation, manufacturing, and quality control tests of emulsions, traditional dermatological semisolid dosage forms and different types of suppositories as molded solid preparations.
PG 404	Phytochemistry I	Based on complementary medicine and Egyptian medicinal plants that can be used as natural extracts, bioactive raw materials and phytochemical standards to serve the pharmaceuticals, cosmetics and food industries in Egypt. The course aims to give students the knowledge and skills that enable them to understand, describe and deal with the chemistry of volatile oils, resins, miscellaneous terpenoids, bitters and carbohydrates of plant or animal origin and different techniques used for their preparation, identification and determination

Level Two (Spring Semester)

Course Title/Code		Brief Description of the Course
PB 401	Pharmacology-I	The general principles of pharmacology are presented, such as pharmacokinetics, pharmacodynamics, receptor theory, drug interaction and principle of therapeutics. This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology to disease processes. This includes the pharmacological effects, clinical use and adverse effects of several drug classes linked to the basic parasympathetic and sympathetic systems, besides other peripheral linked disorders
PB 402	Biochemistry-II	The course covers macromolecular metabolic pathways, their interconversions and integration in well-fed and fasted states. It also covers different means of regulation of metabolism. The course enables the students to acquire efficient and accurate practical skills, providing them with brief knowledge on how to analyze different biochemical laboratory data and interpret their clinical significance.
MD 405	Pathology and Pathophysiology	The aim of this course is to provide the students with knowledge and skills for common diseases affecting body organs and system. It helps the student to understand the causes (etiology) of disease, the mechanisms of its development (pathogenesis) and the associated alterations of structure (morphologic changes) and function (clinical manifestations and complications) to be able to determine the most likely diagnosis of the disease

Level Three (Fall Semester)

Course Title/Code		Brief Description of the Course
PM 503	Pharmaceutical Microbiology	This course describes different methods for control of microbial growth in the field of pharmaceutical industry / hospitals. It includes different methods of sterilization, and validation of sterilization process. The course addresses classes and modes of action of chemotherapeutic agents and non-antibiotics antimicrobial agents including the new approaches to overcome bacterial resistance. The course includes microbiological evaluation of antibiotics and non-antibiotics. Laboratory procedures such sterility test and evaluation of antimicrobial effectiveness are also covered.
PC 505	Medicinal Chemistry I	The course includes the study of chemical structures, nomenclatures, interactions with the receptor binding sites (mechanism of action), structure activity relationships, synthesis and metabolic pathways of different chemical classes of various medicinal active agents which includes: Antibiotics, Anti-infective, Anthelmintics, Antifungal drugs, and others Chemotherapeutic agents. Finally, various anticancer therapies, and related drugs are also covered. The practical course is designed to expose the students to various synthetic and purification techniques in medicinal chemistry and methods of determination of drug substance, dosage forms and purity tests.
PT 505	Pharmaceutical Dosage Form III	The course introduces the students to the kinetics of drug degradation including rate and order of the reaction, factors affecting reaction kinetics, determination of the half-life, expiration date by different methods, prediction of product shelf-life, stability studies, degradation pathways and how to protect drugs in different pharmaceutical dosage forms. This course is also designed to provide the student with adequate knowledge on sterile dosage forms including parenteral and ophthalmic preparations, regarding principles of formulation, development, sterilization, packaging and quality control testing Principles for calculation and manipulation of parenteral and ophthalmic preparations.

Level Three (Fall Semester)

Course Title/Code		Brief Description of the Course
PG 505	Phytochemistry II	The course aims to enable students to demonstrate knowledge of basic concepts of chemistry and bioactivities of alkaloids, tannins and antioxidants as well as chromatographic techniques for their isolation and identification. The course emphasizes on drugs with valuable use in the Egyptian and worldwide markets, such as drugs affecting CNS, drugs ameliorating liver diseases and anti-inflammatory agents. Finally, the course focuses on the structure activity relationships (SAR) of these natural products derived compounds and their pharmacophoric features.
PO 502	Pharmacology II	This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology disease processes regarding drugs acting on cardiovascular systems and central nervous system related disorders. Drugs used in disorders of the gastro-intestinal tract are also included.
PP 502	Community Pharmacy Practice	The course provides students with competencies and knowledge for the provision of quality pharmaceutical care in a community pharmacy setting aiming at improving use of medicines and therapeutic outcomes. The course covers differentiation between minor and major ailments and responding to minor ailments with over-the-counter products including: upper respiratory tract, gastrointestinal, musculoskeletal, skin, eyes and ears. It also provides concepts of patient assessment and counseling, in community pharmacy and in outpatient care settings and introduces students to pharmaceutical care services for chronic-diseased outpatients and to psychosocial aspects in patient care. In addition, the course provides the students with competencies to promote the public health role of pharmacist including health promotion and disease prevention activities
MD 506	First Aid and Basic Life Support (BLS)	The course covers topics of basic life support and medical emergency of different emergency situations and how to deal with medical emergencies that required rapid interference.

Level Three (Spring Semester)

Course Title/Code		Brief Description of the Course
PC 606	Medicinal Chemistry-II	This course is tailored to assist the students to gain concrete knowledge about chemical structures, nomenclatures, interactions with the receptor binding sites (mechanism of action), structure activity relationships, synthesis and metabolic pathways of different chemical classes of various medicinal active agents which includes drugs affecting: the autonomic nervous system (ANS), cardiovascular system (CVS), central nervous system (CNS) and drugs affecting neurodegenerative disorders. Moreover, endocrine-related drugs (Diabetes,), antihistamines (H1, H2 blockers and anti-ulcer PPIs), drugs controlling pain and inflammation (NSAIDs) are also studied.
PT 606	Pharmaceutical dosage forms IV	The course includes an in-depth study covering the principles and techniques involved in the formulation, manufacturing and quality control testing of modified and controlled release solid dosage forms, in addition to studying aerosols and other inhalation products regarding their types, properties and applications.
PT 607	Pharmaceutical Technology	The course provides students with an introduction to industrial pharmacy. It deals with the principles of various unit operations such as particle size reduction and enlargement, powder and liquid mixing, heat transfer, evaporation, drying, distillation, filtration, centrifugation, crystallization and extraction. It focuses on the application of these unit operations in pharmaceutical industry. The course also introduces the student to layout of industrial firms, material for plant construction, environmental considerations, validation, and safety measurements in industrial factories.

Level Three (Spring Semester)

Course Title/Code		Brief Description of the Course
PO 603	Pharmacology III	This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology disease processes regarding drugs used in hyperlipidemia and hematologic disorders, involving anti-coagulants, anti-platelets, and fibrinolytic. Also, the chemotherapeutic drugs, including antimicrobials, anticancer and immunosuppressant are within the scope of the course. For these classes and drugs the mechanism of action, pharmacological effects, clinical use and adverse effects are described. Stem cell therapy is also included.
PP 603	Hospital Pharmacy Practice	Organization and structure of a hospital pharmacy, hospital pharmacy facilities and emphasize the role of hospital pharmacist in different services (inpatient and outpatient services), transfer of care, patient's medication record, and rational medication use, hospital formulary, pharmacy and therapeutic committee, I.V. admixtures and incompatibilities, enteral and parenteral nutrition, handling of cytotoxic drugs, therapeutic drug monitoring, patient counselling and safety, and risk management
PP 604	Clinical Pharmacy Practice	This course includes professional application of case history and case presentation, medication history taking, clinical problem solving, and therapeutic planning, clinical rounding and assessment of patient compliance, detection and management of drug-related problems.
PP 605	Pharmacotherapy: Infectious disease I	This course includes the definition and concepts of clinical pharmacy and pharmaceutical care. General concepts of antimicrobial drug selection, bacterial resistance and antimicrobial stewardship will be addressed and how antimicrobials differ from other drug classes in terms of their effects on individual patients as well as on society as a whole. Principles of management of different bacterial infections will be discussed in details (CNS infections, upper and lower respiratory infections, skin and soft tissue infections, urinary tract infections, gastrointestinal infections, intra-abdominal infections, etc).

Level Four (Fall Semester)

Course Title/Code		Brief Description of the Course
PM 704	Medical Microbiology	The course aims at studying microorganisms causing infectious disease of major public health significance in human. The etiology of infectious diseases, their clinical manifestations, route of transmission, treatment and techniques for detection and identification of pathogenic microorganisms are covered.
PT 708	Biopharmaceutics and Pharmacokinetics	This course aims to provide students with an understanding of the relation between the physicochemical properties of the drug and its fate in the body. The course prepares students for their evolving role in utilizing pharmacokinetics to guide formulation, dosage-regimen design and optimizing drug usage.
PT 709	Quality Control of Pharmaceuticals	This course is designed to let the student have the necessary knowledge about the inter-relationship between quality control, quality assurance and good manufacturing practice as well as the concept of process validation (prospective, retrospective, concurrent and revalidation). In addition, the course covers quality by design, pharmaceutical regulations according to FDA & EMA (European medicine agency), ISO, BSI and documentation.

Level Four (Fall Semester)

Course Title/Code		Brief Description of the Course
PO 704	Pharmacology IV	This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology disease processes regarding drugs related to the endocrine system. The course also covers the drugs used in renal disorders. The course covers also drugs used in dermatologic disorders
PP 706	Pharmacotherapy: Infectious disease II	Principles of management of superficial and invasive fungal infections will be addressed. Management of different viral and parasitic infections (Human immunodeficiency virus infection, cytomegalovirus, influenza, amebiasis, malaria etc). Definitions of vaccination and immunization and how to recommend an immunization schedule for a normal and immunocompromised child and adults based on comorbid conditions and lifestyle choices. In addition, evaluation of an adverse reaction and its probable association with a vaccine.
PP 707	Drug Information	This course includes an advanced application of the science of drug information in terms of: its practice within the drug information centers and various clinical sites. The course will focus on Drug information and poison information centers, different drug information resources, use of the internet for drug and research information, evaluating information on the web. The basic statistical concepts are detailed. Basics of pharmacoeconomic literature are described.

Level Four (Spring Semester)

Course Title/Code		Brief Description of the Course
PM 805	Public Health and Preventive Medicine	The course covers basic concepts and knowledge of public health necessary for health promotion and prevention of diseases, in addition to the components of health care systems in Egypt. Detailed information about all scientific disciplines required for health education and promotion directed to the community health are covered. The control of communicable, non-communicable diseases, improving mental, social, geriatric and family health is provided. The impact of environment on health and the relationship between health and environmental quality such as water, sewage disposal, etc. are provided. In addition to occupational hazards and proper intervention during disasters.
PO 805	Biostatistics	This course provides basic concepts of biostatistics and data analysis. It includes introduction to descriptive and inferential statistics, interpretation of estimates, confidence intervals and significance tests, elementary concepts of probability and sampling; binomial and normal distribution, basic concepts of hypothesis testing, estimation and confidence intervals, t-test and chi-square test, linear regression theory and the analysis of variance
PB 803	Clinical Biochemistry	The course aims to enable the student to acquire skills in order to analyse and interpret different biochemical and clinical data related to inborn errors of metabolism and to macromolecules abnormalities. The course emphasizes the clinical correlation of various biochemical results with the relevant pathophysiological conditions

Level Four (Spring Semester)

Course Title/Code		Brief Description of the Course
PP 808	Pharmacotherapy: Endocrine & Renal diseases	This course includes the pathophysiology, causes, clinical presentation, diagnosis and application of pharmaceutical care plans in different endocrinologic disorders (Diabetes, thyroid disorder, Cushing syndrome,...) and different renal disorders and related fluid and electrolyte disturbances (acid-base disorders, acute and chronic kidney disease, end stage renal failure and kidney stones). The course develops the students' ability to design, monitor, refine safe and cost-effective treatment plans and provide appropriate information to patient, caregivers, and health professionals
PP 809	Pharmacotherapy: Oncological Diseases and Radiopharmacy	This course develops the ability of the students to integrate cancer etiology, risk factors, cancer staging and grading, diagnosis, prognosis to optimize patients chemotherapeutic regimens for different types of tumors (solid and hematologic) and their management, toxicities of chemotherapy, supportive treatment, pharmaceutical care and patient's support measures. This course also includes studying radioactive isotopes, medical applications and precautions of their usage.
PP 810	Clinical Pharmacokinetics	This course provides an introduction to basic principles of pharmacokinetics and their application to the clinical setting. Clinical pharmacokinetic equations and calculations Single Intravenous bolus and oral kinetics, IV infusion, multiple IV bolus, short infusion & oral dosing, non-linear pharmacokinetics, pharmacokinetic models. Sources of variability in pharmacokinetics, dosage regimen and dosage adjustment in children, obese, elderly patients, Renal and Hepatic Disease, Dialysis, Heart Failure. Dosage individualization of drugs of narrow therapeutic index (aminoglycosides, vancomycin, digoxin, phenytoin, etc). Therapeutic drug monitoring and pharmacogenomics approaches are applied.

Level Five (Fall Semester)

Course Title/Code		Brief Description of the Course
PO 906	Fundamental & Clinical Toxicology	This course provides basics and concepts of toxicology, branches of toxicology, and types of toxic effects. The course covers the mechanism of toxicity, target organ(s) and target molecules of different classes of toxicants. Different methods of management and treatments of intoxications are also involved. The course covers various toxic groups including heavy metals, toxic gases, animal, plant and marine poisons, pesticides, as well as radiation hazards. Environmental, occupational, reproductive, genetic and developmental toxicology, as well as drug abuse are included. Postmortem sampling for detection of poisons, methods of detection, interpretation of results and writing of a report are also included.
PB 904	Clinical Nutrition	The course introduces students to basic concepts and fundamentals of clinical nutrition. It also emphasizes the application of up-to-date principles of nutrition under healthy conditions. It highlights the use of recent diet regimens for the prevention & management of different diseases.
PP 911	Pharmacotherapy: Neuropsychiatric diseases	This course aims to provide the student with the knowledge in, pathophysiology, clinical and laboratory interpretation, pharmacotherapy, patient counseling and management of neuropsychiatric disorders
PP 912	Pharmacotherapy: Cardiovascular diseases	This course includes the pathophysiology, causes, clinical presentation, diagnosis and application of pharmaceutical care plans in different diseases affecting the cardiovascular system, symptoms, laboratory investigation and interpretation, prognosis, pharmacological and non-pharmacological management, patient counseling and monitoring of dyslipidaemias, hypertension, coronary artery disease, acute coronary syndromes, heart failure, dysrhythmias, thromboembolic disorders, and stroke. Different types of blood disorders will be included.

Level Five (Fall Semester)

Course Title/Code		Brief Description of the Course
PD 904	Drug Marketing & Pharmacoeconomics	The objective of this course is to introduce students to the concepts, analyses, and activities that comprise marketing, management, and to provide practice in assessing and solving marketing problems. Topics include marketing strategy, customer behavior, segmentation, market research, product management, pricing, promotion, sales force management and competitive analysis. The course also focuses on basic concepts of health economics, learning basic terms of health economics and understand key principles. Topics cover the economic mechanisms of health care markets as market failures, and government intervention. The course covers the key components of health care financing, and some methods of how to contain health care expenditure. Alongside the major definitions in health technology assessment, students should have an overview about different types of economic evaluation, budget impact analysis and their uses. Moreover, students should get familiar with different methods of pricing among which value-based pricing.
PD 905	Entrepreneurship	This course is designed to enhance students' knowledge in leadership, business, and financial skills in pharmacy practice while learning the traits of an entrepreneur, current topics in entrepreneurship with a specific focus on pharmacy practice and patient care programs. This course will teach the participants a comprehensive set of critical skills needed to develop a profitable business project. The course is designed to acquaint students with the personal and business tools including risk-taking, strategic planning, marketing, competitiveness, and social responsibility to make the transition from the academic environment to the daily practice of pharmacy now and in the future, with an emphasis on entrepreneurship

Level Five (Spring Semester)

Course Title/Code		Brief Description of the Course
PP 013	Family Planning and Women health	This course introduces the students to identification of drugs that are considered safe and unsafe during pregnancy and lactation. Recommend, modify and individualize contraceptive regimens on the basis of estrogen- and progestin-related adverse effects or drug interactions. Construct a pharmacotherapeutic plan for appropriate contraceptive use and use of emergency contraception. Identify common menstrual disorders, infertility, hormone therapy in menopause and recommend appropriate pharmacotherapy.
PP 014	Pharmacotherapy: Critical Care Patients	This course aims to provide the student with the knowledge in: pathophysiology, clinical manifestation, laboratory investigation and interpretation, pharmacotherapy and management of critical care illness.
PP 015	Pharmacotherapy: Pediatric and Geriatric Diseases	This course will evaluate the pharmacotherapeutic regimens of older adults and pediatrics based on age-related pharmacokinetic and pharmacodynamic changes to support optimal risk and benefit of medications. Pharmacotherapeutic recommendations of age related diseases will be discussed (Nutritional requirements, nutritional disorders, infectious diseases in pediatrics, congenital heart diseases, endocrine, neurological, hematologic, renal, and respiratory disorders, pediatric emergencies).
PP 016	Pharmacotherapy: Dermatological, Venereal and Musculoskeletal Diseases	This course includes the pathophysiology, causes, clinical presentation, diagnosis, application of pharmaceutical care plans and the pharmacotherapy and management of most popular skin, venereal diseases and musculoskeletal disorders will be addressed.

Level Five (Spring Semester)

Course Title/Code		Brief Description of the Course
PP 017	Pharmacotherapy: Gastrointestinal Diseases	This course includes epidemiology, etiology, underlying pathophysiology, clinical manifestation, laboratory investigations and interpretation , pharmacologic and non-pharmacologic treatment, monitoring therapeutics of hepatic disorders including viral hepatitis, pancreatitis, gastrointestinal bleeding, peptic ulcer, gastro-esophageal reflux disease, inflammatory bowel diseases and irritable bowel syndrome as well as gastrointestinal symptoms including nausea, vomiting, constipation, and diarrhea.
PP 018	Pharmacotherapy: Respiratory Diseases	This course includes epidemiology, etiology, underlying pathophysiology, clinical manifestation, laboratory investigations and interpretation, pharmacologic and non-pharmacologic treatment, monitoring therapeutics, use of inhalers and patient counselling of respiratory disorders and associated symptoms
PP 019	Clinical Research, Pharmacovigilance and Pharmacoepidemiology	This course introduces the student to the basic principles of clinical research, design of research studies, types of research studies, clinical trials, statistical presentation of research data and ethical guidelines in drug research. This course also provides the students with understanding of pharmacovigilance importance, concept, processes, systems, global safety standards and regulations and reporting systems. The course will cover historical and legal background of pharmacoepidemiology and its study designs. In addition, application of pharmacoepidemiology principles and methods into practical drug issues focusing on retro- and prospective study design.

Elective Courses

Course Title/Code		Brief Description of the Course
PME 014	Biotechnology	The course aims to provide students with applications of biotechnology including fermentation technology, upstream and downstream processes, scaling up, production of metabolites and enzymes. Regulation of gene expression, production of recombinant proteins and other biotechnological products are covered. Recent molecular techniques and other applications of biotechnology such as biotransformation, bioremediation, etc. are also included.
PME 015	Infection and Immunity	The course deals with the study of mechanisms of microbial pathogenicity including both overt microbial factors and complex interactions with the host that produce symptoms of the disease. The cellular, biochemical, molecular, and genetic basis for modern understanding of microbial disease will be included. An in-depth study of the advanced topics in immunology, primarily focusing on the genetics, mechanisms, and regulation of the immune system will be covered. In addition, the immune response during a variety of disease conditions and immune chemistry will be discussed.
PCE 001	Applied Analytical Chemistry	This course includes, application of the previously studied techniques of analysis for Analysis of: Water to ensure that it is suitable for its intended use (Pharmaceutical water, industrial water and potable water), through its physical examination [its color, odor, taste, turbidity, electrical conductivity, pH] and chemical examination [its total solids, acidity, alkalinity, chloride , fluoride, hardness as well as gases(CO ₂ , Cl ₂ , O ₂ , H ₂ S)and different metals in addition to evaluation of water pollution through determination of O ₂ absorbed and dissolved, NO ₃ , NO ₂ , NH ₃ . Food & cosmetics: Student will be introduced to oils and fats concerning composition, physical and chemical examination for detection and determination of adulterants and suitability of lipid for human consumption. The course will also introduce the classification of cosmetics, types and analysis of its active ingredients, additives, preservatives, volatile and non-volatile materials, water content and nitrogen content.
PCE 002	Instrumental Analysis	Spectroscopic methods of analysis which include UV/VIS spectroscopy, principal, instrumentation, factors affecting absorption and applications in pharmaceutical analysis. Fluorimetric methods, principal instrumentation, factors affecting fluorescence intensity and applications in pharmaceutical analysis. Atomic spectroscopy; principal and instrumentation. Chromatographic methods for analytical chemistry which includes: TLC, gel chromatography, column chromatography, HPLC, UPLC, TLC, gas chromatography, capillary electrophoresis.

Elective Courses

Course Title/Code		Brief Description of the Course
PCE 003	Drug Design	The course is tailored to assist the students to gain concrete knowledge about the recent techniques used in drug design (based on computer-aided drug design, Molecular Modeling aspects, pharmacophore generation) and drug optimization process. The student will be able to understand the physicochemical properties of drugs in relation to biological action, drug receptor interactions, isosterism, drug metabolism and prodrug concept. In the practical course, the student will be able to deal with some computer aided drug design software.
PTE 004	Skin Care and Cosmetology	The course comprises the function of skin, hair and nails; their response to environmental, physiological and aging factors; cosmetic regulations pertaining to cosmetic product safety. Formulation of skin bleaches, sunscreens, antiperspirants, deodorants, anti-acne, masks, scrubs, cleansing products, shaving preparations, color cosmetics, nail polishes, shampoos and hair setting products as well as depilatories are included in this course. The course also deals with raw materials and possible side effects of the active and inactive cosmetic ingredients and formulations.
PTE 005	Radiopharmaceuticals	This course is designed to let the student familiar with fundamentals of radiopharmaceuticals with emphasis on production and application of radioisotopes in pharmacy, therapy, diagnosis and in research work. In addition, students will get acquainted with the methods of handling, disposal and protection from radiation and gain ability to conduct basic radiation dosimetry calculations and dose estimates.
PTE 006	Advanced Drug Delivery Systems	The course aims to provide students with insights and competencies related to the principles of pharmaceutical pre-formulation. The course also introduces the students to the formulation principles and applications of novel and targeted drug delivery systems for different routes by transforming proteins, genes, and other biotechnology driven compounds into therapeutic products. It also covers the application of polymers and excipients to solve problems/issues concerning the optimization of absorption, selective transport, and targeting. The course will also discuss and explain formulation, characterization and application of nanotechnology for enhancing drug delivery.

Elective Courses

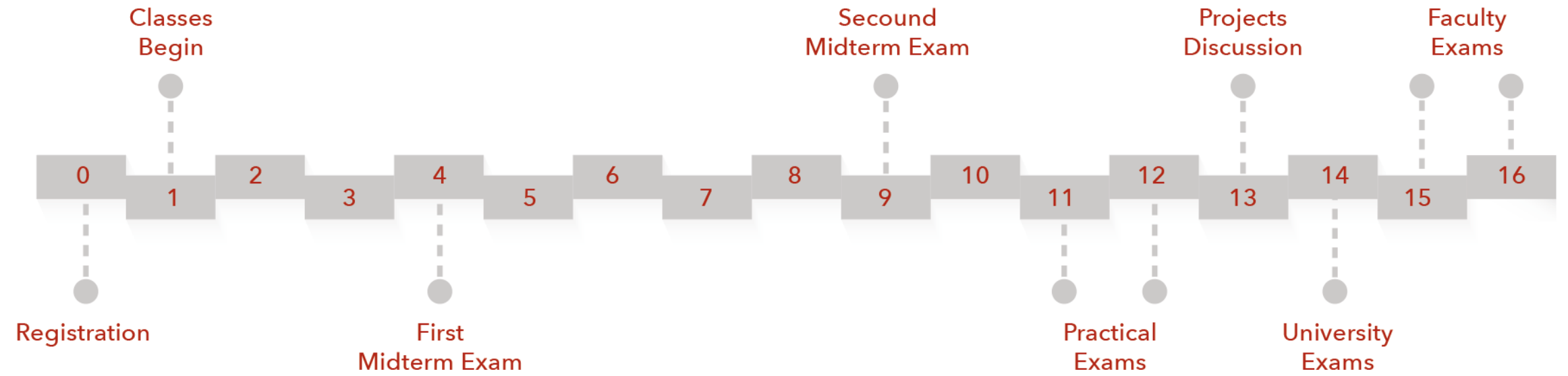
Course Title/Code		Brief Description of the Course
PG 905	Alternative & Complementary Medicine	Upon successful completion of this course, the student should understand the basis of complementary and alternative medicine with emphasis on herbal remedies, nutritional supplements, homeopathies, aromatherapy & their effect on maintaining optimum health and prevention of chronic diseases. It includes studying of medicinal plants portfolios in relation to Phyto-pharmaceuticals in Egyptian Market.
PGE 011	Marine Natural Products	After completion of the course, the students should have both the knowledge and skills that enable them to understand, describe and deal with the composition and bioactivity of sea water, the marine ecosystem and the classification of major phyla of marine organisms, the importance of marine drugs as leads for novel pharmaceuticals; the chemistry, bioactivity and/or toxicity of metabolites derived from marine organisms.
PGE 012	Forensic Pharmacognosy	The aim of this course is to provide the pharmacy student with sufficient knowledge concerning plants and their natural products that constitute health hazards, or intended for criminal uses to produce, abortion, loss of mental control, hallucination, heart arrest. It also includes the study of drug dependents, narcotics, analgesics psych energetics, euphoric. Mycotoxin as a serious threat to general health and safety of community, contamination of food material with poisonous fungi.
PGE 013	Industrialization of Medicinal Plants	The course deals with the different methods for cultivation of medicinal plants as well as quality control procedures and standardization of herbal pharmaceuticals. The course focuses on the potentialities of industrialization of medicinal and aromatic plants with emphasis on the production of standardized herbals and phyto-pharmaceuticals. Also, it covers the modern methods for production of active constituents of natural sources by tissue culture and precautions to be taken for the optimum yield
POE 007	Biological Standardization	Students will study the general principles of drug screening from simple one to more sophisticated programmed screening. These screening tests are crucial for drug evaluation and discovery. The course offers knowledge about an array of experimental models both in-vitro and in-vivo, which are required for the evaluation of a plethora of drug classes, as well as differential screening of some drug mixtures. The course presents also good knowledge of the biological standardization of a myriad of drugs

Elective Courses

Course Title/Code		Brief Description of the Course
POE 008	Substance Abuse	The course covers the neurochemical basis of drug dependence and how it affects the soft and hard use of many abused substances. The psychoactive effects of central acting drugs including depressant drugs such as opioids, sedative hypnotics (barbiturates, Benzodiazepines), alcohol, cannabinoids, as well as psychostimulant drugs, such as caffeine, cocaine and amphetamines. Besides, inhalants, hallucinogens and designer drugs are also an integral part of the curriculum. Recent trends in the management of dependence associated with the aforementioned classes of drug are also provided.
POE 009	Veterinary Pharmacology	This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology disease processes regarding veterinary drugs in the Egyptian field, and the use of specific drugs for treatment of diseased conditions caused by different infective agents with thorough information on the side effects, interactions and the hazards of veterinary drugs uses on environment and human health like drug residues. The veterinary medicinal products available in the Egyptian market will be also introduced.
PBE 010	Molecular Biology	The course enables students to develop a comprehensive understanding of the genome organization in prokaryotes and eukaryotes. The students gain further insight into mutation and its associated diseases. It outlines the recent advances and techniques in gene discovery and emphasizes the use of new molecular approaches for diagnosis of diseases as well as the application of gene manipulation in controlling different diseases
PPE 016	Medical Devices	The role of medical devices in healthcare is essential. The diversity and innovativeness of this sector contribute significantly to enhance the quality and efficacy of healthcare. Covering a wide range of products
PPE 017	Evidence- Based Medicine	This course teaches the principles of drug information and literature evaluation using the concepts of evidence based practice. Skills include identifying resources to answer clinical questions, developing search strategies, and critically evaluating scientific literature, applying the evidence in clinical practice, allowing students to identify, utilize the best evidence to make decisions regarding patient care and exploring

ACADEMIC CALENDAR

Each academic year in the college is divided into two main semesters, the duration of each semester is fifteen weeks. The student may study some of the courses in an optional summer semester of six weeks of intensive study.





FEES AND REGISTRATION FOR COURSES

For registration of courses, the students are asked to log in to the student's portal through the university website. To access the student's portal:

1. Click on the student's portal while logging into <https://www.fue.edu.eg> website.
2. Click on registration, agree, and continue.
3. Add the required subjects.
4. Choose the required students' group and save.
5. Wait for the academic advisor to confirm.
6. Print the account summary page to be used for payment

For any inquiries, please contact vice dean for education and student affairs office, Faculty of Pharmacy, FUE, New Cairo campus
N.B. University fees for newcomers are announced at the beginning of each academic year for the newcomers.

For tuition fees please visit:

https://www.fue.edu.eg/admissions/undergraduate_applicants/tuition_fees

STRATEGIES FOR TEACHING AND LEARNING

Teaching and learning are student-centered, profession-focused that lead to high quality professional practice. Teaching and learning activities are linked to the Core Competency Framework. Faculty's staff members use a variety of teaching and learning strategies to encourage active learning and the acquisition of learning outcomes using a blended education approach through synchronous and asynchronous teaching, self-learning, clinical/experiential education, problem solving, role play and summer training.



EXPERIENTIAL EDUCATION

Gaining diverse, meaningful experiences as a FUE student might be the most valuable part of our college education. Through Experiential Education at FUE, you will be exposed to a world of hands-on opportunities that enrich your academic life, while helping you reach your professional and personal goals. As part of FUE Experiential Learning, you can choose to conduct research with a faculty mentor, enroll in courses that take you far beyond the classroom, test drive your future career with an internship, give back to your community as a volunteer, or earn credits while studying abroad. Experiential Education coursework will contribute to your personal and professional development, as well as your ultimate career goals.

Experiential education was activated in the faculty through an agreement with Children's Cancer Hospital 57357 in Fall 2020 to develop clinical skills and apply what is being studied in the faculty. Within the framework of this agreement, parts of the practical courses were taught in the hospital for training on certain activities. Experiential education has been extended to the Faculty training factory as part of the practical course of the Quality Control & Assurance. Furthermore, students use medical applications such as Lexicomp in clinical pharmacy courses, Discovery Studio in Drug design courses, ChemBioDraw in chemistry courses, and Simulations Plus in Pharmaceutics and Pharmaceutical Technology course.

INTERPROFESSIONAL EDUCATION

Interprofessional education (IPE) is a collaborative pedagogical approach for preparing future healthcare practitioners to be effective team members in the healthcare system, to address growing and complex medical issues.

Now, FUE Pharmacy in collaboration with FUE Dentistry run IPE sessions for optimization of curriculum delivery and better understanding the real practice life.



ASSESSMENT STRATEGIES & EVIDENCE OF LEARNING

The faculty's staff members will foster student development through a variety of assessment measures and techniques. Both continuous formative and summative assessments to obtain a comprehensive image of the learning process including periodical exams, classroom assignments, projects, oral presentations, and self-learning activities, as well as final written and oral exams, graduation projects and students' portfolios. In addition to encouragement of students' capacity for self-assessment and evaluation of the effectiveness of the assessment strategies and grading practices through formative feedback loops.

EQUITY, DIVERSITY & INCLUSION

The Code of Ethics achieves the missions of the Faculty and its core value, the implementation of justice and impartiality on the basis of gender, race, disability, medical condition, citizenship status, social background, religious creed or any other protected classification in the recruitment, administration of educational programs and activities, hiring, compensation, training, placement, promotion, upgrading, transfer, suspension, expulsion, and termination. All practices are carried out in accordance with approved and declared standards. The Faculty provides the appropriate climate for scientific research, innovation, application of the governing rules, in addition to the preservation of intellectual property rights.



GRIEVANCES & COMPLAINTS

A committee was established to receive and deal with students' complaints, consisting of representatives from the scientific departments. An electronic page for grievances and complaints has been created through the student portal; the student decide to apply for grievances from exams or complaints and suggestions. The students are then updated with the actions done as a response to his complain. All staff members have access to the online complain system via staff portal. In addition to the open-door policy where students, faculty members, administrators and workers submit their complaints to the vice dean or the dean of the college directly to be resolved.

POLICIES & PROCEDURES

For policies and procedures for registration, transfer, attendance, ...etc. please visit the Student Guide at <https://fspci.fue.edu.eg/article.aspx?aid=2308&cid=0&wid=3>

DEPARTMENTS' SPECIALTY, COURSES AND EDUCATION PHILOSOPHY

1- Pharmaceutical Chemistry

Gaining diverse, meaningful experiences as a FUE student might be the most valuable part of our college education. Through Experiential Education at FUE, you will be exposed to a world of hands-on opportunities that enrich your academic life, while helping you reach your professional and personal goals. As part of FUE Experiential Learning, you can choose to conduct research with a faculty mentor, enroll in courses that take you far beyond the classroom, test drive your future career with an internship, give back to your community as a volunteer, or earn credits while studying abroad. Experiential Education coursework will contribute to your personal and professional development, as well as your ultimate career goals.

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2- Pharmaceutics and Pharmaceutical Technology

The Department of Pharmaceutics and Pharmaceutical Technology is responsible for teaching pharmaceutics, which covers all the theoretical and practical study of the physicochemical properties of the ingredients used in the formulation of dosage forms and the influence of these ingredients on their absorption and effectiveness. It is also responsible for the technique of designing various dosage forms, starting from solutions, going through suspension, emulsion, ointment, gel, cream reaching the solid dosage forms including tablets and capsules. Quality control tests and procedures used in determining their conformity to pharmacopeial specifications are also studied.

3- Pharmacology, Toxicology and Biochemistry

The department of Pharmacology, Toxicology and Biochemistry is divided into 2 sections:

- Pharmacology and Toxicology section
- Biochemistry section

The Pharmacology and Toxicology section offers courses in Pharmacology, Toxicology and Clinical Toxicology, Drug abuse and Biological Standardization of Drugs. The department also supervises introductory courses in anatomy and histology, physiology, medical terminology, and pharmaceutical biostatistics. The study programs aim to establish the basic aspects of drug actions starting by the anatomy and physiology of body systems and covering the pharmacological effects of drugs, their mechanism of action, their indications as well as their side and adverse effects. Furthermore, the toxic effects of different substances are thoroughly studied in addition to the management of intoxications.

The Biochemistry section offers courses in Biochemistry, Clinical Biochemistry, Molecular Biology and Clinical Nutrition. The students study the properties and functions of different biomolecules and macromolecular pathways in the body with highlights on the clinical aspects and applications of biochemistry. Additionally, the department introduces the concepts of Clinical Nutrition and the basic principles of Molecular Biology.



4- Microbiology and Immunology

The study of microbes has been critical in our current understanding of basic biological processes. It is also contributed to numerous aspects of pharmacy education. Microbiology involves the study of microorganisms and their role at the molecular level in the pathogenesis of infectious diseases. Treatment and control of these diseases necessitate pharmacists to be trained in the area of antimicrobial agents, their mechanism of action, genetic factors that determine resistance and assessment. Immunology involves the study of the immune response to infectious microorganisms as well as the immune response to alter self. Production of pharmaceuticals requires pharmacists to have an insight on microbiological control, aseptic, sterilization, and validation methods. The impact of microbiology on fermentation industry development, and biotechnology products such as antibiotics, pharmaceutical proteins, monoclonal antibodies and vaccines is well documented.

5- Pharmacognosy and Medicinal Plants

Pharmacognosy is the oldest medical science, and it is the study (chemistry and biology) of bioactive natural substances found in terrestrial and marine organisms (plants, animals, or microbes). Pharmacognosy includes aspects of cell and molecular biology in relation to natural products, ethnobotany and phytotherapy, in addition to the more traditional analytical method development and phytochemistry. Renewed interest in natural products research is highly motivated by the health claims for nutraceuticals, the validation of traditional medicines and the widespread use of phytotherapeutics.

6- Pharmacy Practice and Clinical Pharmacy

The Department of Pharmacy Practice and Clinical Pharmacy offers several courses to introduce the student to clinical pharmacy practice, develop skills integrated with knowledge which enables students to improve their practice of pharmacy. Students will be equipped to promote, develop, and assess pharmacy practice within their profession, which will be of direct benefit to the health services and to the patients they serve.



FACILITIES

Faculty of Pharmacy at FUE operates small and large classrooms with state-of-the-art technology. The student practice laboratories are technologically advanced pharmacies that provide simulated practice setups. Other facilities in the faculty include 22 laboratories that serve different departments for undergraduates and five research laboratories.

Lecture Halls

The faculty building is designed and constructed to accommodate all the lecture halls. Laboratories highly equipped with updated devices necessary for advanced teaching methods. Large lecture halls each with a capacity of 200 Students are fully equipped with Computers, Data Show, Smart Interactive Board and Audio Systems. Eighty-seat halls are also available for small groups. All lecture halls and classrooms are air-conditioned.

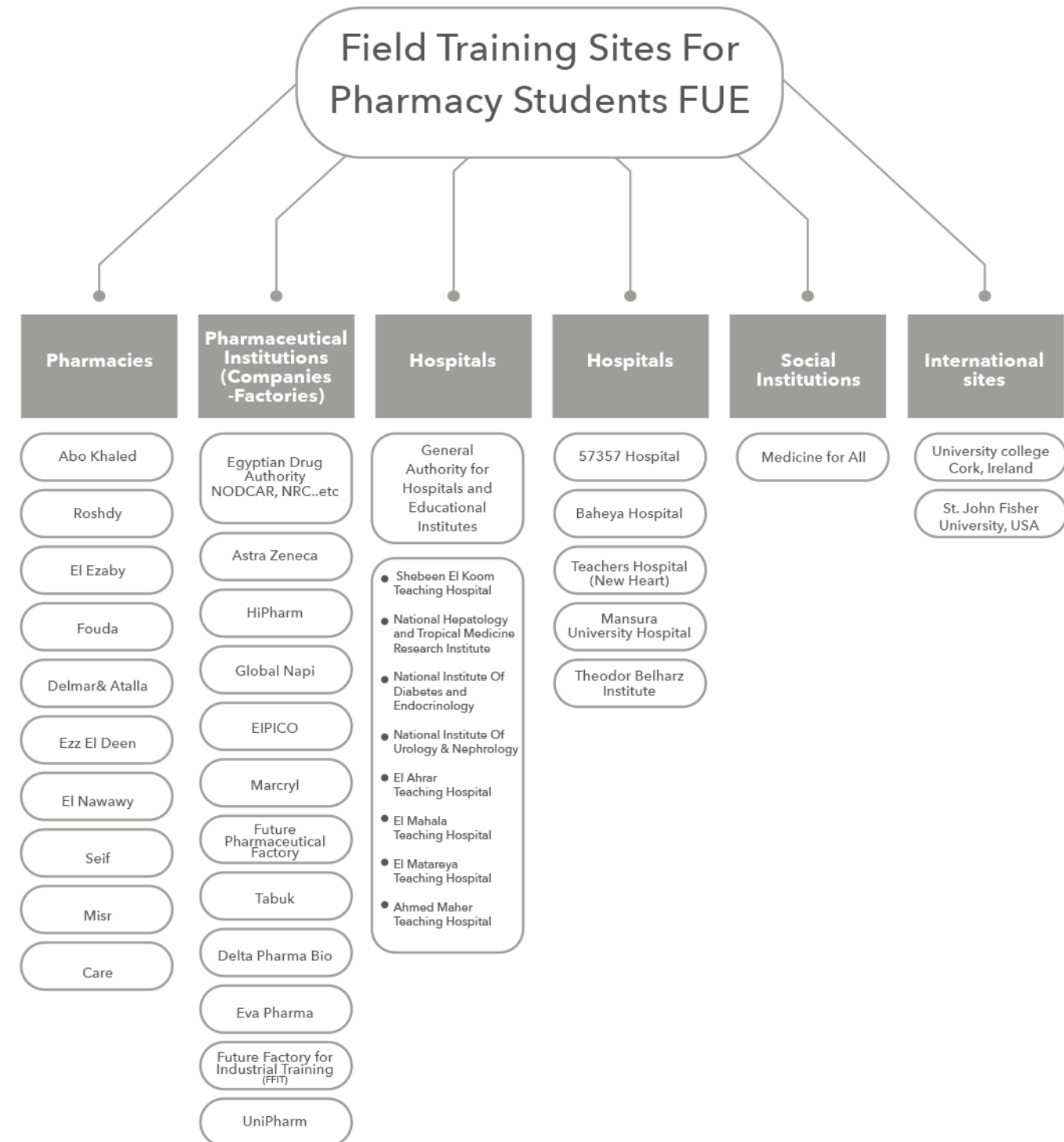
Customized Laboratories

total of 22 Laboratories are available for advanced training in all areas of pharmaceutical sciences and pharmaceutical industries. The labs are equipped with the latest equipment for:

- Pharmaceutical Chemistry (6 Laboratories)
- Pharmaceutics and Pharmaceutical Technology (4 Laboratories)
- Pharmacology, Toxicology and Biochemistry (4 Laboratories)
- Microbiology and Immunology (2 Laboratories + 2 Pharmacognosy Laboratories)
- Pharmacognosy & Medicinal Plants (2 Laboratories + 2 Microbiology Laboratories)
- Pharmacy Practice and Clinical Pharmacy (4 Pharmacies simulated setups)

TRAINING

To implement our mission of providing excellent graduates to meet the pharmaceutical market needs, FUE organizes the training program for students in number of reputable national and multinational organizations serving different areas of the pharmaceutical industry.





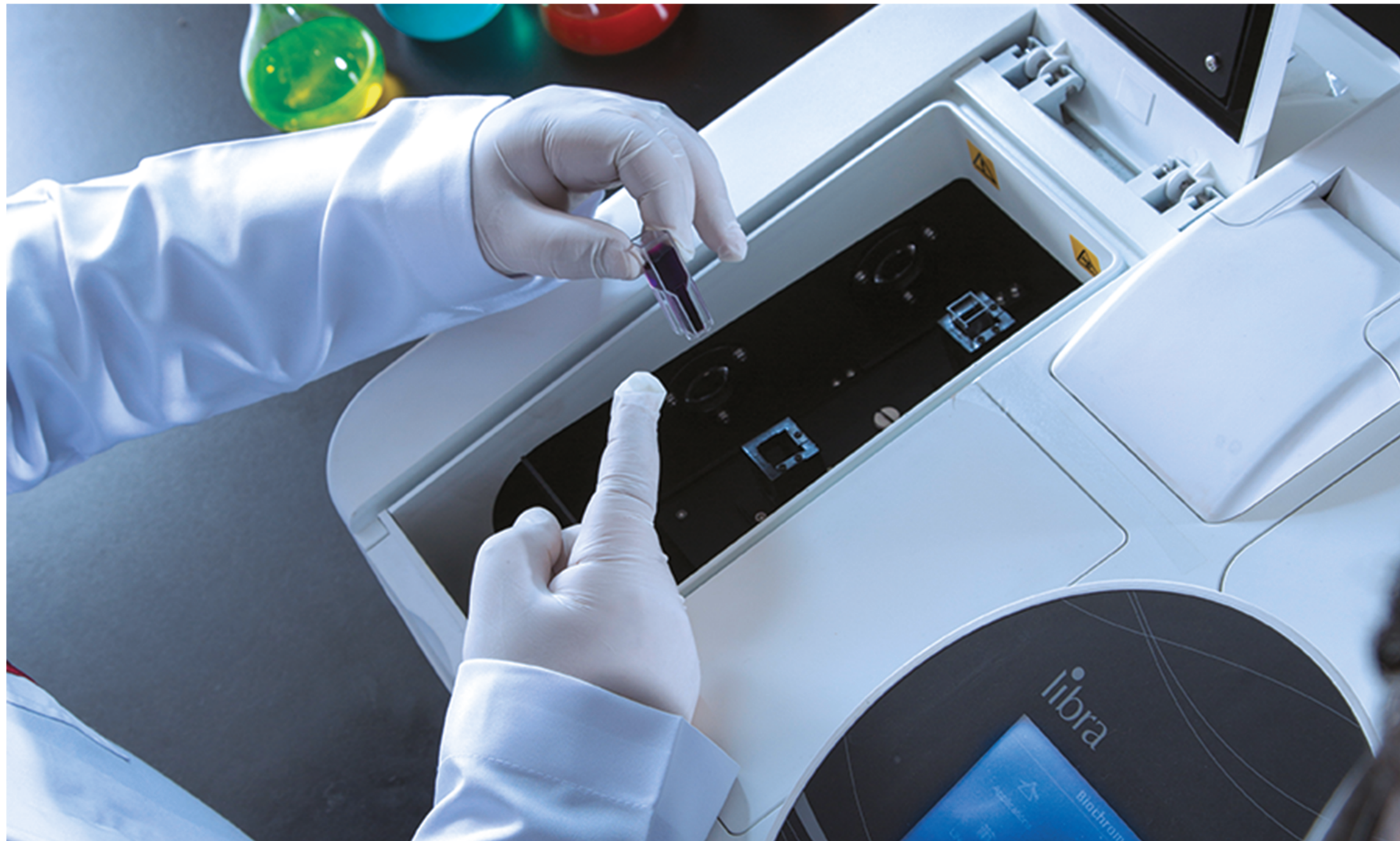
RESEARCHES

Research conduction, following the faculty research plan objectives, is of an extremely high priority to the Faculty and takes place alongside teaching process. The Faculty has already developed a significant investment in facilities and devices, through establishing five fully equipped research laboratories and Future University Pharmaceutical factory that are available for teaching assistants and staff members to undertake research projects. Our Faculty adopts the interdisciplinary research approach and encourages the departments to go through in order to cope with the latest pharmaceutical advances worldwide. Moreover, FUE encourages and offers opportunities for students training and postgrad studies with its partner International Universities, UCC as well as other universities in USA, Sweden and Germany.

Research Laboratories

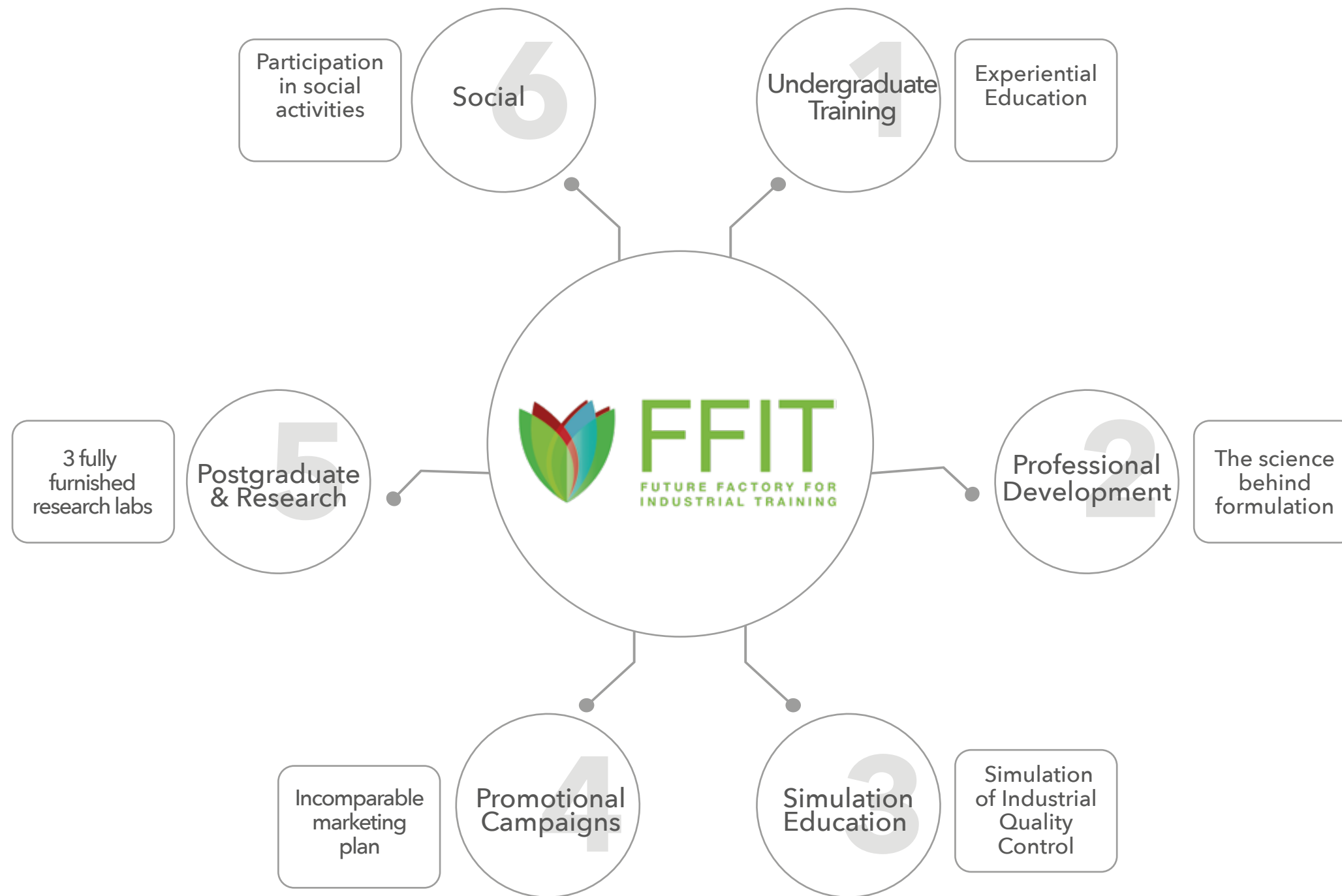
Faculty research laboratories strive to produce the highest levels of pharmaceutical knowledge through research and teaching integration in all facets of the drug development process. It is keen on working collaboratively with national and international institution to conduct original research that can lead to new active agents (natural and synthetic molecules, plant extracts, or bioactive fractions) and formulations including antitumor, cancer- chemo preventives, immunomodulatory, antiviral, antifungal an antimicrobial agent.

The research laboratories are fully equipped with the most advanced research devices such as: Auto Sampling Dissolution System, Auto sampling Diffusion System, ZetaSizer, Nano spray dryer, Freeze Dryer, Ultra-Performance Liquid Chromatography (UPLC), Spectrophotometer, Ultra Low Temp. Freezer (-80 degree), Electrophoresis System GT Gel Casting Sub-Cell® GT Power Pac Basic, PCR - Real Time, PCR Thermal Cycler T100, Shaking Incubator, Rotavapor and Laminar Flow. In addition to some auxiliary devices including Auto Clave, Micro Centrifuge, Homogenizer, Tablet Hardness Tester, Incubator - CO2 Cell, Inverted Microscope, Sensitive Balance, Vortex, Sonicator.



FUTURE FACTORY FOR INDUSTRIAL TRAINING (FFIT)

Future Factory for Industrial Training (FFIT) is an educational factory, aims to provide the medical and pharmaceutical communities with highly qualified and well complement graduates through conducting both curricular (simulation education, students' projects, and summer training) and extracurricular training courses in the field of industrial pharmacy. FFIT also contains research units equipped with high quality machines and devices to support postgraduates to process and conduct research especially with other University faculties. In addition, FFIT participates remarkably in the FUE social accountability through supporting the medical and promotional awareness campaigns during both the national and international events as well as through the collaboration protocols with the different industrial and non-industrial institutions.



Products List

Lotion Bar
Cold soap
Lip Balm
Bath Bombs
Hand Gel
Teething Gel
Rubbing Gel
Hair Gel
Cream shampoo
Hand cream
Surface Disinfectant
Foaming Shower
Mouth Wash
Glycerin soap

Body scrub
Night cream
Day Cream
Body Butter
Deodorant Roll-On
Foot cream
Hair shampoo
Hair conditioner
Lip gloss
Multi-purpose cleanser
Wood furniture cleanser
Glass cleanser
Air freshener
Dish-washing soap

Shimmering lotion
Sunscreen lotion
Whitening cream
Makeup remover
cream
Body mist

Charcoal Body scrub
Charcoal soap
Hand sanitizing
solution (WHO)
Surface sanitizer

Insect repellent gel

Charcoal Toothpaste
Charcoal Face Mask
Nail-polish remover
Scented Candles
Fabric Softener



POST GRADUATE STUDIES

In 2015 the faculty received approval from the Supreme Council of Higher Education to the Postgraduate bylaw which includes eight Master degrees in all fields of Pharmaceutical Sciences as follows:

- MSc. in Medicinal Chemistry
- MSc. in Pharmaceutical Analytical Chemistry
- MSc. in Pharmaceutics and Pharmaceutical Technology
- MSc. in Pharmacology and Toxicology
- MSc. in Biochemistry
- MSc. in Pharmacognosy
- MSc. in Microbiology and Immunology
- MSc. in Pharmacy Practice and Clinical Pharmacy

Also, in 2021 the faculty received approval from the Supreme Council of Higher Education to PhD Degree in Pharmaceutics and Pharmaceutical Technology and Diploma Degree in Pharmacovigilance.



INTERNATIONAL AGREEMENTS AND PARTNERSHIPS

University College Cork, Ireland

The School of Pharmacy, University College Cork (UCC), signed an academic collaboration agreement with Future University in Egypt during their academic team visit to FUE Campus on March 2014. According to this agreement, UCC supported FUE in the delivery of a five-year Pharmacy degree program. The terms of the cooperation agreement enabled FUE to deliver an enhanced program based on the UCC B. Pharm curriculum with appropriate mentoring and support from UCC. Thus, the cooperation agreement is a first step leading to enhance the international standing of FUE current pharmacy program, particularly in the areas of clinical pharmacy and pharmacy practice reflecting the best practices of Pharmacy in Europe.



**St. John Fisher College,
Wegmans School of Pharmacy, USA**

The Wegmans School of Pharmacy (WSoP), Saint John Fisher College and the Faculty of Pharmacy at Future University in Egypt (FUE) signed a memorandum of understanding (MoU) in 2017. According to this agreement, WSoP and FUE promoted and developed collaborative research programs, academic and cultural exchange programs, and other cooperative activities.



Kumamoto University, Japan

Kumamoto University (KU) signed an academic collaboration agreement with Future University in Egypt in January 2019. According to this agreement, KU and FUE have started the promotion and development of collaborative research programs, academic and cultural exchange programs and other cooperative activities and assistance in areas of mutual interest and benefit.



NATIONAL PARTNERSHIPS AND AGREEMENTS

Based on the Future University's role in developing experiential education collaboration protocols have been concluded with eminent bodies and institutions including:

- Egyptian Drug Authority (EDA)
- Hospitals as:
 - Children Cancer Hospital Egypt 57357
 - New Heart (Teachers Hospital)
 - Baheya Foundation for Early Detection and Treatment of Women's Breast Cancer
 - General Organization for Teaching Hospitals & Institutes that include:
 - * Shebeen El Koom Teaching Hospital
 - * National Hepatology and Tropical Medicine Research Institute
 - * National Institute of Diabetes and Endocrinology
 - * National Institute of Urology and Nephrology
 - * El Ahrar Teaching Hospital
 - * El Mahala Teaching Hospital
 - * El Matareya Teaching Hospital
 - * Ahmed Maher Teaching Hospital
- Pharmaceutical Factories as:
 - * Mepaco - Arab Co. For Pharmaceuticals & Medicinal Plant
 - * Future Factory for Industrial training (FFIT)
- Community Pharmacies

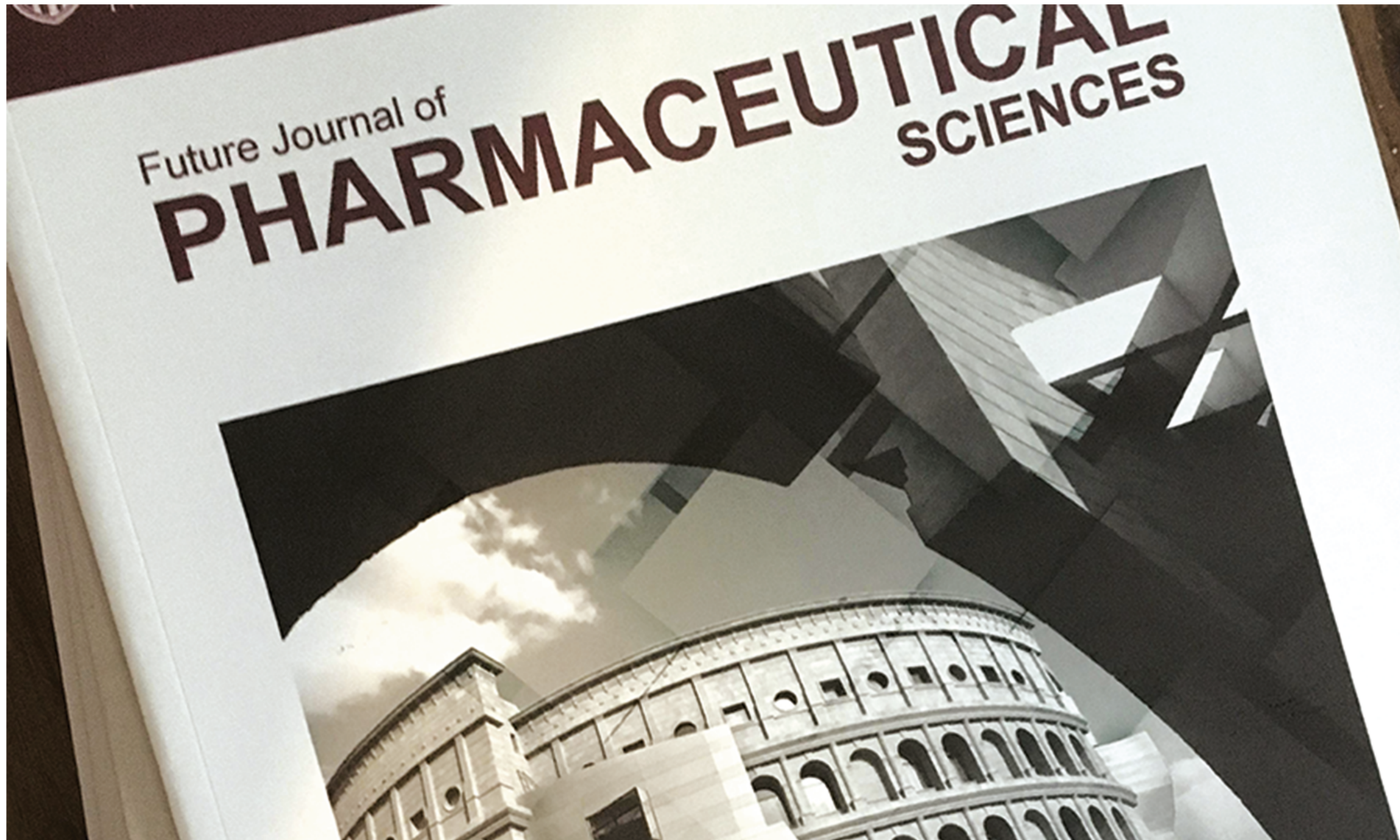
In the framework of the collaboration protocols, students are offered unique and enriching training opportunities with hands on real situations and up-to-date, state-of-the-art techniques aiming at a strong career development. This training is organized by professionals in the field to improve student competencies in aspects of knowledge, attitudes and skills.

Furthermore, Future University strives to achieve remarkable contribution to the benefit of the society through its community services and environmental development. In this context, collaboration with "Medicine for All foundation", allow students tremendous opportunities to participate in charitable activities such as medical caravans to rural areas and awareness campaigns during which the students are trained to deal with the public and patients in a supervised environment.



CONFERENCES AND WORKSHOPS

FUE international conference of pharmaceutical sciences
Future University held international conferences every two years that host different national and international speakers and attract more than 750 participants each time. The scope of the conferences covers the interests of all expertise related to the field of Pharmacy starting from the Pharmacy education and assuring quality going through practice supported by research and science in all related basic and applied sciences.



FACULTY INTERNATIONAL JOURNAL

Future Journal of Pharmaceutical Sciences (FJPS)

FJPS (Future Journal of Pharmaceutical Sciences) is a peer-reviewed, open access journal and considered the official journal of the Future University in Egypt. It started in June 2015 where the Journal was published by the International Publisher Elsevier.

In April 2019, the Journal has been transferred to the International Publisher Springer Nature.

All manuscripts are published online on the journal official website at <https://fjps.springeropen.com>

It publishes original research articles, review articles and case studies on all aspects of pharmaceutical sciences and technologies, pharmacy practice and related clinical aspects, and pharmacy education.



Student Life Department

The Student Life Department at Future University in Egypt offer student support, advice and guidance for national and international students on activities, social work, disability issues and social counseling. In addition, we offer information and guidance concerning the student union and cultural services such as music, playing instruments, drama, acting, choir courses, various clubs and other organizations (Please visit <https://studentlife.fue.edu.eg/#>).

Student Life Department

The Artistic Section: Fine Arts Workshop & Clubs
The Fine Arts Workshop is an annual event led by renowned artists. The purpose of the workshop is to enrich student talent through professional guidance.

The Cultural Section
The Cultural Section is the gateway to acting, screenplay writing, choir and playing musical instruments. The University provides training by professional directors, facilities and the space needed for practicing. The Section includes the following clubs: Theater Club - Standup Comedy Club - Modern Dance Club - Music Lovers Club - Jazz Club - Debate Club – Choir.

The Sports Section
The Athletics teams and clubs include both individual and team sports. Individual sports comprise: Running, Boxing, Body Building, Gymnastics, Karate, Taekwondo, Speedball, Swimming, Athletics, Table-Tennis, Fencing, Chess and PlayStation; team sports include Relay, Futsal, Football, Volleyball, Basketball and Handball. Students also can join FUE energy Gym.

Social Work Section
Charity work - Environmental awareness - Trips in Egypt and abroad - Festivals celebrating different national occasions - Seminars to discuss various topics.

Community Service Section
Community Service can help any group of people in need: children, senior citizens, and people with disabilities. It can also help animals, such as those at a shelter, and it can be used to improve places, such as a local park, historic building, or scenic area as well. Community Service may take place in several fields such as: Healthcare, Social Work, Culture and Fine Arts.

Student Union Body
Student Union is closely involved in the work of Student Life Department. Structurally, Student Union, headed by a leader, comprises several committees. What follows is a briefing on each of the committees: Student Clubs Committee - Sports Activities Committee - Cultural Committee - Artistic Committee - Scouting and Public Services Committee - Trips and Student Services Committee - Scientific and Technological Activities.

EGYPTIAN PHARMACEUTICAL STUDENTS' FEDERATION (EPSF) AT FUTURE UNIVERSITY IN EGYPT (FUE) Faculty of Pharmacy works under supervision of the Egyptian Pharmacists Syndicate and Egyptian Pharmaceutical association to promote improved public health through provision of information, education, networking, and a range of publication and professional activities (Please visit <https://fpspi.fue.edu.eg/egyptianpharmaceuticalstudentsfederationepsfatfutureuniversityinegypt>).

For More Information, Please Visit Our Website:
<https://www.fue.edu.eg/>

Important Links:

- Student Guide:
<https://fpsi.fue.edu.eg/article.aspx?aid=2308&cid=0&wid=3>
- Faculty Conduct & Ethics Code:
<https://fpsi.fue.edu.eg/article.aspx?aid=2307&cid=0&wid=3>
- Academic calendars:
<https://www.fue.edu.eg/Calendar.aspx>
- **The Programs Offered By Our Faculty, Curriculum & Courses:**
 - Bachelor of Pharmacy (PharmD) Degree:
<https://fpsi.fue.edu.eg/CourseList.aspx?FId=93&WID=3>
 - Bachelor of Pharmacy (PharmD-Clinical Pharmacy) Degree:
<https://fpsi.fue.edu.eg/CourseList.aspx?FId=94&WID=3>
- Experiential learning:
<https://fpsi.fue.edu.eg/article.aspx?AID=5000&CID=3439&WID=3>
- Advising guide:
<https://fpsi.fue.edu.eg/article.aspx?aid=2308&cid=0&wid=3>
- Medical care and clinic:
https://www.fue.edu.eg/facilities/medical_care_and_clinic
- Information about postgraduate education:
<https://pharmacypostgrad.fue.edu.eg/>
- Quality Assurance:
<https://fpsi.fue.edu.eg/pharmacyqualityassurance>
- Future University in Egypt facilities overview:
<https://www.fue.edu.eg/facilities>
- News for Faculty of Pharmacy, Future University in Egypt:
<https://fpsi.fue.edu.eg/News.aspx?WID=3>



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